



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486
Phone: 901-322-8180

December 13, 2016

Mr. C.T. "Skip" Miller
Executive Director
Louisville Regional Airport Authority
PO Box 9129
Louisville, KY 40209

Dear Mr. Miller:

**RE: Area Safety Program – Finding of No Significant Impact/Record of Decision
Bowman Field (LOU), Louisville, KY**

The Federal Aviation Administration (FAA) Memphis Airports District Office has reviewed the Final Environmental Assessment for the Area Safety Program for Bowman Field (LOU) in Louisville, KY. Based on our review, the document supports a Finding of No Significant Impact (FONSI)/Record of Decision (ROD). The FONSI/ROD is attached for your records. Please note the FAA will issue a Federal Register Notice for the FONSI/ROD.

If you have any questions related to this environmental review, please contact me at (901) 322-8181.

Sincerely,

Phillip J. Braden
Manager, Memphis Airports District Office



**Department of Transportation
Federal Aviation Administration**

**FINDING OF NO SIGNIFICANT IMPACT
and
RECORD OF DECISION**

**Airport Area Safety Program at Bowman Field Airport
Louisville, Jefferson County, Kentucky
December 2016**

**Memphis Airports District Office
Memphis, Tennessee**

I. INTRODUCTION / BACKGROUND

In compliance with the *National Environmental Policy Act* (NEPA), Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and Federal Aviation Administration (FAA) Orders 1050.1E¹ and 5050.4B, this Finding of No Significant Impact (FONSI) and Record of Decision (ROD) announces final agency determinations and approvals for those Federal actions by the Federal Aviation Administration (FAA) that are necessary to support implementation of the Airport Area Safety Program at the Bowman Field Airport (LOU) in Louisville, Kentucky. The project elements of the Airport Area Safety Program are described below in Section II, Proposed Action. The airport sponsor for the project is the Louisville Regional Airport Authority (LRAA). The agency decision is based on information contained in the *Environmental Assessment for the Airport Area Safety Program*, December 2016 (EA), incorporated by reference herein, and all other applicable documents available to the agency.

II. PROPOSED ACTION

The Sponsor has requested FAA Airport Improvement Program (AIP) financial assistance to implement the Airport Area Safety Program. This request for Federal assistance is referred to as "the proposed Federal action." The Proposed Action is graphically depicted in Appendix A, Exhibit 4 of the EA. Specifically, the Proposed Action will:

1. Acquire 44 property easements to authorize the LRAA to trim and/or replace approximately 104 trees that penetrate, or are within ten feet of penetrating, approach surfaces, as defined in Federal Aviation Regulation (FAR) Part 77, and/or Terminal Instrument Procedures (TERPS), as covered in FAA Order 8260.3C, associated with LOU. The determination to trim and/or replace trees would be left to the property owner. Trees that are trimmed would be trimmed by professional arborist and would be trimmed in a manner that would preclude the trees from penetrating approach and/or TERPS surfaces. Trees that are replaced would be replaced at a 2:1 ratio (planting of two new trees for every tree removed). The tree being removed would be cut no more than six inches below ground level. Tree roots would remain in place.
2. Trim and/or replace trees that penetrate, or are within ten feet of penetrating, approach and/or TERPS surfaces associated with LOU at Seneca Park. Trees that are trimmed would be trimmed by a professional arborist and would be cropped in a manner that would preclude the trees from penetrating approach and TERPS surfaces. Trees that are replaced would be replaced at a 2:1 ratio (planting of two new trees for every tree removed). The tree being removed would be cut no more than six inches below ground level. Tree roots would remain in place.
3. Continued maintenance (trimming and/or replacement) of trees every five years to ensure the trees in easement areas do not penetrate approach and TERPS surfaces.

¹ The original EA began in 2013, well prior to the issuance of FAA Order 1050.1F in July 16, 2015. Section 1-9 of FAA Order 1050.1F provides that, "[t]he procedures in this Order apply to the extent practicable to ongoing activities and environmental documents begun before the effective date. However, procedures contained in this Order should not apply to ongoing environmental reviews where substantial revisions to ongoing environmental documents would be required." Given the substantial analysis that was completed on the EA prior to the issuance of Order 1050.1F, the FAA has determined that continued application of FAA order 1050.1E is appropriate.

III. PURPOSE AND NEED

As covered in Section 1.4 of the EA, the Sponsor has defined the purpose and need for implementing the Proposed Action as being necessary to provide a safe, efficient, viable and usable airfield at LOU while serving their current fleet mix and complying with FAR 77 regulations and TERPS standards. In addition, the purpose is to preserve the existing airfield geometry and re-establish the nighttime instrument approach procedures and therefore restore the airport conditions present in 2012.

IV. ALTERNATIVES

Federal guidelines concerning the environmental review process require that all reasonable and practicable alternatives that might accomplish the objectives of a proposed project be identified and evaluated. Such an examination ensures that an alternative that addresses the project's purpose and that might enhance environmental quality, or have a less detrimental effect, has not been prematurely dismissed from consideration. Reasonable and practicable alternatives for the Proposed Action were carefully examined in Section 2.2 of the EA. Six alternatives were initially considered:

1. Alternative 1: This alternative involves the acquisition of aviation easements for the trimming and/or replacement of individual trees that have or may become an obstruction to the approach and/or TERPS surfaces to Runways 6, 15, 24, and 33. This alternative is described in more detail in Section II, above, Proposed Action. This alternative is graphically depicted in Appendix A, Exhibit 4.
2. Alternative 2: The alternative involves the acquisition of easements and lighting obstructions to Runways 6, 15, 24, and 33. This alternative would require that a lighted pole be installed adjacent to each tree identified as penetrating or within ten feet of the approach or TERPS surfaces. Approximately 81 lights would be required to mitigate the airspace obstructions. Since these trees are located on non-airport property, both an aviation easement and permanent utility easement would be required to allow for the installation and maintenance of the lights. The installation of lights would also involve further tree clearing to accommodate the connection of power lines to the light fixtures. This alternative is graphically depicted in Appendix A, Exhibit 5.
3. Alternative 3: Alternative 3 involves constructing a new north/south runway and extending Runway 15 to the northwest. The new runway would be 4,357 feet in length and 75 feet in width. Under this alternative Runway 6-24 would be removed. Runway 15-33 would be extended 1,200 feet to the northwest making it 3,579 feet in length. This alternative would also include the relocation of public roads, airport access roads, airport buildings, and connector taxiways. To accommodate the new runway and runway extension, several properties would have to be acquired including Seneca Park, several commercial properties, and a portion of Hawthorne Estates. Once the property was acquired, buildings, trees, and landscaping would be removed. The acquisition of Hawthorne Estates would also require additional tree trimming and/or replacement. Two segments of the Middle Fork of Beargrass Creek would be realigned under this

alternative. Alternative 3 is illustrated in Appendix A, Exhibit 6.

4. Alternative 4: Alternative 4 consists of extending Runway 24 to the northeast and Runway 15 to the northwest. Runway 24 would be extended 950 feet making Runway 6-24 4,357 feet in length and 75 feet in width. Runway 15 would be extended 1,200 feet which would bring Runway 15-33 to a length of 3,579 with a width of 75 feet. The change in airport geometry would require the relocation of on-airport access roads and connector taxiways. Under this alternative, both Seneca Park and Big Springs Country Club would be acquired by LRAA. Once the property was acquired, buildings, trees, and landscaping would be removed. Cannons Lane, a public road, would be relocated. Two segments of the Middle Fork of Beargrass Creek would be realigned. This alternative is shown in Appendix A, Exhibit 7.
5. Alternative 5: Alternative 5 would feature the construction of a new airport in close proximity to the existing facilities in Louisville, Kentucky to continue to serve existing airport users. This alternative would involve substantial property acquisition, tree removal or replacement, relocation of roadways, new airfield development, navigation aides, new utilities, and other ancillary development.
6. No Action Alternative: Under the No Action Alternative, no actions would be taken to construct new airfield pavement (such as runways) and no property/easement acquisition and tree trimming/replacement would occur. However, LRAA would be required to relocate runway thresholds to comply with FAA design specifications and safety requirements. Specifically, the Runway 6 threshold would be moved inward from the runway end by 640 feet; the Runway 15 threshold would be moved in by 692 feet; and the Runway 33 threshold would be moved in 980 feet. The resulting reduction in usable runway pavement would eliminate operations by the airport's critical aircraft group.

Alternatives 3, 4, and 5 were eliminated from further consideration because they would not meet the purpose and need to preserve the existing airfield geometry and re-establish the nighttime instrument approach procedures, thereby restoring the airport conditions present in 2012. The elimination of these alternatives is discussed in Section 2.3 of the EA.

V. SELECTION OF PREFERRED ALTERNATIVE

With Alternatives 3, 4, and 5 removed from further consideration, only the No Action Alternative, Alternative 1, and Alternative 2 were carried forward for additional analysis in the EA. The No Action Alternative was evaluated in the EA pursuant to CEQ Regulation 40 CFR § 1502.14(d). Under the No Action Alternative, The tree obstructions would remain without mitigation (no obstruction lighting or trimming and/or replacement of trees). Three of the four runway thresholds would have to be relocated inward from their respective runway ends which would reduce the usable pavement length available to aircraft. The shortened runways would prevent the use of the airport's critical aircraft group. As such, the No Action Alternative would not satisfy the purpose and need.

Alternative 2 was also evaluated in detail in the EA. The use of obstruction lights would mitigate airspace obstructions caused by the trees. However, the installation of lights would require additional utility infrastructure (light poles and power lines). This alternative would still require substantial tree trimming and/or replacement. Furthermore, the light emissions generated by the obstruction lights would cause additional impacts. Although Alternative 2 meets the purpose and need, the anticipated impacts it would create would exceed those of Alternative 1. For these reasons, Alternative 1 was selected as the Preferred Alternative.

VI. ENVIRONMENTAL IMPACTS

As described above and documented in the EA, two action alternatives (Alternatives 1 and 2) and the No Action Alternative were evaluated for potential impacts to all environmental resource categories outlined in FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *NEPA Implementing Instructions for Airport Actions*. Table 8 in the EA compares the impacts between the No Action Alternative, Alternative 1, and Alternative 2. Under the No Action Alternative, no new airfield development actions would be taken and there would be no associated environmental impacts. Because of the installation and use of obstruction lights, Alternative 2 would create more impacts than Alternative 1.

The following is a discussion of those resources potentially impacted under Alternative 1:

VI A. Noise (Section 4.2)

As covered in Section 4.2 of the EA, the Proposed Action is not expected to cause a change in aircraft operations. Therefore noise levels are anticipated to remain at or near the 2012 conditions. As part of the tree removal activities, some localized and temporary noise emissions may occur from construction vehicles and equipment. Impacts are not expected to be significant.

VI B. Land Use Impacts (Section 4.3)

The airport sponsor intends to acquire property easements in the vicinity of the airport to replace or trim trees. These actions will not impact existing land use or zoning around the airport.

VI C. Social Impacts (Section 4.4)

The Proposed Actions is not expected to cause social impacts such as dividing established communities or disrupt surface transportation systems.

VI D. Induced Socio-economic Impacts (Section 4.5)

The Proposed Action involves the acquisition of property easements and tree trimming and/or replacement. The trimming and/or replacement of trees, when compared to complete tree removal, will ensure that the impacted properties and resources in the project area will retain their character.

VI E. Air Quality (Section 4.6)

The Proposed Action is not expected to result in changes to aircraft operations at the airport. In addition, the number of trees impacted is relatively small compared to the overall population of trees within the area. During the construction phase of the project, there may be a decrease in local air quality due to emissions from construction vehicles and equipment. However, those impacts will be temporary.

VI F. Water Resources (Water Quality, Wetlands, and Floodplains) (Sections 4.7, 4.12, and 4.13)

The Proposed Action involves easement acquisition and tree trimming and/or replacement. It is not expected that impacts to water resources will occur. There are no streams or wetlands within the tree trimming/replacement area. Trees within the floodplain may be trimmed and/or removed. However, removal of trees in floodplain boundaries will be handled in a manner to eliminate impacts to the floodplain beneficial values. Impacts to water resources or water quality are not expected.

VI G. Department of Transportation Act Section 4(f) Lands (Section 4.8)

The Proposed Action would result in trimming and/or replacing trees in Seneca Park, a public use park and a Section 4(f) resource. Seneca Park features several amenities including a golf course, ball fields, basketball court, walking/biking trails, picnic tables, hiking trails, horse riding trails, and playground. The agency with jurisdiction over the park is Louisville Metro Parks.

The trees that would be impacted under the Proposed Action are within the golf course. LRAA intends to mitigate impacts to the park by replacing trees at a 2:1 ratio. After considering impacts to the park, proposed mitigation, and public comments, the FAA initially notified Louisville Metro Parks on June 23, 2016, it intended to make a “de minimis” finding, as defined in 23 CFR § 774.17, for Section 4(f) impacts to Seneca Park. After reviewing public comments, the FAA coordinated with Louisville Metro Parks and advised they would continue to seek a “de minimis” determination. On November 23, 2016, Louisville Metro Parks issued a letter to the FAA concurring with the “de minimis” finding. Relevant correspondence to the “de minimis” finding is available in Appendix E of the EA.

VI H. Archaeological, Architectural, Historic, and Cultural Resources (Section 4.9)

The Proposed Action includes the trimming and/or replacement of trees. As such, the Proposed Action has the potential to cause effects to archaeological, architectural, historical, or cultural resources. Therefore, the FAA, pursuant to 36 CFR 800.3, established an undertaking and initiated the Section 106 process.

The FAA sent invitations to 18 different agencies and local property owners to join the process as Section 106 Consulting Parties. Twelve accepted the invitation. Three meetings

were held as part of the Section 106 process. The meetings were held at the Louisville Regional Airport Authority Maintenance Facility at 4320 Park Boulevard, Louisville, Kentucky. The meetings were held on June 24, 2015; August 20, 2015; and March 30, 2016.

During the consultation process, the FAA worked with the consulting parties, including the Kentucky Heritage Council, which serves as the State Historic Preservation Office (SHPO) and LRAA, to develop the area of potential effects (APE). The APE was based on the project area with a sufficient buffer to account for direct and indirect effects. The FAA submitted a letter to the SHPO on September 22, 2015, recommending the adoption of the APE. The SHPO responded on October 9, 2015, requesting additional information, and subsequently requested that the FAA solicit comments from all consulting parties. After providing additional information and soliciting comments on the APE, the FAA re-submitted the proposed APE to the SHPO on March 18, 2016. The SHPO issued a letter on April 7, 2016, which concurred with the definition of the APE.

A Historic Architectural Survey was completed in December 2014 based on a preliminary APE and a Cultural Resources Evaluation (CRE) was prepared by consultants to LRAA. Consulting parties were afforded an opportunity to review and comment on the CRE and, as a result, a draft supplement to the survey was prepared in March 2016. As part of survey, archival and field research was undertaken to identify resources listed in or eligible for the National Register of Historic Places (NRHP). One resource, the Bowman Field Historic District, was identified as listed for NRHP under criteria A and C. The survey also identified 14 potentially eligible resources within the APE. The FAA considers eight of these 14 resources eligible for the NRHP. The eligible resources are listed below along with the associated NRHP criteria.

- Seneca Park Golf Course-Criteria A
- Seneca Vista Historic District-Criteria A, B, and C
- Seneca Manor Historic District-Criteria A and C
- McCoy Manor Historic District-Criteria A and C
- Kingsley Historic District-Criteria A, B, and C
- Seneca Village Historic District-Criteria A and C
- Seneca Village No. 2 Historic District-Criteria A and C
- Hathaway Historic District-Criteria A

The FAA took into account the information produced by the survey, additional information provided by consulting parties, and comments received during the Section 106 process in assessing the effects of the undertaking on these historic properties. The FAA considered the contribution of landscape elements, and particularly trees, to the characteristics and settling of each property and whether the undertaking would alter the characteristics that qualify each historic property for the NRHP, including whether removal of these trees would affect the integrity of the landscapes setting. The results of the assessment are detailed in Appendix B of the EA.

The FAA issued to the consulting parties a proposed finding of No Adverse Effect on May 24, 2016. The FAA received written objections to the proposed finding from multiple consulting parties. Therefore, in accordance with 36 CFR § 800.5(c)(3)(i), the FAA submitted the finding to the Advisory Council on Historic Preservation (ACHP) for review. The ACHP provided its advisory opinion in a letter to the FAA on November 3, 2016². In their letter, the ACHP advised the FAA that “the criteria of adverse effect (AE) has not been adequately applied on all eligible historic districts in a manner that addresses the effect of substantial tree removal on the settings of these historic properties.”

The FAA took the ACHP’s advisory opinion into account in confirming the finding that the Bowman Field Airport Area Safety Program would have no adverse effect on any historic property.

Appendix B of the EA contains documentation pertaining to the Section 106 process.

VI I. Biotic Communities (Section 4.10)

The Proposed Action will require the trimming and/or replacement of trees. The trees impacted by the project are not unique to the surrounding area. In addition, the number of trees impacted is a small percentage of the total trees in the area. Due to the large number of trees and vegetation adjacent to or near the project area, there is comparable habitat for displaced organism to emigrate. The trees will be trimmed or removed in the winter months when most organisms are dormant and are unlikely to be actively utilizing the trees.

VI J. Endangered and Threatened Species (Section 4.11)

The Proposed Action will involve the trimming and removal of trees in the project area. This action has the potential to affect two federally-listed species: Indiana Bat (*Myotis Sodalis*-endangered) and Northern Long Eared Bat (*Myotis Septentrionalis*-threatened).

Potential indirect effects to both bat species include the loss of potential summer roosting, foraging and corridor habitat. Summer roosting habitat for both bats is considered to be trees with a diameter at breast height of three or more inches. Typically, the bats roost in trees with cavities, snags or exfoliating bark and in closed to semi-open forest adjacent to water features for access to foraging areas.

²The FAA’s request was received by ACHP on October 3, 2016, which began the 15-day period provided in the regulation for the ACHP to provide its opinion. By letter dated October 18, 2016, ACHP advised FAA’s Federal Preservation Officer (FPO) that additional time was needed due to the complex issues associated with this undertaking, and that ACHP was invoking its discretion under 36 CFR § 800.5(c)(3)(i) to extend the review period for an additional 15 days. The October 18 letter stated that the ACHP “will provide you with our advisory opinion by November 2, 2016.” Under the provisions of 36 CFR § 800.5(c)(3)(i), if the ACHP does not respond within the applicable time period, the agency official’s responsibilities under section 106 are fulfilled. Notwithstanding the fact that the FAA ACHP’s advisory opinion was not issued until after 5:00p.m. on November 3, 2016, a full day after the close of the extended review period, the FAA has taken the ACHP’s advisory opinion into consideration in making a final finding on this undertaking.

To avoid impacts to the bats, seasonal tree clearing has been proposed by LRAA. This means tree removal activities will take place between October 15 and March 31 when bats are usually in their winter hibernacula. Correspondence from the U.S. Fish and Wildlife Service (USFWS), which can be found in Appendix C, indicates that the USFWS concurs that the action will not have an adverse effect on the bats if seasonal clearing is used.

VI K. Farmland (Section 4.14)

The Proposed Action involves the acquisition of property easements and replacement and trimming of trees. The project is not within any unique or prime farmland areas. No impacts are expected to occur to this environmental resource.

VI L. Energy Supply and Natural Resources (Section 4.15)

The Proposed Action will utilize construction vehicles and equipment to remove, replace, and trim trees. The use of construction vehicles and equipment requires fuel both for the initial tree obstruction mitigation and subsequent maintenance of trees. However, energy use is not expected to require substantial natural resources, including those in short supply.

VI M. Light Emissions (Section 4.16)

The Proposed Action consists of easement acquisition and tree trimming and replacement. No permanent (light fixtures) or temporary (construction lighting) will be used. Therefore, impacts from light emissions are not expected.

VI N. Construction Impacts (Section 4.17)

As part of the Proposed Action, construction vehicles and equipment will be utilized to trim, remove, and replace trees. The use of such equipment may lead to short-term, localized impacts to noise levels, surface transportation, air quality, and water quality. Construction activities will take place during daylight hours so as to reduce noise impacts at nighttime. Significant impacts are not expected.

VI O. Solid Waste (Section 4.18)

The Proposed Action will result in the disposal of trees and tree branches/limbs. Tree waste generated from the project will be reused or disposed in accordance with city ordinances. Significant impacts are not expected.

VI P. Hazardous Waste (Section 4.19)

The Proposed Action will impact trees only. No known hazardous substances or sites are within the project area. The trimming and/or replacement of trees will not involve the use of hazardous chemicals. Impacts to this resource are not expected.

**VI Q. Environmental Justice and Children's Environmental Health Risks
(Section 4.21)**

The Proposed Action will involve easement acquisition and tree trimming and/or replacement. The displacement of individuals or businesses is not part of the action. Impacts are not anticipated to occur to a disproportionately high number of minorities or low-income families. In addition, there are no elements of the Proposed Action that would create environmental health or safety risks that could disproportionately affect children.

VI R. Climate Change/Greenhouse Gases³ (Section 4.22)

The Proposed Action involves the acquisition of property easements and trimming and replacement of trees in the vicinity of the Bowman Field Airport. The overall number of trees impacted is relatively small when compared to the overall number of trees in the surrounding area. Any trees removed will be replaced at a ratio of 2:1. As such, the project will result in a net increase of trees in the project area. In addition, the Proposed Action is not expected to cause a change in aircraft activity levels at the airport. Therefore, significant impacts to Climate change/greenhouse gases are not expected.

VI S. Cumulative Impacts (Section 4.20)

In considering past, present, and reasonably foreseeable future actions, the airport has had minimal impacts on the local environs. Some past and present off-airport projects have occurred in the project area and others are expected to occur in the future. It is anticipated that local road projects proposed by the City of Louisville and/or Jefferson County as well as other community projects would not have negative impacts on the airport environs. However, until specific off-airport project plans are known, it is not possible to fully quantify specific cumulative impacts.

VI. SPONSOR COMMITMENTS

In addition to carrying out standard best management practices required by FAA grant assurances outlined in FAA Advisory Circular (AC) 150/5370-10, "Standards for Specifying Construction of Airports," and minimization and mitigation measures mandated by permitting requirements and/or other special purpose laws, the Sponsor has committed to the following activities as part of the project:

- Trees that are to be removed will be replaced at a ratio of 2:1.
- Trees that are removed will be cut no more than six inches below ground level. Top soil and grass seed and/or sod will be used to replace stump grinded area.
- Tree roots will remain in place.
- Trees that are to be trimmed will be trimmed by a professional arborist.

³ While climate change is not identified as a discrete impact category in FAA Order 1050.1E, climate change was analyzed in accordance with CEQ regulations and FAA Memorandum, *Considering Greenhouse Gases and Climate Under the National Environmental Policy Act (NEPA)*; *Interim Guidance* (January 12, 2012).

This FONSI/ROD is issued in acknowledgment of and contingent upon the Sponsor's fulfillment of these commitments. As referenced above, there are regulatory permits or certifications that impose mitigation requirements to minimize environmental impacts during implementation of the Proposed Action. The Sponsor is responsible for acquiring and complying with all applicable permits and certifications throughout the implementation/construction of the Proposed Action.

Regulatory permits or certificates required for the Proposed Action include:

- Metropolitan Sewer District Site Disturbance Permit
- Louisville Metro Parks Permit
- FAA Notice of Proposed Construction Form 7460
- Kentucky Application to Permit or Alter Structure TC 55-2

In addition to permits and certifications, LRAA has made the following commitments on the Proposed Action:

- If a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees.
- LRAA will pay for tree trimming or removal/replacement, stump removal and yard restoration.
- All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty.

VII. PUBLIC INVOLVEMENT

As part of the EA, several Federal, state, and local agencies reviewed project proposals and issued comments. The following agencies received early coordination letters and a draft EA:

- The Commonwealth of Kentucky E-Clearing House
- Kentucky Department of Aviation
- Kentucky Department of Environmental Protection
- U.S. Army Corps of Engineers
- U.S. Department of the Interior- Fish and Wildlife Service
- U.S. Department of Transportation-Federal Aviation Administration
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture

Comments from these agencies are incorporated into the EA at Appendix E. However, no agency indicated that significant impacts would occur based on their review.

In addition to agency reviews, public outreach was held. LRAA issued a public notice of availability of the draft EA and held a public hearing to receive comments on the Proposed Action. The public notice was published in the Louisville Courier-Journal on May 27, 2016. The draft EA was made available in electronic format on the LRAA website. In addition, printed copies of the draft EA were made available at the Louisville Public Library (301 York Street, Louisville, KY 40203), LRAA Administration Building (700 Administrative Drive, Louisville, KY 40209), and the Bowman Field Business Center (2700 Moran Avenue, Louisville, KY 40205). The

public hearing was held June 28, 2016, from 5:30 PM – 7:30 PM at the Breckinridge Inn located at 2800 Breckinridge Lane, Louisville, KY 40220. Various comments were received during the comment period and at the public hearing, many of which resulted in changes to the EA. The comments received are summarized below:

- Project will lead to increased activity and higher noise levels along with degradation of air quality. This will lead to adverse health effects. Additional studies are needed to address effects.
- The existing presence of the airport is a safety concern as aircraft may crash into houses.
- The removal and/or trimming of trees will reduce shade and raise energy cost. Additional studies are needed to consider these effects.
- Louisville is considered a heat island and the removal of trees will exacerbate the problem. This includes direct effects from storm water runoff and soil erosion due to loss of tree roots and tree canopy.
- Tree canopy is essential to our city. Do not remove trees.
- Cutting trees will make area look less desirable.
- Do not expand airport.
- Construct a new runway at airport to avoid tall trees and residential areas.
- Tree removal will impact biotic species.
- Plant new trees if tall trees are removed.
- Aircraft at Bowman Field should use other airports. The EA should include an alternative for using other airports.
- Commenters disappointed FAA representatives did not attend public hearing.
- Commenters disturbed by lack of transparency on tree removal program.
- EA lacks scientific evidence and is inadequate. Additional studies are needed for air quality and noise.
- EA is too technical and should be more succinct.
- EA does not adequately consider impacts to historic resources, Olmstead's design, and Seneca Park.
- Project should be referred to as a tree replacement project rather than a tree removal project.
- Current mitigation plan for tree replacement is inadequate.
- The project benefits only limited aviation users but impacts more residents.
- The project will lead to increased revenue for airport authority.
- How will property easement values be determined?
- The removal of trees will adversely impact home values.
- Public hearing facility was not large enough to accommodate the public.
- Incorrect information was shared during public hearing.
- Format of public meeting was not a hearing.
- Public notices should be issued much earlier.

Appendix E of the EA contains all comments received during the public comment period and responses thereto.

VIII. AGENCY FINDINGS

In accordance with applicable law, the FAA has made an independent review of the EA and makes the following findings/determinations for the Proposed Action, based upon the appropriate information and data contained in the EA.

- Certification under 49 U.S.C. § 44502(b) (formerly Section 308 of the *Federal Aviation Act of 1958*, as amended). The undersigned certifies that the proposed improvement project is reasonably necessary for use in air commerce or for national defense
- Based on the EA, no significant environmental impacts would be incurred as a result of the Federal action.

IX. DECISION AND ORDER

The FAA has determined that environmental and other relevant concerns presented by interested agencies and private citizens have been addressed sufficiently in the EA and fully and properly considered in the decision-making resulting in this ROD. The FAA concludes there are no outstanding environmental issues to be resolved by it with respect to the proposed project.

The No Action Alternative fails to meet the purpose and need for the proposed project. For reasons summarized earlier in this ROD, and supported by disclosures and analysis detailed in the EA, the FAA has determined that Alternative 1, the Preferred Alternative and Proposed Action, is a reasonable, feasible, practicable and prudent alternative for a Federal decision in light of the established goals and objectives. An FAA decision to take the actions and approvals required by the Sponsor is consistent with its statutory mission and policies supported by the findings and conclusions reflected in the environmental documentation and this ROD.

After reviewing the EA and all of its related materials, I have carefully considered the FAA's goals and objectives in relation to various aeronautical aspects of the proposed development actions discussed in the EA, including the purpose and need to be met by this project, the alternative means of achieving them, the environmental impacts of these alternatives, the mitigation necessary to preserve and enhance the environment, and the costs and benefits of achieving the purpose and need.

While this decision does not approve Federal funding for the proposed airport development and does not constitute a Federal funding commitment, it does provide the environmental findings and approval for proceeding to funding actions in accordance with established procedures and applicable requirements.

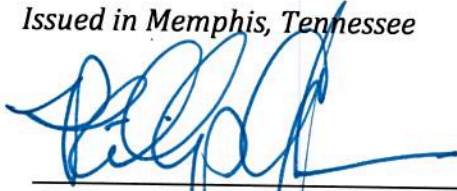
After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action is consistent with the national environmental policies and objectives as set forth in Section 101(a) of NEPA and that with the mitigation that is a part of the project it will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 101(2) (C) of NEPA.

This ROD presents the FAA's final decision and approvals for the actions identified, including those taken under the provisions of Title 49 of the United States Code, Subtitle VII, Parts A and B.

Finding of No Significant Impact / Record of Decision

These actions constitute a final order of the Administrator subject to review by the Court of Appeals of the United States in accordance with the provisions of 49 U.S.C. § 46110.

Issued in Memphis, Tennessee

A handwritten signature in blue ink, appearing to read 'P. Braden', is written over a horizontal line.

Phillip J. Braden
Manager
FAA, Memphis Airports District Office

12/13/2016

Date

Environmental Assessment

Bowman Field Airport Area Safety Program

Prepared for:

Louisville Regional Airport Authority
700 Administration Drive
Louisville, KY 40209

Prepared by:

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205

December 2016

Chapter - Topic Page

Title Page.....	Cover
Table of Contents	i
List of Tables.....	vii
Appendices.....	vii
Table of Acronyms Used Throughout Document.....	viii

1 – Purpose and Need

1.1	Introduction	1
1.2	Setting	2
1.3	Background	2
1.4	Purpose and Need.....	2
1.5	Aircraft Facilities Requirements	3
1.5.1	Methodology for Determining Runway Length Requirements.....	3
1.5.2	Aircraft Activity	4
1.5.3	Runway Length Requirements	6
1.5.4	Runway Instrument Approach Procedures	10
1.6	Sponsor’s Proposed Action.....	11
1.7	Applicable Regulatory Statutes	11

2 - Alternatives

2.1	General Discussion.....	13
2.2	Alternatives Considered.....	13
2.2.1	Introduction	13
2.2.2	Alternatives Identified	14
2.2.2.1	No Action Alternative.....	14
2.2.2.2	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	14
2.2.2.3	Alternative 2 – Acquire easements for lighting obstructions Runways 06, 15, 24 and 33	15
2.2.2.4	Alternative 3 – Construct a new north/south Runway and extend Runway 15 to the northwest.....	16
2.2.2.5	Alternative 4 – Extend Runway 24 to the northeast and Runway 15 to the northwest ..	17
2.2.2.6	Alternative 5 – Construct New Airport.....	17
2.3	Alternatives Eliminated From Further Consideration.....	17
2.3.1	Alternative 3 – Construct a new north/south Runway and extend Runway 15 to the northwest.....	17
2.3.2	Alternative 4 – Extend Runway 24 to the northeast and Runway 15 to the northwest ..	18
2.3.3	Alternative 5 – Construct new airport.....	18
2.4	Alternatives Considered for Further Examination	19
2.4.1	No Action Alternative.....	19
2.4.2	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	19

2.4.3	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	19
3 - Affected Environment		
3.1	Introduction	21
3.2	Airport and Project Location	21
3.3	Land Use and Zoning.....	21
3.3.1	Local Jurisdictions	21
3.3.2	Zoning	22
3.4	Socio-economic Overview	23
3.4.1	Community Growth	23
3.4.2	Area Wide Land Use.....	23
3.4.3	Avigation Easements Acquisition.....	24
3.5	Inventory of Natural Environment	24
3.5.1	Geology	24
3.5.2	Soils	25
3.5.3	Water Resources	25
3.5.4	Biotic Resources	25
3.5.5	USDOT Section 4(f) (Recodified at 49 U.S.C. §303(c)) and 6(f) Land	26
3.5.6	Cultural Resources	26
3.5.7	Threatened and Endangered Species.....	27
3.5.8	Wetlands and Waters of the United States.....	27
3.5.9	Floodplains	27
4 – Environmental Consequences		
4.1	General	29
4.2	Noise	29
4.2.1	General Discussion	29
4.2.2	No Action Alternative.....	30
4.2.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	30
4.2.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	30
4.2.5	Summary of Impacts.....	31
4.2.6	Mitigation	31
4.3	Land Use Impacts.....	31
4.3.1	General Discussion	31
4.3.2	No Action Alternative.....	32
4.3.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	32
4.3.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	32
4.3.5	Summary of Impacts.....	32
4.3.6	Mitigation	33
4.4	Social Impacts	33
4.4.1	General Discussion	33

4.4.2	No Action Alternative.....	33
4.4.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	33
4.4.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	34
4.4.5	Summary of Impacts.....	34
4.4.6	Mitigation.....	35
4.5	Induced Socio-economic Impacts.....	35
4.5.1	General Discussion.....	35
4.5.2	No Action Alternative.....	35
4.5.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	35
4.5.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	36
4.5.5	Summary of Impacts.....	36
4.5.6	Mitigation.....	36
4.6	Air Quality.....	37
4.6.1	General Discussion.....	37
4.6.2	No Action Alternative.....	40
4.6.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	40
4.6.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	40
4.6.5	Summary of Impacts.....	41
4.6.6	Mitigation.....	41
4.7	Water Quality	41
4.7.1	General Discussion.....	41
4.7.2	No Action Alternative.....	43
4.7.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	43
4.7.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	43
4.7.5	Summary of Impacts.....	43
4.7.6	Mitigation.....	43
4.8	Department of Transportation Act, Section 4 (f) [Recodified at 49 U.S.C, Subtitle 1, Section 303(c)] and Related Lands	44
4.8.1	General Discussion.....	44
4.8.2	No Action Alternative.....	44
4.8.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	44

4.8.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	45
4.8.5	Summary of Impacts	45
4.8.6	Mitigation	46
4.9	Archaeological, Architectural, Historic and Cultural Resources.....	46
4.9.1	General Discussion	46
4.9.2	No Action Alternative.....	47
4.9.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	47
4.9.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	48
4.9.5	Summary of Impacts	48
4.9.6	Mitigation	49
4.10	Biotic Communities	49
4.10.1	General Discussion	49
4.10.2	No Action Alternative.....	50
4.10.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	50
4.10.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	50
4.10.5	Summary of Impacts	50
4.10.6	Mitigation	51
4.11	Endangered and Threatened Species of Flora and Fauna	51
4.11.1	General Discussion	51
4.11.2	No Action Alternative.....	52
4.11.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	52
4.11.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	52
4.11.5	Summary of Impacts	53
4.11.6	Mitigation	54
4.12	Wetlands and Waters of the United States	54
4.12.1	General Discussion	54
4.12.2	No Action Alternative.....	54
4.12.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	54
4.12.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	55
4.12.5	Summary of Impacts	55
4.12.6	Mitigation	55
4.13	Floodplains	55
4.13.1	General Discussion	55
4.13.2	No Action Alternative.....	56

4.13.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	56
4.13.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	56
4.13.5	Summary of Impacts.....	56
4.13.6	Mitigation.....	57
4.14	Farmland	57
4.14.1	General Discussion	57
4.14.2	No Action Alternative.....	58
4.14.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	58
4.14.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	58
4.14.5	Summary of Impacts.....	58
4.14.6	Mitigation.....	58
4.15	Energy Supply and Natural Resource Development	59
4.15.1	General Discussion	59
4.15.2	No Action Alternative.....	59
4.15.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	59
4.15.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	59
4.15.5	Summary of Impacts.....	60
4.15.6	Mitigation.....	60
4.16	Light Emissions.....	60
4.16.1	General Discussion	60
4.16.2	No Action Alternative.....	60
4.16.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	61
4.16.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	61
4.16.5	Summary of Impacts.....	61
4.16.6	Mitigation.....	62
4.17	Construction Impacts	62
4.17.1	General Discussion	62
4.17.2	Noise.....	63
4.17.3	Air Quality.....	63
4.17.4	Water Quality	63
4.17.5	No Action Alternative.....	63
4.17.6	Summary of Impacts.....	63
4.17.7	Mitigation.....	64
4.18	Solid Waste.....	64
4.18.1	General Discussion	64

4.18.2	No Action Alternative.....	65
4.18.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	65
4.18.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	65
4.18.5	Summary of Impacts.....	66
4.18.6	Mitigation.....	66
4.19	Hazardous Waste.....	66
4.19.1	General Discussion	66
4.19.2	No Action Alternative.....	67
4.19.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	67
4.19.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	67
4.19.5	Summary of Impacts.....	67
4.19.6	Mitigation.....	68
4.20	Cumulative Impacts	68
4.20.1	General Discussion	68
4.20.2	Summary of Impacts.....	69
4.20.3	Past Airport Projects	69
4.20.4	Current and Present Airport Projects.....	69
4.20.5	Reasonably Foreseeable Future Airport Actions.....	70
4.20.6	Summary and Conclusion.....	70
4.21	Environmental Justice and Children’s Environmental Health Risk	70
4.21.1	General Discussion	70
4.21.2	No Action Alternative.....	71
4.21.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	71
4.21.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	71
4.21.5	Summary of Impacts.....	71
4.21.6	Mitigation.....	72
4.22	Climate Change/Greenhouse Gases	72
4.22.1	General Discussion	72
4.22.2	No Action Alternative.....	72
4.22.3	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.....	72
4.22.4	Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33	72
4.22.5	Summary of Impacts.....	73
4.22.6	Mitigation.....	73
4.23	Conclusion.....	73

5- Mitigation Measures	
5.1 Mitigation Measures.....	79
6- Citizen Involvement and Agency Coordination	
6.1 Introduction	80
6.2 Agency Coordination	80
6.3 Public Coordination	81
6.4 Permits and Commitments.....	81
6.4.1 Permits.....	82
6.4.2 Commitments.....	82
7 - List of Preparers	
7.1 List of Preparers	83

List of Tables

Table 1 – Annual Operations
Table 2 – Aircraft Categories
Table 3 – Annual Turbine Operations by Type
Table 4 – 2012 Operations by Family Grouping of Airplanes
Table 5 – Major Employers
Table 6 – National Air Quality Standards
Table 7 – Jefferson County 2014 Air Quality Compliance
Table 8 – Summary of Impacts Matrix

Appendices

Appendix A – Exhibits

Exhibit 1	County Location Map
Exhibit 2	Airport Site Location Map
Exhibit 3	Airport Vicinity Map
Exhibit 4	Alternative 1
Exhibit 5	Alternative 2
Exhibit 6	Alternative 3
Exhibit 7	Alternative 4
Exhibit 8	National Wetland Inventory Map
Exhibit 9	Flood Rate Insurance Map

Appendix B – Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky

Appendix C – Early Agency Coordination

Exhibit 1	Federal Aviation Administration – Conditional ALP Approval Correspondence
Exhibit 2A	Kentucky Department of Environmental Protection Coordination

Exhibit 2B	Kentucky Department of Environmental Protection Coordination
Exhibit 3A	U.S. Fish and Wildlife Service Coordination
Exhibit 3B	U.S. Fish and Wildlife Service Coordination
Exhibit 4A	Kentucky Clearinghouse; Department for Local Government Coordination
Exhibit 4B	Kentucky Clearinghouse; Department for Local Government Coordination
Exhibit 4C	Kentucky Clearinghouse; Department for Local Government Coordination

Appendix D – Applicable Regulatory Statutes

Appendix E – Draft Environmental Assessment Agency Coordination

Exhibit 1	U.S. Environmental Protection Agency Region 4
Exhibit 2A	Kentucky Clearinghouse; Department for Local Government
Exhibit 2B	Kentucky Clearinghouse; Department for Local Government
Exhibit 3	U.S. Department of Agriculture Natural Resources Conservation Service
Exhibit 4	Department of Metro Parks and Recreation Louisville, Kentucky
Exhibit 5A	Kentucky State Historic Preservation Office
Exhibit 5B	Kentucky State Historic Preservation Office
Exhibit 5C	Kentucky State Historic Preservation Office
Exhibit 6	Office of Sustainability Development of Louisville
Exhibit 7	Kentucky Department of Environmental Protection [followed by the attachments]

Appendix F – Public Coordination

Exhibit 1	Courier-Journal Affidavit of Publication
Responses to comments	

Table of Acronyms Used Throughout Document

AC	Advisory Circular
AEM	Area Equivalent Method
AIP	Airport Improvement Program
ALP	Airport Layout Plan
ANSI	American National Standards
APM	Airport Planning Manuals
ASTM	American Society for Testing and Materials
ATCT	Air Traffic Control Tower
BFE	Base Flood Elevation
BMP	Best Management Practice
C2	Commercial Zoning
CAA	The Clean Air Act
CAAA	Clean Air Act Amendments
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO ₂	Carbon dioxide
CWA	Clean Water Act
dB	Decibel
dbh	Diameter at breast height
DNL	Day-Night Average Sound Level
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement / Study
FAA	Federal Aviation Administration
FAR Part 77	Federal Aviation Regulation
FBO	Fixed Based Operators
FEMA	Federal Emergency Management Agency
FONSI	Finding of No Significant Impact
GHG	Greenhouse Gases
GLI	Greater Louisville Inc. Metro Chamber of Commerce
H ₂ O	Water vapor
IFR	Instrument Flight Rating
ILCS	Interagency Wetland Policy Act
ISR	Indirect Source Review
KRS	Kentucky Revised Statutes
KRS Chapter 77	Chapter 77 Air Pollution Control
LAWCON	Land and Water Conservation Fund
LDA	Landing Distance Available
LDC	Land Development Code
LED	Light Emitting Diode
LOU	Bowman Field Airport
LRAA	Louisville Regional Airport Authority
LWC	Louisville Water Company
MSD	Metropolitan Sewer District
MTOW	Maximum Take-off Weight

N	Number
NAAQS	National Ambient Air Quality Standards
NEC	National Electrical Code
NEPA	National Environmental Policy Act
NFPA	National Fire Protection Association
NO _x	Nitrogen oxides
NPIAS	National Plan of Integrated Airport Systems
NPL	National Priorities List
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NRI	National Rivers Inventory
NWI	National Wetland Inventory
OSHA	Occupational Safety and Health Administration
PACE	Purchase of Agriculture Conservation Easement Corporation
R5	Single Family Residential Zoning
RCRA	Resource Conservation and Recovery Act
RSA	Runway Safety Areas
SDF	Standiford Field, Louisville International Airport
SO _x	oxides of sulfur
TERPS	Terminal Instrument Procedures
UL	Underwriters Laboratories
USDOJ	United States Department of Interior
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
VFR	Visual Flight Rules
VOCs	Volatile Organic Compound

CHAPTER 1 - PURPOSE AND NEED

1.1 Introduction

This Environmental Assessment (EA) is prepared in accordance with Federal Aviation Administration (FAA) *Order 1050.1E, Environmental Impacts: Policies and Procedures*, and *FAA Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. The following document was initiated in 2013, prior to the issuance of FAA Order 1050.1F (July 16, 2015). To maintain consistency throughout the process, 1050.1E was used as the FAA reference document. These documents define policies and procedures placed on the FAA for implementing the NEPA of 1969, as amended, as well as the regulations of the Council on Environmental Quality (CEQ), 40 Code of Federal Regulations (CFR) Parts 1500-1508, specifically Sections 1505.1 and 1507.3. The EA is an informational document containing environmental information relevant to the proposed action that is intended for use by decision makers and the public.

Bowman Field Airport (Bowman Field and Airport) is located five miles southeast of downtown Louisville, Jefferson County, Kentucky. See **Exhibit 1 – County Location Map** and **Exhibit 2 – Airport Site Location Map** in **Appendix A**. The airport and adjacent properties are depicted on **Exhibit 3 – Airport Site Vicinity Map** in **Appendix A**. Bowman Field is owned and operated by the Louisville Regional Airport Authority (LRAA and Sponsor). The Airport both historically and currently provides a broad cross section of general aviation air services and serves as a designated reliever airport to Louisville International Airport – Standiford Field (SDF), the third busiest cargo airport in North America. The Sponsor intends to accommodate existing demands with a continuation of proposed safety improvements at the Airport. These proposed actions include aviation easement acquisition and obstruction mitigation in areas where trees and the potential for trees or other objects could interfere with aircraft operations.

The LRAA plans to apply for Federal financial assistance under the Airport Improvement Program, as authorized by the public law requirements of the Federal Aviation Reauthorization Act of 1996 (P.L.104-264) in order to implement those portions of the proposed Airport improvements that are eligible for Federal funding. To be eligible to receive Federal funds, the Sponsor must prepare an Environmental Assessment (EA). This EA includes the following reviews and determinations:

- Identification of the need for the project and reasonable alternatives including the proposed improvements set forth by the LRAA.
- Review of all applicable resources resulting in the determination of whether or not the proposed airport improvements possess any environmental impacts.
- Provide the basis for the FAA's potential Finding of No Significant Impact (FONSI).
- Identification and satisfaction of special purpose Federal laws, regulations, and executive orders.
- Identification and satisfaction of State and Local laws and regulations applicable to the proposed improvements.
- Identification of any permits, licenses, or other entitlements required for the proposed improvements.
- Inform all agencies involved with the proposed improvements.
- Inform the general public and disclose any known environmental impacts.

This EA has been prepared to define the purpose of and the need for the proposed actions; evaluate reasonable alternatives; identify potential environmental consequences associated with the proposed development; and propose methods to mitigate potential environmental impacts, if applicable.

1.2 Setting

Bowman Field, established in 1919, is the oldest continuously operating airport in Kentucky, and one of the oldest airports in the United States. The airport is located five miles from downtown Louisville within the jurisdiction of Metro Louisville – Jefferson County. Bowman Field encompasses approximately 426 acres and is bordered on the west by Pee Wee Reese Road and Seneca Park, to the north by Seneca Golf Course, to the east by Cannons Lane and Big Spring Country Club; and to the south by Taylorsville Road and Dutchmans Road. The Vicinity map is provided in **Exhibit 3 – Airport Site Vicinity Map** in **Appendix A**.

1.3 Background

Bowman Field provides vital general aviation access to Jefferson and the surrounding Counties. The 325 based aircraft and numerous itinerant aircraft generate an estimated 80,000 annual aircraft operations. The operations include military, Fortune 500 companies and all other categories of general aviation. Support of these operations includes two FBO (Fixed Based Operators) and multiple on airport businesses. Bowman Field, the birthplace of aviation in Louisville, serves as a reliever airport for Louisville International. With smaller, lighter aircraft operating at Bowman Field, the larger, heavier aircraft may operate more aircraft per hour, and operate more efficiently at Louisville International Airport. As a general aviation airfield, Bowman Field offers services such as flight instruction; aircraft leases; charters and sales; aircraft cleaning and refueling; and aircraft repair and maintenance. Bowman Field is classified by the FAA as a *Regional Airport* in the General Aviation Airport Asset Report.

The FAA has determined, through its analysis of the approach surfaces in use as of February 2012 that objects (trees) penetrate the critical approach surfaces. Since the identification of these penetrations in 2012, Bowman Field has experienced a reduction in operational capacity. Due to their operational hours, the Airport currently has nighttime landings on all runway ends, when weather permits. Currently, if instrument weather conditions require Instrument Flight Rules (IFR), the aircraft will only land on Runway End 24. Nighttime IFR approaches, including circling to land approaches, to the other runways have been temporarily suspended by the FAA due to these penetrations. Nighttime operation begins 30 minutes after sunset, which changes seasonally. During the months of November, December and January for example, nighttime operations begin around 6 pm, a prime time for business travel. Only a small percentage of the Airport's operations occur after 10 pm. The proposed project will re-establish the nighttime Instrument Approach Procedures and therefore restore the Airport to conditions present in 2012.

1.4 Purpose and Need

The FAA's primary mission is to ensure the national airport system is safe, efficient and environmentally responsible and meets the needs of the traveling public. Compliance and associated environmental responsibilities are integral components of that mission. With that in mind, the following describes the Purpose and Need for the Sponsor's Proposed Action.

The *purpose* of this project is to provide a safe, efficient, viable and usable airfield at Bowman Field while serving their current fleet mix and complying with FAA FAR Part 77 and TERPS regulations and standards. The purpose of this project must also accommodate existing aeronautical requirements and capacity.

The *need* for this project is to ensure the runways are in compliance with FAR Part 77 and TERPS design standards and to maintain current runway lengths to serve existing aviation users and to retain capacity. Maintaining a 4,357 ft. primary runway and a 3,579 ft. crosswind runway, as well as preservation of the existing airfield geometry and re-establish the nighttime Instrument Approach Procedures to conditions present in 2012. This comprises the need to support the review of the proposed actions. The need of this project must also adhere to the criteria outlined in the FAA's National Plan of Integrated Airport Systems (NPIAS). This includes ensuring the effective and safe use of airport resources while fulfilling their obligation to comply with federal grant assurances, laws and state and local laws. These laws include but are not limited to FAR Part 77 and TERPS under the FAA.

1.5 Airfield Facility Requirements

To provide guidance to airport sponsors, the FAA has published *Advisory Circular 150/5325-4B Runway Length Requirements for Airport Design*. This advisory circular (AC) provides guidelines for airport designers and planners to determine recommended runway lengths for new runways or extensions to existing runways. The runway length requirements for the mix of aircraft (fleet mix) currently using Bowman Field has been calculated using this AC and affirmed by evaluating the performance characteristics of the most demanding aircraft. Runway length requirements were calculated taking into consideration the Airport's elevation, the average high temperature, the performance characteristics of specific airplane groups and anecdotal information provided by aircraft operators.

1.5.1 Methodology for Determining Runway Length Requirements

The runway length requirement analysis identifies the FAA methodology, as described in the AC, in *italics* followed by the supporting information and calculations. The existing estimate of annual aircraft operations at the Airport is based on an inventory of the FAA's *Terminal Area Report*; operations data provided by the Air Traffic Control Tower (ATCT); use of data provided by *FlightAware*, a web-based flight tracking data service; interviews with airport operations personnel and tenants; and a review of airport fuel sales. In the compilation of data from different sources, the following assumptions were made:

- No Turbine powered aircraft fly without a flight plan; therefore, all VFR aircraft are grouped as single or multi-engine reciprocating.
- All aircraft with registration (N) numbers and/or type blocked in the flight plan are considered to be Turbine powered. The 309 'blocked' aircraft in the database were distributed proportionately within the calculated fleet mix of the turbine aircraft.
- Aircraft listed without type identified and without a matching N-number were considered reciprocating.
- Only turbine aircraft were grouped for determination of the appropriate runway requirements graphs and computer run.

The collection of data using the above general assumptions is sufficient to accurately identify and document the grouping of aircraft to meet the FAA's definition of '*substantial use*'.

This analysis is intended to identify the runway length requirement of the aircraft *currently* operating at the airport and therefore does not include a *forecast* of operations or fleet mix during the *planning period*. The runway length requirements identified in this report are based upon current operations and the performance characteristics of the aircraft currently operating. Following a review of the aircraft activity levels during the previous 5 years, it was determined that the 2012 operations would be used for this report. Operations for 2012 fall within 2 percent of the average annual operations during the previous 5 years, making 2012 a *typical year*.

1.5.2 Aircraft Activity

Step 1 – AC 150/5325-4B, Paragraph 102(b)(1). “Identify the list of critical airplanes that will make regular use of the proposed runway for an established planning period of at least five years. For Federally funded projects, the definition of the term “substantial use” quantifies the term “regular use” (paragraph 102a(8)).”

During 2012, Bowman Field had 325 based aircraft which was down more than 34 percent since 1999. The reduction in the number of based aircraft and the number of annual aircraft operations is primarily the result of a downturn in the national and local economies. A review of the operations numbers for the last five years reveals that 2012 marked an increase in airport traffic after three consecutive years of decreases. Table 1 shows the number of operations as reported by the FAA - ATCT. Consistent with the LRAA’s intent to preserve the existing operating conditions, no forecast of operations is included in this report.

Table 1 - Annual Operations				
Year	Itinerant IFR	Itinerant VFR	Local	Total
2012	9,063	32,713	37,081	78,857
2011	8,993	29,081	32,294	70,368
2010	9,631	31,552	33,053	74,236
2009	9,846	31,454	33,910	75,210
2008	13,714	33,394	41,671	88,779
Five Year Annual Average Total Operations = 77,490				

Note: Operations data from FAA-ATCT record. Does NOT include Overflights

The calculation of the airport’s turbine aircraft *fleet mix* and the identification of specific *critical aircraft* were accomplished using flight records provided by *FlightAware*, a Houston, Texas based company that provides aviation services to aircraft operators and airports. *FlightAware* offers historical flight tracking data for all airports and aircraft operating within national airspace and with a flight plan. Individual aircraft operating under a flight plan filed with the FAA into and out of Bowman Field during the 12 month period between March 2012 and February 2013 were identified. The results of this review, annualized to calendar year 2012, are included in Tables 2 and 3.

Table 2 – Aircraft Categories		
Aircraft Type	Percent	2012
<i>Single & Multi-Engine Piston</i>	95.1%	74,991
<i>Turboprop</i>	3.4%	2,689
<i>Turbojet</i>	1.5%	1,190
Total	100%	78,857

Operations data provided by FAA - ATCT

Table 3 - Annual Turbine Operations by Type				
Aircraft Type	Number of 2012 Operations	Percent of Turboprop Operations	Number of Passengers	Maximum Takeoff Weight Pounds
TURBOPROP				
<i>Commander 840/900</i>	78	2.9	< 10	10,250
<i>Beech King Air 90</i>	455	17.0	> 10	9,650
<i>Beech King Air 100</i>	45	1.7	> 10	10,100
<i>Beech King Air 200</i>	624	23.3	> 10	12,500
<i>Beech King Air 300/350</i>	29	1.1	> 10	14,000
<i>Cessna 425/441</i>	52	1.9	< 10	8,200/9,850
<i>Mitsubishi MU-2L</i>	20	0.8	> 10	10,800
<i>Piaggio Avanti</i>	27	1.0	< 10	11,550
<i>Pilatus PC-12</i>	896	33.5	< 10	10,450
<i>Piper Cheyenne</i>	100	3.7	< 10	11,200
<i>Socata 7/8</i>	321	12.0	< 10	7,394
<i>Other 12,500 or less</i>	28	1.0	< 10	≤ 12,500
<i>Other – more than 12,500</i>	14	0.5	> 10	>12,500
Total Turboprop	2,689	100%		
TURBOJET				
<i>Beechjet 400</i>	14	1.1	< 10	16,100
<i>Cessna Citation - CJ1</i>	86	7.2	< 10	11,850
<i>Citation – CJ2</i>	414	34.8	< 10	13,300
<i>Citation – CJ3</i>	30	2.4	< 10	10,400
<i>Citation - 525</i>	250	20.9	< 10	10,700
<i>Citation - V</i>	298	25.0	< 10	16,300
<i>Citation – Excel/Sovereign</i>	16	1.4	< 10	20,200
<i>Citation - Mustang</i>	28	2.4	< 10	8,645
<i>Eclipse 500</i>	42	3.5	< 10	b5,950
<i>Other – more than 12,500</i>	12	1.3	< 10	> 12,500
Total Turbojet	1,190	100%		

Notes: Passenger count does not include 2 pilot seats.

1.5.3 Runway Length Requirement

Step 2 – AC 150/5325-4B, Paragraph 102(b)(2). “Identify the airplanes that will require the longest runway lengths at Maximum Certificated Takeoff Weight (MTOW). This will be used to determine the method for establishing the recommended runway length”

A review of the aircraft listings provided by *FlightAware*, and confirmed by airport records, indicate that the most demanding aircraft currently utilizing the airport are:

- Raytheon/Beech King Air
- Citation – various models

Each of these aircraft types meet the FAA’s *substantial use* criteria of 500 or more annual operations. Discussions with airport tenants and aircraft owners’ reveals that operators of the aircraft listed above begin to reduce takeoff weight as temperatures climb above 90 degrees.

Step 3 – AC150/5325-4B, Paragraph 102(b)(3). “Use Table 1-1 and the airplanes identified in step No. 2 to determine the method that will be used for establishing the recommended runway length. Table 1-1 categorizes potential design airplanes according to their MTOW. MTOW is used because of the significant role played by airplane operating weights in determining runway lengths. As seen from Table 1-1, the first column separates the various airplanes into one of three weight categories. Small airplanes, defined as airplanes with MTOW of 12,500 pounds (5,670 kg) or less, are further subdivided by approach speeds and passenger seating as explained in Chapter 2. Regional jets are assigned to the same category as airplanes with a MTOW over 60,000 pounds (27,200 kg). The second column identifies the applicable airport design approach (by airplane family group or by individual airplanes) as noted previously in Step 2. The third column directs the airport designer to the appropriate chapter for design guidelines and whether to use the referenced tables contained in the AC or to obtain airplane manufacturers’ Airport Planning Manuals (APM) for each individual airplane under evaluation.”

The AC indicates that runway length for an airport should be determined in accordance with a grouping of airplanes having similar performance characteristics and operating weights. As noted in *Step 3*, guidelines included in FAA Advisory Circular 150/5325-4B, Table 1-1, *Airplane Weight Categorization for Runway Length Requirements*, require the identification of a *Family grouping of airplanes* based upon current and forecast activity. Currently at Bowman Field, more than 500 annual turbine operations occur by aircraft that fall within two of these *family groupings* identified in Table 1-1 of the AC. These airplanes are listed in Table 4.

Table 4 – 2012 Operations by Family Grouping of Airplanes			
Critical Aircraft	Number of 2012 Operations	Percent of Total Operations	Maximum Takeoff Weight - Pounds
Family grouping of small airplanes with 10 or more passenger seats – Figure 2-2			
<i>Beech King Air 90</i>	455	0.58	9,650
<i>Beech King Air 100</i>	45	0.06	10,100
<i>Beech King Air 200</i>	624	0.8	12,500
<i>Mitsubishi MU-2L</i>	20	0.03	10,800
Group Total	1,144	3.91*	≤ 12,500
Family grouping of large airplanes - Figure 3-1			
<i>Beech King Air 300/350</i>	29	0.04	14,000
<i>Beechjet 400</i>	14	0.02	16,100
<i>Cessna Citation – CJ2</i>	414	0.53	13,300
<i>Cessna Citation - V</i>	298	0.38	16,300
<i>Citation Excel/Sovereign</i>	16	0.02	20,200
<i>Other – Misc. Types</i>	26	0.02	> 12,500
Group Total	797	1.01*	> 12,500

*Percent of total annual operations by type and group based on Table 1-1 of AC 150/5325-4B

With the selection of the two airplane groups listed in Table 4 the AC directs the planner to Chapter 2, Figure 2-2; and, Chapter 3; Figures 3-1 or 3-2 and Tables 3-1.

Step 4 – “Select the recommended runway length from among the various runway lengths generated by step 3 per the process identified in Chapters 2, 3, or 4, as applicable.”

The procedures outlined in AC 150/5325-4B have been used in determining the runway length required to accommodate the designated critical airplanes. The AC’s Table 1-1, “Airplane Weight Categorization for Runway Length Requirements” directs the reviewer to use Chapter 2, Figure 2-2 for the appropriate family grouping of small airplanes and, Figure 3-1 for airplanes over 12,500 pounds but less than 60,000 pounds. The majority of the airplanes in this group are found on Table 3-1 of the AC, *Airplanes that Make Up 75 Percent of the Fleet*. The use of the graphs (Figures 2-2 and 3-1) are based upon the following¹:

- Airport Elevation **546.0 Feet** Mean Sea Level
- Daily Mean Maximum Temperature of Hottest Month **89°** Fahrenheit (July)
- Runway Elevation Change **13.9 Feet** (0.43% Slope)

The Graphs of these conditions and their results are shown below. The result of the Runway Length Curves identified by the blue lines for each of these airplane groups is:

- Figure 2-2: Small Airplanes (less than 12,500 pounds takeoff weight) Having 10 or More Passenger Seats – requires a runway length of **4,275 feet**

¹ Bowman Field Airport Layout Plan Approved: February 27, 2012

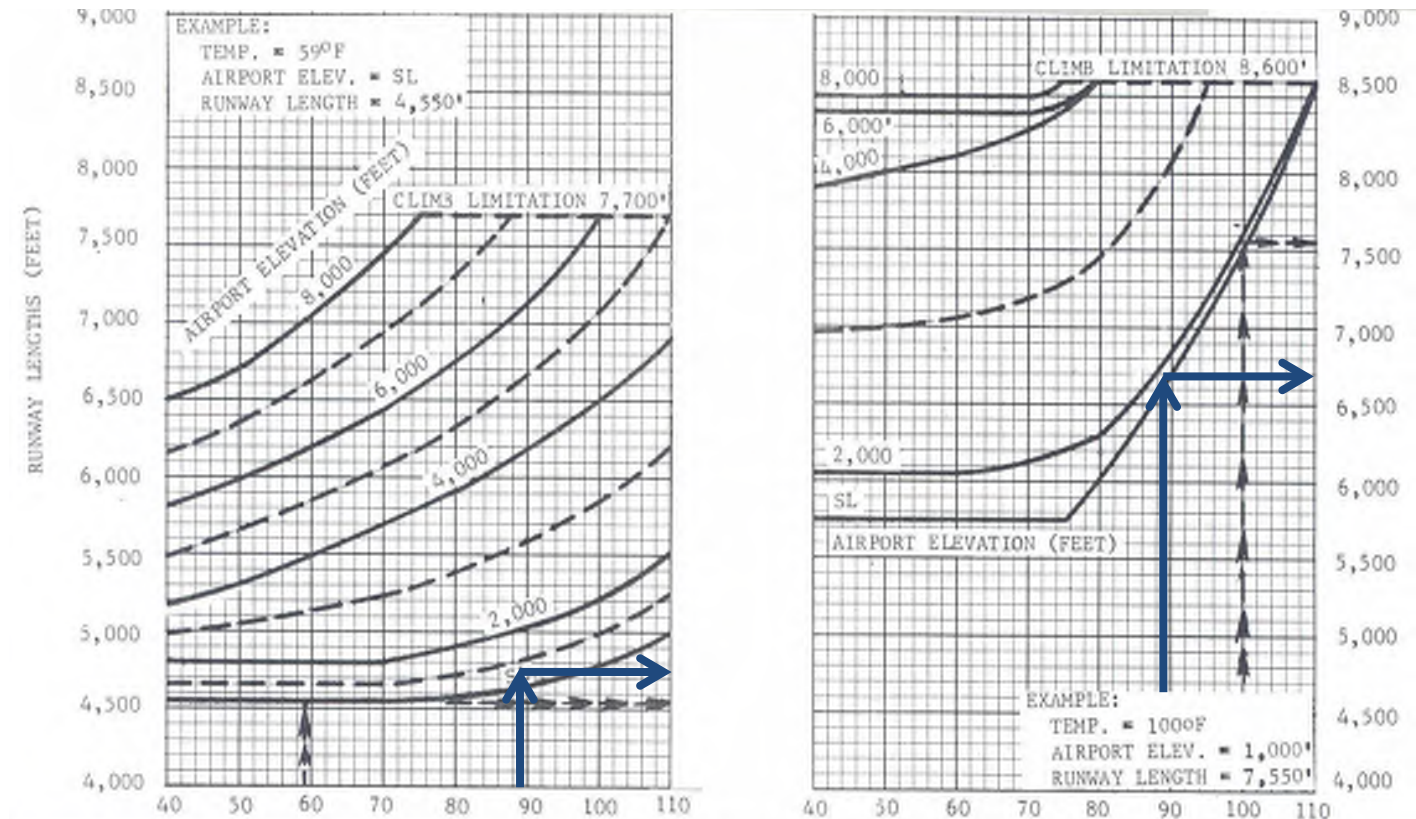
- Figure 3-1: 75 Percent of the Fleet at 60 or 90 Percent Useful Load – requires a runway length of **4,700 or 6,700 feet**.

AC 150/5325- 4B Figure 2-2. Small Airplanes Having 10 or More Passenger Seats – excluding pilot & co-pilot

Representative Airplanes	Runway Length Curves
Raytheon B80 Queen Air Raytheon B90 King Air Raytheon B99 Airliner Raytheon A100 King Air (Raytheon formerly Beech Aircraft) Mitsubishi MU-2L Swearigen Merlin III-A	<p> Bowman Field: Temperature (mean day max hot month) 89° F Airport Elevation (msl) 546 feet Recommended Runway Length 4,275 feet </p>

AC 150/5325- 4B Figure 3-1: 75 Percent of Fleet at 60 and 90 Percent of Useful Load

Representative airplanes: Raytheon (Beech) King Air 300 and 350
Cessna Citation CJ2, V, Excel, Sovereign, etc.
Beech Jet 400



75 percent of fleet at 60 percent

75 percent of fleet at 90 percent

60 and 90 percent of the airplane's useful load

Conclusion: Runway Length Requirement

Based upon the guidance contained in AC 150/5324-4B, *Runway Length Requirements for Airport Design* and validated by the FAA's previously used computer program, it is concluded that the current runway lengths at Bowman Field are the minimum required to accommodate the current operating demand. Any reduction in the amount of usable runway length would result in a diversion of a substantial number of operations to the more congested Standiford Field (Louisville International Airport). This evaluation is based upon the existing aircraft fleet mix.

1.5.4 Runway Instrument Approach Procedures

Instrument Flight Rules (IFR) is one of two sets of FAA regulations defining operating requirements for aircraft within the airspace system. The FAA defines IFR as: *Rules and regulations established by the FAA*

to govern flight under conditions in which flight by outside visual reference is not safe. IFR flight rules and pilot qualification allow an aircraft to be flown in weather conditions that do not meet minimum requirements for visual flight rules (VFR). Generally IFR operations must be conducted when weather conditions are below 1,000 foot ceiling and less than 3 miles horizontal visibility. Records for Bowman Field indicate that IFR conditions are present approximately nine (9) percent of the time, or roughly 775 – 800 hours per year.

A review of the Operation data shown in Table 1 reveals that during the 5 year period 2008 – 2012 approximately thirteen percent (13.2%) were IFR operations. During the five year period the airport averaged 10,249 IFR operations per year.

1.6 Sponsor's Proposed Action

The Sponsor's Proposed Action intends to re-establish full use of airfield characteristics for aircraft currently using Bowman Field. This will be accomplished through mitigating obstructions that penetrate TERPS surfaces and other airspace surfaces, as defined by the FAA. The Sponsor's Preferred Action is detailed as follows and depicted in **Exhibits 4 – Alternative 1** in **Appendix A**.

- Acquisition of Avigation Easements on those properties where trees penetrate FAA TERPS surfaces and properties where tree penetrations will occur and the reinstatement of night time approach procedures that were in effect in February 2012.

1.7 Applicable Regulatory Statutes

The following statutes listed are applicable when evaluating the environmental impacts associated with the Sponsor's Proposed Action. Each of the following is explained in greater detail in Appendix B.

- The Airport and Airway Safety and Capacity Expansion Act of 1987 (P.L. 100-223).
- Federal Aviation Act of 1958, (P.L. 85-726) now recodified as Subtitle VII, Title 49 U.S. Code – Aviation Programs,” (§40101 et. Seq.).
- The National Environmental Policy Act 1969 (NEPA).
- Department of Transportation Act of 1966, Section 4(f), Recodified 49 U.S.C. §303c.
- Clean Water Act of 1977 (CWA), 33 U.S.C. §1251, et seq.
- The Clean Air Act of 1970 (CAA), 42 U.S.C. §4701, et seq.
- The Endangered Species Act of 1973, 16 U.S.C. §1531, et seq.
- The Airport Noise and Capacity Act of 1990, (P.L. 101-508).
- Coastal Zone Management Act of 1972, 16 U.S.C. §1451, et seq.
- National Historic Preservation Act of 1966, 16 U.S.C. §470, et seq.
- Wild and Scenic Rivers Act of 1968, 16 U.S.C. §1271, et seq.
- Land and Water Conservation Fund Act of 1965, 16 U.S.C. §4600-5, et seq.
- Coastal Barrier Resources Act, 16 U.S.C. §3501 et seq.
- National Flood Insurance Act of 1968, 42 U.S.C. §4001 et seq. Flood Disaster Protection Act of 1973, 42 U.S.C. §4002, et seq.
- Executive Order 11990 Protection of Wetlands

- Executive Order 11988 (Floodplain Management), as strengthened in 2015 by Executive Order 13690
- Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC Section 4601, *et. seq.*)

CHAPTER 2 - ALTERNATIVES

2.1 General Discussion

Federal guidelines concerning an environmental review process require that all reasonable alternatives that could sufficiently meet the Purpose and Need of the Airport are considered. The examination of alternatives is of critical importance to the environmental review process and serves to ensure that an alternative that may enhance environmental quality or have a less detrimental effect has not been prematurely dismissed from consideration. The purpose of this chapter is to describe the process followed during the analysis of alternatives to the proposed project. Alternatives that do not meet the Purpose and Need of the environmental review process are dismissed from further consideration. All alternatives considered to be reasonable and practicable are carried through the study to assess their individual environmental consequences.

2.2 Alternatives Considered

2.2.1 Introduction

As stated in Chapter One – Purpose and Need, the LRAA’s goal is to re-establish full use of airfield characteristics for aircraft currently using Bowman Field. The Purpose is to provide safe, efficient and usable airfield resources at Bowman Field while at the same time maintaining the existing aeronautical capacity. The Need for the proposed project seeks to satisfy existing aeronautical demands and comply with safety guidelines and regulations set forth by the FAA as well as comply with FAA Grant Assurance 20.² The LRAA intends to restore night time IFR operating capabilities at levels documented in the FAA conditional approval of the Airport Layout Plan (signed February 27, 2012) in their letter dated March 21, 2012, with minimal changes to airfield geometry and comply with safety needs at Bowman Field. Several options exist in addressing the Purpose and Need of this proposed action. See **Exhibit 1 – Federal Aviation Administration – Conditional ALP Approval Correspondence** in **Appendix C**.

- No Action Alternative.
- Alternative 1: Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.
- Alternative 2: Acquire easements and lighting obstructions to Runways 06, 15, 24 and 33.
- Alternative 3: Construct a new north/south Runway and extend Runway 15 to the northwest.
- Alternative 4: Extend Runway 24 to the northeast and Runway 15 to the northwest.
- Alternative 5: Construct a New Airport.

The rationale used in formulating the alternatives followed a step-wise progression. The analyses first reviewed utilizing the existing airfield (No Action Alternative). The second analysis reviewed re-establishing full use of airfield resources, for aircraft currently using Bowman Field (Alternatives 1 through 4). The final analysis reviewed a reasonable (if any) alternative could be used to replace the existing Airport (Alternative 5).

² http://www.faa.gov/airports/aip/grant_assurances/media/airport-sponsor-assurances-aip.pdf

2.2.2 Alternatives Identified

2.2.2.1 No Action Alternative

The Council of Environmental Quality (CEQ) Regulation includes specific directions on the consideration of alternatives. Section 1502.14(d) of said regulations state that “agencies shall include the alternative of no action in any environmental analysis.” The No Action Alternative shown in **Exhibit 3 –Airport Site Vicinity Map** in **Appendix A**. This study assumes that if the Airport remains in its current state, the Airport will maintain its current runways and will not provide any additional expansion of airfield resources that would address the constraints outlined in the Purpose and Need of this Environmental Assessment. Bowman Field will be required to relocate the thresholds of each runway to ensure the 20:1 visual approach surface remains free of obstructions. The results of this action would move Runway 06’s threshold an additional 640 feet resulting in a Landing Distance Available (LDA) of 2,829 feet. Runway 24’s threshold would remain in its current location with a LDA of 3,856 feet. Runway 15’s threshold would move an additional 692 feet resulting in a LDA of 2,876 feet. Finally, Runway 33’s threshold would be relocated 980 feet resulting in a LDA of 2,876 feet. These shortened and relocated thresholds would eliminate operations by the current critical aircraft group. In addition to threshold relocations the No Action Alternative would require LRAA not address any airfield resource improvements that would address the constraints outlined in the Purpose and Need of this Environmental Assessment.

2.2.2.2 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012. (Preferred Alternative)

This alternative, depicted on **Exhibit 4 – Alternative 1** in **Appendix A** proposes purchasing 44 easements over properties containing trees that have or will become obstructions to the four runway approaches. This alternative allows Bowman Field to maintain current runway lengths and regain nighttime operating capabilities to levels depicted on the approved ALP dated February 27, 2012, to serve existing aviation users. Bowman Field would maintain the 4,357 ft. Runway 06-24 (primary runway) and the 3,579 ft. Runway 15-33 (crosswind runway), as well as preserve the existing airfield geometry. Approximately 3,600 trees were identified within the project areas, of these, approximately 104³ were determined to penetrate or be within ten feet of the FAR Part 77 and TERPS (20:1 Visual Area Surface; the Obstruction Clearance Surface for Visual Approach Slope Indicator; and/or the Glidepath Qualification Surface) and will need to be trimmed or removed/replaced. The LRAA has committed to mitigation actions through this alternative. The property owner will decide whether to trim or remove trees that are penetrating, or within ten feet of penetrating the critical approach surface for that runway. The property owner will also determine whether their tree is replaced. If the property owner decides to remove the tree, the mitigation actions include; replacement of the removed tree at a ratio of 2:1, if a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees. The LRAA will also pay for tree trimming or removal/replacement, stump removal and

³ Due to the length of the proposed project and the dynamic nature of the project area (tree growth, tree decay and individual property owner actions) trees have come in and out of the program.

yard restoration through backfilling the hole and seeding. Finally, all new plants will carry a one-year warranty; replacement tree will carry a two-year warranty.

2.2.2.3 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative, depicted on **Exhibit 5 – Alternative 2** in **Appendix A** proposes lighting trees that have become obstructions to Runways 06, 15, 24 and 33. This alternative would require trees that have been identified as penetrating or within ten feet of the approach surface have a lighted pole installed adjacent to the tree. Since these trees are located on non-airport property, both an aviation easement and permanent utility easement would be required to allow the FAA to install and maintain each light. The installation of the lights would require additional utility considerations including overhead power lines integrated into the existing power grid. The new overhead power lines would likely require tree trimming or removal/replacement to ensure branches do not interfere or cause damage to the new and existing power lines. As the obstructions (trees) grow, the lighted poles will need to be replaced or modified to ensure the pole height properly designates the current elevation of the obstruction. The lighted poles placed adjacent to these obstructions would belong to the Airport and they would be responsible for their operations and maintenance. Based on FAA lighting regulations, obstructions within a 40-ft light radius may be clustered together to minimize the number of permanent lights that may be required. Using this methodology, approximately 81 lights, for all four runway ends, will be needed to properly light trees that have or will become obstructions. A survey of the obstructions would likely occur annually to ensure obstructions have not grown beyond the lighted standards. Since these poles are the property of the FAA they are subject to FAA's Advisory Circulars (AC), as well as national electrical and fire, installation and safety codes and standards. Below is a list of applicable ACs, codes, standards and references that may apply to design and construction of an obstruction lighting system.

- American National Standard for Wood Poles: ANSI O5.1-2008 Wood Poles Specifications & Dimensions.
- American National Standards (ANSI) C80.1 – Rigid Steel Conduit, Zinc Coated.
- ANSI C80.4 – Fittings Rigid Metal Conduit and Electrical Metal Conduit.
- American Society for Testing and Materials (ASTM) Specification B3 – Standard Specification for Soft or Annealed Copper Wire.
- ASTM Specification B8 – Standard Specification for Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.
- FAA AC No. 70/7460-1K (or most current issue) Obstruction Marking and Lighting.
- FAA AC No. 150/5340-26B “MAINTENANCE OF AIRPORT VISUAL AID FACILITIES”.
- FAA AC No. 150/5340-30H “DESIGN AND INSTALLATION DETAILS FOR AIRPORT VISUAL AIDS”.
- FAA AC No. 150/5345-53 “AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM” (most current issue) and AC150/5345-53D, AIRPORT LIGHTING EQUIPMENT CERTIFICATION PROGRAM Appendix 3 Addendum.
- FAA AC No. 150/5345-43G “SPECIFICATION FOR OBSTRUCTION LIGHTING EQUIPMENT” (or most current issue in force).
- FAA AC No. 150/5370-2F (or most current issue) “OPERATIONAL SAFETY ON AIRPORTS DURING CONSTRUCTION”.

- FAA AC 150/5370-10G Standards for Specifying Construction of Airports, PART 11 LIGHTING INSTALLATION, Item L-108 Underground Power Cable for Airports with the applicable modifications, additions and clarifications.
- FAA AC 150/5370-10G Standards for Specifying Construction of Airports, PART 11 LIGHTING INSTALLATION, Item L-110 Airport Underground Electrical Duct Banks and Conduits with the applicable modifications, additions and clarifications.
- FAA AC 150/5370-10G Standards for Specifying Construction of Airports, PART 11 LIGHTING INSTALLATION, Item L-119 Airport Obstruction Lights with the applicable modifications, additions and clarifications.
- FAA Engineering Brief No. 67D Light Sources Other Than Incandescent and Xenon for Airport and Obstruction Lighting Fixtures.
- Federal Aviation Administration Program Guidance Letter 12-02.
- Federal Specification A-A-59544 Cable and Wire, Electrical (Power, Fixed Installation).
- National Fire Protection Association (NFPA) 70 – National Electrical Code (NEC), most current issue in force.
- NFPA 70E – Standard for Electrical Safety in the Workplace.
- NFPA 780 – Installation of Lightning Protection Systems.
- Occupational Safety and Health Administration (OSHA) 29 CFR Part 1910 Occupational Safety and Health Standards for electrical safety and lockout/tagout procedures.
- Rules and regulations of the serving electric utility company.
- Underwriters Laboratories (UL) Standard 6 – Rigid Metal Conduit.
- UL Standard 44 – Thermoset-Insulated Wires and Cables.
- UL Standard 83 – Thermoplastic-Insulated Wires and Cables.
- UL Standard 467 – Grounding and Bonding Equipment.
- UL Standard 486A-486B Wire Connectors.
- UL Standard 514B – Conduit, Tubing and Cable Fittings.
- UL Standard 854 – Service Entrance Cables.

2.2.2.4 Alternative 3 – Construct a new north/south Runway and extend Runway 15 to the northwest

This alternative, depicted on **Exhibit 6 – Alternative 3** in **Appendix A** proposes constructing a new Runway 01-19 and extending Runway 15 to the northwest. The new Runway 01-19 would be 4,357 ft. in length by 75 ft. in width, with a weight bearing capacity able to accommodate the design aircraft of Bowman Field. Runway 01-19 will serve as the new primary runway, with the old Runway 06-24 pavement being removed. In addition, Runway 15-33 will be extended 1,200 ft. to the northwest making it 3,579 ft. long and 75 wide and would remain to serve as the crosswind runway. The existing airfield geometry will change, which will require the relocation of on airport access roads, airport buildings and connector taxiways. This alternative would also require the acquisition of Seneca Golf Course, several commercial properties and a portion of the Hawthorne Estates neighborhood in fee simple title. Once these properties are acquired existing structures, trees and landscaping will be removed to accommodate the new and extended runways. The acquisition of a portion of Hawthorne Estates would also require the trimming or removal/replacement of trees south of the acquired and relocated residential homes as well as the relocation of Taylorsville Road to ensure remaining residents have access to their homes. In addition, this alternative would require the realignment of two segments of the Middle Fork of Beargrass Creek, to ensure the creek

is outside of Runway Safety Areas (RSA). Ancillary development will be limited to necessary construction needed including; connecting taxiways, navigational aids, fencing, signage, lighting, obstruction removal, marking, grading and drainage and turf improvements.

2.2.2.5 Alternative 4- Extend Runway 24 to the northeast and Runway 15 to the northwest

This alternative depicted on **Exhibit 7 - Alternative 4** in **Appendix A**, proposes extending Runway 24 to the northeast and Runway 15 to the northwest. This alternative proposes extending Runway 24 950 ft. to the northeast making it 4,357 ft. long and 75 ft. wide, and will remain the primary runway. This alternative also proposes extending Runway 15-33 1,200 ft. to the northwest making it 3,579 ft. long and 75 wide, and will remain the crosswind runway. The existing airfield geometry will change, which will require the relocation of on airport access roads and connector taxiways. This alternative would also require the acquisition of both Seneca Golf Course and Big Spring Country Club, in fee simple title. Once these properties are acquired, existing structures, trees and landscaping will be removed to accommodate the extended runways. To accommodate the construction of Runway End 22's extension, Cannons Lane will be relocated to the north, outside of property acquired by the Airport. In addition, this alternative would require the realignment of two segments of the Middle Fork of Beargrass Creek, to ensure the creek is outside of the RSA. Ancillary development will be limited to necessary construction needed including; connecting taxiways, navigational aids, fencing, signage, lighting, obstruction removal, marking, grading and drainage and turf improvements.

2.2.2.6 Alternative 5 – Construct a new Airport

This alternative proposes to construct a new airport in close proximity to the existing facilities in the Louisville, Kentucky area to continue to serve its existing airport users. This alternative will require the preparation of a new Airport Master Plan and Site Selection Report. This alternative requires significant acquisition of property potentially including residences and businesses; relocation and severance of roadways; construction of new runways, taxiways, aprons, navigational aids, and general aviation and corporate facilities; and the creation and/or extension of water, sewer and utility lines to serve the new site. A new and separate environmental analysis would be required if this alternative were selected.

2.3 Alternatives Eliminated From Further Consideration

This section discusses those alternatives that have been eliminated from further review and lists the reasons for their dismissal. While the following alternatives may accommodate existing aircraft with acceptable approaches and runway lengths, required areas into adjacent residential areas would create substantially more penetrations to the FAR Part 77 and TERPS surfaces than Alternative 1 and Alternative 2. For this reason, Alternatives 3, 4 and 5 were eliminated from further analysis because it did not fully meet the project's purpose to re-establish approaches (by removing penetrations to FAA surfaces) to the existing airfield geometry.

2.3.1 Alternative 3 – Construct a new north/south Runway and extend Runway 15 to the northwest

This alternative would negatively impact large portions of the community surrounding the Airport. This alternative would create negative social impacts by disrupting an established community, through acquisition and the relocation of a portion of Hawthorne Estates neighborhood. To construct the new Runway 01-19, approximately 70 acres of residential land would be acquired and 150-200 residential

properties would be relocated from Hawthorne Estates. The residents displaced by this alternative would need to be relocated into comparable housing, according to the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (Uniform Act). Residential properties not acquired, will need new roads to ensure access to their homes, which will include the relocation of Taylorsville Road. Homes located south of the acquired land would still require tree trimming or removal/replacement, to remove obstructions to the new Runway 01-19. This alternative would also create negative socio-economic impacts through the acquisition of Seneca Golf Course from the Louisville Metro Parks. The acquisition of Seneca Golf Course would remove a source of income from the Louisville Metro Parks as well as eliminate any potential economic benefit to the adjacent community and surrounding businesses. In addition, this alternative would create negative environmental impacts, by realigning portions of the Middle Fork of Beargrass Creek. When compared to Alternative 1 and Alternative 2, this alternative does not meet LRAA's Purpose and Need by encompassing additional areas with penetrations to the FAR Part 77 and TERPS surfaces thereby creating additional and negative natural resource, social, socioeconomic and infrastructure impacts as well as changing the geometry of the Airport and not maintaining existing facilities. Therefore, this alternatives was eliminated from further consideration.

2.3.2 Alternative 4 - Extend Runway 24 to the northeast and Runway 15 to the northwest

This alternative would negatively impact large portions of the community surrounding the Airport. This alternative would require the acquisition of both Seneca Golf Course from the Louisville Metro Parks and the privately owned Big Spring Country Club. This alternative would create additional negative socio-economic impacts to the community by removing a source of income from the Louisville Metro Parks as well as eliminate any potential economic benefit to the adjacent community and surrounding businesses. In addition, this alternative would create negative infrastructure impacts through the relocation of Cannons Lane, outside of the Runway 15's RSA. This alternative would also create negative environmental impacts, by realigning portions of the Middle Fork of Beargrass Creek. When compared to Alternative 1 and Alternative 2, this alternative does not meet LRAA's Purpose and Need by encompassing additional areas with penetrations to the FAR Part 77 and TERPS surfaces thereby creating additional and negative natural resource, social, socioeconomic and infrastructure impacts as well as changing the geometry of the Airport and not maintaining existing facilities. Therefore, this alternatives was eliminated from further consideration.

2.3.3 Alternative 5 – Construct new airport

This alternative would only address the safety hazards at the Airport by constructing a new airport in a less urban environment area. However, under those conditions the new airfield would no longer serve the existing users of Bowman Field that rely on its proximity to other facets of the Louisville area and would require that the Airport be moved out of the city and possibly out of the county. This alternative does not adhere to the Purpose and Need of the Airport's current function as an airport in the location of which it serves its operators. Additionally, it would be expected that a new airport site would require land acquisition greater than any alternative to be considered in this document. It is also expected that constructing a new airport would require the purchase of numerous residences, businesses and/or farms, and cause major surface transportation disruptions due to roadway relocations; and potentially impact numerous natural resources. Other alternatives being considered in this document have substantially fewer environmental impacts. Since this alternative does not meet LRAA's Purpose and Need by encompassing

additional areas with penetrations to the FAR Part 77 and TERPS surfaces thereby creating additional and negative natural resource, social, socioeconomic and infrastructure impacts as well as changing the geometry of the Airport and not maintaining existing facilities, this alternatives was eliminated from further consideration.

2.4 Alternatives Considered for Further Examination

2.4.1 No Action Alternative

The No Action Alternative analysis is required pursuant to FAA Orders 1050.1E; *Environmental Impacts: Policies and Procedures*, CEQ Regulations and the FAA's Order 5050.4B, *Airport Environmental Handbook*. These guidelines define the need to analyze and compare the No Action Alternative and other alternatives, if applicable, to the Sponsor's Proposed Action. The No Action Alternative will be studied further in Chapter Four - **Environmental Consequences** of this EA.

2.4.2 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

Currently Bowman Field is operating with reduced runway capabilities due to trees penetrating the approach surfaces. To ensure the airport's runway approaches are in compliance with FAR Part 77 and Terminal Instrument Procedures (TERPS) design standards, the LRAA must remove obstructions in areas beyond Runway Ends 06, 15, 24 and 33. This will allow the Airport to restore and maintain the approaches to the previously established 4,357 ft. primary runway and 3,579 ft. crosswind runway. The airport intends to comply with these requirements. The proposed actions include aviation easement acquisition and trimming or removal/replacement of obstructions. An aviation easement is a conveyance of a specified property interest for a particular area that restricts the use by the owner of the surface (in this case, approach surfaces) and yet assures the owner of the easement the right and privilege of a specific use contained within the easement document. These proposed easement acquisitions can thereby accommodate the removal or trimming of obstructing trees in areas where these obstructions could interfere with aircraft operations and to prevent future encroachment of the approaches while at the same time, allowing the property owner to remain in place. The LRAA has also committed to mitigation actions through this alternative. The property owner will decide whether to trim or remove trees that are penetrating, or within ten feet of penetrating the critical approach surface for that runway. The property owner will also determine whether their tree is replaced. If the property owner decides to remove the tree, the mitigation actions include; replacement of the removed tree at a ratio of 2:1, if a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees. The LRAA will also pay for tree trimming or removal/replacement, stump removal and yard restoration through backfilling the hole and seeding. Finally, all new plants will carry a one-year warranty; replacement tree will carry a two-year warranty. The Sponsor's Proposed Action will be studied further in **Chapter Four – Environmental Consequences** of the Environmental Assessment Document.

2.4.3 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

Currently Bowman Field is operating with reduced runway capabilities due to trees penetrating approach surfaces. To ensure the Airport's runway approaches are in compliance with FAR Part 77 and TERPS

design standards, the LRAA must protect and clear established minimum flight altitudes by installing lighted poles adjacent to obstructions to minimize hazards at the Airport. This may allow the Airport to maintain the approaches to the previously established 4,357 ft. primary runway and 3,579 ft. crosswind runway. The LRAA intends to comply with these requirements. The proposed actions include an aviation easement and ground easement to allow the installation of lighted poles adjacent to the obstructions (tree). This alternative would require annual monitoring to ensure obstructions have not grown beyond the lighted standard and that the lights are operational. This alternative would allow the encroachments to remain but highlight the obstructions so they do not interfere with aircraft operations. The Sponsor's Proposed Action will be studied further in **Chapter Four – Environmental Consequences** of the Environmental Assessment Document.

CHAPTER 3 - AFFECTED ENVIRONMENT

3.1 Introduction

The purposed of this Chapter is to describe the character of the environment in which the alternatives to be evaluated may occur. Characteristics of the surrounding area are described to familiarize the reader with the geography, land use, demographics and general environmental conditions that could potentially be affected by the alternatives considered. The description of the affected environment is presented in the following sections:

- Airport and Proposed Project Location
- Land Use and Zoning
- Socioeconomic Overview
- Inventory of Natural Environment

To minimize any duplication of information within this document, the affected environment inventory for most of the Federally listed environmental resources (noise, air quality, floodplain, DOT Section 4(f), natural resources, energy supply, light emissions etc.) are discussed in Chapter Four – Environmental Consequences. There are no coastal zone management areas, coastal barriers, or wild and scenic rivers in the project area therefore they will not be addressed in this chapter.

3.2 Airport and Project Location

Bowman Field is located within the city limits of Louisville within Jefferson County in the north central part of Kentucky. It is bordered on the northeast by the Ohio River and Oldham County, on the east by Shelby County, on the south and southeast by Spencer and Bullitt Counties, and on the west and northwest by the Ohio River. As of 2010, Jefferson County is approximately 380 square miles with approximately 1,948.1 people per square mile.⁴ The population of Louisville, which is also the county seat, is approximately 756,832 (2013).⁵ Louisville is located within the northern edge of the Bluegrass Region of Kentucky, where a large portion of the state's population is centered. The city of Louisville is situated along the southern edge of the Ohio River at the Falls of Ohio, which has had a historical benefit to Louisville as a port. Bowman Field is located in eastern Louisville and is surrounded by several golf courses and neighborhood communities that include; Big Spring Country Club, Seneca Golf Course, Seneca Vista, McCoy Manor, Seneca Manor, Kingsley, Hathaway, Seneca Village No. 2 and Seneca Village

3.3 Land Use and Zoning

3.3.1 Local Jurisdictions

The Louisville Regional Airport Authority (LRAA) is an autonomous municipal corporation established by Kentucky State statute. The LRAA is responsible for owning, operating and developing both Louisville International Airport (SDF) and Bowman Field Airport (LOU). LRAA is self-funded and derives operating revenue from a variety of user fees. The LRAA does not receive local or state funding for the routine operations of either airport. The predecessor of the LRAA was established in 1928 by the Commonwealth of Kentucky's General Assembly and is believed to be the first airport to use the authority-type governance in the United States. LRAA is governed by an eleven member Board of Directors that sets policy, approves

⁴ <http://quickfacts.census.gov/qfd/states/21/21111.html>

⁵ <http://quickfacts.census.gov/qfd/states/21/21111.html>

the budget and hires the executive director, who serves as the organization's chief executive officer and governs the LRAA. The Board is comprised of the Mayor of Louisville, seven mayoral appointees and three gubernatorial appointees, one of which is a member of the Airport Neighbors Alliance Executive Committee. The board members serve four-year staggered terms without compensation.⁶

3.3.2 Zoning

Kentucky has utilized a Land Development Code (LDC), developed for the needs of the municipalities within the state. "The LDC is a regulatory document that guides implementation of goals and objectives when creating a Comprehensive Land Use Plan."⁷ In Kentucky, first through fourth class cities have their own zoning authority. These cities are allowed to choose which versions or sections of the LDC that best serves their goals and objectives.⁸ Jefferson County has 12 cities that meet these criteria, including Louisville-Metro. Jefferson County used these guidelines to create the Cornerstone 2020 Comprehensive Plan for the 12 cities that qualify as first through fourth class in Jefferson County. Cornerstone 2020 provides guidance on the specific zoning and land uses within each LDC type. Based on the guidelines presented in the Cornerstone 2020 Comprehensive Plan, parcels are categorized into "Zoning Districts" and further defined in "Form" districts. These two districts are used in conjunction with each other and used to ensure compatibility and uniform patterns of development within existing and emerging development. The largest zoning districts adjacent to the Airport are residential, business/office and commercial, which are within the Form Districts neighborhood and work.^{9,10,11} The Airport and the property surrounding the Airport is designated as SW and N, respectively, which are within Suburban Form Districts. The SW designation of the Airport is further broken down into Suburban Workplace Form Districts (SWDF). The SWDF is defined in the LDC as

"area designed to reserve land for large-scale industrial and employment uses in suburban locations. District standards are designed to ensure compatibility with adjacent form districts, to buffer heavy industrial uses from potentially incompatible uses, to ensure adequate access for employees, freight, and products, to provide services and amenities for employees, and to improve transit service. The SWDF standards do not address permitted land uses and density or intensity of development. These aspects of land use planning are more appropriately addressed through zoning district regulations or regulatory goals, and objectives and policies of the Comprehensive Plan".

The areas surrounding the Airport area designated as Neighborhood Form District (NFD). The NFD is defined in the LDC as

"areas design standards are intended to promote development and redevelopment that is compatible with and enhances the unique site and community design elements of a neighborhood. NFD design standards are also intended to promote the establishment of activity centers at appropriate locations as established in Guidelines 1 and 2 of the Comprehensive Plan. Activity centers should effectively integrate a mix of retail,

⁶ <http://www.flylouisville.com/regional-airport-authority/regional-airport-authority-overview/>

⁷ <https://louisvilleky.gov/government/planning-design/land-development-code>

⁸ <http://www.louisvilleky.gov/PlanningDesign/ldc/>

⁹ <http://louisvilleky.gov/government/planning-design/cornerstone-2020>

¹⁰ <http://ags2.lojic.org/lojiconline/>

¹¹ http://louisvilleky.gov/sites/default/files/planning_design/general/hmlss_zoningbasicspresentations.pdf

institutional, and other non-residential uses within neighborhoods in a manner that provides convenient service to residents while protecting the character of the neighborhood”.^{12,13}

See **Exhibit 3 – Louisville Zoning Map** in **Appendix A**.

3.4 Socio-economic Overview

3.4.1 Community Growth

The population of Jefferson County has increased 6.85% from 693,592 in 2000 to 763,623 in 2015.¹⁴ “The Greater Louisville Inc., Metro Chamber of Commerce (GLI) is working to increase and support this growth by assisting initiatives that promote diversity, vibrancy and added possibilities to its communities. This includes a focus on education so they can pave the path for economic prosperity by creating a highly educated work force for a knowledge-based economy.”¹⁵ The LRAA is a member of the GLI and works with other businesses in the community to promote a positive business and economic environment in Louisville - Jefferson County. Having airports like Bowman Field within Louisville helps the GLI when trying to attract businesses and economic growth to the community. As the population of the Louisville – Jefferson County grows, maintaining economic drivers like Bowman Field will be critical to successful community and economic growth.

3.4.2 Area Wide Land Use

The land use in the area surrounding Bowman is mixed residential and recreational. A large majority of Jefferson County is urban with forested areas to the south and east. The largest population in the county is centered in Louisville. Due to the large urban populations, citizens utilizing the labor opportunities within these areas have required the County to plan for a more livable, attractive, mobile, efficient and environmentally sensitive communities. Many of these labor forces and the local economy benefit from Bowman Field. Louisville’s Airports generate a recurring economic impact of more than 64,135 local jobs, more than 7 million dollars in economic activity and more than 320 million dollars in state and local taxes.¹⁶ Bowman Field is surrounded by these urban populations including neighborhoods and two golf courses, one publically owned (Seneca Golf Course) and the other private (Big Spring Country Club). In addition, multiple industrial and commercial centers exist within a 5-mile radius of Bowman Field. See **Table 5 – Major Employers** for the major employers based on employees in Jefferson County.

Table 5 – Major Employers			
Business	Product/Service	Public/Private	Employees
United Parcel Service	International Air Hub	Private	20,080
Jefferson County Public Schools	Education	Public	14,676
Ford Motor Company	Automotive	Private	12,990
Humana Inc.	Managed Care	Private	12,500
Norton Healthcare	Health Care Provider	Private	11,389
University of Louisville	Education	Public	6,161
Amazon.com	Logistics	Private	6,000

¹²<http://apps.lojic.org/lojiconline/>

¹³ https://louisvilleky.gov/sites/default/files/planning_design/land_development_code/ldc_final_2016-07-08.pdf

¹⁴ <http://www.census.gov/quickfacts/table/PST045215/21111>

¹⁵ http://www.greaterlouisville.com/Community_Development/

¹⁶ <http://www.flylouisville.com/regional-airport-authority/regional-airport-authority-overview/>

GE Appliances	Home Appliances	Private	6,000
Kentucky One Health Inc.	Health Care Facilities	Private	6,000
Louisville-Jefferson County Metro Government	Transportation	Public	5,654
Baptist Healthcare System Inc.	Health Care Provider	Private	4,995

Source: <http://www.bizjournals.com/louisville/subscriber-only/2014/09/26/public-sector-employers.html> (last accessed 12/4/2016)
<http://www.greaterlouisville.com/EconomicDevelopment/Charts/PrivateSectorCompanies/> (lasted accessed 12/4/2016)

3.4.3 Avigation Easement Acquisition

The avigation easement acquisition process will follow guidelines provided by the FAA with appraisals and fair market value provided to land owners effected by the process. The easement acquisition process will include;

- An initial meeting with the homeowners to explain the program.
- Appraisals will be completed.
- LRAA will review and approve the offer.
- An offer, approved by the LRAA, will be personally delivered to the land-owner whenever possible.
- Following the executed easement, compensation will be paid to the homeowner and the easement will be filed with Jefferson County Recorder of Deeds office.

If initial meetings with property owners do not result in acquisition of the easement, the property owner will be notified that condemnation proceedings will be initiated. The project will be completed once all of the easements have been acquired.

3.5 **Inventory of Natural Environment**

3.5.1 Geology

Jefferson County is underlain by two physiographic regions. The southern portion of Jefferson County is underlain by the physiographic region the Knobs. The rest of Jefferson County is underlain by the physiographic region entirely composed of the Outer Bluegrass. The Outer Bluegrass, the larger of the two physiographic regions underlays Bowman Field and covers 95 percent of the county.¹⁷ The Outer Bluegrass region contains sinkholes, springs, entrenched rivers and intermittent and perennial streams. This region also contains discontinuous glacial outwash and leached pre-Wisconsinan till deposits that start in the north from Louisville to Covington. This area is mostly underlain by Upper Ordovician Limestone and shale. Upland streams have moderate to high gradients, boulder and cobble substrate, and long reaches of bedrock and periods of intermittency or areas with interrupted flow.¹⁸ Bowman Field and surrounding communities are predominately underlain by Sellersburg and Jeffersonville Limestone, with small areas around the Airport underlain by Louisville Limestone and Alluvium.¹⁹

¹⁷ http://www.nrcs.usda.gov/Internet/FSE_MANUSCRIPTS/kentucky/KY111/0/Jefferson_KY.pdf

¹⁸ ftp://ftp.epa.gov/wed/ecoregions/ky/ky_front.pdf

¹⁹ <http://kgs.uky.edu/kgsmmap/kgsgeoserver/viewer.asp#>

3.5.2 Soils

Jefferson County is characterized by broad, gently sloping ridgetops, moderately sloping to steep side slopes and moderately wide to narrow floodplains. The gentle sloping to moderately steep terraces have been utilized by urban and commercial development. The Sellersburg and Jeffersonville Limestone Unit weathers readily to reddish brown clayey soil, which together with loess mantle is common in the northern part of the quadrangle in addition to New Albany Shale remnants on hill crests.²⁰

3.5.3 Water Resources

Residents and businesses of Jefferson County are supplied water by the Louisville Water Company (LWC). The LWC's water source is the Ohio River, which runs along the northern edge of Jefferson County.²¹ The alluvium along the Ohio River is the best source of ground water in the County. Properly constructed wells can produce enough for a domestic supply at depths of 100 feet. Water from these wells are typically hard to very hard. Other sources of domestic water supplies can be larger creek valleys and on broad ridges within central Jefferson County. This water from central Jefferson County can usually be obtained at depths of 100 feet, but is susceptible to dry weather and dry quickly.²² The Middle Fork Beargrass Creek was the single Water of the United States identified within the project area. This creek receives water from the east and flows west to the Ohio River. Beargrass Creek's watershed (HUC12: 051401010902) encompasses the northeastern and northwestern half of the Airport, which includes Runway End 6, 24, and 15. The trees being removed and/or trimmed within this watershed are only a small portion of the total number of trees within the watershed as a whole. None of the trees within the proposed project are adjacent to Beargrass Creek, which is considered an impaired waterway by the U.S. Environmental Protection Agencies.²³ The cause of Beargrass Creeks impairment is elevated levels of Fecal Coliform, which can come from point and nonpoint sources.

3.5.4 Biotic Resources

The Commonwealth of Kentucky has many natural resources that are not only vital to Kentucky's economy but to the economy of the United States. These natural resources include; natural gas, coal, lumber, rock products, and tobacco. In addition to these economic resources, Jefferson County also has several nature preserves with the goal of protection and education about the county and state's biological resources.²⁴ The area adjacent to the Airport is primarily an urban landscape, with both neighborhoods and parks. When the Airport was established in 1919, the area surrounding the Airport was an agriculture field, primarily used for potato cultivation. The current landscape was established when development occurred around the Airport and includes trees that have been planted by residents of the neighborhoods and by the park district/golf courses. The Middle Fork of Beargrass Creek runs through the Golf Courses northeast and northwest of the Airport and will not be impacted by the proposed project. It is likely that urban bird and rodent species utilize these trees. However, the number of trees within the project area represents a small percentage of the area's overall inventory.

²⁰ <http://kgs.uky.edu/kgsmap/kgsgeoserver/viewer.asp#>

²¹ <http://www.louisvillewater.com/>

²² <http://kgs.uky.edu/kgsweb/download/water/wrde/kipda.pdf>

²³ https://ofmpub.epa.gov/waters10/attains_waterbody.control?p_list_id=KY498112_03&p_report_type=T&p_cycle=2012

²⁴ <http://naturepreserves.ky.gov/naturepreserves/Pages/default.aspx>

3.5.5 USDOT Section 4(f) (Recodified at 49 U.S.C. §303(c)) and 6(f) Land

Several Section 4(f)/303(C) or Section 6(f) lands have been documented in the project area. These properties include Seneca Golf Course, Bowman Field Historic District and the seven (an additional neighborhood added as part of the supplemental Section 106 efforts) individual neighborhoods identified within the project area. Of these properties, Big Spring Golf Course, Seneca Golf Course, five neighborhoods contain trees that are part of the proposed program. Big Spring Golf Course is private and does not qualify under USDOT Section 4(f) or 6(f) Lands. None of the trees proposed for trimming and/or removal are located within the Bowman Field Historic District. Seneca Golf Course is owned and operated by the Department of Metro Parks and Recreation Louisville, Kentucky. Coordination with their office regarding the project has occurred and it was determined that the proposed project will have no adverse effect on the activities, features and attributes that make the park eligible for designation under Section 4(f). The proposed project is considered to have a *de minimis* impact on Seneca Golf Course. See **Exhibit 4 - Department of Metro Parks and Recreation** in **Appendix E**.

The seven individual neighborhoods identified within the project area were recommended eligible. All qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods.

3.5.6 Cultural Resources

Bowman Field, established in 1919, is a general aviation airport located approximately five miles from downtown Louisville, Kentucky. The airport is situated on 426 acres, and includes 17 buildings and four runways. In 1988, three adjacent buildings at Bowman Field were added to the National Register of Historic Places (NRHP) and were designated the Bowman Field Historic District. These buildings include the Airport Administration Building, The Curtiss Flying Service Hangar and the Army Air Corps Hangar, and were constructed between 1929 and 1937.²⁵ The proposed project will not affect the Bowman Field Historic District, which is located on Airport property.

The field survey effort resulted in the recordation of thirteen properties. These included two golf courses, seven neighborhoods and five individual buildings. After historical and architectural evaluation of each of these properties was conducted, seven are identified as eligible for listing in the NRHP. These include the Seneca Golf Course and the neighborhoods of Seneca Gardens, Seneca Manor, McCoy Manor, Kingsley, Hathaway, Seneca Village and Seneca Village No. 2. See **Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky** in **Appendix B**.

²⁵ <http://www.nps.gov/nr/travel/aviation/bow.htm>

3.5.7 Threatened and Endangered Species

There are 50 Federally listed threatened and endangered species that have the potential to occur within Kentucky. Of these species, several have the potential to be within the project area.²⁶ The Commonwealth of Kentucky also maintains a list of State threatened and endangered species of which several species have the potential to be within the project area.²⁷ Of the state and Federally endangered species within Kentucky, the Indiana bat (*Myotis sodalis*) and the Northern Long-Eared bat (*Myotis septentrionalis*) are the only species that have the potential to be affected by the project.

Potential indirect effects to the Indiana and Northern Long-Eared bats include the loss of potential summer roosting, foraging and corridor habitat for both species. In the summer months, both the Indiana and the Northern Long-Eared bats will leave their winter hibernacula (caves) and migrate to their summer roosting habitat. The summer roosting habitat for the Indiana bat is generally defined as trees with a diameter at breast height (dbh) of five inches or greater. Typically they roost in trees with cavities, snags or exfoliating bark and in closed to semi-open forests adjacent to water features for access to foraging areas. The Northern Long-Eared bat has a similar habitat; however, they typically forage on forested hillsides, ridges or more upland sites. Based on a letter dated December 3, 2014 from the USFWS, the Indiana bat is the only federally listed species believed to have the potential to occur within the proposed project area and is not likely to effect the Indiana Bat. In addition, no designated critical habitat has been proposed for the Northern Long-Eared bat. Although the proposed project area may have habitat for this species, considerations taken for the Indiana bat are sufficient to ensure the project is unlikely to affect the Northern Long-Eared bat. See **Exhibits 3A-3B - U.S. Fish and Wildlife Service Coordination** in **Appendix C**.

3.5.8 Wetlands and Waters of the United States

Based on the U.S. Fish and Wildlife Service's (USFWS) National Wetland Inventory (NWI) data and a field determination, there are no identified wetlands within the proposed project area. See **Exhibit 8 – Wetland Map** in **Appendix A**. Residents and businesses (Bowman Field included) of Jefferson County are supplied water by the Louisville Water Company (LWC). The LWC's water source is the Ohio River, which runs along the northern edge of Jefferson County. The Middle Fork Beargrass Creek is the only Waters of the United States identified within the project area. This creek receives water from the east and flows west to the Ohio River.

Metropolitan Sewer District (MSD) is responsible for the treatment of water within the metro area as well as Bowman Field. The MSD has six regional water quality treatment centers and 270 sanitary sewer pumping stations. Once processed to regulatory standards, water collected by the MSD is then released into local waterways as treated water that meets the requirements established by the Kentucky Division of Water.²⁸

3.5.9 Floodplains

The 100-year floodplain has been documented in the project area, along The Middle Fork of the Beargrass Creek and its tributaries. See **Exhibit 9 – Floodplain** in **Appendix A**. The proposed project does include

²⁶ http://www.fws.gov/frankfort/pdf/ky_te_list_oct_13.pdf

²⁷ http://naturepreserves.ky.gov/pubs/publications/County_Reports/Jefferson.pdf

²⁸ http://www.msdlouky.org/aboutmsd/pdfs/MSD_gen_brochure_web.pdf

the removal and/or trimming of trees, one tree is located within the Federal Emergency Management (FEMA) Flood Rate Insurance Map (FIRM) designated floodplain of Beargrass Creek. If this tree is removed, efforts will be taken to ensure there is no net loss of floodplain storage. The remainder of the trees are not within a FEMA designated floodplain. Based on its geology, Kentucky is prone to sinkholes. There are no identified sinkholes within the project area. There are several Li-DAR derived sinkholes in Big Spring Golf Course, but have not been varied and are not within the project area.²⁹

²⁹<http://kgs.uky.edu/kgsmmap/KGSGeoServer/viewer.asp?wkid=3089&gkarst=true&startLeft=6477996.079423964&startBottom=5025218.136977807&startRight=3336800.8349241316&startTop=2636200.257214725&QueryZoom=Yes>

**CHAPTER 4 -
ENVIRONMENTAL
CONSEQUENCES**

4.1 General

Resources identified below were evaluated and found to not be applicable and will require no further discussion in this Chapter.

- Coastal Zone Management – Jefferson County, Kentucky does not contain any designated coastal zone areas.
- Coastal Barrier – Jefferson County, Kentucky is not adjacent to either the Atlantic or Gulf coast or any Great Lakes and does not contain any designated coastal barriers.
- Wild and Scenic Rivers – The nearest designated Wild and Scenic River in Kentucky is a 17.1 mile stretch of the Red River located southeast of Lexington, Kentucky.³⁰ The Ohio River is approximately five and half miles from the Airport but it is not a Wild and Scenic River and is not listed on the National Rivers Inventory (NRI).

4.2 Noise

4.2.1 General Discussion

Federal Aviation Administration's Order 1050.1E, "Environmental Impacts and Procedures" Section 14.1-Analysis of Significant Impacts, Paragraph 14.4a states: "For proposed actions involving a single airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles, the initial analysis may be performed using the FAA's Area Equivalent Method (AEM) computer model. The time of day is also part of the equation used in the AEM method. If the AEM calculations indicate that the proposed action would result in less than a 17 percent (approximately a DNL 1 dB) increase in the DNL 65 dB contour area, it may be concluded that there would be no significant impact over noise sensitive areas and that no further noise analysis is required. If the AEM calculations indicate an increase of 17 percent or more, or if the proposed action is such that use of the AEM is not appropriate, then the proposed action must be analyzed using the Integrated Noise Model or Heliport Noise Model to determine if significant noise impacts will result."

Urban and suburban areas are sensitive to the noise emissions resulting from aircraft operations at general aviation airports, such as Bowman Field. All powered aircraft types generate noise, but the noise emissions from the larger, multi-engine propeller and corporate business jet aircraft may be particularly noticeable. Night activities at general aviation airports must also be considered when studying the Airport's daily effects on the surrounding environment. Specific types of human activities, such as resting or sleeping, may be incompatible with certain levels of noise. For this reason, the aviation community carefully studies the influences of aircraft levels of noise. Sensitivity to aircraft noise may influence established settlement patterns and planned or anticipated urban growth trends. Airports often undertake special studies to deal with the question of noise and land use compatibility. These studies may lead to plans to prevent or mitigate the effects of aircraft noise on the human environment.

The project will not change the Airport's critical aircraft nor will it change the type of aircraft currently utilizing the airfield. Currently jet type aircraft (fixed wing aircraft propelled by a turbofan engine) utilize the Airport and their operational numbers are based on the economic and business environments of the City of Louisville, not by the current Airport's operational abilities. This project does not include the

³⁰ <http://www.rivers.gov/rivers/red.php>

reconfiguration or alteration of the airfield pavements to allow use by any other group or classification of airplane. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. As stated in the Purpose and Need, the project is to ensure the runways and approaches are in compliance with FAR and TERPS design standards and to maintain current runway lengths to serve existing aviation users and to retain existing capacity. This project will simply maintain the 4,357 foot primary runway and the 3,579 foot crosswind runway, thereby preserving the existing airfield geometry and approach procedures in effect in February 2012.

4.2.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No noise impacts are expected under this alternative.

4.2.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

Alternative 1 would re-establish night time approaches for air traffic at the Airport. The easement acquisitions and tree trimming or removal/replacement will allow Bowman Field to preserve approaches to Runways 06, 15, 24 and 33. This will allow Bowman Field to maintain the previously established approaches to the 4,357 ft. primary runway and the 3,579 ft. crosswind runway. LRAA intends to re-establish full use of airfield characteristics for aircraft currently using Bowman Field to the level experienced immediately prior to February 2012, and thereby not substantially changing noise emissions within the adjacent neighborhoods or recreational areas. Some localized construction noise may occur during the tree trimming or removal/replacement, but it will be temporary and occur during daytime hours. Individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface. Therefore, this improvement is not expected to increase operations at the Airport or increase noise levels beyond pre-February 2012 conditions.

4.2.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

Alternative 2 also would re-establish night time approaches for air traffic at the Airport. The easement acquisitions and the installation of lighted poles adjacent to the trees will allow Bowman Field to regain approaches to Runways 06, 15, 24 and 33. This will allow Bowman to maintain the previously established utility of the 4,357 ft. primary runway and the 3,579 ft. crosswind runway. The Airport is expected to realize pre-February 2012 operations and will not substantially change noise emissions within the adjacent neighborhoods or recreational areas. Localized construction noise may occur during the installation of the lighted poles and utility corridors. Construction noise associated with Alternative 2 will likely occur annually as new poles are installed to accommodate tree growth and when the lights and poles are replaced. On construction days, the noise will be temporary and occur during daytime hours. Therefore, some additional noise may be observed from ground equipment but this improvement is not expected to increase operations at the Airport or increase aircraft-generated noise levels beyond pre-February 2012 conditions.

4.2.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquisition of easements and the trimming or removal/replacement of trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 has some temporary construction noise impacts and may have temporary construction every five to ensure they have not penetrated the existing approach surface. Construction noise from this alternative will occur during the trimming or removal/replacement process and will occur during daytime hours.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will also have temporary construction noise. Construction noise will occur during the installation of the lighted poles and will likely occur annually to accommodate tree growth by replacing poles and light bulbs and will occur during daytime hours.

Additionally, when Alternate 1 is compared to Alternate 2, Alternative 1 has temporary construction noise impacts associated with trimming and removal of trees and possible construction noise every five years to ensure they have not penetrated the existing approach surface. However, the lighted poles in Alternative 2 will require annual maintenance to change the obstruction lights and replace poles, where the trees have grown taller than them. Alternative 2 will likely create more ground equipment noise on a more regular basis than either, Alternative 1 or the No Action Alternative.

4.2.6 Mitigation

Neither Alternative 1 or Alternative 2 nor the No Action Alternative are anticipated to create any adverse noise impacts. Therefore, no mitigation measures for noise impacts will be required.

4.3 Land Use Impacts

4.3.1 General Discussion

Land use is the term normally used to describe the study of existing urban settlement and development patterns. A survey of existing land use provides considerable information and perspective for the analysis of the particular community for which the project is being assessed. The study of existing land use focuses on the determination of the specific use which an individual parcel or tract of land is being put and an analysis which normally includes the summation and delineation of all existing activities and establishments which are assigned to categories such as residential, commercial, industrial, public and quasi-public, institutional, agricultural, and vacant. In some special cases, due to unusual topography or local cultural reasons, the categories are changed to reflect these conditions.

Long-range planning processes should promote compatibility between various land uses as a central objective. The implementation of long-range plans and improvement programs should be concerned with the impact or influence that a particular project will have on community in which it is to become a part of. This certainly includes the direct effects of the implementation of a future land use plan or individual improvement projects or facility, as well as secondary or intended outcomes which may be generated as a result of the implementation activities. Special studies, such as an Environmental Assessment, which, if directly related to specific public improvement projects or programs, should be comprehensive, yet as concise as possible to insure that the results of the implementation have been anticipated and have been

found to be within generally acceptable limits. Studies which relate to unique improvement programs, including those which deal either with the location of a new airport or the expansion of an existing facility, should be undertaken within a future land use context.

Bowman Field is located within the municipal boundaries of Louisville, Kentucky. The land use surrounding Bowman Field is mixed residential and recreational. Bowman Field is surrounded by urban populations including the neighborhoods of Seneca Gardens, Strathmoor Village, Kingsley, Wellington, Meadowview Estates and Broad Fields and two golf courses, one publically owned (Seneca Golf Course) and one privately owned (Big Spring Country Club).

4.3.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to land use are expected under this alternative.

4.3.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

The LRAA intends to purchase avigation easements within the surrounding Seneca Gardens and Hawthorne Estates neighborhood as well as Seneca Golf Course and Big Spring Country Club. Within the acquired easements, the LRAA proposes to trim or remove/replace trees where they have become obstructions to Runways 06, 15, 24 and 33. The acquisition of these easements will not require existing land use or zoning changes in these areas. The areas adjacent to the Airport will remain a mix of commercial, residential and recreational land uses.

4.3.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

The LRAA intends to purchase both avigation and ground easements within Seneca Gardens and Hawthorne Estates neighborhood as well as Seneca Golf Course and Big Spring Country Club. Within the acquired easements the LRAA proposes installing lighted poles adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. These lighted poles will need annual monitoring and maintenance to ensure they are properly operating and meet height requirements. The acquisition of these easements will not require existing land use or zoning changes in these areas. The areas adjacent to the Airport will remain a mix of commercial, residential and recreational land uses. However, the installation of lighted poles may be considered inconsistent with recreational or residential land use.

4.3.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquisition of easements and the trimming or removal/replacement of trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will not change the existing or future land use of the project area.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will not to change the overall existing or future land use of the project area. The installation of lighted poles will alter small amounts of the current land use by creating areas inaccessible to

property owners. This may create an environment considered inconsistent with current land use practices in these areas.

When Alternative 1 is compared to Alternative 2, Alternative 1 will have fewer impacts to the existing land uses adjacent to the Airport. Alternative 2 may have secondary indirect impacts with small areas that would be considered inconsistent land use. Alternative 2 will create more inaccessible land in adjacent residential and recreational areas.

4.3.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternative are anticipated to create any adverse land use impacts. Therefore, no mitigation measures for land use impacts will be required.

4.4 Social Impacts

4.4.1 General Discussion

The characteristics of a community are largely due to the people that live or work there. Associated factors that contribute to the character of a community are business and labor markets, transportation, systems and utilities. The geography, geology and climate of an area are also contributing factors. Any development that significantly affects individuals within a community is defined herein as a social impact. FAA Order 1050.1E states in Section 16.2c, *“The principal social impacts to be considered are those associated with relocation or other community disruption, transportation, planned development, and employment.”*

Factors to be considered in determining the impact thresholds include:

- Extensive relocation of residents is required, but sufficient replacement housing is unavailable.
- Extensive relocation of community businesses that creates severe economic hardship for the affected communities.
- Disruptions of local traffic patterns that substantially reduce the levels of service of the roads serving the airport and its surrounding communities.
- A substantial loss in community tax base.

4.4.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. In addition, the No Action Alternative will not adversely alter any surface transportation systems; will not divide any established communities; will not disrupt orderly, planned development; nor will it create an appreciable change in employment or substantial loss in community tax base. No social impacts are expected under this alternative.

4.4.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

Alternative 1 includes the acquisition of aviation easements within the surrounding Seneca Gardens and Hawthorne Estates neighborhood as well as within Seneca Golf Course and Big Spring Country Club. LRAA proposes to trim or remove/replace trees in these areas where they have become obstructions to Runways

06, 15, 24 and 33. This alternative would require temporary construction and individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface, and is not anticipated to permanently divide any established communities or disrupt surface transportation systems.

4.4.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

Alternative 2 includes the acquisition of aviation easements and ground easements within the surrounding Seneca Gardens and Hawthorne Estates neighborhood as well as within Seneca Golf Course and Big Spring Country Club. LRAA proposes to install lighted poles adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. These lighted poles will not be the property of residential or recreational property owners and will need to be maintained and monitored annually to ensure the lights are working and the trees have not grown taller than the obstruction lights. These poles will likely be tied to the existing overhead utilities through a drop line. In recreational areas where overhead lines don't occur, separate service disruption systems will need to be installed. This alternative will require additional coordination and burden the existing utilities in the community. The lighted poles will need lightning protection as well to ensure if struck they do not affect residential utility supply lines. The lighted poles will only be installed in the portions of the neighborhoods where trees have become an obstruction. This has the potential to create a burden on a small portion of a neighborhood where lights are concentrated.

4.4.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33, will require the trimming or removal of trees on residential and recreational property. Tree removal/replacement will be a temporary event and mitigation for trees impacted in this alternative will occur where applicable. Individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface. These actions will not divide existing communities or disrupt surface transportation systems.

When compared to the No Action Alternative, Alternate 2 – Lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative would require a permanent fixture be installed in both the residential and recreational areas. This fixture would be connected to the existing electrical utilities. This alternative will affect property owners whose trees have become an obstruction. The permanent installation of lighted poles within a few residential properties has the potential to create incapability between established communities and neighbors.

When Alternative 1 is compared to Alternative 2, the tree removal/replacement within Alternative 1 will be a temporary construction activity. Individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface. Alternative 2 includes a permanent fixture and utility corridor that will require annual maintenance to keep the lights operational and to maintain a proper pole-height requirement. With the addition of constant night time lights amongst existing properties, Alternative 2 has the potential to create incapability between established communities and neighbors. Alternative 2 may create more land use impacts over time than either, Alternative 1 or the No Action Alternative.

4.4.6 Mitigation

Neither Alternative 1 or Alternative 2 nor the No Action Alternative are anticipated to create any adverse social impacts. Therefore, no mitigation measures for social impacts are anticipated to be required.

4.5 Induced Socio-economic Impacts

4.5.1 General Discussion

The implementation of improvement projects of all types may induce social or economic impacts on a community or region. Often times, induced socioeconomic impacts are part of a comprehensive program that begins a sequence of events, which will result in the implementation of a program. The development of a major economic development project may start with a public entity providing the essential public services as an incentive for subsequent private development projects, or the underwriting of land to encourage the development of a particular parcel or other development. For example, enterprise zones or similar tax sheltered projects provide incentives to encourage certain actions or provide inducements for certain decisions, which are designed to strengthen the economic base of the community. Improvements at public sponsored general aviation airports may enable the community to recruit new businesses or retain and/or enlarge existing ones, as part of their efforts to generate new economic development.

4.5.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airport resources to address the established Purpose and Need. The No Action Alternative would require Bowman Field to relocate the thresholds of each runway to ensure the 20:1 visual approach surface remains free of obstructions. This would result in relocated thresholds on all four runway ends. These shortened runways would prevent the operations of the current critical aircraft group. The loss of critical aircraft operations will result in the relocation of a large number of based aircraft to other airports and reduce fuel sales and income for the Airport. This loss in income to the Airport would significantly reduce recurring economic benefits provided by Bowman Field to the surrounding community.

4.5.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

Alternative 1 includes the acquisition of avigation easements within the surrounding Seneca Gardens and Hawthorne Estates neighborhood as well as within Seneca Golf Course and Big Spring Country Club. LRAA proposes to trim or remove/replace trees in these areas where they have become obstructions to Runways 06, 15, 24 and 33. As part of this alternative, replacement trees will be made available, to ensure homes within the affected neighborhood and recreational areas retain value and character. Actions completed under this alternative would be temporary with possible maintenance every five years for trees that are trimmed initially. This alternative will not divide any established communities or disrupt planned development. Therefore adverse socio-economic impacts are not expected under this alternative.

4.5.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

Alternative 2 includes the acquisition of aviation easements and ground easements within the surrounding Seneca Gardens and Hawthorne Estates neighborhoods as well as within Seneca Golf Course and Big Spring Country Club. LRAA proposes to install lighted poles adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. These lighted poles will not be the property of the original property owner and will need to be maintained and monitored annually by the FAA to ensure the lights are working and the tree has not out grown the pole. To be both operationally and cost effective, the obstruction lighting will run continuously. Based on FAA regulations these lights will be red.³¹ The addition of these lighted poles within residents yards and adjacent to trees will likely detract from the neighborhood's value and the "curb-appeal" of these homes as well as surrounding homes that will be affected by the constant red glow of the obstruction lights.

4.5.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. This alternative will require the trimming or removal of trees on residential and recreational property. Tree removal/replacement in this alternative will be a temporary event and mitigation will occur for trees affected. Individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface. While the No Action Alternative would reduce the Airport's runway length and thresholds eliminating operations by the Airport's current critical aircraft group and reducing the Airport's recurring economic benefits to the surrounding community.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative would require a permanent fixture be installed in both the residential and recreational areas that would require annual maintenance subject to FAA regulations. This alternative also has the potential to detract from the value of the residential and recreational properties with the lighted poles installed as well as properties adjacent to them due to the glow radius of the lights.

When Alternative 1 is compared with Alternative 2, Alternative 2 will likely have more long term induced socioeconomic impacts by adding lighted poles to both the yards of residential areas as well as the recreational golf courses. These lighted poles have the potential to also detract from the value of the adjacent properties. Alternative 2 and the No Action Alternative may create more socioeconomic impacts over time than Alternative 1.

4.5.6 Mitigation

Neither Alternative 1 or Alternative 2 nor the No Action Alternative are anticipated to create any adverse induced socioeconomic impacts. Therefore, no mitigation measures for induced socioeconomic impacts are anticipated to be required.

³¹ FAA AC 70/7460-1K

4.6 Air Quality

4.6.1 General Discussion

Air Quality Standards establish limits for various pollutants in the air. With passage of the Clean Air Act (CAA) in 1970 and amendments thereto, the Federal government began adopting standards for the entire country. Federal Air Quality Standards are divided into two categories. Primary standards were designed to protect against adverse health effects. See **Table 4-1 National Air Quality Standards**. Secondary standards were designed to protect against adverse welfare effects such as plant and material damage, odor, or reduction in visibility. On November 15, 1990, Congress passed amendments to the CAA to address the problem that many areas across the United States were in violation of the National Ambient Air Quality Standards (NAAQS) for ozone and/or carbon monoxide. These amendments, referred to as the Clean Air Act Amendments of 1990 (CAAA), were aimed at correcting weaknesses in the CAA provisions and tightening up the control requirements for states to develop new air quality designations, state implementation plans, and air quality strategies for those area not meeting the NAAQS.

FAA's Order 5050.4B, "*National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*" states that "The Federal Aviation Administration has the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts." If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the projected airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:

- a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecast annually; and
- b. If it is a general aviation airport and has less than 180,000 operations forecasted annually.

Finally, as stated in FAA's Order 1050.1E, *Environmental Impacts: Policies and Procedures*; The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors from Federal actions that meet that following criteria.

- a. Reasonable foreseeable; and
- b. Can practically be controlled and maintained by the Federal agency through continuing program responsibility.

"A conformity determination is not required if the emission caused by the proposed Federal action" ... "If the action is listed as exempt or presumed to conform; or if the action is below the emission threshold (de minimis) level." If the project's emissions are below annual threshold levels (*de minimis* levels) and are not regionally significant, then the requirements of the general conformity regulation do not apply to the action or program.

Kentucky Revised Statues (KRS), which is a set of laws that run in accordance with the Kentucky Constitution, details air quality regulations in Title IX - Counties, Cities, And Other Local Units; Chapter

77 Air Pollution Control (KRS Chapter 77).³² KRS Chapter 77 defines guidelines, law, regulations and enforcement procedures to ensure local and city regulations are in compliance with the State. KRS Chapter 77 also incorporates Federal Air Quality Standards into their regulations and standards. The Airport Pollution Control District of Louisville enforces these regulations and guidelines and works to ensure cleaner air for the residents of Louisville and Jefferson County.³³

The following air quality information/actions will be considered during the construction of either alternative. See **Exhibits 2A-2B - Kentucky Department of Environmental Protection Coordination in Appendix C.**

- The Kentucky Division for Air Quality Regulations **401 KAR 63:010** Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precautions to prevent matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area, transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway.
- The Kentucky for Air Quality Regulations **401 KAR 63:005** states that open burning is prohibited. Open burning is defined as the burning of any material in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purpose list in the Kentucky “Open Burning Brochure”.
- The utilization of emission reduction strategies, were applicable. This includes; utilizing alternative fuel equipment, utilizing other emission controls that are applicable to specific equipment and reducing idling time on equipment.

Jefferson County is currently in attainment for most pollutants, including sulfur dioxide, carbon monoxide, ozone, lead, PM10 and nitrogen dioxide. However, the county is currently a non-attainment area for PM-2.5, thereby not achieving the national standard for air quality. In addition to PM-2.5, Louisville is listed as being in non-attainment for sulfur dioxide, as well.³⁴ See **Table 4-2 Jefferson County 2014 Air Quality Compliance.**

The U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4, which regulates federal air quality standards, stated based on their review of the document, the proposed project will not represent a significant impact to human health and the environment. See **U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.**

³² <http://www.lrc.ky.gov/statutes/chapter.aspx?id=37430>

³³ <http://louisvilleky.gov/government/air-pollution-control-district>

³⁴ http://www.epa.gov/airquality/greenbook/anayo_ky.html

Table 6 National Air Quality Standards				
Pollutant	Primary Standards			Form
	Average Time	Level	Status	
Carbon Monoxide (CO)	8-hour	9 ppm	Current; most recently affirmed in August 2011	Not to be exceeded more than once per year
	1-hour	35 ppm		
Lead (Pb)	Rolling 3 – Mouth Average	0.15ug/m	Current. Designations completed November 2011. SIPs addressing nonattainment areas due to EPA 2012-2013	Not to be exceed
Nitrogen Dioxide	1-hour (primary)	100 ppb	Current	98 th percentile, averaged over 3 years
	Annual	53 ppb	Current	Mean
Particulate Matter (PM10)	24-hour	150 ug/m	Current	Not to be exceeded more than once per year on average over 3 years
Particulate Matter (PM2.5)	Annual	15 ug/m	Current	Annual mean, averaged over 3 years
	24-hour	35 ug/m	Effective 2006. SIPs addressing nonattainment areas due to EPA at end remain in place	98 th percentile, averaged over 3 years
		65 ug/m	Effective 1997. Related implementation rules remain in place	98 th percentile, averaged over 3 years
Ozone	8- hour	0.075 ppm	Effective 2008 Implementation in progress	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
	8-hour	0.08 ppm	Effective 1997. Related implementation rules remain in place	Annual fourth-highest daily maximum 8-hr concentration, averaged over 3 years
Sulfur Dioxide (SO2)	1-hour (primary)	75 ppb	Current. Attainment plans due January 2014.	99 th percentile of 1-hour daily maximum concentration, averaged over 3-years.
	3-hour (primary)	0.5 ppb	Current	Not to be exceeded more than once per year

Source: EPA: <http://www.epa.gov/air/criteria.html>

Table 7 Jefferson County 2014 Air Quality Compliance						
County	CO	Ozone	PM10	PM2.5	SO2	Pb
Jefferson (Louisville)	Attainment	Attainment	Attainment	Nonattainment	Nonattainment	Attainment
Jefferson (remainder)	Attainment	Attainment	Attainment	Nonattainment	Attainment	Attainment

Source: EPA Green Book: <http://www.epa.gov/airquality/greenbook/anc1.html#KENTUCKY>

4.6.2 No Action Alternative

The No Action Alternative assumes there will be no expansion of airfield resources to address the established Purpose and Need. No increase in air quality emission impacts area expected under this alternative.

4.6.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This Alternative does not propose the construction of any facilities that would increase capacity at the Airport. This alternative will require the trimming or removal/replacement of trees that have become obstructions to the Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012. The number of trees affected by this alternative is relatively small compared to the overall population of trees within the area. Trees removed by this alternative will mitigated with height appropriate tree species where applicable.

Temporary construction operations may result in a temporary decrease in local air quality during the trimming or removal/replacement of trees. Individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface. Daily pollution loads produced by these activities depend on several factors. These include the type, number, and emission rates of various construction machines and trucks and the daily private vehicle traffic of construction personnel. Mulching of solid waste material, such as trees and scrub vegetation, may be performed during construction, if necessary. In general, while tree trimming or removal/replacement activities could affect local air quality, any possible effects are considered to be minimal and terminate upon completion of the project. No adverse effects on human and animal life, food, water supplies and plant life are expected as a result of either aircraft emissions or air contaminants produced as by-products of the trimming or removal/replacement of trees within the project area.

4.6.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the installation of lighted poles adjacent to trees that have become obstructions to the Runways 06, 15, 24 and 33. The installation of the lighted poles will require the trimming and/or possible removal of trees to integrate them into the utility system. The number of trees affected by this alternative is relatively small compared to the overall population of trees within the area. Trees affected by the project will be mitigated were applicable.

This alternative will require annual maintenance to replace light bulbs and poles where the tree has grown taller than them. Therefore, construction activities associated with this alternative may occur more often and could result in a temporary decrease in local air quality more frequently. Daily pollution loads produced by installation and maintenance activities depend on several factors. These include the type, number, and emission rates of various construction machines and trucks and the daily private vehicle traffic of construction personnel. Dust hazards are possible due to the presence of fine silts and sands, which are subject to wind erosion. The use of dust palliative treatments (i.e. dampening and stabilization) should minimize these conditions. Mulching of solid waste material such as trees and scrub vegetation, may be performed during construction, if necessary. In general, while construction activities could affect local air quality, any possible effects are considered to be minimal and terminate upon completion of the project. No adverse effects on human and animal life, food, and water supplies and plant life are expected as a result of either aircraft emissions or air contaminants produced as by-products of the installation and maintenance of obstruction light poles within the project area.

4.6.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require the trimming or removal/replacement of trees on residential and recreational property. This alternative is unlikely to have any effect on the local air quality as the use of construction equipment for this alternative will be temporary and any trees removed will be mitigated. Individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface.

When compared to the No Action Alternative, Alternate 2 – Lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative will require permanent trimming or removal/replacement of trees to allow for utilities corridors and require annual maintenance and construction equipment to ensure lighted poles meet FAA obstruction standards.

When Alternative 1 is compared with Alternative 2, Alternative 2 will require additional construction activities that will occur more often and could result in temporary decreases in the local air quality more frequently. Alternative 2 is anticipated to create more air quality impacts over time than either, Alternative 1 or the No Action Alternative.

4.6.6 Mitigation

Neither Alternative 1 or Alternative 2 nor the No Action Alternative are anticipated to create any adverse air quality impacts. Therefore, no mitigation measures for air quality impacts are anticipated to be required.

4.7 Water Quality

4.7.1 General Discussion

Surface water quality is affected by a number of factors including concentration of atmospheric pollutants, chemical composition of surface soils and exposed bedrock, diversity and composition of ground cover, watershed land use, and point sources discharge of pollutants. Most of the Airport's property is mown

grass areas and areas of development with formal storm water collection facilities. The Airport is surrounded by residential and recreational developments also with storm water collection infrastructure.

The Federal Water Pollution Control Act also known as the Clean Water Act (CWA) provides guidelines for water quality standards, to protect the integrity of the nation's waters through discharge control, waste water treatment standards. This Act also developed guidelines to minimize the loss of intermittent streams, wetlands, playa lakes, prairie potholes, aquifers, sloughs or other unique water resources. Waters protected under the CWA are all waters with a significant nexus to navigable water, which is subject to jurisdictional interpretation.

Water pollution control programs are designed to protect the "Beneficial Uses" of the water resources of the state. Each state has the responsibility to set water quality standards that protect for these beneficial uses, also called designated uses. The Kentucky Division of Water has an operational plan they use to manage, protect and enhance the quality and quantity of the Commonwealth's water resources for present and future generations through voluntary, regulatory and educational programs.³⁵

- Protect, manage and restore water resources.
- Conduct effective water resource planning.
- Meet Federal and state program requirements.
- Promote better management and communication of data.

The Division has recommended Best Management Practices (BMP's) to prevent nonpoint-source water pollution and, thereby, control stormwater runoff and sediment damage to water quality and aquatic habitat. The Soil and Water Conservation District or the Division of Conservation of the Environmental and Public Protection Cabinet are responsible for determining the BMP's for various types of construction. In addition, if during the construction of either alternative the construction area disruption is equal or greater than one acre, then a Kentucky Pollutant Discharge Elimination System, stormwater discharge permit from the Division of Water will be required. See **Exhibits 2A-2B - Kentucky Department of Environmental Protection Coordination in Appendix C.**

Residents and businesses (Bowman Field included) of Jefferson County are supplied water by the Louisville Water Company (LWC). The LWC's water source is the Ohio River, which runs along the northern edge of Jefferson County. The Middle Fork Beargrass Creek is the only Waters of the United States identified within the project area. This creek receives water from the east and flows west to the Ohio River.

Metropolitan Sewer District (MSD) is responsible for the treatment of water within the metro area as well as Bowman Field. The MSD has six regional water quality treatment centers and 270 sanitary sewer pumping stations. Once processed to regulatory standards, water collected by the MSD is then released into local waterways as treated water that meets the requirements established by the Kentucky Division of Water.³⁶

³⁵ <http://water.ky.gov/Documents/AnnualReports/DOW%20Annual%20Report%202014.pdf>

³⁶ http://www.msdlouky.org/aboutmsd/pdfs/MSD_gen_brochure_web.pdf

4.7.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No water quality impacts are expected under this alternative.

4.7.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative proposes acquiring easements to trim or remove/replace trees that have become obstructions to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012 and will not be affecting the municipal water supply or the Middle Fork of Beargrass Creek.

4.7.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative proposes acquiring easements and installing a lighted pole adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33 and will not be affecting the municipal water supply or the Middle Fork of Beargrass Creek.

4.7.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require the trimming or removal/replacement of trees on residential and recreational property. This alternative is unlikely to have any effect on the municipal water supply or the Middle Fork of Beargrass Creek.

When compared to the No Action Alternative, Alternate 2 – Lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative is unlikely to have any effect on the municipal water supply or the Middle Fork of Beargrass Creek.

When compared to Alternative 1, Alternative 2 will require additional construction activities resulting from the installation of permanently lighted poles and annual maintenance. Neither alternative is anticipated to create adverse impacts to the municipal water supply or to the Middle Fork of Beargrass Creek.

4.7.6 Mitigation

Neither Alternative 1 or Alternative 2 nor the No Action Alternative are anticipated to create any adverse water quality impacts. Therefore, no mitigation measures for water quality impacts are anticipated to be required.

4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands

4.8.1 General Discussion

Section 303c of the Department of Transportation Act of 1966 provides that the Secretary shall not approve any program or project which requires the use of any land from a public park, recreation area, wildlife and waterfowl refuge, or historic site, unless there is no feasible and prudent alternative to the use of such land and such a program includes all possible planning to minimize harm to such areas. In addition to lands identified under Section 303c of the DOT Act of 1966, other lands funded by the LAWCON Section 6(f), Pittman-Robertson, and Dingell-Johnson moneys must be considered. When proposed improvements affect lands purchased or developed using LAWCON funds, as administered by the United States Department of Interior (USDOI), changes in use to other than public outdoor recreation at assisted sites may only be made with the prior approval of the Secretary of the Interior. Also, converted properties must be replaced by substitute properties of at least equal fair market value and of reasonably equivalent location and usefulness.

4.8.2 No Action Alternative

The No Action Alternative assumes there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to Section 303c or 6(f) lands are expected under this alternative.

4.8.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative requires the acquisition of easements to trim or remove/replace trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. Since Seneca Golf Course is publically owned it is subject to regulations under Section 4(f). Although there are trees within the golf course that would be trimmed or removed/replaced, they are a small percentage of the trees and will be replaced where possible. This alternative would not substantially change the existing form or function of the golf course, therefore is unlikely to have a negative impact on Section 4(f) properties. Coordination with Louisville Metro Parks regarding the project has occurred and it was determined the proposed project will have no adverse effect on the activities, features and attributes that make the park eligible for designation under Section 4(f). The proposed project is considered to have a *de minimis* impact on Seneca Golf Course. See **Exhibit 4 - Department of Metro Parks and Recreation Coordination in Appendix E**. None of the trees proposed for trimming and/or removal are located within the Bowman Field Historic District. The seven individual neighborhoods identified within the project area were recommended eligible. All qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on FAA's determination using the Nation Historic Preservation Act - A Handbook for Integrating NEPA

and Section 106³⁷, it does not appear that this alternative will affect key character-defining features that qualify these neighborhoods for listing. In addition, no cultural or historic resources will be impacted by the proposed project. See **Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky, Appendix I** in Appendix B.

The U.S. Department of Interior (USDOl) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON), Pittman-Robertson.³⁸ There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.³⁹

4.8.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative proposes acquiring easements and installing a lighted pole adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. This area is a publically owned park and regulated under Section 4(f). Due to FAA regulations, these lights will need to be red and continuously running.^{40,41} None of the trees proposed for lighting are located within the Bowman Field Historic District. The seven individual neighborhoods identified within the project area were recommended eligible. All qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on FAA's determination using the Nation Historic Preservation Act - A Handbook for Integrating NEPA and Section 106⁴², it does not appear that this alternative will affect key character-defining features that qualify these neighborhoods for listing. In addition, no cultural or historic resources will be impacted by the proposed project.

The U.S. Department of Interior (USDOl) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON) and Pittman-Robertson funds.⁴³ There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.⁴⁴

4.8.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require the trimming or removal of trees on residential and recreational property. This alternative will trim or remove/replace trees located on Seneca Golf Course. However, only a small percentage of the overall trees will be impacted and replaced with smaller trees, where applicable.

³⁷ http://www.achp.gov/docs/NEPA_NHPA_Section_106_Handbook_Mar2013.pdf

³⁸ https://www.doi.gov/sites/doi.gov/files/migrated/lwcf/upload/LWCF2016BudgetInBrief_031915.pdf

³⁹ <http://parks.ky.gov/maps/default.aspx>

⁴⁰ FAA AC 70/7460-1K Part 52

⁴¹ FAA AC 70/7460-1K Part 51

⁴² http://www.achp.gov/docs/NEPA_NHPA_Section_106_Handbook_Mar2013.pdf

⁴³ https://www.doi.gov/sites/doi.gov/files/migrated/lwcf/upload/LWCF2016BudgetInBrief_031915.pdf

⁴⁴ <http://parks.ky.gov/maps/default.aspx>

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative would impact Seneca Golf Course by installing lighted poles adjacent to trees that are obstructions. The lighted poles could detract from its recreational value by altering the overall viewshed.

When compared to Alternative 1, Alternative 2, requires the permanent installation of lighted poles within Seneca Golf Course and although would not change the function of the course, it has the potential to change the form and recreational value. Alternative 2 would create more impacts to a Section 4(f)/303(C) or 6(f) property than either, Alternative 1 or the No Action Alternative.

4.8.6 Mitigation

Neither the Alternative 1 nor the No Action Alternative area anticipated to create any Section 4(f)/303(C) or 6(f) impacts. Coordination with Louisville Metro Parks regarding the project has occurred and it was determined the proposed project will have no adverse effect on the activities, features and attributes that make the park eligible for designation under Section 4(f). The proposed project is considered to have a *de minimis* impact on Seneca Golf Course. See **Exhibit 4 - Department of Metro Parks and Recreation Coordination in Appendix E**. Therefore, Section 4(f)/303(C) properties will not be significantly impacted by the proposed action because it does not require the use of any section 4(f)/303(C) properties, and it does not create a constructive use that substantially impairs the property.

Alternative 2 however, may create further impacts that could require additional mitigation, if this alternative is selected as the Airport's preferred alternative. Additional input from stakeholders would then be sought to assess the proper amount of mitigation required.

4.9 Archaeological, Architectural, Historic and Cultural Resources

4.9.1 General Discussion

Section 106 of the National Historic Preservation Act of 1966, as amended, requires every Federal agency to “take into account” the effects of its undertakings on properties that are listed in, or eligible for, the National Register of Historic Places. The National Register of Historic Places is part of a national program to coordinate and support public and private effort to identify, evaluate, and protect our historic and archaeological resources and is the official list of the Nation's cultural resources worthy of preservation. Properties listed in the National Register include districts, sites, buildings, structures, and objects that are significant in American history, architecture, archeology, engineering, and culture. These resources contribute to an understanding of the historical and cultural foundations of the nation. The significance of potential resources and the determination for their eligibility for listing on the National Register is based on the quality of significance in American history, architecture, archeology, engineering, and culture which is present in historic districts, sites, buildings, structures, and objects, that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- are associated with events that have made a significant contribution to the broad patterns of our history;
- are associated with the lives of significant persons in our past;

- embody the distinctive characteristics of a period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- have yielded or may be likely to yield, information important in history or prehistory.

The initial cultural resource documentation focused on the geographical areas within the TERPS approach surfaces. Archival research was conducted for this area to determine the presence of previously recorded historic properties. Only one recorded historic property, the National Register of Historic Places (NRHP) listed Bowman Field Historic District, is present. The TERPS approach surface for Runway 06 encompasses a corner of the official Bowman Field District boundary. However, no approach protection efforts are proposed within the district and as a result, there will be no effect to this historic property.

Following the archival research, a survey was conducted to identify other potential historic properties within the Area of Potential Effect (APE). The field survey effort resulted in the recordation of thirteen properties. These included two golf courses, six neighborhoods and five individual buildings. After historical and architectural evaluation of each of these properties was conducted, seven are identified as eligible for listing in the NRHP. These include the Seneca Golf Course and the neighborhoods of Seneca Gardens, Seneca Manor, McCoy Manor, Kingsley, Seneca Village and Seneca Village No. 2. See **Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky** in **Appendix B**.

The FAA as part of the Section 106 process received and considered comments and concerns from designated consulting parties. As part of the process the APE was expanded to include areas outside of the initial 2014 investigation. The comments and additional areas incorporated into the APE were analyzed in a Supplement to the Cultural Resources Evaluation. The 2014 document reviews the original investigation boundary, in the form of the TERPS approach surfaces, which includes thirteen (13) properties. These included two (2) golf courses, six (6) neighborhoods, and five (5) individual buildings. The Supplement to the CRE reviews areas outside and adjacent to the TERPS, which includes an additional neighborhood (Hathaway Neighborhood). The supplement also reviews the FAA's revised scope, which includes only trees that are penetrations or near term penetrations within easement proposed for acquisition. See **Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky, Appendix I** in **Appendix B**.

4.9.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. This will result in a decrease of runway lengths that would drastically reduce the number of critical aircraft that could use the Airport.

4.9.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative would require the acquisition of easements to trim or remove/replace trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012. The easement

acquisition will occur within the residential neighborhood of Seneca Gardens and Hawthorne Estates and within Seneca Golf Course and Big Spring Country Club. Based on the Cultural Resources documentation and Supplement, Seneca Golf Course is recommended NRHP eligible under Criterion A for historical associations with the New Deal's Works Progress Administration. However, due to alterations to the original course design, it no longer possesses sufficient design integrity to qualify as a historic landscape therefore; this alternative will not have an adverse effect on this property. The seven (an additional neighborhood added as part of the Supplement efforts) individual neighborhoods that are recommended eligible all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on FAA's determination using the Nation Historic Preservation Act - A Handbook for Integrating NEPA and Section 106⁴⁵, it does not appear that this alternative will affect key character-defining features that qualify these neighborhoods for listing. See **Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky** in Appendix B.

4.9.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative would require the acquisition of easements to install lighted poles adjacent to trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. The easement acquisition and lighted pole installation will occur within the residential neighborhoods of Seneca Gardens and Hawthorne Estates and within Seneca Golf Course and Big Spring Country Club. The installation of the lights would require additional utility corridors including overhead power lines integrated into the existing power grid. The new overhead power lines would likely require tree trimming and/or removal to ensure branches do not interfere or cause damage to the new and existing power lines. Based on the cultural resource documentation and Supplement, Seneca Golf Course is recommended NRHP eligible under Criterion A for historical associations with the New Deal's Works Progress Administration. However, due to alterations to the original course design, it no longer possesses sufficient design integrity to qualify as a historic landscape and, therefore, the tree trimming and/or removal and installation of lighted poles in this alternative will not have an adverse effect on this property. The seven (an additional neighborhood added as part of the Supplement efforts) individual neighborhoods that are recommended eligible all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. The installation of poles and the addition of a concentrated group of red lighting may have a negative effect on the historical integrity of these residential neighborhoods identified as being eligible for listing. See Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky in Appendix B.

4.9.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will not affect key character-defining features that qualify the previously listed properties on the Airport property for listing as cultural or historical resources. This

⁴⁵ http://www.achp.gov/docs/NEPA_NHPA_Section_106_Handbook_Mar2013.pdf

determination was based on FAA's determination review of the Nation Historic Preservation Act - A Handbook for Integrating NEPA and Section 106⁴⁶. The loss of income as a result of the No Action Alternative could affect the LRAA's ability to maintain the Bowman Historic District to National Register standards. The severe reduction of critical aircraft that use the Airport would subsequently eliminate a large source of income for the Bowman Field and their ability to maintain and protect the Bowman Historic Districts to standards set by the National Register.⁴⁷

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will not adversely affect key character-defining features through trimming or removal of trees. However, the installation of poles and a concentrated group of red lighting may adversely affect the cultural and historical integrity of properties identified in the cultural resources documentation. However, the loss of income as a result of the No Action Alternative could affect the LRAA's ability to maintain the Bowman Historic District to National Register standards.

When compared to Alternative 1, the addition of lighted poles in Alternative 2 may adversely affect historical characteristics of previously listed properties and their potential eligibility for listing. Since Alternative 2 would require the installation of an object that is not consistent with the historical or cultural integrity of the neighborhoods and the No Action could affect the LRAA's ability to maintain the Bowman Field Historic District, both would create larger cultural resources impacts than Alternative 1.

4.9.6 Mitigation

Alternative 1 not is anticipated to create any cultural resources impacts, based on FAA's determination review of the Nation Historic Preservation Act - A Handbook for Integrating NEPA and Section 106. Therefore, no mitigation measures for cultural resources will be required. However, Alternative 2 is anticipated to create impacts to the cultural integrity of the neighborhoods and would need further review under Section 106 consultation if this alternative was selected as the LRAA's preferred alternative. The No Action Alternative could create cultural resources impacts in the future and may require additional review under Section 106 at such time as the Bowman Field no longer has funds to maintain the Bowman Historic District. Coordination with the Kentucky SHPO has occurred through consulting party meetings and additional coordination may be required as the CRE is finalized.

4.10 Biotic Communities

4.10.1 General Discussion

The FAA Order 5050.4B, Table 7-1 (Significance Thresholds) states that a determination needs to be conducted to ensure the Airport improvements results in only minor alteration of existing habitat of species commonly found in the affected area. The minor alterations are referred to as the removal of habitat, which support a limited number or variety of common wildlife species or the removal of a few acres that represents a small percentage of the area's overall inventory.

⁴⁶ http://www.achp.gov/docs/NEPA_NHPA_Section_106_Handbook_Mar2013.pdf

⁴⁷ <http://www.nps.gov/tps/how-to-preserve/briefs.htm>

4.10.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to biotic communities are anticipated under this alternative.

4.10.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. The trees proposed for trimming or removal/replacement are not unique to the surrounding area and will only affect a small percentage of the total trees in the surrounding area. Due to the large number of trees and vegetation adjacent to or near the project areas, there is comparable habitat for any displaced organisms to emigrate. The trees will be trimmed or removed/replaced in the winter months when most organisms are dormant and are unlikely to be actively utilizing these trees. Coordination with the USFWS has occurred for two Federally endangered bats, the Indiana bat, (*Myotis sodalis*) and the Northern Long Eared bat, (*Myotis septentrionalis*), which have the potential to be within the project area.

4.10.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. This alternative will likely require some tree trimming and/or removal to allow use of the overhead utilities to operate the lights. The trees proposed for trimming and/or removal are not unique to the surrounding area and will only affect a small percentage of the total trees in the surrounding area. Due to the large number of trees and vegetation adjacent to or near the project areas there is comparable habitat for any displaced organisms to emigrate. The trees will be trimmed and/or removed in the winter months when most organisms are dormant and are unlikely to be actively utilizing these trees. Coordination with the USFWS has occurred for two Federally endangered bats, the Indiana bat, (*Myotis sodalis*) and the Northern Long Eared bat, (*Myotis septentrionalis*), which have the potential to be within the project area.

4.10.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. This alternative will require tree trimming or removal/replacement that has the potential to be habitat for fauna and flora. However, there is a large amount of adjacent comparable habitat in which any displaced species could emigrant. Therefore, Alternative 1 is unlikely to adversely impact local biotic communities.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative will require tree trimming and/or removal that has the potential to be habitat

for fauna and flora. However, there is a large amount of adjacent comparable habitat in which any displaced species could emigrant. Therefore, Alternative 2 is unlikely to adversely impact local biotic communities.

When compared to Alternative 1, Alternative 2 will require the installation of a permanent lighted poles and require annual maintenance. However Alternative 2 will require the more frequent trimming and removal of trees to properly maintain utility corridors and lighted poles.

4.10.6 Mitigation

At this time, neither the Alternative 1 or Alternative 2 nor the No Action Alternative is anticipated to create any adverse impacts to biotic communities. Additional coordination with the USFWS will occur to verify the appropriate tree removal schedule and effect determination.

4.11 Endangered and Threatened Species of Flora and Fauna

4.11.1 General Discussion

Section 7 of the Endangered Species Act, as amended, requires each Federal agency to insure that any action authorized, funded, or carried out by such agency is not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected states, to be critical, unless such agency has been granted an exemption for such action by the Committee (Endangered Species Act of 1973, 16 U.S.C. §1531, et seq). Threatened and endangered species of plants and animals are defined as follows:

- A Federally endangered species is any species, which is in danger of extinction throughout all or a major portion of its range;
- A Federally threatened species is any species, which is likely to become an endangered species within the foreseeable future throughout all or a major portion of its range;
- A state-endangered species is any species, which is in danger of extinction as a breeding species in Kentucky; and
- A state-threatened species is any breeding species, which is likely to become a state-endangered species within the foreseeable future in Kentucky.

There are 50 Federally listed threatened and endangered species that have the potential to occur within Kentucky. Of these species, several have the potential to be within the project area. The Commonwealth of Kentucky also maintains a list of State threatened and endangered species of which several species have the potential to be within the project area. Of the state and Federally endangered species within Kentucky, the Indiana bat (*Myotis sodalis*) and the Northern Long-Eared bat (*Myotis septentrionalis*) are the only species that have the potential to be affected by the project.

Potential indirect effects to the Indiana and Northern Long-Eared bats include the loss of potential summer roosting, foraging and corridor habitat for both species. In the summer months, both the Indiana and the Northern Long-Eared bats will leave their winter hibernacula (caves) and migrate to their summer roosting habitat. The summer roosting habitat for the Indiana bat is generally defined as trees with a diameter at breast height (dbh) of five inches or greater. Typically they roost in trees with cavities, snags or exfoliating

bark and in closed to semi-open forests adjacent to water features for access to foraging areas. The Northern Long-Eared bat has a similar habitat; however, they typically forage on forested hillsides, ridges or more upland sites. Based on a letter dated December 3, 2014 from the USFWS, the Indiana bat is the only federally listed species believed to have the potential to occur within the proposed project area and is not likely to effect the Indiana Bat. In addition, no designated critical habitat has been proposed for the Northern Long-Eared bat. Although the proposed project area may have habitat for this species, considerations taken for the Indiana bat are sufficient to ensure the project is unlikely to affect the Northern Long-Eared bat. This guidance will remain until April 2, 2015 when a final rule to list the Northern Long-Eared bat is expected. See **Exhibits 3A-3B - U.S. Fish and Wildlife Service Coordination in Appendix C.**

4.11.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to threatened and endangered species are expected under this alternative.

4.11.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. A site assessment of the area was completed in August 2014 and concluded that the presence of both the Indiana and the Northern Long Eared bat is likely. To avoid direct impacts to these species, seasonal tree clearing has been proposed thereby allowing the bats to be in their winter hibernacula during the trimming or removal/replacement. The trees impacted in this alternative are a small percentage of the total tree population in the area. Any potential populations of Indiana or Northern Long Eared bats have a large amount of adjacent comparable habitat. Based on a letter dated December 3, 2014 from the USFWS, they concurred that the proposed project is unlikely to have an adverse effect on the Indiana Bat in keeping with the following obligations. (1) seasonal clearing occurs (October 15 through March 31), (2) if new information is revealed during construction that would affect a species in a manner not already stated, additional coordination with the USFWS will be required, (3) if the construction plan is modified additional coordination with the USFWS will be required, and (4) if new species are listed or designated during construction additional coordination with the USFWS will be required. See **Exhibits 3A-3B - U.S. Fish and Wildlife Service Coordination in Appendix C.**

4.11.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. This alternative may access electricity from the existing utility to make the lights operational. This will likely occur via a drop line from the existing overhead utility wire. This will require some tree trimming and/or removal to ensure limbs and branches don't interfere with the utility infrastructure. A site assessment of the area was completed and concluded that the presence of both the Indiana and the Northern Long Eared bats is likely. To avoid direct impacts to these species, seasonal tree clearing has been proposed thereby allowing the bats to be in their winter hibernacula during the trimming and/or removal. The trees impacted in this alternative are a small percentage of the total tree

population in the area. Any potential populations of Indiana or Northern Long Eared bats have a large amount of adjacent comparable habitat.

Based on a letter dated December 3, 2014 from the USFWS, they concurred that the proposed project is unlikely to have an adverse effect on the Indiana Bat in keeping with the following obligations. (1) seasonal clearing occurs (October 15 through March 31), (2) if new information is revealed during construction that would affect a species in a manner not already stated, additional coordination with the USFWS will be required, (3) if the construction plan is modified additional coordination with the USFWS will be required, and (4) if new species are listed or designated during construction additional coordination with the USFWS will be required. See **Exhibits 3A-3B - U.S. Fish and Wildlife Service Coordination in Appendix C.**

In addition to tree removal, this alternative will include the installation of continuously illuminated obstruction lights. Little is known about the effects of red lighting on bat populations. Bats are nocturnal and may be sensitive to light since they nest during the day and emerge at night to feed.⁴⁸ Additional coordination, through the draft environmental assessment review, will occur with the USFWS in regards to the effects of lighting on bat species.

4.11.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. The trimming or removal/replacement of trees has the potential to affect potential Indiana and Northern Long Eared bat habitat. The percentage of trees being cleared is small compared to the total number of trees within the area. Indiana and the Northern Long Eared Bat using this area as summer roosting habitat will have ample adjacent comparable habitat. The USFWS concurs with this assessment as long as specific obligations are met. See **Exhibits 3A-3B - U.S. Fish and Wildlife Service Coordination in Appendix C.**

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative will also require tree trimming and/or removal in areas where trees have the potential to interfere with the utility wires being used to provide electricity to the poles. The trimming and/or removal of trees has the potential to affect potential Indiana and the Northern Long Eared bat habitat. The percentage of trees being cleared is small compared to the total number of trees within the area. Indiana and Northern Long Eared bats using this area as summer roosting habitat will have adjacent comparable habitat. Seasonal tree clearing will be recommended to minimize impacts. The effects of lighting on potential populations were coordinated with the USFWS through review of the draft environmental assessment.

When compared to Alternative 1, Alternative 2 will require the permanent installation of lighted poles and annual maintenance. Alternative 2 however, has the potential to effect populations through the addition of lighting in the area. Alternative 2 has the potential to create greater impacts to threatened and endangered species than either Alternative 1 or the No Action Alternative.

⁴⁸ http://www.lbp.org.uk/downloads/Publications/Management/lighting_and_bats.pdf

4.11.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternative is anticipated to create any adverse impacts to threatened and endangered species. Based on guidance from the USFWS, due to seasonal tree clearing measures the proposed project is unlikely to affect the Northern Long-ear or Indiana bat. The Draft Environmental Assessment was sent to the USFWS Kentucky Ecological Services Field Office in May 2016 and no additional comments were provided.

4.12 Wetlands and Waters of the United States

4.12.1 General Discussion

The Army Corps of Engineers (Corps) and the EPA jointly define wetlands as “*those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances, do support a prevalence of vegetation typically adapted for life in saturated soil conditions.*”⁴⁹ Wetlands generally include swamps, marshes, bogs and similar areas. According to the Corps Wetlands Delineation Manual, wetlands must possess the following diagnostic characteristics: a prevalence of hydrophytic vegetation, hydric soils and wetland hydrology. The USFWS mapped potential wetland areas based on high altitude aerial photography. This mapping has been termed the National Wetland Inventory (NWI).

Waters of the United States are defined as “those waters that are subject to the ebb and flow of the tide and/or are presently used, or have been used in the past, or may be susceptible for use to transport interstate or foreign commerce. A determination of navigability, once made, applies laterally over the entire surface of the water body, and is not extinguished by later actions or events which impede or destroy navigable capacity.”⁵⁰

4.12.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to wetlands are expected under this alternative.

4.12.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. The NWI map does not show any mapped wetlands within the proposed project area. The Middle Fork of Beargrass Creek is the only Waters of the United States within the project area. Trees will not be trimmed or removed/replaced in a manner that will discharge fill material into the creek. Therefore the project area will not impact any wetlands or Waters of the United States.

⁴⁹ (Corps 33 CFR §328.3) <http://ecfr.gpoaccess.gov/cgi/t/text/text-idx?c=ecfr&rgn=div5&view=text&node=33:3.0.1.1.35&idno=33>

⁵⁰ <http://www.lrc.usace.army.mil/Missions/Regulatory/Definitions.aspx>

4.12.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. The NWI map does not show any mapped wetlands within the proposed project areas. The Middle Fork of Beargrass Creek is the only Waters of the United States within the project area. Lighted poles will not be installed adjacent to or within the creek. Therefore this alternative will not impact any wetlands or Waters of the United States.

4.12.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential areas. There are no NWI wetlands mapped within the project area and this alternative will not discharge fill material into the Middle Fork of Beargrass Creek.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. There are no NWI wetlands mapped within the project area and this alternative will not require the discharge of fill material the Middle Fork of Beargrass Creek.

When compared to Alternative 1, Alternative 2 will require the permanent installation of a lighted poles and annual maintenance. Neither alternative will require impacts to wetlands and or Waters of the United States. None of the alternatives will likely create negative impacts to wetlands and or Waters of the United States.

4.12.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternative will create any impacts to wetlands. Therefore, no mitigation measures for wetland impacts will be required.

4.13 Floodplains

4.13.1 General Discussion

Floodplains perform many important functions included in flood desynchronization, wildlife habitat, food chain support, nutrient retention and removal and erosion control. Regulatory floodplains are those with a designated 100-year floodplain that are mapped on National Flood Insurance Rate Maps by the Federal Emergency Management Agency (FEMA). Longitudinal encroachment of transportation projects on designated floodplains requires a formal review under Executive Order 11988, *Floodplain Management*. Executive Order 11988 directs Federal agencies to “take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore and preserve the natural and beneficial value served by floodplains”. United States Department of Transportation Order 5650.2, *Floodplain Management and Protection* contains procedures for implementing the Executive Order and establishes a policy of avoiding actions within the 100-year floodplain. FEMA classifies and defines flood prone areas by zones based on the probably and potential intensity of flooding.

The Natural Resources Conservation Service, stated based on their review of the Draft Environmental Assessment, they do not anticipate the proposed actions will negatively affect Wetland Reserve Program (WRP) easements, Grassland Reserve Program (GRP) easements, prime and important farmland soils and soils of statewide importance or PL-566 watershed structures. See **Natural Resources Conservation Service Coordination** in **Appendix E**.

4.13.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to floodplains are expected under this alternative.

4.13.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. The Middle Fork of Beargrass Creek is within the project area of Runways 15 and 24. Several trees are located within Zone AE (areas inundated by 100 year flooding, for which base flood elevations have been determined). Trees trimmed/or removed in these areas will be done in a manner so there is no net loss of floodplain storage volume. The remainder of the project area is located within Zone X (areas that are determined to be outside of the 100- and 500- year floodplains), which is considered outside of the managed floodplain system.

4.13.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. The Middle Fork of Beargrass Creek is within the project areas of Runways 15 and 24. Several trees are located within Zone AE (areas inundated by 100 year flooding, for which base flood elevations have been determined). The installation of poles within these areas will require that floodplain storage volume be replaced 1:1 to ensure there is no net loss of floodplain storage volume. The remainder of the project area is located within Zone X (areas that are determined to be outside of the 100- and 500- year floodplains), which considered outside of the managed floodplain system.

4.13.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. This alternative may require trimming or removing trees within a floodplain but any such action will be completed in a manner so there is no net loss to floodplain storage volume.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative may require the installation of lighted poles adjacent to trees, within a

floodplain. Any floodplain volume loss due to the installation of poles will be replaced 1:1 to ensure there is no net loss of floodplain storage.

When compared to Alternative 1, Alternative 2 will require the permanent installation of lighted poles and annual maintenance. Alternative 2 will require ground disturbance within a floodplain to install lighted poles. This ground disturbance will result in an impact to the floodplain and require floodplain volume mitigation.

4.13.6 Mitigation

Neither the Alternative 1 nor the No Action Alternative will create any adverse impacts to floodplains. Therefore, no mitigation measures for floodplains impacts will be required.

Alternative 2 however will require floodplain volume loss mitigation due to the installation of poles. This loss of volume will be replaced at a ratio of 1:1 to ensure there is no net loss of floodplain storage.

4.14 Farmland

4.14.1 General Discussion

Agricultural land in Kentucky is categorized as either prime farmland or important farmland. Prime farmland has the best combination of physical and chemical characteristics for use as cropland, pastureland and wooded land. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern agricultural methods. Important farmland is agricultural land that is nearly prime farmland, which can economically produce high yields of crops when treated and managed according to acceptable farming methods.

The Federal Farmland Protection Policy Act, 7 U.S.C. § 4201 et seq. authorizes the United States Department of Agriculture, NRCS to identify the effects of the Federal program on the conversion of farmland to nonagricultural uses. Federal agencies must identify and take into account the adverse effects of Federal programs on the preservation of farmland. They must also consider appropriate alternative actions, which could lessen adverse effects and assure that such Federal programs, to the extent practical, are compatible with state and local government and private programs and policies to protect farmland.

To protect existing agricultural resources in Kentucky, The Kentucky General Assembly established (1994) the Purchase of Agriculture Conservation Easement Corporation (PACE). PACE allows the Kentucky Department of Agriculture to preserve farmland by allowing the state to purchase agriculture conservation easements in order to ensure that lands currently in agricultural use will continue to remain available for agriculture and will not be converted to other uses.⁵¹

The Natural Resources Conservation Service, stated based on their review of the Draft Environmental Assessment, they do not anticipate the proposed actions will negatively affect Wetland Reserve Program (WRP) easements, Grassland Reserve Program (GRP) easements, prime and important farmland soils and

⁵¹ <http://www.kyagr.com/marketing/PACE.html>

soils of statewide importance or PL-566 watershed structures. See **Natural Resources Conservation Service Coordination in Appendix E.**

4.14.2 No Action Alternative

The No Action Alternative assumes there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to farmlands are expected under this alternative.

4.14.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. The easement acquisition and tree trimming or removal/replacement will occur in urban areas that are not currently and are unlikely to be used as farmland in the future. Alternative 1 will not remove prime or important farmland from production.

4.14.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. The easement acquisition and lighted pole installation will occur in urban areas that are not currently and are unlikely to be used as farmland in the future. Alternative 2 will not remove prime or important farmland from production.

4.14.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. This alternative is not on or near farmland and will not require the removal of any farmland from production.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. This alternative is not on or near farmland and will not require the removal of any farmland from production.

When compared to Alternative 1, Alternative 2 will require the installation of a permanent lighted pole and annual maintenance. Neither alternative is on or near farmland and will not require the removal of any farmland from production. None of the alternatives are anticipated to create impacts to farmland.

4.14.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternative is anticipated to create any impacts to farmland. Therefore, no mitigation measures for farmland impacts will be required.

4.15 Energy Supply and Natural Resource Development

4.15.1 General Discussion

This section evaluates the impact of the Sponsor's Proposed Action on the consumption of energy and natural resources. The proposed consumption is compared to the available resources in the region and the impacts of the proposed development are stated herein. The evaluation focuses on four separate areas:

- Consumption of energy for stationary facilities such as buildings and lighting systems;
- Consumption of fuel by aircraft;
- Consumption of fuel by ground vehicles; and
- Use of natural resources, which are in short supply.

The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA Region 4 stated, based on their review of the Draft Environmental Assessment will not represent a significant impact to human health and the environment. See **U.S. Environmental Protection Agency Region 4 Coordination** in **Appendix E**.

4.15.2 No Action Alternative

The No Action Alternative assumes there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to energy supplies or natural resources are expected under this alternative.

4.15.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. This alternative will not require permanent energy supply from the existing energy supply infrastructure. The construction activities required for this removal/replacement would be temporary and would not utilize any substantial amounts of natural resources, which are considered to be in short supply. Individual trees that are trimmed may require maintenance every five years to ensure they have not penetrated the existing approach surface. Providing fuel used in construction of the Alternative is a private, profit centered activity and would have no adverse impacts on the overall system. Therefore, it is anticipated there will be no adverse impacts on existing natural resources.

4.15.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

Alternative 2 will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. To operate the lights, the poles will either need to be tied into the existing utility system or they would need a dedicated power supply. The installation of these lights and operation will follow the standard set forth in 14. FAA AC 150/5370-10G Standards for Specifying Construction of Airports, PART 11 LIGHTING INSTALLATION, Item L-119 Airport Obstruction Lights with the applicable modifications, additions and clarifications. This alternative will likely increase demand on the existing power supply and will need separate consideration for metering to ensure energy demands for both the residential and recreational as well as the obstruction lights are being met. If the poles are

incorporated into the existing utility system, precautions, such as lightning protection, will need to be taken to minimize damage to lights and the utilities of the surrounding areas during storm events.

4.15.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential areas. Alternative 1 is not anticipated to put an undue burden on the existing energy supply or natural resources. Neither the No Action Alternative nor Alternative 1 are likely to cause an adverse impact to natural resources.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. These poles will require additional power either through the existing utility infrastructure or through a dedicated power supply. Either power supply will require additional energy resources to the area and put a burden on the existing utilities. Alternative 2 therefore has additional impacts on energy supply and natural resources than the No Action Alternative.

When compared to Alternative 1, Alternative 2 will require the permanent installation of lighted poles and annual maintenance. These poles will require additional power either through the existing utility infrastructure or through a dedicated power supply. Either supply will require additional energy resources to the area and put a burden on the existing utilities. Alternative 2 will create more impacts to energy supply and natural resources than either, Alternative 1 or the No Action Alternative.

4.15.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternatives are anticipated to create any adverse impacts to energy supplies or natural resource development. Therefore, no mitigation for energy supplies or natural resources will be required.

4.16 Light Emissions

4.16.1 General Discussion

Aviation lighting required for the purpose of security, obstruction clearance and aeronautical navigation is the prominent contributor to light emissions radiating from airports. These lights usually fall within the following categories: airfield lights (runway and taxiway), aircraft parking apron lights, building lights, auto parking lot lights and navigational lights (rotating beacon, approach lighting). Airport light emissions may be considered to have an impact if light is directed towards a sensitive receptor (residential area). The following section summarizes the existing and future lighting conditions and their potential impacts.

4.16.2 No Action Alternative

The No Action Alternative assumes there will be no expansion of airfield resources to address the established Purpose and Need. No light emission impacts are expected under this alternative.

4.16.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. This alternative will not require the construction of facilities that will require lighting. Tree trimming or removal/replacement will be conducted during day light hours, so it is unlikely equipment needed for this alternative would need lighting to complete the work.

4.16.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. Since these lights will be used to illuminate obstructions within the runway approach surfaces, they must follow the guidelines presented in FAA Advisory Circular (AC) 70/7460-1K Chapter 5 Red Obstruction Lighting Systems. The AC states that “Red obstruction lights should be operated by a satisfactory control device (e. g. photocell, timer, etc.) adjusted so the lights will be turned on when the northern sky illuminance reaching a vertical surface falls below a level of 60 foot-candles (645.8 lux) but before reaching a level of 35 foot candles (367.7) lux). The control device should turn the lights off when the northern sky illuminance rises to a level of not more than 60 foot-candles (645.8 lux). The lights may also remain on continuously. The sensing device should if practical, face the northern sky in the Northern Hemisphere. (See AC 150/5345-42).” Due to the anticipated quantity of obstruction lights and their locations, it is recommended having the lights on continuously so they are all on at the same time. There are two lighting options for the lighted poles; light emitting diode (LED) type illumination or 116 Watt incandescent lamps. LED type obstruction lights provide a longer life and reduce maintenance. Some of the FAA approved L-810 obstruction light manufacturers report average life expectancies of 100,000 hours for their LED type L-810(L) obstruction lights. The 116 Watt incandescent lamps used in L-810 obstruction lights are reported to have a life expectancy of approximately 8,000 hours. However, per Federal Aviation Administration Program Guidance Letter 12-02 it notes “The FAA is reviewing the use of LED obstruction lights and approach lights with aircraft using Enhanced Flight Vision Systems or Night Vision Imagery technology that relay on an infrared signature. LED Fixtures may not provide this infrared signature. The same issues may be present in LED high intensity runway edge lights. For these reasons, LED obstruction lights, LED approach Lights, and LED high intensity runway edge lights are not Airport Improvement Program (AIP) eligible at this time.” If LED lighting were used the lights would need to be purchased by Airport funds. The use of AIP funds would require purchasing incandescent lamps.

4.16.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. Alternative 1 does not require the construction of facilities and tree trimming or removal/replacement will occur during daylight hours. Alternative 1 will not contribute to the Airport’s light emissions.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become

obstructions. If the lights run continuously, cloudy days, twilight hours, and night time will have a noticeable red glow due to the concentration of lighting. The installation of the lighted poles adjacent to obstructions off all four runway ends will contribute to the light emissions radiating from airports as well as impact both the residential and recreational areas.

When compared to Alternative 1, Alternative 2 will require the permanent installation of lighted poles and annual maintenance. If the lights run continuously, cloudy days, twilight hours and night time will have a noticeable red glow do to the concentration of lighting. This installation of the lighted poles adjacent to obstructions off all four runway ends will contribute to the light emissions radiating from the airport as well as impact both the residential and recreational areas. Alternative 2 will create greater impacts to light emissions than either, Alternative 1 or the No Action Alternative.

4.16.6 Mitigation

Neither Alternative 1 nor the No Action Alternative are anticipated to create any impacts with regards to light emissions. Therefore, no mitigation measures for light emissions will be required. Alternative 2 is expected to increase the Airport's light emissions and will require special considerations to ensure the obstructions are properly lighted while reducing the light effects on the ground. Additional mitigation will be studied if Alternative 2 becomes the LRAA's preferred alternative.

4.17 Construction Impacts

4.17.1 General Discussion

The construction of new facilities often gives the appearance of increased activity which is often quite different than those the facility will reflect after its completion. The impacts of the construction phase are relatively short in duration and do not reflect the impacts, if any, that the facility will have for a much larger time period on the environment. Construction impacts normally involve the movement of equipment, building materials, laborers, and related personnel to and from the construction site. In addition, noise levels, smoke, dust and possible disruption of public services and other temporary undesirable conditions often accompany the construction phase. The movement of equipment and materials may have short-term effects on normal traffic flows and cause temporary inconveniences to individuals who normally reside or travel in the construction area. Many of the adverse temporary effects can be minimized through the careful scheduling of deliveries and the movement of equipment to avoid peak traffic conditions and other sensitive periods. Other on-site precautions can be taken to reduce the adverse impacts caused by the construction activities.

The construction guidelines presented below are applicable to both Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33.

4.17.2 Noise

The major acoustic impact will result from cutting, trimming and mulching vehicles on site and material haul vehicles driving through local streets. Construction vehicles will sound similar to the residential and commercial tree trimming that could occur in the area. Haul vehicles will sound similar to truck traffic. No blasting will be necessary. Construction activities will take place during daylight hours.

4.17.3 Air Quality

Dust resulting from ground disturbing activities (i.e. utility line trenching, stump removal and pole installations) may be generated. Several methods of controlling dust and other air pollutants include: exposing the minimum area of erodible earth; applying temporary mulch with or without seeding; using water sprinkler truck; using covered haul trucks; using dust suppressors or penetration asphalt on haul roads; and using plastic sheet coverings. It is anticipated trees removed will be mulched into enclosed vehicles.

4.17.4 Water Quality

During construction, some amount of erosion may occur. Engineering controls will be used to limit erosion and sedimentation. An erosion and sediment control program, including the possible use of silt fences, silt traps, retention basins and/or interim soil stabilization, may be developed during the design phase of the project. Based on a letter dated December 16, 2014 from the Department of Local government, a groundwater survey of the site and vicinity should be conducted, and any wells or springs located should be inspected and mapped and records filed with the Groundwater branch, Division of Water. If any water wells on-site need to be abandoned, state regulations require that they be properly plugged by a Kentucky certified water well driller. See **Exhibits 4A-4C - Kentucky Clearinghouse; Department for Local Government Coordination in Appendix C.**

4.17.5 No Action Alternative

The No Action Alternative assumes there will be no expansion of airfield resources to address the established Purpose and Need. No construction impacts are expected under this alternative.

4.17.6 Summary of Impacts

Both Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 may cause temporary localized air degradation from construction activities. Dust resulting from trenching and auguring, exhaust emissions and construction activities could be generated. Proper engineering measures can minimize the impact on the surrounding properties. Heavy equipment operations during construction may temporarily increase noise levels. The majority of noise impact will result from construction vehicles on site and material haul vehicles driving through local streets. Construction vehicles will sound similar to trucking freight services presently operating in the locale. Construction activities will take place during daylight hours. The location and the nature of both the Airport and the proposed improvements under consideration will not have any adverse impacts on the area. However, Alternative 2 - Acquire easements

for lighting obstructions to Runways 06, 15, 24 and 33, will likely require annual maintenance of each lighted pole to ensure the light is operation and the tree has not out grown the pole. This annual maintenance will likely increase construction impacts in the area as poles and lights are replaced and trees are trimmed and/or removed so as not to interfere with the obstruction lighting. Alternative 2 has the potential for additional construction impacts than either Alternative 1 or the No Action Alternative.

4.17.7 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternatives are anticipated to create any adverse impacts resulting from construction activities. Therefore, no mitigation for construction impacts will be required.

4.18 Solid Waste

4.18.1 General Discussion

Environmental concerns relative to solid waste disposal range from adequate landfills for normal urban trash and garbage to the safe disposal of industrial waste. More recently, concerns over “hazardous” waste disposal have heightened the intensity of the issue. Waste disposal facilities have, on occasion, become the center of controversy since landfills and the truck traffic they generate are often perceived as not being compatible with residential areas. Consumer product marketing and packaging trends have resulted in the steady rise in per capita volumes of solid waste and related environmental regulations have complicated their disposal. Traditionally, except for the open burning issue that reduced airport visibility, general aviation airports have not been heavily involved in solid waste conflicts since they generally do not contribute considerably to the problem. Unless an airport has related industry or a major paint and repair service facility, it does not generate appreciable amounts of solid waste. FAA’s Order 5050.4B states: *“Airport actions which relate only to airfield development (runways, taxiways, and related items) will not normally include any direct relationship to solid waste collection, control, or disposal other than that associated with the construction itself (reference paragraphs 47e(20))”*. Construction activities as part of pavement development generate varying amounts of solid waste. General disposal of these wastes must be monitored and processed properly.

In regard to the location of landfills and their proximity to airports, the FAA’s Order 5200.33B, *Hazardous Wildlife Attractants on or Near Airports*, provides the following comments: Landfills, garbage dumps, sewer or fish waste outfalls and other similarly licensed or tilted facilities used for operations to process, bury, store or otherwise dispose of waste, trash and refuse will attract rodents and birds. Where the dump is ignited and produces smoke, an additional attractant is created. All of the above are undesirable and potential hazards to aviation since they erode the safety of the airport environment. The FAA neither approves nor disapproves locations of facilities mentioned above. Such action is the responsibility of the Environmental Protection Agency and/or the appropriate state and local agencies. The role of the FAA is to ensure that airport owners and operators meet their contractual obligations to the United States government regarding compatible land uses in the vicinity of the Airport. While the chance of an unforeseeable, random bird strike in flight will always exist, it is nevertheless possible to define conditions within fairly narrow limits where the risk is increased. Those high-risk conditions exist in the approach and departure patterns and landing areas on and in the vicinity of airports.

Various observations support the conclusion that waste disposal sites are artificial attractants to birds. Accordingly, disposal sites located in the vicinity of an airport are potentially incompatible with safe flight operations. Those sites that are not compatible need to be eliminated. Airport owners need guidance in making those decisions and the FAA must be in a position to assist. Some airports are not under the jurisdiction of the community of local governing body having control of land usage in the vicinity of the Airport. In these areas the airport owner should use its resources and exert its best efforts to close or control waste disposal operations within the general vicinity of the Airport. Criteria for determining incompatibility are contained in FAA Order 5200.5A and will be considered as incompatible if located within areas established for the airports through the application of the following criteria:

- Hazardous wildlife attracting sites located within 10,000 ft. of any runway end used or planned to be used by turbine powered aircraft.
- Hazardous wildlife attracting sites located within 5,000 ft. of any runway end used only by piston powered aircraft: and
- Any hazardous wildlife attracting site located within a five mile radius of a runway end that attracts or sustains hazardous bird movements from feeding, water or roosting areas into, or across the runways and/or approach and departure patterns of aircraft.

In addition, the Commonwealth of Kentucky requires that all solid waste generated by a project be disposed of at a permitted facility. They also set forth guidelines in dealing with underground storage tanks and contaminants. If underground storage tanks are encountered, they must be properly addressed. If asbestos, lead and/or other contaminants are encountered during this project, they must be properly addressed. See **Exhibits 4A-4C - Kentucky Department of Environmental Protection Coordination in Appendix C.**

4.18.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No impacts to solid waste facilities are expected under this alternative.

4.18.3 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. This alternative will require the removal of tree trimmings and logs as part of the construction activities and therefore will not be a burden on the existing waste removal systems. The materials generated during the trimming or removal/replacement of trees will be removed from the site and either reused or disposed of properly according to city ordinances.

4.18.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

Alternative 2 will require the acquisition of easements and the installation of lighted poles adjacent to trees on residential and recreational property. This alternative will require the removal of tree trimmings and logs as part of the construction activities and therefore will not be a burden on the existing waste removal systems. The materials generated during the pole installation and trimming and/or removal of trees will be removed from the site and either reused or disposed of properly according to city ordinances. However,

because the poles are permanent, maintenance will occur annually, which has to the potential to create solid waste from construction. The material generated from annual maintenance will be disposed of accordingly.

4.18.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. This alternative will create solid waste during tree trimming and removal but will be removed from the site and disposed according to local ordinances or through reuse.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. These poles will be permanent and will likely create solid waste during their installation. This waste will be removed from the site and disposed of properly. Maintenance on these poles will occur annually to ensure the obstruction lights are working and the trees have not grown taller than the poles. Waste from the annual maintenance will be removed and disposed of properly.

When compared to Alternative 1, Alternative 2 will require the permanent installation of lighted poles and annual maintenance. This solid waste generated annually from Alternative 2 will include tree refuse like Alternative 1, but also has the potential to include incandescent light bulbs and utility poles should new ones need to be installed or replaced. Alternative 2, will likely create more solid waste initially as well as over time. Alternative 2 is anticipated to have larger solid waste impacts than either, Alternative 1 or the No Action Alternative.

4.18.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternative will create any adverse impacts with regards to solid waste. Therefore, no mitigation measures for solid waste impacts will be required.

4.19 Hazardous Waste

4.19.1 General Discussion

Hazardous waste is an overall term that includes spills, dumping and releases of substances threatening to human and animal life. To identify these materials and protect the environment from harmful interaction of potential hazardous wastes, several Federal laws and regulation have been enacted including: the National Priorities List (Superfund Sites), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). As a method of protection for the citizens of the Commonwealth of Kentucky, the Division of Waste Management has a hazardous waste division, which oversees the handling of hazardous waste throughout its lifetime. The authority to implement hazardous waste laws has been delegated by the U.S. Environmental Protection Agency (USEPA) to the Commonwealth of Kentucky.⁵²

⁵² <http://waste.ky.gov/HWB/Pages/default.aspx>

4.19.2 No Action Alternative

The No Action Alternative assumes that there will be no expansion of airfield resources to address the established Purpose and Need. No hazardous waste impacts are expected under this alternative.

4.19.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements and the trimming or removal/replacement of trees on residential and recreational property. Therefore, the USEPA listing of potential, suspected, and known hazardous waste or hazardous substance sites in Kentucky (i.e. National Priorities List (NPL)) has been reviewed. As a result of the review, it was concluded that no sites were listed in the project area as of October, 2014.⁵³ This alternative will not include the demolition or construction of buildings or facilities that have the potential to have hazardous waste. The trimming or removal/replacement of the trees will not require the use of hazardous chemicals and required construction protocols will be taken to minimize the release of construction material.

4.19.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements and the installation of lighted poles adjacent to trees on both residential and recreational property. Therefore, the USEPA listing of potential, suspected, and known hazardous waste or hazardous substance sites in Kentucky (i.e. National Priorities List (NPL)) has been reviewed. As a result of the review, it was concluded that no sites were listed in the project area as of October, 2014.⁵⁴ This alternative will not include the demolition or construction of building or facilities that have the potential to have hazardous waste. The removal and/or trimming of the trees will not require the use of hazardous chemicals and all required construction protocols will be taken to minimize the release of construction material.

4.19.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. This alternative is not near any hazardous waste sites.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. These poles will be permanent and will require annual maintenance. This alternative is not near any hazardous waste sites. Any materials replaced during annual maintenance will be disposed of properly.

When compared to Alternative 1, Alternative 2 will require the permanent installation of lighted poles and annual maintenance. Neither alternative is near any hazardous waste sites. Any materials replaced during

⁵³ Environmental Protection Agency: <http://www.epa.gov/superfund/sites/query/queryhtm/nplprop.htm>

⁵⁴ Environmental Protection Agency: <http://www.epa.gov/superfund/sites/query/queryhtm/nplprop.htm>

annual maintenance under Alternative 2 will be disposed of properly. No impacts from hazardous waste are anticipated.

4.19.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternatives are anticipated to create any adverse impacts with regards to hazardous waste. Therefore, no mitigation measures for hazardous waste are required.

4.20 Cumulative Impacts

4.20.1 General Discussion

This section addresses the cumulative effects of past, present and reasonably foreseeable future actions in combination with both proposed Alternatives. The reason for this analysis is that while impacts of many actions may be small, the cumulative (added) effects of past, present and reasonably foreseeable actions on resources could be, in the aggregate, sizable. NEPA requires that cumulative effects be studied along with direct and indirect results of those actions. The No Action Alternative studied throughout the Environmental Consequences of this document serves as the litmus against which all cumulative impacts are measured.

When reviewing the significance of cumulative impacts, the same thresholds used in judging alternatives are also implemented. The thresholds of significance are defined in FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *Airport Environmental Handbook*. The following is additional CEQ guidance for assessing cumulative impacts:

- CEQ § 1508.7 states that "'Cumulative impact' is the impact on the environment which results from the incremental impact of the action when added to other past, present and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time."
- CEQ § 1508.25 defines three types of actions to be considered in determining the scope of an EIS:
 - Actions (other than unconnected single actions) which may be:
 - Connected actions, which means that they are closely related and therefore should be discussed in the same impact statement. Actions are connected if they:
 - Automatically trigger other actions which may require environmental impact statements.
 - (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously.
 - (iii) Are interdependent parts of a larger action and depend on the larger action for their justification.
 - Cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts and should therefore be discussed in the same impact statement.
 - Similar actions, which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography. An

agency may wish to analyze these actions in the same impact statement. It should do so when the best way to assess adequately the combined impacts of similar actions or reasonable alternatives to such actions is to treat them in a single impact statement.

- For airport actions, the effect of a number of decisions about a complex of projects can be individually limited to the extent that a finding of no significant impact or categorical exclusion would appear to be appropriate for each project; however, when considered together, the projects may exceed the threshold values. In both environmental assessments and environmental impact statements, the total proposal must be considered. In the context of the CEQ Regulations, the total proposal includes both of the proposed Alternatives and all other actions reasonably related to it in time and probability.
- In determining when to consider the effects of actions by other agencies in the airport vicinity, the potential for combined significant impact shall be evaluated. For example, new highway construction and airport expansion in combination may create significant air quality impacts. Extensive earth moving from more than one project may combine to cause severe erosion or flooding.

4.20.2 Summary of Impacts

A review of past, present and reasonably foreseeable conditions indicates that the Airport has had minimal impacts on the local environs. It is expected that future impacts to environmental resource categories beyond either Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012 or Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will be minimal. A small number of past and present off-airport projects have occurred in the area and this trend of development is expected to continue in the future.

4.20.3 Past Airport Projects

Throughout the Airport's history, the airport administrator has completed approach maintenance activities as required by the FAA. Several development projects at the Airport have included asphalt upgrades on pavement near the Corporate Hangar Row and East T-Hangars. The asphalt in these areas was rehabilitated and additional apron repairs and sealcoating will be performed in 2014. New roofs have been installed on the Central American Hangar (east) and the Bowman Business Center in 2014. Finally, the Louisville Executive Aviation parking lot was rehabilitated in 2014.

4.20.4 Current and Present Airport Projects

Bowman Field has projects scheduled throughout the airfield in 2015 including the current preferred alternative and repair airfield aprons, repair the Bowman Administration building's drainage, repaint tenant hangars, rehabilitate t-hangar pavement, update pavement condition index, sealcoat and crack seal airport pavement and clean out oil/water separator.

4.20.5 Reasonably Foreseeable Future Airport Actions

In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time. Projects within the current ALP and not reviewed in this document have an independent utility and will be assessed when their implementation is needed.

Potentially Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. In addition, Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the lighted poles be assessed annually to ensure the adjacent trees have not grown beyond the poles height.

4.20.6 Summary and Conclusion

A review of past, present and reasonable foreseeable conditions indicate that Bowman Field has had minimal impacts on the local environs. Some past and present off-airport projects have occurred in the area and others are expected to occur in the future. It is anticipated that local road projects proposed by the City of Louisville and/or Jefferson County and other community projects should not have any negative impacts on the Airport environs. However, until specific off-airport project plans are known, it is not possible to fully quantify specific cumulative impacts from either Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012 or Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and other non-airport developments.

4.21 Environmental Justice and Children’s Environmental Health Risks

4.21.1 General Discussion

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, provides that each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. The Executive Order makes clear that its provisions apply fully to programs involving Native Americans.

4.21.2 No Action Alternative

The No Action Alternative assumes that there will be no acquisition of homes or businesses, no impacts occur to a disproportionately high number of minority or low income populations, and there should be no environmental health risks and safety risks that could disproportionately affect children at or near the Airport to address the established Purpose and Need.

4.21.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the acquisition of easements within residential and recreational properties. In addition, trees that have become obstructions to the runway will be trimmed or removed/replaced. This alternative does not require the displacement of the residents, homes or businesses within the project area and no adverse impacts are anticipated to occur to a disproportionately high number of minorities or low income families. There are no projects within this alternative that would create environmental health or safety risks that could disproportionately affect children.

4.21.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the acquisition of easements for lighting obstructions to Runways 06, 15, 24 and 33 and will require the installation of lighted poles adjacent to trees that have become obstructions. These poles will be permanent and will require annual maintenance. This alternative does not require the displacement of the residents, homes or businesses within the project area and no adverse impacts are anticipated to occur to a disproportionately high number of minorities or low income families. There are no projects within this alternative that would create environmental health or safety risks that could disproportionately affect children.

4.21.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require trimming or removal/replacement of trees within residential and recreational areas. This alternative does not require displacing residents, homes or businesses within the project area.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. These poles will be permanent and will require annual maintenance but will not require displacing residents, homes or businesses within the project area.

When compared to Alternative 1, Alternative 2 will require the permanent installation of lighted poles and annual maintenance. Neither alternative will require displacing residents, homes or businesses within the project area. None of the alternatives will likely create environmental justice impacts or health and safety risks to children.

4.21.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternative is anticipated to create any adverse impacts with regards to environmental justice and children's environmental health risks. Therefore, no mitigation measures for environmental justice and children's environmental health risks impacts will be required.

4.22 Climate Change/Greenhouse Gases

4.22.1 General Discussion

Greenhouse Gases (GHG) are those gases that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made), GHGs include water vapor (H₂O), carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O) and ozone (O₃).

Research has shown a link between fuel combustion and greenhouse gas emissions. Sources that require fuel or power at an airport are the primary sources that generate greenhouse gases. Aircraft are often cited as air pollutant sources; however, they produce the same types of emissions as automobiles. For instance, aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO₂), water vapor (H₂O), nitrogen oxides (NO_x), carbon monoxide (CO), oxides of sulfur (SO_x), unburned or partially combusted hydrocarbons (VOCs), particulates and other trace compounds.

The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA Region 4 stated, based on their review of the Draft Environmental Assessment will not represent a significant impact to human health and the environment. See **U.S. Environmental Protection Agency Region 4 Coordination** in **Appendix E**.

4.22.2 No Action Alternative

The No Action Alternative does not create any increases in greenhouse gases due to the restricted night time operations since February of 2012. Therefore, no mitigation measures for greenhouse gases will be required.

4.22.3 Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012.

This alternative will require the trimming or removal/replacement of trees. However, the total number of trees affected is a small percent compared to the total number of trees within the surrounding area. Trees will be mitigated where applicable and pre-February 2012 operational activity is anticipated to occur. Therefore, no substantial increases in aircraft and ground equipment exhaust emissions are expected as part of this alternative.

4.22.4 Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

This alternative will require the installation of lighted poles adjacent to trees that have become an obstructions to the runway ends. This alternative will likely require some tree trimming and clearing to ensure utilities can be provided to the poles and other trees do not block the obstruction lighting. The addition

of four areas to be lighted under this alternative will increase the demand for electricity. This electricity, supplied by pollutant emitting electric power generators, would be expected to cause additional emissions.

4.22.5 Summary of Impacts

When compared to the No Action Alternative, Alternate 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 will require the trimming or removal/replacement of a small percentage of trees adjacent to the Airport. They will be mitigated when possible to replace any function they may have provided.

When compared to the No Action Alternative, Alternate 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 will require the installation of lighted poles adjacent to trees that have become obstructions. These poles will be permanent and will require annual maintenance by large diesel powered trucks to ensure the lights are working and replace poles, where the trees have grown taller than them. Some tree trimming and/or removal will be required to ensure the lightened poles are operational and functioning.

When compared to Alternative 1, Alternative 2 will require additional annual maintenance by large diesel powered machinery and the trimming and/or removal of trees. Since Alternative 2 would require permanent fixtures and continued maintenance with tree trimming and/or removal it is anticipated to contribute additional overall exhaust emissions than either, Alternative 1 or the No Action Alternative.

4.22.6 Mitigation

Neither the Alternative 1 or Alternative 2 nor the No Action Alternative is anticipated to create any adverse impacts with regards to climate change or greenhouse gases. Therefore, no mitigation measures for climate change or greenhouse gases impacts will be required.

4.23 Conclusion

This Environmental Assessment examined potential impacts associated with LRAA's need to ensure the runways at Bowman Field are in compliance with FAR Part 77 and TERPS design standards and to re-establish approaches to the 4,357 ft. primary runway and the 3,579 ft. crosswind runway, as well as preservation of the existing airfield geometry. The purpose of this project is to provide a safe, efficient, viable and usable airfield at Bowman Field while preserving pre-February 2012 airport characteristics. The No Action Alternative would require Bowman Field to relocate the thresholds of each runway to ensure the 20:1 visual approach surface remains free of obstructions. This would result in relocated thresholds on all four runway ends. These shortened runways will prevent the operations of the current critical aircraft group and does not meet the LRAA's Purpose and Need. Therefore, the No Action Alternative was not selected as LRAA's Proposed Action.

Based on the analysis conducted throughout this document, Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 best meets Bowman Field's Purpose and Need with the least amount of environmental consequences. By acquiring avigation easements to allow for the trimming or removing/replacing trees, Alternative 1 has less of an impact to its surrounding environs during

initial construction and over time than Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33.

Therefore, Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 has been selected as the LRAA’s Proposed Action. See the following **Table 8 –Summary of Impacts Matrix**.

Table 8 – Summary of Impacts Matrix

Environmental Consequences Criteria		No Action Alternative*	Alternative 1	Alternative 2
Noise Impacts				
Aircraft		Reduction	No effect	No effect
Construction		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth.
Land Use Impacts		No effect	Requires avigation easements	Requires avigation and additional ground utility easements
Social Impacts		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth. plus may create incapability between communities and neighbors
Induced Socioeconomic Impacts		Severe impacts from loss of corporate jet fleet to Airport and surrounding communities	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth. plus reduces surrounding property values
Air Quality				
Aircraft		Reduction	No effect	No effect
Construction		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth.
*The No Action Alternative does not meet the LRRA's Purpose and Need. Therefore, the No Action Alternative is not considered a viable alternative using criteria within this document.				

Table 8 – Summary of Impacts Matrix -Continued

Environmental Consequences Criteria		No Action Alternative*	Alternative 1	Alternative 2
Water Quality		No effect	No effect	No effect
Department of Transportation Act, Section 4 (f) [Recodified at 49 U.S.C, Subtitle 1, Section 303(c)] and Related Lands		No effect,	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth at occurs annually Seneca Golf Course
Archaeological, Architectural, Historic and Cultural Resources		No effect,	No effect	May effect the historical integrity of viewsheds
Biotic Communities		No effect,	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth.
Endangered and Threatened Species of Flora and Fauna		No effect,	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth and plus potential effects resulting from continuous lighting
Wetlands and Waters of the United States		No effect	No effect	No effect
*The No Action Alternative does not meet the LRRA's Purpose and Need. Therefore, the No Action Alternative is not considered a viable alternative using criteria within this document.				

Table 8 – Summary of Impacts Matrix -Continued

Environmental Consequences Criteria		No Action Alternative*	Alternative 1	Alternative 2
Floodplains		No effect	No effect	Pole/light installation in floodplain areas
Farmland		No effect	No effect	No effect
Energy Supply and Natural Resource Development		No effect,	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth and additional burden on existing electrical utilities
Light Emissions		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth and additional light emissions
Construction Impacts		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth.
*The No Action Alternative does not meet the LRAA's Purpose and Need. Therefore, the No Action Alternative is not considered a viable alternative using criteria within this document.				

Table 8 – Summary of Impacts Matrix - Continued

Solid Waste				
Construction		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth.
Hazardous Waste		No effect	No effect	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth, with lights being disposed of properly
Cumulative Impacts		No effect	No effect	No effect
Environmental Justice and Children's Environmental Health Risk		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth and additional light emissions
Climate Change/Greenhouse Gases		No effect	Tree trimming or removal/replacement occurs every 5 years	Annual inspection to ensure the light is operational and potentially install new pole to account for tree growth and additional burden on existing electrical utilities
*The No Action Alternative does not meet the LRAA's Purpose and Need. Therefore, the No Action Alternative is not considered a viable alternative using criteria within this document.				

CHAPTER 5 - MITIGATION

5.1 Mitigation

The FAA's approval of the proposed document considers the implementation of mitigation, which is established throughout the document and featured in the Finding of No Significant Impact (FONSI). The mitigation is presented to minimize impacts whether deemed significant or otherwise. Mitigation was developed by the LRAA through their Bowman Field Safety Program and is intended to address the concerns of project stakeholders. The LRAA and its board have committed to the following mitigation.

- If a property owner elects to remove a tree(s) and elects to replace the tree(s), replacement of the removed tree will be at a ratio of 2:1, in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees.
- The LRAA will pay for tree trimming or removal/replacement, stump removal and yard restoration.
- If stump removal occurs the hole will be backfilled and seeded.
- All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty.

This mitigation provided by the LRAA's Bowman Field Safety Program, to every property owner effected by the proposed program.

In addition to LRAA's mitigation program, other mitigation was developed in accordance with applicable federal and state requirements. In accordance with the USFWS's Section 7 Endangered Species Act, the Airport will remove trees during the tree clearing restriction dates (October 15 through March 31). The remainder of the categories reviewed within this document to not require mitigation.

**CHAPTER 6 -
CITIZEN
INVOLVEMENT AND
AGENCY
COORDINATION**

6.1 Introduction

FAA's Order 5050.4B states that:

- While requests for Federal airport actions originate with a public agency, the involvement of the community at large is a necessary element in the decision-making process. An effective opportunity to comment at appropriate stages in the decision-making process shall be provided to communities, citizen groups, and other individuals affected by airport proposals submitted to the FAA. They shall also be provided an opportunity to review and comment on draft and final statements.
- In accordance with Section 509(b)(6) of the 1982 Airport Act, the opportunity for public hearings shall be offered on any action involving airport location, location of a new runway, or major extension of a runway. For other actions, a public hearing shall be considered in accordance with the guidelines contained in paragraph 49. FAA Advisory Circular 150/5050-4, Citizen Participation in Airport Planning, has additional specific guidance on community involvement. Standard procedures for Federal agency public involvement are stated in CEQ 1506.6.

The preparation of the Draft Environmental Assessment was coordinated with various city, county, state and Federal units of government. Many of these agencies have assisted with the completion of this document through the review process. Receipt of all written review comments from those public agencies involved in the review process was incorporated into this Environmental Assessment.

6.2 Agency Coordination

Coordination with public agencies provides appropriate government units, local, state and Federal, the opportunity to review for the proposed Alternatives for conformance with the requirements of their jurisdictions and programs and to make known any concerns they may have.

The following is a list of public agencies that have received early coordination letters and the Draft Environmental Assessment for review and comment.

- The Commonwealth of Kentucky E-Clearing House
- Kentucky Department of Aviation
- Kentucky Department of Environmental Protection
- U.S. Army Corps of Engineers
- U.S. Department of the Interior – Fish and Wildlife Service
- U.S. Department of Transportation - Federal Aviation Administration - Memphis ADO
- U.S. Environmental Protection Agency Region 4
- Federal Aviation Administration Air Traffic Control Tower
- U.S. Department of Agriculture

Comments received to date by these agencies, have been incorporated into the Draft Environmental Assessment. If the agency was not mentioned in the body of the document, they either did not submit a comment at the time of the publication of this document or stated no further coordination was needed.

6.3 Public Coordination

Several methods have been utilized to inform the public and interested parties of the proposed LRAA actions, to receive comments with respect to potential, environmental impacts, and to respond thereto. A Draft Environmental Assessment was forwarded to several Federal and State reviewing agencies requesting their review and comments on the document. Comments provided by these agencies are included in the document and can be found in **Appendix E**. A copy of the Draft Environmental Assessment was available for public review at Bowman Field administration office and the public library.

A public hearing was advertised in the Courier-Journal. This newspaper is of general circulation and serve the greater Louisville, Kentucky area. The public was given the opportunity to review the Draft Environmental Assessment and given thirty days to provide comments to the Airport or to FAA. The Draft Environmental Assessment was made available on June 29, 2016 at the public at the Louisville Public Library, the Program Office at Bowman Business Center, the LRAA Administration Building and the LRAA's website. A public hearing was held on July 29, 2016 at the Breckinridge Inn. See **Public Notice Affidavit** in **Appendix F**. The comments that were provided during the public comment period and at the public meeting were reviewed and the Draft Environmental Assessment was up-dated to reflect concerns relating the project. See **Public Comments** in **Appendix F**.

The FAA as part of the Section 106 process received and considered comments and concerns from designated consulting parties. The first consulting party meeting was held on July 10, 2015 at 4320 Park Boulevard; after which comments regarding the Cultural Resources Evaluation were submitted to the FAA. A second consulting party meeting was held on August 20, 2015 at 4320 Park Boulevard to discuss previously provided comments. The final consulting party meeting was held on March 31, 2016 at 4320 Park Boulevard. As part of the process the APE was expanded to include areas outside of the initial 2014 investigation. The comments and additional areas incorporated into the APE were analyzed in a Supplement to the Cultural Resources Evaluation. The 2014 document reviews the original investigation boundary, in the form of the TERPS approach surfaces, which includes thirteen (13) properties. These included two (2) golf courses, six (6) neighborhoods, and five (5) individual buildings. The Supplement to the CRE reviews areas outside and adjacent to the TERPS, which includes an additional neighborhood (Hathaway Neighborhood). The supplement also reviews the FAA's revised scope, which includes only trees that are penetrations or near term penetrations within easement proposed for acquisition. See **Historic Architectural Survey for the Bowman Field Airport Area Safety Program Jefferson County, Kentucky, Appendix I** and **Section 106 Coordination** in **Appendix B**.

6.4 Permits and Commitments

A list of all the permits and commitments for the development of the LRAA's Proposed Action are contained herein. It should be noted that even though the airport sponsor may obtain one or more permits from the appropriate Federal, state, and/or local agencies for the proposed project, initiation of such project shall NOT be approved until FAA has issued its environmental determination.

6.4.1 Permits

- A Metropolitan Sewer District Site Disturbance Permit for erosion prevention and sediment control may be required.
- Louisville Metro Parks may require permit application for any projects occurring on their property. The applicant must submit a permit application, including any exhibits, to the Parks Director allowing two (2) weeks for review and approval. Bowman Field may be subject to the tree replacement policy set forth in this permit.
- Bowman Field will be required to file an FAA Form 7460 for the temporary use of a crane.
- Kentucky law requires that all structures built on or near an airport, as defined by KRS 183.861, must be approved and permitted by the Kentucky Airport Zoning Commission. Bowman Field may be required to apply for a TC 56-50 permit for the temporary use of a crane.
- Coordination with the Kentucky Division of Water will occur to obtain appropriate floodplain permits.

6.4.2 Commitments

- Replacement of the removed tree will be at a ratio of 2:1. If a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees.
- The LRAA will pay for tree trimming or removal/replacement, stump removal and yard restoration.
- All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty.
- The Draft Environmental Assessment was sent to the USFWS Kentucky Ecological Services Field Office in May 2016 and no additional comments were provided.
- Submittal of an application for Federal funds to develop the Airport involving the possibility of soil erosion, water and air pollution during the construction process, will include assurances that the sponsor will ensure the contractor and the Resident Engineer will take all necessary precautions to prevent these types of pollution during the construction process. In particular, the methods for minimizing the effects upon the environment will be as follows:
 - Air pollution from dust will be kept to a minimum by watering the disturbed areas at whatever frequency is necessary to control the creation of airborne dust.
 - Wherever necessary, siltation basins will be constructed in the natural drainage ways to control the build-up of silt in existing ponds and creeks. The number, placement and design of such basins will be determined in the final design.
 - Erosion of the disturbed soil after the construction season and during the winter and spring months will be controlled by the planting of temporary cover crops and ultimately after final earth shaping, the entire area will be fertilized, seeded or sodded as required by Federal and state laws.

**CHAPTER 7 -
LIST OF PREPARERS**

7.1 – List of Preparers

Bowman Field's Environmental Assessment was prepared by Hanson Professional Services Inc. for the Louisville Regional Airport Authority. Specifically, the preparation of this document was overseen by Mr. Tommy Dupree, Program Manager and Stephen Wilson, Community Planner for the Federal Aviation Administration, Southern Region; Memphis Airports District Office. The following individuals from the firm of Hanson Professional Services Inc. prepared text and exhibits: Mr. Rodger Anderson (Co-Author), Mr. Tim Haskell (Co-Author), Ms. Melissa Jenkins (Technical Documentation) and Ms. Shawn Gibbs (Technical Documentation).

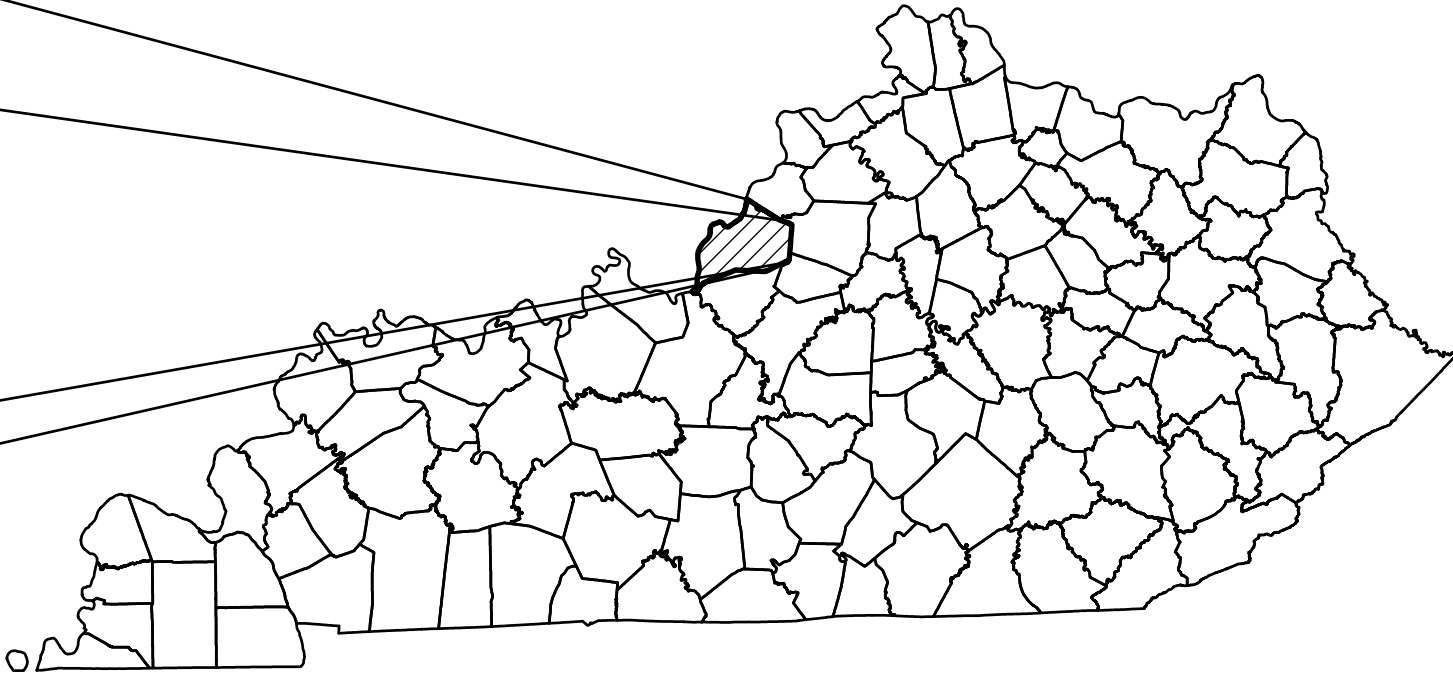
APPENDIX A - EXHIBITS

JEFFERSON COUNTY, KENTUCKY

BOWMAN FIELD



COMMONWEALTH OF KENTUCKY



Sources: Esri, DeLorme, HERE, USGS, Intermap, increment P.Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), TomTom

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE ROAD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

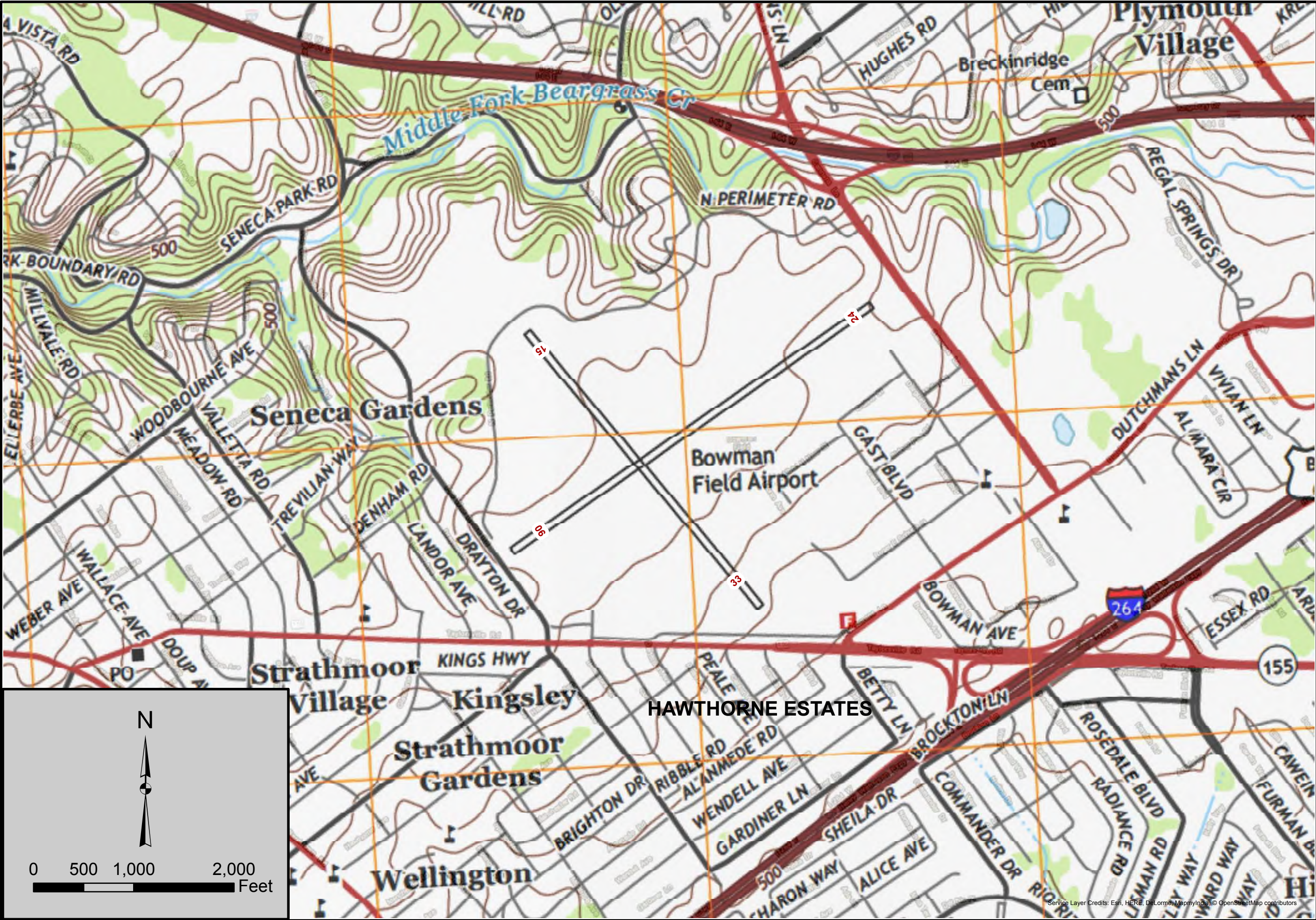
ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

COUNTY LOCATION MAP



FRIDAY, DECEMBER 12, 2014 2:02:11 PM GIBBS01521
\\1205S12A001\2\CAD\GIS\ENVIRONMENTAL ASSESSMENT\B2\X0D

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

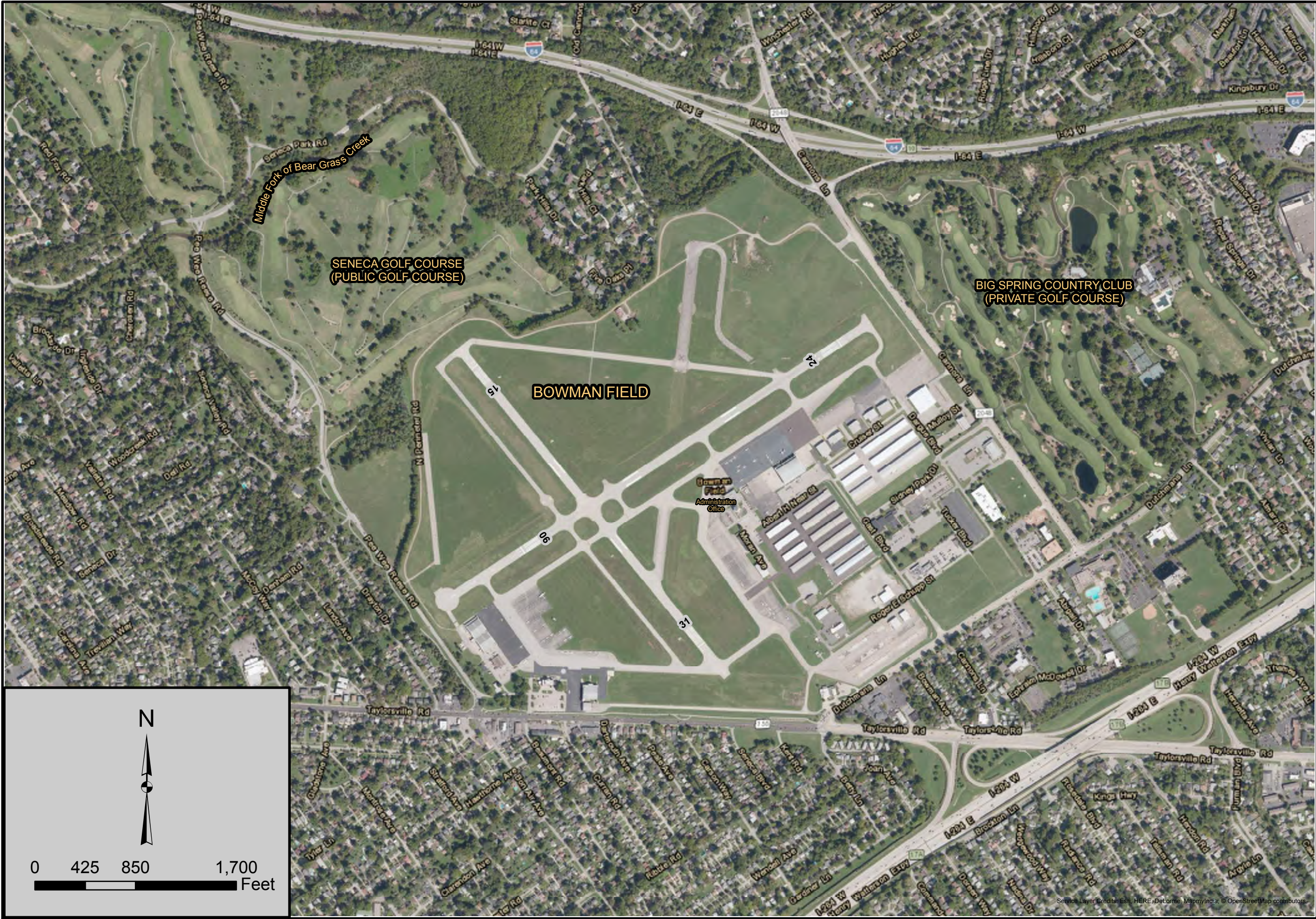
**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

**AIRPORT
SITE
LOCATION
MAP**



BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

**AIRPORT
SITE
VICINITY
MAP**



HANSON.
Hanson Professional Services Inc.

Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA
SHEET TITLE

ALTERNATIVE 1

TUESDAY, MAY 24, 2016 10:27:18 AM GIBBS01521
1112JOBS12A00134\CAD\GIS\ENVIRONMENTAL ASSESSMENT\EXB4.MXD

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aermap, IGN, IGP, swisstopo, and the GIS User Community
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



TUESDAY, MAY 24, 2016 10:43:38 AM GIBBS01521
\\112\0BS\12A00134\CAD\GIS\ENVIRONMENTAL ASSESSMENT\TXB5\REVISED.MXD

HANSON.
Hanson Professional Services Inc.

Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-07720

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

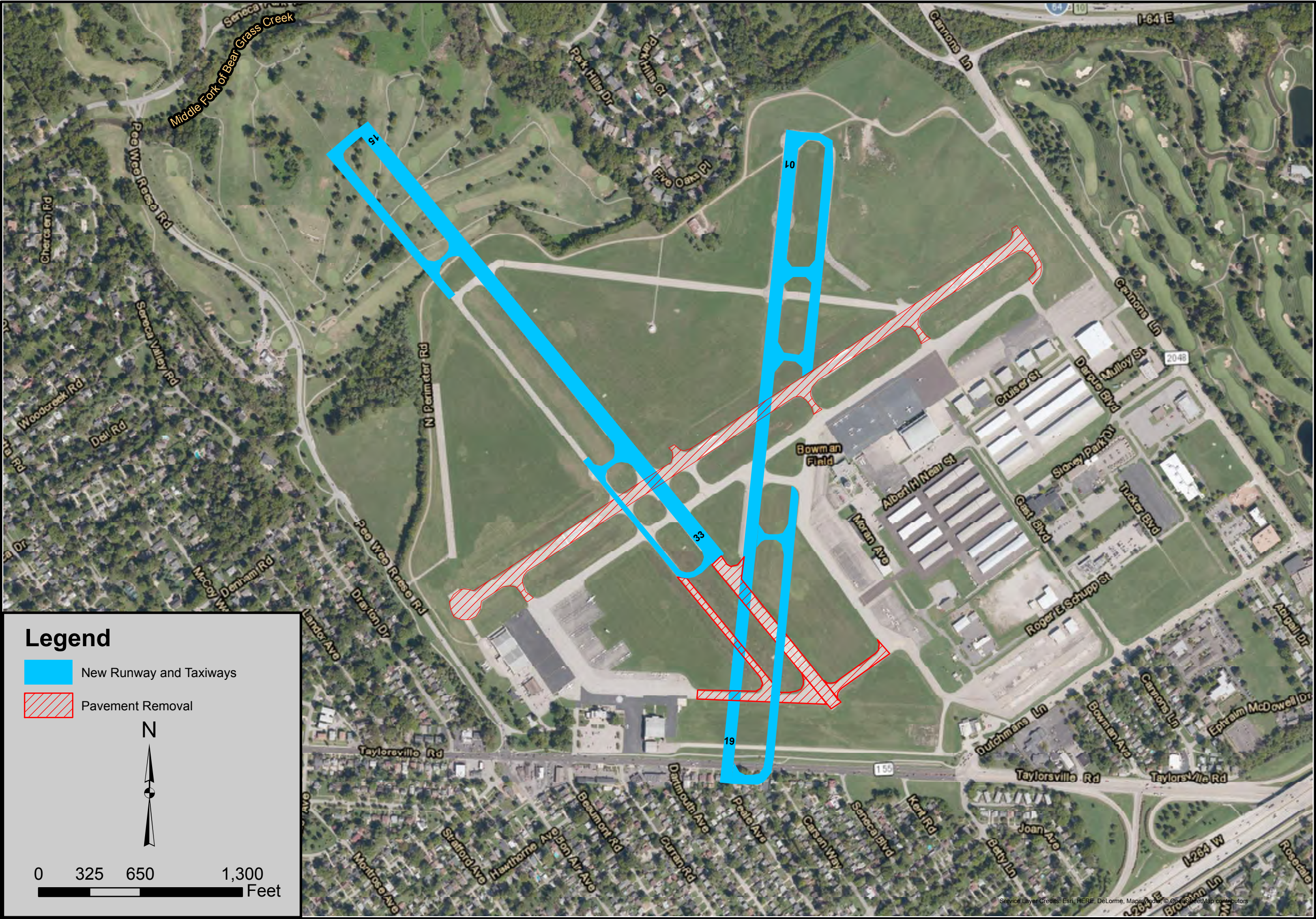
**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

ALTERNATIVE 2



FRIDAY, DECEMBER 12, 2014 9:16:35 AM GIBBS01521
I:\12\05\12A001\24\CAD\GIS\ENVIRONMENTAL ASSESSMENT\EXB6.MXD

Legend

- New Runway and Taxiways
- Pavement Removal



0 325 650 1,300 Feet

Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM

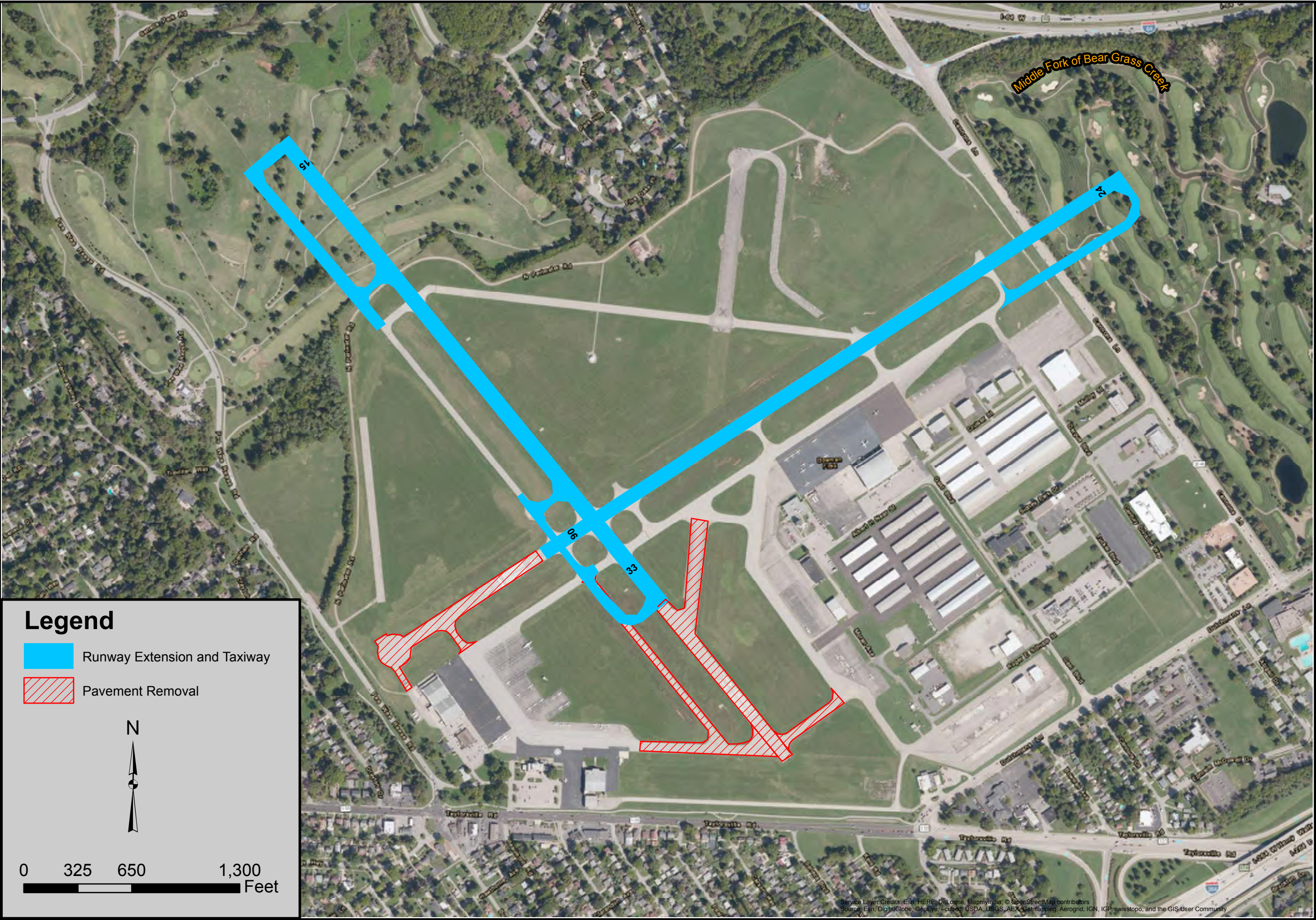
ENVIRONMENTAL
ASSESSMENT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

ALTERNATIVE 3



FRIDAY, DECEMBER 12, 2014 10:16:17 AM GIBBS01521
\\12\05\12A001\2\CAD\GIS\ENVIRONMENTAL ASSESSMENT\B7.MXD

Legend

- Runway Extension and Taxiway
- Pavement Removal



0 325 650 1,300 Feet

Middle Fork of Bear Grass Creek

Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

ALTERNATIVE 4



Legend

WETLANDS*

- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

* No National Wetland Inventory, wetlands are mapped within the project area.

04258501,700

Feet

N

HANSON
Hanson Professional Services Inc.

Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

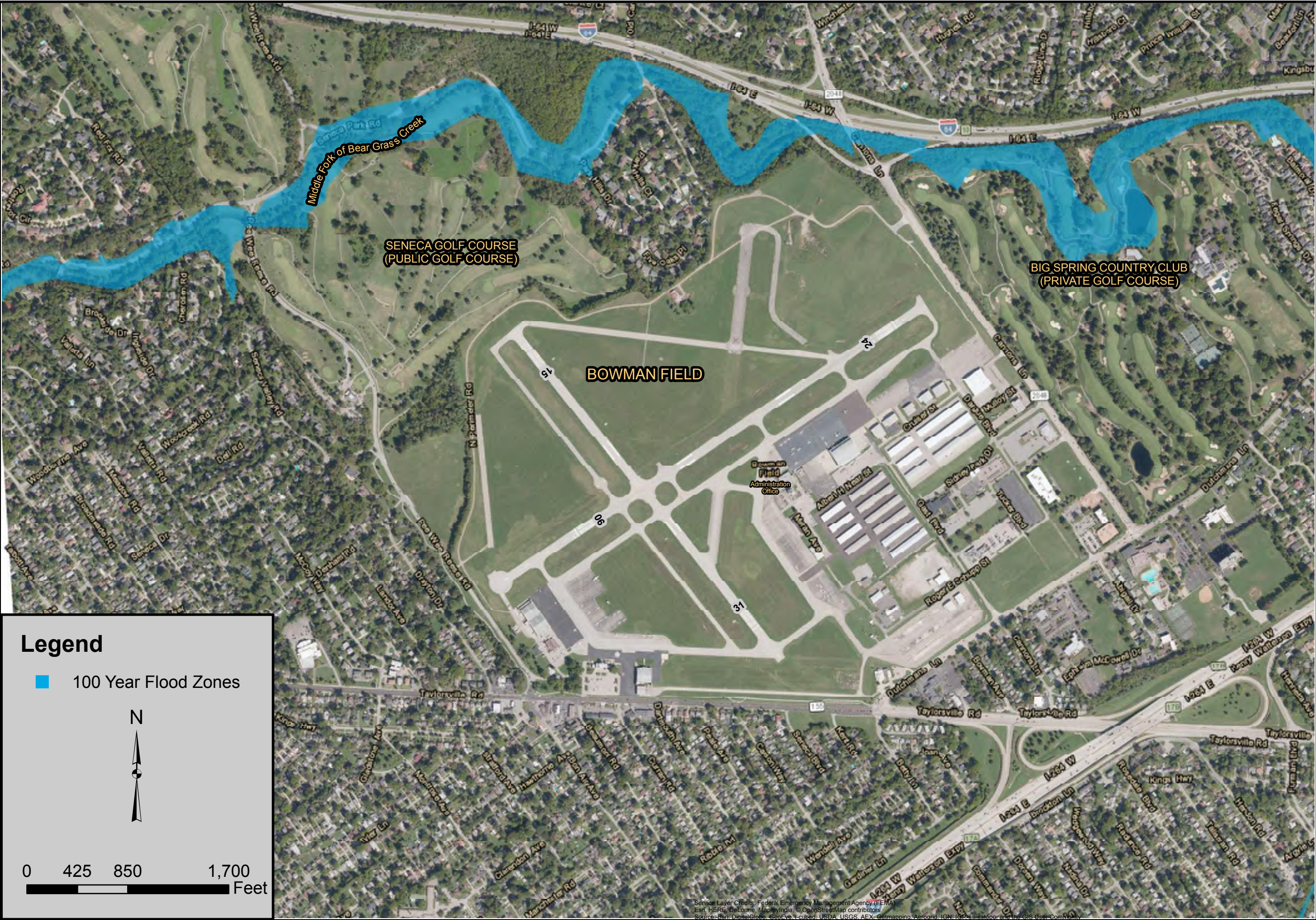
NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

**NATIONAL
WETLAND
INVENTORY
MAP**

WEDNESDAY, DECEMBER 17, 2014 4:38:46 PM GIBBS01521
\\112\OBS\12A00134\CAD\GIS\ENVIRONMENTAL ASSESSMENT\EX8.MXD

Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors
Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, iGP, swisstopo, and the GIS User Community



FRIDAY, DECEMBER 12, 2014 10:20:34 AM GIBBS01521
\\112CBS\12A00134\CAD\GIS\ENVIRONMENTAL ASSESSMENT\EXB9.MXD

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

**FLOOD RATE
INSURANCE
MAP**

Service Layer Credits: Federal Emergency Management Agency (FEMA)
Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors
Source: Esri, DigitalGlobe, GeoEye, Earthstar (USA), USGS, AeroGRID, IGN, SDA, CNES, and the GIS User Community

**APPENDIX B -
HISTORIC
ARCHITECTURAL
SURVEY FOR THE
BOWMAN FIELD
AIRPORT SAFETY
PROGRAM JEFFERSON
COUNTY, KENTUCKY**



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118
Phone: 901-322-8180

May 24, 2016

Mr. Craig Potts
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Dear Mr. Potts:

**RE: DETERMINATION OF EFFECTS
BOWMAN FIELD AIRPORT, AREA SAFETY PROGRAM
LOUISVILLE, KY
KHC # 45249**

The Federal Aviation Administration (FAA) Memphis Airports District Office (ADO) is proposing a "Determination of No Adverse Effect" under Section 106 of the National Historic Preservation Act (NHPA) for the undertaking at the Bowman Field Airport (LOU) in Louisville, KY. As you are aware, the undertaking consists of easement acquisition and tree trimming/replacement. The purpose of the undertaking is to enhance safety by removing tree obstructions and restore the airport's capabilities for nighttime instrument approach procedures.

After careful consideration of the information provided by the project proponent, the Louisville Regional Airport Authority, the Kentucky Heritage Council (State Historic Preservation Office), and consulting parties during the Section 106 consultation process, the FAA has concluded the undertaking would not adversely affect historic properties. This conclusion is predicated on our assessment that the impacts to the trees are not a contributing element to the historic resources. I respectfully request your review and concurrence or objection to the enclosed determination.

In closing, I would like to mention that your office, along with the other consulting parties in this undertaking, will soon be receiving a hard copy of documents related to the proposed project. The documents are being provided in accordance with our discussions at the last Section 106 consultation on March 31, 2016.

Thank for your participation in the consultation. If you have any questions, please feel welcome to contact me at (901) 322-8181 or Aaron Braswell of my staff at (901) 322-8192.

Sincerely,

Phillip J. Braden
Manager, Memphis Airports District Office

Enclosures

cc: Bowman Field Airport Section 106 Consulting Parties

Historic Architectural Survey for the Bowman Field Airport Area Safety Program

Jefferson County, Kentucky



December 2014

Historic Architectural Survey for the Bowman Field Airport Area Safety Program

Jefferson County, Kentucky

December 2014

Final Report

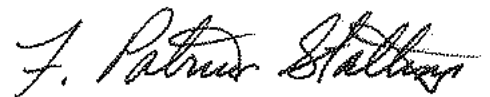
Prepared for:

The Louisville Regional Airport Authority
and the
Federal Aviation Administration

Under Contract With:

Hanson Professional Services, Inc.

Prepared by:



Patricia Stallings

Senior Historian

678-638-4126

patriciastallings@brockington.org

Brockington and Associates, Inc.

Atlanta • Charleston • Elizabethtown
Jackson • Jacksonville • Pensacola • Savannah

This page intentionally left blank.

Compendium

The Federal Aviation Administration (FAA) as part of the Section 106 process received and considered comments and concerns from designated consulting parties. As part of the process the Area of Potential Affect (APE) was expanded and trees being evaluated were limited to those within proposed aviation easements. The following Cultural Resources Evaluation (CRE) was composed in 2014 and does not include comments from the consulting parties and does not take into consideration the expanded APE. The comments and additional areas incorporated into the APE were analyzed in a Supplement to the Cultural Resources Evaluation. **See Supplement to the CRE in Appendix I.**

The following CRE provides information on the original 2014 investigation APE, in the form of the Terminal Instrument Procedure (TERPS) approach surfaces, which includes thirteen (13) properties (see Table ES1). These included two (2) golf courses, six (6) neighborhoods, and five (5) individual buildings. The Supplement to the CRE (**Appendix I**) reviews additional areas outside and adjacent to the TERPS, which includes an additional neighborhood (Hathaway Neighborhood). The supplement also reviews the FAA's revised scope, which includes only trees that are penetrations or near term penetrations within easements proposed for acquisition. The Supplement should be considered in tandem with the 2014 CRE. In addition, the FAA identified certain inconsistencies within the text and the effects determinations have been revised to maintain consistency. These changes are marked by the footnote. "FAA identified certain inconsistencies within the text and those have been revised".

Executive Summary

The Louisville Regional Airport Authority (LRAA) has undertaken the Bowman Field Airport Area Safety Program (Safety Program) to comply with the current Federal Aviation Administration (FAA)-required object clearing standards. Under the direction of the FAA and LRAA, Hanson Professional Services, Inc. (Hanson) has begun preparation of an Environmental Assessment (EA) for the re-establishment and protection of runway approaches that were in effect as of February 2012. The Safety Program EA will examine and compare various mitigation alternatives, including the purchase of aviation easements on select properties, for the removal and replacement, trimming or the lighting of trees that penetrate the Terminal Instrument Procedure (TERPS) approach surfaces to Bowman Field. The EA is being prepared for the FAA to comply with the National Environmental Policy Act of 1969 (NEPA). Because it is sponsored by the FAA, the Safety Program is subject to Section 106 of the National Historic Preservation Act (NHPA), which stipulates that any federal undertaking consider impacts to historic properties. This document was designed to provide Section 106 compliance in regard to reporting historic architectural resources and to meet the reporting standards of the Kentucky Heritage Council, the designated state historic preservation office.

Based on the nature and scope of the undertaking, the FAA defined the Area of Potential Effect (APE) as those geographical areas within the TERPS approach surfaces. This APE contains all direct and indirect effects of the currently proposed alternatives and mitigation measures. Archival research was conducted for the APE to determine the presence of previously recorded historic properties. Only one recorded historic property, the National Register of Historic Places (NRHP) listed Bowman Field Historic District, is present. The TERPS approach surface for Runway 6 clips a corner of the official Bowman Field District boundary. However, no mitigation efforts are proposed within the district and, as a result, there will be no effect to this historic property.

Following the archival research, Brockington and Associates, Inc. conducted a survey to identify other potential historic properties within the APE. The field survey effort resulted in the recordation of thirteen (13) properties (see Table ES1). These included two (2) golf courses, six (6) neighborhoods, and five (5) individual buildings. After historical and architectural evaluation of each of these properties, seven (7) are eligible for listing in the NRHP. These include the Seneca Park Golf Course and the neighborhoods of Seneca Gardens, Seneca Manor, McCoy Manor, Kingsley, Seneca Village and Seneca Village No. 2.

The Seneca Park Golf Course is NRHP eligible under Criterion A for historical associations with the New Deal's Works Progress Administration. Due to alterations to the original course design as, it no longer possesses sufficient design integrity to qualify as a historic landscape and, therefore, the proposed Safety Program mitigation efforts will not have an adverse effect on this property. The six individual neighborhoods that are eligible all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth-century neighborhoods. Two of the neighborhoods, Seneca Vista and Kingsley, are also eligible under Criterion B due to their associations with individuals who played an important role in the suburban development of Eastern Louisville.

Each of the neighborhoods possesses a combination of landscape features, such as road networks, sidewalks, utility easements, setbacks and spatial uniformity, which contributes to its eligibility. However, archival research, including a review of historic aerial photographs, did not reveal any particular vegetative pattern or features such as trees or plantings that would be considered character-defining features. In addition, the inventory of trees around Bowman Field conducted for the Safety Program suggests the majority of plantings are of the low-canopy and ornamental variety typically planted by property-owners. A lesser percentage of plantings in the neighborhoods appear to have developed organically (e.g., along fence rows) and represent the taller growing variety. This pattern was observed during the architectural field survey. The exception is Kingsley, which historic photographs indicates was designed with regularly spaced trees along King's Highway; however, while Kingsley falls within the APE, there are no mitigation efforts pro-

posed within its boundaries. In summary, the proposed mitigation alternatives will not adversely affect key character-defining features that qualify the six neighborhoods for listing in the NRHP.

The remaining six (6) architectural properties (Big Spring Country Club and five outparcels on Taylorsville Road and Gladstone Avenue) are not eligible for the NRHP.

Table ES1. Architectural Properties identified during the investigations.

Property Name	(Runway #) Location	Description/ Year(s) Built	NRHP Status	Safety Program Effect¹
Bowman Field Historic District	(6) NW of Pee Wee Reese Rd and Taylorsville Rd	Airport terminal and hangars/ 1929-1932	Listed	No Adverse Effect
Big Spring Country Club	(24) NE of Cannons Lane and Dutchman's Lane, S of I-64	Golf Course/ 1927 (alterations mid-1900s; 2003-2004)	Not Eligible	N/A
Seneca Park Golf Course	(15) NW and SE of Seneca Park Rd	Golf Course/ 1934 (alterations 1950s, 60s; ongoing)	Eligible (Criterion A)	No Adverse Effect
Seneca Vista Neighborhood	(6) N of Taylorsville Rd, including Drayton Dr, Landon Ave	1937-1950 (minimal post-1950 infill)	Eligible (Criteria A, B, C)	No Adverse Effect
McCoy Manor Neighborhood	(6) E&W of McCoy Way, between Trevillian Way and Gladstone Ave	Post-World War II suburb/ 1949-1957 (no infill)	Eligible (Criteria A, C)	No Adverse Effect
Seneca Manor Neighborhood	(6) E&W of Valetta Rd, between Trevillian Way and Taylorsville Rd	Post-World War II suburb/ 1935-1958 (no infill)	Eligible (Criteria A, C)	No Adverse Effect
Kingsley Neighborhood	(6) S of Taylorsville Road, including King's Highway, Winston Ave, Emerson Ave, Tyler Ln, and Gladstone Ave	Early automobile suburb/ 1926-1964 (minimal post-1964 infill)	Eligible (Criteria A, B, C)	No Adverse Effect
Seneca Village Neighborhood	(33) S of Taylorsville Rd, N of Ribble Rd, including Kent Rd, Seneca Blvd and Carson Way	Post-World War II suburb/ 1947-1954 (minimal post-1954 infill)	Eligible (Criteria A, C)	No Adverse Effect
Seneca Village No. 2 Neighborhood	(33) S of Ribble Rd, E of Bon Air Ave, N and W of Watterson Expy., including Carson Way, Alanmede Rd, Gardiner Ln, Wendell Ave, Betty Ln & Joan Ave	Post-World War II suburb/ 1951-1960 (minimal post-1960 infill)	Eligible (Criteria A, C)	No Adverse Effect
2615 Taylorsville Road	2615 Taylorsville Road	Commercial Bldg./ Ca. 1960s	Not Eligible	N/A
2613 Taylorsville Road	2613 Taylorsville Road	Apartment Bldg./ Ca. 1960s	Not Eligible	N/A
2609 Taylorsville Road	2609 Taylorsville Road	Apartment Bldg. / Ca. 1960s	Not Eligible	N/A
2605 Taylorsville Road	2605 Taylorsville Road	Apartment Bldg. / Ca. 1960s	Not Eligible No Effect	N/A
2542 Gladstone Avenue	2542 Gladstone Avenue	Apartment Bldg. / Ca. 1960s	Not Eligible No Effect	N/A

¹ FAA identified certain inconsistencies within the text and those have been revised

Table of Contents

Executive Summary	iii
List of Figures	vi
List of Tables	xii
1.1 Project Overview and Methods of Investigation	1
1.2 Project Overview and Sponsorship	1
1.2.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigation, and the Area of Potential Effect	1
1.3 Methods of Investigation	3
1.3.1 Archival Research	3
1.3.2 Architectural Survey	6
1.4 National Register of Historic Places Criteria	6
2.1 Historic Context	15
2.2 Suburban Development in the Vicinity of Bowman Field	15
3.1 Results of the Architectural Survey	27
3.2 Overview	27
3.3 Big Spring County Club	45
3.4 Seneca Park Golf Course	55
3.5 Seneca Vista Neighborhood	68
3.6 McCoy Manor Neighborhood	80
3.7 Seneca Manor Neighborhood	87
3.8 Kingsley Neighborhood	94
3.9 Seneca Village Neighborhood	105
3.10 Seneca Village No. 2 Neighborhood	112
3.11 Outparcels	124
4.0 Summary and Conclusions	129
References Cited	131
Appendix A: Resume of the Principal Author	
Appendix B: Louisville Survey East	
Appendix C: Seneca Vista Neighborhood	
Appendix D: McCoy Manor Neighborhood	
Appendix E: Seneca Manor Neighborhood	
Appendix F: Kingsley Neighborhood	
Appendix G: Seneca Village Neighborhood	
Appendix H: Seneca Village No. 2 Neighborhood	
Appendix I: Supplement to the Cultural Resources Evaluation	

List of Figures

Figure 1.1 Location map of Bowman Field in relation to City of Louisville.	2
Figure 1.2 Safety Program APE on street map, showing APE, current and near term penetrations to TERPS.....	4
Figure 1.3 Safety Program APE on USGS quadrangle map, showing APE, current and near term penetrations to TERPS.....	5
Figure 1.4 Safety Program APE on current aerial photography, showing APE, current and near term penetrations to TERPS.....	7
Figure 1.5 Detail map of Safety Program on aerial photography, showing APE and proposed mitigation alternatives at runways 15 and 24.	9
Figure 1.6 Detail map of Safety Program on aerial photography, showing APE and proposed mitigation alternatives at runways 6 and 33.	11
Figure 2.1 Atlas of Jefferson and Oldham Counties, Kentucky (Beers and Lanagan 1879).	16
Figure 2.2 The Louisville Title Company's 1913 property map of Louisville and Jefferson County, showing the Von Zedwitz estate, future site of Bowman Field, north of Taylorsville Road.	18
Figure 2.3 Bowman Field, circa 1930, not long after construction (Goodman-Paxton Collection, Kentucky Digital Library).	20
Figure 2.4 Proliferation of independent cities around Louisville's suburban fringe (<i>Louisville Courier-Journal</i> February 23, 1947).	22
Figure 2.5 Distribution of Louisville's population, showing growth along arterial roadways, particularly south and east of the city (Louisville City Library, map collection).	24
Figure 2.6 Chart showing lots and subdivisions approved by the zoning authorities from 1931 through 1949 (<i>Louisville Courier-Journal</i> November 20, 1949).	25
Figure 2.7 Prefabricated homes could be modified with materials or floor plans. These models, located in a subdivision off Goldsmith Lane, were simply reversed and used different siding material (<i>Louisville Courier-Journal</i> , September 14, 1952).	26
Figure 3.1 Architectural Properties identified during the field survey.....	29
Figure 3.2 Neighborhood boundaries as shown on tax parcel map, showing years built.	31
Figure 3.3 1928 aerial photograph, showing development around Bowman Field (Bowman Aero Company).	33
Figure 3.4 1946 aerial photograph, showing development around Bowman Field (Park Aerial Surveys, Inc.).....	35
Figure 3.5 1951 aerial photograph, showing development around Bowman Field (Park Aerial Surveys, Inc.).....	37
Figure 3.6 1955 aerial photograph, showing development around Bowman Field (USGS).....	39
Figure 3.7 1959 aerial photograph, showing development around Bowman Field (USGS).....	41

List of Figures (continued)

Figure 3.8 1971 aerial photograph, showing development around Bowman Field (USGS).....	43
Figure 3.9 Big Spring Country Club, 1928. At this time, the golf course had just been laid out.	47
Figure 3.10 Big Spring Country Club, 1952; layout on which the PGA Championship was played.	48
Figure 3.11 Big Spring Country Club, current layout (BlueGolf.com 2014).....	49
Figure 3.12 Big Spring Country Club, near 5 tee facing northwest.....	50
Figure 3.13 Big Spring Country Club, near 4 green facing northeast.	50
Figure 3.14 Big Spring Country Club, at 6 tee facing east.....	51
Figure 3.15 Big Spring Country Club, near 10 tee facing south.....	51
Figure 3.16 Big Spring Country Club, hole 11 (old number 9) face north. Note Osage trees lining cart path.	52
Figure 3.17 Big Spring Country Club, clubhouse entrance, facing northeast.....	52
Figure 3.18 Big Spring Country Club, clubhouse, facing northeast.....	53
Figure 3.19 Big Spring Country Club, clubhouse, facing north.....	53
Figure 3.20 Big Spring Country Club, rear of clubhouse, facing west.	54
Figure 3.21 Big Spring Country Club, maintenance shop, facing northeast.....	54
Figure 3.22 Seneca Golf Course, “new layout” dated 1955 (Seneca Golf Course Files).....	57
Figure 3.23 Seneca Golf Course, current layout (BlueGolf.com).....	58
Figure 3.24 Seneca Golf Course, original clubhouse design, early 1930s (Seneca Golf Course Files).	59
Figure 3.25 Seneca Golf Course, original clubhouse design, early 1930s (Seneca Golf Course Files). .	59
Figure 3.26 Seneca Golf Course, maintenance shop, early 1930s (Seneca Golf Course Files).....	60
Figure 3.27 Seneca Golf Course, rear of clubhouse, 1968 (Seneca Golf Course Files).....	60
Figure 3.28 Seneca Golf Course, caddy shack, 1968 (Seneca Golf Course Files).	61
Figure 3.29 Seneca Golf Course, facing toward clubhouse from hole 10, 1968 (Seneca Golf Course Files).	61
Figure 3.30 Seneca Golf Course, facing northeast along old tenth hole (now eighteenth hole) 1968 (Seneca Golf Course Files). Boundary with Bowman Field on right.....	62
Figure 3.31 Seneca Golf Course, clubhouse remodel, 1990s (Seneca Golf Course Files).	62
Figure 3.32 Seneca Golf Course, current landscape view	63

List of Figures (continued)

Figure 3.33 Seneca Golf Course, facing north on first hole (new tenth hole to right).....	63
Figure 3.34 Seneca Golf Course, facing Bowman Field from eighteenth fairway	64
Figure 3.35 Seneca Golf Course, clubhouse, facing southwest.	64
Figure 3.36 Seneca Golf Course, clubhouse, facing south.	65
Figure 3.37 Seneca Golf Course, rear of clubhouse, facing northeast.....	65
Figure 3.38 Seneca Golf Course, clubhouse, facing north (showing 1990s south elevation addition).	66
Figure 3.39 Seneca Golf Course, caddy shack, facing southwest.	66
Figure 3.40 Seneca Golf Course, maintenance shed, facing west.....	67
Figure 3.41 Plat of Seneca Vista, dated 1937 (Jefferson County plat book 7, pages 118-119).	70
Figure 3.42 Aerial photograph dated 1942, showing building progress in Seneca Vista (Bowman Field Administration Building photograph collection).	71
Figure 3.43 House at 2649 Drayton Drive, facing northeast.....	72
Figure 3.44 House at 2638 Drayton Drive, facing southwest.	72
Figure 3.45 House at 2632 Drayton Drive, facing southwest.	73
Figure 3.46 House at 2637 Drayton Drive, facing northeast.....	73
Figure 3.47 House at 2628 Landor Avenue, facing southwest.	74
Figure 3.48 House at 2629 Landor Avenue, facing northeast.	74
Figure 3.49 House at 2622 Landor Avenue, facing southwest.	75
Figure 3.50 Apartments at 2640 Landor Avenue, facing west.....	75
Figure 3.51 Apartments at 2655 to 2659 Taylorsville Road, facing east.....	76
Figure 3.52 Airport-owned property at Drayton Drive, facing northeast toward Runway 6.....	76
Figure 3.53 Homes along Drayton Drive, facing northwest.	77
Figure 3.54 Drayton Drive, facing northwest.....	77
Figure 3.55 Median at Drayton Drive and Denham Road, facing south.	78
Figure 3.56 Denham Road at intersection with Drayton Drive, facing west.	78
Figure 3.57 Landor Avenue facing southeast.	79
Figure 3.58 Taylorsville Road at Drayton Drive, showing non-contributing properties.	79

List of Figures (continued)

Figure 3.59 Plat of McCoy Manor neighborhood, dated 1949 (Jefferson County Plat book 10, page 37).	82
Figure 3.60 Sanborn Map of McCoy Manor neighborhood, dated 1961 (Louisville City Archives).	83
Figure 3.61 Example of a Ranch style home at 2618 McCoy Way	84
Figure 3.62 Example of Cape Cod style home at 2629 McCoy Way. Note the large picture windows; this illustrates a more mid-twentieth century transition of the Cape Cod.	84
Figure 3.63 Quadplex at 2634 McCoy Way.....	85
Figure 3.64 Row of homes along McCoy Way, facing northeast.	85
Figure 3.65 Street view of McCoy Manor, facing southeast.....	86
Figure 3.66 Street view of McCoy Manor, facing southeast from intersection with Denham Road.....	86
Figure 3.67 Plat of Seneca Manor, dated 1937 (Jefferson County plat book 7, page 129).	89
Figure 3.68 1961 Sanborn Map of Seneca manor neighborhood (Louisville City Archives).	90
Figure 3.69 Ranch house at 2525 Taylorsville Road.....	91
Figure 3.70 Colonial Revival house at 2626 Valletta Road.	91
Figure 3.71 Facing north on Valletta Road from intersection with Taylorsville Road, showing collection of homes. Tree in left center of photograph (2625 Valletta Road) requires replacement.....	92
Figure 3.72 Valletta Road, facing north. Note uniformity of oak trees, west of road (center left in photo).	92
Figure 3.73 Valletta Road, facing southeast near intersection with Trevilian Way	93
Figure 3.74 Kingsley plat, dated 1925 (Jefferson County plat book 5, pages 82-83).	96
Figure 3.75 Kingsley addition plat, dated 1951 (Jefferson County plat book 10, page 82).	97
Figure 3.76 View of eastern Kingsley Neighborhood, photograph dated 1930 (Bowman Field Administration Building photograph collection).....	98
Figure 3.77 Kingsley Neighborhood, house at 2548 Kings Highway, facing south.....	99
Figure 3.78 Kingsley Neighborhood, house at 2643 Kings Highway, facing north.	99
Figure 3.79 Kingsley Neighborhood, house at 2440 Tyler Lane, facing east.	100
Figure 3.80 Kingsley Neighborhood, house at 2396 Montrose Avenue, facing south.	100
Figure 3.81 Kingsley Neighborhood, house at 2523 Kings Highway, facing north.	101
Figure 3.82 Kingsley Neighborhood, house at 2602 Taylorsville Road, facing southeast.	101
Figure 3.83 Kingsley Neighborhood, house at 2562 Taylorsville Road, facing south.	102

List of Figures (continued)

Figure 3.84 Kingsley Neighborhood, houses along Kings Highway west of Emerson Avenue, facing northwest.	102
Figure 3.85 Kingsley Neighborhood, intersection with Tyler Lane, facing east.....	103
Figure 3.86 Kingsley Neighborhood, park at Kings Highway and Gladstone Avenue, facing south	103
Figure 3.87 Kingsley Neighborhood, Kings Highway, facing east.....	104
Figure 3.88 Kingsley Neighborhood, park at Gladstone and Montrose Avenues, facing south.	104
Figure 3.89 Seneca Village plat, dated 1929 (Jefferson County plat book 7, page 36).	107
Figure 3.90 Seneca Village, house at 3023 Carson Way, facing northeast.	108
Figure 3.91 Seneca Village, house at 3013 Kent Road, facing northeast.	108
Figure 3.92 Seneca Village, house at 3009 Kent Road, facing east.....	109
Figure 3.93 Seneca Village, house at 3016 Seneca Boulevard, facing southwest.	109
Figure 3.94 Seneca Village, houses along Seneca Boulevard, facing south.....	110
Figure 3.95 Seneca Village, houses along Carson Way, facing northeast.	110
Figure 3.96 Seneca Village, Seneca Boulevard at intersection with Ribble Road, facing northwest.	111
Figure 3.97 Seneca Village, Kent Road at intersection with Ribble Road, facing north toward Runway 33.	111
Figure 3.98 Seneca Village No. 2 plat, dated 1951 (Jefferson County plat book 10, page 93).	114
Figure 3.99 Seneca Village No. 2, house at 3020 Joan Avenue, facing southwest.	115
Figure 3.100 Seneca Village No. 2, house at 3012 Joan Avenue, facing southwest.	115
Figure 3.101 Seneca Village No. 2, house at 2726 Alanmede Road, facing south.	116
Figure 3.102 Seneca Village No. 2, house at 2711 Gardiner Lane, facing north.....	116
Figure 3.103 Seneca Village No. 2, house at 2643 Wendell Avenue, facing north.....	117
Figure 3.104 Seneca Village No. 2, house at 2641 Gardiner Lane, facing north.....	117
Figure 3.105 Seneca Village No. 2, house at 2712 Wendell Avenue, facing southeast.	118
Figure 3.106 Seneca Village No. 2, house at 2720 Wendell Avenue, facing southeast.	118
Figure 3.107 Seneca Village No. 2, Bowman Manor Condominiums.....	119
Figure 3.108 Seneca Village No. 2, Joan Avenue at Betty Lane, facing northeast.	119
Figure 3.109 Seneca Village No. 2, Joan Avenue facing northwest from intersection with Gardiner Lane.....	120

List of Figures

Figure 3.110 Seneca Village No. 2, Alanmede Road at Betty Lane, facing northwest. Property at 3008 Betty Lane (photo center) requires easement.....	120
Figure 3.111 Seneca Village No. 2, Alanmede Road at Carson Way, facing northeast.	121
Figure 3.112 Seneca Village No. 2, Wendell Avenue at Bon Air Avenue, facing northeast.	121
Figure 3.113 Seneca Village No. 2, Wendell Avenue at house number 2629, facing southwest, showing homes.	122
Figure 3.114 Seneca Village No. 2, house at 2712 Wendell Avenue (center photo) showing proposed tree for replacement.	122
Figure 3.115 Seneca Village No. 2, Gardiner Lane near intersection with Carson Way, showing empty lots on south side of street (houses demolished for Watterson Expressway widening).	123
Figure 3.116 Property at 2615 Taylorsville Road.	125
Figure 3.117 Property at 2605 Taylorsville Road.	125
Figure 3.118 Property at 2609 Taylorsville Road.	126
Figure 3.119 Property at 2613 Taylorsville Road.	126
Figure 3.120 Property at 2542 Gladstone Avenue.....	127

List of Tables

Table ES1. Architectural Properties identified during the investigations.	iv
Table 3.1 List of architectural properties identified during the field survey	28

1.1 Project Overview and Methods of Investigation

1.2 Project Overview and Sponsorship

The Louisville Regional Airport Authority (LRAA) initiated the Bowman Field Airport Area Safety Program (Safety Program) to comply with the current Federal Aviation Administration (FAA)-required object clearing standards. Bowman Field, established in 1919, is a general aviation airport located approximately five miles from downtown Louisville, Kentucky (Figure 1.1). The airport is situated on 426 acres, and includes 17 buildings and four runways.

Under the direction of the FAA and LRAA, Hanson Professional Services, Inc. (Hanson) has begun preparation of an Environmental Assessment (EA) for the re-establishment and protection of runway approaches and airfield characteristics as defined by the Airport Layout Plan (ALP) that was approved by the LRAA in February 2012. The EA is being prepared for the FAA to comply with the National Environmental Policy Act of 1969 (NEPA). Because it is sponsored by the FAA, the Safety Program is subject to Section 106 of the National Historic Preservation Act, which stipulates that any federal undertaking consider impacts to historic properties. This document is intended to provide information to assist in the determination of (1) the presence of cultural resources within an Area of Potential Effect (APE), (2) whether those resources are included in or eligible for the National Register of Historic Places (NRHP), and (3) any historic properties that may be adversely affected by the action. .

1.2.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigation, and the Area of Potential Effect

In July 2012, the LRAA contracted with Hanson to conduct the Safety Program. As the first step in the Safety Program, Hanson conducted an aerial survey of the airport and surrounding properties to determine the height of manmade and natural objects. Survey results were then submitted to the FAA for review and validation. The Flight Standards and Flight Procedures branches of the FAA then compared the data with the requisite airspace surfaces based on current airport capabilities applicable to each runway at Bowman Field Airport. The result was a list of tree clusters that penetrate the critical Terminal Instrument Procedure (TERPS) approach surfaces as determined by the FAA. All penetrations to these FAA-defined critical approach surfaces have been determined to be trees and vegetative growth – *no manmade objects penetrate these surfaces*. These approach surfaces are shown in Figures 1.2 through 1.6.

The Safety Program EA will examine and compare various mitigation alternatives and identify a preferred alternative to comply with FAA standards; specifically the alternative *must maintain the airfield operating capabilities in effect as of February 2012*. The EA will assess the program details and eligibility for federal funding. Alternatives and mitigation measures currently proposed include:

- Establish priorities to address the most critical areas first (based on property location and existing tree canopy conditions);
- Purchase aviation easements over necessary properties to gain airspace protection. Offers will be based on market value appraisals conducted by licensed and certified property appraisers following strict federal guidelines;
- Trees will be assessed by a certified arborist as to whether they can be trimmed or should be removed. If a tree is removed, the homeowner may select up to two low-canopy replacement trees from a list compiled by a certified arborist for use in this climate;
- If a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees;
- The LRAA will pay for tree trimming and/or removal, stump removal and yard restoration;
- All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty.



Figure 1.1 Location map of Bowman Field in relation to City of Louisville.

Based on these proposed alternatives the FAA has defined the APE for cultural resources investigations, as illustrated in Figures 1.2 through 1.6. For historic architectural resources, the APE consists of those geographical areas within the TERPS approach surfaces. This APE contains all direct and indirect effects of the currently proposed alternatives and mitigation measures. For archaeological resources, the APE is anticipated to be limited to areas that may require ground-disturbing activities (i.e., tree removal and stump grinding), once such areas are finalized. Per KHC standards, this document addresses architectural resources only. Once the mitigation areas are finalized, FAA will consult with the Kentucky Heritage Council (KHC) regarding the need for any archaeological studies.

1.3 Methods of Investigation

This document was designed to provide Section 106 reporting compliance based on scope of proposed alternatives and mitigation efforts identified in Section 1.1.1. This document was also tailored to meet the reporting guidelines established by the Kentucky Heritage Council, the designated state historic preservation office (Sanders 2006). The Senior Historian assigned to this project, Ms. Patricia Stallings, is qualified under the applicable Secretary of Interior Standards for history and architectural history stipulated in 36 CFR Part 61. Ms. Stallings was assisted during the field investigations by Mr. Chris Sims, RPA.

The remainder of Chapter 1 describes the methods employed during this survey, including a discussion of any previous investigations in the vicinity, background research, the architectural survey, and a context for evaluating properties for the NRHP. Chapter 2 presents a regional and historic context in which to evaluate properties identified during the fieldwork. Chapter 3 includes results of the architectural survey, a discussion of effects, and recommendations for management of eligible historic properties. Chapter 4 presents a summary of the project findings. Finally, this document provides a listing of references cited and appendices with supporting information.

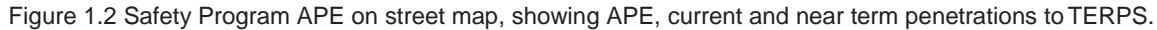
1.3.1 Archival Research

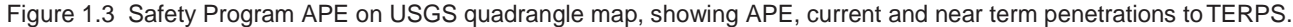
Prior to the architectural survey, the Senior Historian performed a literature review of available materials. The object of this research was to (1) collect information on previously recorded cultural resources that may be within the APE, (2) identify types of aboveground resources that may be encountered during the survey, and (3) develop a context in which to evaluate resources recorded during the fieldwork. Specific materials sought during this phase of work included historical maps, aerial photography, deeds, plats, newspaper articles, published documents (books and articles at both the scholarly and popular level), cultural resources management reports, and other relevant data.

The archival research included a review of materials at a multitude of repositories. At the KHC, copies of material related to previously recorded properties in the project area were obtained. Specifically, the NRHP form for the Bowman Field Historic District was retrieved. Other documents reviewed included the National Park Service (NPS) multiple property listings *Historic Resources of Jefferson County* (1980) and *Louisville and Jefferson County* (1988). Relevant historic contexts sponsored by the KHC were also reviewed. Specifically, these documents included *The New Deal Builds*, a history of the New Deal in eastern Kentucky (Kennedy and Johnson 2005) and *House In a Box*, a history of prefabricated houses in the Jackson Purchase region (Johnson and Kennedy 2006).

A number of historic maps, newspaper and journal articles, and city data were obtained at the Louisville City Library. The City of Louisville Archives contained historic aerial photographs dating to 1928, as well as relevant Sanborn Maps and City Directories. All year built data for the recorded properties was collected from the Jefferson County Property Valuation Administrator (PVA), and deed research was conducted at the office of the Jefferson County Clerk as well as the Clerk's online land record system.

At the Metro Louisville Department of Planning and Design (MLDPD), two historical and architectural studies were obtained. The first, *Louisville Survey: East* was prepared by the City of Louisville Community





Development Cabinet in 1979. It was one of three geographically-oriented reports designed to identify architecturally significant landmarks and buildings, but within that report is a detailed history of eastern Louisville that addresses key themes such as suburban development and the developers who envisioned them. A more recent analysis of suburban Louisville development was found *They Came, They Saw, They Bought: The Twentieth Century Housing Boom in Louisville, Kentucky, 1920-1970* (Brother et al. 2014). This detailed document was designed as a tool for evaluating the City's neighborhoods for the NRHP. Other archival sources reviewed included materials held at the two golf courses that lay within the APE (Seneca and Big Spring) and the historic photograph collection on display at the Bowman Field administration building.

1.3.2 Architectural Survey

During the weeks of August 15 and September 15, 2014, the project historian conducted both a windshield reconnaissance and an intensive survey of thirteen architectural properties (including individual buildings, districts, and landscapes) located within the Safety Program's APE. The survey included a pedestrian inspection of any individual properties, neighborhoods or outparcels that are within the APE and at least two high-resolution photographs were taken of each resource. If necessary, for any evaluated neighborhoods or districts that extended beyond the APE, the project historian conducted a sampling survey of selected properties to glean further information in regard to district integrity and design, architectural composition, the presence and type of any infill development, and the general landscape aesthetic of roads, sidewalks, or other defining features. The results of the architectural survey are presented in Chapter 3, with supporting information included in Appendices C-H.

1.3 National Register of Historic Places Criteria

Any site encountered as part of fieldwork is assessed for potential eligibility for listing on the National Register of Historic Places based on the significance criteria set forth in 36 CFR Part 60.4. The criteria for evaluation are based on the quality of significance in American history architecture, archaeology, engineering, and culture are present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- A. That are associated with events that have made a significant contribution to the broad patterns of our history; or
- B. That are associated with the lives of persons significant in our past; or
- C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. That have yielded, or may be likely to yield, information important in prehistory or history.

A resource may be eligible under one or more of these criteria. Criteria A, B, and C are most frequently applied to historic buildings, structures, objects, districts, or non- archaeological sites (e.g., battlefields, natural features, designed landscapes, or cemeteries). The eligibility of archaeological sites is most frequently considered with respect to Criterion D. In addition, a general guideline of 50 years of age is employed to define "historic" in the NRHP evaluation process. That is, all resources greater than 50 years of age may be considered. However, resources that are more recent may be considered if they display "exceptional" significance (Sherfy and Luce n.d.).

Following *National Register Bulletin: How to Apply the National Register Criteria for Evaluation* (Savage and Pope 1998), evaluation of any resource requires a two-fold process. First, the resource must be associated with an important historic context. If this association is demonstrated, the integrity of the resource must be evaluated to ensure that it conveys the significance of its context. The applications of both of these steps are discussed in more detail below.



Figure 1.4 Safety Program APE on current aerial photography, showing APE, current and near term penetrations to TERPS.

This page intentionally left blank.

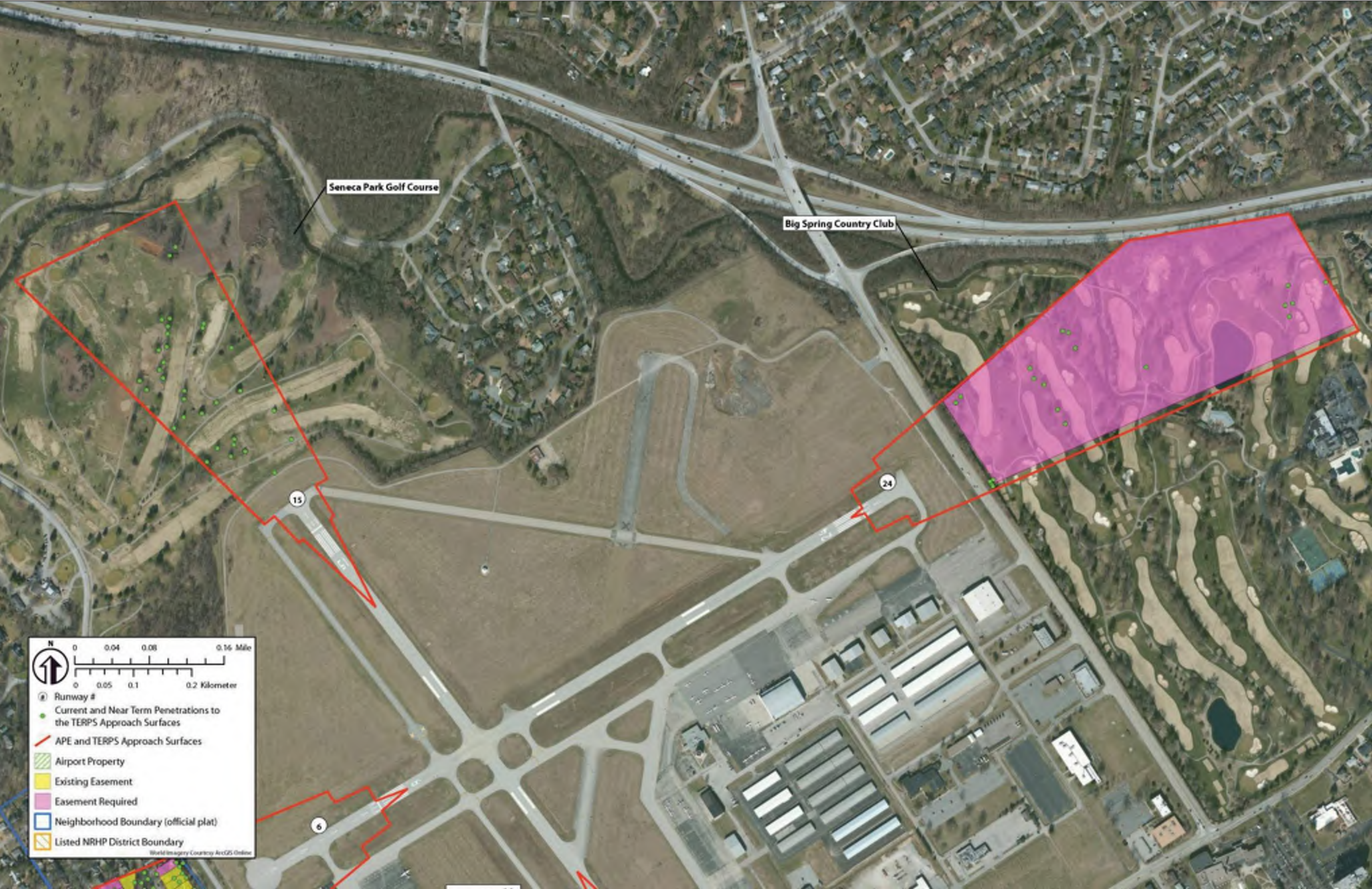


Figure 1.5 Detail map of Safety Program on aerial photography, showing APE and proposed mitigation alternatives at runways 15 and 24.

This page intentionally left blank.

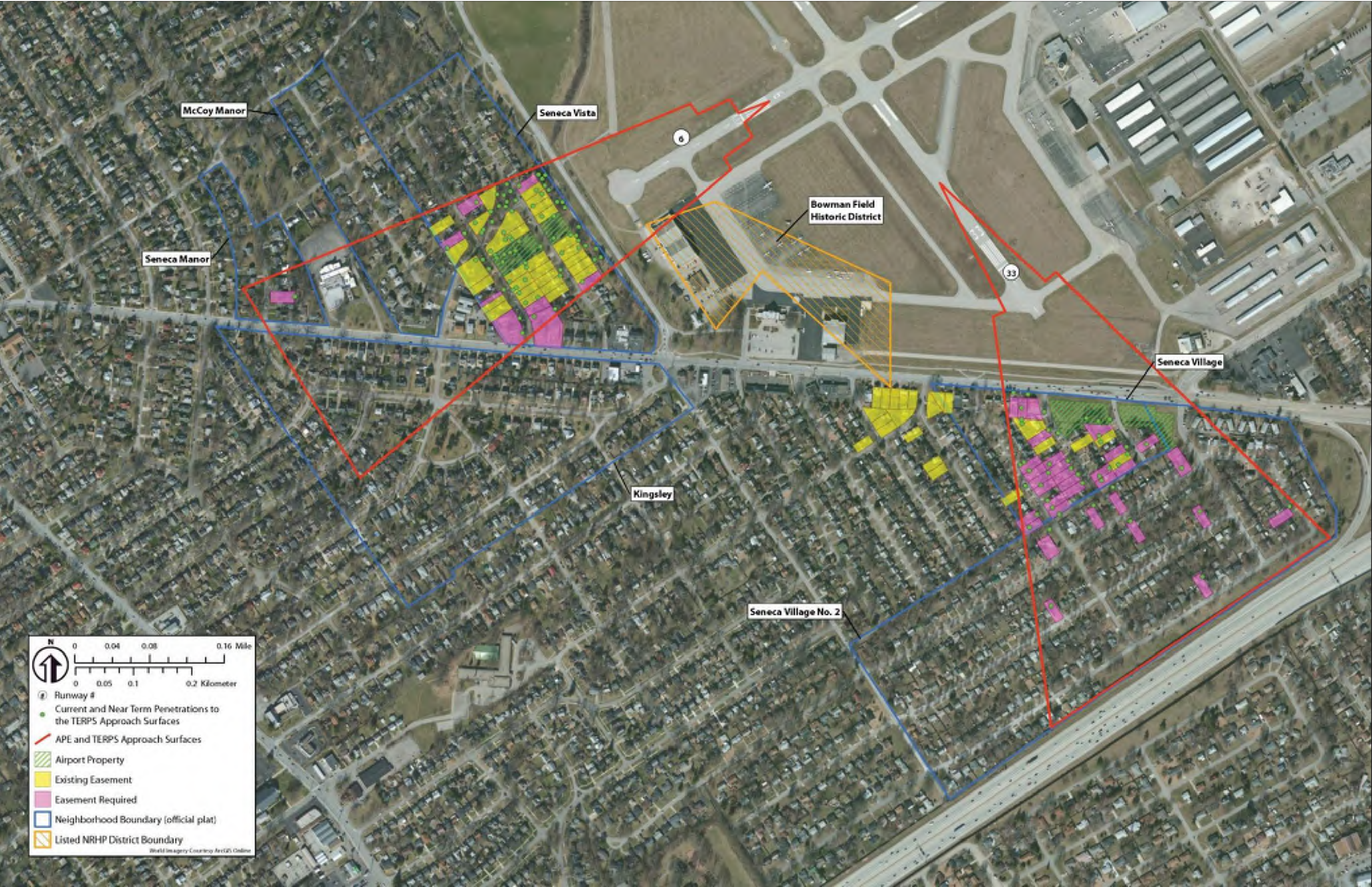


Figure 1.6 Detail map of Safety Program on aerial photography, showing APE and proposed mitigation alternatives at runways 6 and 33.

This page intentionally left blank.

Determining the association of a resource with a historic context involves five steps (Savage and Pope 1998). First, the resource must be associated with a particular facet of local, regional (state), or national history. Secondly, one must determine the significance of the identified historical facet/context with respect to the resource under evaluation. Any particular historical facet/context becomes significant for the development of the project area only if the project area contains resources that were constructed or gained their significance during that time. For example, an antebellum historic context would be significant for the development of a project area only if the project area contained buildings that were either built or gained their significance during the early nineteenth century. Similarly, the use of contexts associated with the pre-contact Native American use of a region would require the presence of pre-contact archaeological sites within the survey universe.

The third step is to demonstrate the ability of a particular resource to illustrate the context. A resource should be a component of the locales and features created or used during the historical period in question. For example, early nineteenth-century farmhouses, the ruins of African American slave settlements from the 1820s, and/or field systems associated with particular antebellum plantations in the region, would illustrate various aspects of the agricultural development of a region prior to the Civil War. Conversely, contemporary churches or road networks may have been used during this time period but do not reflect the agricultural practices suggested by the other kinds of resources.

The fourth step is to determine the specific association of a resource with aspects of the significant historic context. Savage and Pope (1998) define how one should consider a resource under each of the four criteria of significance. Under Criterion A, a resource must have existed at the time that a particular event or pattern of events occurred and activities associated with the event(s) must have occurred at the site. In addition, this association must be of a significant nature, not just a casual occurrence (Savage and Pope 1998). Under Criterion B, the resource must be associated with historically important individuals. Again, this association must relate to the period or events that convey historical significance to the individual, not just that this person was present at this locale (Savage and Pope 1998). Under Criterion C, a resource must possess physical features or traits that reflect a style, type, period, or method of construction; display high artistic value; or, represent the work of a master (an individual whose work can be distinguished from others and possesses recognizable greatness [Savage and Pope 1998]). Under Criterion D, a resource must possess sources of information that can address specific important research questions (Savage and Pope 1998). These questions must generate information that is important in reconstructing or interpreting the past (Butler 1987; Townsend et al. 1993).

After a resource is specifically associated with a significant historic context, one must determine which physical features of the resource are necessary to reflect its significance. One should consider the types of resources that may be associated with the context, how these resources represent the theme, and which aspects of integrity apply to the resource in question (Savage and Pope 1998). As in the example given above, a variety of resources may reflect the antebellum context (farmhouses, ruins of slave settlements, field systems, etc.). One must demonstrate how these resources reflect the context. The farmhouses represent the residences of the landowners who implemented the agricultural practices during the antebellum era. The slave settlements housed the workers who did the daily tasks necessary to plant, harvest, process, and market crops.

Once the above steps are completed and association with a historically significant context is demonstrated, one must consider the aspects of integrity applicable to a resource. Integrity is defined in seven aspects of a resource; one or more may be applicable depending on the nature of the resource under evaluation. These aspects are *location, design, setting, materials, workmanship, feeling, and association* (36 CFR 60.4; Savage and Pope 1998). If a resource does not possess integrity with respect to these aspects, it cannot adequately reflect or represent its associated historically significant context. Therefore, it cannot be eligible for the NRHP. To be considered eligible under Criteria A and B, a resource must retain its essential physical characteristics

that were present during the event(s) with which it is associated. Under Criterion C, a resource must retain enough of its physical characteristics to reflect the style, type, etc., or work of the artisan that it represents. Under Criterion D, a resource must be able to generate data that can address specific research questions that are important in reconstructing or interpreting the past.

2.0 Historic Context

2.1 Suburban Development in the Vicinity of Bowman Field

The history of suburban development in Louisville, Kentucky has been well documented. Most recently, Brother et al. (2014) prepared *They Came, They Saw, They Bought*, a history of Louisville's twentieth-century housing boom. That historic context also provides an overview not only of suburban development in general, but also of the common architectural types, styles, and general landscape of suburb design.

In 1979, the City of Louisville Community Development Cabinet prepared *Louisville Survey: East Report*, in which Mr. Carl E. Kramer wrote an exceptionally detailed history of the area of eastern Louisville. Because of the nature of the architectural resources identified for this survey project (e.g. early to mid-twentieth-century suburban neighborhoods), the most relevant portions of that context are presented here, specifically those chronicling the development in and around Bowman Field. Graphics have also been added to illustrate the context. For further reference, a copy of the 1979 report is provided as electronic Appendix B.

[Page 50] During the first nine decades of Louisville's history, development in what is now the city's East End was minimal. Economically, the area was devoted primarily to agriculture, which was symbolized by the numerous outstanding country homes which dotted the area. But during the three decades which preceded the Civil War, the development of a radial transportation network and the establishment of several industrial and institutional activities foreshadowed the urbanization which was to come. With the end of the Civil War and the advent of the streetcar, eastern Louisville burst outward, setting off a chain reaction of urban development which would continue, with only brief interruptions, for more than a century.

[Page 86] The years that spanned American entry into World War I and the end of World War II were a watershed in Louisville's history. In less than three decades, the city experienced its greatest period of industrial growth and residential development, witnessed the displacement of the streetcar by the automobile as the primary mode of personal transportation, suffered through its deepest economic depression and its severest flood, and felt the effects of two international wars. In the process the city began its evolution from an industrial city into a modern corporate metropolis, characterized by an increasing degree of local, state, and federal participation in and regulation of the urbanization process, the establishment of several large industrial plants owned by giant corporations, the inexorable transfer of much local business and industry from local to outside ownership. Some of these trends would not become immediately apparent until the 1950s or 1960s.

In Eastern Louisville, transportation was a major impetus for suburban development [pages 90-92; 96]:

The 1920s and 1930s witnessed numerous advancements in the area of transportation, particularly in eastern Louisville. One which both resulted from and contributed to urban growth along Bardstown Road was the Louisville Railway Company's extension of streetcar service from Douglass Loop to Doup's Point in the early 1930s. Residents of the area, working through the City Limits Community Club, had tried unsuccessfully for some time to persuade the company to initiate the extension. But company president James P. Barnes continually insisted that the firm could not afford to provide the extension under its existing financial structure.

The residents received a major boost in January 1924 when the Board of Public Works endorsed the endeavor. About the same time, City Attorney David Fairleigh announced that the Louisville and Interurban Railroad's practice of transporting passengers from Doup's Point to Douglass Loop and other points in the city at a charge of 14 cents per ride was illegal. Fairleigh told the Board of Public Works that under the law the Interurban, although a subsidiary of the streetcar company, was technically a railroad because it lacked a franchise to operate in the city and operated instead under authority

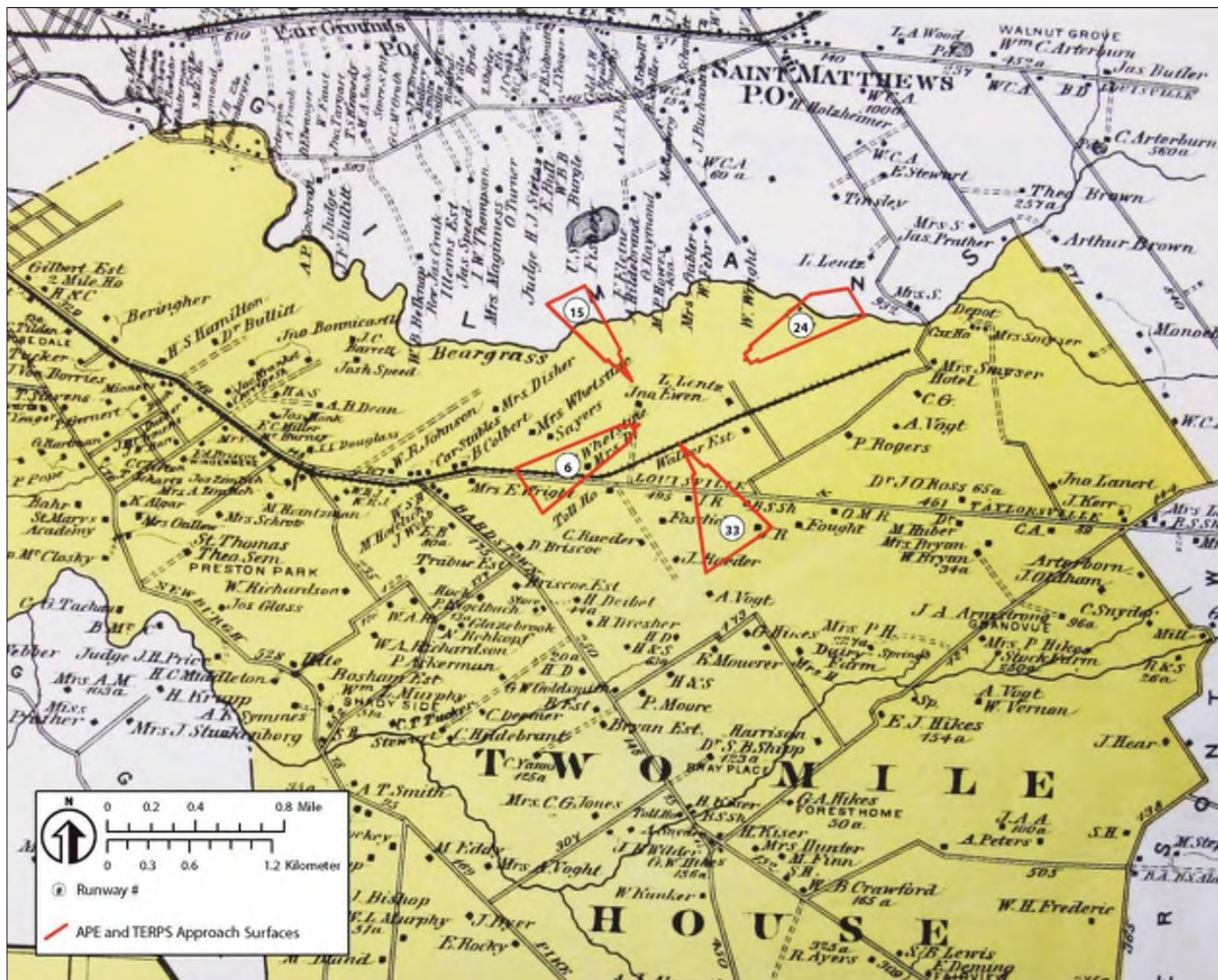


Figure 2.1 Atlas of Jefferson and Oldham Counties, Kentucky (Beers and Lanagan 1879).

of the State Railroad Commission. But the City Attorney also recognized that if the city forced the Interurban to cease passenger services between Doup's Point and Douglass Loop, it would leave area residents without any kind of public transportation. Therefore, he suggested that the streetcar company take over the Interurban lines, which it technically owned anyway, and extend streetcar service over the same rails. This could be done, Fairleigh suggested, without increasing the existing street car fare. But the Louisville Railway Company continued to resist the idea of an extension for more than three years.

The decision to extend the Bardstown Road streetcar line came in conjunction with another major development in Louisville's public transportation system, the public franchising of bus service. Early in 1915 the city had begun to license jitney buses, individually owned cars that operated with a minimum of regulation and coordination in routes. Operating at five cents per ride in direct competition with the streetcar, which now charged seven cents a ride without a token, the jitneys were an economic bane to the Louisville Railway Company, which was confined to its franchised rail routes.

The city also devised a feeder system, wherein buses operating in distant neighborhoods would connect with streetcar lines serving downtown and major industrial areas, thus preventing buses from clogging traffic in heavily traveled areas. But the transit company preferred an express bus system over feeder streetcar lines. The ordinance which finally gained approval in April 1928 was a compromise between the conflicting positions. It gave the transit company a blanket monopoly over routes but provided for close supervision of the designation process by the Board of Public Works. The city, however, won its preferred feeder system as opposed to the express routes.

Expansion and rationalization of the city's public transportation significantly enhanced personal mobility during the 1920s and 1930s. But to an ever-increasing degree, much of public transit's role began to be displaced by a relatively newfangled mode of personal transportation - the automobile. A portent of the automobile's importance came in 1913 when the Ford Motor Company set up an assembly plant near Third and Breckinridge Streets. By the early 1920s the city had numerous auto dealerships. Some 46,000 cars were in operation traffic accidents were becoming a serious problem; and movement was afoot to regulate traffic and improve streets. By 1930, as a result of the combined effects of the automobile, bus service, and the Depression, streetcar service had begun to suffer a serious decline in patronage, which would eventually lead to its demise.

Perhaps the most far-reaching transportation in eastern Louisville during the 1920s was the development of Bowman Field, Louisville's first airport. Bowman Field dates its origin to 1918, when, it is believed, the first aircraft touched down on a cow pasture in what was then part of the old Von Zedwitz estate near Taylorsville Road. Originally part of the John Floyd military land grant of 1774, the property passed into the hands of a descendent, Mary Elizabeth Caldwell. In the nineteenth century she married a German nobleman, Curt Baton Von Zedwitz, and left Louisville to make her home in Germany. Both died before American entry into World War I, but after the declaration of war, the federal government seized the estate under the Alien Property Act.

In 1919, a local freight transfer operator, Abram H. Bowman, subleased 50 acres of the Von Zedwitz estate. The following year he purchased a surplus Canadian Jenny and formed a commercial flying business with pilot Robert H. Gast. The partnership dissolved a short time later, and in May 1921 Bowman went into business with W. Sidney Park, a former Louisvillian who had just come home after working for the Glenn L. Martin Company in the manufacture of bombers. The Bowman Park Aero Company was one of the first firms in the United States to specialize in aerial photography.

As local enthusiasm for flying grew, so did support for a permanent airport. In 1923, with the backing of local civic leaders, Bowman and Park persuaded the Army Air Corps to lease the Von Zedwitz property as an intermediate airdome. Soon thereafter, an Air Corps reserve unit with 12 aircraft was arranged in Louisville. Already known informally as Bowman Field, the facility was formally dedicated as such in 1923. A year later, the Yellow Air Taxi Service Company opened Louisville's first air passenger service. In 1927, in the wake of the enthusiasm generated by Charles A. Lindbergh's

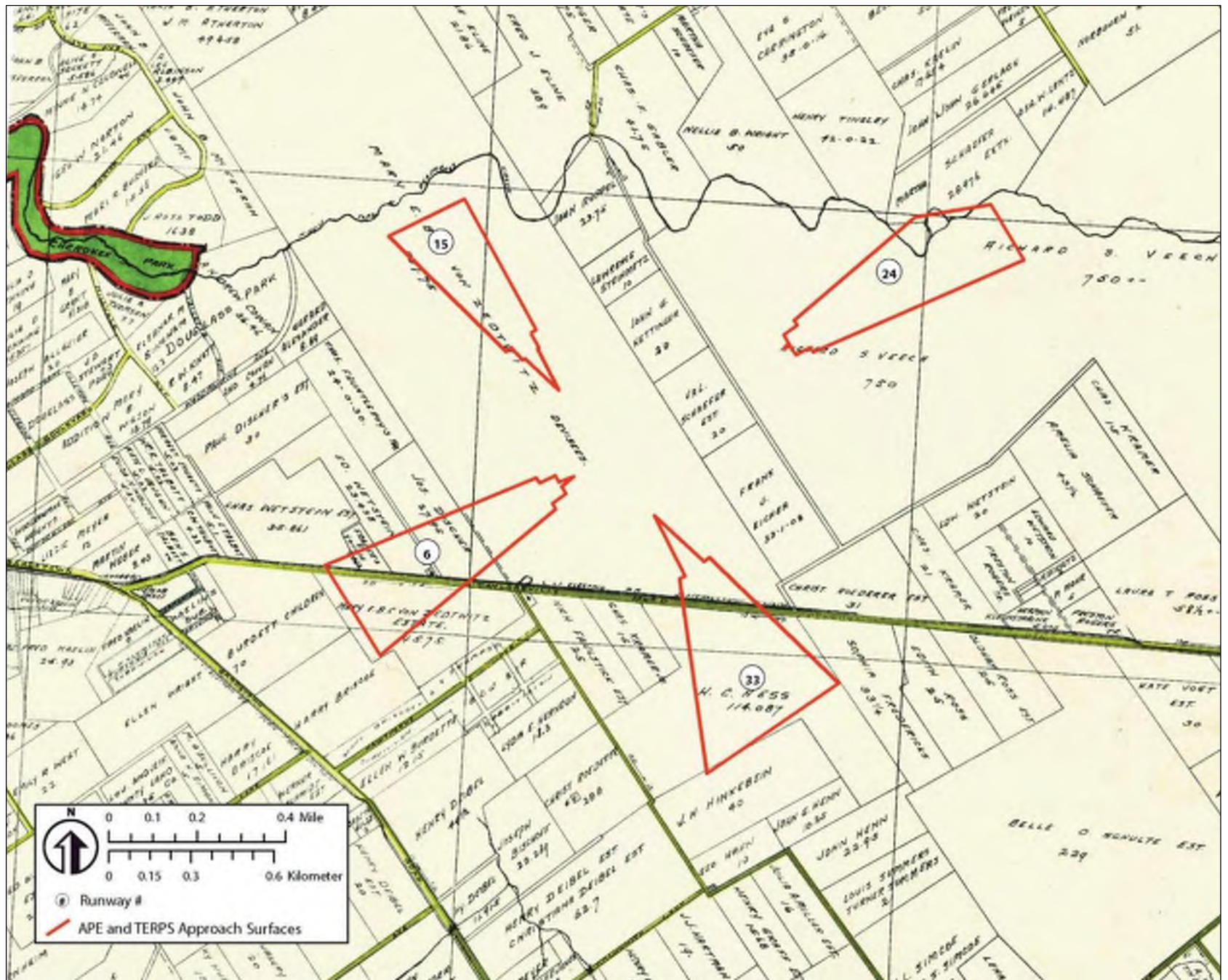


Figure 2.2 The Louisville Title Company's 1913 property map of Louisville and Jefferson County, showing the Von Zedwitz estate, future site of Bowman Field, north of Taylorsville Road.

nonstop flight to Paris, Louisville voters approved a \$750,000 bond issue to finance the purchase of Bowman Field as a municipal airport. In 1928, the General Assembly passed legislation authorizing creation of the Louisville and Jefferson County Air Board to operate the field as a publicly-owned facility. Airline service to Louisville began the same year when Continental Airways (later American Airlines), began mail service between Louisville and Cleveland. Three years later Continental initiated passenger service between Louisville and Nashville. Eastern Airlines launched service to and from Louisville in 1934. Before long, Bowman Field was handling 13,000 passengers annually on eight scheduled daily flights.

While the primary function of Bowman Field was to improve Louisville's commerce, it also had the effect of adding a large new section of institutional open space to the city-scape. The Bowman Field purchase comprised 552 acres, much more land than necessary for the airport. Inasmuch as the land was purchased not by the air board but by the parks commissioners, the excess land was developed as Seneca Park. Plans for the park were drawn by Olmsted Brothers, successor to the firm of Frederick Law Olmsted, the designer of Louisville's park system. During the two years that followed the purchase, roads were built and a four-acre tract was purchased from R. S. and C. R. Reynolds to join Seneca and Cherokee Parks into a dual unit described by the Louisville Herald-Post as a "second to none for beauty and accessibility." In practical terms, Seneca Park and Bowman Field provided a new sylvan magnet for residential development along both the Bardstown Road and Frankfort Avenue axes.

A substantial portion of the residential development which occurred in eastern Louisville as a consequence of the technological improvements of the 1920s took place along the city's suburban fringe. But most of it was within the city limits, especially the large section annexed in 1922. From 1917 through 1929, 89 subdivisions were platted within the bounds of present day eastern Louisville. Of these, 55 were located in one of eight neighborhoods which began to experience substantial development during the 1920s.

[Page 96] During [the 1920s] more than 40 subdivisions were platted in the area between Speed Avenue and Bowman Field north of Bardstown Road and Taylorsville Road and bounded by Rutherford Avenue, Newburg Road, and the present day Watterson Expressway (except for the Hayfield – Dundee area), south of Bardstown and Taylorsville Roads. This area encompasses the Douglas, Belknap, Gardiner Lane, and Hawthorne neighborhoods and the sixth-class cities of Seneca Gardens, Strathmoor Manor, Strathmoor Village, Strathmoor Gardens, Kingsley and Wellington.

There were a number of early automobile suburbs that developed around Bowman Field [page 102]:

Located on land which was once part of Judge James Speed's Farmington estate, the Hawthorne neighborhood is bounded generally today by the cities of Strathmoor Manor and Kingsley, Bardstown Road, the Watterson Expressway, and Taylorsville Road. It consists of 13 subdivisions, six of which were laid out during the 1920s, including two which make up the sixth class city of Wellington.

Development began in 1909 when A. V. Thompson platted the Bon Air Subdivision on the eastern half of a parcel which lay along Hawthorne and Clarendon Avenues between Bardstown Road and Bon Air Avenue. Five years later, George W. Holland recorded the western portion of Clarendon Avenue between Bardstown Road and Bon Air Subdivision as the Lancashire Subdivision. But development remained dormant until 1925, when William F. Randolph's Wakefield-Davis Realty Company platted two sections of Beaumont on a tract bounded by Taylorsville Road, Bon Air Avenue, Ribble Road, and a line between Curran Road and Dartmouth Avenue. The following year, developer J. C. Turner laid out Hathaway Subdivision between the Beaumont developments and a line between Peale Way and Carson Way. Three years later, the triangular tract formed by Taylorsville Road, Ribble Road and Hathaway Subdivision was platted by W. C. Coleman's Dingle View Land Company as the first section of Seneca Village. A second section which stretches from Bon Air Avenue to Taylorsville Road be-



Figure 2.3 Bowman Field, circa 1930, not long after construction (Goodman-Paxton Collection, Kentucky Digital Library).

tween Ribble Road and Gardiner Lane, was laid out in 1948 and revised in 1950 by Edgar W. Archer's Lupino-Realty Company.

Until Section 2 of Seneca Village was platted in 1948, the largest subdivision in Hawthorne was Wellington, which became a sixth class city in 1946. Wellington actually consists of two subdivisions. The first, Herndon Place, was laid out along Manchester Road and Brighton Drive between Montrose and Bel Air avenues by W. C. Coleman in 1925. Three years later, however, C. C. Hieatt's Consolidated Realty Company took over Herndon Place, added a larger parcel between Montrose and Bardstown, and re-subdivided the entire tract as the Wellington Extension of Strathmoor. The year after World War II ended, Edgar W. Archer platted Alanmede Subdivision on a parcel immediately south of Wellington, bounded on the east by Bon Air Avenue, on the south by Gardiner Lane, and on the west by Montrose. Two years later, M.C. Elliott and Ada M. Delhomer platted Hawthorne's final subdivision, Villanova, located directly south of Alyade between Gardiner Lane and what is now the Watterson Expressway.

The eventual incorporation of Wellington underscores a phenomenon which became endemic not only to Louisville but to the United States as a whole. The residential building boom which occurred along Lexington and Bardstown Roads during the 1920s was representative of suburban explosion which occurred throughout the nation. As the sweeping annexation of 1922 and subsequent annexations after World War II suggest, many of the suburban developments of the 1920s eventually became part of the larger cities upon which they depended economically. Some resisted in order to maintain their independence while others invited annexation out of desire for improved services. But during the 1920s and the decades that followed, a growing number of suburban communities sought to retain their independence – and with it a semblance of Arcadian Village life – without giving up the municipal services to which they had become accustomed as residents of the central city. The mechanism by which this objective was achieved was incorporation. Across the country scores of new towns and villages were incorporated between 1920 and 1930, most of them located along the fringes of large metropolitan centers.

Louisville did not match other metropolitan areas in the proliferation of suburban municipalities during the 1920s. But when it did come after World War II, it came with a vengeance. Nevertheless, a handful of subdivisions were developed during the 1920s, in addition to Wellington, which eventually formed a contiguous band of sixth class cities which extends from Seneca Park, across Taylorsville Road and Bardstown Road to Lover's Lane.

The subdivisions which form four of these cities – Strathmoor Village, Strathmoor Manor, Strathmoor Gardens, and Kingsley – were primarily the responsibility of a single developer, Clarence C. Hieatt. During his seven decades as a developer, Hieatt was responsible for the construction of at least 5,000 houses and more than seventy subdivisions. Most of these projects are characterized by sidewalks, broad, tree-lined streets, deep setbacks, and individually designed homes. Such are the attributes of Strathmoor, located immediately east of Doup's Point between Taylorsville Road and Bardstown Road. Laid out by Hieatt's Consolidated Realty Company in 1920, the subdivision was incorporated as Strathmoor Village in 1928. In 1921, Hieatt's firm laid out a second section of Strathmoor between Bardstown Road and Shelly Avenue. An addition four years later extended the subdivision to Lover's Lane. In 1931 the section of Strathmoor west of Bardstown Road was incorporated as Strathmoor Manor. The addition to Strathmoor which comprises Strathmoor Gardens, located on the east side of Bardstown Road between Strathmoor Village and Hawthorne Avenue, was platted in 1923 and incorporated in 1944. The Kingsley Extension of Strathmoor, which was platted by Hieatt Brothers in 1925 and incorporated as Kingsley in 1928, extends eastward from Strathmoor Village and Strathmoor Gardens to Bon Air between Taylorsville Road and Hawthorne Avenue. The remaining sixth class city is Seneca Gardens. Tucked into a pocket formed by Woodbourne Avenue, Carolina Avenue, Taylorsville Road, Bowman Field, and Seneca Park, Seneca Gardens is composed of four Subdivisions, whose development involved three different participants. The first



Figure 2.4 Proliferation of independent cities around Louisville's suburban fringe (*Louisville Courier-Journal* February 23, 1947).

subdivision, Broadmeade, is an irregularly shaped tract whose upper portion lies between Carolina and a line midway between Meadow Road and Valletta Road, and whose lower portion extends from Carolina to McCoy Way.

Broadmeade was platted in 1922 as a joint venture by the Discher Land Company, headed by Fred Moellein, and the Wetstein Land Company, headed by Edward F. Weigel. Each company derived its name from a family with long-standing land holdings in the area under development. In 1926 Weigel's firm laid out a second section of Broadmeade which extended the upper portion eastward to the imaginary northern extension of McCoy Way. Five years later, Weigel platted most of the remaining area north of Trevilian Way between Section 2 of Broadmeade and Seneca Park. Curiously, the only subdivision which contains the term Seneca Gardens is a small tract which borders Trevilian Way between the eastern terminus of Wetstein Avenue and Seneca Valley Road, near the Seneca Park boundary. The Seneca Gardens Subdivision was platted by Denver B. Coett in 1937. The entire area was incorporated as Seneca Gardens in 1941.

The suburban development of Eastern Louisville began during the interwar years, and saw exponential expansion following World War II [pages 112-113; 128-129; 131]:

Just as the years from 1917 through 1945 constituted a watershed in the life of the city of Louisville as a whole, so too did they mark a period of deep change in eastern Louisville. The increasing availability of the automobile and the improved personal mobility which it created contributed significantly to the dispersion of the population, a concomitant reduction in residential density, and a reorientation of commerce from the streetcar to the automobile. The advent of flight and the creation of Bowman Field vastly increased eastern Louisville's economic importance. In the area of residential architecture, historical revival modes substantially replaced the Victorian as the preferred styles among the upper middle class, and the bungalow finally replaced the shotgun house as the primary form of working class housing-demonstrating in the process that real wages had risen to the point that the transition could be made at a widely acceptable economic cost. Along with changes in both transportation and architecture, subdivision design ideology and practice began to demonstrate a greater respect for both aesthetics and topography. While confined initially to subdivisions intended for the upper middle class, the new, geomorphic forms foreshadowed what eventually would become general practice, especially after creation of the City Planning and Zoning Commission in 1930 and the promulgation of increasingly strict subdivision regulations. Of course, most of the period's growth occurred during the building boom of the twenties. The Great Depression put a quietus on development, one which continued through World War II. But the 15-year building moratorium also helped to create new pressures for growth, which would lead to a new explosion of growth during the postwar years.

The three decades that followed the end of World War II saw American cities engulfed in a wave of suburban development in which millions of acres of farmland were turned into residential subdivisions. The Louisville area was no exception. Throughout Jefferson County, once sleepy rural villages became sprawling suburban cities, while former cow pastures were subdivided and then incorporated to form vest-pocket municipalities.

Numerous forces contributed to the suburbanization of Louisville's population after World War II, but four appear to have been particularly significant in the growth of eastern Louisville. First, a soaring birth rate combined with national housing programs and taxation policies to promote home ownership. Second, actions and regulations of agencies such as the Louisville Water Company, Metropolitan Sewer District, and Louisville and Jefferson County Planning Commission promoted the dispersal of housing. Third, improvements in transportation increased the mobility of individuals and promoted the growth of certain kinds of business enterprises. Finally, a steady process of industrial suburbanization contributed to the suburbanization of employment, prompting many employees to seek new homes in the vicinity of their place of work.

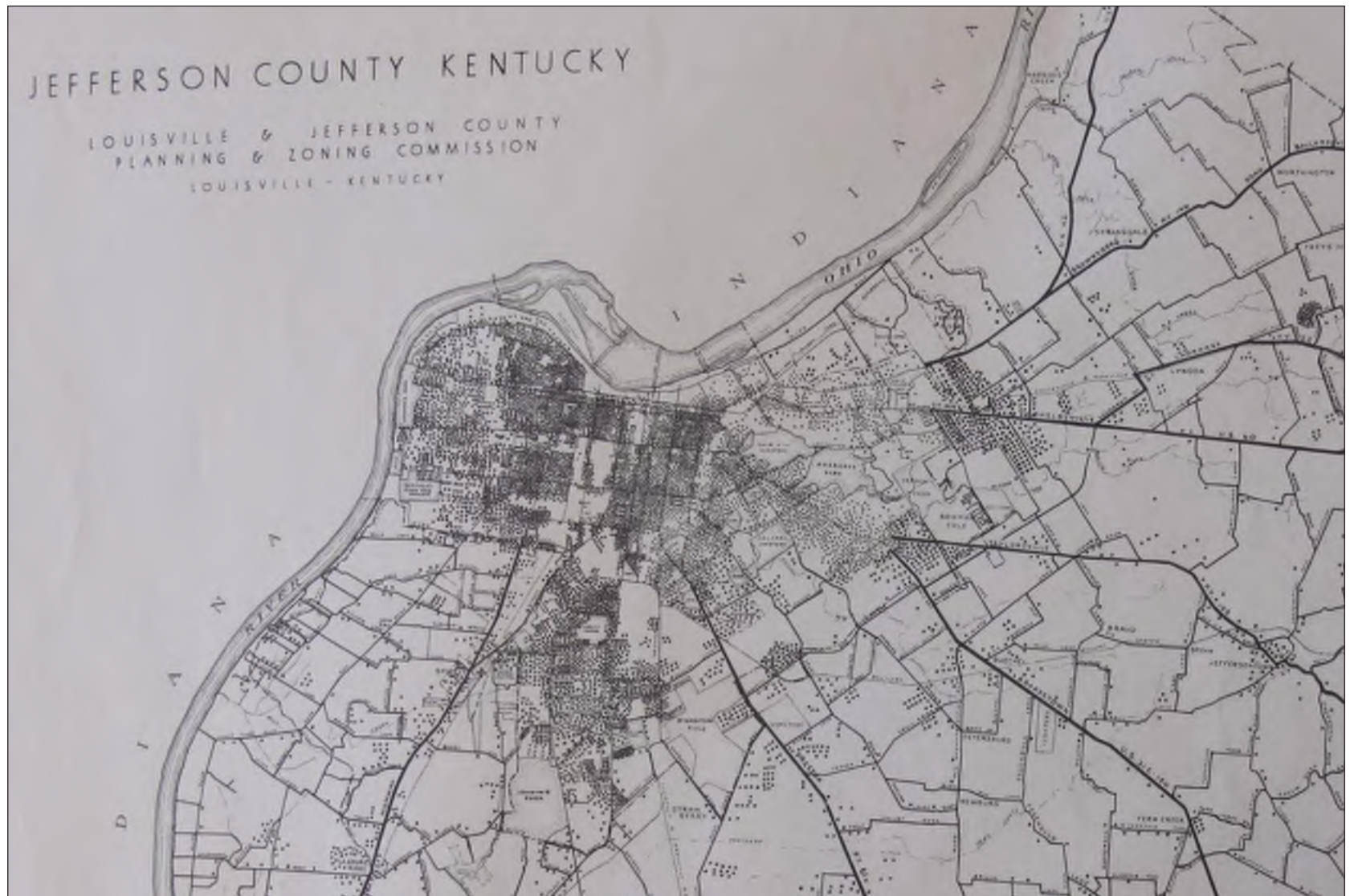


Figure 2.5 Distribution of Louisville's population, showing growth along arterial roadways, particularly south and east of the city (Louisville City Library, map collection).

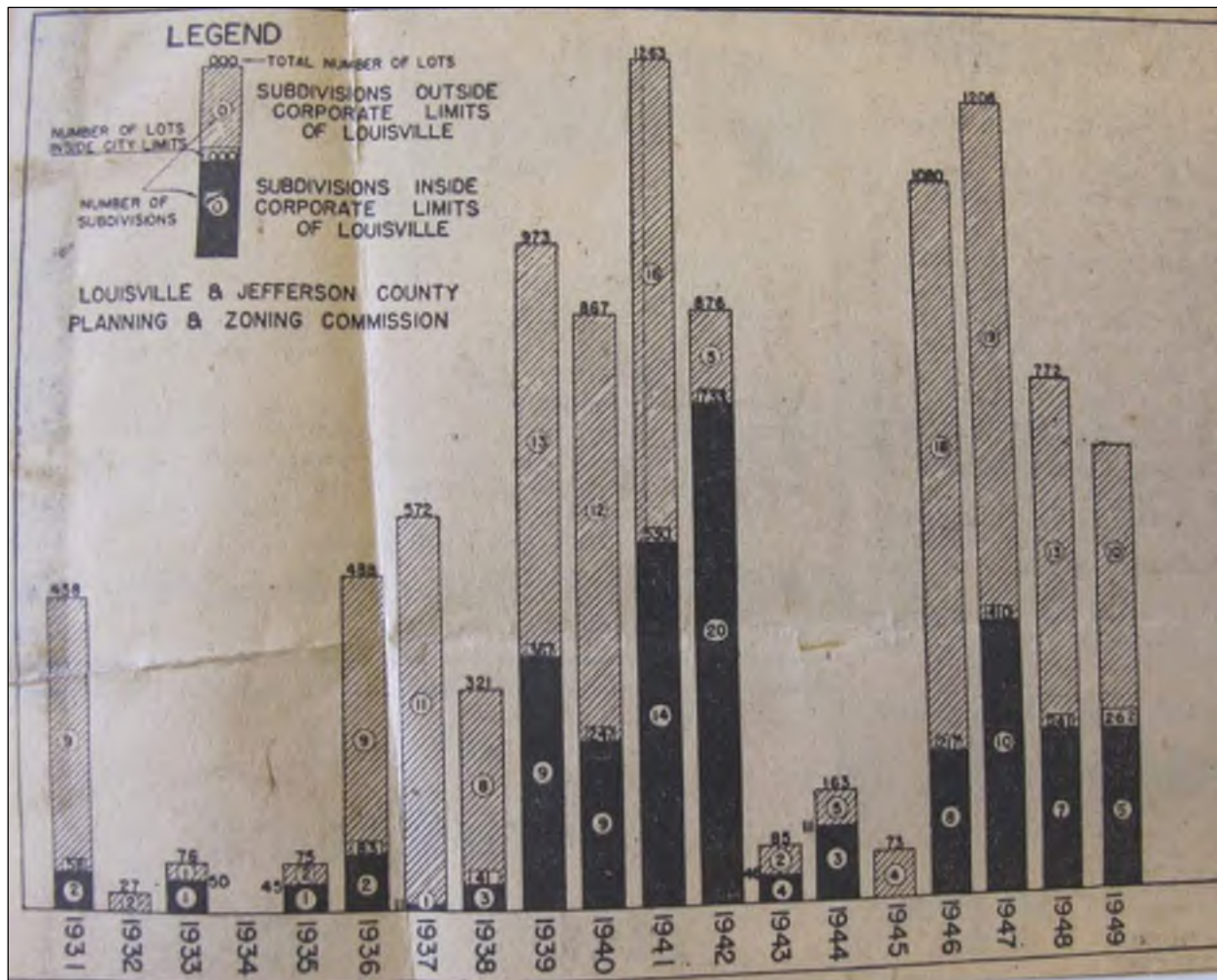


Figure 2.6 Chart showing lots and subdivisions approved by the zoning authorities from 1931 through 1949 (Louisville Courier-Journal November 20, 1949).

Although the circumstances of development varied from place to place, the neighborhoods which grew up along Louisville's eastern fringe after the war exhibited certain common characteristics. First of all, changes in home building technology such as mass production and standardization of building materials and rising costs of skilled labor and craftsmanship contributed directly to a high degree of uniformity in the appearance of modern residential structures. Most single family houses are built in the popular ranch, split-level, or historical revival styles, depending upon the taste of the builder and the economic market that a given subdivision was aimed. The numerous apartment complexes located along the major arterial and collector streets likewise display a high degree of similarity, with mansard-roofed apartments and historical revival fourplexes being particularly common.

Despite their basic uniformity, the subdivisions of recent vintage do betray some degree of variety in their residential architecture. This is achieved in four primary ways. The first is through variations from house to house in the placement of such elements as porches, stoops, gables, garages or carports, and doors on a given block. A second is to employ a variety of exterior building materials in the construction of houses that are otherwise quite similar in their interior structure.

Not surprisingly, most recent homes are built of brick or brick veneer, but stone, wood, and synthetic sidings are frequent as well. During the 1940s and 1950s asbestos siding was widely used, but the 1960s and 1970s [had] seen its use virtually eliminated and replaced by aluminum siding. Another frequent means of providing variety is cosmetic ornamentation, added by the home owner himself. The built-in, hand-crafted ornamentation which is commonplace in older neighborhoods is virtually

nonexistent in newer subdivisions. Finally, many developers and builders provided a degree of variety by giving homebuyers the opportunity to choose their home from among three or four basic models. In some subdivisions, the choice might be among a limited number of variations on one basic style, such as ranch or split-level, while in another the developer might provide for choices from among ranch, split-level, and historical revival styles. Conspicuously absent from such subdivisions, however, is the home that was custom designed by a professional architect, a factor that is attributable to steady inflation in the costs of architectural services and the relatively limited financial rewards for residential design, compared with those which can accrue to the architect involved in large commercial, institutional, and industrial design commissions.

[One area that grew] after World War II was the perimeter of Bowman Field Airport. Scattered development dates back to 1928, when Queenie Wathen Condon and Tess Wathen laid out the Air-view Subdivision in the triangle formed by Dutchman's Lane and Taylorsville Road. Nine years later developer William F. Randolph platted Seneca Vista between Seneca Gardens and Bowman Field, immediately adjacent to the west side of the airport. For a few years Seneca Vista was a sixth-class city. In 1950 it annexed both sections of McCoy Manor Subdivision, which had been laid out along McCoy Way, between Trevilian Way and Taylorsville Road, by developer Bryan S. McCoy during 1949 and 1950. But Seneca Vista's residents voted the town out of existence in the referendum on the Mallon Plan, a scheme for government reorganization under which Louisville would have been enlarged to take in a large band of its suburban fringe. Louisville voters approved the plan overwhelmingly, but only the voters of Seneca Vista and one other incorporated suburban community approved it.



Figure 2.7 Prefabricated homes could be modified with materials or floor plans. These models, located in a subdivision off Goldsmith Lane, were simply reversed and used different siding material (*Louisville Courier-Journal*, September 14, 1952).

3.1 Results of the Architectural Survey

3.2 Overview

For the purposes of this historic architectural survey, all archival research and fieldwork focused on an Area of Potential Effect based on the nature and scope of the Safety Program. The FAA defined the APE as those geographical areas within the TERPS approach surfaces. This APE considered all direct and indirect effects of the currently proposed alternatives and mitigation measures. Archival research and a windshield reconnaissance determined that significant portions of the architectural APE are part of platted subdivisions, or are part of individual, but broader properties. Therefore, during the architectural investigations, a qualified historian reviewed areas within these neighborhoods or properties that extended beyond the approach surfaces (see Figures 1.2 through 1.6), as appropriate.

There are no previously recorded properties located within the APE, although the APE for Runway 6 clips the corner of the NRHP Listed Bowman Field Historic District (see Figure 3.1, below). The district was listed in 1988 and includes three buildings: the airport administration building, the Curtiss Flying Service Hangar, and the Army Air Corps Hangar. The Safety Program has identified no TERPS approach area penetrations within the listed NRHP district and, therefore, the program will not affect the resource.

During the field survey, an additional 13 historic architectural properties (buildings, districts, etc.) were identified for review and evaluation. These included two (2) golf courses, six (6) neighborhoods, and five (5) outparcels. The six (6) neighborhoods represent a collection of both early automobile and post-World War II suburbs. Architectural types and styles include a range of early to mid-twentieth century design, from Tudor and Colonial Revivals, to Minimal Traditional and Ranch, to mass-produced pre-fabricated housing. Each property is itemized in Table 3.1 below, is depicted on Figure 3.1, and is discussed more fully in the remainder of this chapter. The evaluations are supported by historical information and photographs (where available) as well as current photographs. Figures 3.2 through 3.8 provide year built disposition of the neighborhoods as well as a collection of historic aerial photographs showing a timeline of construction. The neighborhood evaluations are further supported by appendices containing more detailed property and mitigation information.

Table 3.1 List of architectural properties identified during the field survey.

Property Name	(Runway #) Location	Description/ Year(s) Built	NRHP Status	Safety Program Effect
Bowman Field Historic District	(6) NW of Pee Wee Reese Rd and Taylorsville Rd	Airport terminal and hangars/ 1929-1932	Listed	No Adverse Effect
Big Spring Country Club	(24) NE of Cannons Lane and Dutchman's Lane, S of I-64	Golf Course/ 1927 (alterations mid-1900s; 2003-2004)	Not Eligible	N/A
Seneca Park Golf Course	(15) NW and SE of Seneca Park Rd	Golf Course/ 1934 (alterations 1950s, 60s; ongoing)	Eligible (Criterion A)	No Adverse Effect
Seneca Vista Neighborhood	(6) N of Taylorsville Rd, including Drayton Dr, Landon Ave	1937-1950 (minimal post-1950 infill)	Eligible (Criteria A, B, C)	No Adverse Effect
McCoy Manor Neighborhood	(6) E&W of McCoy Way, between Trevillian Way and Gladstone Ave	Post-World War II suburb/ 1949-1957 (no infill)	Eligible (Criteria A, C)	No Adverse Effect
Seneca Manor Neighborhood	(6) E&W of Valetta Rd, between Trevillian Way and Taylorsville Rd	Post-World War II suburb/ 1935-1958 (no infill)	Eligible (Criteria A, C)	No Adverse Effect
Kingsley Neighborhood	(6) S of Taylorsville Road, including King's Highway, Winston Ave, Emerson Ave, Tyler Ln, and Gladstone Ave	Early automobile suburb/ 1926-1964 (minimal post-1964 infill)	Eligible (Criteria A, B, C)	No Adverse Effect
Seneca Village Neighborhood	(33) S of Taylorsville Rd, N of Ribble Rd, including Kent Rd, Seneca Blvd and Carson Way	Post-World War II suburb/ 1947-1954 (minimal post-1954 infill)	Eligible (Criteria A, C)	No Adverse Effect
Seneca Village No. 2 Neighborhood	(33) S of Ribble Rd, E of Bon Air Ave, N and W of Watterson Expy., including Carson Way, Alanmede Rd, Gardiner Ln, Wendell Ave, Betty Ln & Joan Ave	Post-World War II suburb/ 1951-1960 (minimal post-1960 infill)	Eligible (Criteria A, C)	No Adverse Effect
2615 Taylorsville Road	2615 Taylorsville Road	Commercial Bldg./ Ca. 1960s	Not Eligible	N/A
2613 Taylorsville Road	2613 Taylorsville Road	Apartment Bldg./ Ca. 1960s	Not Eligible	N/A
2609 Taylorsville Road	2609 Taylorsville Road	Apartment Bldg. / Ca. 1960s	Not Eligible	N/A
2605 Taylorsville Road	2605 Taylorsville Road	Apartment Bldg. / Ca. 1960s	Not Eligible No Effect	N/A
2542 Gladstone Avenue	2542 Gladstone Avenue	Apartment Bldg. / Ca. 1960s	Not Eligible No Effect	N/A

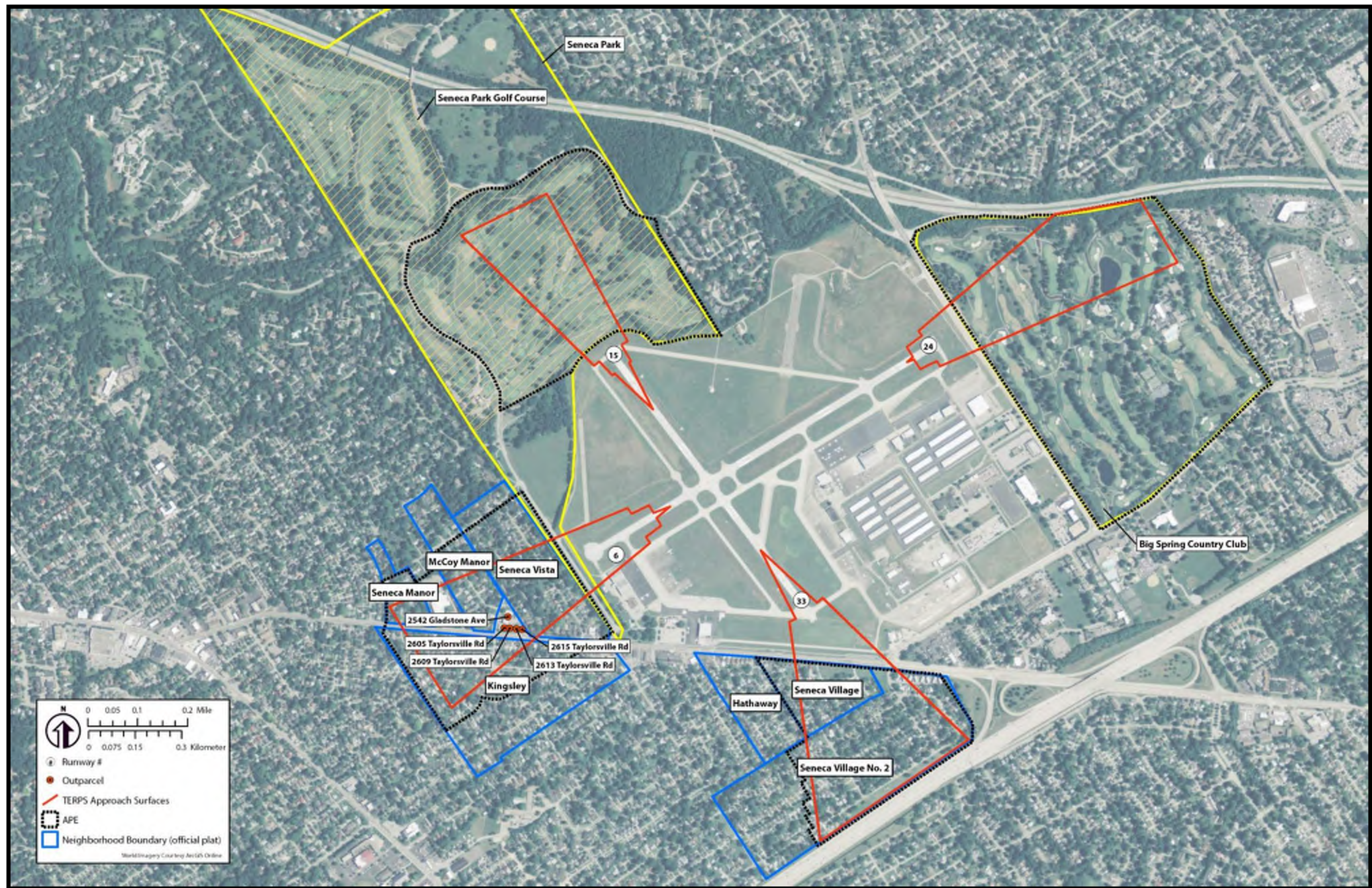


Figure 3.1 Architectural Properties identified during the field survey.

This page intentionally left blank.

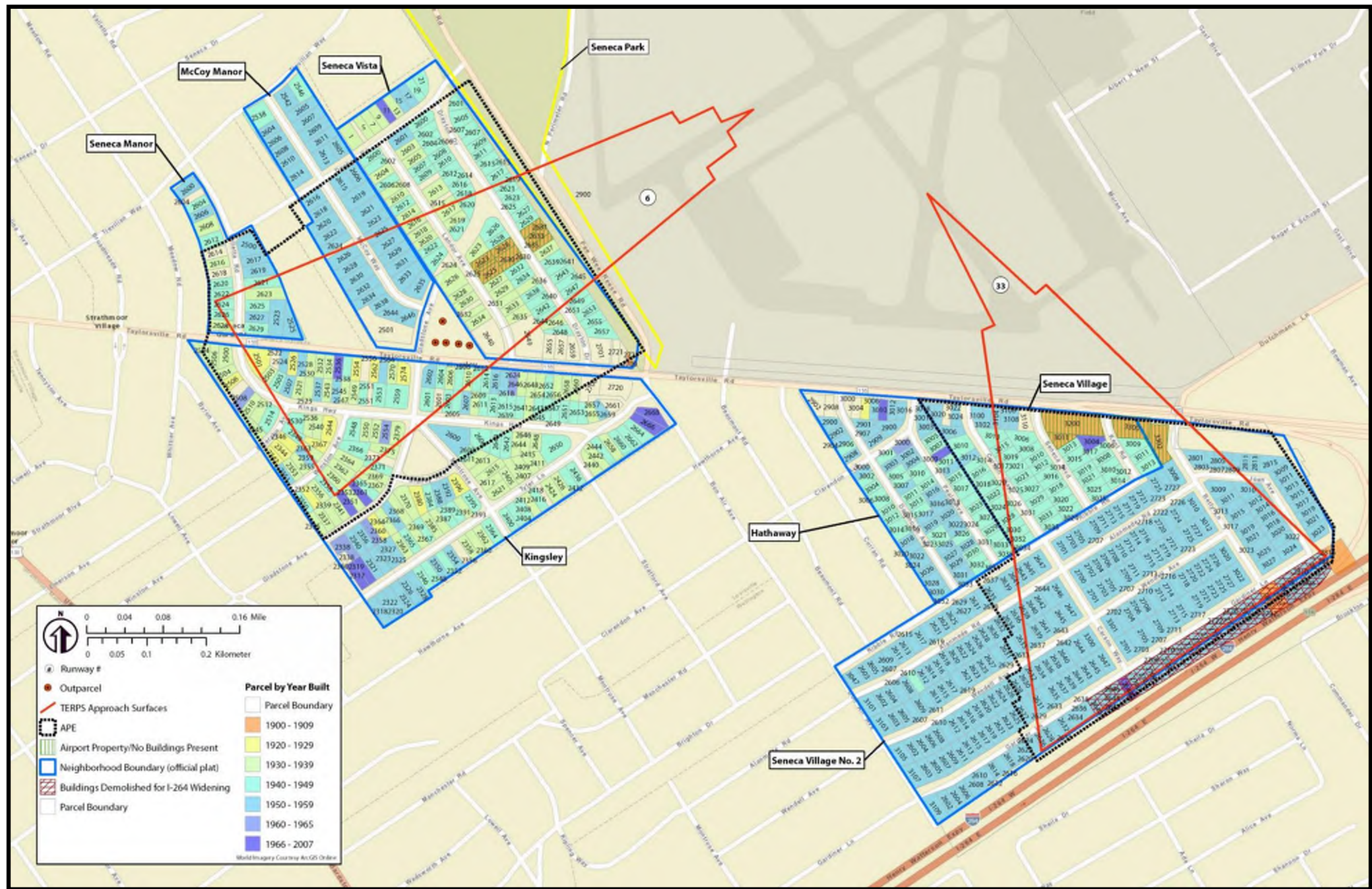


Figure 3.2 Neighborhood boundaries as shown on tax parcel map, showing years built.

This page intentionally left blank.

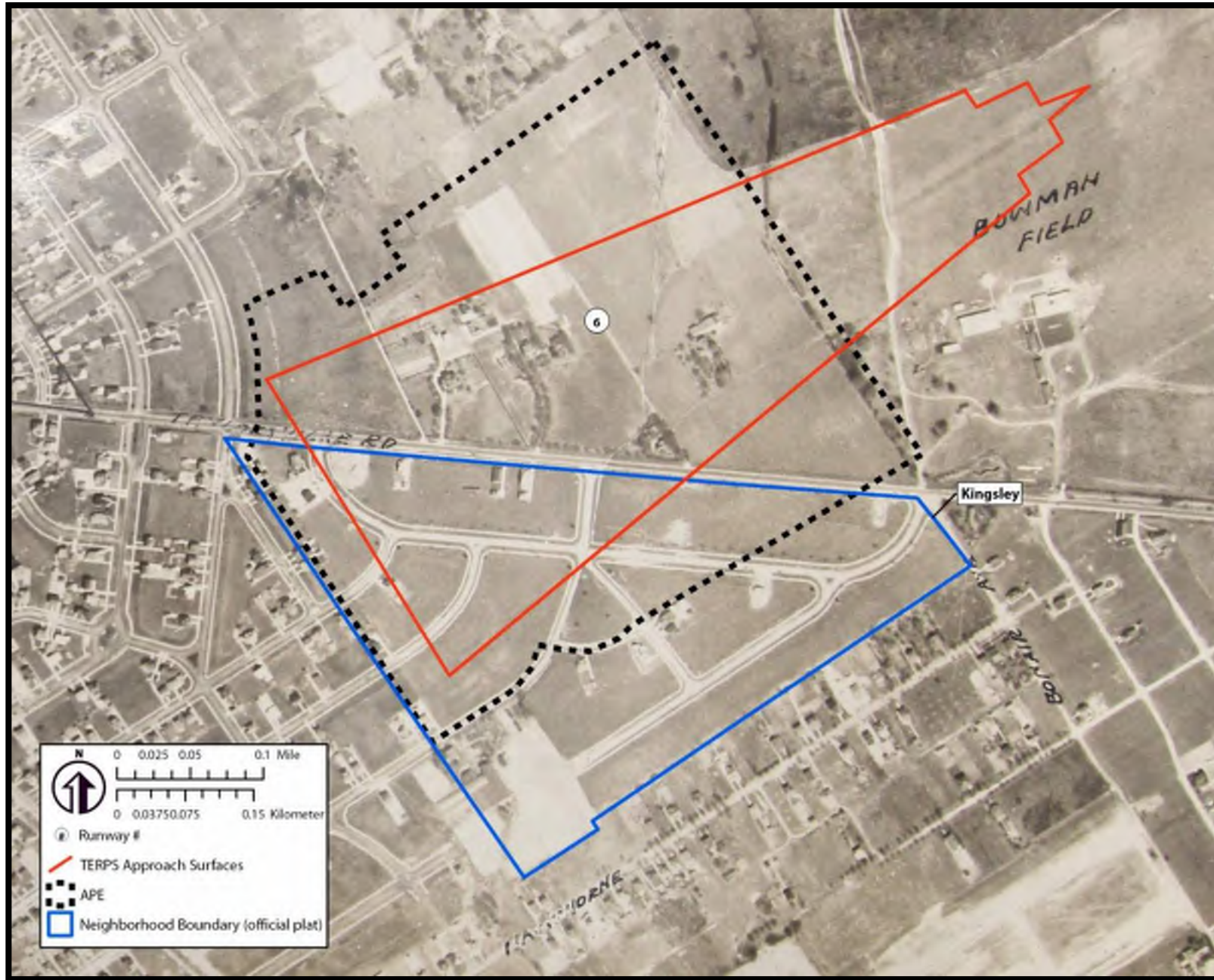


Figure 3.3 1928 aerial photograph, showing development around Bowman Field (Bowman Aero Company).

This page intentionally left blank.

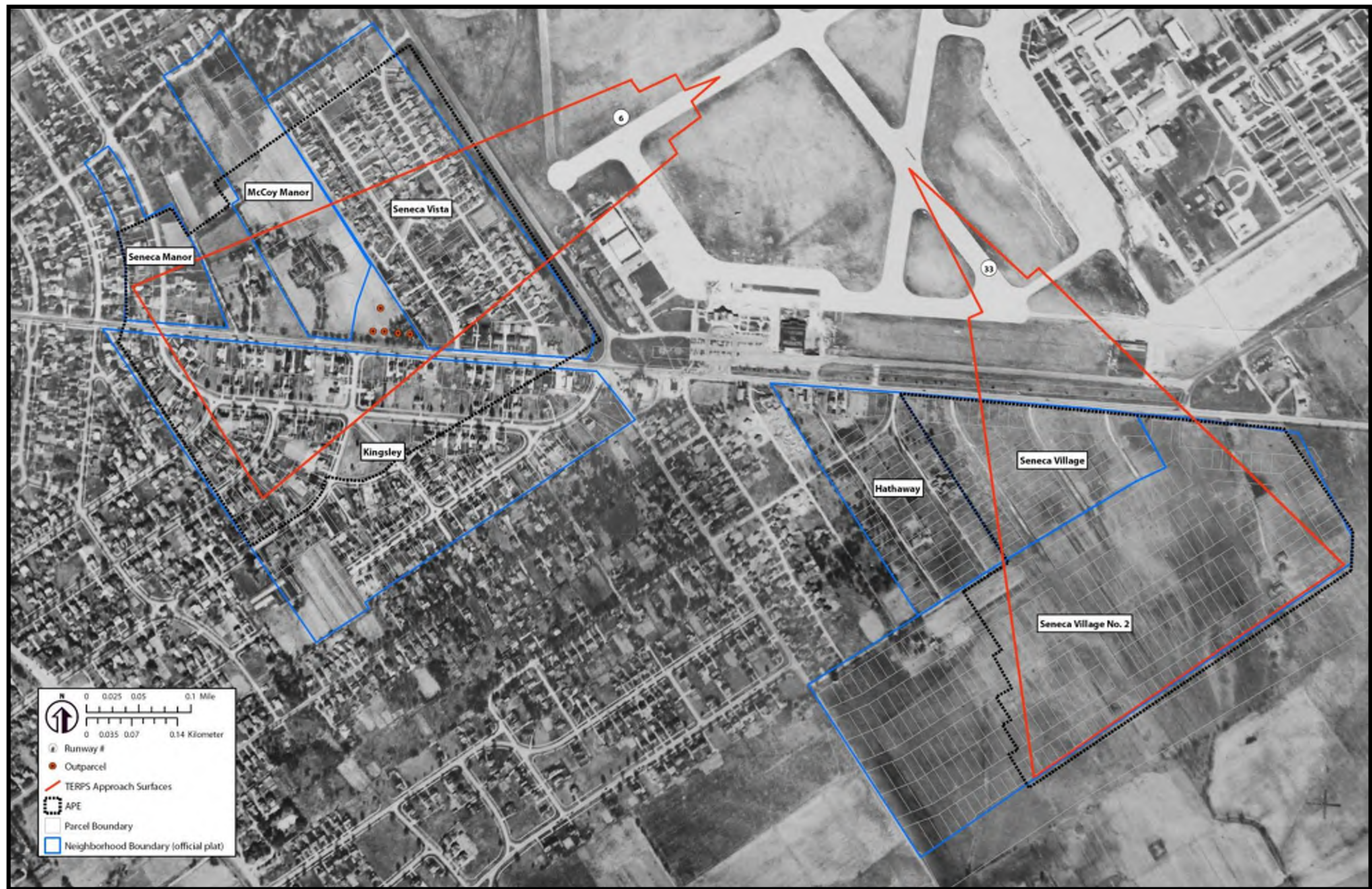


Figure 3.4 1946 aerial photograph, showing development around Bowman Field (Park Aerial Surveys, Inc.).

This page intentionally left blank.

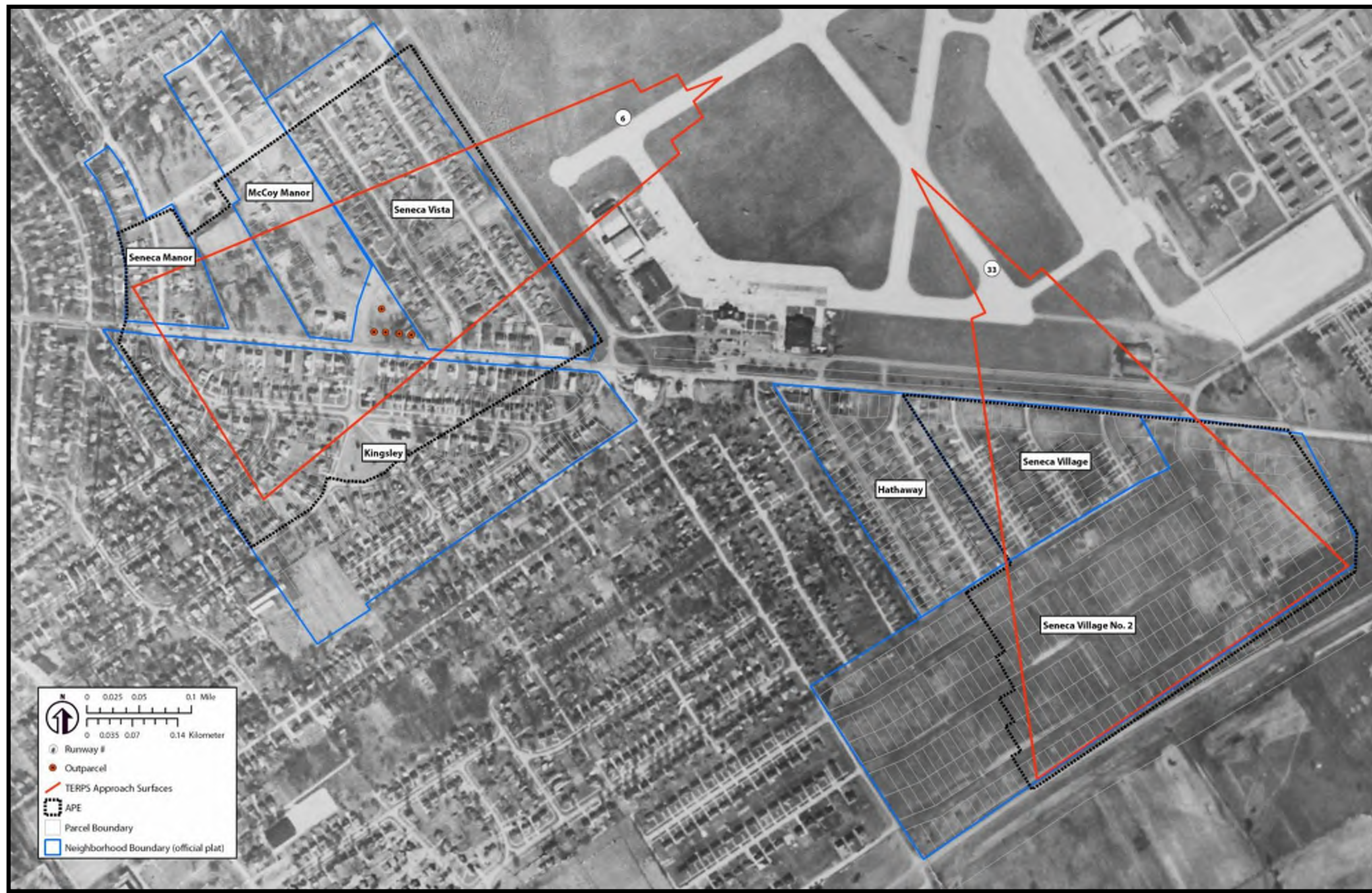


Figure 3.5 1951 aerial photograph, showing development around Bowman Field (Park Aerial Surveys, Inc.).

This page intentionally left blank.



Figure 3.6 1955 aerial photograph, showing development around Bowman Field (USGS).

This page intentionally left blank.



Figure 3.7 1959 aerial photograph, showing development around Bowman Field (USGS).

This page intentionally left blank.



Figure 3.8 1971 aerial photograph, showing development around Bowman Field (USGS).

This page intentionally left blank.

3.3 Big Spring County Club

Property Type: Golf Course

Established: 1926; re-design 2003-2004.

Architecture: Casual/organic

General Integrity: Low

NRHP Status: Not Eligible

Safety Program Effect: N/A

History and Landscape

Big Spring Country Club was established in 1926 by Harry Dumesnil and Alvah H. Terry. The Club was named for Beargrass Creek, which is located just below the current 13th green and runs through holes 6, 7 & 12. In 1926, the Big Spring Land Company purchased an approximate 163-acre tract from Olivia Veech Kent of Saranac Lake, New York (Jefferson County Deed Book [JCDB] 1290: 188). Mrs. Kent was bequeathed the property by her father, R.S. Veech, in 1918 (Jefferson County Will Book [JCWB] 36: 489; see Figure 2.2). According to a prospectus of the Big Spring Land Company, the “tract is one of the most fertile in Jefferson County. It has a limestone substratum, and was used for many years as a grazing farm for the blooded stock of R.S. Veech. It has over the greater portion of a deeply rooted stand of blue grass.” The land company contracted with Scottish-born golf course architect Tom Winton, then living in New York, to lay out an 18-hole design. The prospectus also noted that Jefferson County was undertaking nearby road improvements, including the macadamization of Dutch Lane, as well as a water main. An existing brick house was already on the property, and “will be reconstructed or converted into a Club House, which purpose it will serve for probably several years” (Big Spring Golf Club 1926). Figure 3.9 is a 1928 photograph showing the golf course not long after construction.

The club is located on 163 acres and is roughly bounded by Cannons Lane on the west, Dutchmans Lane on the south, I-64 on the north, and a subdivision on the east (see Figure 3.1). Big Spring Country Club currently features an 18-hole championship-style golf course, driving range and practice areas, tennis complex, junior Olympic sized swimming pool, as well as a clubhouse and maintenance facilities. Big Spring Country Club has been the site of several amateur and professional events, most notably the 1952 PGA Championship (Figure 3.10), won by Jim Turnesa during a time when the tournament was competed in match play format. In 2003-2004, the golf course underwent a major redesign effort under the direction of golf course architect Rees Jones. The redesign included rebuilding all of the green complexes, adding fairway bunkers and other water hazards, and altering shot angles (Rees Jones Inc. 2014; Rogers 2014). Figures 3.11 through 3.16 provide photographs of the current layout. In April of 2014, Big Spring Country Club and the Harmony Landing Country Club (established 1952, north of Louisville) merged administratively, providing consolidated amenities for their memberships (Big Spring Country Club 2014).

No information could be located on the original clubhouse, or if the existing clubhouse was adapted from the “existing brick house” noted in the 1926 prospectus. The existing clubhouse features limited elements of the Tudor Revival architectural style, including the faux half-timbering along each elevation, suggesting inspiration for its design may have come as early as the late 1920s or the 1930s. A close review of historic aerial photographs (dating from 1928-1971; see Figures 3.3 through 3.8) suggests it originally featured a reversed L shape, with the short axis facing Dutchman’s Lane. Renovations during the 1960s enclosed the rear (north) of the building and added a one-story dining room addition on the south elevation. Those photographs also indicate what was observed during the field survey, that the building appears to have been built in stages, perhaps across several decades to accommodate membership and amenity growth. In general, the building has a brick façade, a design element retained on the detached expansions and shops to the rear. Figures 3.17 through 3.21 provide current photographs of the clubhouse.

NRHP Evaluation

Golf courses are designed recreational landscapes that evolve frequently due to the modernization of the game, general course management, and other natural changes (Smead and Wagner 2000). As a *designed* landscape, Big Spring Country Club has been altered to the extent that it can no longer convey a semblance of its original design intent. The most notable changes include rerouting a majority of the original holes (only holes 1 through 4 follow their original design path), and large water hazards (at 10 and 15 greens) have been incorporated. In terms of the vegetation as part of the landscape, while there are some trees and plantings framing the holes tee to green, much of this evolved organically or at the behest of managers over time. Jack Ryan, club professional from 1946-1976, was responsible for incorporating perhaps the greatest variety of plantings (Rogers 2014). The only remaining “design element” of note during the historical period (specifically the 1950s), is a line of Osage trees lining the cart path on the eleventh hole, which is the old ninth hole. These trees are not within the Safety Program APE.

Historic aerials from the late 1920s show minimal tree cover, as would be expected on a course recently converted from agricultural fields. By the early 1950s (see Figure 3.10), the majority of tree cover is centralized in the south center of the property along the clubhouse drive, with the fairways featuring few alleys of trees. Modern aerials illustrate greater density. The clubhouse itself lacks individual distinction due to the numerous alterations and additions. In fact, the original building is difficult to discern except by reviewing its roofline in aerial photographs.

Due to these changes and alterations to the various components of the Big Spring Country Club, including the golf course and clubhouse, the property lacks its historic design integrity and is not eligible for the NRHP under Criterion C. The property was also considered for evaluation under Criterion A for its association with the rise of early twentieth century recreation around the City of Louisville in proximity to the developing suburbs. According to *National Register Bulletin 15*, properties evaluated under Criterion A must also retain integrity, specifically the “essential physical features that made up its character or appearance during the period of its association with the important event, historical pattern, or persons” (NPS 1995: 46). Key features at Big Spring Country Club include the hole routing, green complexes, bunkering, and water hazards, that make up the essence of course play. Other aesthetic changes include the modifications to the clubhouse to where its original design intent is no longer visible. Therefore, the Big Spring Country Club does not qualify for listing under either criterion.



Figure 3.9 Big Spring Country Club, 1928. At this time, the golf course had just been laid out.

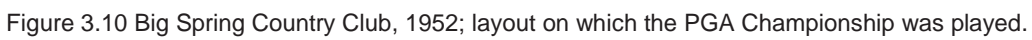




Figure 3.11 Big Spring Country Club, current layout (BlueGolf.com 2014).



Figure 3.12 Big Spring Country Club, near 5 tee facing northwest.



Figure 3.13 Big Spring Country Club, near 4 green facing northeast.



Figure 3.14 Big Spring Country Club, at 6 tee facing east.



Figure 3.15 Big Spring Country Club, near 10 tee facing south.



Figure 3.16 Big Spring Country Club, hole 11 (old number 9) face north. Note Osage trees lining cart path.



Figure 3.17 Big Spring Country Club, clubhouse entrance, facing northeast.



Figure 3.18 Big Spring Country Club, clubhouse, facing northeast.



Figure 3.19 Big Spring Country Club, clubhouse, facing north.



Figure 3.20 Big Spring Country Club, rear of clubhouse, facing west.



Figure 3.21 Big Spring Country Club, maintenance shop, facing northeast.

3.4 Seneca Park Golf Course

Property Type: Golf Course

Period of Significance: 1933-1964 (pre re-design)

Architecture: Casual, organic landscape

General Integrity: Medium NRHP

Status: Eligible (Criteria A) **Safety**

Program Effect: No Adverse Effect²

History, Landscape, and Architecture

Seneca Park Golf Course (see Figure 3.1) was constructed on lands within the broader Seneca Park (1928), the last within the Louisville Park system to be designed by the Olmstead Brothers design firm (Kramer et al. 1988). Like Bowman Field Airport, it was located on the seized Von Zedwitz lands (see Figure 2.2). The golf course was laid out in 1933 and was completed in 1934, with its landscape and buildings constructed as part of a Works Progress Administration (WPA) effort (Figures 3.22 through 3.40). It was laid out as a public 18-hole facility and was organized with a president (Joseph S. Dickson) and other supporting officers (Seneca Golf Course 1950). Seneca was the fourth of five public golf courses sponsored by and constructed within Louisville Parks system. The others included Cherokee (1895), Crescent Hill (1925), Shawnee (1927), and Iroquois (1947).

Recreational works were an important element of the WPA program. Between 1935 and 1941, the WPA funded over \$900 million recreational projects (Kennedy and Johnson 2005: 159). As noted in Kennedy and Johnson (2005: 162), public golf courses were a typical WPA project and helped transition the game's availability from the wealthy to the less affluent. The associated course structures (clubhouses, shelters, caddy shacks, etc.) generally took a "rustic appearance" and used "native materials."

Seneca Park Golf Course hosted numerous state and national level championships, including the 1950 Public Links Championship and several PGA-sanctioned Derby Opens during the 1950s. Future Golf Hall of Famer Gary Player, from South Africa, won his first PGA tour event at the course in 1958. Since the 1960s the course has been used predominately for public play.

While an original design layout could not be located, a schematic "new layout" dated 1955 (Figure 3.22) illustrates the hole routing. As compared to a current layout (Figure 3.23), there have been a number of noticeable alterations to the original routing. By and large these were the result of the late 1960s construction of I-64, which removed a portion of the golf course property. In reviewing a 1971 aerial, the reconstruction effort at Seneca Park Golf Course was still underway. Later changes to the golf course (Greenwell 2014) include mounding to the greens and the planting of trees to frame the fairways. The vegetative planting is less of an aesthetic measure than one to provide screening for errant shots. Photographs from the 1960s (see Figures 3.29 and 3.30) show an open expanse for play, with limited vegetation except along Beargrass Creek. Course-level photographs (Figures 3.33 and 3.34) also show an open style of play.

The golf course features three primary aboveground structures: the clubhouse, the old caddy shack, and the maintenance building, all of which were constructed during the 1930s by the WPA. The clubhouse (Figures 3.24 and 3.25, 3.31, and 3.35 through 3.38) is a one story building with a rusticated limestone exterior and a hipped roof. The façade consists of three bays, including an inset porch wood posts and concrete floor, and flanking front-gable projections. Windows in those projections are plate glass and each projection also contains a bullet louvered vent. The sides and rear of the clubhouse have undergone several alterations and building additions. Windows at the building rear are a combination of plate glass and glass block, none of which are original to the building. The additions are faced with stucco and have a contrastingly modern aesthetic against the original rusticated stonework. The south elevation features a 1990s addition, with the façade designed with rusticated stone, and the sides are faced with stucco. Other alterations to the building include those on the façade. The original inset porch consisted of three regularly spaced archways. Windows in the projections appear to have been casements of eight lights each. The doors within the porch were

Brockington and Associates

² FAA identified certain inconsistencies within the text and those have been revised

wooden pairs with multiple lights. These have been replaced with modern plate glass doors and/or enclosed.

The second building on the property is the former caddy shack (Figures 3.28 and 3.39), now used for office space by Louisville Parks and Recreation. This is a small, single-story brick building, on a continuous brick foundation. The façade is the north elevation with features a shed porch with brick supporting pillars on either end, along with an arched opening. Two-thirds of the porch has been enclosed for additional office space. The building contains few windows; those present are horizontal one-over-one and are not original.

The third building is the maintenance shed (Figures 3.26 and 3.40). Constructed in the early 1930s, it is set on a brick foundation and consists of one-story aboveground and a full height-basement/maintenance area. Windows are metal framed with eight total lights, the central four of which open for ventilation. The building has a hipped roof, brick chimney, and multiple openings along the façade. There are two cargo openings and one entry door; all are of modern materials. There are additional cargo bays on the side elevations, and at the basement level.

NRHP Evaluation

As a designed landscape, the golf course possesses little degree of its original design integrity. Golf courses are usually subject to changes over time to accommodate technological changes (Mendik 2007; Smead and Wagner 2000), in the case of Seneca Park golf course, key elements have been altered: hole routing, the topographical perspective (limited mounding) around the greens, and the removal of a portion of the original golf course due to interstate construction in the 1960s. In terms of the vegetation as part of the landscape, while there are some trees and plantings framing the holes tee to green, much of this appears to have evolved organically or at the behest of managers over time. Historic aerials from the 1920s through the 1970s show few trees over the course, but current aerials show greater tree cover. As discussed with the current course professional, much planting has been done in the past three decades to provide for greater player safety between holes.

The buildings themselves retain a moderate degree of integrity. The façade of the clubhouse retains a semblance of its original “rusticated design,” although replacement of the three central stonework archways with wood posts removed one of the building’s original key character-defining features. The enclosure of the porch on the caddy-shack is also considered detrimental to the architectural integrity of the building. The maintenance shed was originally designed for functionality and did not utilize the “rusticated” design of the club house and does not necessarily reflect a distinctive type of design or construction.

Due to these changes and alterations to the individual components of the Seneca Golf Course, it does not possess architectural distinction and is not eligible under Criterion C for its architecture or design. However, the golf course property is eligible under Criterion A, for its association with the Works Progress Administration, a new deal program designed to employ local workers during the Great Depression. While individual features have been altered, the course still retains its park-like setting and a vernacular layout designed for public use.

Safety Program Effects

At present, approximately 34 trees have been identified as requiring replacement within this property (see Figure 1.5), due to their existing or anticipated heights exceeding the plane of safe operating airspace. As noted in the historical context for this property, the golf course’s vegetative landscape developed organically. Further, the holistic golf course landscape (including hole-routing) was altered by the traversing of I-64 during the 1960s. Much of the course’s early landscape is characterized by lack of vegetation or trees framing the fairways and hole routing. The planting of trees, primarily to ensure safe playing conditions, continues to this day. During the field survey, no trees were identified that would qualify as character-defining features for this golf course, and therefore, the Safety Program will have no adverse³ effect on this NRHP eligible property.

³ FAA identified certain inconsistencies within the text and those have been revised

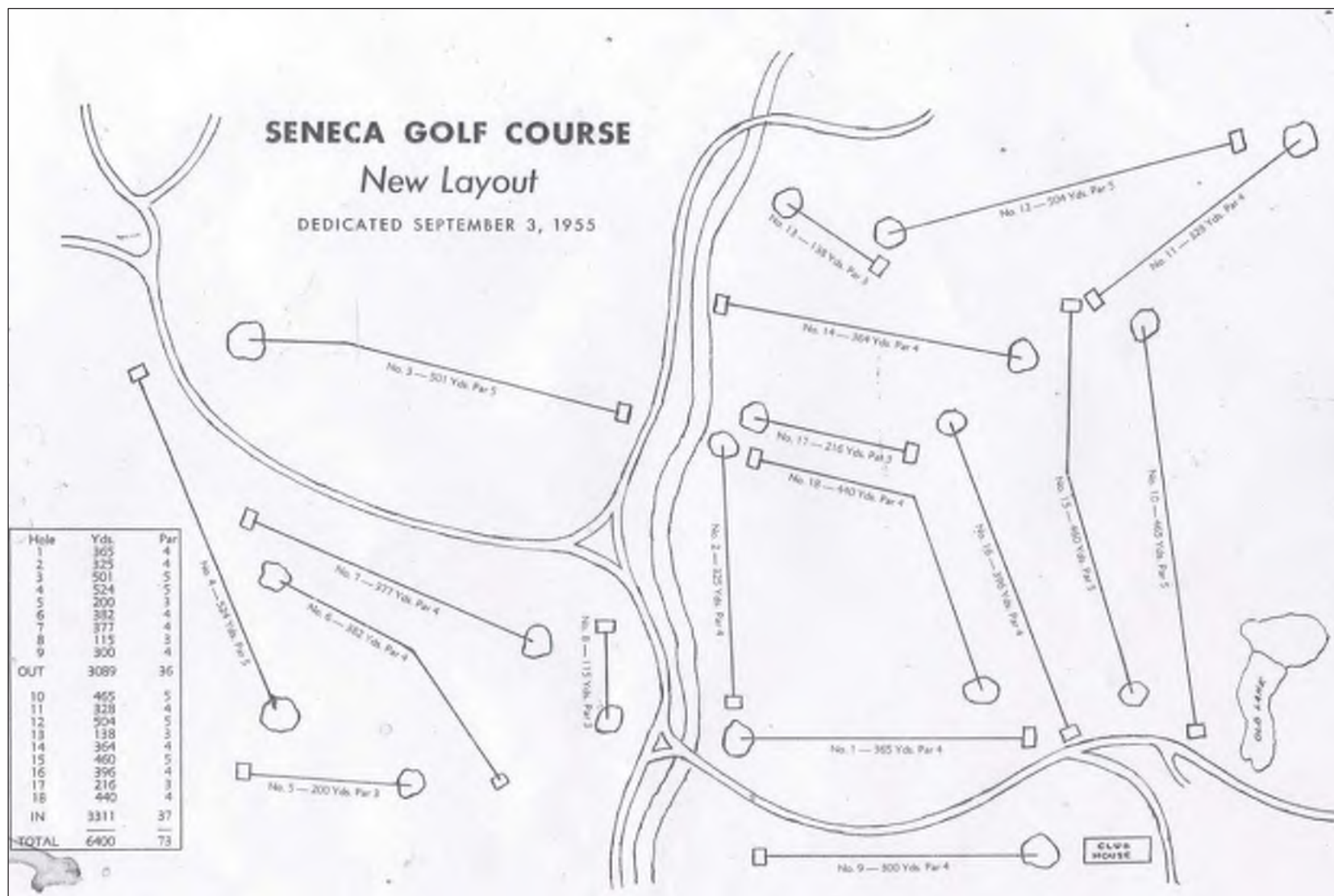


Figure 3.22 Seneca Golf Course, "new layout" dated 1955 (Seneca Golf Course Files).



Figure 3.23 Seneca Golf Course, current layout (BlueGolf.com).



Figure 3.24 Seneca Golf Course, original clubhouse design, early 1930s (Seneca Golf Course Files).



Figure 3.25 Seneca Golf Course, original clubhouse design, early 1930s (Seneca Golf Course Files).



Figure 3.26 Seneca Golf Course, maintenance shop, early 1930s (Seneca Golf Course Files).



Figure 3.27 Seneca Golf Course, rear of clubhouse, 1968 (Seneca Golf Course Files).



Figure 3.28 Seneca Golf Course, caddy shack, 1968 (Seneca Golf Course Files).



Figure 3.29 Seneca Golf Course, facing toward clubhouse from hole 10, 1968 (Seneca Golf Course Files).



Figure 3.30 Seneca Golf Course, facing northeast along old tenth hole (now eighteenth hole) 1968 (Seneca Golf Course Files). Boundary with Bowman Field on right.



Figure 3.31 Seneca Golf Course, clubhouse remodel, 1990s (Seneca Golf Course Files).



Figure 3.32 Seneca Golf Course, current landscape view.



Figure 3.33 Seneca Golf Course, facing north on first hole (new tenth hole to right).



Figure 3.34 Seneca Golf Course, facing Bowman Field from eighteenth fairway.



Figure 3.35 Seneca Golf Course, clubhouse, facing southwest.



Figure 3.36 Seneca Golf Course, clubhouse, facing south.



Figure 3.37 Seneca Golf Course, rear of clubhouse, facing northeast.



Figure 3.38 Seneca Golf Course, clubhouse, facing north (showing 1990s south elevation addition).



Figure 3.39 Seneca Golf Course, caddy shack, facing southwest.



Figure 3.40 Seneca Golf Course, maintenance shed, facing west.

3.5 Seneca Vista Neighborhood

Property Type: Early Automobile Suburb

Period of Significance: 1937- 1950

Architecture: Mid-Twentieth Century (Largely Minimal Traditional; examples of Cape Cod and Colonial Revival)

General Integrity: Moderate

NRHP Status: Eligible (Criteria A, B, and C)

Safety Program Effect: No Adverse Effect⁴

History, Landscape, and Architecture

Located immediately west of Bowman Field, the Seneca Vista neighborhood (see Figure 3.1) was platted by Louisville developer William F. Randolph in 1937 (Figure 3.41). The neighborhood's primary growth occurred up through the early 1940s (Figures 3.4 and 3.42), with limited post-World War II infill. As noted in Kramer's history of eastern Louisville (Louisville CDC 1979: 131), Seneca Vista was temporarily a sixth-class city and at that time annexed both sections of McCoy Manor Subdivision. However, Seneca Vista residents "voted the town out of existence in the referendum on the Mallon Plan," a proposition by which Louisville proper would have annexed much of its suburban fringe. The neighborhood is situated between Taylorsville Road and Denham Road and includes residential buildings along Drayton Drive and Landor Avenue. Selected historic aerial photographs are provided in Figures 3.4 through 3.8. Current neighborhood photographs and year built data are provided in Figures 1.6 and 3.2. Supplemental data for the neighborhood is presented in Appendix C.

An original deed for the properties stipulates a number of covenants in regard which lots may be used for apartment or duplex purposes, and which lots may be subdivided. The covenants also stipulate setbacks and buildings lines, the need for approval (six years from 1938) of lawn grades and house elevations, the forbidding of use of stucco as a primary exterior material on houses or garages, and limitation of sign size on any lot. Of cultural history note, the covenants also forbade selling, conveying or leasing any property "to any person or persons of African descent." In the deed conveying a total of nine lots to Jefferson County for airport easements (see Figures 1.6 and 3.2), the deed stipulated that no runway shall be constructed within the neighborhood, and that "the only tree to be destroyed is the burnt one. Other [trees] shall not be trimmed lower than the top of the Evans house" (JCDB 1706: 328-329).

The neighborhood features a variety of mid-twentieth century homes, though styles are generally represented by Minimal Traditional and Cape Cod, with some examples of Colonial Revival of the two-story variety along Drayton Drive and Landor Avenue (Figures 3.43 through 3.49). Exterior cladding is generally brick with some examples of Bedford stone. Many of the homes retain original wood-framed windows or compatible fenestration modern replacements. Most homes have detached garages, or in a few instances along Drayton Drive, a front-facing basement level integrated garage. The multi-family apartment complexes on Landor Avenue (Figure 3.50) are Colonial Revival and feature details such as quoining, brick dentil work, and gable-on hip roofs. The entries have projecting front gables, and a classical doorway with triglyphs and engaged columns. The apartments facing Taylorsville Road (Figure 3.51) feature varying elements of the Colonial Revival Style; one has a two-story three-quarter length portico.

In regard to landscaping elements, Seneca Vista features no sidewalks, but does have uniform setbacks and general uniformity between the individual houses (Figures 3.52 through 3.57). Some lots along Landor Avenue are broader, and the original platted design to bisect the neighborhood with Gladstone Avenue was never employed. These areas are essentially public rights-of-way today and maintained as green space. Additionally within Seneca Vista, the LRAA owns nine (9) lots, a narrow strip within which is mown lawn. These spaces were originally purchased by Jefferson County to maintain safe airspace for Runway 6 flight paths and have always been a part of the neighborhood's landscape.

⁴ FAA identified certain inconsistencies within the text and those have been revised

NRHP Evaluation

The Seneca Vista Neighborhood is eligible for the NRHP under Criteria A (community planning and development), B (association with important persons) and C (architecture and design). Seneca Vista is locally significant in the area of community planning and development as an example of an early automobile suburb in Louisville. The neighborhood is directly associated with developer William H. Randolph, whose career made a significant impact on the built environment of suburban Louisville (Louisville CDC 1979; Brother et al. 2014). Originally platted in 1937, Seneca Vista developed predominately between 1937 and 1942, with only 10 houses built after 1942. The neighborhood is a representative collection of early to mid-twentieth century residential architecture. The neighborhood retains a moderate level of architectural integrity and retains its original design elements in terms of setbacks, lot size, and general circulation. In general, the overall form of homes has not been altered. Some individual character-defining features of individual homes (windows and doors) have been replaced and some vinyl siding has been incorporated into gabled ends. These alterations are not such as to detract from the neighborhood's overall character, and other features such as dormers, front-facing gables, porches and hoods, and chimneys are still intact. The neighborhood contains two non-historic properties (11 Drayton Drive; 2721 Taylorsville Road [Figure 3.58]) and, therefore, has not been negatively impacted by a preponderance of incompatible infill. The recommended NRHP boundary for this neighborhood conforms to the legally platted subdivision bounds (see Figure 3.1), containing approximately 30 acres.

Safety Program Effects

An inventory of trees around Bowman Field the Safety Program (Beechwood Trees & Gardens, Inc. 2014) indicates a broad variety of species in the Runway 6 APE. These include hemlock, maple, hackberry, birch, redbud, dogwood, holly, juniper, mulberry, and cherry. Taller-growing trees include pine and pin oak. The majority of plantings are of the low-canopy and ornamental variety typically planted by property-owners. A lesser percentage of plantings in the neighborhood appear to have developed organically (e.g., along fence rows) or in "unmanaged areas" and represent the taller growing variety (Beechwood Trees & Gardens, Inc. 2014). This pattern was observed during the architectural field survey.

At present, there are 29 parcels within this neighborhood that have existing avigation easements (see Figure 1.6). An additional eight (8) parcels will require easements to meet the FAA's requirements of safe operating airspace within the TERPS surface approach areas for Runway 6. As noted, the airport purchased lots in Seneca Vista early in its development; these nine (9) lots bisect the neighborhood generally between Pee Wee Reese Road and Landor Avenue (see Figure 1.6 and 3.2). The lots are maintained by the airport as green space and include several trees proposed for the Safety Program. Based on a review of historic photographs and other materials, the neighborhood did not appear to be developed with a design specific to vegetation. Landscape design elements of the original platting and build out included setbacks, uniform spacing between houses, and general roadway circulation. Plantings in the neighborhood appear to have developed organically or by individual property owners over time. Neither the type nor overall height of the trees is considered to be a contributing element of the neighborhood. Therefore, tree replacement or trimming as proposed in Section 1.1.1 would be consistent with the existing composition of the neighborhood and is not considered an adverse effect.

PLAT OF SENECA VISTA SENECA VISTA

PEDIGREE
 The undersigned hereby certify that the several blocks and lots shown on the plat of Seneca Vista, and the several streets and avenues shown thereon, were laid out and platted by the undersigned, and that the same have been duly recorded in the public records of Jefferson County, Kentucky, and that the same are now being offered for sale by the undersigned.

Witness my hand this 30th day of August 1937
 My commission expires the 31st day of February 1938
 J. H. McBRIDE
 Mayor, Jefferson County, Kentucky.

STATE OF KENTUCKY
 County of Jefferson
 I, J. H. McBRIDE, Mayor of the City and County of Jefferson, do hereby certify that the several blocks and lots shown on the plat of Seneca Vista, and the several streets and avenues shown thereon, were laid out and platted by the undersigned, and that the same have been duly recorded in the public records of Jefferson County, Kentucky, and that the same are now being offered for sale by the undersigned.

Witness my hand this 30th day of August 1937
 My commission expires the 31st day of February 1938
 J. H. McBRIDE
 Mayor, Jefferson County, Kentucky.

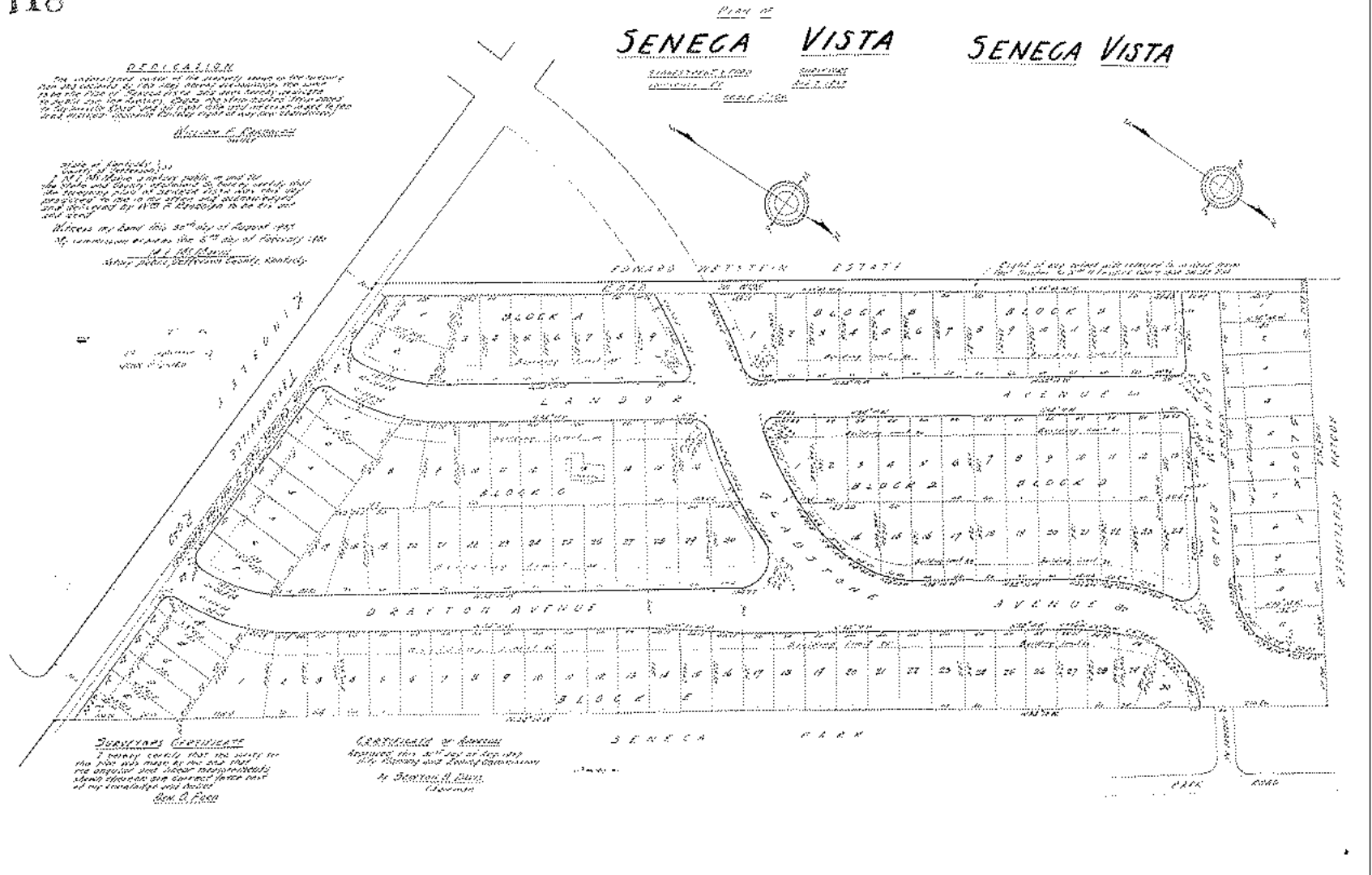


Figure 3.41 Plat of Seneca Vista, dated 1937 (Jefferson County plat book 7, pages 118-119).



Figure 3.42 Aerial photograph dated 1942, showing building progress in Seneca Vista (Bowman Field Administration Building photograph collection).



Figure 3.43 House at 2649 Drayton Drive, facing northeast.



Figure 3.44 House at 2638 Drayton Drive, facing southwest.



Figure 3.45 House at 2632 Drayton Drive, facing southwest.



Figure 3.46 House at 2637 Drayton Drive, facing northeast.



Figure 3.47 House at 2628 Landor Avenue, facing southwest.



Figure 3.48 House at 2629 Landor Avenue, facing northeast.



Figure 3.49 House at 2622 Landor Avenue, facing southwest.



Figure 3.50 Apartments at 2640 Landor Avenue, facing west.



Figure 3.51 Apartments at 2655 to 2659 Taylorsville Road, facing east.



Figure 3.52 Airport-owned property at Drayton Drive, facing northeast toward Runway 6.



Figure 3.53 Homes along Drayton Drive, facing northwest.



Figure 3.54 Drayton Drive, facing northwest.



Figure 3.55 Median at Drayton Drive and Denham Road, facing south.



Figure 3.56 Denham Road at intersection with Drayton Drive, facing west.



Figure 3.57 Landor Avenue facing southeast.



Figure 3.58 Taylorsville Road at Drayton Drive, showing non-contributing properties.

3.6 McCoy Manor Neighborhood

Property Type: *Post-War Suburb*

Period of Significance: 1949 – 1957

Architecture: *Mid-Twentieth Century Single and Multi-Family Residences (Examples of Ranch, Minimal Traditional, Cape Cod, and Colonial Revival)*

General Integrity: High

NRHP Status: *Eligible (Criteria A and C)*

Safety Program Effect: *No Adverse Effect⁵*

History, Landscape and Architecture

McCoy Manor neighborhood was platted in 1949 by developer Bryan S. McCoy (Figure 3.59). The neighborhood consisted of houses primarily along McCoy Way, from Trevilian Way to Taylorsville Road (see Figure 3.1). Primary development of the neighborhood occurred between 1949 and 1957. The neighborhood consists of 38 properties, the majority of which are single-family homes. Some multi-family units (near the intersection of McCoy Way and Gladstone Avenue) are also present. All of the properties are oriented toward McCoy Road, except for parcels at the intersections of Trevilian Way and Denham Roads. Selected historic aerial photographs are provided in Figures 3.4 through 3.8. Current neighborhood photographs and year built data are provided in Figures 1.6 and 3.2. Supplemental data for the neighborhood is presented in Appendix D.

The neighborhood consists of mid-twentieth century residential architecture and is heavily represented by the Ranch and Cape Cod styles of architecture with some Colonial Revival (Figures 3.61 through 3.64). Building materials generally consist of all brick, brick with Bedford stone highlighting, with a small number exhibiting all Bedford stone. The single-family homes are primarily one or one-and-one half stories in height, with the multi-family homes rising two stories. The multi-family dwellings are actually quadplexes, and feature minimalized Colonial Revival detail, such as quoining in either brick or Bedford Stone, or the corners have a single column and a small recessed full-height porch. The quadplex at 2634 McCoy Way features a full façade of Bedford Stone, with one-story porches.

McCoy Manor does not feature sidewalks, but each property does feature a driveway as well as a front walk connecting the front of the house with either the driveway or the street (Figures 3.64 through 3.66). Some of the single-family homes have integrated carports, while others have detached garages. The homes also have consistent building setbacks to the street and regular spacing between each building. The general vegetation landscape is casual and does not feature an overall design or pattern in terms of trees or shrubbery.

NRHP Evaluation

The McCoy Manor neighborhood is eligible for the NRHP under Criteria A (community planning and development) and C (architecture and design). McCoy Manor is locally significant in the area of community planning and development an example of a post-war suburb of eastern Louisville, developing due to its proximity to the major thoroughfare of Taylorsville Road during a period of booming suburban expansion. In regard to its design, the neighborhood is a collection of residential architecture reflective of the mid-twentieth century. While some character-defining features have been altered or replaced (such as windows and doors), overall the neighborhood retains a high degree of architectural integrity. It retains its street pattern, utility easements, and other design elements such as sidewalks and driveways. The recommended NRHP boundary corresponds to its legally platted boundaries (see Figure 3.1), consisting of approximately 15 acres.

⁵ FAA identified certain inconsistencies within the text and those have been revised

Safety Program Effects

At present, there are no parcels in this neighborhood that require avigation easements, nor have any trees been identified as penetrating the TERPs airspace that would require replacement (see Figure 1.6). Therefore, the Safety Program will have no adverse⁶ effect within the NRHP eligible McCoy Manor neighborhood.

⁶ FAA identified certain inconsistencies within the text and those have been revised

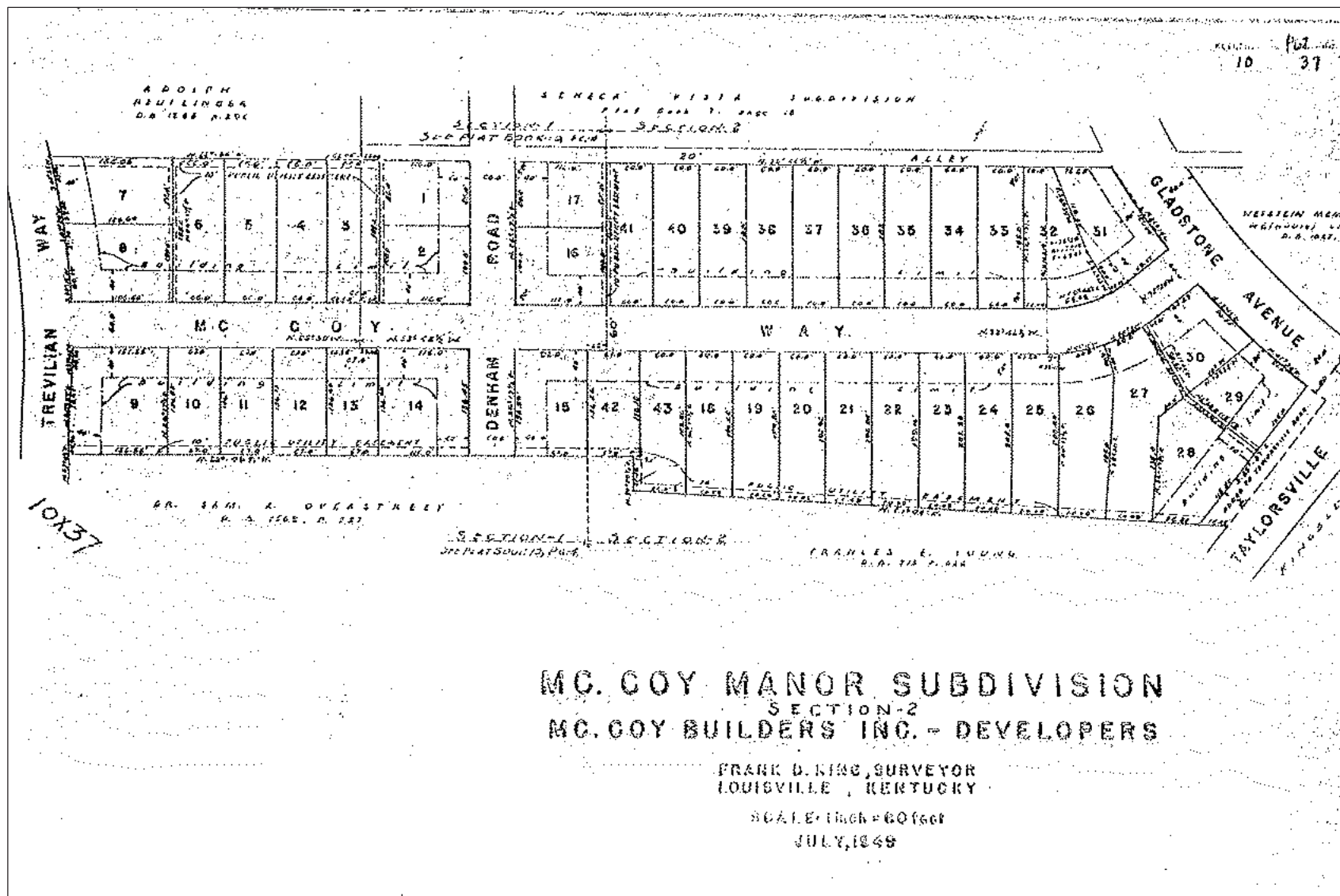


Figure 3.59 Plat of McCoy Manor neighborhood, dated 1949 (Jefferson County Plat book 10, page 37).



Figure 3.60 Sanborn Map of McCoy Manor neighborhood, dated 1961 (Louisville City Archives).



Figure 3.61 Example of a Ranch style home at 2618 McCoy Way.



Figure 3.62 Example of Cape Cod style home at 2629 McCoy Way. Note the large picture windows; this illustrates a more mid-twentieth century transition of the Cape Cod.



Figure 3.63 Quadplex at 2634 McCoy Way.



Figure 3.64 Row of homes along McCoy Way, facing northeast.



Figure 3.65 Street view of McCoy Manor, facing southeast.



Figure 3.66 Street view of McCoy Manor, facing southeast from intersection with Denham Road.

3.7 Seneca Manor Neighborhood

Property Type: Post-War Suburb

Period of Significance: 1937 – 1958

Architecture: Mid-Twentieth Century (Largely Colonial Revival, with historic infill with Ranch and Split Level)

General Integrity: High

NRHP Status: Eligible (Criteria A and C)

Safety Program Effect: No Adverse Effect⁷

History, Landscape, and Architecture

Seneca Manor neighborhood was platted by the Embury Realty Company in 1937 and its development occurred gradually throughout the late 1930s through the mid-1950s (Figures 3.67 and 3.68). The neighborhood consists of 21 individual single-family residences, all of which are oriented on Valetta Road, except for two parcels on Taylorsville Road (see Figure 3.1). Selected historic aerial photographs are provided in Figures 3.4 through 3.8. Current neighborhood photographs and year built data are provided in Figures 1.6 and 3.2. Supplemental data for the neighborhood is presented in Appendix E.

The neighborhood consists of typical mid-twentieth century residential architecture, but heavily represented by two-story Colonial Revivals, with lesser numbers of one-story Colonial Revival homes (Figures 3.69 through 3.71). These homes are generally symmetrical in design, some with a single plane façade, others with façade projections, featuring quoining and pediments. Windows are generally wooden double-hung sash and, typical of the style, many of the doors features sidelights, transom and are topped with pediments. The lots in the immediate vicinity of Taylorsville Road include single-story Colonial Revival, and some of the later historic infill, including examples of Ranch and Split Level.

Lots are generally 60 feet in width and the depth varies; lots west of Valetta Road measure 134 feet deep and those east of Valetta Road vary between 133 and 213 feet. Spacing between homes is generally consistent along with the street setback (35 feet). This neighborhood does not feature sidewalks, but each home does feature a front walk and driveway (Figures 3.71 through 3.73). Plantings are generally casual, though there is a degree of uniformity among high-canopy oak trees on the west side of Valetta Road, just to the north of the Safety Program APE. Minor modifications have been made to individual features such as windows and doors, but overall the neighborhood has been subject to few alterations. There is no non-historic infill in the neighborhood.

NRHP Evaluation

The Seneca Manor neighborhood is eligible for the NRHP under Criteria A (historical associations) and C (architecture) at the local level of significance. The neighborhood reflects the patterns of community development and planning typical of post-World War II development in eastern Louisville. As for its design, Seneca Manor neighborhood is a collection of residential architecture reflective of the mid-twentieth century and retains a high degree of architectural integrity and has no non-contributing properties. The neighborhood also retains its street pattern, driveways, and utility easements. The recommended NRHP boundary for the Seneca Manor neighborhood corresponds to its legally platted boundary (see Figure 3.1), consisting of approximately seven (7) acres and 21 individual parcels.

Safety Program Effects

An inventory of trees around Bowman Field for the Safety Program (Beechwood Trees & Gardens, Inc. 2014) indicates a broad variety of species in the Runway 6 APE. These include hemlock, maple, hackberry, birch, redbud, dogwood, holly, juniper, mulberry, and cherry. Taller-growing trees include pine and pin oak. The majority of plantings are of the low-canopy and ornamental variety typically planted by property-owners. A lesser percentage of plantings in the neighborhood appear to have developed organically (e.g., along fence rows) or in “unmanaged areas” and represent the taller growing variety (Beechwood Trees & Gardens, Inc. 2014). This pattern was observed during the architectural field survey.

⁷ FAA identified certain inconsistencies within the text and those have been revised

At present, there is one parcel within this proposed historic district that has been identified as requiring an aviation easement. This property (shown in Figure 1.6; see Figure 3.71) has one tree that has been identified as requiring replacement, due to its existing or anticipated height exceeding the plane of safe operating airspace. Based on a review of historic photographs and other materials, this neighborhood did not appear to be developed with a design specific to vegetation. Landscape design elements of the original platting and build out included setbacks, uniform spacing between houses, and general roadway circulation. Plantings in the neighborhood appear to have developed organically or by individual property owners over time, though there is some uniformity of high canopy oak trees west of Valletta Road, but just north of the Safety Program APE. Neither the type nor overall height of the trees is considered to be a contributing element of the neighborhood. Therefore, tree replacement or trimming on the one property (2625 Valletta Road) as proposed in Section 1.1.1 would be consistent with the existing composition of the neighborhood and is not considered an adverse effect.

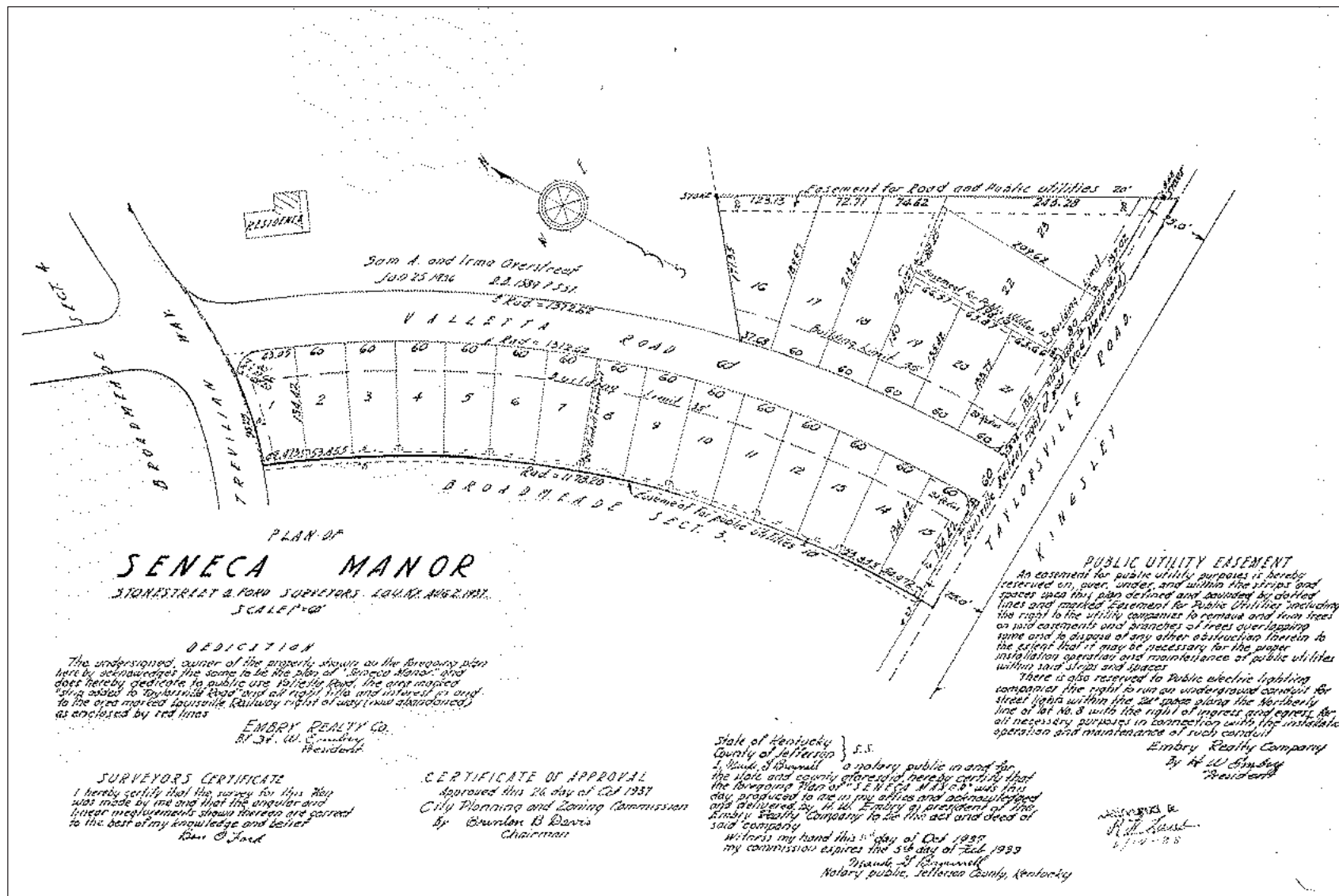


Figure 3.67 Plat of Seneca Manor, dated 1937 (Jefferson County plat book 7, page 129).



Figure 3.68 1961 Sanborn Map of Seneca manor neighborhood (Louisville City Archives).



Figure 3.69 Ranch house at 2525 Taylorsville Road.



Figure 3.70 Colonial Revival house at 2626 Valletta Road.



Figure 3.71 Facing north on Valletta Road from intersection with Taylorsville Road, showing collection of homes. Tree in left center of photograph (2625 Valletta Road) requires replacement.



Figure 3.72 Valletta Road, facing north. Note uniformity of oak trees, west of road (center left in photo).



Figure 3.73 Valletta Road, facing southeast near intersection with Trevilian Way.

3.8 Kingsley Neighborhood

Property Type: Early Automobile Suburb

Period of Significance: 1926 – 1964

Architecture: Early to Mid-Twentieth Century (Cape Cod, Craftsman, Tudor Revival, Colonial Revival, Dutch Colonial Revival; limited Ranch)

General Integrity: High

NRHP Status: Eligible (Criteria A, B, and C)

Safety Program Effect: No Adverse Effect⁸

History, Landscape, and Architecture

The Kingsley neighborhood is a sixth class city within the City of Louisville. According to the City of Kingsley's website, it contains 175 single-family residences, two (2) apartments, and three (3) businesses. It extends eastward from Strathmoor Village and Strathmoor Gardens to Bon Air between Taylorsville Road and Hawthorne Avenue (see Figure 3.1). Selected historic aerial photographs are provided in Figures 3.3 through 3.8. Current neighborhood photographs and year built data are provided in Figures 1.6 and 3.2. Supplemental data for the neighborhood is presented in Appendix F.

A 1913 Jefferson County property map (see Figure 2.2) shows the neighborhood was developed on lands formerly belonging to Mrs. Mary E.B.C. Von Zedwitz, and contained 46.75 acres. Kingsley was one component of a broader development effort by the Hieatt Consolidated Realty Company. As early as 1920, Hieatt developed the land south and east of Doup's Point, between the Taylorsville and Bardstown Roads. Strathmoor (1920) and Strathmoor Addition (1923) both capitalized on the Louisville Interurban Electric Railway Service, which followed the two roadways and allowed residents to move away from the city center (Brother et al. 2014: 333-334). Likewise, the Kingsley neighborhood was platted by Hieatt in 1925 (Figure 3.74). It was incorporated as sixth class city in 1939 and was annexed to Louisville in the 1950s. Development of the subdivision followed the original plat, with nineteen lots added in a 1951 addition (Figure 3.75). These are located south of Gladstone and along Tyler Avenue, northwest of Lowell Avenue.

By 1928, approximately ten residences had been completed, but by 1946 the majority of lots had been developed (see Figures 3.3 and 3.76). Only a few undeveloped lots remained by 1955 and development waned into the early 1960s. The Kingsley Neighborhood's architectural composition generally consists of detached one-to-two story single-family residences with individual or shared driveways and some detached garages. Building styles include Bungalow, Cape Cod, Colonial Revival, Tudor Revival, Minimal Traditional and Ranch (Figures 3.77 through 3.84). Building materials largely consist of brick, rusticated limestone, and some replacement vinyl siding in gabled ends. While construction of houses seems to have not taken off until the 1930s, by 1928 Hieatt had continued the road and sidewalk system of Strathmoor into Kingsley. Kingsley also featured a curvilinear road system, a centralized public park space, and planted trees along Kings Highway and within the central park located between Gladstone and Montrose Avenues (Figures 3.84 through 3.88). Lots are generally 50 feet in width with a 30 foot building setback and measure 131-140 feet in depth.

NRHP Evaluation

The Kingsley neighborhood is eligible for the NRHP under Criteria A (community planning and development), B (association with important persons) and C (architecture and design) at the local level of significance. The Kingsley neighborhood reflects the trends of early to mid-twentieth century suburban development of eastern Louisville. Kingsley was originally developed outside of the Louisville city limits during the late 1920s and saw exponential growth in the 1930s and 1940s. Building would continue into the 1950s, but the neighborhood retains the aesthetic of an early automobile suburb. Within the neighborhood, there are seven post-1964 residences that would be considered non-contributing resources. The Kingsley neighborhood is directly associated with developer C. C. Hieatt, whose career made a significant impact on the built

Brockington and Associates

⁸ FAA identified certain inconsistencies within the text and those have been revised

environment of suburban Louisville (Louisville CDC 1979; Brother et al. 2014). Kingsley abuts other Hieatt developments (Strathmoor and Strathmoor Addition). The Kingsley neighborhood is a representative collection of early to mid-twentieth century residential architecture. It retains its distinctive park-like setting of curvilinear streets, public spaces, sidewalks and setback. In general, the neighborhood reflects a high degree of architectural integrity with few alterations to character-defining features of individual homes. The proposed NRHP boundary for the Kingsley neighborhood corresponds to its legal corporate limits and platted boundary (see Figure 3.1), consisting of approximately 50 acres. Its period of significance dates from 1925 when it was first platted by Hieatt to 1964, the current minimum age guideline for historic properties.

Safety Program Effects

At present, there are no parcels in this neighborhood that require avigation easements, nor have any trees been identified as penetrating the TERPs airspace that would require replacement (see Figure 1.6). Therefore, the Safety Program will have no adverse⁹ effect within the NRHP eligible Kingsley neighborhood.

⁹ FAA identified certain inconsistencies within the text and those have been revised



Figure 3.74 Kingsley plat, dated 1925 (Jefferson County plat book 5, pages 82-83).

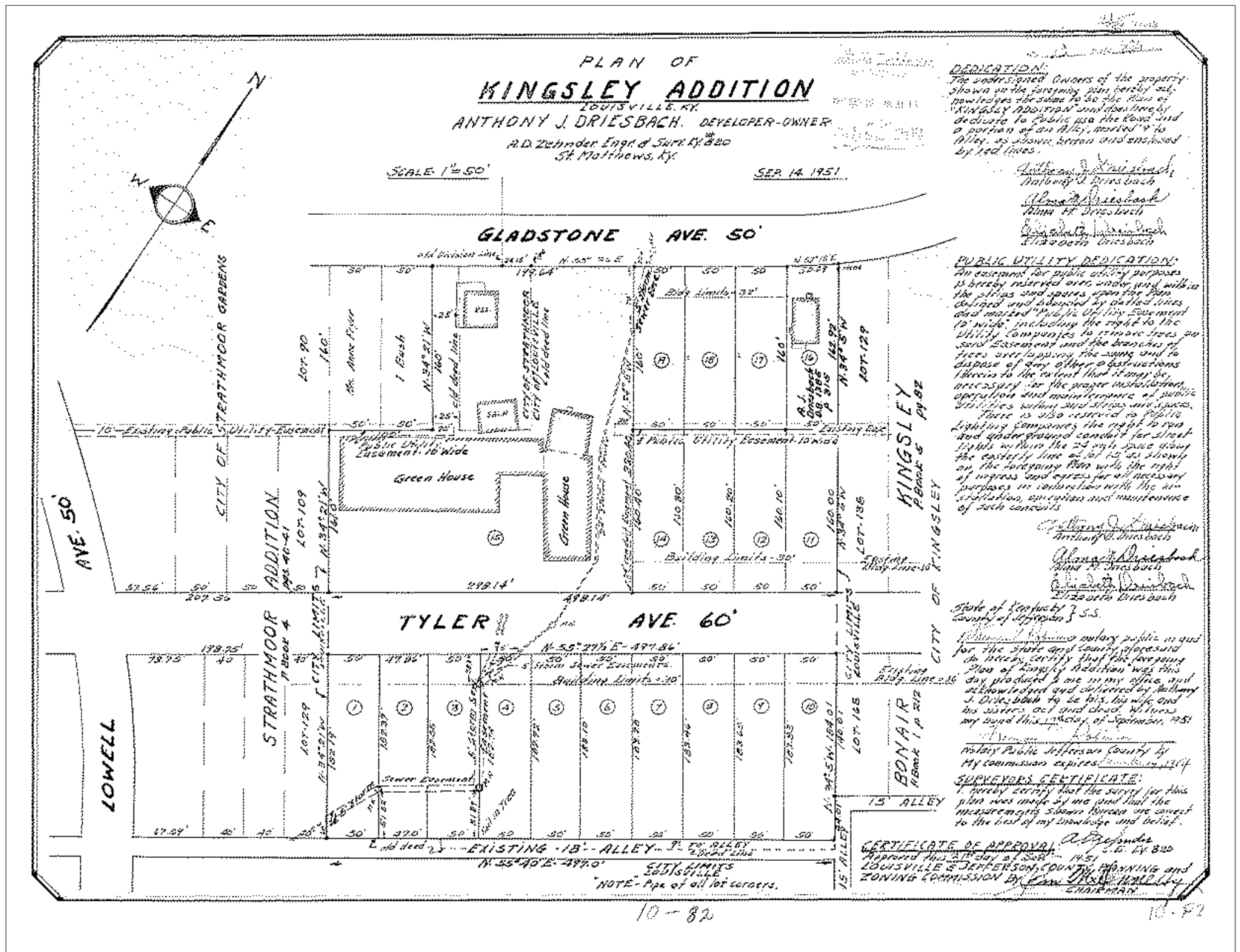


Figure 3.75 Kingsley addition plat, dated 1951 (Jefferson County plat book 10, page 82).



Figure 3.76 View of eastern Kingsley Neighborhood, photograph dated 1930 (Bowman Field Administration Building photograph collection).



Figure 3.77 Kingsley Neighborhood, house at 2548 Kings Highway, facing south.



Figure 3.78 Kingsley Neighborhood, house at 2643 Kings Highway, facing north.



Figure 3.79 Kingsley Neighborhood, house at 2440 Tyler Lane, facing east.



Figure 3.80 Kingsley Neighborhood, house at 2396 Montrose Avenue, facing south.



Figure 3.81 Kingsley Neighborhood, house at 2523 Kings Highway, facing north.



Figure 3.82 Kingsley Neighborhood, house at 2602 Taylorsville Road, facing southeast.



Figure 3.83 Kingsley Neighborhood, house at 2562 Taylorsville Road, facing south.



Figure 3.84 Kingsley Neighborhood, houses along Kings Highway west of Emerson Avenue, facing northwest.



Figure 3.85 Kingsley Neighborhood, intersection with Tyler Lane, facing east.



Figure 3.86 Kingsley Neighborhood, park at Kings Highway and Gladstone Avenue, facing south



Figure 3.87 Kingsley Neighborhood, Kings Highway, facing east.



Figure 3.88 Kingsley Neighborhood, park at Gladstone and Montrose Avenues, facing south.

3.9 Seneca Village Neighborhood

Property Type: Post-War Suburb

Period of Significance: 1947 – 1954

Architecture: Minimal Traditional

General Integrity: High

NRHP Status: Eligible (Criteria A and C)

Safety Program Effect: No Adverse Effect¹⁰

History, Architecture, and Landscape

The Seneca Village neighborhood was platted in 1929 by W. C. Coleman's Dingle View Land Company. The neighborhood is bounded roughly by Kent Road on the east, Taylorsville Road on the north, Carson Way on the west, and Ribble Road to the south (see Figure 3.1). Though platted in 1929 (Figure 3.89), PVA data and aerial photographs indicate this neighborhood did not begin development until after 1946 and then it apparently developed rapidly, as all lots are built out in a 1951 aerial photo (Figures 3.2 and 3.5). At present, it contains a total of 64 residential buildings. Selected historic aerial photographs are provided in Figures 3.4 through 3.8. Current neighborhood photographs and year built data are provided in Figures 1.6 and 3.2. Supplemental data for the neighborhood is presented in Appendix G.

In 1948, the City of Louisville began the process of annexing neighborhoods, including several along its eastern fringe. Seneca Village, which had recently become a sixth-class city, filed suit in 1949 (*LCJ*, August 21, 1949) and had even proposed annexing the new Seneca Village No. 2 neighborhood, which was in the process of being developed by the Lupino Realty Company. Ultimately, the City did annex the neighborhood, and at an unknown date, Seneca Village dropped its sixth-class city status.

The built environment of the neighborhood consists of a solid Minimal Traditional theme, with no additional architectural types or styles (Figures 3.90 through 3.94). All of the homes feature narrow or non-existing eaves at the roofline and the homes were apparently built from a set of four or five patterns. Some patterns feature a prominent front gable (3013 Kent Road); some have no gable (3026 Carson Way); some have a gable-end chimney (3034 Carson Way); and others have a front chimney (3418 Seneca Blvd) (see Appendix G). On the whole, the district has been subject to very few incompatible alterations, either to individual homes or with infill development. Some windows and doors have been altered, and some front-facing gables have been patterned with vinyl filling. However, this does not detract from the overall house style/type patterning of the neighborhood. The only non-historic home in the neighborhood (3004 Kent Road, constructed in 2003) and is a design sympathetic to the style, size, and setback of the surrounding historic homes.

As to the neighborhood layout (Figures 3.94 through 3.97), the 74 neighborhood lots are generally fifty feet in width and 125 feet in depth. Each block of houses has a central public utility easement, and required building setbacks of 25 feet. The roads have a uniform width of 60 feet. The neighborhood was also originally designed with and retains its sidewalks. A few of the original lots were never purchased for residential building; rather, the airport purchased 11 lots along Taylorsville Road (see Figure 1.6 and 3.2). In a review of historic aerial photographs dating from 1946 to the present, it appears the airport has historically maintained these lots free of vegetation except for mown grass.

NRHP Evaluation

The Seneca Village Neighborhood is eligible for the NRHP under Criteria A (community planning and development) and C (architecture and design) at the local level of significance. Originally platted in 1929, it did not develop until immediately after World War II, and then built out rapidly in response to the post-war housing needs of Louisville. All of the historic homes were built between 1947 and 1954. The neighborhood is also a collection mid-twentieth century architecture and retains a high degree of architectural integrity. In general, the overall form of homes has not been altered. Though some individual character-defining features

¹⁰ FAA identified certain inconsistencies within the text and those have been revised

of individual homes (windows and doors) have been replaced, the alterations are not such as to detract from the neighborhood's overall character, and other features such as dormers, front-facing gables, porches and hoods, and chimneys, are still intact. It also retains design integrity in terms of sidewalks, setbacks, lot size, and circulation. The recommended NRHP boundary for this neighborhood conforms to the legally platted subdivision bounds (see Figure 3.1), containing approximately 14 acres.

Safety Program Effects

An inventory of trees around Bowman Field for the Safety Program (Beechwood Trees & Gardens, Inc. 2014) indicates the most predominant species in the Runway 33 APE include Pear, Hackberry, Maple, and Dogwood, along with other low-canopy and ornamental type trees typically planted by property-owners. A lesser percentage of plantings in the neighborhood appear to have developed organically (e.g., along fence rows) or in "unmanaged areas" and represent the taller growing variety (Beechwood Trees & Gardens, Inc. 2014). This pattern was observed during the architectural field survey.

At present, there are four parcels within this neighborhood that have existing avigation easements (see Figure 1.6). An additional 23 parcels will require easements to meet the FAA's requirements of safe operating airspace within the TERPS surface approach areas for Runway 33. As noted, the airport purchased lots in Seneca Village early in its development; these lots are adjacent to Taylorsville Road and are maintained by the airport as green space. Based on a review of historic photographs and other materials, this neighborhood did not appear to be developed with a design specific to vegetation. Landscape design elements of the original platting and build out included sidewalks, setbacks, uniform spacing between houses, and general roadway circulation. Plantings in the neighborhood appear to have developed organically or by individual property owners over time. Neither the type nor overall height of the trees is considered to be a contributing element of the neighborhood. Therefore, tree replacement or trimming as proposed in Section 1.1.1 would be consistent with the existing composition of the neighborhood and is not considered an adverse effect.



Figure 3.90 Seneca Village, house at 3023 Carson Way, facing northeast.



Figure 3.91 Seneca Village, house at 3013 Kent Road, facing northeast.



Figure 3.92 Seneca Village, house at 3009 Kent Road, facing east.



Figure 3.93 Seneca Village, house at 3016 Seneca Boulevard, facing southwest.



Figure 3.94 Seneca Village, houses along Seneca Boulevard, facing south.



Figure 3.95 Seneca Village, houses along Carson Way, facing northeast.



Figure 3.96 Seneca Village, Seneca Boulevard at intersection with Ribble Road, facing northwest.



Figure 3.97 Seneca Village, Kent Road at intersection with Ribble Road, facing north toward Runway 33.

3.10 Seneca Village No. 2 Neighborhood

Property Type: Post-War Suburb

Period of Significance: 1951-1960

Architecture: Pre-Fabricated Housing; Multi-family Housing

General Integrity: Moderate

NRHP Status: Eligible (Criteria A and C)

Safety Program Effect: No Adverse Effect¹¹

History, Landscape and Architecture

Seneca Village No. 2 (see Figure 3.1) was platted and developed by Edward W. Archer's Lupino Realty Company of Louisville. The original plat dates to 1948 with revisions in 1950 and 1951. Of note, the original 1948 plat for Seneca Village No. 2 laid out approximately 158 lots; the revised 1951 plat (Figure 3.98) allowed for 285 lots. Subsequent revisions proposed an extension south of Gardiner Lane between Bon Air and Doreen Way. Construction of the Watterson Expressway halted that development and it was eventually re-platted as a separate subdivision, south of the Watterson Expressway (Louisville CDC 1979: 137). The present-day Seneca Village No. 2 follows the plan expressed in the 1951 revised plat. By 1951, the neighborhood's roads had been surveyed and partially graded at that time, but no houses had been constructed. By 1955, however, approximately three-quarters of the lots had been developed. The apartment buildings on the northeastern quadrant were not yet underway but were completed by 1959. Historic aerial photographs are provided in Figures 3.4 through 3.8. Current neighborhood photographs and year built data are provided in Figures 1.6 and 3.2. Supplemental data for the neighborhood is presented in Appendix H.

By and large, the neighborhood consists of pre-fabricated Gunnison housing, with a limited number of styles and floor plans (Figures 3.99 through 3.106). Pre-fabricated housing such as these were mass-produced, affordable, and provided "new avenues of home ownership" for an expanding national population. Produced by manufacturers such as Gunnison Homes (New Albany, Indiana), National Homes (Lafayette, Indiana) and the Lustron Corporation (Columbus, Ohio) among others, the homes were essentially packaged "kits" and were constructed of plywood, steel, and wood (Johnson and Kennedy 2006: 5-6; also Brother et al. 2014: 208-220). Neighborhoods using this type home were constructed in rapid fashion by builder-developers, as evidenced by the historical aerial photographs of Seneca Village No. 2.

The houses along Joan Avenue and Betty Lane feature brick siding (partial or whole) and somewhat larger lots. In general, the homes have a Cape Cod form, with a rectangular footprint and steeply pitched roofs allowing for an additional half-story of living space (see Figures 3.99 and 3.100, 3.108 and 3.109). Some of the houses still retain their original metal-framed windows; many however have replacement vinyl windows. Houses along Alanmede Road, Wendell Avenue, and Gardiner Lane feature a somewhat broader stylistic variety, though they still utilize a limited number of house patterns (see Figures 3.101 through 3.106, and Figures 3.113 and 3.114). Some utilize the half-story form mentioned above, but have lesser amounts of brick detailing. Many have original aluminum siding, though some include replacement vinyl siding. While the vast majority feature a horizontal street-facing footprint, there are a few examples of L-shaped designs (2641 Gardiner; Figure 3.104).

There is also a cluster of eight apartment buildings (Figure 3.107) present on the northeastern quadrant of the neighborhood, facing Taylorsville Road. The condominiums were constructed as part of the original development but reverted to another manager in the 1970s and became known as "Bowman Manor Condominiums." These are four-sided brick buildings with four units each. Two units each share a covered stoop and entry; some original metal-framed two-over-two windows remain while others have been replaced with a modern vinyl variety. The roofs are gable-on-hip. The neighborhood also features concrete sidewalks and utility easements in the center of the blocks. The neighborhood features regularly spaced lots, averaging about 135 feet deep and 51 feet wide with a uniform setback of 30 feet. Figures 3.108 through 3.114 provide landscape views of Seneca Village No. 2.

¹¹ FAA identified certain inconsistencies within the text and those have been revised

The neighborhood has been subject to one major alteration. Specifically, 31 of the houses along Gardiner Lane were demolished for the widening of Watterson Expressway in the late 1980s and a sound barrier wall was constructed along the right-of-way (Figures 3.2 and 3.115). This strip is currently owned by the Commonwealth of Kentucky and is generally composed of mown grass.

NRHP Evaluation

The proposed Seneca Village No. 2 historic district is eligible for the NRHP under Criteria A (community planning and development) and C (architecture and design) at the local level of significance. The neighborhood was platted during the post-World War II housing boom and developed rapidly between 1951 and 1959 in response to housing needs for the City of Louisville. The neighborhood is also representative of a particular type of development that utilized a new form of mass produced pre-fabricated housing. The district retains a moderate level of architectural and design integrity. Some character-defining features of individual homes (windows and doors) have been replaced, along with siding alterations. Other features such as dormers, porches and hoods, and dual-siding are still intact. In general, the overall form of homes has been minimally altered. In addition, the district retains sidewalks, setbacks, lot size, and circulation. The tree-lined streets, particularly along Alanmede Road and Wendell Avenue (Figure 3.112) consist of low canopy Bradford Pear trees. According to one neighborhood resident, these were planted about 1990. The proposed NRHP boundary for the neighborhood consists of its legally platted boundary (see Figure 3.1), and consists of approximately 63 acres.

Safety Program Effects

An inventory of trees around Bowman Field for the Safety Program (Beechwood Trees & Gardens, Inc. 2014) indicates the most predominant species in the Runway 33 APE include Pear, Hackberry, Maple, and Dogwood, along with other low-canopy and ornamental type trees typically planted by property-owners. A lesser percentage of plantings in the neighborhood appear to have developed organically (e.g., along fence rows) or in “unmanaged areas” and represent the taller growing variety (Beechwood Trees & Gardens, Inc. 2014). This pattern was observed during the architectural field survey.

At present, there no parcels within this neighborhood have existing avigation easements. However, nine parcels will require easements to meet the FAA’s requirements of safe operating airspace within the TERPS surface approach areas for Runway 33 (see Figure 1.6). Based on a review of historic photographs and other materials, this neighborhood did not appear to be developed with a design specific to vegetation. Landscape design elements of the original platting and build out included sidewalks, setbacks, uniform spacing between houses, and general roadway circulation. The only existing vegetation design “element” is the tree lined streets, Alanmede Road and Wendell Avenue in particular, but these Bradford Pear trees were planted circa 1990. These are existing low canopy trees and are not proposed for the Safety Program’s mitigation alternatives. From a historical analysis, neither the type nor overall height of the trees is considered to be a contributing element of the neighborhood. Therefore, tree replacement or trimming as proposed in Section 1.1.1 would be consistent with the existing composition of the neighborhood and is not considered an adverse effect.



Figure 3.98 Seneca Village No. 2 plat, dated 1951 (Jefferson County plat book 10, page 93).



Figure 3.99 Seneca Village No. 2, house at 3020 Joan Avenue, facing southwest.



Figure 3.100 Seneca Village No. 2, house at 3012 Joan Avenue, facing southwest.



Figure 3.101 Seneca Village No. 2, house at 2726 Alanmede Road, facing south.



Figure 3.102 Seneca Village No. 2, house at 2711 Gardiner Lane, facing north.



Figure 3.103 Seneca Village No. 2, house at 2643 Wendell Avenue, facing north.



Figure 3.104 Seneca Village No. 2, house at 2641 Gardiner Lane, facing north.



Figure 3.105 Seneca Village No. 2, house at 2712 Wendell Avenue, facing southeast.



Figure 3.106 Seneca Village No. 2, house at 2720 Wendell Avenue, facing southeast.



Figure 3.107 Seneca Village No. 2, Bowman Manor Condominiums.



Figure 3.108 Seneca Village No. 2, Joan Avenue at Betty Lane, facing northeast.



Figure 3.109 Seneca Village No. 2, Joan Avenue facing northwest from intersection with Gardiner Lane.



Figure 3.110 Seneca Village No. 2, Alanmede Road at Betty Lane, facing northwest. Property at 3008 Betty Lane (photo center) requires easement.



Figure 3.111 Seneca Village No. 2, Alanmede Road at Carson Way, facing northeast.



Figure 3.112 Seneca Village No. 2, Wendell Avenue at Bon Air Avenue, facing northeast.



Figure 3.113 Seneca Village No. 2, Wendell Avenue at house number 2629, facing southwest, showing homes.



Figure 3.114 Seneca Village No. 2, house at 2712 Wendell Avenue (center photo) showing proposed tree for replacement.



Figure 3.115 Seneca Village No. 2, Gardiner Lane near intersection with Carson Way, showing empty lots on south side of street (houses demolished for Watterson Expressway widening).

3.11 Outparcels

During the field survey, five individual properties were identified (see Figure 3.1; Figures 3.116 through 3.120) that fell within the APE but were not constructed as part of one of the adjoining neighborhoods. These five properties are located north and east of the intersection of Taylorsville Road and Gladstone Avenue. While the properties fall within the Safety Program APE, there are no mitigation efforts proposed on any of these five parcels. They will not be affected by the Safety Program.

The property at 2615 Taylorsville Road (Figure 3.116) is a small one-story circa 1950s office building. It is constructed on a poured concrete foundation with load bearing brick walls and features a side-gable roofline. The exterior cladding is narrow bonded brick and the windows are replacement wood framed set in a long horizontal sill. The front door is a replacement with vertical sidelights, and the building features a simple concrete entry stoop. The building was constructed on an outparcel along the Taylorsville commercial corridor and not as part of one of the surrounding neighborhoods. It features simplistic detailing typical of the 1950s, and retains a moderate degree of integrity due to the window modifications on the façade. Archival research did not reveal any significant historical associations and the building does not possess significant architectural merit. It does not qualify for listing in the NRHP.

The properties at 2605, 2609, and 2613 Taylorsville Road are circa 1960s multi-family residential buildings (Figures 3.117 through 3.119). All three are two-story quadplexes constructed with similar floorplans and detailing, with minor variations in windows and brick color. Both 2609 and 2613 Taylorsville Road feature aluminum framed two-over-two windows (horizontal panes), while 2605 Taylorsville features larger plate-glass picture windows. Each quadplex also features a small concrete front stoop, a hipped porch hood supported by decorative iron supports. The roofs are gabled and covered in asphalt shingles. Through archival research, the buildings were not revealed to have any significant historical association and were constructed on available outparcels and not part of a broader development. While they retain their architectural integrity, they do not possess architectural significance that would qualify them for listing in the NRHP. The properties at 2605, 2609, and 2603 Taylorsville Road are not eligible for the NRHP.

The property at 2542 Gladstone Avenue (Figure 3.120) is another circa 1960s multi-family residential building constructed on what appears to have been an available outparcel. This is a larger complex, featuring an H-shaped floor plan with another detached rectangular building, and a covered garage on the rear of the property. The apartment complex is situated at the intersection with McCoy Avenue and the residential buildings measure two stories in height. Windows are horizontal two-over-two on the larger building; the smaller building features large plate glass windows set above a horizontal hopper window. The roofs are gabled and covered in asphalt shingles. The covered garage is a detached structure, featuring a pierced brick pattern. Through archival research, the apartment complex was not revealed to have any significant historical association and was constructed on an available outparcel and not part of a broader development. It does retain a high degree of architectural integrity, but is not considered to possess architectural significance that would qualify them for listing in the NRHP. The property at 2542 Gladstone Avenue is not eligible for the NRHP.



Figure 3.116 Property at 2615 Taylorsville Road.



Figure 3.117 Property at 2605 Taylorsville Road.



Figure 3.118 Property at 2609 Taylorsville Road.



Figure 3.119 Property at 2613 Taylorsville Road.



Figure 3.120 Property at 2542 Gladstone Avenue.

This page intentionally left blank.

4.0 Summary and Conclusions

Brockington and Associates, Inc. was contracted to perform a historic architectural survey for the Safety Program in support of cultural resources compliance under Section 106 of the NHPA. This Section 106 documentation will be incorporated into environmental documentation required under NEPA. The work was performed under contract to Hanson Professional Services, Inc. on behalf of the project sponsor, the Louisville Regional Airport Authority, and the lead federal agency, the Federal Aviation Administration.

Based on the nature and scope of the undertaking, the FAA defined the APE as those geographical areas within the TERPS approach surfaces. This APE contains all direct and indirect effects of the currently proposed alternatives and mitigation measures. Archival research was conducted for the APE to determine the presence of previously recorded historic properties. Only one, the NRHP listed Bowman Field Historic District, is present. The TERPS approach surface for Runway 6 clips a corner of the official Bowman Field District boundary. However, no mitigation efforts are proposed within the district and, as a result, there is no effect to this historic property.

During the weeks of August 15 and September 15, 2014, Brockington conducted a survey to identify other potential historic properties. The field survey effort resulted in the recordation of thirteen (13) architectural properties. These included two (2) golf courses, six (6) neighborhoods, and five (5) individual buildings. After evaluation of each of these properties, seven (7) are eligible for listing in the NRHP. These include the Seneca Park Golf Course and the neighborhoods of Seneca Gardens, Seneca Manor, McCoy Manor, Kingsley, Seneca Village and Seneca Village No. 2.

The Seneca Park Golf Course is NRHP eligible under Criterion A for historical associations with the New Deal's Works Progress Administration. Because it no longer possesses sufficient design integrity to qualify as a historic landscape, the proposed Safety Program mitigation efforts will not have an adverse effect on this property. The six individual neighborhoods that are eligible all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on the archival research and field assessment, it does not appear that the proposed mitigation alternatives (see Section 1.1.1) will adversely affect key character-defining features that qualify these neighborhoods for listing.

The remaining six (6) architectural properties (Big Spring Country Club and five outparcels on Taylorsville Road and Gladstone Avenue) are not eligible for the NRHP. Therefore, no additional management considerations are required.

This page intentionally left blank.

References Cited

Beechwood Trees and Gardens, Inc.

2014 *Inventory of Trees Around Bowman Field*. Prepared for Hanson Engineering Beers and Lanagan

1879 *Atlas of Jefferson and Oldham Counties, Kentucky*. Beers and Lanagan, Philadelphia, Pennsylvania.

Big Spring Golf Club

1926 "Prospectus of the Big Spring Golf Club." On file at the Big Spring Country Club, Louisville, Kentucky.

Big Spring Country Club

2014 "The Club." Internet online at <http://www.bigspringcc.com/The-Club.aspx>. Available from August 27, 2014.

Blue Golf

2014 Course layouts for Big Spring Golf Course and Seneca Park Golf Course. Available at bluegolf.com.

Bowman Aero Company

1928 *Aerial Survey of Louisville, Kentucky*. Survey on file at the Louisville City Archives, Louisville, Kentucky.

Brother, Janie-Rice, Jennifer Ryall, and Jay Stottman

2014 *They Came, They Saw, They Bought!: The Twentieth Century Housing Boom in Louisville, Kentucky, 1920-1970*. Prepared for the Louisville Metro Department of Planning and Design Services, Louisville, Kentucky by the Kentucky Archaeological Survey, Lexington, Kentucky.

Greenwell, Kevin (PGA Professional at Seneca Park Golf Course)

2014 Personal Communication. August 19, 2014.

Kennedy, Rachel and Cynthia Johnson

2005 *The New Deal Builds: A Historic Context of the New Deal in East Kentucky, 1933-1943*. Prepared by the Kentucky Heritage Council, State Historic Preservation Office, Frankfort, Kentucky. Internet online at <http://heritage.ky.gov/nr/rdonlyres/f142a86e-19c0-4ffd-8097-09474f37c9ef/0/newdealbuilds.pdf>.

Kramer, Carl, Patricia A. Clare, Ronald D. Factor, and Patricia Zimmerman

1988 *Louisville's Olmsteadian Legacy: An Interpretative Analysis and Documentary Inventory*. Published by the Louisville Friends of Olmstead Parks, Louisville, Kentucky.

Johnson, Cynthia E. and Rachel Kennedy

2006 *House in a Box: Prefabricated Housing in the Jackson Purchase Cultural Landscape Region, 1900-1960*. Publication sponsored by the Kentucky Transportation Cabinet in cooperation with the Kentucky Heritage Council, State Historic Preservation Office, Frankfort Kentucky. Internet online at: <http://heritage.ky.gov/nr/rdonlyres/69811bb7-b64c-43e7-ac2b-c7a83390e09d/0/houseinabox.pdf>.

Louisville Community Development Cabinet (LCDC)

1979 *Louisville Survey, East Report*. Prepared by the City of Louisville Community Development Cabinet, Louisville, Kentucky. Document on file with the Louisville Metro Planning and Design Department.

Louisville-Courier Journal (LCJ)

1949 "Seneca Village Sues to Keep Independence." August 21 edition.

Louisville Title Company

1913 *New Map of Louisville and Jefferson County, Kentucky*. Compiled by the Louisville Title Company, Louisville, Kentucky.

Mendik, Kevin R.

2007 *The Challenges of Restoring a Classic American Golf Course*. Paper originally presented at "Preserve and Play: Preserving Historic Recreation and Entertainment Sites," Chicago, Illinois, May 2005. Internet online at: <http://www.golfclubatlas.com/in-my-opinion/kevin-mendik-challenges-of-restoring-a-classic-american-golf-course/>

National Register of Historic Places (NRHP)

1988 Bowman Field Historic District, Jefferson County, Kentucky, National Register #88002616.

National Park Service (NPS)

1997 *How to Apply the National Register Criteria for Evaluation*. National Register Bulletin 15. US Department of the Interior, National Park Service, Interagency Resources Division, Washington, DC.

O'Donnell, E.

1998 *Researching a Historic Property*. National Register Bulletin 39. US Department of the Interior, National Park Service, Interagency Division, Washington, DC.

Park Aerial Surveys, Inc.

1946 Aerial Survey of Louisville, Kentucky prepared for the Louisville Area Development Association, and Louisville and Jefferson County Planning and Zoning Commission. On file at the Louisville City Archives, Louisville, Kentucky.

1951 Aerial Survey of Louisville, Kentucky prepared for the Louisville Chamber of Commerce, and Louisville and Jefferson County Planning and Zoning Commission. On file at the Louisville City Archives, Louisville, Kentucky.

Parker, Patricia L.

1985 *Guidelines for Local Surveys: A Basis for Preservation Planning*. National Register Bulletin 24. US Department of the Interior, National Park Service, Interagency Resources Division, Washington, DC.

Rogers, Bob (Big Spring Golf Course Superintendent)

2014 Personal Communication, August 18, 2014.

Sanborn Map Company

1961 *Insurance Maps of Louisville, Kentucky: Volume Nine*. Updated from 1928 edition. Prepared by the Sanborn Map Company, New York. On file at the Louisville City Archives, Louisville Kentucky.

Sanders, Thomas N. (editor)

2006 *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports*. Issued by the Kentucky State Historic Preservation Office, Kentucky Heritage Council, Frankfort, Kentucky.

Savage, Beth L., and Sarah Dillard Pope

1998 *National Register Bulletin: How to Apply the National Register Criteria for Evaluation*. US Department of Interior, National Park Service, Interagency Resources Division, Washington, DC.

Seneca Golf Course

1950 The 25th Amateur Public Links Championship of the United States Golf Association: Seneca Golf Course, Louisville, Kentucky. Program on file at the Seneca Golf Course, Louisville.

Sherfy, M., and W.R. Luce

1996 *Guidelines for Evaluating and Nominating Properties that Have Achieved Significance Within the Past Fifty Years*. National Register Bulletin 22. US Department of the Interior, National Park Service, Interagency Resources Division, Washington, DC.

Smead, Susan E. and Marc C. Wagner

2000 Assessing Golf Courses as Cultural Resources. *Cultural Resources Magazine*, Volume 10 (2000): 16-21.

Townsend, Jan, John H. Sprinkle Jr., and John Knoerl

1993 *National Register Bulletin 36: Guidelines for Evaluating and Registering Historical Archaeological Sites and Districts*. US Department of the Interior, National Park Service, Interagency Resources Division, Washington, DC.

U.S. Geological Survey (USGS)

1955 Aerial Survey, Louisville, Kentucky dated February 15, 1955, Sheet 3-42. Available at <http://earthexplorer.usgs.gov/>.

1959 Aerial Survey, Louisville, Kentucky dated April 4, 1959, Sheet 2-24. Available at <http://earthexplorer.usgs.gov/>.

1971 Aerial Survey, Louisville, Kentucky March 31, 1971, Sheet 1-217. Available at <http://earthexplorer.usgs.gov/>.

Appendix A: Resume of the Principal Author

PATRICIA STALLINGS

PROGRAM MANAGER/SENIOR HISTORIAN

EDUCATION/WORKSHOPS

B.A. in History (1997), North Georgia College
M.A. in History (2002), University of Georgia
Preservation Studies Certificate (2002), University of Georgia
Advanced Section 106 Seminar, Kansas City, Missouri (2008)
Mid-Twentieth Century Architecture Seminar, Atlanta, Georgia (2009)
Applying the NEPA Process, Norcross, Georgia (2009)
Institute for Georgia Environmental Leadership (2009)
Renewable Energy Development: Impacts to Cultural Resources, Austin, TX (2012)

AREAS OF SPECIALIZATION

Archival Research
Narrative History Preparation
Architectural Documentation and Evaluation
Southern U.S. Agricultural History
Environmental History
Military History
Hydropower History

PROFESSIONAL AND COMMITTEE MEMBERSHIPS

Southern Historical Association
Agricultural History Society
Company of Military Historians
Georgia Historical Society
Board of Directors, Barrow Preservation Society (2009-present)
Historic Preservation Commission, City of Winder, Georgia, (2010-present)

PROFESSIONAL POSITION

Brockington and Associates, Inc.: History Program Manager, Senior Historian, Senior Architectural Historian (2002-present)
Shields-Ethridge Heritage Farm: Volunteer Interpreter/Guide (1998-2002)

RECENT PROJECTS, PUBLICATIONS, PRESENTATIONS AND EXPERIENCE

- 2014 Principal Investigator, *Historic Properties Management Plan for the Yadkin-Pee Dee Hydroelectric Project (FERC #2206), Anson, Montgomery, Richmond and Stanly Counties, North Carolina*. Prepared for Duke Energy Carolinas, LLC (in progress).
- 2014 Principal Investigator, *Architectural Inventory of Fort Rucker, Alabama*. Prepared for Fort Rucker and the U.S. Army Corps of Engineers, Mobile District.
- 2014 Principal Investigator, *Section 110 Cultural Resources Study of Three U.S. Army Reserve Centers in Minnesota and Section 110 Cultural Resources Study of the LA008/ Creston Memorial USARC in Union County, Iowa*. Prepared for the 88th Regional Support Command and the U.S. Army Corps of Engineers, Mobile District.

- 2013 Principal Investigator, Independent Consulting and Review of the *Historic Properties Management Plan for the Keowee-Toxaway Hydroelectric Development, Oconee and Pickens Counties, South Carolina (FERC #2503)*. Prepared for Duke Energy Carolinas, LLC.
- 2013 Principal Investigator, *Architectural Survey of Five USARCs in Florida, Louisiana, Mississippi, North Carolina and South Carolina*. Prepared for the 81st Regional Support Command, Fort Jackson, South Carolina, and the U.S. Army Corps of Engineers, Mobile District.
- 2013 Senior Historian, *Archaeological Data Recovery at Mitchelville (38BU2301), Hilton Head Island Airport Improvements Study Area, Beaufort County, South Carolina*. Prepared for Talbert, Bright and Ellington, Inc. and Beaufort County, South Carolina.
- 2013 Co-Author, *The US Army Engineering and Support Center, Huntsville, Captured Enemy Ammunition and Coalition Munitions Clearance Mission, 2003-2008*. Prepared for the U.S. Army Engineering and Support Center, Huntsville.
- 2013 Senior Historian, *Cultural Resources Survey of the New Savannah Bluff Lock and Dam Fish Passage Tract, Aiken County, South Carolina and Richmond County, Georgia*. Prepared for Tetra Tech, Inc. and the U.S. Army Corps of Engineers, Savannah District.
- 2012 Author, *History of the Southeastern Power Administration, 1990-2010*. Prepared for the U.S. Department of Energy and the Southeastern Power Administration.
- 2012 Principal Investigator, *NRHP Evaluation of the Keowee-Toxaway Hydroelectric Development, Oconee and Pickens Counties, South Carolina (FERC #2503)*. Prepared for Duke Energy Carolinas, LLC.
- 2012 Principal Investigator, *Historic Properties Management Plan for the York Haven Hydroelectric Project (FERC No. 1888), York, Dauphin, and Lancaster Counties, Pennsylvania*. Prepared for the York Haven Power Company, LLC.
- 2012 Principal Investigator, *Mitigation for the Closure of Fort McPherson and Fort Gillem*, Prepared with Parsons Corporation for the U.S. Department of the Army and the U.S. Army Corps of Engineers, Mobile District.
- 2012 Co-Author, *History of the U.S. Army Corps of Engineers, South Atlantic Division, 1945-2012*. Prepared for the U.S. Army Corps of Engineers, South Atlantic Division and Mobile District.
- 2011 Principal Investigator, *Mitigation for the Charles E. Kelly Support Facility*, Allegheny County, Pennsylvania. Prepared with Parsons Corporation for the C.E. Kelly Support Facility and the U.S. Army Corps of Engineers, Mobile District.
- 2011 with Scott Butler
Cultural Resources Survey of the Sullivan's Island Elementary School Tract, Charleston County, South Carolina. Prepared for Cummings and McCrady, Inc. and the Charleston County School District.
- 2011 Principal Investigator, *Cultural Resources Evaluation of the Proposed SR43 Alternatives, Hancock and Pearl River Counties, Mississippi*. Prepared for ABMB, Inc. and the Mississippi Department of Transportation (multi-phase project, ongoing).
- 2011 Principal Investigator, *Cultural Resources Assessments of five U.S. Army Reserve Centers in the States of Vermont, Pennsylvania, and West Virginia*. Prepared for Ageiss, Inc., the 99th Regional Support Command, and the U.S. Army Corps of Engineers, Mobile District.
- 2011 Principal Investigator, *Architectural Survey of 28 US Army Reserve Centers in the States of Oklahoma, Texas, Arkansas and New Mexico*. Prepared for the US Army Corps of Engineers, Mobile District and the 63rd Regional Support Command.
- 2011 Principal Investigator, *Architectural Survey and Inventory of the Newport Chemical Depot, Vermillion County, Indiana*. Prepared for the U.S. Army Corps of Engineers, Mobile District and the Newport Chemical Depot.
- 2011 Principal Investigator, *Cultural Resources Study of the York Haven Hydroelectric Project (FERC No. 1888), York, Dauphin, and Lancaster Counties, Pennsylvania*. Prepared for the York Haven Power Company, LLC.
- 2010 *Archival and Photographic Documentation of the Former Clarksville Base Nuclear Storage Site, Fort Campbell, Kentucky*. Prepared for the US Army Corps of Engineers, Louisville District and the Department of the Army, Fort Campbell, Kentucky.
- 2010 *Integrated Cultural Resources Management Plan of the Anniston Army Depot, Calhoun County, Alabama. Update 2010-2015*. Prepared for the Anniston Army Depot and the U.S. Army Corps of Engineers, Mobile District.

- 2010 “Point Peter and Georgia’s Forgotten Role in the War of 1812.” Presentation for the Society for Historical Archaeology Annual Conference. Amelia Island, Florida, January 2010.
- 2010 *Cultural Resources Assessment for Base Realignment and Closure Actions (BRAC) at the Camp Kilmer U.S. Army Reserve Center in Edison, New Jersey.* Prepared for Ageiss, Inc. and the 99th Regional Support Command, Fort Dix, New Jersey.
- 2010 *Cultural Resources Assessment for Base Realignment and Closure Actions (BRAC) at the North Penn U.S. Army Reserve Center in Norristown, Pennsylvania.* Prepared for Ageiss, Inc. and the 99th Regional Support Command, Fort Dix, New Jersey.
- 2009 Co-Author, *One Door to the Corps: Historical Update of the U.S. Army Engineering and Support Center, Huntsville, 1998-2007.* Prepared for the U.S. Army Engineering and Support Center, Huntsville.
- 2009 “From Shermans to Strykers: The Historical Narrative as Creative Mitigation.” Presentation for the Sustaining Military Readiness Conference. Phoenix, Arizona, August 2009.

Appendix B: Louisville Survey East



LOUISVILLE SURVEY EAST REPORT

CITY OF LOUISVILLE
COMMUNITY DEVELOPMENT CABINET

OCTOBER 1979

LOUISVILLE SURVEY EAST

CITY OF LOUISVILLE

WILLIAM B. STANSBURY, MAYOR

WILLIAM B. GATEWOOD, DIRECTOR

COMMUNITY DEVELOPMENT CABINET

HELEN ABELL, CHAIRMAN

HISTORIC LANDMARKS AND PRESERVATION DISTRICTS COMMISSION

MAY 1980

PROJECT MANAGER - ANN HASSETT

PROJECT DIRECTOR - MARTY POYNTER HEDGEPEETH

SURVEYOR & PHOTOGRAPHER - MARK S. NOLAND

HISTORIAN - CARL E. KRAMER

CARTOGRAPHY - WALTER R. KING, MARTY HEDGEPEETH,

HUGH FOSHEE, M. A. ALLGEIER

EDITING - M. A. ALLGEIER

DRAWINGS - JANICE KELLY

CLERICAL - DENISE HARTFUL

TABLE OF CONTENTS

Letter from the Mayor	v
Foreword	vii
Acknowledgements	ix
Introduction	1
Location of Work Products	4
Results and Recommendations	9
National Register of Historic Places and Local Landmarks	12
Potential of Neighborhood Revitalization Program	15
Survey Process	17
History - A History of Eastern Louisville, by Carl E. Kramer	35
Chapter I - The Formative Years	37
Land Grants	37, 38
Beargrass Creek Stations	38, 39
Ante-Bellum Houses:	
Hayfield	40
Hikes Houses	40
Spring Station	40, 41
Farmington	41
Howard-Gettys House	41
Selema Hall	42
Fair View	42
Beechland	42
Turnpikes:	
Louisville & Bardstown	43
Louisville & Taylorsville	44
Shelbyville & Louisville	44
Jefferson & Brownsboro	44
Louisville & Frankfort RR	45
Cave Hill Cemetery & Eastern Cemetery	46
1853 State Fair	47
Kentucky School for the Blind	47
Louisville Water Company Pumping Station	47
Highland Neighborhood	48
Irish Hill Neighborhood	48
Finzer House	48
1854 Annexation	49
Civil War	49, 50
Chapter II - Urban Parks & Streetcar Suburbs	51
Street Cars	51, 52
Building & Loan Associations	53
Development of the Park System	53, 54
Clifton Neighborhood	54-56
Crescent Hill Reservoir	56, 57
Crescent Hill Neighborhood	57-63
Fairview	57, 60
Eastover	60, 61
Peterson-Dumesnil House	62
Emmett Field House	62

Spring Station Subdivision	108
Population Distribution.	108, 109
Bardstown Road	109-112
Schuster Building.	110
Churches	110
German Protestant Orphans Home	111
Bonnycastle Loop	111
Douglass Loop.	111
Chapter IV - The Metropolitan Explosion	113
Soaring Birth Rate	113, 114
Policies & Actions of Local Agencies	114, 115
Expansion of Utilities	115
Local Transportation Network	116
Louisville Area Development Association.	116
Expressway Projects.	116-123
Save Our Parks Committee	120
Subsequent Commercial Development.	123
Suburbanization of Industry.	124
General Electric	124, 125
Bluegrass Research and Industrial Park	125
Ford Motor Co.	125
St. Regis Park	125
Annexation and Incorporation	126, 127, 142-146
Population Decline	127, 128
Rock Creek	130
Bowman Field Area.	131
Cherokee Park Area	131
Louisville Presbyterian Theological Seminary	132
Hayfield-Dundee.	132
Atherton High School	133, 134
Watterson City	135, 136
Louisville Protestant Orphans Home	136
Green Meadows.	136
Bon Air.	137-139
Midlane Park - Klondike.	139
Avondale	140
Meadowview Estates	140
Hikes Point.	141, 142
St. Matthew's Annexation	143-145
General Electric Annexation.	145-146
Neighborhood Association Movement.	147
Highland Community Ministries	147, 148
Chapter V - Winds of Terror & Change.	149
Tornado of April 3, 1974.	149-153
Hardest Hit Areas.	154
Down Zoning.	154, 155
Neighborhood Development Office.	155
Louisville Inter-Neighborhood Coalition.	155
Park Devestation	156, 157

Highlands Commerce Guild.	157
Louisville Community Design Center.	157, 158
Footnotes.	159
Bibliography	177
Appendix.	185
Survey Form I.	187
Survey Form II	189
Large Map Locations.	191
Recommendations Map.	193
Subdivision Map.	195
Annexation Map	197
Subdivision Index.	199



WILLIAM B. STANSBURY
MAYOR

City of Louisville Kentucky

Office of the Mayor

May 1980
116.7AH

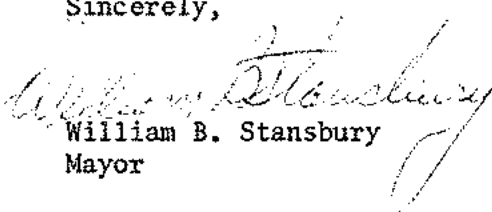
Dear Louisvillian:

The Louisville Survey East is the result of more than a year of field work and research by persons under contract to the City's Landmarks Commission and under the guidance of Landmarks Commission staff. The survey is the last of three to be completed serially with Housing and Community Development Act funds. Louisville Survey West was completed in April 1977 under a contract with Preservation Alliance, and Louisville Survey Central and South was completed in May 1978 by staff of the Landmarks Commission. Now that the last report has been completed, every blockface in the entire city has been surveyed, photographed, and evaluated as to environmental quality, general condition, and architectural quality regardless of age.

The Louisville Survey will be used for citywide and small area planning and land use decisions made by both public agencies and by individual neighborhoods. It is the most intense geographically comprehensive look we have ever taken at our building stock, and it will be invaluable as an element of decisionmaking.

We believe we have taken the first step toward participation in development of what could well become a national conservation and reinvestment strategy for the built environment, made imperative by rising costs of construction; scarcity of adequate housing, and depletion of the natural environment. The City of Louisville is proud to have been able to make the Louisville Survey possible.

Sincerely,


William B. Stansbury
Mayor

WBS/brb

FOREWORD

The Housing and Community Development Act (HCDA) of 1974 eliminated several federal categorical grant programs in favor of a block grant to eligible local governments to spend, within the context of the Act, to meet local needs. Guidelines required expenditure decisions to be made with the participation of citizens and in light of their views.

To help decide how to spend its first-year entitlement of \$8.6 million and to begin to formulate longer-term plans for similar entitlements in subsequent years, the City of Louisville established the Community Development Task Force in late 1974. The task force was composed of the combined memberships of a number of committees, each formed to reflect a goal specified in the HCDA. Heads of the most closely related departments of city government generally acted as committee organizers and chairmen. Thus, to me was delivered the challenge of chairing the Restoration and Preservation Committee, still active as the Preservation/Conservation Advisory Committee.

There was little time to organize before committee deliberations were to begin. Of necessity, the task fell primarily to those from both the public and the private sectors who were already working full time in related disciplines--preservation and rehabilitation administration, architecture, architectural history, planning, neighborhood organization, and housing rehabilitation. It will never be possible to thank adequately those who turned many hours of their time, their nearly boundless energy, and (thank heavens) their exceptionally fertile minds to the work that was necessary.

The task force was asked to devise a detailed game plan for the first year's expenditure and a broader-brush plan for the five following years. The process consumed several weeks rather than the expected several days; it was a grueling experience. Nonetheless, I believe it to have been the fulcrum for forging a powerful and effective, if occasionally surprising, coalition in favor of sound urban planning, strengthening of neighborhoods, and careful husbandry of our resources.

Since housing rehabilitation was clearly the principal thrust of the HCDA, pure preservation activities, although specifically eligible under the Act, were seen to be corollary to housing. It was not at all difficult, however, to put "preservation of our historic resources" on the back burner and relate, instead, to "conservation of our existing housing stock." Louisville's housing stock is, after all, mostly Victorian and, therefore, of natural interest to the preservationist. Having witnessed the excesses of Urban Renewal, it seemed imperative to maximize rehabilitation and minimize demolition--to shore up the housing stock of value, old or new, without destroying its character, and to demolish only that which is truly unsalvageable.

Discovering full agreement as to goals, the Restoration and Preservation Committee put most of its eggs in the Housing Committee's basket and, together, won acceptance of a proposal to spend about \$4 million in HCDA money on housing rehabilitation. Almost \$300,000 of that figure was for preservation activities related to the housing program or otherwise to neighborhood revitalization.

The Louisville Survey was first proposed by the Restoration and Preservation Committee to identify structures with architectural significance or historical association sufficient to require that they be preserved. It soon became apparent, however, that an appalling lack of data about the quality and condition of Louisville's building stock, in general, required a study of much broader scope. For the proposed rehabilitation program to have a positive effect on the community, it would be necessary to identify the stock of value throughout the city, evaluate its condition, and determine its character-giving elements.

Although the original intent of the survey is also served, the project has evolved into an effort to take a look at all building stock currently standing in the community in order to assess its conservation potential. This analysis, alone, reveals assets and liabilities in bricks and mortar and begins to suggest programs for their intelligent treatment while providing a rational foundation for decisions relating to land use, urban growth, neighborhood revitalization, and housing rehabilitation.

The Louisville Survey is being compiled so that it can be useful to many agencies. It can, for instance, become integral to the updated Comprehensive Land Use Plan. It can serve as a guide to development and implementation of Louisville's Housing Assistance Plan and its Economic Development Strategy. It can be used to build a sensible code-enforcement program. It can assist in making decisions about maintenance and development of open space and in site selection for new industry.

Potential uses for the Louisville Survey are almost limitless. We dedicate it to our mutual future in a revitalized but a characteristically Louisvillian City of Louisville.

ANN S. HASSETT

Executive Director, Landmarks Commission

Chairman, Preservation/Conservation Advisory Committee

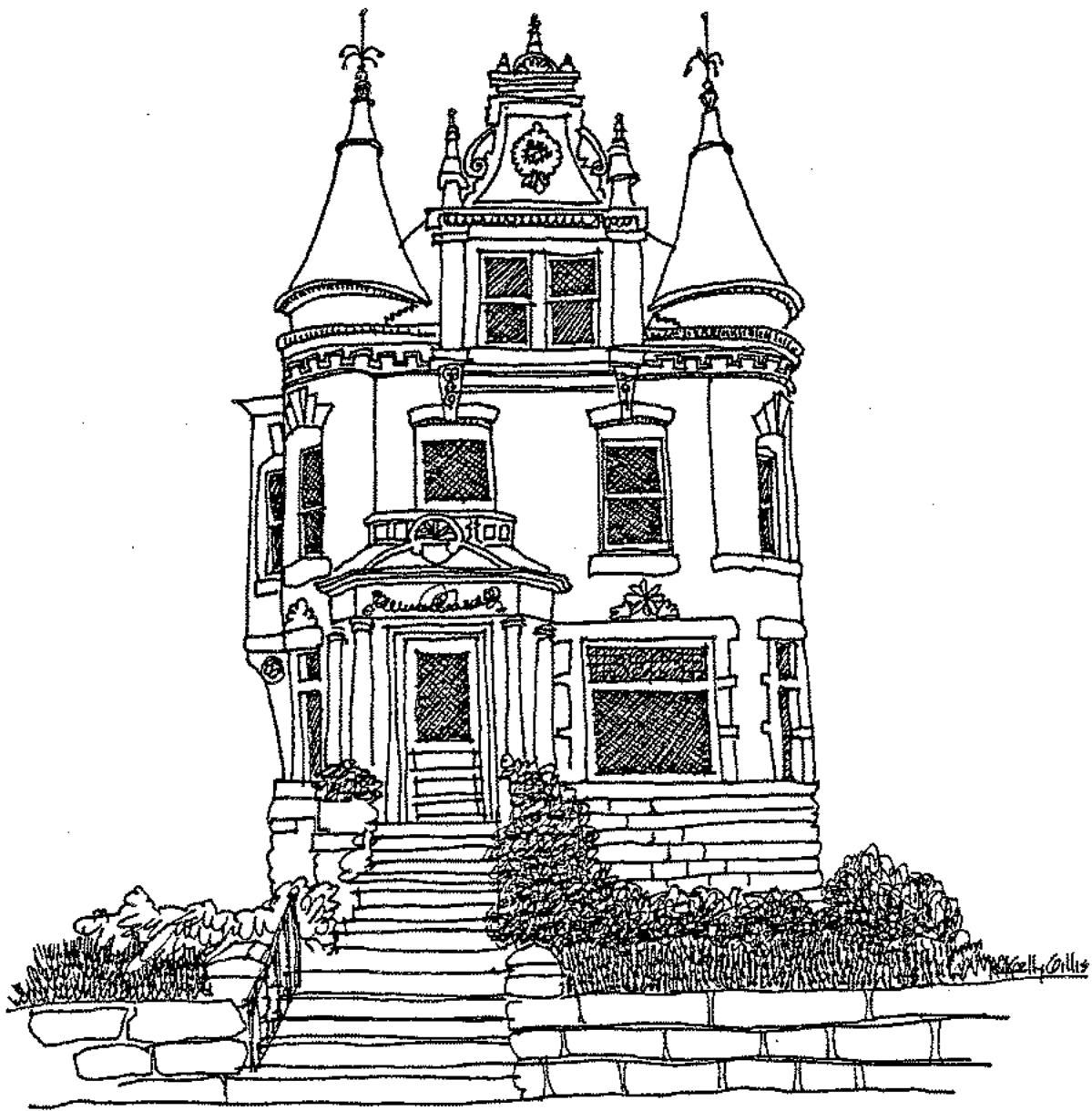
ACKNOWLEDGEMENTS

I would like to acknowledge the advice and help of Elizabeth F. Jones, Project Director for the Louisville Survey Central and South. In addition, I would like to thank the Department of Geography and Professor William Dakin at the University of Louisville for their assistance in allowing Gray Zender and Mary Lou Corrigan to work as student interns.

The photography work for the Survey East was greatly facilitated due to the assistance of the University of Louisville for lending the camera equipment. I would also like to thank Tom Harden and the Courier-Journal for their assistance in processing the film.

Numerous other persons generously gave of their time and talent in various aspects of the project. Though not mentioned here, their help is greatly appreciated.

Marty Poynter Hedgepeth
Project Director



INTRODUCTION

INTRODUCTION

The Louisville Survey East is the third part of a three-part citywide survey. The first part, Louisville Survey West was completed under a contract between the Community Development Cabinet and the Preservation Alliance of Louisville and Jefferson County, Inc. The Survey Central and South was completed by the Historic Landmarks and Preservation Districts Commission. The Survey East was also completed by the Historic Landmarks and Preservation Districts Commission. With the completion of the Survey East, all city blockfaces will have been surveyed, evaluated and photographed.

The purpose of the survey is to provide a planning tool to be used by governmental bodies, public and private agencies, and neighborhoods. The Louisville Survey East encompasses the area bounded by the Ohio River on the north, Beargrass Creek and Newburg Road on the west and the city limits on the south and east.

The procedure used in the Louisville Survey West and Central and South was adopted for the Louisville Survey East. Modifications needed to be made to fit special situations or peculiarities. For example, Sanborn maps do not exist for the entire area being evaluated; thus Real Estate maps were used. However, they do not show the outlined structures, as the Sanborns. In general, the format established by the Louisville Survey West and Louisville Survey Central and South was followed for the East. The same type of survey forms were used and the evaluation system was adopted. The Survey East has one atlas with 81 Sanborn and Real Estate Maps.

The material in this report on the survey process is based, in great detail, on the report for the Louisville Survey West and the Survey Central and South, especially the information on the survey forms, the evaluation rating code, and the mapping since, for the sake of consistency, the same format was adopted. The history section is a well researched, well documented analysis of the political, economic, sociological and developmental aspects of the east section of Louisville for the past two hundred years. The annexation map and subdivision map give an excellent graphic representation of the development of our city.

Within the report on the Louisville Survey West is a detailed analysis of neighborhood revitalization and recommendations and methods of achieving a revitalized neighborhood. This material has not been repeated in the Louisville Survey Central and South or the Louisville Survey East. The Louisville Survey has a variety of uses that can be utilized by public and private agencies as well as individuals.

Work products are available to interested individuals at the Historic Landmarks and Preservation Districts Commission on the fourth floor of the Museum of History and Science, 727 W. Main Street, Louisville, Kentucky 40202.

Copies of the report will be located at the following locations:

LIBRARIES

Kentucky Division, Louisville Free Public Library
301 West York Street, 40203

Highland Branch Library
1000 Cherokee Rd., 40204

Crescent Hill Branch Library
2762 Frankfort Avenue, 40206

Eline Branch Library
4210 Church Way, 40207

Shelby Branch Library
600 E. Oak St., 40204

Bon Air Branch Library
2816 Del Rio Place, 40220

Outer Highland Branch Library
2225 Bardstown Rd., 40205

Filson Club
118 W. Breckinridge, 40203

University of Louisville Library
2301 S. Third St., 40208

Spalding College Library
851 S. Fourth St., 40203

Bellarmino College
2000 Norris Place, 40205

Jefferson Community College
201 East Broadway, 40202

GOVERNMENT AGENCIES

Mayor's Office
City Hall, 40202

Louisville Board of Aldermen
City Hall, 40202

Community Development Cabinet
727 W. Main St., 40202

KIPDA
914 E. Broadway, 40204

Department of Economic Development
727 W. Main, 40202

Metro Parks Department
1297 Trevilian Way, 40213

Neighborhood Development Office
City Hall, 40202

Jefferson County Planning Commission
Fiscal Court Building, 40202

Historic Landmarks and Preservation Districts Commission
727 W. Main, 40202

Jefferson County Office of Historic Preservation
Fiscal Court Building, 40202

AGENCIES

National Trust for Historic Preservation
740 Jackson Place N.W.
Washington, D.C. 20017

Preservation Alliance of Louisville and Jefferson County
712 W. Main St.
Louisville, KY 40202

University of Louisville
Department of Geography
2301 S. Third St., 40202

NEIGHBORHOOD ORGANIZATIONS

Highland Neighborhood Association
Mr. Bob Speith
1334 Hepburn Ave., 40204

Highland-Douglass Neighborhood Association
Mr. Barry Wise
2108 Village Drive, 40205

Tyler Park Neighborhood Association
Ms. Madge Adams
1361 Tyler Park Drive, 40204

Clifton Community Council
Mr. Charles Ferris
130 South Pope, 40206

Clifton Heights Community Council
Mr. Kenny Plance
3207 University Avenue, 40206

Crescent Hill Community Council
Ms. Stephanie Miller
210 Claremont, 40206

Irish Hill Neighborhood Association
Mr. Mike Thomas
1128 Rogers Street, 40203

Louisville Inter-Neighborhood Coalition
Mr. Jim Segrest
1340 South Fourth Street, 40208

United Crescent Hill Ministries
Ms. Sue Gentry
1860 Frankfort Avenue, 40206

Avondale Area Association
Ms. Fredia Goreham
2909 Arden Road, 40220

Bonnycastle Homestead Neighborhood Association
Mr. George Holmes
2138 Alta Avenue, 40205

Cherokee Triangle Association
Ms. Carol Toner
1265 Cherokee Road, 40204

Dundee-Hayfield Neighborhood Association
Mr. Tom Burke
1702 Calder Court, 40205

Gardiner Lane Neighborhood Association
Mr. Paul Schulte
2161 Winston Avenue, 40205

German-Paristown Neighborhood Association
Ms. Edna Schaad
910 Vine Street, 40204



RESULTS & RECOMMENDATIONS

Results and Recommendations

The area encompassed by the Louisville Survey East has a number of different types of neighborhoods - both old and new - including commercial, light industrial, and residential areas. Planning for any type of change in these diverse areas will need to take into account all of the factors in the area. Certain areas have been indicated on the Recommendations Maps as proposed conservation areas, core areas for proposed districts to be nominated to the National Register of Historic Places, a preservation district under the aegis of the Historic Landmarks and Preservation Districts Commission of the City of Louisville, districts listed on the National Register of Historic Places and districts pending listing on the National Register of Historic Places.

The Louisville Survey East is characterized by large areas of conservable housing stock. Numerous distinct areas of housing types and age comprise the various neighborhoods of the East. A large portion of the housing is newer than found in the other surveyed areas of the city. On the whole, it is well maintained with a large number of dwellings presumed to be owner occupied. The majority of the residential neighborhoods are cohesive in terms of architectural quality and condition and should be conserved as residential sections. Because of the large amount of housing stock which was rated lower-middle blockface and above, no attempt was made on the Recommendations Maps to delineate the conservable residential districts by neighborhoods.

Several large green spaces are important factors in the positive aspects of the residential areas of the East. These include Cherokee Park (part of the Olmsted-designed Park System), Seneca Park, Cave Hill Cemetery and Crescent Hill Reservoir (all unrated on the Recommendations Maps), all of which provide recreational and scenic open spaces. Five of the important institutions in the East are also situated in large open spaces. These include the Baptist Theological Seminary, the Presbyterian Theological Seminary, Sacred Heart Campus, the Masonic Widows and Orphans Home and the Veterans Hospital. All are enhancements to the residential areas in their vicinity.

Notable interruptions to the residential neighborhoods are the major transportation arteries. Lower ratings have resulted around Interstates 71, 64, 264 and sections of roads such as Taylorsville and Bardstown, which have become more commercial in nature. Bowman Field and the military installations located there also received lower ratings than their adjacent neighborhoods.

NATIONAL REGISTER OF HISTORIC PLACES

Under the Preservation Act of 1966 historic districts may be nominated to the National Register of Historic Places. Specific criteria for nomination have been established by the Department of Interior. One district already exists within the boundaries of the east survey. This is the Cherokee Triangle District. For a delineation of the boundaries of this district see the Recommendations Map.

Other districts are eligible to be nominated or could be nominated in the near future under new federal criteria and programs. This includes areas of the Highlands, Clifton Heights and Crescent Hill.

Being listed on the National Register of Historic Places makes a property owner eligible to apply for 50-50 matching restoration grants from the Department of Interior. These grants are administered by the Kentucky Heritage Commission. In addition, property owners are eligible to take advantage of the tax incentives in the Tax Reform Act of 1976 provided for historic properties which are income-producing and which can meet the certification requirements.*

PRESERVATION DISTRICTS

Under ordinance 58 Series 1973, the City of Louisville established the Historic Landmarks and Preservation Districts Commission. This commission has the statutory responsibility to identify, preserve, protect, and perpetuate neighborhoods, areas, places, structures, and improvements which have architectural, historical, cultural, archaeological, or aesthetic significance to the city, the commonwealth, or the nation.

The method of achieving the objectives listed above is the creation of preservation districts. These districts must be approved by the Board of Aldermen. Any exterior change in these districts is controlled by the commission through an application process. The commission can permanently deny exterior changes or demolition. Creation of a district can help retain the historical and architectural character of a neighborhood. The district under the aegis of the Historic Landmarks and Preservation Districts Commission within the boundaries of the Louisville Survey East is the Cherokee Triangle Preservation District.

*For a detailed analysis of the Tax Reform Act of 1976 and section 2124, see the Tax Reform Act Supplement to Preservation News, available from local sources, the Kentucky Heritage Commission in Frankfort and the National Trust for Historic Preservation, 740 Jackson Place NW, Washington, D. C. 20006.

Also in the survey area are individual landmarks designated by the Historic Landmarks and Preservation Districts Commission. The landmarks and their landmark sites within the boundaries of the Louisville Survey East are listed below.

1. Peterson-Dumesnil House
301 S. Peterson Avenue

2. Peterson Avenue Hill
Peterson Avenue

The preservation district indicated on the map is under the aegis of the Historic Landmarks and Preservation Districts Commission of the City of Louisville. The district is:

Cherokee Triangle Preservation District

A number of structures listed individually on the National Register are within the Louisville Survey East boundaries. The following is a list of those structures, objects or sites.

1. Crescent Hill Reservoir
Reservoir Avenue

2. Schuster Building
1500-12 Bardstown Rd.

3. Spring Station
3241 Trinity Rd.

4. Louisville Water Company Pumping Station
1 River Road

5. Peterson-Dumesnil House
301 S. Peterson

6. Salema Hall
2837 Riedling Dr.

7. Howard-Getty House
1226 Bates Court

8. Nicholas Finzer House
1212 Hull Street

9. Jacob Hikes House
2806 Meadow Drive

10. Cave Hill Cemetery
701 Baxter Avenue
11. Peterson Avenue Hill
Peterson Avenue

The following structures are pending in Washington for listing on the National Register:

1. Bray Place
2227 Bashford Manor Lane
2. Hayfield
1809 Tyler Lane
3. Olmsted-designed Parks and Parkway System
Cherokee Park, Shawnee Park, Iroquois Park and connecting parkways

As evidenced by the information on the preceding pages, the area in the Louisville Survey East is extremely diverse and rich in man-made resources. The cohesive areas indicated on Recommendations Maps East are sections of the City of Louisville which should be conserved and maintained for the future.

THE POTENTIAL OF NEIGHBORHOOD REVITALIZATION PROGRAMS

Within the scope of neighborhood revitalization there are many possibilities which exist to give a renewed vigor to an urban neighborhood. All of the methods toward revitalization require a strong commitment from the citizens of the area. Often the implementation of certain programs involves some type of partnership with another entity either governmental or private. In the following section some of the potential partnerships will be discussed.

NEIGHBORHOOD HOUSING SERVICES

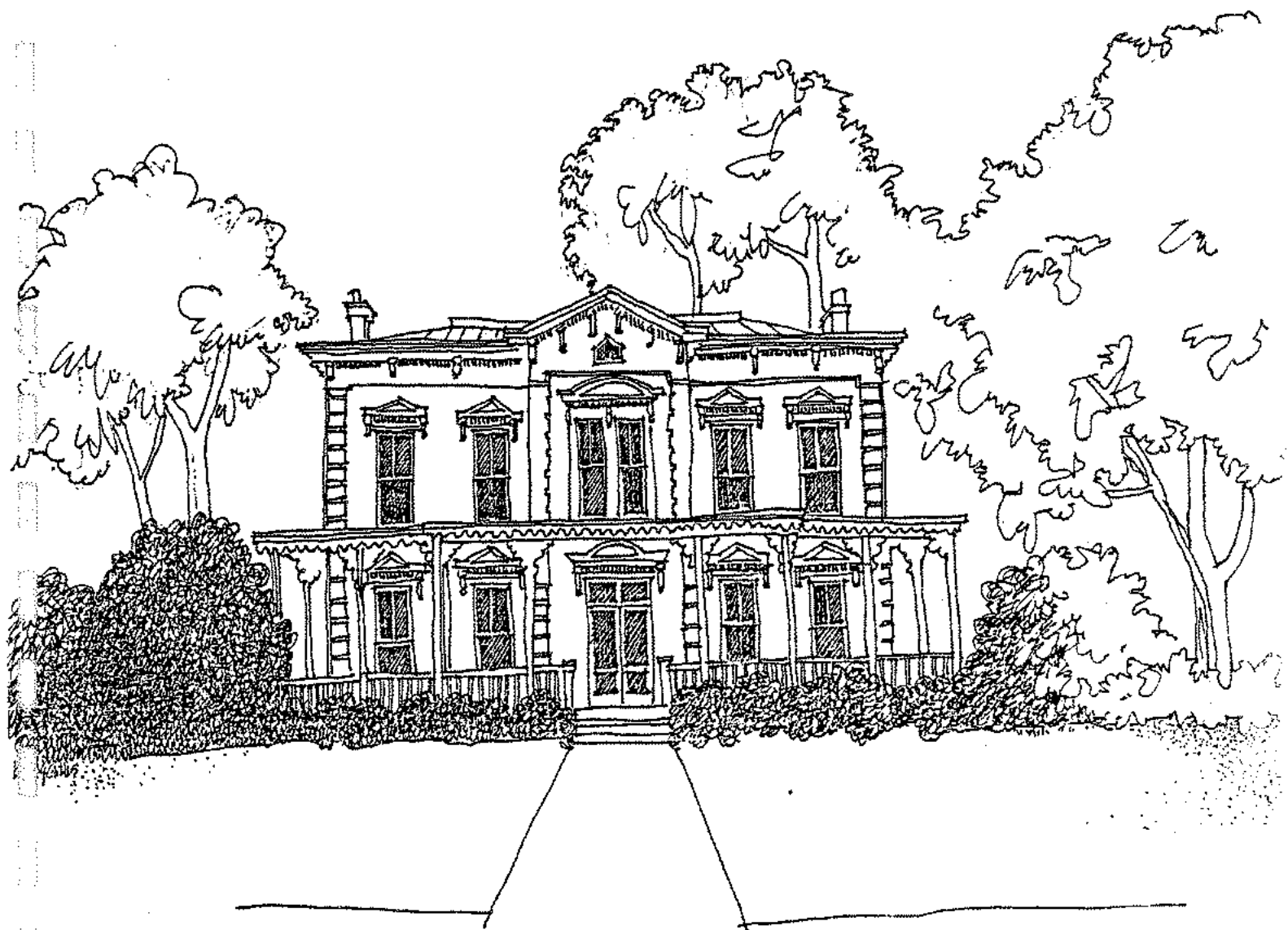
The Neighborhood Housing Services programs are aimed at a private-public-resident partnership which fosters the stabilization and improvement of a neighborhood. The Neighborhood Housing Services is being implemented on the national level by the Urban Reinvestment Task Force and is a joint effort of the federal financial regulatory agencies including the Federal Home Loan Bank Board, the Federal Deposit Insurance Corporation, the Comptroller of the Currency and the United States Department of Housing and Urban Development. The purpose of Neighborhood Housing Services is to stimulate reinvestment in the urban neighborhood. In Louisville the program has begun first in the Shawnee neighborhood. This neighborhood was selected after much study and deliberation by the Neighborhood Housing Task Force.*

Hopefully, more Louisville neighborhoods will become involved with the Neighborhood Housing Services program in the future.

NEIGHBORHOOD GROUPS

Louisville has an unusual number of active neighborhood groups. A number of these have been in existence for many years. Yet, many new groups have been formed under stimulation from the Neighborhood Development Office of the City of Louisville. Neighborhood associations can have a great effect on the quality of the neighborhood. There exist many models to choose from in the Louisville area. A list of neighborhood organizations in the east sections of the city is found in the Introductory chapter of this report. In addition the history and development of some neighborhood groups are chronicled in the history chapters of this report.

*For a complete analysis of Neighborhood Housing Services, see Journal of Housing, January 1976, Vol. 33, No. 1.



SURVEY PROCESS

SURVEY PROCESS

This survey measured in a systematic way the difficult-to-measure qualities of our physical environment, such as architectural significance, physical condition, and urban design.

Since this is the first time the enormous task of surveying the whole city's building stock has been undertaken, individual buildings have not been surveyed; rather, only the sides of blocks, hereafter called "blockfaces," were surveyed. The blockface was thus considered as a whole unit composed of urban design elements. The work of surveying individual buildings could then be undertaken at a later date with the assurance that at least the qualitative characteristics of whole districts had been considered. Most of the survey data is new information and provides both city agencies and neighborhood organizations with a tool they can use in conjunction with existing city information to plan more intelligently for their neighborhoods.

Criteria

At the beginning of the Louisville Survey West, the first part of a three part survey, several decisions were made to insure consistency of the data recorded:

1. All blockfaces would be evaluated from the street side.
2. The surveyor would perform the survey from an automobile.
3. The United States Census system of numbering tracts and city blocks would be used by the survey to insure compatibility of data with existing data of the various offices of city and county government.
4. One survey form would be used per blockface.
5. All survey fieldwork would be performed by one person to insure consistency of the evaluation.

Survey Form Design

The survey forms were designed for clarity and ease of use (see Appendix). Categories were devised which described the various urban design qualities of a block. The form, arranged into locational, inventory, and evaluation information, is described here briefly and later in more detail.

Locational Information: The upper left-hand corner of the survey form contains information used to locate a given blockface: census tract number, street name, photographic roll, and frame number. The space marked "UTM" was left unused. UTM, or the Universal Transverse Mercator system, is a coordinate developed by the U.S. Army in the late 1940s. It allows convenient and direct measurement from U.S. Geological Survey maps and has been adapted recently by the National Register of Historic Places as their system for locating structures listed in the Register. However, the UTM space on the form was left unused because of the excessive time needed to devise coordinates for each block and because the U.S. Census system provides adequate locational information.

Inventory Information: The left half of the survey form contains inventory information for a given Blockface. In other words, it states in shorthand fashion what exists on that Blockface in terms of:

- a. Land use
- b. Scale (story height of buildings)
- c. Rhythm (proportional relationship of distance between buildings)
- d. Roof (roof types)
- e. Elements (design elements - meaning the presence of porches or fences only)
- f. Materials (exterior materials of walls and roofs)
- g. Setback (a building's distance from the street)
- h. Environment (the presence of street trees, lawns, or decorative sidewalks)

Evaluation Information: The right half of the survey form contains evaluation information for a given Blockface. In other words, it rates what exists on a blockface in terms of "relative compatibility" or in terms of "excellent," "good," "fair," or "poor." The categories of evaluation information are three-fold: "Area," "Block," and "General." Each category is broken down into the following parts to be evaluated:

- a. Area
 1. Adjacent Blocks
 2. Neighborhood
- b. Block
 1. Land Use
 2. Scale
 3. Rhythm
 4. Roof Shape
 5. Design Elements
 6. Materials
 7. Setback
 8. Environment

c. General

1. Overall Condition
2. Development
3. Architectural Quality

Form Types

The categories described above are those of the standard form (Form No. 1), designed for the typical blockface containing buildings. A variation of the standard form, Form No. 2 was developed to survey those blockfaces which contained two buildings or less. Form No. 2 was thus used for a park, a school yard, a parking lot, a side street containing residential garages, and in general an undeveloped blockface. A sample of Form No. 2 can be seen in the Appendix A, Exhibit 2. The minor difference between Forms No. 1 and No. 2 will be discussed in the following section.

INVENTORY INFORMATION

The purpose of this section is to explain why the survey categories of urban design elements were selected and the way in which the surveyor used the forms. In general, the categories selected describe the palette of commonly accepted urban design elements. Urban design elements can be arranged to create an attractive blockface. Similarly, the actual number of elements available is not as important as the manner in which they are arranged. The following section discusses each design element in relation to the urban design character of the blockface seen as a whole.

FORM NO. 1

After the surveyor filled in the appropriate locational information, he placed one or more check marks in the boxes which most accurately described the existing situation for a given blockface.

Land Use: Proceeding from left to right the first category to consider is the "land use" on the blockface in question. Land-use categories are: Residential, Commercial, Institutional, and Industrial. In keeping with the architectural nature of the study and since existing land-use information is available through the Louisville and Jefferson County Planning Commission, "land use" here means the original use of the structures. That is, the surveyor recorded his judgement of the original design intent of the structures. A house, even though it may now be used as a beauty shop or tax service, was considered residential. An institutional activity, such as a church or boys' club, in a building designed as a store, was still considered commercial. However, one should note that almost all of the structures surveyed still retain their original use, so a discrepancy seldom exists between the original land use checked on the survey form and the present land use.

Scale: For the purpose of this study, "scale" means the story height of buildings on a given blockface. A check was given for each story height represented on the blockface. A write-in box allowed heights over three stories to be recorded. On a blockface having buildings of several story heights, the most common height was circled on the form.

Rhythm: This category can be thought of as the "horizontal rhythm" of a blockface and deals with the proportional relationship of building widths and lot widths. The surveyor categorized a given blockface in terms of "regimented," "varying," or "broken." "Regimented" means that the proportional relationship between structure widths and/or lot widths is completely regular and unchanging. A "varying" classification was given for a blockface displaying an irregular spacing of building width and/or widths. This pattern is typical of blockfaces with structures built in different areas and on different width lots. "Broken" was checked when lots occurred in a blockface to such an extent that the original layout of buildings was no longer intact, or was broken. Such a disruption of buildings on a blockface has often been compared to "missing teeth in a smile." If only minor disruption to the pattern of width had occurred, "broken" was checked along with either "varying" or "regimented." If many buildings on a blockface had been torn down leaving a situation where lots without buildings rivaled those with buildings, only "broken" was checked.

Roof Shapes: This category, abbreviated to "roof" on the form, refers to the type of roof used over the major portion of the structure. Provision was made for the three most common types, gable, hipped and parapet, to be checked, whereas others, such as gambrel, mansard, jerkinhead or shed, were written in.

Design Elements: The category, abbreviated to "Elem," on the form, refers to man-made design elements that have the potential to enhance the blockface. Two of the most prevalent and important elements considered were: porches, because of their potential to provide additional rhythms and pleasing intricacies to the visual character of the blockface, and fences, because of their potential to provide a unifying effect. These classifications were checked only if a noticeable number of structures possessed these elements. The category was not checked if a blockface had only one porch or a fence on one lot.

Materials: This category was divided into two parts for the purpose of defining the materials used for the wall construction and roof construction. Walls constructed of wood, stone, brick, and stucco could be indicated by a checkmark. A space after the sub-category allowed the noting of other materials such as concrete block, perma stone, etc. Some structures had asphalt sheeting applied to the exterior, either by original intent or alteration. These walls were checked "wood" to indicate the material of the structure and original cladding. Roofs covered with shingles, metal, slate, or tile were checked as such.

Setback: This category describes the distance from the street curb to the building facade. In an urban design sense, the setback of buildings on a blockface displays another kind of rhythm to the passerby. The space of the street is expanded or compressed depending on the distance of buildings from the street and the height of facades. The surveyor would check "small" setback if the distance from curb to facade was the same as or less than the facade height. "Medium" setback would be checked if the distance was one or two times the facade height. "Large" setback would be checked

if the distance was greater than two facade heights. Multiple checks would be given if a blockface had more than one obvious setback distance; however, for most blocks surveyed only one setback category was checked.

Environment: This category, abbreviated to "Environ," on the form, describes the most obvious elements of the landscape which have the potential to enhance a blockface, that is street trees, lawns, and sidewalks. The category of "street trees" refers to trees located between the sidewalk and curb. Lawn trees are excluded. This category was checked if enough trees were distributed along a whole blockface to create a visual screen or row. The category of "lawns" encompasses grass areas between the sidewalk and building facade and also includes ornamental plantings, hedges, and lawn trees. A blockface received a check for "lawns" when lawns and plantings occurred in sufficient number and quality to contribute to the appearance of the blockface as a whole. The category of "sidewalk" was checked when the sidewalk material of a blockface was unusual or visually interesting. Brick or, possibly, hexagonal concrete block sidewalks most often fell into this category. No check would be given for typical poured-concrete sidewalks or where sidewalks did not exist.

FORM NO. 2

As previously mentioned, Form No. 2 was developed as an adjunct to Form No. 1, and was used for surveying blockfaces containing two buildings or less. Since this form was used most often for land containing few if any buildings, the following building-related categories were removed: Rhythm, Roof Shape, and some subcategories of Material. However, the following categories were added:

Adjacent Land Use: This category is the same as "Land use" on Form No. 1 except that it also considers land use adjacent to the blockface being surveyed. The reasoning behind this expansion was that in instances where a No. 2 form was used, the blockface might be a parking lot or vacant land which could not easily be categorized as either residential, commercial, institutional or industrial. Also, the use of such parcels of land is greatly influenced by the land use and activities nearby. Therefore, this category includes the land use of the blockface being evaluated plus the three closest blockfaces of the block immediately across the street from the blockface being surveyed.

Blockface Use: The category was added to describe the presence or lack on structures on the blockface described by Form No. 2. This was necessary because one can no longer assume, as in the case of Form No. 1, that structures exist on the blockface. Possible categories are "Individual Structure(s)", "Nonarchitectural," and "Open Space." The category of "Individual Structures" was checked when only one building existed. An "s" in brackets was added to the category and checked if the blockface contained two structures. Nonarchitectural was checked if the blockface contained no structures or only minor structures, such as garages, or side (secondary) elevations of corner structures. Front (primary) elevations of corner buildings are considered on forms of adjacent blockfaces. When the blockface contained no structures, a notation such as "parking lot" or "junkyard" was written in the blank to explain the most obvious blockface use. Where surveyed, back alleys were noted as such here. Back alleys were occasionally considered where the census block being surveyed was divided in such a way as to be bounded by an alley rather than by a regular city street.

NOTE:

The category of "setback" was inventoried in a slightly modified fashion on No. 2 forms where no buildings occurred. In this situation either the category was disregarded or an obvious spacial barrier, such as a line of trees, was treated as a building facade.

EVALUATION INFORMATION

The process of evaluating the inventory information, by filling in the right-hand side of the Louisville Survey East forms, was a pain-staking and time-consuming task. Also, for the sake of consistency, the work had to be performed by one person. In this way any personal biases which might occur would be equalized and made consistent for the whole survey area.

The right-hand side of the survey form evaluates the many types of categories inventoried in terms of relative degrees of "compatibility." As seen in the upper right-hand corner of the form, the degree of greatest compatibility of categories being considered is termed "consistent," which means ". . .the same and consistent with. . . ." The middle degree of compatibility is termed "compatible" and means ". . .different but compatible with. . . ." The term of least compatibility is "poor," which means ". . .incompatible with. . . ." For example if we use the No. 1 form, the category of "land use" considers land use in terms of inventory information. If the inventory information was checked only "residential" then land use was evaluated "same and consistent." If two kinds of land use exist on a blockface, they were evaluated "different but compatible." If indeed they were compatible land uses. "Poor" was used if the land uses were incompatible. The following section will explain this evaluation system in more detail for each category.

FORM NO. 1

The thirteen categories of evaluation information are divided into three groups: "Area," "Block," and "General." Each group represents a different way to look at a given blockface. The "general" group is most important, followed by "block" and then "area." Space is provided to evaluate each category using check marks. A final column allows space for a numerical rating of each category. Spaces for subtotals are appropriately located.

Area

This group refers to how the land use of a blockface relates to the land use of (1) Adjacent Blocks, and (2) the Neighborhood.

Adjacent Blocks: The four blockfaces to be considered in this category are the blockface being surveyed, blockface sharing the corners of the blockface being surveyed, and the blockface across the street from the one being surveyed. "Consistent" was checked when the land use of the three adjacent blockfaces was the "same and consistent with" the blockface being surveyed. "Compatible" was checked when several land uses were present but compatible. "Poor" was checked only when there was an obvious incongruity of land use such as a playground next to a junkyard or a few houses surrounded by industrial structures.

Neighborhood: Blockfaces considered in the category of neighborhood are those in about a five-block radius from the one being surveyed. Within such an area, a variety of land uses is needed and desirable. "Consistent," therefore, was most often checked since the land use(s) of a blockface being surveyed would usually fall into the group of desirable neighborhood land uses. "Compatible" was checked when the land use(s) of the survey blockface were different but compatible with land uses in the neighborhood area. "Poor" was rarely checked.

Block

In this group, the inventory categories of urban design elements previously described are presented for evaluation.

Land Use: As previously described, if only one land use was checked in the inventory category, the rating of "consistent" was given. If several uses were present but not conflicting, "compatible" was checked. "Poor" was checked if the uses conflicted.

Scale: "Consistent" was checked if all structures on the blockface were about the same height (variations within one-half of a story were allowed). "Compatible" was checked if buildings were different story heights but the overall visual affect, or rhythm, was harmonious. "Poor" was checked when building heights were grossly incompatible and visually jarring, such as when a large building (over four stories) abutted a one-story house.

Rhythm: "Consistent" was checked when the blockface was inventoried as "regimented." "Compatible" was checked when the blockface was inventoried as "varying" or when both "regimented" and "broken" were checked, but the break was not so severe as to noticeably affect the visual continuity of the blockface. "Poor" was checked when Breaks in the blockface noticeably affected its continuity.

Roof Shapes: "Consistent" was checked if all the roof types were the same. This situation seldom occurred since there is a potential for noticeable variation within any given category of shapes. For example, even in a blockface of all gable roofs, the ridge lines might run in different directions causing "different but compatible" to be the best description. Therefore, "Compatible" roof shapes was the category most often checked. "Poor" was rarely checked.

Design Elements: This is a quantitative category and was evaluated according to the number of checks received in the "elements" category of the inventory side. If either inventory category ("porches" or "fences") received one check, the rating of "compatible" would be checked. If both inventory categories were checked, then the rating of "consistent" would be checked. One may see that this procedure is a departure from the way categories were usually checked (usually one inventory category checked received a "consistent rating"). "Design Elements" and also "environment" were treated this way because of the hierarchical nature of the three ratings of compatibility which would be reflected in points assigned to each category in the next step of the survey process (see Evaluation Findings). Thus, a blockface with both porches and fences is more desirable and was to be assigned a higher point value than a blockface with only porches or only fences checked. Therefore, the most desirable category here was placed in the "Consistent" column.

Materials: "Consistent" was rarely checked because of the possible visual variations even within one category, such as variations in brick color or types of asphalt shingles. "Compatible," therefore, was most often checked. "Poor" was seldom checked and only when obvious visual incompatibilities of materials existed.

Setback: "Consistent" was checked when the setback distance of buildings on the blockface was all the same. The Sanborn maps proved useful in checking the setback line of buildings. "Compatible" was checked when various setback distances occurred within one inventory classification. "Poor" was checked when one or more buildings displayed a setback which was disruptive to the rhythm and visual continuity of the facade line.

Environment: Similar to "design elements," this is a quantitative category. Since "sidewalks" was almost never checked, "street trees and lawns" were generally evaluated. If both were present, "Consistent" would be checked. If only one was present, "Compatible" was checked. If none was present, "Poor" was checked.

General: This group refers to the general aspects of a blockface, of its overall physical condition, the era in which it was constructed, and its overall architectural quality. Since these characteristics are among the most important when considering the overall conservation value of a blockface, this group is the most important of the three evaluation categories.

Overall Condition: This category assesses the overall physical condition of all structures on a blockface in terms of "excellent," "good," "fair," or "poor" condition. An in-depth assessment of a building's structure and interior condition was not within the scope of this survey and is being under-taken by the city's Department of Housing Inspection. This survey provides a generalized assessment of the average physical condition of buildings on a blockface. The surveyor based his assessment on the appearance of a building's exterior surfaces visible from the street.

To the architecturally experienced eyes of the surveyor, the exterior surfaces of a building can reveal the building's physical condition. The sagging lines of roofs or walls reveal some degree of structural deterioration as do diagonal cracks in brick walls and stone foundations. The condition and maintenance of wall and roof materials are readily observable. Water stains and sagging cornices reveal the condition of gutters. The details of a building such as windows and trim not only reveal their condition but the amount of maintenance or "face-lifting" the building has experienced.

Most of the survey forms were checked "good" or "fair" overall condition. "Poor" was moderately checked, and "excellent" was almost never checked.

Developmental Period: This category records the approximate construction eras of buildings on the blockface, based on the architectural style(s) of buildings on a blockface. The surveyor checked one or more of the following categories of construction eras: "Ante-Bellum" (before 1860); "Victorian" (1860-1890); "Classical" (1890-1920); "Post World War I" (1920-to present).

Architectural Quality: Given the nature of the survey, this category is extremely important. It provides an assessment of the average level of architectural quality of the blockface.

Since the survey was conducted from the streetside and since most older buildings put most if not all architectural emphasis on their facades, this category primarily rates the architectural quality of facades. The term "architectural quality" for the purposes of this survey means the level of artistic excellence of a facade. The term includes all artistic aspects of a facade from the craftsmanship displayed by details such as decorative woodwork at cornices and porches, to the placement of windows, to the sculptural composition of building masses. Although many of the preceding categories relate to architectural quality, the surveyor attempted to rank the blockface either "excellent," "good," "fair," or "poor," irrespective of other blockface characteristics. Nevertheless some influence of other categories is impossible to eliminate, such as when structures on a blockface are in such poor repair that architectural details are missing. The fact that the original design of a facade had been altered was not, in itself, regarded negatively. Each facade was judged on its own merits. Although no individual buildings were surveyed, beautiful or unusual structures which caught the surveyor's eye were noted by circling the "yes" designation under Architectural Quality and writing in the street address on the form.

Human bias and subjectivity are always present in any work which attempts to assess "quality." For the purpose of this city-wide survey, the blockfaces were compared to the average level of architectural quality for the City of Louisville.

FORM NO. 2

As with inventory information, the information on the evaluation side of the No. 2 form is a modification of similar information on the No. 1 form described above. The evaluation side of the No. 2 form contains twelve categories of information arranged in four groups: "Area," "Adj." (Adjacent Area); "Block," and "General." The categories of "Rhythm," "Roof Shape," and some subcategories of "Material" omitted on the Form No. 2 inventory were necessarily also omitted on the evaluation. However, the following two categories under "Adjacent Area" were added:

Adjacent Land Use: This category evaluates the land use of the four blockfaces inventoried (see Adjacent Land Use, page C-8). "Consistent" was checked when only one land use was present. "Compatible" was checked when multiple land uses were present and compatible. "Poor" was checked if multiple land uses were present and incompatible.

Block Use: Assuming the No. 2 blockface usually exists among No. 1 blockfaces, "Consistent" was checked if "individual structures" received an inventory check, that is, the blockface contained structures as did surrounding blockfaces. "Compatible" was checked if "nonarchitectural" received an inventory check. The "Poor" category was left unused.

Block: In this group the quantitative categories of "design elements" and "environment" were evaluated using the same procedure as that used with Form No. 1. For the qualitative categories of "scale," "setback," and "materials," a modification to this procedure was used. That is, the area of comparison was expanded to include the four blockfaces considered under "adjacent land use." Since the No. 2 blockface was often vacant or undeveloped land, this blockface was compared not only to itself (Form No. 1 procedure) but also to the three closest blockfaces of the block immediately across the street. Other than the expanded area of consideration, the evaluation procedure was the same as previously described for No. 1 forms and need not be repeated here. One should note that an effect of this expanded area was that the rating of "consistent" rarely occurred because the scale, setback, or materials for four blockfaces were rarely the same. "Compatible" was the rating most often given.

General: This group was evaluated using the same procedure as that used with Form No. 1. Even with vacant lots or parks, "overall condition" and "architectural quality" can be evaluated, though the latter becomes more an evaluation of landscape architecture. For such land without buildings, "development period" was usually omitted from evaluation.

Rating Code

In evaluating the data from the Louisville Survey East, the same rating code developed for the Louisville Surveys West and Central and South was used in order to achieve consistency in the product. For a detailed discussion of the development of the rating code see the Louisville Survey West Final Report, pp. C-18 and 19.

An approach was devised which established categories of conservation significance in advance so that every possible combination of evaluation would fall into one district category or another. The premises of that approach were:

1. the "General" group was judged most important, then "Block," and then "Area;"
2. the subtotal of each group was treated as a discrete unit having its own nomenclature; and
3. the rating code was to allow reconstruction of the essential elements of the evaluation side of each survey form.

General

Within the "General" group, combinations of "Architectural Quality" and "Overall Condition" were devised to produce five groupings of conservation significance. Although it can be easily reconstructed for historic preservation purposes, the category of "Developmental Period" was omitted from consideration to facilitate use of the data for general planning. The five groupings devised were:

High: Excellent/Good Quality with Excellent/Good Condition

Endangered High: Excellent/Good Quality but Fair/Good Condition

Upper Middle: Fair/Poor Quality with Excellent/Good Condition

Lower Middle: Fair/Poor Quality with Fair Condition Only

Low: Fair/Poor Quality with poor Condition Only

Even eliminating "Developmental Period" from consideration, the four possible categories each of "Condition" and "Quality" produce a possible sixty-four combinations--obviously too many to be usefully described on a map. It was felt that no more than six categories of conservation significance could be mapped and easily understood by the general public. Therefore, since the evaluation of "excellent" was not used extensively for either "Quality" or "Condition," "excellent" was combined with "good" to produce a more significant category of highest conservation value.

Also, since differentiating between "fair" and "poor" architectural quality was of only minor importance, these two categories were grouped together. Differentiating between "fair" and "poor" condition, however, became increasingly important as the quality of a blockface declined, hence these categories of condition were left separate in the middle and low groups, while they were combined in the high group. In short, the two composite groups of quality were combined with three groups of condition to produce the five groupings of conservation significance described above.

BLOCK (Urban Design)

The range of possible points in the "Block" group was from zero to ninety. Points were assigned according to previously described priorities and appeared as follows:

	Consistent	Compatible	Poor
Land use	10	8	0
Scale	15	10	0
Rhythm	15	10	0
Roof Shapes	10	7	0
Design Elements	5	4	0
Materials	10	7	0
Setback	15	10	0
Environment	10	5	0
Maximum Possible Points:	90	61	0

One should note that "Compatible" occupies a value above the mid-point of each category. This was done primarily to compensate blockfaces containing buildings from several areas. In such blockfaces, little chance of consistency is possible but the whole often has a dynamic and attractive urban design character which must be rewarded.

AREA

To differentiate the "Area" group, alphabetical instead of numerical nomenclature was used as follows:

	Consistent	Compatible	Poor
Adjacent Blocks	a	b	c
Neighborhood	a	b	c

Rating Code

A sample of the master sheet for the rating code system may be seen in the Appendix A, Exhibits 1 and 2. Survey forms were grouped and mapped for each of the five established categories. The following combinations of the first two digits of the rating code correspond to categories of "architectural quality" and "physical condition" previously described.

<u>Category</u>	<u>Rating Code Series</u>
"High"	: 44,000/43,000/34,000/33,000
"Endangered High"	: 42,000/41,000/32,000/31,000
"Upper Middle"	: 24,000/23,000/14,000/13,000

"Lower Middle"

: 22,000/12,000

"Low"

: 21,000/11,000

Example:

Let us select an imaginary rating code of "32,658 ba" for examination. Based on the values shown on the master sheet, we can reconstruct the evaluation side of the survey form for this imaginary blockface. The numeral three (3) in the first place means the "Architectural Quality" was "good". Two (2) in the second place means that "condition" was "fair." (We can also see that this is a 32,000 series rating code, which places it in the "Endangered High" category.) Six (6) in the third place means the "Developmental Period," or construction era, of buildings on the blockface was "Classical" (1890-1920) and "Victorian" (1860-1890). Fifty-eight (58) in the fourth and fifth places means that the urban design character of the blockface was about average, falling about midway in the subtotal range. The letters "b" and "a" in the sixth and seventh places mean that the land use of the blockface was different but compatible with surrounding land use and consistent with neighborhood land use.

MAPPING

Once a survey form was given a rating code, the code was transferred to the corresponding blockface on a Sanborn map or Real Estate map and coded with a distinctive color according to its group as follows:

<u>Category</u>	<u>Color</u>
"High"	= Purple
"Endangered High"	= Red
"Upper Middle"	= Blue
"Lower Middle"	= Green
"Low"	= Yellow

RECOMMENDATIONS MAP

From the Sanborn and Real Estate maps, the sides of blocks were averaged. The average color, or rating, of each block was recorded on the Recommendations Maps, an overall map showing the entire survey area. In order to average blocks accurately, each color was assigned on "averaging value" as follows:

<u>Category</u>	<u>Color</u>	<u>Averaging Value</u>	<u>Range</u>
"High"	= Purple	= 5	= 5.0 to 3.5
"Endang'd High"	= Red	= 5*	= 5.0 to 3.5
"Upper Middle"	= Blue	= 3	= 3.4 to 2.5
"Lower Middle"	= Green	= 2	= 2.4 to 1.5
"Low"	= Yellow	= 1	= 1.4 to 1.0

*Red was coded as purple on the Recommendations Maps because red occurred so infrequently.

To be as generous as possible in a 50-50 situation, the devised system gave a block the highest rating possible. For example, a block with two green blockfaces and two blue blockfaces would be colored blue since the total averaging value is 10 ($2+2+3+3$).

One should note that a square block with three blockfaces of one color and one blockface of a higher color would receive the predominant color except if the highest color were purple; in this case, the whole block would be colored purple in order to give purple blocks the greatest possible benefit of the doubt since "good" or "excellent" ratings in "Architectural Quality" were so seldom given. This benefit does not occur, however, if the block has any fewer than three blue sides. For example, a block with one purple, two blue, and one green side yields a blue block color.

ODDLY SHAPED BLOCKS

A block with more or fewer than four sides was color-coded according to the average score of its sides. The range of average scores yielding a given color is listed above. Thus, for example, a three-sided block with one green side (2) and two yellow sides ($1+1$) yields an average score of $4 \div 3$ or 1.33, which falls in the 1.4 or 1.0 range, causing the block to be colored yellow.

RATINGS MAPS

The Ratings Maps are maps showing all blockfaces unaveraged as they appear on the Sanborn and Real Estate maps. The advantage of the Ratings Maps is "Endangered High" blockfaces that were made invisible by the averaging process used on the Recommendations Maps are brought to view.

RECOMMENDATIONS MAP

The color code of the Recommendations Maps has been translated into a black and white code on the reduced maps in the Appendix.

UNSURVEYED AREAS

When looking at the Recommendations and Ratings Maps one may identify block-faces not surveyed since they were left-uncolored. This was due to the limited access of certain areas because of Interstate 71. Within these unsurveyed areas are few, if any structures.

SURVEY WORK PRODUCTS

As previously mentioned, in addition to this report, the work-products of this survey are survey form booklets, one atlas, an index, and photographic proof-sheets and negatives. This section is written as a guide on the use and inter-relationship of these work products.

Survey Form Booklets

All Survey forms have been organized and bound by census tract. They provide the user with the most detailed information on a given blockface this survey has to offer. The significance of the categories was discussed under the survey process.

Atlas

The Atlas for Louisville Survey East consists of a title sheet with a table of contents, an index map*, an overlay map, a recommendations map, a ratings map, Sanborn and Real Estate maps, an annexation map, a subdivision map, and a subdivision index. The index map is an important tool for the user to understand. As stated on the legend of the index map, bold black numerals represent the U.S. census tracts with boundaries outlined by a black dashed line. Small black numerals underlined in red are the numbers of the Sanborn maps with boundaries outlined by a solid red line. Small black numerals underlined in green are the numerals of the Real Estate maps with boundaries outlined by a solid green line. Within each census tract, the U. S. Census Bureau has numbered each census block. Block numerals with asterisks indicate the census block is composed of several conventional city blocks and thus often has more than four blockfaces. In order to locate a given blockface, the user must refer to the index map. Once the user has discovered on which census tract and Sanborn or Real Estate map the blockface appears, he or she may then proceed to the Sanborn or Real Estate map, the index, or the survey form booklet for that tract. The numeral of each Sanborn and Real Estate maps appears in the lower right-hand corner of the sheet. Numerals for each block appear near the center of each block. Each blockface on the block has its rating code written in red ink adjacent and parallel to it, followed by its form number. In the last part of each Atlas, the user will find an annexation map and subdivision map with a subdivision index, all of which are explained in the History Section of this report.

*This map was made using a DIME File print provided by the Kentuckiana Regional Planning and Development Agency (KIPDA), 505 W. Ormsby Av., Louisville, Ky.

Index

The index is a ringed notebook organized by census tract and block number. For each Blockface it lists the street name associated with that blockface; the survey form number used (1 or 2); the compass direction of the blockface in terms of North (N), West (W), South (S), and East (E); the rating code for that blockface; the Sanborn or Real Estate map on which the block may be found; the photographic proofsheets roll and frame number; and notes.

The users should familiarize themselves with the index format and also with the abbreviations explained in the abbreviation key on the first page of the index.

Photographic Proofsheets and Negatives

For every survey form there is a corresponding set of photographs showing the blockface surveyed. This tool allows the user to verify survey information without traveling to the blockface. It also provides, for the first time, a photographic record of Louisville which can only increase in value as the years go by.

These photographs are on a 16"x20" sheet. They are in a 35mm format which has been enlarged. In order to find photographic frames of a given blockface, the user locates the blockface in the index*. The user then reads the tract and roll number, for example, "6/13" stands for census tract 6, roll 13. The user also identifies the corresponding frame numbers: For example, "12-14" stands for frames numbered 12-14 on the proofsheets. The user then opens the proofsheets box holding census tract 6 photographs and looks in the upper left-hand corner of the proofsheets for 6/13. Once this proofsheets has been located, the user finds frames 12-14. Frame 12 shows the left-hand end of the blockface, frame 13 shows the middle, and frame 14 shows the right-hand end of the blockface.

*Roll and frame numbers are also listed on survey forms.



A HISTORY OF EASTERN LOUISVILLE

BY CARL E. KRAMER

CHAPTER I

THE FORMATIVE YEARS

Viewed from the historical perspective of the urbanization process, the East End is by any measure the youngest section of the City of Louisville. For reasons relating largely to topography and physical proximity to the original town of Louisville and the Falls of the Ohio, the area east of the South Fork of the Beargrass Creek did not begin to show signs of urban development until just before the Civil War. In several important respects, however, the history of eastern Louisville, like that of the rest of the city, begins even before the settlement of Corn Island by George Rogers Clark in May 1778.

Early in 1773, ten years after the end of the French and Indian War, Lord Dunmore, Royal Governor of Virginia, began issuing certificates for grants of unclaimed western lands to private individuals as payment for services rendered to the British crown during the conflict. Two of the recipients were Dr. John Connolly, a British army medical officer, and Charles DeWarrensdorff, a prominent Pennsylvanian, who received adjacent 2,000 acre tracts roughly bounded today by the Ohio River on the north and west, Broadway on the south, and Preston Street on the east. Shortly after issuance of the Connolly-DeWarrensdorff certificates, William and Mary College commissioned Captain Thomas Bullitt to lead a surveying expedition to Kentucky. Bullitt also was authorized informally to survey the Connolly-DeWarrensdorff claims.

After his return to Virginia, Bullitt presented his surveys to Colonel William Preston, surveyor of Fincastle County, which included all of Kentucky. Preston, however, issued patents only for the Connolly-DeWarrensdorff claims, noting that he had not personally authorized Bullitt to survey the William and Mary claims. In depositions taken five years later, assistant surveyors John Floyd and James Douglas testified that Preston privately felt that Bullitt's surveys of the Connolly-DeWarrensdorff claims were illegal because land in the area of the falls had not yet been cleared of Indian treaty rights and that Preston signed the surveys only because he was ordered to do so by Lord Dunmore, a close friend of the recipients.

The situation took a new turn in February 1774 when DeWarrensdorff sold his claim to Connolly and John Campbell, a Philadelphia merchant and Indian trader. Shortly thereafter in an apparent effort to eliminate any question about the legality of several Kentucky land claims, Colonel Preston sent to the falls a large surveying party headed by John Floyd. In less than a month the party charted over 40,000 acres, including a resurvey of the Connolly-DeWarrensdorff-Campbell claims. Among the 30 surveys completed by the Floyd group were several which would later constitute eastern Louisville. These included a 1,000 acre grant to Colonel Preston, bounded on the north by the Ohio River, on the west by Connolly's line, on the south by present day Calvary Cemetery, and on the east by present day Baxter Avenue. Immediately to the east, incorporating the western half of Cave Hill Cemetery, was a similar 1,000 acre grant to Hancock Taylor, surveyor and brother of Richard Taylor, the father of President Zachary Taylor. To the south-east of the Preston and Taylor grants lay two 1,000 acre grants to James McCorkle and William Byrd, respectively.

The largest single grant was a 6,000 acre award to James Southall and Richard Charlton, roughly bounded on the west by the common eastern line of the Taylor, McCorkle, and Byrd grants, on the north by the river, on the east by Zorn Avenue and its imaginary extension to Cannon's Lane at the Watterson Expressway, and on the south by a line paralleling the Watterson, from a point midway between Newburg Road and Bardstown Road to Taylorsville Road. Immediately to the east of the Southall-Charlton tract from the river to the present southern city limits lay a series of four 1,000 acre grants awarded to Hugh Mercer, John Floyd, and Hugh Allen. Skirting the eastern edge of the present city limits from the river to Regis Park was a band of 1,000 acre awards to Hancock Eustace, William Peachey, William Southerland, William Christian, John Ware, and Henry Harrison.

Even before the validity of their claim had been settled, Connolly and Campbell initiated a grandiose town-planning scheme at the falls. But their efforts were retarded by a conflict between Lord Dunmore and the Pennsylvania proprietors over claims to Fort Pitt. In the meantime, the American Revolution erupted and Connolly became involved in anti-Revolutionary activities which resulted in his arrest and imprisonment. As a consequence, his claim at the falls reverted to the State of Virginia.

The Revolution itself was the chief contributing factor in the creation of Louisville. In 1778 Lieutenant Colonel George Rogers Clark, under a commission from Virginia Governor Patrick Henry, descended the Ohio with a rag-tag force of some 175 soldiers and a few families determined to capture the British forts at Vincennes, Kaskaskia, and Cahokia. Clark landed his force on a small island opposite the present site of downtown Louisville and, in an apparent attempt to conceal his intentions from the British, established a small settlement with the families in his party. To make the ruse more convincing, the settlers planted a crop of corn, thus the source of the name, Corn Island.

In the spring of 1779, even before Clark's return, the settlers moved to the southern bank of the Ohio where they built a stockade called Fort-on-Shore and began the process of formally organizing a town. But not all the settlers remained in the new town, nor did all of the new arrivals, who had followed the Ohio River or the Wilderness Road into Louisville, make their homes in the immediate vicinity of the fort. Between the fall of 1779 and the spring of 1780 numerous pioneers began settling in and around small forts or stations to the east of town along the Middle and South forks of Beargrass Creek.¹

The first station established along the Middle Fork was Floyd's Station or "Woodville," built by John Floyd on a low ridge on the west side of the present Breckinridge Lane, now the site of the Jamestown Apartments. The land was part of Floyd's 1774 survey claim, but when at the site in November 1779 he found two cabins built by squatters. A second fort located on Floyd's property was Hogland's Station, built approximately 2,000 feet down the stream from Floyd's Station in the spring of 1780. The founders of the station are unknown, but within a few years, Edmund Taylor, a cousin of Hancock Taylor, the surveyor, and Richard Taylor, father of Zachary Taylor, had erected a cabin in the settlement. About the same time as the establishment of Hogland's Station, a group of Dutch pioneers created the Dutch or New Holland Station on a section of Floyd's land where the present Brown's Lane crosses the Middle Fork.

Sometime between 1780 and 1784, John Floyd built Spring Station near a large spring which formed the source of Beal's Branch. Located at the edge of the Southall-Charlton tract, about 800 feet south of the present Lexington Road near Cannon's Lane, the fort included a stockade which extended from the main walls to the spring. In the spring of 1780, Peter A'Sturgus built A'Sturgus's or Sturgus's Station on a piece of land owned by Colonel William Christian. The fort was located about two miles above Floyd's Station and one mile northeast of New Holland Station near the present Oxmoor Center. Construction of a sixth station on the Middle Fork was begun in March 1780 by William Lynn. At the time, however, Lynn did not know that his enterprise was being built upon land owned by Henry Harrison under Floyd's survey of 1774. In 1787, Colonel Richard C. Anderson purchased the Lynn Station tract and built the home called Soldier's Retreat.²

While pioneers such as John Floyd and Peter A'Sturgus were building along the Middle Fork of Beargrass Creek, others were planting settlements along the South Fork. In the spring of 1780, James Sullivan initiated construction of what became known as Sullivan's Old Station in the vicinity of present-day Bardstown Road and Goldsmith Lane. Sullivan built on land which he supposedly had purchased from Richard Chenoweth, a military officer who was instrumental in building Fort Nelson, the fortification which replaced Fort-on-Shore. But after Sullivan had completed his station, he learned that the land was part of the Southall and Charlton tract and that he could not claim legal ownership. Therefore, he purchased a 340 acre section of the original James McCorckle survey tract from Payton Short and built another settlement, which became known as Sullivan's New Station. The tract lay east of present day Norris Place between Eastern Parkway and Trevillian Way and the fortification itself stood near what is now Deerwood Avenue. The last of the South Fork stations, erected by Moses Kuykendall in 1782, was located just south of the point where Buechel Bank Road now crosses the creek. In 1785 Kuykendall built a mill upon the site and two years later, Abraham Hite constructed a home nearby.

Life was neither easy nor secure for the intrepid pioneers who chose to venture beyond the safety of Fort-on-Shore and, later, Fort Nelson. Indian attacks were frequent, and numerous persons lost their lives in the Louisville vicinity during the first three decades of the town's existence. On April 8, 1783, Colonel John Floyd, who had been involved in several previous encounters with Indians, was mortally wounded in an ambush while on his way to Bullitt's Lick in the company of his brother, Charles, and two other men. One of the Colonel's companions died in the attack but the other two men were able to carry Floyd to the cabin of Colonel James F. Moore at the Fishpools, near Okolona, where he died two days later. The following year, Walker Daniel, Kentucky's first Attorney General, and George Keightly, a merchant, were killed by Indians on the same road about a mile from the place where the Floyd party had been ambushed. In April 1786, Colonel William Christian was killed near the present-day Jeffersonville, Indiana, after leading a small party of men across the Ohio River in pursuit of Indians who had raided his home at A'Sturgus Station.³

One of the worst raids in Jefferson County occurred on July 17, 1789, when a band of Indians attacked the home of Captain Richard Chenoweth near Lynn's Station. Although Chenoweth had reinforced his station with a half-dozen militiamen from the troop at the falls, the defenders were over-powered, and two soldiers

and three of the Captain's children died. Chenoweth sustained a broken arm but escaped with the remaining soldiers and his surviving children. His wife was tomahawked, scalped, and left for dead. Miraculously, she was discovered alive by members of a rescue party which arrived from Lynn's Station and Soldier's Retreat the following day. She was taken to the Anderson home where she eventually recovered. The Indian attacks diminished during the 1790s and the first decade of the nineteenth century, but sporadic raids were experienced as late as 1811, when General William Henry Harrison defeated the northern tribes at the Battle of Tippecanoe.⁴

As the danger from Indian attack subsided, more and more Louisvillians ventured outside the immediate confines of the original settlement and established farms on the surrounding countryside. The rolling hills and plateaus along the forks of Beargrass Creek were especially inviting. By 1800 Louisville's leading families had begun to develop large estates and farms and to build handsome country homes. Tobacco, hemp, and corn were produced on these farms, and much of the work of cultivation was performed by slave labor.

During the early 1790s the rear portion of the home known as Hayfield is believed to have been built. Located on Tyler Lane between Bardstown Road and Newburg Road, the structure received its name about 1834, when Colonel George Hancock, an aristocratic Virginian, acquired the property and, with the assistance of two English architects, added the brick, Greek Revival front portion with its single story, pillared porch.⁵

In 1791, about the same time that the first section of Hayfield was being built, a former Revolutionary War officer named George Hikes arrived in Jefferson County and purchased a 400 acre tract situated in the Triangle formed today by Bardstown Road, Taylorsville Road, and Hikes Lane. There he established saw, grist and cording mills, and built the first church in the area. Shortly after his arrival, Colonel Hikes also built a stone house to which he added a three-bay, two-story stone section several years later. The original portion was torn down in 1901 because of foundation problems, but the newer part remains today, having served as a Hikes family residence until 1960, when it was purchased by the St. Michael Eastern Orthodox Congregation to serve as a rectory.⁶

As his three children reached maturity, the Colonel gave each one a piece of his original land, and between 1820 and 1830, three more homes were constructed on Hikes family property. About 1820, the eldest son, Jacob, received a portion of the land northwest of the original homestead, upon which he built a imposing five-bay, two-story brick house with corbelled-topped interior brick chimneys. The location of the structure is today 2806 Meadow Lane. The same year, George Hikes, Jr., received the parcel which included his father's grist mill. Much like his brother's, George's home was a plain, two-story, Federal-style brick ell with five bays and end chimneys. Years later, two "directly-scaled" Victorian porches were added to the front and side of the house, but these add rather than detract from its quality. The home today stands at 2834 Hikes Lane. A decade after Jacob and the younger George Hikes constructed their homes, the third brother, John, built a home which almost matched those of his brothers. The address is 4118 Taylorsville Road. Together, the four Hikes homes represent a rare and outstanding group of early stone and brick Federal-style houses associated with a single family.⁷

One of early Louisville's handsomest houses was Spring Station, which took its name from the log fort which once stood on the same site. Neither the exact builder nor the precise date of construction of Spring Station can be identified with certainty, but it was built for a member of the Beale family, possibly

Samuel, a merchant, or his son Norborne, probably about 1802. In its basic plan, Spring Station is a long, one-room deep structure, composed of a central block with pavilions. It is likely that the original house consisted of the two-story main block, with the connecting wing and terminal blocks being added later. An oral tradition which connects the structure's design to Thomas Jefferson cannot be substantiated and is probably erroneous. However, the gabled roofs of the wings and the pediments over the end blocks were used by Jefferson, and features such as the triple hung windows on the lower story of the main block of Spring Station were employed in the construction of Monticello.⁸

Another of Louisville's truly outstanding early homes, constructed in 1810, is Farmington. Adapted from a design by Thomas Jefferson, the structure was built by Judge John Speed for his second wife, Lucy Gilmer Fry, a Virginian whose family had long ties with Jefferson. Located today at 3033 Bardstown Road, the home is of Federal design with a fairly narrow, high rectangular block. It has a hipped roof, simple classical cornice, and a half-recessed, tetra-style portico with slender columns. The gable of the portico roof has a semi-circular fan window, a motif which is repeated over the front door. Inside, the center of the house contains two octagonal rooms-- a parlor and a dining room - giving this home a true Adamesque quality.⁹

In addition to having been designed by Jefferson for one of Louisville's leading nineteenth century patriarchs, Farmington gained significance from its association with Abraham Lincoln. A close friend of Joshua Fry Speed, son of John and Lucy, Lincoln spent three weeks at Farmington while he courted Mary Todd and later appointed another Speed son, James, as United States Attorney General, during his second administration.¹⁰

As Louisville's population and commerce expanded during the early and middle nineteenth century, so did the number of country estates. In 1820, Joshua B. Speed, a manufacturer and relative of Judge John Speed of Farmington, built Chatsworth, a large Colonial style mansion in the Crescent Hill area near what is now Peterson Avenue. A few years later, John Burk built a handsome home along present-day Cannons Lane and Bowman Field. Set deep in a grove of beech trees and built of brick manufactured on the site, the house combined Gothic Revival elements such as an asymmetrical arrangement, lacy bargeboard, and a square central tower with such Italian motifs as tall, round-headed windows. Renovated by the Crescent Hill Women's Club to serve as a library for soldiers at Bowman Field during World War II, the structure has since been demolished.¹¹

One of Louisville's early homes whose origin is most obscure is the Howard-Gettys House on Bates Court, just west of Barrett Avenue in the Tyler Park area. Located on land which was once part of the original William Preston military survey grant of 1774, the site was acquired in 1832 by John Howard, Jr., and Samuel K. Page, two local brickmakers, from Colonel Preston's granddaughter and her husband, Sophonisba and Robert Jefferson Breckinridge. The following year, Howard and Page subdivided the land and the former took the lot composing Bates Court. Available records do not state specifically when, by, or for whom the home was constructed, but the best inference attributes it to Howard, sometime between 1836 and 1840. In any case, the Howard-Getty House is an excellent and rare example of vernacular Kentucky architecture showing a transition from the Federal style to the Greek Revival. Federal characteristics include a fanlighted door-

way, raised basement, and a portico of rather delicate scale, while the corner pilasters and recessed panels of the facade bespeak the influence of the Greek Revival style. Among the home's many owners was James Guthrie, Louisville financier and Secretary of the Treasury under the administration of President Franklin Pierce, although there is no evidence that Guthrie ever lived in the house.¹²

A most important country home insofar as it demonstrates the continuum of local architectural history is Selema Hall, located northwest of the intersection of Brownsboro Road and Zorn Avenue near the northeastern edge of Louisville. Although once part of the Southall-Charlton tract, the site of Selema Hall changed ownership approximately a half-dozen times before being acquired in 1838 by wholesale dry goods merchant David Chambers, to whom construction is attributed. Although apparently built sometime between 1838 and 1842, the house boasts such Federal motifs as a raised basement, found in Farmington and the Howard-Gettys House, while the two-story main block and the coupled columns of the portico are definite Greek Revival characteristics. The source of the name "Selema Hall" is unknown, but that name appears in the 1880 will of Mildred Ann Thompson, whose family acquired the property from Chambers in 1842.¹³

Several other outstanding homes were built to the east of the city during the 1840s. In 1842, a local lumber man and land speculator named Colonel Joshua Bowles moved out of the city into a three-story Italianate mansion between what are now Frankfort Avenue and Brownsboro Road. He named the structure "Clifton," a name which was given to the surrounding neighborhood when it began to develop during the latter years of the nineteenth century.¹⁴ Regrettably, the house was demolished several years ago.

About the same time as Bowles was building Clifton, Dr. Thomas S. Kennedy was building a home called "Fair View," near the Fairgrounds on the northside of Frankfort Avenue in the area later known as Crescent Hill. The symmetrical main block of the handsome two-story structure combined such Italianate features as a bracketed cornice and a central octagonal turret with Gothic-Revival motifs such as a steep gabled roof and lacy bargeboards. During the years preceeding the Civil War, the abolitionist Kennedy family used the house as a way station on the Underground Railroad, and during the Civil War, Union troops camped on the adjacent Fairgrounds frequently enjoyed treats from the Kennedy wine cellar and kitchen. Later known as "The Turrets," the Kennedy house remained a center of social life in Crescent Hill for decades to come. The house was demolished, subsequent to an unsuccessful effort to save it, after being seriously damaged by the Tornado of 1974.¹⁵

Demonstrating nineteenth century Louisville's continuing fascination with classical styles is "Beechland," located on Rebel Road, just north of Brownsboro Road between Crescent and Hillside avenues. Until 1846, the Beechland property was owned by Mrs. Gibson Taylor, sister-in-law of General Zachary Taylor. The original Beechland home was a two-story log cabin with a central hall. It was here that General Taylor's daughter, Sarah Knox, married Jefferson Davis, later president of the Confederacy. Sometime between 1846 and 1848 Beechland was purchased by a Captain Anders, owner of a steamboat line that operated between New Orleans and Louisville. Captain Anders moved to the log house and replaced it with a two-story gray brick Greek Revival home which stands on the site today.¹⁶

A major factor in promoting urbanization east of Louisville during the city's first half dozen decades was the development of a turnpike network which tied Louisville to surrounding cities such as Bardstown, Taylorsville, and Shelbyville. These early roads tended to follow the old hard-packed trails which had been created years before by buffalo herds and migrating Indians. The best known was the Wilderness Road, which began in Virginia, passed through the Appalachians, and entered Kentucky at the Cumberland Gap. From here it wound its way to Harrodsburg and eventually terminated at the Falls of the Ohio, the final leg serving as a vital supply line for the settlement at Fort Nelson.¹⁷

The Wilderness Road's route through Jefferson County and into Louisville approximated the present day paths of Blue Lick Road and Preston Highway. But as traffic into the area increased, branches developed to such Beargrass settlements as Sullivan's Old Station, Kuykendall's Station, and Floyd's Station, following closely in some places the present route of Old Shepherdsville Road.¹⁸

The first main route through eastern Louisville was Bardstown Road. On April 10, 1784, the Jefferson County Court authorized Davis Cox, Charles Polk, Andrew Vaughn, Jr., and Thomas Cunningham to "view and search out the nearest and most convenient way from Col. Issac Cox's to Beard's Town, and report accordingly. As outlined on John Filson's Map of 1784, the route approximated the present-day path of Bardstown Road.¹⁹ But major construction would be delayed for more than four decades.

In early 1817 the Commonwealth of Kentucky embarked upon an era of internal improvements with the General Assembly's passages of a bill to incorporate the Lexington and Louisville Turnpike Road Company and the Lexington and Maysville Road Turnpike Company. Two years later the legislature incorporated the Louisville Turnpike Company "to make a turnpike road from Louisville ten miles towards Bardstown." The legislation authorized the sale of 1,000 shares of stock, to be sold at \$100 per share, and vested in commissioners Frederick W. S. Grayson, Archibald Allen, and Peter B. Ormsby the powers necessary to carry out the company's mandate.²⁰

But immediate construction was prevented by the panic of 1819 and the turnpike company eventually passed out of existence. In 1829 the General Assembly enacted legislation to revive the Louisville Turnpike Company and several similar corporations and empowered them to fulfill the obligations set forth in their original charters. In March 1832, after three more years of delay, the board of directors of the Louisville Turnpike Company ordered construction of a turnpike road extending from "the south side of the Beargrass Creek at the end of the bridge on the present Bardstown (sic) road . . . to the point of Speed's Lane (Farmington) near his gate." The board also designated Samuel Forwood, himself a board member and major stockholder, as its agent to supervise construction and appropriated \$150 per mile in payment for his services.²¹

As with others that followed, Bardstown Pike was given a macadamized surface, although it did not take long for the road to become riddled with pot holes and gullies that turned into muddy quagmires in wet weather. The first toll gate was located on the intersection of Beargrass Creek and Baxter Avenue. But as the city grew, the gate was moved again and again, first to the site of Church of the Advent parish house near Cave Hill Cemetery, later to Slaughter Avenue now Patterson. By 1873 it had reached Eastern Parkway. When the turnpike company sold out to Jefferson County in 1901, the gate was at Speed Avenue. The second

toll gate was located permanently near the present Bashford Manor Shopping Center.²²

In 1818, the legislation which the year before had created the Lexington and Louisville Turnpike Company and authorized it to "make an artificial road on any part of the route from Shelbyville to Louisville" was repealed. In its place, the General Assembly vested that responsibility in a new Shelbyville and Louisville Turnpike Company. As was the case with the Bardstown Pike, construction was stymied by the panic of 1819.²³ But when recovery set in, the company was revived and the Shelbyville and Louisville Turnpike was completed, creating a hard surface road which began at Story Avenue on the eastern edge of Louisville and followed the present course of Frankfort Avenue and Shelbyville Road into the heart of eastern Jefferson County.

Together, the Bardstown and Shelbyville and Louisville Turnpikes would form the two major radial axes for urban development in eastern Louisville and Jefferson County for more than a century to come. But turnpike construction did not cease with these two roads. In 1836, the General Assembly incorporated the Taylorsville and Louisville Turnpike Company and empowered it to build a turnpike from Taylorsville, in Spencer County, to an intersection with Bardstown Pike. A year later the Assembly did precisely the opposite, incorporating the Louisville and Taylorsville Road Company and authorized it to construct a macadam road from Louisville through Jeffersontown to Taylorsville. Apparently nothing came of the venture, probably because of the panic of 1837. But similar legislation was passed again in 1848, this time specifying a route "from or near George Doup's on the Bardstown Turnpike . . . by way of Jeffersontown . . . to Taylorsville."²⁴ That highway later became known as Taylorsville Road.

Several other turnpike roads were authorized and completed during the last dozen years before the Civil War. In 1849, the General Assembly incorporated the Louisville and Oldham Turnpike Company and empowered it to build a macadam road from Geiger's Ferry Road near Butchertown through Harrod's Creek to Bedford in Trimble County, following a route which approximates River Road. The same year, the legislators approved creation of the Jefferson and Brownsboro Turnpike Company and authorized it to build a road from the intersection of Westport Road and the Shelbyville and Louisville Turnpike at Gilman's (St. Matthews) to Brownsboro in Oldham County. A year later, the Assembly amended this act to change the origin of the road to "any point on the Shelbyville and Louisville Turnpike Road between... Westport Road...and the limits of the city of Louisville or at any point in the eastern line of said city, between the river and the Shelbyville and Louisville Turnpike Road." As a result of this legislation, the route which is now Brownsboro Road originated at Beargrass Street (now Story Avenue) just east of the origin of the Shelbyville and Louisville Turnpike (Frankfort Avenue). Finally, in 1851 the General Assembly empowered the Shelbyville and Louisville Turnpike Road Company to build a branch line from some point on its existing line "to enter Louisville at the extension of Market Street or suitable nearby point" to allow travellers who so desired to avoid the Louisville and Frankfort Railroad, which was being completed along the turnpike's main route.²⁵ Today the branch line is known as Lexington Road.

Complementing the turnpike system as an impetus for urban growth in eastern Louisville was the completion of the Louisville and Frankfort Railroad along the route of the Shelbyville and Louisville Turnpike. The road was originally conceived in the late 1820s as part of a scheme by several Lexington promoters and businessmen to build a railroad from Lexington to the Ohio River. With the assistance of some Louisvillians, who hoped that their city would become the line's western terminus, the General Assembly incorporated the Lexington and Ohio Railroad Company on January 27, 1830. Less than two months later, the company's board of directors authorized a preliminary survey of a proposed route from Lexington to Louisville via Frankfort and Shelbyville. Despite severe financial and construction problems, service between Lexington and Frankfort opened in January 1834. The line that resulted became known as the Lexington and Frankfort Railroad Company.²⁶

It was a different story, however, between Louisville and Frankfort. Work lagged behind, despite the fact that after the Lexington and Frankfort lines opened, the city of Louisville levied a real estate tax of one percent annually for four years to support construction. In 1838, a section from western Louisville to Portland began operations, but legal challenges instigated by local citizens who did not want a railroad built through the center of town stymied further construction within the Louisville limits. Meanwhile, the entire Lexington and Ohio Railroad Company suffered serious financial reversals in the wake of the panic of 1837. The company failed to make interest payments due the State between 1838 and 1841. During the latter year, the General Assembly passed legislation authorizing the state auditor to sell the road and its franchise at public auction, a sale which transpired in January 1842. The purchaser was the Commonwealth, which in turn leased the line to a private firm until 1848, when it was resold to a newly organized Lexington and Frankfort Railroad Company. As a result of the Lexington and Ohio's financial woes, work on the Louisville to Frankfort project was suspended.

Finally, on March 1, 1847, the General Assembly chartered the Louisville and Frankfort Railroad Company to complete the road as originally planned from Frankfort to the Ohio River at Louisville. The following year, the charter was amended to require that the road be constructed to "one point" on the Ohio River and to "one point" within the City of Louisville. By the fall of 1841 new surveys had been completed, and construction began in March 1849. Despite intervening financial problems, solved with a \$1 million loan from the City of Louisville, construction was completed between Louisville and Frankfort in June 1852. During the following July and August, the Louisville and Frankfort and the Lexington and Frankfort were connected to form a single line. Six years later, after two years of joint operation, the two lines were consolidated, creating the Lexington, Frankfort and Louisville Railroad.²⁷ After the Civil War the line became known as the Louisville, Cincinnati and Lexington Railroad.

As late as 1858, urbanization remained largely confined to the area west of Beargrass Creek, but the turnpike network played a pivotal role in demarcating the division of property east of the city. During the decades that followed the Civil War, these same property lines would be important in the process of subdividing the area for residential development.

Despite the rather slow pace of residential subdivision east of Louisville, numerous industrial and institutional activities had taken root in the area by the mid 1850s. As a consequence of the abundant quantities of high quality limestone that undergirded the city, numerous stone quarries dotted the landscape along the Shelbyville and Louisville Turnpike and its southern branch, now Lexington Road. These quarries no doubt accounted in part for the decision in 1850 to move the city's workhouse from its original location on Chestnut Street between Eight and Ninth streets to a new site in the vicinity of Payne Street and its present intersection with Lexington Road near Cave Hill Cemetery. Because of its proximity to the Bourbon Stockyards, near Butchertown, the same area also was the site of numerous pork houses.²⁸

One of Louisville's most beautiful institutions, by any standard, is Cave Hill Cemetery. Bounded roughly by Baxter Avenue and Cherokee Road, Grinstead Drive, Lexington Road, and Payne Street, Cave Hill was chartered by the General Assembly in 1848. Its original grounds, including the beautiful Preston's Woods, consisted of 40.6 acres. Subsequent additions have expanded the cemetery to nearly 300 acres. Although its hundreds of grave sites, including the city's elite and humble alike, would be sufficient to establish Cave Hill's significance, its glory is enhanced by both its park-like landscape architecture and its built architecture. Responsible for Cave Hill's superb design was David Ross, a Scottish landscape architect and horticulturalist whose plan for the cemetery grounds is still followed today. As the cemetery's first superintendent, Ross drew a plan which not only took advantage of the site's topographical assets, but which made "virtues out of its disadvantages," such as sinkholes. In 1856 David Ross turned his post over to his brother, Robert, who previously had worked on the Duke of Devonshire's beautiful estate at Chatsworth in Derbyshire, England. Adding to Cave Hill's magnificence is its entranceway and campanile, designed in a lavish Renaissance style by William H. Redin and built in 1887. Among the distinguished figures buried in Cave Hill are George Rogers Clark and many of his family; George Keats, nineteenth-century businessman and brother of English poet John Keats; and architect Gideon Shryock, who designed the Jefferson County Court House.²⁹

Immediately northwest of and adjacent to Cave Hill is Eastern Cemetery, which is enclosed by Baxter Avenue and Payne Street. The 15 acre burial ground originally consisted of two seven-and-a-half acre plots owned by Samuel Schwing and Samuel K. Richardson respectively. In the early 1850s, Schwing and Richardson deeded their tract to representatives of the Fourth Street and the Brook Street Methodist Episcopal Churches. In March 1854, the two tracts were formally merged through the incorporation as Eastern Cemetery by an act of the General Assembly. In 1935 Eastern Cemetery became the site of Louisville's first crematorium.³⁰

The East End also was the site of Kentucky's first state fair. In 1853 the Southwestern Agricultural and Mechanical Association sponsored an exhibition on a section of land in Crescent Hill near Crescent Avenue now occupied by St. Joseph's Catholic Orphans Home and adjacent to the old Kennedy Home, "Fair View." The fair ran for five days and ended with a "Grand Cavalcade" at the Galt House. Four years later the United States Agricultural Society held a huge fair on the same grounds. According to a description in Harper's Weekly, the grounds included a large livestock display arena, a one-mile elliptical race track, a beautiful octagonal exhibition hall for fruits and flowers, and display areas for agricultural machinery and household implements.³¹

Another of Louisville's early architectural treasures located in the East End was the Kentucky School for the Blind. The third oldest such school in the United States, it was created by an act of the General Assembly in May 1842 and opened in a building on Sixth Street between Walnut and Chestnut Streets. A decade later a decision was made to move to a suburban location east of the city along the Shelbyville and Louisville Turnpike. In 1883, the school commissioned architect Francis Costigan, of Madison, Indiana, to design a new building. Costigan designed a monumental Greek Revival structure having a five-story main block with a three-story, four-column portico and topped with a white-domed roof and a cupola. The building opened in 1855. During the Civil War, the Union army used the school as a hospital, and in 1898, two four-story wings were added. Unfortunately, the ravages of time and changing educational techniques had made the building obsolete by the mid 1950s. When State officials began discussing the possibility of razing the structure and replacing it with a modern building, a movement developed to preserve it. Organizations such as the Filson Club, the American Institute of Architects, and the Society of Architectural Historians developed plans for renovation and alternate use. The preservation movement stalled demolition for several years, but in the end, the effort was futile, and the building was razed in 1967.³²

Finally, the antebellum years witnessed the advent of Louisville's water system, and with it, the construction of the magnificent pumping station at Zorn Avenue and the Ohio River. In 1854 the General Assembly chartered the Louisville Water Company. Original plans called for the water works to be in operation by 1857, but administrative and financial problems prevented the initiation of construction until the following year. In September 1858, the cornerstone was laid for the 169-foot-high stand pipe tower, which, along with the adjacent engine room, was executed in an exuberant Classical Revival style. The engine room imitates a Corinthian temple and the standpipe takes the form of a triumphal Roman column. The ornamentation is of terra cotta and cast iron. Although attributed in some historical works to Gideon Shryock, Louisville's premier exponent of Greek Revival architecture, all available contemporary evidence suggests that both engineering and architectural work must be credited to Theodore R. Scowden, the company's chief engineer. When completed and equipped in 1860, the station housed two beam Cornish engines, two pairs of duplex steam engines, and two batteries of boilers containing three Cornish boilers each, providing a daily pumping capacity of 16 million gallons. Construction began on a second pumping station with a capacity of 18 million gallons per day in 1885 and was completed in 1893. In the meantime, the standpipe was knocked down by the tornado of March 27, 1890. It was re-erected by Chief Engineer Charles Hermany, who had been Scowden's assistant at the time of its construction three decades earlier.

Although taken out of operation several years ago, the original standpipe and pumping station have been well maintained by the Louisville Water Company.³³ Recently the two structures were leased to the Art Center Association and both are being adapted for use as office, studio, and gallery space.

While residential development did not particularly accompany the establishment of institutional and industrial activities along the turnpikes which entered Louisville from the east, some residential subdivision did begin to emerge along the east side of the South Fork of Beargrass Creek during the 1850s. In 1853, Susan Preston Christy, daughter of Major William Preston, and her husband, Howard F. Christy, of St. Louis, subdivided a portion of the original Preston military grant south of Broadway bounded today by Bardstown Road on the east, Barrett Avenue on the west, the alley between DeBarr and Breckinridge on the north, and the alley between Morton and Highland Avenues on the south. The tract was named Christy and Johnston's Subdivision in honor of Susan Preston Christy and Henrietta Preston Johnston, Susan's sister, who was married to Albert Sidney Johnston, later a distinguished Confederate general who lost his life at the battle of Shiloh. Now part of the Highland neighborhood, the subdivision was known at the time of the Civil War as New Hamburg because of its predominantly German population.³⁴

Lying to the north of Highland is the neighborhood which is today known as Irish Hill. It is bounded on the west by Baxter Avenue, which in the mid-nineteenth century was part of Bardstown Pike, on the south by Eastern Cemetery, on the north by Beargrass Creek, and on the east by the Clifton neighborhood. Once known locally as Billy Goat Hill, after the hundreds of goats which grazed the hillside on Whaley's goat farm, the neighborhood's first dated subdivision was Adams and Hull's Addition, which was laid out in 1859 by Benjamin J. Adams and John C. Hull. Bounded on the north by Lexington and by Payne Street on the south, this single subdivision forms the heart of the neighborhood. In 1864, Ward Payne subdivided the land between Eastern Cemetery and the street that bears his surname, and in 1884 William Schneikert and George Schuele resubdivided the lots in Adams and Hull's Addition demarcated by Cooper Street, Hull Street, Pine Street, and Lexington Road.³⁵

Like other districts in the vicinity, nineteenth-century Irish Hill had its local slaughter house, known as the Beargrass Pork House, located on a lot bounded by Work House Road (now Lexington Road), Baxter Avenue, Hull Street and Cooper Street. But it was primarily a residential neighborhood, consisting mostly of frame shotgun houses with a scattering of brick homes along the north side of Payne Street between Cooper and Pine streets and along the west side of Baxter Avenue between Hull and Payne.³⁶

The largest house in the neighborhood is a handsome Renaissance Revival structure built around 1869 for Louisville Tobacco merchant Nicholas Finzer. Located at 1212 Hull Street, the Finzer house is a two-story brick structure of symmetrical arrangement with a central entry way flanked by two windows on either side of the first floor. Finzer himself arrived in Louisville in 1853, having emigrated from Switzerland with his parents and four older brothers. In 1866 the brothers

established the Five Brothers Tobacco Works. Although the initial operation was small, it prospered quickly and grew steadily. Twenty-three years after the company was founded, Nicholas Finzer succeeded to the presidency, and under his leadership the firm became one of the largest manufacturers of plug and smoking tobacco in the United States. Also a prominent financial and civic leader, Nicholas Finzer was a director of the German Insurance Bank and a member of the school board. His special interest in education was the establishment of night schools, and it was through his personal financial assistance that the Third Ward School on East Broadway was employed as a free night school for Finzer's employees. The building was later named Nicholas Finzer School in the tobacco merchant's honor.³⁷

Even through the area east of the city remained sparsely settled before the Civil War, this did not stop the city from extending its boundaries eastward. In 1854 the General Assembly enacted legislation which annexed to Louisville a large tract south of the forks of Beargrass Creek, embracing Irish Hill, Phoenix Hill, New Hamburg, and Germantown east of the creek, as well as most of Cave Hill Cemetery. Two years later the legislature added the area to the north bounded by the Ohio River on the north and the forks of the Beargrass Creek on the south, Preston's Enlargement on the west and the Beargrass Creek cut-off on the east.³⁸

Between 1860 and 1865 the attention of most Louisvillians was focused upon the political and military conflict between North and South. Because it controlled access to the lower Ohio and Mississippi Rivers and served as the northern terminus of the Louisville and Nashville Railroad, Louisville was of strategic importance to both sides. From Fort Sumter to Appomattox, Louisville was controlled by forces friendly to the Union. During most of the war it was occupied by Federal troops and soon became an important supply, hospital, and prison center. Although never attacked outright by invading Confederate armies, Louisville was threatened in the fall of 1862 by troops under the command of General Braxton Bragg. The invasion was finally turned back by the Union forces of General Don Carlos Buell at the bloody encounter at Perryville in Boyle County on October 7 and 8. Louisville was never again threatened by a major Confederate invasion. But periodic raids in the vicinity by Southern cavalry units, such as those led by General John Hunt Morgan in 1863, and by guerilla bands led by notorious Sue Mundy (Jerome Clark), Henry C. Magruder, and William C. Quantill continued to strike fear in the souls of many citizens.

The fear of Confederate attacks prompted continual calls from Louisvillians for the construction of a defense network around the city. One of the most vocal in this regard was George D. Prentice, editor of the Louisville Journal. Finally, in July 1864, after much agitation and a June raid by Morgan, local and federal officials began seriously to discuss plans for an extensive system of forts to ring the city. In early August the General Council instructed the mayor to advertise for 400 persons to serve as laborers on the forts. During the next few months, a chain of 11 forts and two artillery batteries was completed, taking the form of a ten-and-one-quarter mile arc which stretched around the city's eastern and southern perimeter from Brownsboro Turnpike on the east to Upper Paddy's Run on the west.

The main approaches to the city from the east were protected by a network of four forts and a battery. Fort Elstner, located in the vicinity of what are now Bellair, Vernor, and Emerald avenues, commanded the area from the Beargrass Creek cutoff at the river to the Shelbyville and Louisville Turnpike. Located somewhat to the southwest, Fort Engle guarded access via the Louisville and Lexington Railroad and the Shelbyville Branch Turnpike (Lexington Road). Directly to the south, in the center of what is now part of Cave Hill Cemetery, was Fort Saunders, which was intended to thwart an overland advance between Shelbyville Branch Turnpike and the Bardstown Turnpike. The fourth of these fortifications was Fort Hill, which overlooked the first bend in the Newburg Turnpike Road. Reinforcing it was Battery Camp, located somewhat to the north at the present vicinity of Baxter and Rufer avenues.³⁹ But within months after their construction, the war ended and the Louisville forts never were put to the test.

During the first nine decades of Louisville's history, development in what is now the city's East End was minimal. Economically, the area was devoted primarily to agriculture, which was symbolized by the numerous outstanding country homes which dotted the area. But during the three decades which preceeded the Civil War, the development of a radial transportation network and the establishment of several industrial and institutional activities foreshadowed the urbanization which was to come. With the end of the Civil War and the advent of the streetcar, eastern Louisville would burst outward, setting off a chain reaction of urban development which would continue, with only brief interruptions, for more than a century.

CHAPTER II

URBAN PARKS AND STREETCAR SUBURBS

During the half-century between the end of the Civil War and American entry into World War I, Louisville burst at its seams, moving outwardly to the west, south, and east. The earliest and most intensive growth occurred in the West End and South End, both of which had more flat land than the East End. But, it also was during this period that eastern Louisville experienced its first major spurt of suburban development. This growth took place along two primary radial axes. To the east and northeast, development spread out from Frankfort Avenue, forming the neighborhoods of Clifton, Crescent Hill, and Clifton Heights. Both Brownsboro Road and Lexington Road served as important secondary arteries of development in this area. By the same token, development to the southeast followed the general direction of Bardstown Road, centering in the neighborhoods of Phoenix Hill, the Paristown section of Germantown, Highland, Cherokee Triangle, Tyler Park, Deer Park, and Bonnycastle.

The development of eastern Louisville can be attributed to three basic forces, which together made it possible not only to overcome the barriers of topography which once hindered growth, but to use these natural features to promote development. The first of these factors, which conquered the problem of distance, was the invention of the street car. Until the latter years of the Civil War, personal and public transportation in the city was limited to foot-power or slow, clumsy, and expensive horse-drawn hackney coaches and omnibuses. But in February 1864, the Kentucky General Assembly chartered the Louisville City Railroad Company and authorized it to construct and operate "a single or double track railway...within the present or future city limits of the city of Louisville..." The legislation empowered the corporation's directors to subscribe a capital stock of \$300,000. The company's first president was General Jeremiah T. Boyle, commander of the Union garrison at Louisville. The first line followed Twelfth Street from Rowan to Main and then turned eastward, running along Main to Wenzel. Service on the horse-drawn street railway went into effect in November 1864.¹ Over the next two decades, street car companies and service franchises proliferated to the point that almost every resident of the city soon lived within easy walking distance of a street car stop.

The first line created in the East End was the Beargrass Railway, incorporated by the General Assembly in 1867. Its charter allowed the company to build a single or double track railroad from Beargrass Creek to the Fair Grounds along either the Shelbyville Turnpike (Frankfort Avenue) or the adjacent Louisville, Cincinnati, and Lexington Railroad. Fifteen years later, the General Assembly created the Crescent Hill Railway Company, which operated along Hamilton Avenue and Payne Street. By 1887 Louisville was served by approximately 125 miles of streetcar and inter-urban railroad lines. The eastern section of the city was served by the East Walnut Street line, which ran from Fourth and Walnut streets to Baxter Avenue and Bardstown Road; by a central Louisville line to Cave Hill Cemetery; and another which ran to Story Avenue and Frankfort Avenue.²

During the 1880s a movement emerged to consolidate the city's competing streetcar lines. The process culminated in 1890 when the Louisville City Railway Company and the Central Passenger Railroad Company, the two largest surviving corporations, adopted the name of the Louisville Railway Company, a smaller outfit which the former firms had owned jointly. Nine years later the entire consolidation process ended when the Louisville Railway Company absorbed the Crescent Hill Railway Company. The primary motivation behind consolidation was the need for a reordered capital structure in order to electrify the street car system. The electric street railroad was first introduced in Louisville in 1889, just one year after the first such system was perfected by Frank J. Sprague in Richmond, Virginia. Over the next several years, electric trolley cars gradually replaced the city's mule cars. In the east, the Market Street line was extended from the Bourbon Stockyards out Story Avenue through Butchertown to Crescent Hill via Walnut and Payne Streets. Finally, trolley lines from the western parts of the city joined the Bardstown Road line, which was extended to Douglass Boulevard in 1912.³

By making it more accessible, the streetcar also made suburban land more marketable for residential development. This increased land values somewhat, but the street car's primary effect was to encourage a pattern of low density development, which prevented real estate prices from rising to levels comparable to those in the older parts of the city. As the demand for suburban land grew, the second new force in the development process emerged - the simultaneous professionalization of the real estate business and the proliferation of building and loan associations.⁴

Before the Civil War, the buying and selling of land was a game played primarily by the heirs of original patentees and well to do business and professional men who regarded speculation in land as a mark of respectability and status. In addition, land often was subdivided by the courts as a means of dividing an estate, especially if the heirs did not have enough cash to settle the estate's financial obligations or if the survivors could not come to an acceptable arrangement in the absence of a will.

The amateurs did not by any means abandon the field after the war, but as the century wore on, the proliferating real estate and land companies came to dominate the business. Sheer numbers alone facilitate the process. In 1866 the city could claim a mere 15 professional real estate agents. Within four years the figure had increased to 23 and by 1880 that figure had doubled. And as the booming land business grew during the 1800s, so did the number of realtors, rising to 95 by 1890.⁵

Once they had completed their legal obligation to survey a tract and had recorded the plat of lots, along with the layout of streets, avenues, alleys, and public grounds, in the county clerk's offices, real estate agents and land companies would engage in vigorous campaigns to market their lots. All kinds of glittering superlatives were employed to attract potential homeowners and investors. Some sellers stressed the beauty and elegance of suburban settings; others promised cures for, or safety from, consumption or malaria; and still other advertised the advantages of a location close

to the amenities of the city while being removed from its social and environmental ills. Naturally, all the necessities of urban life - utilities, schools, churches and stores - were promised as well.⁶

Such advertising clearly was oriented toward a mass audience, not an inappropriate marketing approach in an age when growing middle and working classes were being created by Louisville's expanding commercial and industrial economy. But few buyers had the ready cash necessary to purchase a lot and build a home in quick order. A system of easy payment for a lot and improvements was essential, therefore, for a successful sales campaign. Thus, land companies quickly adopted the tactic of advertising long credit and low payment terms, usually meaning a note payable in six years and interest due every six months at six percent.⁷

Facilitating this credit system were the building and loan associations, which sought to aid potential "homestead" buyers by encouraging them to develop a regular savings program. The objective of these institutions, according to Caron's 1874 city directory, was "the accumulation of a fund derivable from monthly contributions and fines, premiums on loans and interest on investment for the benefit of members affording them a safe depository for monthly savings and to facilitate them in the acquisition of homesteads or other property." In mid 1879, 13 building and loan associations already were operating within the City of Louisville. Between 1886 and 1892, 18 such institutions were organized.⁸

For the average homebuyer, the particular advantage offered by the building and loan association was the opportunity to borrow up to 66 percent of the appraised value of one's property, compared with a limit of 50 percent of appraised value for a commercial mortgage. To an enthusiastic advocate of suburban development such as The Critic, a local journal which combined political muckraking and social gossip, the building and loan associations performed a social function nearly equivalent to that of the church. At one point, indeed, the paper observed, "There is no more efficient agent for bettering the condition of men outside of agencies moral and religious." While the associations were not so bold as to clothe themselves in such moral rhetoric, they did promise that for an investment of 60 cents a month, a thrifty laborer could one day own his own home, and that one could repay a loan in monthly installments which approximated one's existing rent. Such terms had enabled growing numbers of Louisville's middle and working classes to become homeowners and, in the process, had hastened significantly the suburban exodus between 1865 and 1917.⁹

The third force promoting suburban development in eastern Louisville was the creation of the park system, primarily Cherokee Park, and to a lesser extent, Tyler Park. In their efforts to market suburban land, speculators frequently appealed to the city dwellers to leave the dirt and confinement of the city for a natural refuge in the country. One way in which sellers tried to meet this appeal was to give their subdivisions a parklike atmosphere through such artificial means as planting trees along broad streets, platting deep lots, and giving their subdivisions parklike names. Early subdividers in the Highlands and Crescent Hill areas capitalized

upon the beauties of the nearby Cave Hill Cemetery and the Crescent Hill Reservoir.¹⁰

During the late 1880s, however, a movement emerged to establish a publicly owned and financed park system. The movement was centered in the Salmagundi Club, an organization of business and professional men who banded together to promote the public welfare and increase the city's commercial growth. Particularly involved in the park effort were John Mason Brown, Thomas Speed, Andrew Cowan, and Charles Hermany. In 1890, with assistance from the Commercial Club, the Salmagundians persuaded the General Assembly to enact legislation enabling the city to create a Board of Park Commissioners which could issue bonds to acquire, improve and manage park property.¹¹

In the meantime, the efforts to develop a carefully designed parks plan were temporarily short-circuited by the politically astute Mayor Charles D. Jacob, who took it upon himself in the fall of 1888 to buy "Burnt Knob," a towering tract of rugged forest land four miles south of the city. A short time later, he sold the land to the city for \$9,800 and started planning a "grand" boulevard from the city limits to the park site. The city's initial effort to develop Burnt Knob as a park was washed out by severe rains, however, and under an ordinance passed in November 1890 the city transferred all of its land for parks, parkway, and boulevards to the newly created Board of Park Commissions. Burnt Knob was named Jacob Park and later renamed Iroquois Park. Early in 1891 the Commissioners purchased large tracts in the western and eastern parts of the city, which became Shawnee and Cherokee parks, respectively.¹²

The advantages of such sylvan environments for urban residents were explained by Frederick Law Olmsted, the Boston landscape architect commissioned to layout the entire park system, as "simply the healthfully soothing and refreshing effect which experience proves is exercised upon people escaping from the splendor and bustle, the confinement and disturbance of town into the midst of spacious scenery." For land speculators, the benefits of urban parks were more pragmatic: they could advertise lots on the basis of proximity to a publicly financed amenity rather than having to go to the expense of artificially creating the appearance of such an attraction. Recognizing the financial advantages which would accrue to them as the result of such a location, land owners such as C.S. Longest and Mrs. H.C. Bonnycastle eagerly donated sizeable tracts of land for development of landscaped drives leading into Cherokee Park. Property owners in its vicinity did not overestimate Cherokee Park's impact upon land values. After 1891, land prices soared, sometimes doubling or tripling in a short period of time. Increased demand encouraged the extension of trolley cars and utilities, and by the mid-1890s, an address on Cherokee Road, Cherokee Avenue, or Cherokee Parkway was a mark of high social and economic status.¹³

The first center of development along the Frankfort Avenue axis after the Civil War was the Clifton neighborhood. Actually, land subdivision in Clifton began as early as 1850, when William F. and Sarah Schwing, Samuel Schwing, Menanda Owings, and J. M. Delph, a former Louisville mayor,

laid out Schwing and Owings Division, which lay along either side of Reservoir Avenue (Mellwood) between Spring Street and Frankfort Avenue. Five years later, James Guthrie, local attorney, businessman, and politician, platted his Eastern Addition, which took in most of the area bounded by Beargrass Creek on the west, Schwing and Owing's line on the north, Charlton on the east, and the Middle Fork of Beargrass Creek on the south. Because this area was bisected by the Lexington, Frankfort, and Louisville Railroad, it soon became a center of both industrial and residential development. By 1884, numerous frame houses, along with a scattering of brick dwellings, stood along Reservoir Avenue between Brownsboro Road and the railroad tracks and along the streets southwest of Charlton between Reservoir and Lexington Road. At the same time, the banks of the Middle Fork between the railroad tracks and Lexington Road became the focus of a thriving distilling business, with such enterprises as the R. P. Pepper Distillery, the American Distilling Company, and the Newcomb-Buchanan Company, distillers and wholesale whiskey merchants, as well as a cattle stable and several warehouses.¹⁴

The nearest thing to a major development in Clifton during the Civil War was a suit in Louisville Chancery Court which initiated the division of a large tract bounded by the LC&L tracks, Charlton Avenue, Lexington Avenue, and Bellaire Avenue, owned by the estate of Norton Q. Pope. Two more transactions, including another court case, were required before the division process of Pope's heirs drew to a close in 1874.¹⁵

In addition to the last two subdivisions carved out of Norton Q. Pope's land 11 more subdivisions were platted in Clifton during the 1870s and 1880s. In 1872, J.M. Bryant subdivided a small tract bounded today by the L & N (former LC&L) tracks and Haldeman, Frankfort, and State avenues. The same year, the Beechland Subdivision was platted in the former Charles D. Pope Addition, demarcated roughly by Brownsboro Road, Mill Street, Frankfort Avenue, and an alley between State and Pope streets.¹⁶

The most important development thrust was initiated in 1873 when his heirs, primarily James W. Bowles, began to divide the country estate of the Louisville banker, Colonel Joshua B. Bowles. The first tract subdivided was Bowles' Third Addition, a small triangular tract formed by Frankfort Avenue, Bellaire Avenue, and the railroad tracts. Two years later, a huge section bounded by Brownsboro Road, Bellaire Avenue, Frankfort Avenue, and Jane Street was subdivided as a consequence of a Chancery Court suit brought by the estate's executor against Colonel Bowles' heirs. In 1877, James W. Bowles and James Bridgeford laid out Cavewood Park Subdivision on a southern portion of the estate, whose perimeter was formed generally by the L & N tracks and Frankfort Avenue, Bellaire Avenue, Beargrass Creek, and Clifton Avenue. The following decade witnessed a series of subdivisions by James W. and F. Pope Bowles, Jacob L. Smyser, and Theodore Harris of a western tract somewhat to the west of the main estate, bounded roughly by Frankfort Avenue on the north, the railroad tracks on the south, Bryant's Subdivision on the east, and Charlton, Schwing and Owing's Subdivisions on the west.¹⁷

In the meantime, Adolph Rammers subdivided what is now the northern half of the grounds of the Kentucky School for the Blind in 1874. Eight years later, David Frantz, Jr., laid out a one-block subdivision across State Street from the School for the Blind. And in 1889, William Pope and John Edwards subdivided their small Southall Tract on a pocket of land bounded roughly by Frankfort Avenue on the north, Reservoir Avenue (Mellwood Avenue) on the west, and Smyser and Harris's division of the Bowles land on the south and east.¹⁸

A dozen more subdivisions were platted in Clifton after 1890, but the majority were small, consisting primarily of a few remaining lots which had not yet been developed in older subdivisions. The only new subdivisions of any consequence were a group of three tracts laid out by Charles Fust and Joseph Rastetter between 1898 and 1905 and roughly bounded today by Frankfort Avenue on the north, Jane Street on the east, Interstate 64 on the south, and Clifton Avenue on the west.¹⁹

Although the subdivision process in Clifton peaked during the 1880s and the suburb of Crescent Hill, immediately to the east along Frankfort Avenue, had just begun to emerge. Several factors played major roles in the development of Crescent Hill. In the first place, the Louisville, Cincinnati and Lexington Railroad and the Crescent Hill Railway Company's streetcar line along Payne Street provided suburban commuters with direct access to downtown businesses and offices. Eventually the L C & L stopped for commuters at Crescent Hill Grove at North Hite Avenue, and Reservoir Park near Eastover Court.²⁰

Another salient element in Crescent Hill's development was its topography. In contrast with the flat land of much of central, western, and southern Louisville north of Iroquois Park, the rugged hillsides and deep valleys of Crescent Hill offered the possibility of a suburban lifestyle which seemed truly Arcadian in character. At the same time, geological attributes which seemed to make Crescent Hill a sylvan retreat, removed from the hustle and bustle of the city, also affected the neighborhood's physical configuration. Thus, while subdivisions in most older Louisville neighborhoods were platted according to a fairly rigid gridiron pattern, the vast majority of those in Crescent Hill were laid out in an irregular fashion, including some winding roads, short courts, and dead end streets while preserving scenic vistas and open spaces. Finally, development was encouraged by the park-like setting created by the Fair Grounds and the Louisville Water Company's Crescent Hill Reservoir. By 1880, the Fair Grounds had been a Louisville institution for more than a quarter of a century, but the Reservoir and its accompanying gatehouse and general superintendent's house were another matter.²¹

During the mid 1870s it had become apparent that the water company had to increase pressure and expand its storage capacity if the growing city's need for water was to be met in the future. In the fall of 1876 the Water Company purchased two tracts of land between Frankfort Avenue and Brownsboro Road. The larger of the tracts, consisting of 100 acres, was purchased from Z. M. Sherley, at a cost of \$60,000 while a smaller tract of 10 acres was acquired from members of the Arterburn family for \$8,000. Construction on the reservoir began in April 1877. When completed two years later, the facility included two storage basins with a total capacity in excess of 100

million gallons. Moreover, the new reservoir, built at an elevation of 179 feet above the low water mark of the Ohio River, was 33 feet higher than the existing 10 million gallon facility. This rise in elevation increased water pressure from 35 pounds to 48 pounds per-square inch.²²

The architectural highlights of the reservoir are the gate-house and general superintendent's house, both of which were designed by Chief Engineer Charles Hermany in a rich High Victorian Gothic style. Built of rusticated limestone, the one and a half story gate-house has rich exterior walls which are pierced by recessed, attenuated windows which are capped by solid-looking, smooth stone hood molds. What makes the gatehouse particularly striking is its skyline, which is composed of steeply-pitched gabled roofs, highlighted by carved stone pitchers and of iron decorative railings which accent the roof crests. Likewise, the one-story superintendent's house is built of rusticated limestone set upon a basement level. The structure includes simple, segmentally-arched windows and recessed, rectangular window pairs separated by smooth stone, engaged columns with foliated capitals. The steeply-pitched roof was shingled with slate, and like the gatehouse, the roof crests include pointed, cast-iron railings, which were designed and manufactured by the local firm of F. W. Merz and Company.

Formally designed, beautifully landscaped, and carefully maintained, the Crescent Hill Reservoir attracted community attention from the beginning. Its grassy embankment, topped by a grand promenade of flagstones and a continuous cast-iron railing, created the impression of a neat sloping lawn and attracted Sunday sightseers in droves. Such an attraction was not lost upon land developers, who recognized that the reservoir's large open spaces helped to provide and maintain the open, rural character which made suburban living so attractive. Indeed, a long-standing tradition suggests that it was the beauty of the reservoir and its setting that provided the name of Crescent Hill. According to the legend, Mrs. Thomas S. Kennedy was driving her carriage through the grounds of the still unfinished reservoir when she observed that the hill and lake where the basins are located formed the shape of a Crescent.²³ The image caught on and before long the name Crescent Hill was in common usage.

But the subdivision process itself, which consisted largely of the inexorable partition by heirs of the original pre-Civil War estates which dotted the area, began much earlier in the 1870s. The initial focus of development was the Fair Grounds. In 1871, John T. Thatcher, through realtor S. S. Meddis, partitioned, promoted, and sold the tract known as Glenwood, which lay east of Stilz Avenue between Frankfort Avenue and Hermany Court on land that is today owned by the Louisville Water Company. Contributing to the lands saleability was the fact that it overlooked the Fair Grounds. Depending upon location and degree of improvement, land in Glenwood brought prices that ranged from \$750 to \$1,000 per acre for some improved lots to more \$12,500 for nine and one-half acre tracts of improved land. Approximately four years after Thatcher's Glenwood Subdivision was platted, Lewis Lentz laid out his Fairview Subdivision on a tract of land north of Frankfort Avenue opposite the Thomas Kennedy estate along either side of Crescent Avenue.²⁴

Lentz's Fair View Subdivision also ushered in a nine year moratorium on new land subdivision in Crescent Hill, a hiatus which one historian attributes to the depressing effects of the panic of 1873. Between 1875 and 1884, the only major project was construction of the Crescent Hill Reservoir.

Nevertheless, by 1884 enough people had constructed homes in the area to convince the General Assembly to incorporate the Town of Crescent Hill. The charter authorized certain taxes and improvements, but, as a testimony to the town's limited municipal status, it deprived the trustees of any power to interfere in the operation of the Louisville Water Company or involve itself in the management and conduct of the railroad and streetcar lines within the town's corporate limits. But incorporation did help to create a sense of community spirit and individual responsibility in the growing town. The town hired a night watchman to guard property, but most "crimes" were investigated by residents themselves and the charter mandated that each adult inhabitant participate in volunteer fire services. Schools, churches, and Sunday schools developed quickly, frequently meeting initially in private homes. Permanent buildings would be constructed once funds became available. The first community project was construction of a school, which also served as a weekend social gathering place, as a town hall, and as a church for Methodists and Presbyterians until their own edifices were completed.²⁵

Along with incorporation came a new surge of subdivision development. As if to underscore the changing state of affairs, 1884 witnessed the platting of the first subdivision to carry the name of Crescent Hill. The developer was George K. Speed, and the subdivision was Crescent Hill Subdivision No. 1, an irregularly shaped tract between Brownsboro Road and Frankfort Avenue. Like numerous other Crescent Hill property owners, Speed named the streets for members of his family, in this case, his children. Thus, the tract is bounded on the west by Jane Street, on the east by Ewing Avenue, and is bisected north to south by Keats Avenue. In a manner befitting its shape, the subdivision was platted according to an irregular grid pattern. Most lots measured 50 by 200 feet, and the average lot sold for \$500. Advertisements boasted of the neighborhood's beauty and prestige as well as its picturesque altitude, healthfulness, and favorable transportation connections.²⁶

Five years after Speed laid out his subdivision, heirs began to partition Thomas Kennedy's Fair View estate, with Kennedy's Crescent Hill Subdivision being staked out along both sides of Kennedy Court between Frankfort Avenue and present day Grinstead Drive. The following year, S. S. and Jennie Hite recorded a subdivision called Crescent Hill Park along either side of Hite Avenue north of Frankfort Avenue.²⁷

The tempo of growth picked up considerably during the 1890s and continued strongly into the early decades of the twentieth century. Between 1890 and 1917, some 25 new subdivisions were laid out and recorded in Crescent Hill. In 1890, M. E. Galt and T. G. Galt laid out Galt's Subdivision in Crescent Hill, located between Peterson Avenue and S. S. Hite's Crescent Hill Park. A major surge of development began the following year, when three new subdivisions were laid out on the south side of Frankfort Avenue between Jane Street on the west and the Kennedy estate on the east. On the western end, A. W. Randolph staked out Raymond's Subdivision, which extended from Jane Street to Peterson Avenue between Frankfort Avenue and Grinstead Drive. Two blocks to the east, Valentine and Fredrick Franck platted Valentine Franck's Subdivision which extended along either side of Franck Avenue from Frankfort Avenue almost to Longview Avenue. Somewhat further to the east, Martin and John Faust, along with realtors S. S. Meddis and Charles Southwick, platted Faust's Morning Side Addition, an irregularly shaped tract which stretched along both sides of Bayly Avenue from Frankfort Avenue to Grinstead Drive.²⁸

But development in 1891 was not confined to the south side of Frankfort Avenue. The largest single subdivision platted that year was Reservoir Park, a nearly triangular tract on the north side of Frankfort Avenue between the reservoir and Fenley Avenue. The developer was the Reservoir Park Company, which appears to have been associated with the Mechanics Trust Company.²⁹

The boom continued into 1892, when Jennie E. Speed subdivided Chatsworth, the former estate of manufacturer Joshua B. Speed. The tract included most of the land adjoining Peterson, Ewing, and Calvin avenues north of Frankfort Avenue. The following year, the Columbia Finance and Trust Company platted Aubindale, a subdivision demarcated generally by Frankfort Avenue on the south, the Fair Grounds on the west, Field Avenue on the north, and Linden on the east.³⁰ But the creation of Aubindale marked the beginning of another break in Crescent Hill's development, precipitated this time by the panic of 1893 and the severe depression that followed.

Despite the lull in development, Crescent Hill had grown enough since its incorporation that Louisville officials began to look upon the suburb with a longing eye. In 1893, the General Assembly enacted legislation which authorized first class cities to annex surrounding territory, including smaller incorporated towns, unless 75 percent of the citizens of the affected territory could demonstrate that annexation would "materially retard the prosperity of the [annexing] city and of the owners of real estate in and inhabitants of the territory sought to be annexed." The following year, the General Council passed an ordinance to annex Crescent Hill and two other suburbs on the city's fringe. Louisville sought through annexation to enlarge its population and broaden its tax base. But many residents of Crescent Hill and the other satellite towns fought to maintain their independence. For some it was a matter of snobishness. As one Crescent Hill resident recalled decades later, "We thought we were too good to belong to the city." For others, it was a matter of maintaining home rule and avoiding payment of higher taxes. On the other hand, some newer residents of the community favored annexation out of a desire for better urban services and a belief that being a resident of the growing, larger city was in itself a mark of pride and prestige.³¹

Opponents of annexation apparently out-numbered proponents, however, and in February 1894 the town of Crescent Hill filed suit in the Common Pleas Division of Circuit Court, maintaining that 75 percent of the town's residents favored maintenance of the status quo. The petition further questioned Louisville's need for the land because "there is now within the corporate limits a vast territory of land unimproved and many thousands of vacant lots." But the fight against annexation failed, and in June 1894 Crescent Hill dropped its suit and yielded to annexation.³²

As economic recovery set in during the late 1890s, Louisville experienced a new wave of suburban land development. Much of the new activity was in Crescent Hill. In 1899, James E. and Carrie Bell platted J. E. Bell's Subdivision in Crescent Hill. Located upon a small tract on the south side of Frankfort Avenue between Kennedy's Crescent Hill's Subdivision and Thatcher's Glenwood Subdivision, it was the last development platted in the neighborhood during the nineteenth century. Two years later, Nancy Jane Birch began subdividing the farm of George Birch, who had been a prominent livestock dealer at the Bourbon Stock-

yards. Beginning with the northern half of the tract along Birchwood between Faust's Morning Side Addition and Kennedy's Crescent Hill Subdivision, she replatted the subdivision in 1913 to take in all of the Birch property between Frankfort Avenue and Grinstead Drive.

In 1902, Peter Ellwanger, executor of the will of D. F. Ellwanger, subdivided an irregular tract of his family's land lying along the southern part of Hite Avenue between Frankfort Avenue and Hillside Avenue. The following year, Samuel English resubdivided a section of Lewis Lentz's Fair View Subdivision along English Avenue between Crescent Avenue and Stilz Avenue north of Frankfort. That same year, Charles D. Adams initiated development of the Inglenook Addition to Crescent Hill. Constituting the easternmost subdivision in the neighborhood, Inglenooks's first section lay along the south side of Ingle Avenue between McCready Avenue and Cannons Lane approximately midway between Frankfort Avenue and Lexington Road. Four years later, surveyor Ben Ford, Fred Diefenbach, Jr., and Hy Tobe added a second section immediately to the south along Richard Avenue.³⁴

Only one subdivision was laid out in Crescent Hill during 1906, and it was nothing more than a resubdivision of a section of Keats Avenue in Raymond's Subdivision of 1891. The subdivider was J. H. G. Wallbaun. But in 1907, three new subdivisions were laid out, besides the addition to Inglenook. The largest of the three was Blue Grass Addition, developed by realtor Charles M. Phillips and located along either side of Pennsylvania Avenue between Brownsboro Road and Frankfort Avenue. Capitalizing upon its distant suburban location, Phillips called Blue Grass Addition "The Crown of Crescent Hill," and advertised as the place where one could build a "modern Bungalow." Prices, he added, were "so low up here . . . that you can buy enough ground to spread out and have a garden, fruit trees, and chickens, etc., etc." The year 1907 also witnessed the initiation of Cherokee Heights, one of the first subdivisions developed in Crescent Hill by a land company. Developed by the Cherokee Heights Land Company, this small tract is located on the north side of Lexington Road between Stilz Avenue and Cherry Lane.³⁵

The smallest, but possibly most heavily advertised development of 1907 was Eastover Park, a one-block tract bounded by Frankfort Avenue, Sacred Heart Lane, Gardner Avenue, and Crestwood Avenue. Owned by A. McVaw, the subdivision was developed by realtor Clarence Gardiner. In a 1908 advertisement, Gardiner & Co., described Eastover Park as

the expression of a conceit - an effort to prove a theory. It is the work of a man who insists that beauty is by no means the exclusive possession of the rich, who believes that we can have beautiful homes for the same money we are spending for ugly, commonplace houses, and that houses of good architecture...hold their values permanently if well placed in a proper environment, for the effect of the most beautiful house is lost if placed upon a crowded lot in a narrow street.³⁶

To attract the middle-class buyer to Eastover Park, Gardiner advertised a broad boulevard guarded by a classic gateway and lined by concrete gutters, curbs and sidewalks; colonial, patio, and bungalow type homes designed by such local architects as Arthur R. Smith; deep lots and 95 foot setbacks; and payment terms that were better than rent.

New subdivisions were laid out on an almost annual basis until 1916, although no single year witnessed so many new projects as 1907. Among these new subdivisions were several developed by professional land companies. In 1908, Crescent Hill reached its southern-most point when the Eastern Realty Company, headed by banker Attila Cox, platted a subdivision called Eastleigh. Located upon a scenic tract that lay between Grinstead Drive and Lexington Road, Eastleigh provided a bridge which united Crescent Hill with the northern edge of Cherokee Park. But the highlight of Eastleigh is its site plan. Apparently in an attempt to treat the land as sensitively as possible, the developers took advantage of the tract's hills and ravines to lay out such narrow winding ways as Cross Hill, Upland, Top Hill, and Foot Hill roads.³⁷

In 1909, the Cherokee Heights Land Company platted Hill Crest, its second Crescent Hill subdivision, which was laid out along Hill Crest Avenue between Lentz's Subdivision of Fair View and Blue Grass Manor. The following year, Harry and Eliza Dumesnil recorded the Dumesnil and Rowland Subdivision, bounded by Frankfort, Peterson, and Galt avenues and Grinstead Drive. In 1910, George Stolz, president of Stolz Realty, developed Stolz Subdivision, one of the period's largest such enterprises, upon a tract of family land bounded today by Stolz Avenue, Grinstead Drive, Lexington Road, and the grounds of Southern Baptist Theological Seminary. The only subdivision recorded in the neighborhood between 1911 and 1915 was Nancy Jane Birch's 1913 resubdivision of Birchwood. But in 1915, two more very small tracts were laid out--Shippen's Subdivision by E. S. and Ada Shippen, between Hollywood Trail and Field Avenue west of Birchwood Avenue, and Weisser Addition, by F. D. Weisser, near the southwest corner of the intersection of Frankfort Avenue and Cannons Lane. The last activity in Crescent Hill before World War I to resemble a subdivision was Ambrose and Annie E. Burner's dedication of several streets which overlapped the southern portions of Faust's Morning Side Addition and Ellwanger's Subdivision.³⁸

Although most of the land available for residential development in Crescent Hill had been subdivided by 1917, more than a dozen additional subdivisions were recorded during the interwar period. Most were small and several were merely replattings of older subdivisions. But a handful of new subdivisions deserve note. Between 1921 and 1927, three new subdivisions - Hollywood in 1921, Ridge-Dale in 1923, and Idlewyld in 1927 - filled in most of the available space along Brownsboro Road between Ewing and Birchwood avenues. In 1921, the Wheeler Company, Inc., headed by Blakemore Wheeler, platted the Upland Field "Cherokee" Subdivision between Eastleigh and the Southern Baptist Theological Seminary campus. Finally, the ten-year period between 1922 and 1932 saw the creation of four small subdivisions along the south side of Frankfort Avenue between Eastover Park and Cannons Lane. After 1932, as a consequence of the depression in the housing industry and the general unavailability of undeveloped land, not a single subdivision was laid out in Crescent Hill between Jane Street on the west and Fenley Avenue and Cannons Lane on the east.³⁹

In 1908 the president of the Crescent Hill Improvement Club asked realtor Clarence Gardiner to explain why he operated in Crescent Hill. In his response, Gardiner placed appropriate stress upon such technical innovations as the electric streetcar, which made suburban land more valuable and suburban living more accessible to the central city. But the main purpose of his statement was to underscore Crescent Hill's true uniqueness:

Crescent Hill stands alone in this regard - it is our only suburban district, and it will remain suburban. Crescent Hill, for the most part, is laid out on the village plan, with wide streets and big yard, with the tendency to open the new streets even wider than the old, until the district has taken on a character so thoroughly suburban that no amount of increased population can ever change the suburban atmosphere of the place, and with the increasing demand for room, and yet more room, that comes with education in the better things of life, Crescent Hill will continue to grow in popularity and value, for it is the only suburb of to-day that is not the city of tomorrow, - its suburban character is too firmly fixed to ever be changed, - the family seeking the joys of the country with the conveniences of the city has nowhere else to go.⁴⁰

Nearly half a century later, local journalist Grady Clay noted quite logically that most of Gardiner's praise for Crescent Hill "sounds like optimistic poppycock today." By the late 1950s, Clay noted, Crescent Hill had indeed become "engulfed by Louisville." It was "no longer a separate suburb, but an old city neighborhood," with many of the attendant features which that label frequently connotes - closely built homes, large houses which had been converted to apartments, and a nearly complete turnover in population since World War II. And yet, with a degree of chauvinism befitting a resident of the neighborhood of which he was writing, Clay demonstrated that Crescent Hill had indeed maintained a large measure of the uniqueness and stability of which Gardiner had spoken 48 years earlier.⁴¹

Central to that uniqueness was, of course, the influence of Crescent Hill's terrain, which already has been discussed at some length. Equally important is the variety of housing styles which is found in the neighborhood. In addition to the remaining antebellum mansions are several large homes built by affluent Crescent Hill residents after the Civil War. Most notable are the Peterson and Field Houses. Located at 301 South Peterson Avenue, the former structure was built about 1870 for tobacco merchant Joseph Peterson. The design, attributed to the distinguished Louisville architect Henry White-stone, combines the blockiness and severity of the pre-Civil War Greek Revival mode with the much more timely features of the Italianate style. Set upon a limestone foundation, the two-story brick structure has the asymmetrical massing and central tower characteristic of the Italian villa style, along with such other appropriate features as a bracketed cornice and tall, segmental-arched windows topped with cast-iron hoods. As if to say it is a Louisville home, each window hood has a modified fleur-de-lis motif in the center. Of similar stature is the Judge Emmett Field House, located at 2909 Field Avenue. Built around 1870 and purchased by Judge Field in 1886, this two-story country villa also has strong Italianate features such as a bracketed cornice, a low gabled central hall, quoined corners, and window pediments which are broken and straightened at each end.⁴²

But more important than such gems as the Peterson and Field houses in shaping the residential character of Crescent Hill is the variety of solid middle and working class homes which line the neighborhood's streets and courts. Unlike

many other Louisville neighborhoods, there are very few streets in Crescent Hill where one is confronted with block after block of homes having similar, or even identical, massing and materials. The vast majority of houses in the neighborhood are of frame construction, no doubt because wood was cheaper than brick or stone, but the neighborhood also has its share of brick, stone, and stucco homes. Likewise, most streets have a variety of styles, mixing the Queen Anne and other Victorian styles with shotgun cottages, bungalows, and historical revival houses. The result, especially when combined with the neighborhood's topography, is a strong sense of exuberance and vitality. This is all the more striking when one realizes that houses in Crescent Hill are devoid of the sumptuous ornamentation frequently found on structures in Old Louisville and Cherokee Triangle.

Another vital factor in preserving Crescent Hill's uniqueness is the continued presence of large institutions, which have helped to maintain stability and provide green space. At one time, Crescent Hill was the site of three large orphanages, two of which still remain. Woodrock Hall, built by the Episcopal church about 1870 and located on Crestwood Avenue at the southwest corner of Crabbs Lane and Gardiner Avenue, operated as a home for boys until 1955, the structure was sold in 1961 to the Ursuline Order for use as a dormitory by Ursuline College.⁴³

The second orphanage to locate in Crescent Hill, where it remains today, was St. Joseph's Catholic Orphan's Home. Founded in 1849 by German Catholics, the home first operated in the old Jefferson Seminary at Eighth and Grayson (Cedar) streets. During the mid-1850s it moved into the large Colonial style home of Colonel Jason Rogers at the corner of Jackson Street and Fehr Avenue near St. Boniface Church. There the institution remained, in quarters later enlarged, until 1885, when it moved to its present location on the north side of Frankfort Avenue at Crescent Avenue on part of the old Fair Grounds land. Architects for the stately, two-story building were Cornelius Curtin, William Redin, and Charles D. Meyer.⁴⁴

Finally, in 1927, the Masonic Widows and Orphan's Home of Kentucky moved into its new quarters, located on a 126-acre tract on the north side of Frankfort Avenue between Fenley Avenue and Sprite Road. Organized in 1867, the institution had operated since 1871 in quarters located on the east side of Second St. between Bloom and Avery streets, south of the central business district. By World War I, the existing facilities had become inadequate. In 1919, the Board of Directors initiated a Million Dollar Committee to raise the funds necessary to build a new facility. By 1921, over \$900,000 had been subscribed. The following year, the directors commissioned the Louisville architectural firm of Joseph and Joseph to begin drawing plans for the institution's new buildings including a school and auditorium, administration building, laundry and powerhouse, widows' dormitory, infirmary, industrial plant, kitchen and dining room space, and children's dormitories. By late 1923, the Million Dollar Fund had been oversubscribed, and more than half a million dollars had been collected. The cornerstone was laid in October 1925 and the new home was dedicated in October 1927.⁴⁵

Crescent Hill also is the locus of important educational institutions. Among these, in addition to the area's numerous public and parochial schools, are Southern Baptist Theological Seminary, and the former Ursuline College, now headquarters of several of the order's other educational programs. Organized in 1857, Southern Seminary operated in Greenville, South Carolina for two decades. In 1877, it moved to Louisville, and developed a campus of four buildings at Fifth and Broadway. But during the early twentieth century

the noise and bustle which accompanied the movement of the city's main business area toward Broadway had begun to intrude upon the serenity of academic inquiry. By 1910 the trustees had begun to search for a setting more conducive to educational life. But it was not until 1921 that they purchased a 53-acre tract on Lexington Road in Crescent Hill. Ground was broken in 1923 for Norton Hall, the main administrative and academic building. Two years later, construction began on Mullins Hall, a men's dormitory. Finally, in March 1926, the Seminary abandoned its downtown campus and moved into its \$2 million Crescent Hill facilities.⁴⁶

One of the most distinguished architectural sites in eastern Louisville, the Seminary campus was planned and its initial buildings were designed in the Neo-Colonial style by architect Arthur Loomis, in association with the prominent New York firm of James Gamble Rogers. Subsequent additions by the Louisville firm of Nevin, Morgan, and Kolbrook maintained the design concept of Loomis and Rogers. Built during an era in which Neo-Colonial architecture was particularly popular, Southern Seminary takes on added significance because of its critical praise. Architectural historian Rexford Newcomb, for example, found the institution's red brick buildings "particularly pleasing" and suggested that Norton Hall, "with its Adamesque portico and terraced tower, is eminently characteristic" of the Federal style.⁴⁷

Ursuline College was established during the late 1930s by the Ursuline Order of Roman Catholic nuns, which already operated its Mother House and Sacred Heart Academy, a preparatory school for girls, on grounds between Stilz Avenue and Cannons Lane east of Southern Seminary. In 1940, the sisters broke ground for Brescia Hall, a science facility, which also housed classrooms and administrative offices. Designed and executed in the Colonial style by Louisville architect Walter Wagner, Brescia Hall was the first of several academic and dormitory buildings which would be erected upon the order's sylvan campus. Ursuline College continued to operate at its Lexington Road campus until 1968 when it merged with Bellarmine College and eventually moved all its operations to the latter institution's campus on Norris Place. The Ursuline Order continues to operate its other educational and religious activities at the Lexington Road campus.⁴⁸

For all its variety, Crescent Hill has a sense of cohesion which is in stark contrast to its rather nondescript neighbor to the north - Clifton Heights. Encompassed by the triangle formed by Brownsboro Road, Mellwood Avenue, and Zorn Avenue, Clifton Heights possesses a rugged terrain similar to Crescent Hill's, and like the latter neighborhood, has an irregular street pattern. What it seems to lack is the kind of uniform mix of housing styles and the central artery, such as Frankfort Avenue, which together give Crescent Hill a sense of unity in the midst of variety and vitality.

The first subdivision recorded in Clifton Heights was Summit Park, platted in 1892 by the Kentucky Excelsior Manufacturing Company, whose president was John Drescher. This irregularly-shaped tract extends from Mellwood Avenue to Brownsboro Road along Delmont Avenue and Drescher Bridge Avenue. Three years later, Agnes N. Anderson laid out Thompson Park, located immediately to the north of Summit Park along Thompson Avenue. Most of the houses in these subdivisions are of one and two-story frame construction, although occasionally small brick and stucco houses can be found.⁴⁹

The neighborhood takes its name from Clifton Heights, a large, roughly shaped triangle bounded by Brownsboro Road on the south, Birchwood Avenue on the east, and an irregular line between Lindsay Avenue and Kenilworth Road to the northwest. Clifton Heights was subdivided initially by Gottlieb Letterle's Clifton Land Company in 1895, but numerous smaller sections have been resubdivided since then, and its development pattern has been quite uneven chronologically, spatially, and qualitatively. The older gridiron streets - Pryor, Fleming, and Hite avenues and Cleveland Boulevard - are lined with a mixture of modest one and two-story frame cottages and houses and a sprinkling of brick and stucco bungalows of varying size, age, and quality. Along the lower section of Lindsay Avenue between Brownsboro Road and Mount Holly Avenue are several garden apartments and low rise condominiums of recent vintage. Nearby, between Mount Holly Avenue and Hite Avenue, are a number of boxy frame houses with asbestos siding which appear to have been built shortly after World War II. At the lower end of Hite Avenue near Brownsboro Road are a few small but substantial brick houses, while along the west side of the adjacent Chickasaw Avenue there is a row of aging, extremely narrow, frame shotgun houses set back upon a hillside overlooking the street.⁵⁰

The first replatting of a section of Clifton Heights came in 1950, when developer Ben F. Swindler, president of the Lindsay-Hite Company, Inc., laid out the Lindsay-Hite Subdivision, a series of one-story frame houses with asbestos siding arranged in the form of a square around Kenilcourt, a narrow residential street which branches off of Kenilworth Road. Also located in Clifton Heights are LeBlanc Court and Honey Suckle Hill, two garden apartment complexes, the former developed by James C. Irvin Jr., and the latter by Irwin Weyer, both in 1964. On the east side of Hite Avenue, bounded by Chickasaw, Pryor, Fleming, and Zorn Avenues are two more recent subdivisions in old Clifton Heights. Moran Place, a series of brick garden apartment buildings, was laid out along Ridgedale Road by J. J. Coyle in 1952. Somewhat larger is Birchwood Manor, located immediately to the east along Thistlewood Avenue and Riedling Road. Nearly all the homes on the Thistlewood section are neat, red brick ranch style homes, while those on Riedling are four-unit apartment buildings. The developer of Birchwood Manor was Fred T. Hafendorfer's Highland Investment, Inc.⁵¹

Located between Summit Park and Thompson Park on the west and Clifton Heights on the east are three subdivisions whose dates of initiation range from 1905 to 1957. The single factor which unifies these complexes is Kenilworth Road. The oldest is Belcourt, a strip of brick and stucco bungalows and one and two-story brick historical revival structures developed by James E. and Carrie Bell. Immediately to the north is Indianola, a resubdivision of an apparently unrecorded subdivision called Anderson Park, laid out in 1910 by Warren C. Callahan, Orville Stivers, Albert Forester, and J. H. Schlangenotto. Suggesting a sluggish pace of development, this subdivision included an interesting mixture of aging two-story frame structures, a scattering of two-story Colonial style brick homes, and numerous post-World War II one-story brick and stone ranch houses. Much more homogenous is Mellwood Heights, which branches off to the northwest along Edith and Emily roads between Kenilworth Road and Mellwood Avenue. Recorded in 1957 by Ben Swindler, Mellwood Heights is characterized almost entirely by small, one-story red brick ranch homes.⁵²

The eastern-most of the early subdivisions in the Clifton Heights neighborhood is University Place, laid out in 1911 between Birchwood Avenue and Zorn Avenue, then known as Pipe Line Avenue, which followed the Louisville Water Company pipeline from the River Road pumping station to the Crescent Hill Reservoir. The initial developers were Andrew J., Lewis B., and John J. Zehnder and the Louisville Building Company, headed by G. H. McAlister. Most of the houses are of frame construction, many with tin roofs. There are also numerous bungalows and an occasional two-story structure with historical revival motifs. Along Birchwood Avenue are an assortment of brick ranch houses, stucco bungalows, and wood frame structures whose size and quality decline steadily as the narrow street moves northward.⁵³

The most architecturally distinctive section of the Clifton Heights area is Riedlonn. Initiated by R. D. Riedling in 1926, with additions in 1931 and 1946, Riedlonn is characterized by its large two-story historical revival homes. Most are two-story brick structures, although several are of stone construction. The prevailing style is Neo-Colonial, reflecting the local popularity of that motif during the 1920s, but numerous Tudor, English and Dutch Colonial Revival houses also can be found.⁵⁴

Two factors appear to explain the lack of unity and cohesion in Clifton Heights' development pattern. The first is the lack of street car lines, which had helped to spur growth in Clifton and Crescent Hill between the Civil War and World War I. Without the street car, Clifton Heights remained isolated until widespread availability of the automobile made the area accessible by Brownsboro Road and Mellwood Avenue. A second factor is the shortage of major institutional spaces. Aside from several relatively unassuming churches, the primary institution quartered within the heart of the neighborhood is the powerful Mose Green Democratic Club, whose modest clubhouse is located on Hite Avenue opposite its intersection with Lindsay Avenue. However, the Mose Green Club is not neighborhood-based. It draws its members from all parts of Louisville and Jefferson County, but there is little organic relationship between the organization and the neighborhood which surrounds it.

In addition to the Mose Green Club, Clifton Heights has two other major institutions, both of which are located at one of the areas major peripheral intersections and one of which is so new that it could have had only minimal impact upon the neighborhood's development. Anchoring the intersection of Mellwood Avenue and Brownsboro Road is the Fischer Packing Company, one of eastern Louisville's larger industrial concerns. The firm was founded in 1909 by Henry Fischer, a German immigrant who had arrived in Louisville in 1892. Apprenticed to a locksmith before coming to the United States, Fischer's first position in this country was a \$5 a week job washing windows, cleaning spittons, currying mules, and carrying water in a Pennsylvania coal mine. When the mine closed, he moved to Louisville and went to work for Ahrens and Otts, a local brass foundry. After being dismissed by that firm, he became an apprentice meat cutter at a grocery. The young man saved his money for five years and purchased a wholesale meat route in 1899. For the next decade, Fischer sold meat during the day and engaged in meat preserving and processing experiments at night. In 1909 he developed a smoke-flavored, boneless cooked ham, which became the basis for a slaughtering and packing business which now employs more than 500 workers.⁵⁵

The second and more recent of the large institutions which anchors Clifton Heights is the Veteran's Administration Hospital, located on a bluff overlooking the Ohio River at the southwest corner of Mellwood Avenue and Zorn Avenue. During the years immediately after World War II, the Veterans Administration operated the old Nichols General Hospital in the South End. In the meantime, plans moved forward for a new facility in the East End. In 1946 the Zorn Avenue site was selected by the V A after the Louisville Water Company agreed to transfer a 45-acre tract formerly occupied by its old reservoir. Initial plans called for a 750-bed facility, but the economy-minded Truman Administration trimmed that figure to 500 in early 1949. About the same time, an abortive movement developed to have the facility located downtown near General Hospital. Support for this location came primarily from the Louisville Area Development Association, the University of Louisville Medical School, Mayor Charles Farnsley, and Aldermanic President Dann C. Byck, all of whom hoped that a downtown location would help spur slum clearance and promote creation of a centrally located medical center. But the proposal came under attack from veterans groups, and the V A declined to change its plans.⁵⁶

Construction began in late 1949, following delays created by a long street strike, and was completed in the spring of 1952. Original plans were drawn by Sam Hannaford and Son, of Cincinnati, and E. T. Hutchings, of Louisville, under the supervision of the Louisville District of the U. S. Corps of Engineers. But after the project was cut to 500 beds, these plans were scrapped and the hospital was redesigned by the V A's Construction Division in Washington. Since its completion, the nine-story, red brick hospital has been expanded through the addition of an out-patient clinic, a central kitchen, two intensive care units, and new laboratory facilities.⁵⁷

About a dozen small subdivisions have been completed in Clifton Heights since the construction of Veterans Hospital, but there does not appear to have been any significant causal connection between the hospital and residential development in the area. Most of the subdivisions are well removed physically from the hospital, and none is located immediately adjacent to it. It is more likely that similar factors of available land and transportation improvements coincided to promote both construction of the hospital and residential development in the neighborhood nearby.

Summarizing the development process along the Frankfort Avenue axis, it appears that the neighborhood in which the influence of streetcar, parks, and the professional land development process coincided most directly was Crescent Hill. Clifton felt the influence of the street car, but it was only slightly influenced by park development and professional land developers. Clifton Heights was significantly affected by the professional developers, especially after World War I, but growth was limited between the Civil War and World War I, because of the absence of the streetcar and parks. Crescent Hill, on the other hand, was well served by streetcar lines, as well as by the railroad and Frankfort Avenue. Only parts of the neighborhood benefitted directly from Cherokee Park, but large institutional spaces such as the Crescent Hill Reservoir, the Fair Grounds, St. Joseph Orphanage, the Ursuline Order grounds, and the Southern Baptist Seminary provided substitutes for public parks. Finally, more subdivisions in Crescent Hill were developed by individuals than by professional realtors; nevertheless,

professionals such as A. W. Randolph, S. S. Meddis, and Charles Southwick operated in the neighborhood as early as 1891, and such activity increased during the twentieth century with the participation of such real estate agents and firms as River-Payne Development Company; G. V. Hieatt, of the Cherokee Land Company; V. F. Kimbel, of the Longview Land Company; Attila Cox, of the Eastern Realty Company; Blakemore Wheeler, of the Wheeler Company, Inc.; D. C. Clarke, of the Louisville Real Estate and Development Company; and C. C. Hieatt and Helm Bruce.

Along the Bardstown Road axis, the area also known as "the Highlands," seven neighborhoods saw major development between the Civil War and World War I. Of these, Phoenix Hill and Germantown seem to have been least affected, if at all, by the combined influences of urban parks, the streetcar, and the professional real estate business, primarily because the subdivision process was already well underway in those two neighborhoods before the new forces began to coalesce. Highland, on the other hand, appears to have been impacted significantly by the streetcar. All three factors appear to have played significant roles in Cherokee Triangle, Tyler Park, Bonnycastle, and Deer Park.

The largest section of Germantown lay to the west of the South Fork of Beargrass Creek. Just before the Civil War, however, some development began to appear in the section known as Paristown, which stretches approximately from Broadway to Ellison Avenue between the creek and Barret Avenue. Named for its once predominantly French Huguenot population, Paristown straddled parts of the William Preston and Arthur Campbell land grants of 1774.

The eastern section of Paristown, which lies along both sides of Vine Street, remained in the elder Preston's possession until his death in 1811. As a result of a memorandum of agreement dividing Preston's land between his sons, Francis and William, the former brother received the tract which included the Paristown land and part of Tyler Park. In February 1832, Francis Preston sold this land to his son-in-law, Robert Jefferson Breckinridge. Two months later, Breckinridge sold it to brickmakers John Howard Jr., and Samuel K. Page, who divided the land between themselves evenly. After suffering some financial reverses, Howard sold part of his land to financier James R. Guthrie in 1849. A short time later, Guthrie sold most of his land, including a lot between Vine Street and Barret Avenue at Broadway, to Thomas Y. Brent, a former Paris, Kentucky landowner, who had moved to Louisville in 1850. In 1854, he subdivided the land as T. Y. Brent's South Eastern Addition.⁵⁸

Page subdivided most of the remaining land in the Howard-Page tract in 1870, while three smaller tracts were recorded by John B. Castleman, Susan E. Higgins, and Samuel Hutchings between 1888 and 1896. In 1898, Mary E. Caperton, Sarah J. Smith, and Anna C. Norton, daughters of James R. Guthrie, subdivided 12 acres of a lot of the original Howard and Page tract straddling Ellison. In 1923, the Rivers-Yeager Company, Inc., headed by R. H. Rivers, subdivided the remaining area between the Page and Caperton, Smith and Norton subdivisions.⁵⁹

The remaining portion of Paristown, which took the shape of a triangle formed by Preston's Line and a sharp bend in the South Fork of Beargrass Creek, was part of the Arthur Campbell tract. Colonel Campbell died in 1811, leaving 1,000 acres to his daughter with the stipulation that the land be sold for no less than \$20 per acre. Because the demand for outlying land was not strong enough to bring the minimum price required by Campbell's will, the property remained undeveloped for nearly four decades. Finally, in 1850, Mary

Campbell Beard successfully challenged her father's will in court. Shortly thereafter, local speculators flocked to purchase the Campbell land. One of these was James R. Guthrie, whose Southeastern Enlargement encompassed the area bounded by Preston's line on the northeast, Shelby Street on the west, and St. Catherine Street on the south. It was not until 1870, however, that Guthrie's land, along with a small section of the Howard and Page tract between Oak and Kentucky streets, was laid out in lots by two of Guthrie's daughters and their husbands.⁶⁰

As in the rest of Germantown, the predominant housing style in Paristown is the frame shotgun in its many variations, including the simple one-story cottage and the camel-back, with its rear second story. Older sections along Vine and Brent street are lined with shotguns, no two of which are exactly alike in detail. Newer parts of the neighborhood, along Julia, Crown, and Rufer streets, are dominated by bungalows, which during the early twentieth century replaced the shotgun as the primary working class housing style in Louisville. Only along a major artery such as Breckinridge Street can an occasional large frame Victorian house be found.

The largest institution in the Paristown section today is Highlands Baptist Hospital, which occupies most of Thomas Y. Brent's original subdivision. Planning for the facility, known as Kentucky Baptist Hospital until 1978, began as early as 1906. But nothing of significance happened until 1917, when the General Association of Baptists in Kentucky organized a hospital Board of Trustees and appointed the Rev. Dr. M. P. Hunt to conduct a hospital fund raising drive. By October 1918, the Louisville architectural firm of Joseph and Joseph had been hired to design the hospital, a five acre site on the west side of Barrett Avenue two blocks south of Broadway had been acquired from the estate of the late Dr. Eusebius Hutchings, and some \$100,000 already had been pledged toward the facility's projected \$300,000 construction cost.

But construction was delayed by World War I, and costs rose rapidly during the years after the war. By January 1923, the projected cost for a six-story, 132-bed hospital had risen to approximately \$600,000 with the price tag for the first phase of construction estimated at \$400,000. When bids for the first phase came in, the lowest was \$40,000 over the estimate. After discussions with architects had convinced them that no part of the project could be eliminated without impairing the quality of care provided by the hospital, the Board of Trustees decided to proceed with construction without delay, despite the higher costs. Construction began in the late winter of 1923, with the expectation of completion by the end of the year. But shortages and other problems intervened and the building was not completed and dedicated until November 1924. The hospital has been expanded numerous times since 1924 and now has a capacity of more than 250 beds.⁶¹

Located directly to the north of Germantown, most of the Phoenix Hill Neighborhood consists of Preston's Enlargement, a portion of the Preston land grant of 1774, which was annexed to Louisville in 1827. Subdivision development in Preston's Enlargement began in the 1830s, and by the Civil War it was one of the City's most populous areas. German immigrants made up a large element of the neighborhood's population. The one portion of present-day Phoenix Hill

which remained undeveloped at the time of the Civil War was a triangular area formed by Beargrass Creek, Baxter Avenue, and Broadway. On the eastern edge of this tract, bounded by Baxter, Barret, Hill and Rubel avenues was Phoenix Hill, itself the scenic knoll from which the neighborhood derives its name. A subdivision plan for part of the triangle was recorded in 1849, but the promontory remained essentially undisturbed until 1865. At that time it was acquired by Philip Zang, Philip Schillinger, and Gottfried Miller, who constructed Phoenix Hill Brewery and Park.⁶²

Louisville's brewers were a competitive lot, who typically furnished their establishments with a beer garden and saloon. But the canny Phoenix Hill proprietors did not intend simply to match their competitors. In addition to a beer garden and bandstand, their establishment included a lovely picnic ground dotted with scores of tables shaded by large trees, a fountain set in beautiful terraced gardens, and an immense pavillion with a dance floor, bowling alleys, a stage, and a roller rink. But its feature attraction was a 111-foot bar, across which were several millions of glasses of Phoenix Hill "Bohemian and lager beers." Phoenix Hill Park soon became not only a center of activity for the local German community, but a mecca for millions of pleasure seekers from city, state, and nation. Musical organizations such as the local Liederkrantz Society and the world famous band of John Phillip Sousa played there. Private groups such as the Delmont Club and the Mose Green Democratic Club made it the site of big annual meetings, and national figures including Theodore Roosevelt, William Howard Taft, Woodrow Wilson, Charles Evans Hughes, and William Jennings Bryan delivered political orations at the park. It remained a local entertainment center until 1919 when the brewery was closed as a result of Prohibition. In 1938, the decaying remains were torn down and much of the hill was used for landfill. Today only a few stones from cellars, and stables remain as tangible reminders of Phoenix Hill's past glory.⁶³

Despite Phoenix Hill Park's popularity, it was not until the last decade of the nineteenth century that the surrounding area came under residential development. Dates can be found for only two of the three subdivisions platted in the Phoenix Hill triangle east of Beargrass Creek, but the structural similarity of the residence suggest that the entire area was developed during a rather narrow span of years. In 1891, Susan Preston Hepburn, William Preston Johnston, and Henrietta Preston Johnston laid out a section of William Preston's military grant bounded by Barret, Baxter, Rubel, and Broadway. Three years later, the Tarascon Woolen Mills Company subdivided the neighboring northern half of the narrow strip bounded by Hamilton and Barret Avenue between Broadway and Baxter. The undated Rogers and Barr's Subdivision consists of the triangle formed by Barret and Rubel avenues and Broadway. Most of the houses along the north side of Broadway between Barret and Baxter are large, two and three-story Victorian and Italianate structures, while smaller frame dwellings, including many shotgun cottages with Carpenter's Gothic motifs, prevail on the surrounding streets.⁶⁴

The most outstanding architectural and institutional structure in the Phoenix Hill triangle is Concordia Lutheran Church at 1127 East Broadway. Built in 1930, this structure is a rare small work by the distinguished architect Ralph Adams Cram, whose previous commissions included St. Thomas Episcopal Church

on Fifth Avenue in New York City and several buildings for the U. S. Military Academy at West Point. In Concordia Church, Cram retained the usual elements of the Gothic parish church nave, transepts, separate chancel, baptistry and sacristy. But as architectural historian Walter Langsam has observed, Cram combined them "in a form both simple and dignified by means of an exquisitely adjusted sense of proportion and his usual respect for the nature and quality of materials." The church's reduced size apparently reflects a conscious effort to respect the scale and setback of the adjacent residential structures, but this is accomplished without compromising the structure's aesthetic quality. Again, as Langsam notes, "the delightful bell-cote suffices for a tower, enforced by the angles of the buttress; a strongly molded recessed door substitutes for a narthex; and the delicate tracery of the single large window on the facade sustains the integrity of the finely laid masonry surface."⁶⁵

While Phoenix Hill was becoming one of Louisville's favorite entertainment centers, residential development was proceeding apace in the Highland neighborhood, known before the Civil War as New Hamburg. In 1869, Sidney J. Rogers, son of Captain Jason and Josephine Preston Rogers, subdivided the property which fronted on both sides of Hepburn Avenue between Barret and Baxter avenues. Two years later, the Central Passenger Company received the franchise for a horse-drawn street car line to Highland Avenue, a line which later followed Bardstown Road to Douglass Loop. While it did not serve all of Highland directly, the streetcar nevertheless helped to make the neighborhood more immediately assessable to the city dwellers and made living and working in the area more desirable.⁶⁶

The first subdivision laid out after the coming of the streetcar was William Hughes Addition, located between Sidney Rogers' Subdivision and St. Louis Cemetery. Formerly owned by Susan Preston Christy, the land was sold to Hughes by H. P. Hepburn, who had married Susan Preston Christy following the death of her first husband, Howard F. Christy. The tract was subdivided in 1875 by E. C. Bohne's Teutonia Real Estate and Building Company, to whom Hughes had sold half the land. A decade later former Confederate General William Preston and his sister, Maria Preston Pope, dedicated the streets and alleys within the area bounded by Broadway, Barret, Rubel (then Overhill), and an alley between DeBarr and Howard streets and began to sell lots randomly. In 1891, William Preston Johnston subdivided the tract lying along either side of Highland Avenue between Christy and Johnston's Subdivision on the north and Sidney Rogers' Subdivision on the south. The subdivision process in Highland climaxed in 1896, when the heirs of J. Watson Barr and Susan Rogers Barr, granddaughter of Major William Preston, platted the Barr Subdivision, which takes in the area bounded by Broadway, Baxter Avenue, Rubel Avenue, and Christy and Johnston's Subdivision.⁶⁷

The vast majority of houses in Highland were constructed between 1860 and 1895, with the strongest surge coming during the last 15 years of the period, when more than 600 homes were put up. For the most part, the dwellings built between 1860 and 1884 were located along Breckinridge (formerly Howard), Christy, Baxter, and Barret. Those erected between 1884 and 1895, however, were scattered throughout the neighborhood. As with the surrounding residential neighborhoods, Highland has a rich mixture of residential architecture. A

few structures, such as 1411 Highland Avenue and 1420 Hepburn Avenue, are distinguished by their size and sumptuous Victorian ornamentation. Most, however, are of a more modest scale, built for working class people of average means. The most common form of worker housing is the frame shotgun, although a few are of brick. But the variety of decoration among these structures is incredible, with virtually every home having some notable feature. Some builders expressed their individuality through ornate carpentry, stained glass, or fancy brickwork, while others employed layered and heavily ornamented cornices or unique porches and dormers.⁶⁸

The largest single institution in the Highland neighborhood, St. Anthony's Hospital, was founded in 1901 by the Poor Sisters of St. Francis Seraph of the Perpetual Adoration, an order of Roman Catholic nuns that headquartered Lafayette, Indiana. The first hospital was located on an elevated triangle of land lying between St. Anthony's Place (formerly Wickliffe Avenue) and Barret Avenue. A northeast wing, which included a chapel and refectory, was built in 1911. By the early 1920s, the patient load averaged about 1,000 annually, and the sisters determined that it was again necessary to expand. They engaged the Louisville firm of D. X. Murphy and Bro. to design a new, four-story addition that would increase capacity by approximately 100 beds. Construction began early in 1923, and the new addition opened in April 1924. A nursing school was added while construction was still in process. An east wing was erected in 1948. By the mid-1960s, capacity had reached 225 beds, but the patient population frequently reached 240 to 260. This led to the replacement of the hospital's original section with a \$7 million, seven-story addition, which allowed for an expansion of capacity to 374 beds and provided for a new X-ray laboratory, emergency rooms, and administrative and service areas.⁶⁹

In 1976, St. Anthony Hospital embarked upon a unique new venture when it joined with Kentucky Baptist Hospital, (now Highland Baptist) located across Barret Avenue, to form the Highlands Medical Center. Implemented through a series of skyways across Barret Avenue, the project is intended to promote cost savings through the sharing of certain facilities and programs. While both hospitals retain their administrative autonomy, the ecumenical program is believed to have been at its inception, the only such example of a joint program between Southern Baptists and Roman Catholics in United States.⁷⁰

The East End neighborhood where the combined effects of the streetcar, urban parks, and the professional land development business had their most pronounced impact was undoubtedly the Cherokee Triangle, a roughly shaped area bounded by Baxter Avenue and Bardstown Road on the southwest, Cave Hill Cemetery and Grinstead Drive on the north, Cherokee Parkway on the east, and Eastern Parkway on the southeast. Originally part of the 6000-acre Southall and Charlton military grant of 1774, the land changed hands numerous times during the first six decades of the nineteenth century. In 1863, most of the land which is today Cherokee Triangle was purchased by George Douglass. His residence, which was located at the corner of Dearing Court (formerly Douglass Place) and Dudley Avenue near the present home of the Cave Hill superintendent, now is included in the cemetery grounds. Six years after purchasing the tract, Douglass sold approximately 135 acres to realtors James Henning and Joshua Speed for 135,000.⁷¹

Both Henning and Speed were established members of Louisville's civic and business elite. Each one reported an income in excess of \$20,000 for 1867, and Speed was an early supporter of the Louisville and Nashville Railroad and an incorporator of the Citizens Passenger Railway. But their primary enterprise was real estate speculation and development, a business in which they had been partners since 1846. But when they purchased the Douglass property, the gentlemen did so with the intention of establishing residences for themselves and other members of their families. Consequently, they took special pains to create the best possible environment of suburban living.⁷²

In 1870, the two real estate men laid out Henning and Speed's Highland Addition. Its boundaries were Bardstown Road, Highland Avenue, Slaughter Avenue (now Patterson), and Forest Hill, a wooded area adjacent to Cave Hill Cemetery. In some respects, the Highland Addition was quite modest in scope. It contained only 150 lots, which averaged 60 by 180 feet. The streets were rather narrow, with such prestigious arteries as New Broadway (now Cherokee Road) and Bardstown Road measuring only 80 and 70 feet in width, respectively. And unlike Crescent Hill, where an irregular street pattern was the rule, Highland Addition was laid out in a basic gridiron.⁷³

But the subdivision also had some advantages which offset some of its more ordinary features. Cave Hill Cemetery, developed by and meticulously cared for by brothers David and Robert Ross and their successor, Robert Campbell, provided a rural, parklike retreat which historian J. Stoddard Johnston called a "Mecca for the living" as well as a final resting place for the dead. Moreover, the presence of Cave Hill brought together street-car, water, and sewer lines at the intersection of Baxter Avenue and Broadway. Henning and Speed apparently were so convinced of the desirability of their subdivision that they refrained from advertising the sale of lots. Instead, they sold them quietly to family members, friends, and business associates. Indeed, the first house in the neighborhood, located on a three-lot tract at the corner of Transit Avenue (now Grinstead Drive) and East Broadway, was built by Henning in 1871 as a wedding present for his daughter, Maria, and her husband, J. W. B. Hilliard.⁷⁴

Henning and Speed's business in the Highland Addition flourished between 1870 and 1873, with lots selling for an average of \$1,200 throughout the subdivision. But during the latter year, the United States was hit with its worst depression since the 1850s, and in Louisville as elsewhere, land development came to a virtual standstill. A few lots were sold in the Highland Addition, and in 1878 the trustees of the estate of H. I. Craycroft subdivided a small tract bounded roughly by Baxter and Highland Avenue and Cave Hill Cemetery near the cemetery entrance. Otherwise the doldrums remained until the opening of Louisville's Southern Exposition in 1883 set off a new wave of residential development.⁷⁵

Although the exposition had its most immediate impact in Old Louisville, it also stimulated the real estate business somewhat in the Highlands. In 1884, the year after the exposition opened, Clayton Longest and the Louisville Savings Investment Association subdivided a portion of the Longest family property bounded by Longest Avenue, Bardstown Road,

Cherokee Parkway, and a line extending from Bassett Avenue between Longest and Cherokee Parkway. Like Henning and Speed, Longest promoted the sale of his lots almost exclusively through personal contact rather than through newspaper advertising. However, both Longest and the firm of Henning and Speed suffered a similar problem during the exposition era. For the most part, land prices were not only a good deal lower than during the early 1870s, they also fluctuated sharply, with some parcels on New Broadway selling for as little as \$500.⁷⁶

Neither Henning nor Speed lived to see a price resurgence in their neighborhood. Both men lived until the late 1880s, but the real estate business remained at somewhat a modest if steady level until 1890. In that year, wholesale coal dealer Thomas James dedicated and laid out lots along Douglass Avenue, a short court which connects Everett and Dudley avenues just north of Grinstead Drive. Some lots were sold over the next five years and in 1895 James recorded the street and the abutting lots as a subdivision. Douglass Avenue later became known as Dearing Court after Charles Dearing, a book merchant and publisher who lived on nearby Everett Avenue. But there is no official record of the street's name ever officially having been changed.⁷⁷

The one factor which more than any provided a new impetus for land development in the Triangle was the creation of Cherokee Park in 1891. Because of the beauty and prestige which was attached to home sites near the park and its approaching boulevards, land owners rushed to take advantage of the inevitable increase in land values. A major factor in the new wave of development was the Eastern Park Land Company, incorporated in 1891 by W. R. Ray, Anne E. Barrett, John B. McFerran, Oscar Fenley, John D. Taggart, R. Minefort, and John Stites, with the latter as president. Organized with a capital stock of \$150,000, the company was empowered to engage in the "buying and selling of real estate in Jefferson County, Kentucky, and the laying in and improving of streets, alleys, and ways."⁷⁸

The company's first project, initiated in 1891, was the development of Bassett and Henry Longest's Subdivision, a tract bounded by Bardstown Road, Longest Avenue, Bassett Avenue and the imaginary extension of Ransdell Avenue between Bassett Avenue and Bardstown Road. Five years later, the company turned its attention to a section of the Longest family property east of Bassett Avenue between Cherokee Parkway on the south and the alley between Glenmary and Ransdell avenues on the north. The subdivision was officially recorded in 1905, following the dedication of streets in 1896.⁷⁹

Like Henning and Speed, the Eastern Park Land Company employed the gridiron street pattern. By the same token, lots averaged 60 by 160 feet, although sizes varied to fit the contours of the hilly landscape. Similarly, the Eastern Park Land Company sold many lots through personal business, and family connections rather than through public advertising campaigns. The most significant difference between the experiences of the two companies appears to have been in lot prices. While Henning and Speed's lots sold for a uniform average of \$1,200 before dropping to \$400 or \$500 in the late

1870s and 1880s, prices for lots in the Eastern Park Company's Subdivision might range from as high as \$1,950 for prestigious lots along Cherokee Road to as low as \$750 for half lots along Willow Avenue. The latter Company also took special pains to preserve the high status of Cherokee Road, using deed restrictions to regulate setback lines and to limit the value of homes to a minimum of \$5,000.⁸⁰

A fascinating and little-known aspect of the history of Cherokee Triangle is the Town of Enterprise, which embraced most of the Longest family-Eastern Park Land Company during the second half of the 1880s and the first half of the 1890s. Enterprise was incorporated in 1884, with Henry and Clayton Longest being among the first trustees. Like other suburban towns, Enterprise used incorporation to keep taxes low and to keep liquor out. Among the town's chief institutions was Enterprise School, a two-room, white frame structure which faced Cherokee Parkway. Indicative of the town's affluence, its charter provided for fines of \$20 for violations of certain ordinances, a fee schedule twice that of Parkland, a less affluent suburban town in the West End. But the growth triggered by the creation of Cherokee Park soon resulted in pressure upon the city of Louisville to annex the village. Especially vocal were members of the Board of Park Commissioners, who realized that the presence of the city's parks was contributing to higher land values in the suburban subdivisions and who hoped to tax such property and thereby recapture some of the added value for the city.⁸¹

In January 1894, the General Council passed an ordinance proposing annexation of Enterprise, seeking additional tax revenues and the prestige of larger territory and population. Like nearby Crescent Hill, Enterprise resisted the annexation through court action and in so doing postponed the inevitable for a year or so. But the court ruled in favor of Louisville, finding that the failure to annex Enterprise would "materially retard the prosperity of the City of Louisville and of the owners and inhabitants of the territory sought to be annexed." The city completed action on the annexation in 1896.⁸²

The impact of Cherokee Park was hardly limited to the Longest estate. Also in 1891, John E. Norris purchased a piece of the Baringer property bounded by Bardstown Road, Cherokee Parkway, and Everett and Edgeland avenues and subdivided it as Norris's Highland Addition. Fifteen years later, the remainder of the Baringer Land, bounded by Bardstown Road, Edgeland Avenue, Everett Avenue, Cherokee Road and Eastern Parkway was subdivided by the Baringer Land Company, headed by realtor Edward F. Peter.⁸³

Cherokee Park also figured in the subdivision of the Slaughter land located to the north between the Longest-Eastern Park subdivision and the Henning and Speed Addition. This tract, which extends eastwardly from Bardstown Road almost to the intersection of Grinstead Drive and Cherokee Parkway, was involved in a 1884 suit and may have been subdivided in the process, but no plat of such a subdivision has been located. However, in 1907, Fannie L. Slaughter platted a small section bounded by Patterson, Everett, and Willow avenues, and the Longest property line. Fourteen years

later, the Glenmary Land Company, headed by W. Wallace McDowell, subdivided the portion of the Slaughter tract on either side of Glenmary between Willow and the intersection of Glenmary and Grinstead. Finally, in 1908, Henry S. Barker subdivided a small piece of his family homestead on the eastern fringe of the Eastern Park Land Company Subdivision along the north side of Ransdell Avenue. Seven years later, he revised and enlarged the subdivision, extending it to Glenmary and the intersection of Grinstead and Ransdell.

Architecturally, the Cherokee Triangle is one of the most significant neighborhoods in the city. As a haven of Gilded Age and early twentieth century affluence, its residences display a rich combination of historical revivalism and Victorian eclecticism. The earlier houses along Cherokee Road encompass a mixture of styles including Victorian Gothic, Italianate Revival, Richardsonian Romanesque, and Queen Anne. The Stick and a modified Shingle styles are present on Everett Avenue. Numerous houses built during the 1880s and after were executed in the popular Colonial Revival style, while many structures built after 1900 show the influence of the Arts and Crafts, Art Nouveau, Beaux-Arts, and Wrightian Prairie movements.⁸⁴

This display of artistic exuberance includes the works of a panoply of Louisville's leading late nineteenth century and early twentieth century architects. Among the architects who executed commissions in Cherokee Triangle were D. X. Murphy and Bro., Mason Maury, John Hutchings, E. T. Hutchings, George Gray, Arthur Loomis, Arthur Smith, Val P. Collins, Joseph and Joseph, Charles J. Clarke, Drach and Thomas, C. S. Mergell, Kenneth McDonald, J. J. Gaffney, Hugh Nevin, and Hieatt Brothers, Builders. In addition, important contributions were made by such out of town architects as Fredrick Withers and Karl Ziegler.⁸⁵

But the Cherokee Triangle's residential architecture is not limited to single family structures. Among the neighborhood's excellent buildings are several large apartment houses built between 1900 and 1930. The oldest is the Belvoir, built before 1905 and located at Cherokee Parkway and Willow Avenue. One of its residents in 1905 was architect J. J. Gaffney, designer of the nearby Besten Apartments, built by Henry Besten in 1905 and located at the circle formed by the intersection of Cherokee Parkway and Cherokee Road, where it overlooks sculptor Enid Vandell's equestrian statue of General John B. Castleman. Across the Parkway from the Besten Apartments are the Parkview Apartments, and located on the south side of the same street between Cherokee Road and Everett Avenue are the Pennington Apartments, designed by architect George Gray. In the fall of 1911, suites at the Pennington were used as classrooms by pupils of Louisville Country Day School while construction of their new building was being completed.⁸⁶

Located nearby on Willow Avenue between Baringer and Edgeland are two excellent examples of the apartment architecture of the Louisville firm of Joseph and Joseph. Willow Terrace, an eight-story structure built in 1924, is located at 1412 Willow. The Dartmouth, at the corner of Baringer and Willow, is an 11-story structure. Representative of a form of luxury "high-rise" living which was coming into vogue during the 1920s, these Neo-Classical structures feature stained-glass windows, brass doors, boxed-inlaid floors, 10-foot ceilings and elaborate tile work.⁸⁷

Like the apartment houses that border Cherokee Park, the Cherokee Triangle's churches reflect the area's affluence. Perhaps the most architecturally distinguished religious edifice in the neighborhood is the Church of the Advent at 901 Baxter Avenue. One of Louisville's first modern suburban churches, this Episcopal congregation dates to 1870, when Mr. and Mrs. William Babb started a Sunday School on East Broadway for their own and some neighbor's children. A small building was erected in 1872 and a parish organized in 1880. The present structure, built in 1887-88, was designed by Frederick C. Withers, a prominent New York architect. During his distinguished career, Withers was associated with landscape architect Frederick Law Olmsted and also designed many Victorian Gothic public and religious buildings throughout the United States. The Church of the Advent is described by architectural historian Walter Langsam as "a rambling, informal complex punctuated at unexpected points by modest wooden belfries and dormers. The long, low slate roofs hug the ground over sturdy irregularly buttressed walls of local stone. Various sympathetic additions have only intensified these qualities so that the casual cluster still preserves a picturesque romantic flavor."⁸⁸

The Presbyterians organized their first congregation in the area, Highland Presbyterian Church, in 1876, with the construction of a small frame chapel. It was replaced in 1887 with the present edifice at 1001 Cherokee Road. The original architect was C. S. Mergell, but subsequent enlargements in 1904 and 1908 were designed by John Bacon Hutchings. Six years after completion of the first phase of Highland Presbyterian, some of the area's Southern Baptists organized Highland Baptist Church. The first edifice, executed in a Victorian style, was replaced in 1914 by the existing building at the corner of Cherokee Road and Grinstead Drive. That structure was designed by Louisville architect Hugh Nevin. A third Cherokee Road church, Highland Methodist, located at 1140 Cherokee Road, was built in 1895 as the Lander Memorial Methodist Church.⁸⁹

While the Cherokee Triangle is probably the most prominent of the suburban neighborhoods which emerged during the early twentieth century, development in the neighboring Tyler Park, Deer Park, and Bonnycastle areas was even more intensive. Just as in the Triangle, the urbanization process in these neighborhoods involved the interplay of the lure of the park system, the Bardstown Road streetcar line, and the activities of professional real estate interests.

The westernmost of these neighborhoods, Tyler Park, developed in three distinct sections between 1873 and 1952, with the preponderance of growth coming between 1880 and 1930. The neighborhood takes its name from Tyler Park, a city park bounded by Park Drive, Edenside Avenue, Baxter Avenue and Castlewood. It was created in 1910. The earliest locus of growth was a triangle formed by Bardstown Road, Baxter Avenue, and Eastern Parkway, the section of the neighborhood nearest the streetcar line.

Tyler Park's first subdivision, laid out in 1873 by John H. Tucker, is bounded by Bardstown Road, Edenside Avenue, Baxter Avenue and a line midway

between present day Windsor Place and Tyler Parkway. But the subdivision did not develop quickly and it was replatted during the first decades of the twentieth century by Mary Herp and realtor Charles M. Phillips. It was during the 1880s and 1890s that the processes of development began to take hold. In 1882, J. S. Longest laid out a seven and one-half acre subdivision along Lucia Avenue between Baxter Avenue and Bardstown Road. Seven years later, Harry Stuck platted the Highland Grove Addition along Beechwood Avenue. Also in 1889, realtors S. S. Meddis and Charles F. Smith subdivided Ridgeland Addition, a section of Rosewood Avenue immediately to the south of Beechwood. Two more subdivisions were platted in 1891, when Clinton W. Forwood platted the tract between Grinstead Drive and J. S. Longest's Subdivision and Joseph Oeschli laid out the eastern half of his Edenside Subdivision, bounded by Edenside, Bardstown Road, Eastern Parkway, and Tyler Parkway.⁹⁰

One of the smallest subdivisions in Tyler Park, but one of the most interesting in its history, is Zehnder Garden, located at the junction of Bardstown and Baxter Avenue north of Grinstead Drive. During the 1890s the tip of this triangular piece of land was the site of a popular beer garden operated by Anton Zehnder. It was known for its tree-shaded tables, white-washed cedar trees, and band concerts. The wide end of the garden was sliced off when the Louisville Water Company purchased it for use as a water main easement that would run between Bardstown Road and Baxter Avenue to Hepburn Avenue. After the pipeline had been completed, residents began using the easement as a shortcut. Finally, they convinced the Water Company to pave the strip with a concrete sidewalk which became known as Zehnder's Walk. But in 1903, the owner demolished the garden and the entire tract was subdivided the following year. A service station stands today at the intersection of Bardstown Road and Baxter Avenue, but Zehnder's walk still can be seen behind the station.⁹¹

The last subdivision platted in the eastern section of Tyler Park was Windsor Place. Laid out between Meddis and Smiths' Ridgeland Addition on the north and the original line of Tucker's Subdivision on the south, this three-block tract was developed by the Highland Realty Company, whose president was Henry M. Johnson. At the time of its development in 1910, Windsor Place included the latest improvements that could be built into a modern, middle-class residential subdivision. Deed restrictions limited builders to the use of brick veneer, stone, or stucco in exterior construction; prohibited any kind of apartment, duplex, or commercial building; and stipulated a minimum cost of \$8,000 for any house built for the street. Lots were laid out to be no less than 50 feet in width and sewer, water, gas, electrical, and telephone connections were provided to each lot. To the extent that it was physically possible, rear alley utility easements were employed to prevent wires from marring the view of the street. After the street was opened, maple trees were planted 40-feet apart in grassy plots on both sides of the street.⁹²

The second section of Tyler Park encompassed the area bounded by Barret Avenue on the west, St. Louis Cemetery on the north, Baxter Avenue on the east, and Calvary Cemetery on the south. It is bisected from the northwest to the southwest by Castlewood Avenue. The upper portion of this area, whose major residential streets are Goddard and Rosewood avenues, was laid out in 1907 by Edward A. Goddard, who resubdivided an entire tract in 1913. Primarily

responsible for developing the lower section was John Breckinridge Castleman, who gained local fame as a major in John Hunt Morgan's Confederate Cavalry, as a general in the U. S. Army in the Spanish-American War, and as a leader in creating Louisville's park system. During the 1870s and early 1880s, Castleman began purchasing from its various owners the 60-acre tract of wooded hills known as Schwartz's Woods. The General originally purchased the land for his personal estate and built a small cottage on Hill Road near what later became Eastern Parkway. But he realized that the city soon would be encroaching upon the land and that it would eventually be in demand for residential development. Consequently, he took measures to insure that once development began, the area's natural beauty would be preserved.⁹³

Castleman sold several lots to the Commercial Bank and Trust Company in January 1890. Included in the deeds were several restrictions, which, among other things, limited the cost of any residential improvement to a minimum of \$6,000, required completion within 12 months, set a minimum setback of 35 feet, prohibited erection of any wooden fences, and demanded that all out buildings be under one roof. The deeds also stipulated that these restrictions be perpetuated in any subsequent deeds involving the property.⁹⁴

In 1895, Castleman laid out the first section of Castlewood Addition, a strip along the south end of the tract which included the present right-of-way of Eastern Parkway. A year later, Castleman deeded to the Board of Park Commissioner's a strip of land 100 feet wide and 1,709 feet long between Baxter and Barret for the parkway. Between 1905 and his death in 1918, Castleman laid out three more sections of Castlewood, each one as a private subdivision, and without dedicating the streets to public use. The first building lot was sold in 1907 to Samuel Miller, a distillery executive who purchased a lot at the corner of Hill and Cross roads. But lots moved slowly at first, partly because of Castleman's deed restrictions, but also because of the lack of utilities. The latter problem had been relieved by 1910, however, with the extension of water, electrical, and sewer service to Castlewood. With the Barret Avenue streetcar line and increasingly, the automobile, providing accessibility to downtown the deed restrictions became a positive rather than a negative feature to affluent middle-class buyers who wanted to build large homes in a quiet, stable neighborhood, away from the noise and bustle of the city.⁹⁵

The westernmost section of Tyler Park, located between Barret Avenue and Beargrass Creek, incorporates most of the southern half of the original Howard and Page Subdivision of the Preston military grant of 1774. It also is the locus of the most recent development in the neighborhood. The earliest subdivision was the Rothchild and Taylor Subdivision, laid out along the north side of Eastern Parkway by Sylvia Rothchild in 1913. But the tract did not develop very quickly during the ensuing decade, and in 1920 its western end was re-subdivided along with Dahlia Drive and Summit Avenue as part of C. R. Mengel's Hawthorn Highlands Subdivision. In 1922, businessman C. W. Gheens subdivided two sections of Castleton Subdivision, between Eastern Parkway and Calvary Cemetery.

The focus of development moved northward three years later when Winthrop Allen, a brother of Hervey Allen, author of Anthony Adverse, purchased Bates Court. This quiet cul-de-sac, which included the Federal style Howard House, which had been in the family of John H. Bates since 1885. Allen renovated the old house extensively and subdivided the property on either side of the narrow lane leading to it. In 1926, John F. Ecker dedicated Hawthorne Avenue and began selling lots along this short, wooded street, which comes to a dead end near Beargrass Creek. Development in Tyler Park was not completed until after World War II, between 1948 and 1958, when builder Al J. Schneider's Nance Realty Company platted two sections of Castle Vale Subdivision south of Eastern Parkway between Gheens's Castleton Subdivision and Beargrass Creek.⁹⁶

The architectural mix in Tyler Park is largely a consequence of varying land uses, periods of construction, and the affluence of developers or would-be home buyers. Aside from the commercial buildings along Bardstown Road, the most notable non-residential structures in Tyler Park are its churches. The most architecturally distinguished of these is St. James Roman Catholic Church, 1818 Edenside Drive at Bardstown Road. Designed by Louisville architect J. J. Gaffney and built in 1912, this Byzantine-inspired edifice is a dramatic departure from the Gothic Revival style which dominated the nineteenth century. The asymmetrical structure's most prominent feature is a dome 56 feet wide, which contrasts strikingly with a minaret-like tower, while a brilliant exterior surface of orange glazed brick is highlighted by panels of Moorish tile and highly ornamented window openings.⁹⁷

The residential architecture in the eastern triangle of Tyler Park exhibits broad stylistic variety. Large two-and-one-half-story Victorian frame houses predominate in the northern half of the triangle and along Baxter Avenue, Tyler Parkway, and Edgeland Avenue. But on Edenside and Windsor Place, the tendency is toward large historical revival homes and bungalows. This is especially the case on Windsor Place, which has numerous large two-and-one-half-story bungalows and Tudor Revival and Colonial Revival houses designed by Louisville architect Hugh Nevin. Neighboring Castlewood boasts a variety of historical revival structures, with two-story frame and brick Colonial Revival houses being most common. The broadest range of styles appears in the section between Barret Avenue and Beargrass Creek. On the north, along Bates Court, there are several brick, frame, and stucco houses with historical revival motifs, while the structures on Hawthorne defy description or categorization. Most of the homes along Summit Avenue are traditional two-story Colonial Revival structures while those on Royal range from Tudor Revival to postwar brick and stone ranch styles.

Deer Park, immediately to the south of the Tyler Park triangle, differs from its northern neighbor in several respects. First, it developed within a much more compact period chronologically. While 10 of the 29 subdivisions which constitute Tyler Park were platted after 1917, only six of the 24 subdivisions that made up Deer Park were developed after 1917, and the last of these had been laid out by 1935. Because of its chronological compactness, Deer Park also exhibits less diversity, and more compatibility in its range of residential architectural styles. Third, because it is contained entirely within Bardstown

Road on the east, Baxter Avenue and Newburg Road on the west, Eastern Parkway on the north, and Richmond Drive and Rutherford Avenue on the south, Deer Park is more contiguous geographically than Tyler Park.

As late as 1890, most of Deer Park was farm land and truck gardens, and much of it was heavily wooded. Indeed, the neighborhood acquired its name from the large number of deer that used to graze near the country lanes that later became Deerwood Avenue, Deer Lane, and Deer Park Avenue. All this began to change about 1889, when N. T. Lee subdivided a tract bounded approximately by present day Eastern Parkway, Fernwood Avenue, Bonnycastle Avenue, and Norris Place. Two years later, the western half of this tract was resubdivided as part of John E. Norris's Edenside Addition, which extended westward almost to Hartman Avenue.⁹⁸

For the remainder of the 1890s and through the first decade of the twentieth century, development was concentrated between Norris Place and Bardstown Road north of Speed Avenue. In 1901 Lawrence Boreman, Talbot D. Bullock, John D. Bullock, and Florence J. Bullock platted the triangular tract formed by Bardstown Road, Fernwood Avenue, and the imaginary westward extension of Alta Avenue. The same year, the real estate firm of Meddis and Cox platted Deer Park Annex along Deerwood Avenue between Bardstown Road and Fernwood. Three years later, Albert G. Eilers, administrator of the estate of George Henry Duker, filled in Duker's Subdivision between Bullock's Highland Subdivision and Deer Park Annex. In 1902, businessman Harry Weissinger platted Deer Park Subdivision along Deer Park Avenue. The Speed Avenue barrier was breeched for the first time in 1906, when W. K. Henry, Bettie M. Henry, and Edward B. Henry platted an irregularly shaped subdivision bearing their name on the eastern half of a tract enclosed roughly by Ivanhoe Court, Bardstown Road, Alfresco Place, and Rosedale Avenue.⁹⁹

During the same period, development was moving forward between Fernwood and Norris Place. In 1894, the Kentucky National Bank subdivided the north side of Deerwood Avenue. Nine years later, George J. Graeser laid out his subdivision on Deer Park Avenue. In 1906 Joseph W. Heeter subdivided the remaining space between Deerwood and Deer Park avenues. The following year, Henry T. Feldhouse staked out lots on the north side of Speed Avenue. The same year, Marie Gernert subdivided the space between Lee's and Norris's Eden Side subdivisions and Shady Lane.¹⁰⁰

No additional subdivisions were platted in the Deer Park area between the end of 1907 and 1913. But the east tract laid out during the 1907 foreshadowed what was to come as Joseph W. Heeter staked out a five-acre tract of Andreas Hauck's land between Speed Avenue and Richmond Drive east of Newburg Road. The land had been part of Killian Allgeier's estate. Hauck's tract was removed considerably from the nearest existing subdivision, but most of the intervening space was developed between 1913 and 1935. In 1914, the Hartman Land Company, headed by George Hartman, platted most of the northern half of the family-owned property bounded by Eastern Parkway, Newburg Road, Shady Lane, and Hartman Avenue. Five years later, acting on behalf of members of his family, Hartman platted the remainder of the tract. In 1914, Caroline Ackerman

subdivided Lot 12 of Block One of the Gerlach Subdivision on the north side of the east end of Richmond Drive between Newburg Road and Norris Place. Between 1913 and 1915 Albert S. Zimlich and Leo J. Zimlich subdivided three sections of Alfresco Place, between the Henry Addition and Rutherford Avenue.¹⁰¹

Development continued into the 1920s as William F. Randolph's Wakefield-Davis Realty Company laid out Shady Lane along Deerwood and Deer Lane between Newburg Road and Norris Place in 1922. The following year, the Odom Realty Company, acting as agent for owner J. P. Wilkinson, platted the Shady Glen Subdivision immediately below Shady Lane. The year 1927 saw the beginning of development in Deer Park's largest single subdivision - Forest Park - a roughly shaped tract laid out by W. M. Randolph in the western half of the property bounded by Bardstown Road, Rutherford Avenue, Norris Place, and Speed Avenue. Oddly enough, the last subdivision platted in Deer Park abutted Heeter's Hauck tract on the east. Called Olympic Subdivision, this tract was platted in 1935 by L. Jacobson and Sons, Inc., whose president was Ben P. Jacobson.¹⁰²

Architecturally, Deer Park has all the characteristics of a neighborhood built by and for the solid middle and working classes of the late nineteenth and early twentieth centuries. The homes in this overwhelmingly residential neighborhood exude the comfort and dignity made possible by new building technologies, the extension of utilities, and rising incomes but without the type of opulence found in the Cherokee Triangle or even some parts of Tyler Park. In fact the most elegant house in Deer Park pre-dates the neighborhood's building boom by nearly two decades. Built about 1870 and located at the intersection of Rosedale Avenue and Richmond Drive, the Yunker House is an exuberant 12-room, frame-over-brick house designed in an eclectic mode which one architectural historian has referred to as "Steamboat Baroque". The structure's general appearance, both inside and outside, he observed, evokes the "peculiarly puffed up quality...of the grand salons of the Victorian riverboats," especially with its tall, bulbous octagonal tower reminiscent of the French Second Empire style and florid posts and beams and lacy bargeboards suggestive of the Gothic Revival style.¹⁰³

But the picturesque Yunker house is hardly typical of the architecture of Deer Park. For the purpose of architectural analysis, the neighborhood is easily divisible into two parts. The quadrant bounded by Eastern Parkway, Bardstown Road, Speed Avenue, and Norris Place, which generally constitutes the neighborhood's older subdivisions, contains primarily frame shotguns and two-and-one-half story Victorian frame and brick homes. The shotgun cottages are especially prevalent along Stevens and Bonnycastle while the Victorian homes prevail on the blocks to the south.

A few bungalows are mixed among the shotguns and Victorian houses, but they dominate the newer sections of the neighborhood, demonstrating a variety of sizes and decorative motifs according to the individuality and the affluence of the builder or original buyer. Hartman, Jaeger, Stevens, and Bonnycastle avenues and Shady Lane west of Norris Place contain a mixture of modest

one-and-a-half-story brick, frame, and stucco bungalows. Deerwood Avenue and Deer Lane have a similar mix of bungalows, but the former also has several brick four-unit apartment buildings with Colonial revival motifs, while the bungalows on the latter begin to show some historical revival features such as twin dormers, gambrel roofs, and pedimented door frames. Deer Park Avenue includes both bungalows and numerous brick vernacular cottages with steeply pitched, gabled roofs. The prevalence of bungalows continues below Speed Avenue along Roanoke Avenue, Richmond Drive, Alfresco Place, and Rutherford Avenue, but the structures are much larger than those on streets to the north. Many are two or two-and-one-half stories and also incorporate historical revival motifs.

While Deer Park was taking shape on the west the Bonnycastle neighborhood was being developed on the east side of Bardstown Road. Demarcated by Eastern Parkway on the north, Speed Avenue on the south, and Cherokee Park on the east, Bonnycastle's development pattern included elements of those associated with Cherokee Triangle, Tyler Park, and Deer Park. As in Cherokee Triangle, for example, development was strongly influenced by proximity to Cherokee Park. Likewise, Bonnycastle has numerous large residences, as in Cherokee Triangle and Tyler Park, but without the latter's range of styles. Again, as in Deer Park, the fairly narrow range of styles in Bonnycastle probably stems from the fact that the neighborhood developed over a relatively short period of time. It is true that 81 years elapsed between the platting of its first subdivision in 1872 and its last one in 1953. But 10 of Bonnycastle's 15 subdivisions were recorded between 1890 and 1914 and the remaining two for which exact dates are unavailable were laid out in the 1920s.

Development in Bonnycastle began with the platting of Sherwood Avenue Subdivision in 1872. But lots apparently moved slowly, because three separate sections of the street were resubdivided by J. G. Brown and N. L. Johnson in 1891, E. V. Thompson, Sr., in 1904, and A. H. Marret in 1914. But the act which triggered urban development in Bonnycastle--and which gave the neighborhood its name--came in 1900, when Mrs. Harriett E. Bonnycastle dedicated streets in and platted lots on a large, irregularly shaped tract bounded roughly by Bardstown Road on the west, Cherokee Park on the east, Bonnycastle Avenue and Cherokee Road on the north, and Speed Avenue on the south. In an effort to enhance the attractiveness of the Bonnycastle Addition to investors, she also deeded to the Board of Park commissioners several areas of nearby land to enlarge Cherokee Park and to improve accessibility to it from Bardstown Road.¹⁰⁴

The same year that Mrs. Bonnycastle platted her addition, Ernest and Caldwell Norton subdivided the western end of a tract on Alta Avenue between Sherwood and Bonnycastle Avenue. A year later, they platted a tract at the east end of Alta, this one abutting Mrs. Bonnycastle's Addition on the east and the south. Several smaller tracts that either joined or which were contained within the Bonnycastle subdivision were platted over the next 14 years. But a sizeable piece of the Bonnycastle estate at the east end of Speed Avenue, adjacent to Cherokee Park, remained undeveloped until well after World War I. Finally, in 1924, W. C. Coleman's Dingle View Land Company laid out Dingle View Subdivision along Casselberry Road between Cherokee

Road and Speed Avenue, while Helm Bruce, Jr., and Earle Otis platted Sulgrave immediately to the east. The Bonnycastle neighborhood's last subdivision came 29 years later when Lovell N. Simpson platted Cherokee Hills on Gray Fox Road.¹⁰⁵

The architecture of Bonnycastle reflects the prevailing stylistic tastes of Louisville during the late nineteenth and early twentieth centuries. For the most part, the houses along Sherwood and Alta, as well as Bonnycastle, Murray, Maryland and Speed, west of Cowling, constitute a mixture of Victorian and historical revival structures with a sprinkling of bungalows. Although the neighborhood west of Cowling was not as elegant as that to the east, it was often subject to deed restrictions which established minimum lot sizes and home values. Some deeds also prohibited the sale of homes to blacks.¹⁰⁶

East of Cowling, along Cherokee Road, Casselberry and Sulgrave roads, and Spring Drive, lots are much larger and houses more imposing. As in General John B. Castleman's Castlewood Addition in Tyler Park, strict deed restrictions were employed to regulate development near Cherokee Park. An example of these are the restrictions imposed by the Barrett heirs when they sold Sulgrave to Helm Bruce and Earl Otis, and which the two developers included in subsequent deeds. Restrictions outlawed commercial buildings and multiple-family housing, prohibited any two families from living in the same single-family dwelling, dictated that no foreign-born person or direct descendent of a foreign-born person could live on Sulgrave Road, and prevented anyone from hanging wash outside on Sunday. On the positive side, the restrictions required that all telephone and electric wires serving homes be placed underground, established a minimum home value of \$12,000, and dictated that all homes be of an English type of architecture and that they be approved personally by Bruce and Otis. As a consequence, the homes on Sulgrave Road uniformly exhibit historical revival motifs characteristic of the English tradition.¹⁰⁷

Although deed restrictions prohibited the construction of multiple-family dwellings in many subdivisions, a demand did exist for apartments in the vicinity of Cherokee Park. Part of this demand was filled by the apartment buildings in the Cherokee Triangle. But one of the most elegant of these was constructed in Bonnycastle. Built in 1928 on a knoll at Spring Drive and Cowling Avenue, The Commodore is an 11-story structure designed in the Neo-classical style, similar to Willow Terrace and The Dartmouth, by the firm of Joseph and Joseph. "From its massive brass entry and its splendid lobby with vaulted ceiling to its paneled elevator with crisply-uniformed operator," a 1979 advertisement read, The Commodore was "the ultimate apartment residence in Louisville" for years after its construction. As if these features were not enough, The Commodore offered a roof garden, dining rooms with inlaid oak floors and 10-foot ceiling, and corridors with leaded, stained glass panels.¹⁰⁸

Between 1865 and 1917, the City of Louisville literally and figuratively burst at the seams as the pressures of population growth, economic development, and technological innovation pushed its boundaries westward almost to the Ohio River, southward to Churchill Downs, eastward along Frankfort Avenue to the Crescent Hill Reservoir and southeastward along Bardstown Road to Woodbourne Avenue. The movement of people continued beyond the city's corporate limit,

however, and by 1920, more than 40,000 persons lived in Jefferson County just outside the city limits. Most of these would be added to the city in 1922.

The magnitude of such growth is not easily measured for the period before 1910, but some insights can be derived from census data for 1910 and 1920. In 1910, Clifton and Crescent Hill were the most populous neighborhoods in the east end, with approximately 12,100 people living in an area bounded roughly by Wenzel Avenue, Washington Street, Brownsboro Road, Birchwood Avenue, Raymond Avenue, Grinstead Drive, Cave Hill Cemetery, and Baxter Avenue. Growth began to taper off in this area after 1910 while it intensified east of Raymond and Grinstead south of Frankfort Avenue.

Population growth was much more intense in the Highlands. In 1910, 3,900 persons lived in the Cherokee Triangle. By 1920, that figure had increased to 5,350. Only 550 people lived below Bonnycastle between Bardstown Road and Cherokee Park in 1910. But that figure nearly quadrupled over the next decade, standing at 2,150 in 1920. A similar pattern prevailed on the west side of Bardstown Road. In 1910, some 4,759 people resided in an area bounded by Breckinridge Street, Bardstown Road, Bonnycastle Avenue, and Barret Avenue. By 1920, the total had increased to 6,900. Likewise, the area south of Bardstown Road and east of Bonnycastle experienced a growth rate which substantially duplicated that of the corresponding area to the north, showing an increase in population from 550 to 2550 between 1910 and 1920.¹⁰⁹

The boom which began in the 1890s with creation of Cherokee Park would continue, after a war-time lull, into the 1920s. In the process, the city crept further and further out Frankfort Avenue, Lexington Road, and Bardstown Road. The technology of urbanization would change, with the automobile replacing the streetcar as the primary vehicle of personal mobility, but the role of professional land development would increase and the attraction of urban parks and institutional green space would continue to be a factor in promoting the sale of lots in eastern Louisville.

CHAPTER III

GENERATION OF CRISIS

The years that spanned American entry into World War I and the end of World War II were a watershed in Louisville's history. In less than three decades, the city experienced its greatest period of industrial growth and residential development, witnessed the displacement of the streetcar by the automobile as the primary mode of personal transportation, suffered through its deepest economic depression and its severest flood, and felt the effects of two international wars. In the process the city began its evolution from an industrial city into a modern corporate metropolis, characterized by an increasing degree of local, state, and federal participation in and regulation of the urbanization process, the establishment of several large industrial plants owned by giant corporations, the inexorable transfer of much local business and industry from local to outside ownership. Some of these trends would not become immediately apparent until the 1950s or 1960s. But some of the circumstances which made them possible began to appear between 1917 and 1945. It is within this context that the development of eastern Louisville during those years will be discussed.

The declaration of war against Germany in April 1917 meant an economic boom for Louisville. In the wake of a long recession, formal American participation in the war brought a welcome flow of new orders for local factories and the creation of several new industrial firms. At the same time, local business and political leaders lobbied successfully for the establishment of a military training cantonment in Louisville. During the war years, the expansion of local industry and the construction and operation of Camp Taylor brought millions of new dollars into Louisville and added considerably to its population, if only temporarily.

But the end of the war threatened to wipe out the growth which the conflict had stimulated. The suspension of war production and military demobilization brought a sudden increase in unemployment, and strikes hit the coal and railroad industries as labor attempted to preserve gains made during the war. By 1920 Louisville was suffering from the effects of a national depression. Nevertheless, Louisville experienced considerable economic growth during the immediate postwar years. Between 1920 and 1923, for example, 192 new industries began operations, while the value of annual production locally rose from \$204.5 million in 1919 to more than \$311.4 million in 1922.¹

As prosperity returned, business leaders embarked upon a new campaign to promote Louisville as a manufacturing center. Leading the way was the Louisville Industrial Foundation. The LIF had been organized in 1916, when over 3,000 citizens subscribed to stock in excess of \$1 million for a "Million Dollar Factory Fund" to establish new industries, expand existing ones, and create new payrolls. Its charter allowed the organization to form a revolving fund which could make loans to promising manufacturing and commercial enterprises that could not obtain adequate capital from banks or other financial institutions. Between 1917 and 1922, the Foundation extended loans totaling \$803,350 to some 18 firms, many of a relatively high risk nature. From 1923 through 1929, the organization was much more prudent in selecting the enterprises which it would support; nevertheless, it made 19 loans amounting to \$824,334.²

While the Louisville Industrial Foundation promoted industrial development through direct financial assistance, other individuals and organizations sought to improve Louisville's image as an attractive center for enterprise. In the fall of 1924, Louisville Civic Opinion, a civic betterment journal, invited numerous spokesmen to discuss their views in a series of columns entitled "Louisville's Prospects." Several writers emphasized the city's advantages as an industrial center. Some noted Louisville's close proximity to the center of population and its outstanding railway connection, factors which combined to make the city an excellent distribution point. Others pointed to the absence of labor tension. A Board of Trade official asserted that "Louisville is freer from labor troubles than any other city in the Union." He attributed this situation to the prevalence of the American or open shop system, under which "every man and woman can secure employment without coming under the influence of the 'business agent' or national organizer. Reflecting the resurgent nativism of the 1920's the same spokesman viewed proudly the almost total absence of foreign labor from a city whose population was over 95 per cent native-born. Still other writers noted a favorable tax situation, in which factories, goods and raw materials were exempt from certain state and local levies. Attributes such as excellent social, cultural, and religious institutions, cheap real estate, a healthy construction industry, well-built streets and sewers, soundly-managed banks, a fertile agricultural hinterland, abundant coal and hydroelectric power, and neat and comfortable homes also earned frequent mention.³

Part and parcel of this boosterism was a good measure of local Babbitry. D.G.B. Rose, first vice-president of the Board of Trade, urged every man, woman, and child to unite with civic groups and agencies to advertise Louisville's merits as an industrial center. By becoming a salesman for the city, Rose suggested, each citizen could cash in on "his or her part of the profits to be derived by united service for the benefit of each." While affirming the ethic of service to one's self through service to the community, Rose also warned against the "'knocker', who is as dangerous a pest to the happiness and financial welfare of a city as disease-carrying insects." The most effective action that could be taken against the knocker, Rose reasoned, was to increase promotional activities, because "the 'knocker' cannot stand success and dies because he has nothing left to kick about."⁴

The combined influence of organized boosterism, financial assistance to new industry, and an unprecedented nationwide economic boom culminated in the most extensive period of industrial development that Louisville had ever experienced. From 1923 through 1927 the city gained 153 new plants, while the total number of industries increased from 715 to 790, despite the loss of numerous businesses which suspended operations through the normal attrition. During the same period the value of annual production rose 51 percent from \$240.5 million to more than \$364 million and total wages jumped from less than \$62.5 million to nearly \$66.1 million. Bank clearings, another important indicator of growth, increased from just over \$1.5 billion in 1920 to nearly \$1.8 billion in 1926 and almost \$1.9 billion in 1927.⁵

Louisville's substantial industrial growth during the 1920s had ripple effects in the form of commercial, residential, and institutional construction. For the periods 1921 through 1925, the total value of building permits issued amounted to nearly \$94 million, a fourfold increase over the approximately \$18.9 million expended for construction during the previous five years. In 1926 construction totalled nearly \$21 million and increased to over \$23 million in 1927. Residential construction declined substantially between 1926 and 1927, but the loss was more than off-set by gains in other areas. Growth in the building of schools, stores, and office structures alone accounted for more than \$2.6 million.⁶

Much of Louisville's commercial growth during the 1920s was centered in the central business district, with Fourth Street and Broadway being primary axes of development. Construction along Fourth between Guthrie and Broadway included the Speed and Marmaduke buildings and the W. K. Stewart Bookstore. In addition to these were three distinguished motion picture palaces - The Rialto, The Kentucky, and Loew's - in the 600 block. Major structures along Broadway were the Breslin (now Fincastle) and Heyburn buildings, both constructed primarily as doctors' and dentists' offices. But the climax to the entire building boom came when J. Graham Brown, the multi-millionaire lumber tycoon, horseman, and philanthropist, built the Brown Hotel and Brown Building and initiated construction of the Martin Brown Building (completed in 1955 and sold to the Commonwealth Life Insurance Company) at the north side of the intersection of Fourth and Broadway.⁷

Urban development received additional impetus from improvements in Louisville's technological infrastructure, that is, its utilities and transportation systems. Between the end of World War I and the beginning of the depression, the voters passed three sewer bond issues - one for \$2 million 1919, a second for \$5 million five years later, and a third for \$10 million in 1928. Seventeen of the 40 projects funded by the Board of Sewer Commissioners from the 1919 and 1924 bond issues were located in the section of Louisville east of the South Fork of Beargrass Creek and its intersection with Newbury Road. Small projects were built along Mellwood Avenue in Clifton Heights, Payne Street in Clifton, Valley Avenue in Crescent Hill, Highland Avenue in Germantown, and along Eastern Parkway in Tyler Park. At the same time, one series of projects provided sanitary and storm sewers for a large section of Crescent Hill bounded roughly by Frankfort Avenue on the north, Lexington Road on the south, Ewing Avenue on the west, and the reservoir on the east, while another series of improvements provided service for a large section along both sides of Bardstown Road between Speed Avenue and Doup's Point. As a result of the 1928 bond issue, service in the Bardstown Road area was expanded by the construction of the Trevilian Way trunk line while service in Crescent Hill east of the water company was provided through the Beal's Branch trunk system.⁸

Expansion of the water system continued throughout the decade. Between 1910 and 1920 the distribution network grew from approximately 348 to 416 miles of pipe. But during the next seven years, the system grew to 572 miles of pipe. In 1922 Louisville annexed some 12 square miles of suburban territory, most of it to the south and east, including large sections of Deer Park, Bonnycastle, Belknap, Douglass, and Crescent Hill neighborhoods. During the ensuing years the Louisville Water Company faced the responsibility of supplying water to the residents of this new territory. Filling part of this need was a 48-inch main which began at the Crescent Hill Pumping Station and extended along Stiltz Avenue, Lexington Road, Cherokee Parkway, Willow Avenue, and Eastern Parkway to Third Street.⁹

The Louisville Gas and Electric Company also took measures to increase capacity and output. By the early 1920s most of the city and large parts of suburban Jefferson County already were served with gas and electrical connections. But the utility followed a vigorous growth policy, building new and larger power plants in anticipation of continued industrial and residential growth and to reduce costs to the consumer. In 1924 the new Beargrass gas plant on Upper River Road began operation. The following year the company launched a long-envisioned effort to harness the Falls of the Ohio for the production of hydroelectricity. While the Army Corps of Engineers built the necessary coffer dam, the Louisville Hydro-Electric Company, a subsidiary of LG&E, laid out \$7.5 million for the first phase of an eight-turbine powerhouse, which went into production in 1927. Indicative of the demand for the electricity produced by this new facility is the steady growth in the utility's output, which rose from nearly 106 million kilowatt hours in 1920 to just over 232 million in 1927.¹⁰

The 1920s also witnessed the unification of Louisville's competing telephone systems. At the beginning of the decade, Louisville had two telephone companies, the Home and the Cumberland. Subscribers to one were unable to call customers of the other and callers to distant cities often encountered vexing delays. Many businesses were forced into the inefficient and inconvenient practice of engaging both systems. In 1908 the city government had attempted to force the Cumberland to renegotiate the 200-year franchise which it had obtained in an earlier merger, but this maneuver was blocked by the U. S. Supreme Court, as an attack upon the sanctity of a contract. They also appeared to sanction the Cumberland's expansive tendencies. On the other hand, a clause in the 1891 Kentucky Constitution prohibited telephone monopolies.¹¹

But officials of both companies saw an opportunity for profit in a merger. In 1916 a concerted effort was initiated to achieve that objective, as each firm hired a leading attorney-politician to lobby in the General Assembly for a repeal of the anti-monopoly clause. After years of politicking, the goal finally was achieved in 1922. A few months later Mayor Huston Quin announced the proposed sale of the Home Telephone Company to the Cumberland Telephone Company. At the same time, he asked the General Council to approve a pre-sale rate increase for the Cumberland and to lend its political support to the transaction, even though this was a matter for the Supreme Court and the Interstate Commerce

Commission alone. The proposed rate increase received considerable public opposition but the legislative body eventually approved the charge. The legalities of the merger were finalized in December 1925. Six months later, the newly organized Cumberland Telephone and Telegraph Company became the Southern Bell Telephone and Telegraph Company.¹²

The 1920s and 1930s witnessed numerous advancements in the area of transportation, particularly in eastern Louisville. One which both resulted from and contributed to urban growth along Bardstown Road was the Louisville Railway Company's extension of streetcar service from Douglass Loop to Doup's Point in the early 1930s. Residents of the area, working through the City Limits Community Club, had tried unsuccessfully for some time to persuade the company to initiate the extension. But company president James P. Barnes continually insisted that the firm could not afford to provide the extension under its existing financial structure.¹³

The residents received a major boost in January 1924 when the Board of Public Works endorsed the endeavor. About the same time, City Attorney David Fairleigh announced that the Louisville and Interurban Railroad's practice of transporting passengers from Doup's Point to Douglass Loop and other points in the city at a charge of 14 cents per ride was illegal. Fairleigh told the Board of Public Works that under the law the Interurban, although a subsidiary of the streetcar company, was technically a railroad because it lacked a franchise to operate in the city and operated instead under authority of the State Railroad Commission. But the City Attorney also recognized that if the city forced the Interurban to cease passenger services between Doup's Point and Douglass Loop, it would leave area residents without any kind of public transportation. Therefore, he suggested that the streetcar company take over the Interurban lines, which it technically owned anyway, and extend streetcar service over the same rails. This could be done, Fairleigh suggested, without increasing the existing streetcar fare. But the Louisville Railway Company continued to resist the idea of an extension for more than three years.¹⁴

Finally, in September 1927, President Barnes announced that the company had begun planning for the requested extension, which would be put into operation as soon as a terminal could be constructed. Barnes explained that the company's decision had been based upon the tremendous growth in the area during the past few years and that there were now enough people in the vicinity to support the project financially. Unfortunately, the refusal of several land owners to give up their rights to a strip of property which served as right-of-way for Interurban tracks held up completion of the extension for several more years.¹⁵

The decision to extend the Bardstown Road streetcar line came in conjunction with another major development in Louisville's public transportation system--the public franchising of bus service. Early in 1915 the city had begun to license jitney buses, individually owned carriers that operated with a minimum of regulation and coordination in routes. Operating at five cents per ride in direct competition with the streetcar, which now charged seven cents a ride without a token, the jitneys were an economic bane to the Louisville Railway Company, which was confined to its franchised rail routes. In an effort to eliminate the jitneys, the company filed suit against a jitney operator called the People's Transit Company. The issue was eventually decided when the Court of Appeals ruled that the operation of buses was illegal without a franchise which was properly advertised and sold to the highest bidder.¹⁶

In early 1926 the Louisville Railway Company submitted to the Mayor and General Council a specimen ordinance that would give the company a monopoly franchise on bus service in the city. Two years of vigorous debate ensued before an ordinance finally became law. A key point of disagreement was the degree of authority which the city would retain over route designation. The company wanted a blanket monopoly which would allow it to create and alter routes as patterns changed while remaining free from pressure to lay out politically popular but economically unprofitable lines. The city administration, on the other hand, sought a franchise ordinance under which routes would be clearly delineated and riders protected from capricious changes by the company.

The city also devised a feeder system, wherein buses operating in distant neighborhoods would connect with streetcar lines serving downtown and major industrial areas, thus preventing buses from clogging traffic in heavily traveled areas. But the transit company preferred an express bus system over feeder streetcar lines. The ordinance which finally gained approval in April 1928 was a compromise between the conflicting positions. It gave the transit company a blanket monopoly over routes but provided for close supervision of the designation process by the Board of Public Works. The city, however, won its preferred feeder system as opposed to the express routes.

The measure's few opponents were primarily jitney operators and labor spokesmen who cloaked their concern for the jobs of independent bus operators in a principled statement of opposition to monopoly. Their pleas received a polite hearing from the General Council before it approved the ordinance without a dissenting vote in either house. Shortly thereafter, the Louisville Railway Company submitted its prearranged \$5,000 franchise bid, and on July 1, 1928, it began bus service under its new monopoly. Under the new system, the East End was served initially by two feeder routes. In Crescent Hill, buses operating along major residential streets eventually fed into the Frankfort Avenue streetcar line, while buses operating in the Highlands transferred their passengers to the Bardstown Road line. ¹⁷

Expansion and rationalization of the city's public transportation significantly enhanced personal mobility during the 1920s and 1930s. But to an ever increasing degree, much of public transit's role began to be displaced by a relatively newfangled mode of personal transportation - the automobile. A portent of the automobile's importance came in 1913 when the Ford Motor Company set up an assembly plant near Third and Breckinridge streets. By the early 1920s the city had numerous auto dealerships. Some 46,000 cars were in operation; traffic accidents were becoming a serious problem; and a movement was afoot to regulate traffic and improve streets. By 1930, as a result of the combined effects of the automobile, bus service, and the Depression, streetcar service had begun to suffer a serious decline in patronage, which would eventually lead to its demise. ¹⁸

Perhaps the most far-reaching transportation in eastern Louisville, if not the city at large, during the 1920's was the development of Bowman Field, Louisville's first airport. Bowman Field dates its origin to 1918, when, it is believed, the first aircraft touched down on a cow pasture in what was then part of the old Von Zedwitz estate near Taylorsville Road. Originally part of the John Floyd military land grant of 1774, the property passed into the hands of a descendent, Mary Elizabeth Caldwell. In the nineteenth century

she married a German nobleman, Curt Baton Von Zedwitz, and left Louisville to make her home in Germany. Both died before American entry into World War I, but after the declaration of war, the federal government seized the estate under the Alien Property Act.

In 1919, a local freight transfer operator, Abram H. Bowman, subleased 50 acres of the Von Zedwitz estate. The following year he purchased a surplus Canadian Jenny and formed a commercial flying business with pilot Robert H. Gast. The partnership dissolved a short time later, and in May 1921 Bowman went into business with W. Sidney Park, a former Louisvillian who had just come home after working for the Glenn L. Martin Company in the manufacture of bombers. The Bowman Park Aero Company was one of the first firms in the United States to specialize in aerial photography.

As local enthusiasm for flying grew, so did support for a permanent airport. In 1923, with the backing of local civic leaders, Bowman and Park persuaded the Army Air Corps to lease the Von Zedwitz property as an intermediate air-dome. Soon thereafter, an Air Corps reserve unit with 12 aircraft was arranged in Louisville. Already known informally as Bowman Field, the facility was formally dedicated as such in 1923. A year later, the Yellow Air Taxi Service Company opened Louisville's first air passenger service. In 1927, in the wake of the enthusiasm generated by Charles A. Lindbergh's nonstop flight to Paris, Louisville voters approved a \$750,000 bond issue to finance the purchase of Bowman Field as a municipal airport. In 1928, the General Assembly passed legislation authorizing creation of the Louisville and Jefferson County Air Board to operate the field as a publicly-owned facility. Airline service to Louisville began the same year when Continental Airways (later American Airlines), began mail service between Louisville and Cleveland. Three years later, Continental initiated passenger service between Louisville and Nashville.

Eastern Airlines launched service to and from Louisville in 1934. Before long, Bowman Field was handling 13,000 passengers annually on eight scheduled daily flights.¹⁹

While the primary function of Bowman Field was to improve Louisville's commerce, it also had the effect of adding a large new section of institutional open space to the city-scape. The Bowman Field purchase comprised 552 acres, much more land than necessary for the airport. Inasmuch as the land was purchased not by the air board but by the parks commissioners, the excess land was developed as Seneca Park. Plans for the park were drawn by Olmsted Brothers, successor to the firm of Frederick Law Olmsted, the original designer of Louisville's park system. During the two years that followed the purchase, roads were built and a four-acre tract was purchased from R.S. and C.K. Reynolds to join Seneca and Cherokee parks into a dual unit described by the Louisville Herald-Post as "second to none for beauty and accessibility."²⁰ In practical terms, Seneca Park and Bowman Field provided a new sylvan magnet for residential development along both the Bardstown Road and Frankfort Avenue axes.

A substantial portion of the residential development which occurred in eastern Louisville as a consequence of the technological improvements of the 1920s took place along the city's suburban fringe. But most of it was within the city limits, especially the large section annexed in 1922.²¹ From 1917 through 1929, 89 subdivisions were platted within the bounds of present day eastern Louisville. Of these, 55 were located in one of eight neighborhoods which began

to experience substantial development during the 1920s. The majority of the remaining subdivisions were laid out in neighborhoods such as Tyler Park, Deer Park, and Bonnycastle, which already had reached their peak of development.

Along the Frankfort Avenue axis, the subdivision process was concentrated in Braeview, Cherokee Gardens, and the southern part of Mockingbird Valley within the city and the St. Matthews area on the suburban fringe.

Residential development in Braeview and Cherokee Gardens was foreshadowed during the first quarter of the twentieth century by the construction of several large houses along the south side of the Lexington Road and Alta Vista Road by certain members of the city's economic and social elite. In 1923 brewer Frank Fehr built Sunnyview on Lexington Road west of Braeview. Designed by the firm of Joseph and Joseph, this Tudor Revival home resembles Kosair Children's Hospital on Eastern Parkway, which was designed by the same firm. Located nearby at 2800 Lexington Road is the imposing Colonial Revival home designed by E. T. Hutchings and constructed in 1915 for Mrs. T. U. Dudley, widow of the former Episcopal Bishop of Kentucky. Several large historical revival houses were erected along both sides of Alta Vista on the eastern fringe of Cherokee Park. The former home of hotelman Louis Seelbach, located at 715 Alta Vista, was designed by the Louisville firm of McDonald and Dodd and built around 1911. Further south, at 1001 Alta Vista, is the former home of Allen R. Hite, the businessman who endowed the University of Louisville Department of Fine Arts.

The largest and most impressive home on Alta Vista is Gardencourt, built in 1906 by the daughter of financier George W. Norton and designed by the Boston firm of Shepley, Rutan, and Coolidge. Perhaps the most distinguished home in the area is Rostrevor, located near the south end of Alta Vista Road between Cherokee and Seneca Parks. Built between 1908-1910 for James Ross Todd, this mansion which resembles a fifteenth century Italian villa, was designed by the prominent New York firm of John Carrere and Thomas Hastings. They were associated in the project with Louisville architects Arthur Loomis and Julius Hartman, although it is unclear what role the local architects played in the commission. Finally, one of the best examples of a Neo-Colonial Revival style in the area is the home of the late William S. Speed, president of the Louisville Cement Company. Located at 2828 Lexington Road (the driveway is now Altagate), the Speed home was built in 1925 after a design by New York architect Charles Platt.²²

But large estates of this type were expensive to operate. In some cases, there were no heirs to inherit them, or the heirs were not interested enough or financially able to assume the responsibility for maintaining them. Frequently, they had enough excess land that the owner found it profitable to subdivide it for residential purposes. During the 1920s and the decades that followed, the land around several of these large estates was carved up into residential lots. The vast majority of the houses built on these lots was executed in one of the historical revival styles, complementing the original estate homes. The residential subdivision of Braeview was initiated in 1924 by the Frank Fehr Realty Company. The following year, he resubdivided and enlarged the tract, extending it all the way back to Beal's Branch Road between Fehr Avenue and a short court just west of Alta Vista Road. The remaining section of Braeview, located between Fehr and Cherokee Park, was subdivided in 1972, under the name Lexington Place by Louisville automobile dealer William H. Collins.²³

About the same time that Fehr was beginning to develop Braeview, William S. Speed had begun to lay out neighboring Cherokee Gardens. In 1925 he platted the Fairfield Unit, laying out lots on Fairfield Drive, Primrose Way, and the western half of Rainbow Drive. Three years later, realtors C.C. Hieatt and Helm Bruce, Jr., began platting the largest single section of Cherokee Gardens, bounded roughly by Lexington Road, Beal's Branch Road, Sunnyside Drive, and Speed's Fairfield section. Numerous homes were built during the years that followed, but there was no further subdivision until 1955, when the Louisville and Jefferson County Planning and Zoning Commission approved R.J. Stewart and Walter Wayne, Jr.'s., Crossbrook Subdivision located on Crossbrook Drive between Sunnyside Drive and Briar Hill Road.

Five years later, the Cambron-Kendall Company, a development firm headed by Joseph W. Cambron, Jr., began subdividing Daneshall, located between Beal's Branch Road and Seneca Park. Finally, in 1969, developers William B. Clem and William A. Nunnelle, Jr., and the Dahlem Realty Company received Planning Commission approval to begin development of Cherokee Gardens west, located on the grounds immediately surrounding the William S. Speed home.²⁴

A third neighborhood which experienced major development during the 1920s was Mockingbird Valley, the area bounded by Zorn Avenue on the west, Brownsboro Road on the south, the sixth-class city of Mockingbird Valley on the east, and Mallwood Avenue on the north. Actually, the first subdivision platted in the area was the Jutte Subdivision which was laid out by Jane C. Jutte along the north side of Brownsboro Road between Zorn Avenue and Jarvis Lane in 1912.²⁵ In the character of its street pattern and residential construction, however, Jutte Subdivision has a greater affinity for Crescent Hill than it does for Mockingbird Valley.

No further development occurred in the area until 1926, when the development firm of Bushnell and Ivins laid out Mockingbird Hill Subdivision on a rolling 54-acre tract bounded by Mockingbird Valley Road, Brownsboro Road, Jarvis Lane, and Overbrook Road. Located near the prestigious Louisville Country Club, the subdivision was intended by its developers to be a residential showplace. The smaller lots, those facing Jarvis Lane, measured 100 feet by 150 feet while the larger lots, which faced Brownsboro and Mockingbird Valley roads, ranged from four-fifths to two and one-half acres each. A highly flattering story in the Louisville Herald-Post described the activities which were planned for the development. "Improvements of every sort to make this subdivision as beautiful and as convenient as possible are underway," the paper observed. "Paved drives have been platted and city water, gas and electricity will be brought through the property. Building lines have been so planned as to enable every residence to command a view of the entire surrounding countryside." Finally, the story concluded, "restrictions that assure a harmonious environment are planned so that Mockingbird Hill will be a beautifully blended whole."²⁶ During the remainder of the 1920s and through the 1940s, 1950s, and 1960s, numerous impressive historical revival homes were built upon the lots in Mockingbird Hill.

Taking a cue from Bushnell and Ivins, the Lightfoot Land Company began in 1927 to develop Green Hills Subdivision on a somewhat smaller tract immediately east of Mockingbird Hill between Mockingbird Valley Road and Lightfoot Road.

Although somewhat more modest in scale than those in the neighborhood subdivision, the residences in Green Hills tend to reflect a similar historical revival influence.²⁷

As a result of the depression and World War II, Mockingbird Valley experienced a development hiatus during the 1930s and 1940s. But the moratorium ended in 1953, when real estate man Paul Semonin, Jr., received Planning Commission approval to begin development of Ridgewood on a tract immediately north of Jutte Subdivision between Zorn Avenue and Jarvis. During the next two years, the commission certified developer Edgar W. Archer's plans for both sections of the Greenleaves Subdivision, located along Zorn Avenue between Semonin's development and Mellwood Avenue. Construction in both Ridgewood and Greenleaves occurred at a fairly leisurely pace, stretching into the 1970s.²⁸ As a consequence, the homes reflect the combined influences of the historical revival styles that were prevalent during the 1920s and the ranch style which became popular after World War II.

The primary area of subdivision along the suburban fringe of the Frankfort Avenue axis during the 1920s was St. Matthew's. Development was concentrated for the most part along Frankfort Avenue and Lexington Road to Gilman's Point, where Frankfort Avenue, Lexington Road, Westport Road, Chenoweth Lane, and Breckinridge Lane converge. Gilman's Point is named for Daniel Gilman, who moved out of Louisville in 1840 and opened a combination tavern and general store at the five-way intersection. A few years later, a small Episcopal congregation called St. Matthew's was organized, and it built a small church near Gilman's business establishment. Before long, the name St. Matthew's was used interchangeably with Gilman's Point to describe the surrounding area. In 1854 the first post office in the vicinity was given the name St. Matthew's and some time later, the railroad station received the same name. The simultaneous use of both names stemmed from the fact that the area was not incorporated and therefore had no official name.²⁹

Throughout the nineteenth century St. Matthew's was little more than a rural village, which served as a collection and exchange point for area farmers. The major crop was potatoes. Indeed, by 1910, St. Matthew's boasted of being the largest single shipping point for Irish potatoes in the United States. Among the community's larger businesses were two potato exchanges - the St. Matthew's Produce Exchange, run by R. W. Hite, and the Worthington Produce Association, operated by H. H. Simcoe.³⁰

During the last decade of the nineteenth century and the first decade of the twentieth, land developers began to push back the potato farms to lay out subdivisions, and to sell building lots. In 1893, John A. Fisher and R. H. Thompson, president of the Suburban Home Company, platted the Cherokee Court Subdivision on a tract bounded by Cannon's Lane, Grandview Avenue, Macon Avenue, and the survey line between Dayton and Nanz avenues. Fourteen years later, E. T. Schmitt subdivided a small piece of ground along either side of Bauer Avenue between Frankfort Avenue and Lexington Road. In 1910 the Komus Realty Company laid out the subdivision on a tract immediately west of Schmitt's Subdivision between Iola Road and Bauer Avenue. Development moved to the east of Breckinridge Lane in 1912 when Mary Nanz platted Maplewood Subdivision on a tract bounded by Shelbyville Road, Breckinridge Lane, Nanz Avenue, and Fairfax Avenue. A year later, Louisa Newner and F. A. and Sallie Kraft platted the piece of ground immediately to the south between Nanz and Grandview avenues as Magnolia Subdivision.³¹

Between 1924 and 1926, six new subdivisions were platted in the St. Matthew's vicinity, nearly all of them by professional real estate developers. In 1924 developer Frank Eline and a group of associates laid out a small plat called Eline's Subdivision at the northeast corner of Cannon's Lane and Lexington Road. The following year, William F. Randolph and his Wakefield-Davis Realty Company, one of Louisville's most active firms during the 1920s, began staking out lots in Fairlawn Subdivision, immediately east of Eline's Subdivision between Lexington Road and Frankfort Avenue. Four new tracts were subdivided in 1926. Stewart W. Allen platted Cannonside Subdivision on the western two-thirds of the block bounded by Cannon's Lane, Beverly Road, Fairlawn Road, and Richard Avenue. A much larger enterprise was Lexington Manor, which stretches from Cannon's Lane almost to Bauer Avenue between Lexington Road and Willis Avenue. The developer was the United States Realty Associates, Inc., headed by president Ralph C. Phillips. Finally, J. C. Turner initiated development of the remaining land between Lexington Manor and Gilman's Point when he recorded both sections of Breckenridge Villa on a tract formerly owned by potato farmer and realtor Henry Holzheimer.³²

As in other neighborhoods, St. Matthew's experienced a lull in development during the 1930s and early 1940s. But after World War II ended, the community faced a wave of rapid development as realtors and builders turned more farm land into subdivisions to meet the demand of returning veterans for new homes. In 1946, Edgar W. Archer, who would be one of Louisville's most active subdivision developers after the War, laid out Nanz Subdivision, which extended from Cannon's Lane to Macon Avenue between the Cherokee Court Subdivision and Grandview Avenue. Two years later, the city of Louisville annexed Archer's development, and in 1957 the city took in most of the St. Matthew's business district along Frankfort Avenue and Breckinridge Lane. The same year, Louisville annexed a large section of farmland roughly bounded today by Beaucamp Road, Interstate 64, the sixth-class cities of Broad Fields and Plymouth Village, and Hycliffe Avenue. The land was owned by hotelman J. Graham Brown, whose Broadway and Fourth Avenue Realty Company developed it as two sections of Broad Fields Subdivision in 1958 and 1959.³³

The houses in the St. Matthew's area reflect the styles which prevailed at the time their subdivisions were developed. Those in the tracts laid out between 1893 and 1926 consist primarily of modest brick bungalows and frame houses while those in subdivisions of more recent vintage tend to be a contemporary ranch style.

Development was even more prolific in the Highlands during the 1920s than it was along Lexington Road. During that decade more than 40 subdivisions were platted in the area between Speed Avenue and Bowman Field north of Bardstown Road and Taylorsville Road and bounded by Rutherford Avenue, Newburg Road, and the present day Watterson Expressway (except for the Hayfield - Dundee area), south of Bardstown and Taylorsville roads. This area encompasses the Douglas, Belknap, Gardiner Lane, and Hawthorne neighborhoods and the sixth-class cities of Seneca Gardens, Strathmoor Manor, Strathmoor Village, Strathmoor Gardens, Kingsley and Wellington.

One of the largest of these is the Douglass neighborhood, located immediately below Bonnycastle and bordered by Cherokee Park, Seneca Park and Seneca Gardens. The original core of the neighborhood was "Woodbourne," an estate of approximately 200 acres assembled during the 1830s by Starks Fielding, a Mississippi

cotton planter. The focal point of the estate was an imposing, white-columned Southern Colonial mansion, located today between Woodford Place and Douglass Boulevard adjacent to Douglass Boulevard Christian Church. The home was purchased by the church in 1949, renamed Brinley, a former pastor, and now serves as a religious education facility.³⁴

In 1870, Woodbourne was purchased by George L. Douglass, an executive of Western Union. Upon Douglass's death, the estate passed into the hands of his daughter, Mrs. S.R. Carter. Shortly after the creation of Cherokee Park, she donated several acres of the estate to the Board of Parks Commissioners as part of the park. Included in the donation was Big Rock, one of the park's most popular features. But the vast majority of the property was laid out during the early twentieth century as Douglass Park Subdivision. In 1901, a small tract was subdivided on the north side of Douglass Boulevard between Ellerbe Avenue and Millvale Road. Two years later, a large irregular section bounded by Ellerbe, Woodford Place, Dorothy Avenue, Douglass Boulevard, Bardstown Road, and Woodbourne Avenue was platted as the Addition to Douglass Park Subdivision. An even larger section between Ellerbe and Seneca Park was subdivided in 1904.³⁵

The combination of large historical revival and Victorian houses and apartment buildings located along Woodford Place, Douglass Boulevard, and Woodbourne Avenue between Bardstown Road and Ellerbe Avenue suggest that the western half of Douglass Park Subdivision developed at a fairly rapid pace. A major factor in this development was no doubt the extension of the Bardstown Road streetcar line to Douglass Blvd. early in the 20th century. By the mid 1920s the Douglass Loop was a thriving commercial district. The eastern half, however, did not grow rapidly. A few older historical revival homes attest that some residential development did occur before the depression. But most of the area was resubdivided into six smaller units between 1938 and 1952. Particularly active as developers were Lewis J. and Standiford D. Gorin, William C. Embry, and the Fidelity and Columbia Trust Company, which developed two subdivisions in a role as trustee for two of its other property owners.³⁶ The numerous resubdivisions of the eastern portion of Douglass Park help to explain the mixture of historical revival and contemporary brick and stone ranch houses located along Valetta Lane, Moyle Hill Road, Millvale Road, and the eastern end of Douglass Boulevard.

Several other parcels of land near the Douglass estate were subdivided between 1906 and 1914. In the former year, Arthur E. Muellen, president of the Kaelin Land Company, platted Kaelin's Subdivision at Doup's Point, the intersection of Bardstown Road and Taylorsville Road. In 1907, Henry M. Johnson's Highland Realty Company platted Kenilworth, a small subdivision at the intersection of Speed Avenue and Bardstown Road. Kenilworth Place, the subdivision's main street, intersects Bardstown Road at a right angle. Its entrance is flanked by two stone pillars and the street is lined with large two and one-half and three story frame and brick, closely placed Victorian houses.

One block east of Bardstown Road, Kenilworth meets Hampden Court. Immediately opposite the intersection is one of the neighborhood's showcases - an impressive two-story, brick Italianate mansion with a tall central tower, bracketed cornice, and window hoods. The date of construction is unknown, but its design suggests that the residence was built before the Civil War. The lot was owned as early as 1827 by businessman and banker William H. Pope. As late as 1848, when it was

transferred to Emery Lower, the structure was owned jointly by Pope's estate and Larz Anderson, politician and son of Richard Clough Anderson, Sr., of Soldier's Retreat. Later owners included Joseph Monks, a director of the ill-fated Louisville and Portland Railroad during the 1850s, and Dennis Long, operator of the Dennis Long Foundry at Ninth and Mix Streets, one of the nation's leading producers of water pipe during the late nineteenth century.³⁷

In 1911, the Louisville Trust Company platted Woodbourne Heights on a small tract bounded by Woodbourne, Wallace Avenue, Wrocklage Avenue, and Bardstown Road. Three years later, Ben S. Talbott laid out a small development on the east side of Wallace Avenue between Wetstein Avenue and Trevilian Way. The residences in these areas consist primarily of frame Victorian houses and small bungalows.

Like most other neighborhoods in eastern Louisville, the Douglass area experienced a moratorium in development during World War I, which was followed by a building boom during the 1920s. More than a dozen new subdivisions were laid out in the Douglass neighborhood during the first half of the postwar decade. The first and largest of these was Lauderdale, laid out in 1920 by William F. Randolph, a prominent land developer. Bounded roughly by Speed Avenue, Kenilworth Subdivision, Bardstown Road, Village Drive, and a survey line perpendicular to Speed Avenue between Lauderdale and Castleberry Road, the subdivision was redivided later the same year with the section between Spring Drive and Bardstown Road being recorded immediately, and the one east of Spring being recorded the following year. Also in 1920, Weber's Heirs Subdivision was laid out on the tract demarcated by Weber and Wallace Avenues, and Bardstown and Taylorsville Road adjacent to Doup's Point.³⁸

Other than the resubdivision of the eastern section of Lauderdale, only one other new subdivision was laid out in Douglass during 1921. In that year, Isaac F. Starks, president of the Starks Realty Company, staked out the tract bounded by the Lauderdale development on the north and Douglass Park on the south, Dorothy Avenue on the east and Bardstown Road on the west, and recorded it as Woodbourne Subdivision. But 1922 was a banner year for new development, with four more subdivisions being recorded. The largest was Cherokee Village, laid out by Clarence C. Hieatt's Consolidated Realty Company upon the remaining area bounded by Woodford Place on the south and east, by Speed Avenue on the north, and by Lauderdale on the west. The three smaller subdivisions lay to the south of Woodbourne Avenue. Located between Woodbourne Heights and Weber's Heirs Subdivision and terminated by Bardstown Road on the west and Wallace Avenue on the east, Meyer's subdivision was platted by George W. Meyer. Thirteen lot owners formally recorded William Talbott's subdivision of Lot No. 5 in Matilda Talbott's Division, located on the east side of Talbot Avenue between Woodbourne and Wetstein Avenue, while James H. Davis platted the small subdivision which carried his name on the tract on the west side of Talbot between Woodbourne and Wetstein.³⁹

With the exception of the resubdivision of the north western corner of Hieatt's Cherokee Village, which involved the addition of several more acres near Lauderdale and Speed Avenue, no new subdivisions were platted in the Douglass neighborhood during 1923. The only subdivision platted in 1924 was a tiny tract on the east side of the intersection of Woodbourne and Wallace, which carried the surname of its developer, Joseph DeSopo. The last subdivision recorded

during the decade was F. G. Von Roenn's Addition, laid out along both sides of Talbott Avenue between Wetstein Avenue and Taylorsville Road by Fred G. Von Roenn, L. B. Von Roenn, and Annie Backer in 1925.⁴⁰

The housing styles found in the subdivisions developed during the early 1920s are indicative of the socioeconomic character of the neighborhood's residents during the period. North of Douglass Boulevard, large, expensive, historical revival style homes, especially the Colonial, English, Tudor, and Dutch revival are dominant, suggesting that the area had - and to a considerable extent retains - a heavily upper middle class population. By the same token, the homes south of Woodbourne, along such streets as Wrocklage, Weber, Wallace, and Talbott are primarily brick and frame bungalows, suggesting a comfortable but not highly affluent working class populace. In addition to the obvious differences in the residential style in the different parts of the neighborhood, Douglass also indicates some prophetic departures in its street patterns. As early as the 1870s and 1880s, developers in such neighborhoods as Crescent Hill and Cherokee Triangle were forced to discard the gridiron pattern when dealing with difficult topography. But for the most part, the grid prevailed. It was not uncommon for developers to cut down hills and fill in valleys in an attempt to make the land fit the traditional street pattern. In fact, most of the Douglass neighborhood south of Douglass Boulevard reflects the traditional devotion to the gridiron, regardless of its period of development. But to the north, in the upper middle class subdivisions laid out by William F. Randolph and C. C. Heatt, the street pattern exhibits an assortment of loops, curves, and circles calculated to respect the natural contours of the land. The same is true for the newer subdivisions which border Cherokee and Seneca parks.

This respect for the landscape was not, however, the coincidental expression of a newly-found ecological or aesthetic sensitivity on the part of subdivisions. It was instead the reflection of a growing belief among professional developers across the United States that the use of a subdivision design formula which employed large lots, served natural greenery and topography, fostered good architecture, and removed through traffic from residential streets - even at the cost of lowering density - was more profitable in the long run than a repetitive checkerboard pattern, especially when appealing to the more affluent home buyers.⁴¹

At the same time that the Douglass neighborhood was undergoing development on the east side of Bardstown Road, the Belknap neighborhood was emerging on the west side. An irregularly-shaped area approximately the same size as Douglass, Belknap is demarcated by Rutherford Avenue and Richmond Avenue on the north; Newburgh Road on the west; Dundee Road, Emerson Avenue and Strathmoor Manor on the south; and Bardstown Road on the east. The name is derived from Belknap Elementary School, located on Sils Avenue between Page and Wibben avenues, and one of the neighborhood's central institutions since its construction in 1910.⁴²

As in other neighborhoods in the Highlands, the earliest development in Belknap occurred along Bardstown Road. The first subdivisions were laid out in 1901 when realtor Victor N. Meddis recorded both sections of Zimlich Addition on a tract which began at the intersection of Rutherford Avenue and Bardstown Road and extended southward to Overlook Terrace between Dundee Road and the alley east of Boulevard Napoleon. Six years later, John H. Sils platted Sils Addition

on a section of the land which once had belonged to Daniel Doup, bounded roughly by Bardstown Road, Dundee Avenue, Page Avenue and Wrocklage Avenue. In 1916 the Cherokee Land Company, then headed by president John H. Sale, laid out the first section of Cherokee Plaza, a five-block strip of land which lay along both sides of Boulevard Napoleon between Rutherford and Overlook Terrace. Three years later the same firm, now headed by Fred J. Drupler, platted an additional block to the south of Overlook Terrace. The last subdivision in Belknap before the United States joined World War I was the first section of University Park, laid out in 1917 on a tract immediately to the west of Cherokee Plaza and bordered on the north by Rutherford Avenue, on the west by Sewanee and on the north by Harvard Drive. Unlike most other local subdivisions, University Park was developed by an out-of-town firm, International Realty Associates, of St. Louis County, Minnesota.⁴³

The street patterns and housing styles in these early Belknap subdivisions are quite similar to those in parts of the adjacent Deer Park and Douglass neighborhoods. Each of the half-dozen subdivisions was laid out on a traditional gridiron. However, the physical relationship between the individual tracts is highly irregular, with Dundee Road forming a link between Sils addition on the east and Zimlich Addition, Cherokee Plaza, and University Park on the west. The residences along the south side of Rutherford Avenue, Princeton Drive, and Harvard Drive between Sewanee on the west and Bardstown Road and Dundee Road on the east consist of a mixture of large, closely-placed historical revival structures and bungalows similar to those along Alfresco Place and the north side of Rutherford in Deer Park. Further to the south along Boulevard Napoleon, historical revival homes on larger lots prevail. In Sils Addition, however, the homes are more modest, consisting primarily of smaller bungalows, frame houses, and a few older Victorian dwellings with a minimum of ornamentation.

After World War I, the gridiron was abandoned entirely, while some form of historical revival style became virtually the only acceptable form of architectural expression in Belknap. Not until after World War II, with the advent of the contemporary ranch and split level styles, did an occasional builder challenge the hegemony of the historical revival mode. Primarily responsible for the abandonment of the gridiron was William F. Randolph, who earlier had developed the Lauderdale subdivisions across Bardstown Road in the Douglass area. Deeply influenced by the back-to-nature movement, Wakefield-Davis Realty Company and its successor firms platted eight sections of the Aberdeen and Tecumseh subdivisions between Rutherford Avenue on the north and Dundee Road on the south. Not only did Randolph's developments incorporate winding, curvilinear streets which followed scenic natural contours, many of the streets were given Arcadian names such as Valley Vista, Forest Hill Road, and Sylvan Way.⁴⁴

Other developers quickly followed Randolph's lead. When International Realty Associates added a second section of University Park between Harvard Drive and Trevilian Way in 1923, Yale Drive and Overlook Terrace were laid out with sweeping curves. Typical perhaps of this new type of subdivision was Lakeside, platted in 1923 by W.L. Wheeler's Auction Company and designed by Olmsted Brothers, the successor firm to Frederick Law Olmstead, Sr., of Brookline, Massachusetts. Bordered approximately by Bardstown Road, Sil's Addition, Woodbourne Avenue, and the City of Strathmoor Manor, Lakeside was described at the time it was platted as having been "so arranged and planned that it will be one of the show places of the city". Among the subdivision's amenities, described in the journal Civic Opinion, were a three-acre lake which provided opportunities for swimming, canoeing, and other recreational activities; two main drives, Trevilian Way and Lakeside Drive, each one 60 feet wide, which formed boulevards 120 feet wide when combined with 30 feet building setback lines; deed restrictions which confined business activities to a few lots on Bardstown Road; and the availability of city water, gas, and electricity. Summing up, the announcement suggested that upon completion of Lakeside Drive "there will be few short drives in the city which will offer better roads, better views, and more enjoyable surroundings."⁴⁵

While new development in the Highlands during the 1920s was concentrated primarily in the Douglass and Belknap neighborhoods within the city of Louisville, a good deal of subdivision activity occurred along the city's fringe. Included in this fringe area was a section of Belknap south of Trevilian Way, but the major areas of suburban development were the Gardiner Lane and Hawthorne areas - which were annexed by Louisville during the 1950s - and the sixth-class cities.

Generally encompassing the eastern half of the area south of Belknap and bordered on the east by Bardstown Road, the west by Newburg Road, and the south by Gardiner Lane, the Gardiner Lane neighborhood consists of 16 subdivisions, all of them recorded between 1913 and 1950. Six were laid out during the 1920s, while three more were platted between 1939 and 1941.⁴⁶

Until the early twentieth century most of the land in the Gardiner Lane vicinity was devoted to agriculture. In 1913 several adjacent landowners dedicated Tremont Drive between Tyler Avenue and the westward extension of Dahlia Avenue. Four years later, the Fidelity and Columbia Trust Company, acting as trustee of the will of E.D. Briscoe, laid out Briscoe Subdivision Number 1 on a small tract bounded by Gladstone, Eleanor, and Tyler avenues, and Bardstown Road. The subdivision was revised and extended to the northside of Winston Avenue in 1922. During 1923 and 1924 Louis and Mary Hoock participated separately with Charles and Amelia Kurz and Nicholas and Annie Schmidt in the development of three adjacent subdivisions which included most of the area bounded by Tyler Lane, Tremont Drive, Dahlia Avenue, and Bardstown Road.⁴⁷

The year 1924 witnessed the platting of two subdivisions which eventually culminated in the development of most of the land bounded by Emerson Avenue, Lover's Lane, Tyler Lane, and Eleanor Avenue. Responsible for Glendale Subdivision, a small tract on the east side of Lover's Lane between Gladstone Avenue and Tyler Lane, was the Kentucky Real Estate and Development Company, headed by George W. Yeager. To the northeast, near the corner of Emerson and Eleanor, Frank Simon's Louisville and Jefferson County Land Company platted Villula Park. Fifteen years later, the same firm, now headed by Alfred J. Simons, resubdivided most of Villula Park, extended it southward toward the imaginary extension of Gladstone Avenue, and renamed it Winston Forest. The following year, the firm recorded a second section of Winston Forest, which extended the subdivision along both sides of Winston Avenue to Lover's Lane. Finally, in 1941, Edgar W. Archer platted Gladstone Addition on the west side of Eleanor opposite Gladstone Avenue between Eleanor and Bardstown Road.⁴⁸

By the beginning of American participation in World War II, virtually all of the available land between Emerson and Dahlia avenues had been subdivided. No new subdivisions were platted during the war. But activity resumed in 1946, this time between Dahlia and Gardiner Lane. The first new subdivision was Sherbrooke, which embraced both Sherbrooke Road and Eleanor Avenue between Dahlia and Gardiner Lane. The developer was Lee Pruitt. The following year, Sidney and Rose Schneider initiated development of the first of three sections of Carol Acres, which encompassed the area between Sherbrooke and Tremont Drive. The last subdivision developed in the Gardiner Lane area was Welbrooke Avenue,⁴⁹ laid out between Sherbrooke and Bardstown Road by Harry Taylor in 1950.

Located on land which was once part of Judge James Speed's Farmington estate, the Hawthorne neighborhood is bounded generally today by the cities of Strathmoor Manor and Kingsley, Bardstown Road, the Watterson Expressway, and Taylorsville Road. It consists of 13 subdivisions, six of which were laid out during the 1920s, including two which make up the sixth class city of Wellington.

Development began in 1909 when A.V. Thompson platted the Bon Air Subdivision on the eastern half of a parcel which lay along Hawthorne and Clarendon avenues between Bardstown Road and Bon Air Avenue. Five years later, George W. Holland recorded the western portion of Clarendon Avenue between Bardstown Road and Bon Air Subdivision as the Lancashire Subdivision. But development remained dormant until 1925, when William F. Randolph's Wakefield-Davis Realty Company platted two sections of Beaumont on a tract bounded by Taylorsville Road, Bon Air Avenue, Rubble Road, and a line between Curran Road and Dartmouth Avenue. The following year, developer J.C. Turner laid out Hathaway Subdivision between the Beaumont developments and a line between Peale Way and Carson Way. Three years later, the triangular tract formed by Taylorsville Road, Rubble Road and Hathaway Subdivision was platted by W.C. Coleman's Dingle View Land Company as the first section of Seneca Village. A second section which stretches from Bon Air Avenue to Taylorsville Road between Rubble Road and Gardiner Lane, was laid out in 1948 and revised in 1950 by Edgar W. Archer's Lupino Realty Company.⁵⁰

Until Section 2 of Seneca Village was platted in 1948, the largest subdivision in Hawthorne was Wellington, which became a sixth class city in 1946. Wellington actually consists of two subdivisions. The first, Herndon Place, was laid out along Manchester Road and Brighton Drive between Montrose and Bel Air avenues by W.C. Coleman in 1925. Three years later, however, C.C. Hieatt's Consolidated Realty Company took over Herndon Place, added a larger parcel between Montrose and Bards-town, and resubdivided the entire tract as the Wellington Extension of Strathmoor. The year after World War II ended, Edgar W. Archer platted Alanmeade Subdivision on a parcel immediately south of Wellington, bounded on the east by Bon Air Avenue, on the south by Gardiner Lane, and on the west by Montrose. Two years later, M.C. Elliott and Ada M. Delhomer platted Hawthorne's final subdivision, Villanova, located directly south of Alanmeade between Gardiner Lane and what is now the Watterson Expressway.⁵¹

The eventual incorporation of Wellington underscores a phenomenon which became endemic not only to Louisville but to the United States as a whole. The residential building boom which occurred along Lexington and Bardstown roads during the 1920s was representative of suburban explosion which occurred throughout the nation. As the sweeping annexation of 1922 and subsequent annexations after World War II suggest, many of the suburban developments of the 1920's eventually became part of the larger cities upon which they depended economically. Some resisted in order to maintain their independence while others invited annexation out of desire for improved services. But during the 1920s and the decades that followed, a growing number of suburban communities sought to retain their independence - and with it a semblance of Arcadian Village life - without giving up the municipal services to which they had become accustomed as residents of the central city. The mechanism by which this objective was achieved was incorporation. Across the country scores of new towns and villages were incorporated between 1920 and 1930, most of them located along the fringes of large metropolitan centers. 52

Louisville did not match other metropolitan areas in the proliferation of suburban municipalities during the 1920s. But when it did come after World War II, it came with a vengeance. Nevertheless, a handful of subdivisions were developed during the 1920s, in addition to Wellington, which eventually formed a contiguous band of sixth class cities which extends from Seneca Park, across Taylorsville Road and Bardstown Road to Lover's Lane.

The subdivisions which form four of these cities - Strathmoor Village, Strathmoor Manor, Strathmoor Gardens, and Kingsley - were primarily the responsibility of a single developer, Clarence C. Hieatt. During his seven decades as a developer, Hieatt was responsible for the construction of at least 5,000 houses and more than seventy subdivisions. Most of these projects are characterized by sidewalks, broad, tree-lined streets, deep setbacks, and individually designed homes. Such are the attributes

of Strathmoor, located immediately east of Doup's Point between Taylorsville Road and Bardstown Road. Laid out by Hieatt's Consolidated Realty Company in 1920, the subdivision was incorporated as Strathmoor Village in 1928. In 1921, Hieatt's firm laid out a second section of Strathmoor between Bardstown Road and Shelly Avenue. An addition four years later extended the subdivision to Lover's Lane. In 1931 the section of Strathmoor west of Bardstown Road was incorporated as Strathmoor Manor. The addition to Strathmoor which comprises Strathmoor Gardens, located on the east side of Bardstown Road between Strathmoor Village and Hawthorne Avenue, was platted in 1923 and incorporated in 1944. The Kingsley Extension of Strathmoor, which was platted by Hieatt Brothers in 1925 and incorporated as Kingsley in 1928, extends eastward from Strathmoor Village and Strathmoor Gardens to Bon Air between Taylorsville Road and Hawthorne Avenue.⁵³

The remaining sixth class city is Seneca Gardens. Tucked into a pocket formed by Woodbourne Avenue, Carolina Avenue, Tylorsville Road, Bowman Field, and Seneca Park, Seneca Gardens is composed of four subdivisions, whose development involved three different participants. The first subdivision, Broadmeade, is an irregularly shaped tract whose upper portion lies between Carolina and a line midway between Meadow Road and Valletta Road, and whose lower portion extends from Carolina to McCoy Way. Broadmeade was platted in 1922 as a joint venture by the Discher Land Company, headed by Fred Moellein, and the Wetstein Land Company, headed by Edward F. Weigel. Each company derived its name from a family with long-standing land holdings in the area under development. In 1926 Weigel's firm laid out a second section of Broadmeade which extended the upper portion eastward to the imaginary northern extension of McCoy Way. Five years later, Weigel platted most of the remaining area north of Trevilian Way between Section 2 of Broadmeade and Seneca Park. Curiously, the only subdivision which contains the term Seneca Gardens is a small tract which borders Trevilian Way between the eastern terminus of Wetstein Avenue and Seneca Valley Road, near the Seneca Park boundary. The Seneca Gardens Subdivision was platted by Denver B. Cornett in 1937. The entire area was incorporated as Seneca Gardens in 1941.⁵⁴

The attractions of incorporation compared to annexation for suburban residents were pointed out by writer James Speed in a September 1933 article in the Louisville Herald Post. While driving one day from Strathmoor Village into Louisville, he immediately noticed that the streets in the smaller municipality were well maintained and that the grass on vacant lots was neatly cut, while many streets in Louisville were full of potholes and many vacant lots were full of high weeds. He decided to investigate. What he found was typically the experience of most small municipalities then and now. During the early years of construction, municipal services such as the installation and maintenance of streets, street lights, fire hydrants and park areas and the collection of garbage and ashes were provided by the developer. But once all of the lots had been sold, responsibility for such matters fell upon the property owners themselves.⁵⁵

With Hieatt out of the picture, residents formed a community club, with the hope that a volunteer organization could maintain local services. But the effort proved unsuccessful, as have most such bodies which do not have power to coerce residents to become members and pay dues and service assessments. With the failure of volunteer action, a number of residents applied to the Jefferson Circuit Court for incorporation as a sixth class city. Upon certification that the required number of property owners had signed it, the judge granted the petition and appointed trustees, who were empowered to lay and collect the taxes necessary to maintain the services which Hieatt had provided. As Charles B. Jenkins, chairman of the board of trustees, put it, "The Village was created for the express purpose of maintaining the property in such condition as to make it appear something like a handsome estate."⁵⁶ And the cost in taxes was considerably less than what the residents would have paid to Louisville.

If one looks carefully at the Highlands neighborhoods discussed here with an eye for comparison, several striking similarities and dissimilarities emerge. The most obvious similarity is the predominant taste for historical revival houses. Specifics such as size, value and architectural quality may vary from place to place, depending upon the market at which the structures in a given neighborhood or subdivision were aimed. But the preference of middle class Louisville home buyers for Colonial, English, Tudor and Dutch revival homes during the years before World War II appears to have been overwhelming. By the same token, deviations from the historical revival schools reflect other styles which were representative of their particular period. Thus, bungalows and nondescript frame houses abound on Winston Drive, Gladstone Avenue, Hooch Avenue, and other such streets where most of the homes were erected before World War II, while ranch houses and other contemporary structures can be found along Tyler Lane, Gardiner Lane, and other streets in subdivisions which were platted after World War II.

The major inconsistency seems to have been a tendency of developers to vacillate between the acceptance and rejection of the gridiron. While numerous developers in Douglass, Belknap, and the sixth class cities rejected the gridiron, those who platted the Gardiner Lane and Hawthorne areas employed it consistently, albeit in a somewhat irregular manner. If one looked only at Gardiner Lane, he might be tempted to attribute this situation to a lower degree of professional sophistication on the part of the developers. But this judgement is negated by the fact that experienced developers such as William F. Randolph, C.C. Hieatt, and W.C. Coleman, all of whom avoided the gridiron in Belknap and Douglass, used it in the subdivisions which they developed in Hawthorne. Another hypothesis would suggest that topographic factors explain the divergence. Belknap and Douglass are laid out upon rolling hills which would be difficult to adapt to a gridiron. Such is not the case with Gardiner Lane and Hawthorne, where the terrain if not perfectly level, is much more gentle in its contours. Yet, there is not much difference between the terrain of Gardiner Lane and Hawthorne on the one hand and the sixth class cities, all of which have curvilinear streets, on the other.

This leads to a third hypothesis, which seems to be the most plausible: there was a direct relationship between the street patterns of the communities discussed here and the home buying markets at which developers

aimed their sales strategies. For the most part, the large homes in the attractive well-landscaped subdivisions in Belknap, Douglass north of Douglass Boulevard, and the sixth-class cities were targeted for an upper middle class market. The houses in Gardiner Lane and Hawthorne, on the other hand, are stylistically compatible with, but somewhat more modest than those in the former communities, suggesting that these structures were aimed at a less affluent market. By the same token it cost the developer less to build straight streets in a gridiron pattern than to construct looping, winding, or circular streets. To developers in search of solid middle and working class home buyers, it was hardly sensible to increase the price of their lots and houses by building disproportionately expensive streets.

Although land development and residential construction in eastern Louisville continued throughout the 1920s, the building boom peaked in 1925. Over the next four years, the number of subdivisions recorded and the value of new construction declined substantially. The East End experience is consistent with the city as a whole. In 1925 the value of new construction reached an estimated \$28 million. The figure plummeted sharply over the next two years, and with a strong rally in 1928, managed to rise only to 23.4 million. Providing a harbinger of what lay ahead, as the market continued to diminish, the value of new building permits in 1929 dropped to 11.3 million, a mere 40.4 percent of the record figure for 1925.⁵⁷

In October 1929 the New York Stock Exchange crashed and the United States plunged into the worst depression in its history. Louisville soon began to feel the effect of the economic crunch as softened demand forced numerous industries to curtail production and lay off employees. Thirteen months after the Wall Street disaster, Louisville suffered its own crash when the National Bank of Kentucky, the largest bank in the commonwealth, collapsed in the wake of a history of reckless management by president James B. Brown. Indicative of the city's continuing economic slide, the value of new construction dropped to a pitiful \$5.9 million in 1930. Over the six year period from 1925 through 1930, the total number of building permits issued fell from 4,646 to 1,107, a 76.2 percent decline in authorized construction activity.⁵⁸

The impact of the depression upon urban development in the East End is immediately apparent in the area of subdivision development. During the entire decade of the 1930s only 20 new subdivisions were recorded within the present-day confines of that part of the city, compared with 89 during the previous decade. Most of the subdivisions which were recorded during the 1930s, moreover, were laid out during the latter years of the decade, after recovery had begun to set in. By the same token, these subdivisions were scattered throughout existing neighborhoods rather than being located on land in previously underdeveloped areas.

Among these new subdivisions was Green Tree Manor, a controversial multi-unit apartment complex built on the north side of Frankfort Avenue between Fenley Avenue and the Masonic Widows and Orphans Home in Crescent Hill during 1937 and 1938. Green Tree Manor was only one of several large apartment projects constructed in the United States under loans insured by the New Deal-inspired Federal Housing Administration. The source of the controversy which surrounded the complex was the question of whether the land upon which the project was constructed had been properly valued for the purpose of obtaining the FHA insured loan.

On July 31, 1937, according to deeds in the Jefferson County Court House, the Walter Butler Building Company, a St. Paul, Minnesota concern incorporated in Delaware, paid approximately \$40,000 to John C. and Elizabeth L. Fenley for the 25.5 acre tract upon which Green Tree Manor was to be built. On the same date, the Butler firm sold the property to one of its subsidiaries, the Kentucky Development Corporation, for a price of approximately \$100,000. Later the FHA insured a 25 year, \$1 million loan by the New York Life Insurance Company to the Kentucky Development Corporation and accepted the project's completed aggregate value of nearly \$1.4 million. But the project came under attack by the Louisville Real Estate Board, which criticized the FHA for insuring a \$60,000 write-up in the value of the project site and an inflated total project cost, which, the real estate organization charged, could not have been more than \$752,285, given local construction costs.⁵⁹

The matter became a public issue in April 1939 when The Courier-Journal reported the affair in the wake of passage in the House of Representatives of an amendment to prohibit any kind of write-up on a project's value for insurance purposes. Leaning heavily upon the calculations by the Real Estate Board, The Courier-Journal and The Louisville Times printed editorials highly critical of what it considered the FHA's imprudent action of insuring a highly profitable deal for a private developer while the public "held the bag" if the project failed. FHA administrator Stewart McDonald responded defensively that his agency had approved the loan only after obtaining "reasonably accurate" estimates by "competent construction experts and appraisers." He added further that the Kentucky Development Corporation was a limited dividend corporation which had to "limit and defer" its profits and which risked loss of its entire investment if the project collapsed. In the meantime, such projects provided jobs for "skilled mechanics and common laborers" at good wages and supplied better housing for many families at lower rentals than they otherwise would pay.⁶⁰

But The Courier-Journal remained unconvinced, responding that nowhere had McDonald explained the \$60,000 "write-up," nor had he ever specifically refuted the Real Estate Board's charge that Green Tree Manor had been over-valued by more than \$643,000. If Green Tree Manor was not worth any more than \$752,285, the paper affirmed, it would "persist in its fear that the taxpayers of the United States are going to be 'holding the bag' for \$643,750 of that million-dollar loan which become due and payable August 2, 1962."⁶¹

Other than Green Tree Manor, the New Deal had a minimum of impact upon the physical configuration of eastern Louisville. Indeed, by the time that Green Tree Manor had been completed, a new East End neighborhood was beginning to develop. In 1939 James T. Clark began to carve up the grounds around Spring Station when he platted the first section of Woodland Subdivision along the west side of Cannons Lane and the south side of Lexington Road. Two more sections in 1940 and 1941 extended the subdivision's boundaries to take in land along Natchez Lane, Trinity Road, McCreedy Avenue, and Morningside Drive.⁶²

Further development around the splendid Federal mansion was delayed until well after World War II. But in the summer of 1952, Helm Bruce, Jr., announced his intention to develop a 20-lot tract called Spring Station Subdivision on an 11.5 acre parcel of the James T. Clark estate. Part of the original Beall family land holdings, the subdivision embraced the land along Cloverleaf Road and the western end of Trinity Road north of Rock Creek Road. In 1954 C.H. Keeling laid out Propinquity Lane Subdivision along Dublin Avenue, a cul-de-sac which extends west from Dover Road. The following year, William M. Harris, an associate in the Spring Station Subdivision, and R.N. Wathen laid out Penwood Subdivision along Penwood Road between Briar Hill and Dover roads. The last and largest of the subdivisions platted on the Spring Station grounds was Cannonshire, laid out along Rock Creek Road and Beal's Branch Road between Cannons' Lane and Whitfield Place in 1956. The developers were the Galt Avenue, Baxter Avenue, Ellwood Avenue, and Glenmary Avenue realty companies, all presided over by developer Joshua Adams.⁶³

As in other nearby neighborhoods, most of the homes in the vicinity of Spring Station are large structures built in some form of historical revival style. In a manner consistent with the topography and prevailing subdivision site design ideology, developers in the Spring Station area generally preferred curvilinear streets and cul-de-sacs over the gridiron pattern. While the primary impact of World War II on eastern Louisville was to hinder new development, there was one major center of military activity in that part of the city - Bowman Field. Anticipating that the airport would soon be needed for defense purposes, the Army Air Corps assumed control of the facility in August 1940. The Quartermaster Corps began to build additional runways and about 120 buildings. Once the United States entered the war, Bowman Field served as an Air Corps supply and replacement depot, combat glider and air evacuation training center, and base of the Air Corps Personnel Distribution Command.⁶⁴

The building boom of the 1920s and the hiatus of the 1930s had a tremendous impact upon the population distribution in eastern Louisville. Between 1920 and 1930, the population of that part of the city grew from approximately 36,000 to more than 51,000 for an increase of nearly 42 percent. But the growth was hardly uniform. In the Clifton, Germantown, and Highland neighborhoods, population either remained stable or declined slightly, while a modest increase occurred in the older sections of Crescent Hill, Tyler Park, Cherokee Triangle, and parts of Bonnycastle and Deer Park. But substantial increases, ranging from 100 to 200 percent were experienced in the census districts which included newer sections of Clifton Heights and Crescent Hill and the St. Matthews, Braeview, Cherokee Gardens, Douglass, and Belknap neighborhoods.⁶⁵

As a consequence of a comprehensive realignment of census districts between 1930 and 1940, neighborhood by neighborhood comparisons are exceedingly difficult. It is evident, however, that the population in eastern Louisville stabilized during the depression decade, growing from about 51,000 in 1930 to just over 56,000 in 1940, an

increase of less than 10 percent. The tendency toward stabilization was particularly apparent in older neighborhoods, many of whose residents simply did not have the financial resources necessary to move into newer areas. Likewise, the growth rate dropped considerably in the newer subdivisions and neighborhoods, although Belknap and the area to the east and north of Cherokee Park continued to grow substantially. It must not be overlooked that by 1940 more than 12,600 persons resided in such suburban fringe areas as Gardiner Lane, Hawthorne, Strathmoor Village, Strathmoor Gardens, Strathmoor Manor, Kingsley, Seneca Gardens, St. Matthews, and Mockingbird Valley. Much of this fringe area would later be annexed by Louisville, and the five sixth class cities in the Bardstown Road-Taylorsville Road area would eventually be totally surrounded by the largest city.⁶⁶

But the growth of eastern Louisville involved more than a mere increase in population and housing units. It also entailed a steady decrease in density. With the improved personal mobility provided by the automobile it became possible to erect homes upon larger lots laid out upon suburban land that was relatively less expensive than land in the central city. As a result, the population became more broadly dispersed as it grew in numbers.

A major facilitating factor in the dispersion of the population throughout Louisville was the city's radial arterial system, which follows the old turnpike routes. Especially important in this respect is Bardstown Road. Perhaps no other arterial street played so singular a role in the development of a large section of the city over so long a period of time as Bardstown Road. By the same token, the physical and economic changes which Bardstown Road has endured testify to the changing needs, lifestyles, and tastes not only of the residents in the neighborhoods which stretch out along it but of the residents of the entire metropolitan area. Because of its unique significance in the life of the Highlands neighborhoods, Bardstown Road warrants special discussion. It will be recalled that throughout the nineteenth century modern-day Bardstown Road and Baxter Avenue from Beargrass Creek to Highland Avenue formed the Bardstown Turnpike. In 1901, the Louisville Turnpike Company, which operated the road, sold it to the Jefferson County Fiscal Court for \$48,000 and then went out of business following payment of a liquidation dividend. By that time the present Baxter Avenue section was a well developed residential and commercial area, which includes many structures which remain today.

Between 1880 and 1900, large numbers of one story and camel-back shotgun houses and large two and one-half story late Victorian frame houses were constructed between Broadway and Highland Avenue. The construction of Victorian houses continued well into the first decade of the twentieth century. Approximately a score of these homes still stand in the 1200 block of Bardstown Road between Patterson Avenue and Longest Avenue. But residential construction was not confined to single family houses. Several apartment structures, such as Cherokee Flats and the Inez Apartment Building, also were built during the early twentieth century. Cherokee Flats, built in 1906, is an attractive, three-story brick building whose first floor was designed for commercial use. The Inez Apartment Building located at 1231 Bardstown Road and constructed in 1911, is another handsome, three-story brick building. Its dominating characteristic is a series of wrought iron-decorated central porches flanked on all three floors by large bay windows.⁶⁷

From an early date, Bardstown Road was as important as a commercial street as it was a residential thoroughfare. While the street's commercial role was almost inevitable, simply because of its arterial character, the concentration of business activity was no doubt intensified by deed restrictions which prohibited the development of commercial enterprises in residential subdivisions. As a consequence, such typical neighborhood businesses as grocery stores and taverns were confined to Bardstown Road. By the early twentieth century, numerous saloons, blacksmith shops, barber shops, grocery stores, and drug stores, among other enterprises, were doing business along Baxter Avenue and Bardstown Road. Styles varied, but the typical commercial building was a two or three-story structure which had business space on the ground floor and residential space above. Likewise, as the demand for commercial space increased, particularly during the 1920s, some residential structures were converted to business use with the addition of stone fronts and the alteration of some interior space to accommodate the needs of the business.

As subdivision activity in the neighborhoods along Bardstown Road accelerated between 1910 and the depression, so did commercial development. By the mid-1920s, the commercial boom had reached Eastern Parkway. The year 1927 saw the construction of the Schuster Building at the southwest corner of Bardstown Road and Eastern Parkway. Designed in the Colonial Revival style by the prominent Louisville firm of Nevin, Wischmeyer and Morgan, this two and one-half story structure, topped by an open cupola, was built to house shops and offices. Some of the store fronts have been modified, while others retain their original facades. The entry ways are characterized by paneled doors, engaged columns, and fanlights. Among the businesses in the Schuster Building is the Uptown Theatre.

While the depression put a damper on economic growth, it did not kill the development of new business entirely, especially those activities which supplied basic personal services. Thus, in 1940, a student at the University of Louisville, writing an essay about his Tyler Park neighborhood, counted over 100 small businesses in the vicinity of Bardstown Road and Baxter Avenue between Highland Avenue and Windsor Place. These enterprises included 32 garages and three service stations - but not blacksmith shops - and 11 antique stores, as well as lesser numbers of restaurants; grocery, drug and liquor stores; beauty and barber shops; dry cleaning and laundry establishments; hardware and drygoods stores; repair shops; an electrical appliance dealership; three tourist homes; and a funeral parlor. Nearly all of the businesses had been established within the past 15 years and many were located in former residences. "If the steady use in business continues," the student predicted, "this fine old residential district will be nothing but a business section."⁶⁸

But Bardstown Road was not limited to residential and commercial activity. Numerous churches in varying styles built along the street are still in use. Heywood Memorial Chapel, a Romanesque Revival edifice, was built by Unitarians at 1036 Bardstown Road in 1908. Highland Church of Christ, a simple Gothic Revival structure at 1275 Bardstown Road, was erected as a small country church in 1899. Another Gothic Revival religious structure, Edenside Christian Church, was built at 1415 Bardstown Road in 1909-1910. One of Louisville's few churches modeled after the early Christian basilica, St. Brigid's Roman Catholic Church at 1000 Baxter Avenue, was designed by the prominent local architect, Cornelius Curtin.⁶⁹

For many years, one of the best known institutions along Bardstown Road was the German Protestant Orphan's Home. Founded in 1851 by several members of St. Paul's Evangelical Church, the home spent its first 51 years on a site at Nineteenth and Jefferson streets. In 1902, it moved into a new three-story, T-shaped building on a ten-acre site between Beechwood and Rosewood avenues in Tyler Park. There the facility remained until 1961, when it moved into new quarters farther out Bardstown Road at Goldsmith Lane. The aging structure at 1234 Bardstown Road already had been sold in 1959 to Mid-City Development Associates, Inc. After the orphans' home was vacated, the structure was demolished and replaced by the Mid-City Mall.⁷⁰

Just as the streetcar was an important force in urban growth generally, it also contributed to development along Bardstown Road in particular. Commercial development was especially strong around the loops where individual street car lines terminated. Until 1912, the Bardstown Road line ended at Bonnycastle Avenue. When the line was extended to Douglass Boulevard, the land which had served as the Bonnycastle Loop right-of-way was deeded back to the adjacent property owners from whom it had been leased. Soon the property owners began to sell the land, and commercial enterprises proliferated during the next 25 years. By 1939 the intersection of Bardstown Road and Bonnycastle Avenue was a thriving neighborhood shopping district, anchored by two super markets, two drug stores, several barber and beauty shops, a bakery, a couple of cleaning establishments, a fish shop, and numerous other stores and shops.⁷¹

A similar, though not identical, pattern of commercial development occurred around the Douglass Boulevard Loop. The main difference was that at the Douglass Loop, businessmen took immediate advantage of the accessibility provided by the streetcar, rather than waiting for abandonment of the loop to purchase the right-of-way, as at Bonnycastle Avenue. Thus, the growth of the Douglass Loop business district accompanied the residential development in the neighborhood and occurred almost simultaneously with the establishment of the Bonnycastle Loop business district. By the late 1930s, the Douglass Loop district included, according to an essay by a University of Louisville, "several groceries, three drug stores, a bank, a garage and automobile supply store, a florist shop, two restaurants, a hardware store, two bakers, and the ever-present Sears-Roebuck store." But the district's main feature was the recently constructed modernistic branch of Steiden's Grocery Company, in the center of the streetcar loop. In addition to the commercial businesses, numerous doctors and dentists operated from private homes in the vicinity.⁷²

Despite the influence of the streetcar in shaping the commercial configuration of the loop business districts, the automobile was gradually becoming the dominant mode of transportation along Bardstown Road during the 1930s. As early as 1930, an editorial in The Courier-Journal bemoaned the "undesirable situation between Douglass Boulevard and Doup's Point on Bardstown Road" and suggested the need for implementing the remedial measures contained in the major street plan which recently had been proposed by Harland Bartholomew and Associates, a St. Louis planning firm.

The extent of problems caused by the automobile were suggested by U of L student J.S. Moulton. "The greatest disadvantage of transporation in the Highlands," Moulton observed in 1938, "is the traffic congestion encountered on Bardstown Road due to its narrowness and popularity as a means of access to the Highlands from downtown Louisville." He added optimistically that the congestion was "being overcome by the opening of new routes to the downtown district." But his optimism was premature. Congestion grew ever worse during the years that followed World War II. As new suburban development continued outward along Bardstown and Taylorsville roads, vast shopping centers and other commercial enterprises with parking lots designed to accomodate hundreds of cars, were scattered along both thoroughfares, creating sprawling commercial strips. At the same time, numerous residential and commercial buildings along the older section of Bardstown Road were modified or removed to provide parking lots and driveways for service stations, drive-in-banks, fast food businesses, super-markets, and a host of other enterprises in an increasingly auto-oriented society.⁷³

Just as the years from 1917 through 1945 constituted a watershed in the life of the city of Louisville as a whole, so too did they mark a period of deep change in eastern Louisville. The increasing availability of the automobile and the improved personal mobility which it created contributed significantly to the dispersion of the population, a concomitant reduction in residential density, and a reorientation of commerce from the streetcar to the automobile. The advent of flight and the creation of Bowman Field vastly increased eastern Louisville's economic importance. In the area of residential architecture, historical revival modes substantially replaced the Victorian as the preferred styles among the upper middle class, and the bungalow finally replaced the shotgun house as the primary form of working class housing-demonstrating in the process that real wages had risen to the point that the transition could be made at a widely acceptable economic cost. Along with changes in both transportation and architecture, subdivision design ideology and practice began to demonstrate a greater respect for both aesthetics and topography. While confined initially to subdivisions intended for the upper middle class, the new, geomorphic forms foreshadowed what eventually would become general practice, especially after creation of the City Planning and Zoning Commission in 1930 and the promulgation of increasingly strict subdivision regulations. Of course, most of the period's growth occurred during the building boom of the twenties. The Great Depression put a quietus on development, one which continued through World War II. But the 15-year building moratorium also helped to create new pressures for growth, which would lead to a new explosion of growth during the postwar years.

CHAPTER IV

THE METROPOLITAN EXPLOSION

The three decades that followed the end of World War II saw American cities engulfed in a wave of suburban development in which millions of acres of farmland were turned into residential subdivisions. The Louisville area was no exception. Throughout Jefferson County, once sleepy rural villages became sprawling suburban cities, while former cow pastures were subdivided and then incorporated to form vest-pocket municipalities. More than any other part of the city, eastern Louisville was caught in the vortex of the suburban explosion. By 1950, further growth in western Louisville was blocked by the Ohio River, the growing suburb of Shively, and the sprawling Rubbertown industrial complex. Considerably more growth occurred along the city's southern fringe, especially below Iroquois Park, on Kenwood Hill, and between Standiford Field and Preston Highway. But the most attractive land lay to the east, and it was here that Louisville experienced its most intensive and extensive new growth during the postwar years.

The dimensions of postwar growth are most apparent in local census data for the decades 1940 through 1970. Between 1940 and 1950 the population of Jefferson County grew from 385,392 to 484,615, an increase of 25.7 percent. This trend continued during the 1950's and in 1960 the census counted nearly 611,000 residents in Jefferson County, an increase of 26.1 percent over the previous enumeration. The rate of increase dropped to 13.8 percent during the 1960s, with the total population standing at 695,055 in 1970. The population of Louisville continued to grow as well during the 1940s and 1950s, although at a lower rate than the country as a whole. Between 1940 and 1950, the city's population grew from 319,077 to 369,129, an increment of 15.7 percent. During the 1950s, however, the city's growth rate fell a mere 5.3 percent, reflecting a numerical increase of only 21,510, despite the annexation of a large expanse of territory during the decade. Perhaps the most dramatic indication of the suburban trend appears in a comparison of the census data for 1960 and 1970, which shows a decline from 390,639 to 361,472 residents, or a 7.5 percent decrease in the city's population at the same time the population of the county at large had grown by nearly 14 percent.¹

Numerous forces contributed to the suburbanization of Louisville's population after World War II, but four appear to have been particularly significant in the growth of eastern Louisville. First, a soaring birth rate combined with national housing programs and taxation policies to promote home ownership. Second, actions and regulations of agencies such as the Louisville Water Company, Metropolitan Sewer District, and Louisville and Jefferson County Planning Commission promoted the dispersal of housing. Third, improvements in transportation increased the mobility of individuals and promoted the growth of certain kinds of business enterprises. Finally, a steady process of industrial suburbanization contributed to the suburbanization of employment, prompting many employees to seek new homes in the vicinity of their place of work.

The soaring birth rate in the United States during the decade or so which followed the war sent thousands of middle and lower middle class Louisville families with young children into the single family housing market for the first time. Unable to find adequate housing within the city, they formed a huge pool of demand for local homebuilders. The deep-seated desire of these home seekers to achieve the American dream of a private home was facilitated by several federal policies and programs which fostered home

ownership in preference to renting. During the war years, 80 percent of the new houses constructed in Louisville had been financed through mortgages insured by the Federal Housing Administration. Such loans could be obtained with relative ease by builders erecting homes for war production workers. In 1944, Congress passed the Servicemen's Readjustment Act, commonly known as the "GI Bill-of-Rights." One section of the act guaranteed up to 60 percent of the amount of a loan up to \$7,500 to an eligible veteran for the purchase, construction, alteration, repair, or improvement of a house or farm dwelling. Together, the FHA and VA mortgage insurance programs made home owners of many people otherwise unable to obtain mortgages through commercial banks, savings and loan associations, mutual savings banks, and other sources of conventional loans.

But these federal programs usually favored new homes constructed on previously undeveloped suburban land over older inner city homes. Guided by the banker's principle of "economic soundness," the federal agencies frequently refused to insure mortgages in neighborhoods that were blighted or which appeared subject to blight in the future. Until 1960 FHA handbooks warned against loans in racially integrated neighborhoods on the assumption that their future stability was uncertain. But most home loans obtained in Louisville after the war were not government insured. By 1960 fewer than 10 percent of all mortgages were insured by FHA and fewer yet by the VA. Instead, most mortgages were obtained through conventional sources. These institutions were even more inclined to favor suburban dwellings when extending loans, often denying loans for inner city homes upon the basis of location alone and without considering the quality of the structures involved. Such practices were reinforced by federal income tax policies which still allow deductions for interest and local property tax payments, thus providing a large hidden subsidy that encouraged construction of single-family suburban dwellings.²

Closely related to federal housing and taxation policies in shaping suburban development patterns were the policies and actions of local government agencies. Of critical importance were zoning and subdivision regulations. The city of Louisville had had zoning and subdivision ordinances since the adoption of the first comprehensive plan in 1932. But the regulations had limited impact during the depression era building slump. The homebuilding situation improved somewhat during the late 1930s and early 1940s, but the regulations were poorly enforced, resulting in much premature speculative development along the fringe of the city, much of it occurring without adequate streets, sidewalks, and utilities. Creation of the Louisville and Jefferson County Planning and Zoning Commission in 1942 not only extended zoning and subdivision controls to the entire county, it also brought stricter enforcement of the regulations and required developers to be much more careful than before in their treatment of the landscape. The narrow lots typical of much of the central city were abandoned in favor of large lots which accommodated automobile driveways and attached garages.

While developers who built subdivisions for the upper middle class typically had provided large side yards and deep set backs for years, the establishment of subdivision regulations made this standard practice everywhere. Despite the regulations, some postwar developers laid out their tract with reckless abandon, grudgingly observing only the letter of the law. But many others took pains to make their subdivisions as attractive as possible. As Grady Clay, then The Courier-Journal's real estate editor, noted in 1952, the more sensitive developers "take advantage of contours, and emphasize natural features such as streams, pools, [and] steep slopes. Many subdivisions are well planned to fit into their neighborhoods, with shopping centers, space for churches, and plenty of off-street parking."³

But there was a negative side to the subdivision regulation system that mitigated some of its positive features. One problem was "wildcatting"-the platting and sale of lots without prior approval of the Planning and Zoning Commission. Wildcatting was possible because of a phrase in the state subdivision law which limited the supervision of the commission to the "applicant subdivider," meaning that the subdivider who refused to apply to the commission could subdivide their land without its control. In most cases, developers selling lots along streets dedicated to public use did apply for approval from the commission. But wildcatters laid out private roads, which were not dedicated to public use, and then sold lots according to metes and bounds descriptions with total immunity from public control. The only record of such a transaction was the deed which accompanied the sale. Often such subdivisions remained unidentified until lots began to appear on county tax rolls.

Although wildcatting was a minor problem along Louisville's eastern fringe, it reached epidemic proportions in the county at large during the early 1950s. Between January 1, 1944, and December 1, 1953, a total of 11,400 lots in 245 recorded subdivisions were platted in Jefferson County. During the same period, at least 8,763 lots were laid out in 491 unrecorded or wildcat subdivisions. Others may well have been created, but failed to appear in the tax records. Wildcatting remained a severe problem until the General Assembly amended the subdivision law to make it illegal in 1954.⁴

Another problem related to zoning and subdivision regulations was the manner in which they fostered social and racial segregation. Because the regulations required larger lots than had been employed before they were imposed, they also entailed higher land costs which resulted in correspondingly larger and more expensive houses. Consequently, most new housing went to middle and upper income families while poorer families, frequently black, were left with older homes on smaller lots in the central city. This has been especially true in eastern Louisville, where the housing market historically has been geared for the middle and upper middle classes.⁵

Contributing further to a highly scattered pattern of suburban development, as well as to wildcatting, was a lack of coordination in the extension of services by the Metropolitan Sewer District and the Louisville Water Company. During the early 1950s the former utility gradually extended its sanitary sewers into newly annexed areas. As late as mid-1954, over 7,600 acres of city land lacked sanitary sewers. On the other hand, the water company quickly extended mains to remote parts of the county. Before long, developers were leapfrogging undeveloped but increasingly expensive land along the city's fringe, building subdivisions in distant areas where water was available, and installing septic tanks and package sewerage treatment plants as substitutes for sanitary sewers. This tendency was most pronounced in the southwest and south central parts of Jefferson County along such radial arterials as Dixie Highway and Preston Highway. But it also appeared to a somewhat lesser extent along Bardstown, Taylorsville, and Shelbyville roads. Such development promoted a costly pattern of urban sprawl as it pushed up the cost of developing and providing services to fringe areas skipped by earlier developers.⁶

No other factor has been more significant in reshaping the landscape of Louisville and Jefferson County than a series of changes in the local transportation network. Since 1945 Louisville has seen the development of a costly interstate highway network, the construction of two new bridges across the Ohio, the upgrading of the radial highway system, the creation of a unified public transit system, the transfer of commercial air traffic from Bowman Field to Standiford Field, the construction of a new lock and dam system on the Ohio River, and the demise of passenger railroad service.

The transportation mode which has had the greatest impact upon eastern Louisville has been the expressway system. The expressway network was one of several projects which came out of a series of recommendations by the Louisville Area Development Association, a broadly based community betterment organization formed in 1943 by Mayor Wilson W. Wyatt to plan for Louisville's postwar development. LADA's chief concern was surface transportation. In recent years, automobile registration in Jefferson County had ballooned. Approximately 64,000 motor vehicles were registered locally in 1930. Ten years later the figure had passed 89,000, and by 1944 it stood at more than 101,000. With the end of the war auto sales soared, and by the end of 1950 motor vehicle registration approached 150,000. As a result, a LADA report stated, "streets designed for the speed of Model-T traffic had become strangled bottlenecks."⁷

The outline of a regional highway plan had existed since the late 1920s, but its implementation was hindered by the depression and World War II. By the time the city was prepared to take action, the plan seemed obsolete. Early in 1944 LADA formed a committee of federal, state, county, and city officials to discuss a way to improve the flow of traffic and to develop a strategy to take advantage of Kentucky's share of federal highway monies. Following the committee's recommendation, the Kentucky Highway Department and the Louisville and Jefferson County Planning and Zoning Commission employed the Chicago transportation engineering firm of H.W. Lochner and Company to prepare a traffic analysis and highway plan.

By late August 1945, Lochner had completed a study that recommended two major expressway projects, one following a north-south route from the Municipal Bridge (Clark Memorial) to Standiford Field and a second following an east-west path connecting U.S. Highways 42 and 60 in eastern Jefferson County with the K & I Bridge in the West End. Lochner justified his plan as a means of improving access to and reducing congestion in the central business district. Although Lochner's plan did not receive unanimous approval, it became a major element in one phase of a comprehensive traffic improvement program - a system of limited access expressways designed to carry traffic into the central business district quickly by radial routes and to channel it around the most congested urbanized areas by circumferential highways.

Although Lochner had placed primary emphasis upon the north-south and east-west expressways, city officials gave first priority to a recommendation by the LADA traffic committee that a 12.7 mile Inner Belt Highway be constructed to connect Shelbyville Road east of St. Matthews with Dixie Highway near the city limit south of Shively. As originally proposed by Harland Bartholomew and Associates in 1929, the Inner Belt would be built at grade level, using existing streets where possible and constructing connecting links where

necessary. Plans for the thoroughfare had changed considerably by the beginning of 1947, but it was still envisioned as a two-lane facility without grade separations, except for overpasses across the Illinois Central, Southern, and Louisville and Nashville railroad tracks in the South End. The initial cost was estimated at \$3.5 million.⁹

In May 1947 the United States Public Roads Administration approved the use of federal funds to construct the Inner Belt, which soon would be designated the Henry Watterson Expressway at the suggestion of Mayor Charles P. Farnsley. The following March the state began to purchase right-of-way land, and in early May 1948, Kentucky Highway Commissioners Garrett L. Withers announced that first priority had been given to the construction of a 2.4 mile stretch of highway in eastern Jefferson County between Bardstown Road and Breckenridge Lane. Ground-breaking ceremonies took place in March 1949 and the first section was completed the following December. Although only two lanes wide, the expressway was built on a right-of-way 180 feet wide, and plans provided a four-lane facility with opposing traffic lanes separated by a grass median strip 20 feet wide.¹⁰

Construction began on phase two between Shelbyville Road and Breckenridge Lane early in 1951. Like the first section, it was only two lanes wide. By the middle of 1952, however, highway planners were campaigning to upgrade the entire facility into a four-lane limited access expressway with a grade-separated interchange at each intersection with a major radial. The planners' hopes were boosted in July when the Louisville Railroad Planning Commission, which guided the city's expressway program, endorsed the idea, as did state and federal highway officials. The decision to widen the Watterson to four lanes came after the planners realized that the traffic projections upon which the original construction had been based were woefully outdated. For example, in 1950 Deleuw, Cather and Company, a Chicago consulting firm, estimated 1970 usage of the Watterson between Bardstown Road and Breckenridge Lane at 2,200 vehicles per day. By August 1952, the same stretch was already carrying approximately 5,200 vehicles daily. Reinforcing the decision was the knowledge that the new General Electric Appliance Park near Buechel would soon begin pouring some 22,500 vehicle trips into the Watterson and other nearby roadways each day. Consequently, when construction began on the western end of the Watterson in early 1953, it was with the intention of creating a four-lane highway between Dixie Highway and Poplar Level Road. In May the Kentucky Highway Department announced that the four-lane portion would be extended to Bardstown Road and that interchanges would be substituted for grade crossing at major radials.¹¹

Much of the initial construction program had been completed and most of the expressway opened by December 1955. But a shortage of funds made it impossible to construct grade separation interchanges at the Watterson's intersection with several major radials east of Bardstown Road. In September 1956 The Louisville Times compared the Watterson Expressway to "a diving suit with air holes," as stoplights slowed the flow of traffic at Taylorsville Road and the entrance to the new Kentucky Fair and Exposition Center between Preston Highway and Crittenden Drive and more signals were planned for the expressway's intersections with Brown's Lane, Breckenridge Lane, and Bon Air Avenue. The money to build the overpasses and interchanges necessary to eliminate grade crossing and to widen the Watterson to four lanes between Bardstown and Shelbyville roads finally became available in 1957 when the

expressway was incorporated into the Interstate Highway System following passage of the Interstate Highway Act of 1956. Under this legislation the federal government supplied 90 percent of the money required for an interstate highway link while state and local governments furnished the remaining 10 percent. Unfortunately, the federal money came too late to upgrade early interchanges at Taylor Boulevard, Southern Parkway, Newburg Road, Poplar Level Road, and Bardstown Road, all of which later proved to be highly accident prone, primarily as a result of inadequate design. Only the sections of the Watterson east of Bardstown Road now meet the engineering and safety standards of the Interstate Highway System. The entire expressway was completed in 1958.¹²

As the Watterson Expressway neared completion, city officials turned their efforts and resources to construction of the North-South Expressway. But a good deal of attention was given as well to determining the future route of the proposed Eastern Expressway. The matter had simmered on the back burner, occasionally coming to a boil, since 1947, when city, state, and federal officials announced agreement upon the construction of a \$6 million, 12-mile freeway that would transverse the valley of the middle fork of Beargrass Creek from Shelbyville Road east of St. Matthews to Mellwood Avenue.¹³ Included in the right-of-way would be the northern fringes of Cherokee Park and Seneca Park. The route had been proposed by the Chicago consulting firm of Consoer, Townsend and Associates under a 1946 contract with the Louisville Area Development Association. The Eastern Expressway was to be part of a larger system, which also would include a Southeastern Freeway. As designed by the consultant, the latter facility would begin at Bardstown Road, cross Taylorsville Road, skirt the western edge of Bowman Field and intersect with the Eastern Expressway between Cherokee Park and Seneca Park east of Alta Vista Road. The consultants cited four advantages when they recommended the Middle Fork Valley for the Eastern Expressway route. First, it had few buildings, a critical factor at the time of a severe housing shortage. Second, grade-separation problems were less severe and could be solved more easily in the valley than in the alternative locations. Third, the scenic valley location would make the users' travel more enjoyable. Finally, the location within the metropolitan area would provide a high long-term service value.¹⁴

In thinking primarily of engineering aspects and user benefits, the traffic consultants reflected the prevailing professional attitude. Not even the local and state officials who approved the proposed route liked the idea of an expressway slicing off sections of two of the city's most beautiful natural assets. But there were practical considerations, in addition to those pointed out by the consultants, which made the park route attractive. In the first place, one-third of the cost was to be funded by the national government, and a decision had to be made soon or else the money allotted would revert to the federal treasury. Moreover, the city already owned the parks, which would substantially reduce the cost of acquiring the right-of-way. One state highway official put the matter quite simply, "I think I can safely say that if the road can cross the parks, we will build it. If it cannot, we won't. And before we start on any of the job, we must know we won't get held up on the rest."¹⁵

But such engineering, financial, and political considerations did not carry much weight with the many Louisvillians who opposed any thought of an expressway encroaching upon the city's park land. Within a short time opposition began to surface. Motives of those who opposed the park route

varied. Owners of several of the large estates along Alta Vista Road feared that an expressway would reduce property values, while many others opposed the route for aesthetic reasons, holding that the parks should remain forever free of the noise, dirt, fumes and other noxious side effects of automobile traffic, regardless of the cost of the alternatives. Many park-area residents whose property interests were affected aired equally strong aesthetic opposition to the facility.

Proximity to the proposed expressway route did have some impact upon the strategy which the opponents adopted. Most residents of the park area favored legal action, arguing that deed restrictions on many of the parcels of land which comprised the park prohibited the intrusion of transportation arteries for other than park uses. The city replied correctly that such restrictions did not outweigh the right of the state to acquire such property by condemnation through the power of eminent domain. Aesthetic opponents were more philosophical. As Tom Wallace, Louisville Times editor emeritus and columnist, noted, "The purpose of creating parks was to provide places of retreat from the hurly-burly of cities, and recreation grounds for persons who like outdoor exercise or outdoor games, amid pleasing surroundings. Space and quiet are sought in behalf of those who like space and quiet."¹⁶

Because of the growing opposition to the park route, city works officials proposed that the expressway be constructed on the L & N's Frankfort Avenue right-of-way. But railroad executives resisted the idea, as did other city and state officials. The day after the plan was unveiled in October 1947, the Board of Aldermen received a bill providing for the condemnation and purchase of an Eastern Expressway right-of-way. On Christmas Eve, the Board passed the legislation, which specified the park route. Discarding the Frankfort Avenue route as impractical, the aldermen accepted the assurances of their expressway committee that "neither of the parks affected will be desecrated or destroyed and that all roads and paths in the right-of-way area will be completely and effectively landscaped."¹⁷

Passage of the ordinance cleared the way for the city to file condemnation suits to acquire privately owned land for the right-of-way. By early January 1948, however, the entire project was getting bogged down in red tape. While appraisers evaluated the property required for the project, opponents organized the Save the Parks League and prepared for legal action to block acquisition of the park land. In late February, 116 citizens, among them some of the city's leading business and professional figures, filed suit in Jefferson Circuit Court, seeking an injunction to bar the city and the Board of Aldermen from using any part of Cherokee or Seneca parks for expressway purposes.¹⁸

Throughout the early months of 1948, city leaders reiterated the need for the expressway. Referring obliquely to journalist George Leighton's facetious description of Louisville in Harper's Monthly 11 years earlier, LADA executive director K.P. Vinsel asserted, "If we can't get expressways within the next 10 years, we'll really be called the museum piece of America." Similar sentiments were expressed by Mayor Charles P. Farnsley, later a vehement opponent of the expressway, who noted that Louisville needed "the expressway to help open up our downtown section to all who want to come into it."¹⁹

But it was no use. In mid-April the city lost two suits which were critical in its efforts to acquire the right-of-way. Consequently, the state and federal governments refused to advance their portions of the project cost. In early June the city suspended its appeals of the adverse court ruling, and Aldermanic President Dann C. Byck admitted that the expressway could not be started "in the foreseeable future."²⁰

In 1950, as a result of the collapse of the Eastern Expressway effort, the Louisville Railroad Planning Commission, the agency now responsible for expressway planning, hired the Chicago consulting firm of DeLeuw, Cather and Company to reevaluate the entire expressway plan. After studying the matter, the consultants recommended that Eastern Expressway be built in an open cut along the north side of Frankfort Avenue. But more importantly, DeLeuw, Cather advised that for the time being all available highway money should be channelled into the Watterson Expressway and the North-South Expressway. As a consequence, the entire Eastern Expressway project remained dormant for eight years. In the meantime, the Federal Highway radically changed the entire basis of expressway financing by providing for the federal government to pay 90 percent of the cost of any element of the interstate highway system.²¹

Although the Eastern Expressway issue came up occasionally during the early and mid-1950s, it did not again become a major subject of debate until 1958. Meanwhile, the Kentucky and Indiana highway departments and the federal government employed the Newark New Jersey, transportation engineering firm of Edwards and Kelcey to make traffic studies and propose plans for the interstate highway system in the Louisville area. Included in the firm's report was the Eastern Expressway, proposed as an extension of Interstate 64. Although the consultant's plans did not specify every twist and turn in the right-of-way, a general route from St. Matthews through Cherokee and Seneca parks to a proposed Riverside Expressway and a new bridge at the Ohio River was certain. Mayor Bruce Hoblitzell's Advisory Committee on Interstate Expressways endorsed the Edwards and Kelcey scheme in early January. During the succeeding weeks the plan gained the endorsements of Mayor Hoblitzell, County Judge Bertram Van Arsdale, the Louisville Chamber of Commerce, and the Bingham newspaper, one of whose senior executives, Mark Ethridge, chaired the Louisville Railroad Planning Commission. In early May, Edwards and Kelcey followed its proposal of the Eastern Expressway route with a strong recommendation that it be accepted.²² This set the stage for a replay of the 1947-48 battle between the expressway advocates and the park protectors. This time however, the struggle would be much more protracted.

Spearheading the opposition was the Save-Our-Parks Committee, chaired by Dr. Richard M. Kain, professor of English at the University of Louisville. This group worked not only to prevent the Eastern Expressway from invading Cherokee and Seneca parks but also to keep the proposed Interstate 264 loop from encroaching upon Shawnee Park in the West End. During the spring of 1958 the Save-Our-Parks Committee mounted a petition drive, and mid-September it had collected over 24,000 signatures from persons who opposed the proposed park routes. While Professor Kain's committee organized the grassroots opposition, Tom Wallace continued to speak out through his column in

The Louisville Times. On a couple of occasions, Wallace launched an extra salvo, quoting heated letters in opposition to the parks route from Lewis Mumford, the noted regional planner and urban theorist, and Olmsted Bro.'s successor to Fredrick Law Olmsted, whose landscape architecture firm had designed Louisville's park system nearly seven decades earlier.²³

Strong grassroots opposition to the parks route no doubt helped to delay construction of Interstate 64 through Louisville. Among other things, it forced highway officials to consider a new alternative proposal which called for I-64 to bend to the north near the Watterson Expressway, cross Shelbyville Road and U. S. 42, and then join I-71, which could connect Louisville and Cincinnati. Barstow, Mulligan, and Vollmer, the New York consulting firm which proposed it, pointed out that the alternative route would produce a savings of \$10 million dollars. However, the Consultants also estimated that the riverside route would carry only 24,000 of the 49,000 vehicles per day which it had predicted would use the Eastern Expressway through the parks. This would leave 25,000 vehicles still moving toward downtown Louisville by way of secondary streets such as Bardstown Road, Grinstead Drive, Lexington Road, and Frankfort Avenue. This problem would eventually necessitate expensive street widening projects, which would impinge upon residential neighborhoods and generate costs that would have to be borne by the city treasury rather than the federal government. In addition, an annual savings of approximately \$4 million to motorists as a result of reduced distance and fuel cost would be lost. In light of the limited marginal benefits and costly disadvantages of the alternative proposal, city and state officials continued to advocate the parks route. In early April 1959, their judgement was affirmed by the United States Bureau of Public Roads.²⁴

Federal approval of the parks route was a crucial step toward construction of the expressway, but major roadblocks lay ahead. The initial effort to pinpoint the right-of-way ran afoul of the Louisville Presbyterian Theological Seminary, which suddenly found the recently purchased site for its planned Lexington Road campus threatened by the expressway. Pointing out that the institution was already being forced by the North-South Expressway to leave its downtown site, seminary President Frank Caldwell hinted that the school might have to leave Louisville if it lost its eastern Louisville site. Not desiring to lose the seminary, highway planners quickly adjusted the right-of-way plans.²⁵

A much stickier problem was the manner in which the expressway would be constructed through Cherokee Park. Consultants Barstow, Mulligan and Vollmer recommended that the superhighway be routed through an open cut in scenic Cochran Hill. Once completed, a tunnel would be placed over the highway and the cut would be refilled and landscaped. This approach was favored by federal highway engineers for economic reasons. But it met stiff resistance from state and local officials and private citizens who otherwise favored the park route. They almost unanimously insisted that the expressway be built through a bored tunnel, which would preserve Cochran Hill's natural beauty. Advocates of the bored tunnel included Mark Ethridge, chairman of the Mayor's Advisory Committee on Interstate Highways; The Courier-Journal and The Louisville Times; and Henry Ward, area development director for the Louisville Chamber of Commerce and former state parks

commissioner; Wallace W. Sanders, city works director; and industrialist Archibald P. Cochran. Noting at a public hearing in May 1959 that his grandparents had planted most of the trees on Cochran Hill almost a century earlier, Cochran stated that he "would be greatly distressed to see a gash through there." As a result of such unanimity, public officials announced in June 1960 that the city would formally reject any plan which included an open cut through Cochran Hill.²⁶

Significantly, the city's announcement followed by one month a statement by State Highway Commissioner Earle Clements that plans for the Eastern Expressway were being postponed for five years. The state's decision no doubt represented a minor victory for the Save Our Parks Committee and other opponents of the recommended Eastern Expressway route. But in the main, the decision was simply the most practical way to deal with a 30 percent cut-back in federal appropriations for interstate highways. It made political sense to move ahead with construction of I-71 between the Watterson Expressway and Zorn Avenue and the parts of the I-264 loop which already had been agreed upon. In the meantime, Commissioner Clements's successor, Henry Ward, would have time to resolve the legal and technical problems, including the Cochran Hill issue which were blocking construction of the Eastern Expressway. The wisdom of shelving the latter project became even more evident in November 1961, when Louisville voters elected as their new Mayor an avowed opponent of the parks route, Republican William O. Cowger.²⁷

In deference to the Mayor's opposition to the parks route, Ward agreed not to attempt to acquire any park land while Cowger was still in office. Meanwhile, Ward continued his efforts to resolve the Cochran Hill problem and arranged to have the park right-of-way appraised for possible condemnation proceedings. The commissioner's strategy was based in part upon the hope that Cowger's successor would be less intransigent. For a few weeks after his inauguration in December 1965, it appeared that Mayor Kenneth Schmied might at least be open to negotiation. That hope faded in mid-January 1966 when Schmied told Ward that the city would refuse to negotiate the price of the park land and force the state to condemn it.²⁸

The new Mayor's position did not stop progress altogether. While its appraisers valued the park lands, the Kentucky Highway Department proceeded with construction of I-64 through Happy Valley, a rough, wooded, swampy area along Lexington Road between Story Avenue and Grinstead Drive. In the process, the Middle Fork of Beargrass Creek was rerouted and straightened. A major impasse was broken in May 1966 when the U.S. Bureau of Public Roads agreed to fund the boring of twin tunnels to route I-64 through Cochran Hill. This was a victory for Henry Ward, who had hoped that President Lyndon B. Johnson's emphasis upon highway beautification would persuade the government to approve the tunnel.

In December, following detailed appraisals, the highway commission offered the city \$575,000 for 41 acres of Cherokee and Seneca Parks. Although the city made no formal reply, Mayor Schmied stated immediately that the figure was too low. Finally, in early November 1967 the city filed an agreement with

the clerk of Jefferson County Court to allow the highway department to begin construction through the disputed park land. Accompanying the agreement was a condemnation suit, which all parties agreed was necessary in order to clear title to the land, particularly that which was affected by deed restrictions prohibiting highways. Two months later, it was revealed that city and state officials already had agreed upon a price of \$734,689 for the 41 acres of land, a figure which was consistent with the estimates of both parties. With the major legal, financial, and engineering problems resolved, the state was ready to proceed with construction of the final leg of I-64. A few years later traffic was moving unimpeded between the Jefferson County line and the junction of I-65 and I-71 at the John F. Kennedy Memorial Bridge.²⁹

Interstate-71, the third element of the expressway system in eastern Louisville, has played a limited role in the urbanization of the area between the Kennedy Bridge and the Watterson Expressway. This is due in part to topography. The highway right-of-way consists largely of a rugged, low-lying flood plain along the Ohio River between River Road and Mellwood Avenue. But more to point is the fact that most available land had already been put to some urban purpose by the time of the facility's construction. Most of the usable land between the expressway and the river continued to be devoted to industrial, commercial, and recreational purposes, while that appropriate for residential use long since had been developed. A similar situation existed along the controversial section of I-64 between Lexington Road and the Watterson Expressway.³⁰

Otherwise, the expressway network had a deep impact upon the landscape of eastern Louisville. Along the Watterson there was a rapid conversion of farmland into residential subdivisions. As residential development increased, it was accompanied by the acceleration of commercial development at interchanges with major radials. The tendency for commercial activities to concentrate at major intersections was quite simply as a function of modern retailing practice and the design of expressway systems. Because of the heavy traffic which the expressway carried, retailers sought to locate as close to them as possible. But because the expressways also were built as limited access facilities, retailers also tried to locate near intersections with major arterials. The result was a nodal development pattern, with concentrations of commercial activity at the Watterson's junction with such key radials as Newburg Road, Bardstown Road, Taylorsville Road, Breckenridge Lane, Shelbyville Road, and Brownsboro Road.³¹

Because these intersections were so attractive economically, they generally became sites for large, carefully planned, multi-unit shopping centers with parking lots. Frequently, however, these new shopping complexes were laid out near older business strips. As commercial development intensified, large discount stores, fast food restaurants, and other auto-oriented businesses filled in the gaps among the older, unplanned shopping districts and the newer regional centers. The result is a series of highly complicated linear suburban commercial districts along Shelbyville Road between Gilman's Point and Arterburn Lane, along Bardstown Road from Gardiner Lane to Buechel and along Hikes Lane and Taylorsville Road between Brown's Lane and Breckenridge Lane south of the Watterson.

The fourth and probably least significant force in stimulating the growth of eastern Louisville and Jefferson County after World War II has been the suburbanization of industry. As the previous pages suggest, persons from a variety of income levels have found homes in eastern Louisville. For many years, however, it has attracted an inordinate number of the city's most affluent citizens. These residents consistently have opposed the kinds of industrial development which might threaten their property values. Indicative of this aversion to heavy industry is the fact that in 1976 the entire area of Louisville and Jefferson County east of the South Fork of Beargrass Creek, Newburg Road, and Fegenbush Lane had barely more than a dozen manufacturing establishments which employed more than 100 workers.³²

Possibly the most dramatic example of this area's negative attitudes toward industry appeared in early 1957 when residents succeeded in blocking a zoning change, with the help of County Judge Bertram Van Arsdale, which would have allowed the Reynolds Metals Company to build a campus-like research and development complex and fabricating plant on the old Central State Hospital farm near Anchorage. With its initial plans stymied, Reynolds took options on a 42-acre tract southeast of the Watterson Expressway and Newburg Road. In May 1957 the company obtained a zoning change which it needed for the research complex and a short time later purchased the rezoned land. But when it failed to get a second zoning change, needed for its fabricating plant, Reynolds dropped the entire plan and decided to locate its proposed "show-place for the aluminum industry" at its corporate headquarters in Richmond, Virginia.³³

Nevertheless, that industrial development which did occur was substantial in its impact. By far the most important plant built in all of Jefferson County since 1945 was General Electric's Appliance Park. General Electric's venture in Louisville began quietly and with a touch of mystery. Early in 1951 the Louisville Chamber of Commerce received a blind telephone call requesting information on industrial sites, land costs, water supply, and other technical data. After receiving and evaluating the data, the firm which made the inquiry sent two unidentified representatives to make a secret examination of Louisville. After considering all the available information, the General Electric Company selected Louisville as the site of a new manufacturing complex. Three factors weighed heavily in this decision: the city was near the geographic center of distribution; it had a labor supply adequate to meet long term needs; and it had superior transportation facilities, combining the water transportation necessary to import large quantities of steel with the rail lines required for the shipment of finished appliances. These advantages soon would be enhanced by construction of the Watterson Expressway and Interstate I-65.³⁴

In mid-1951, GE began purchasing nearly 1,000 acres in the vicinity of Buechel Bank Road and Fegenbush Lane in southeastern Jefferson County. By the end of the year land which once had been devoted to small farms was being turned rapidly into a \$200 million industrial complex with more than five million square feet of manufacturing and office space. Upon completion two years later, Appliance Park employed some 10,000 residents of Jefferson County and neighboring communities in Kentucky and southern Indiana. During the years that followed, many GE employees sought suburban homes in the vicinity of their work, triggering the conversion of more farmland into subdivisions along the southeastern fringe of Louisville and in the area of such communities as Fern Creek, Okolona, and Buechel. By the same token the plant brought in, and continues to bring in, a succession of well-paid professional and managerial personnel who tend to cluster together in certain affluent eastern Jefferson County neighborhoods.³⁵

Because it was such an important addition to Louisville's economic base and because it was located a good distance away from the most affluent sections of Jefferson County, Appliance Park attracted very little opposition. In this respect, it differed considerably from the later experience of the proposed Reynolds Metals facility. Although it remains difficult to establish large manufacturing plants in eastern Jefferson County, the loss of the Reynolds complex has made Louisville business leaders much more wary when citizen opposition threatens potentially lucrative industrial developments in that area. As a consequence of this vigilance, two major industrial centers have been developed in the eastern part of the county in recent years. Both are located near growing middle class residential areas. Developed by realtor L. Leroy Highbaugh and opened in 1965, the Bluegrass Research and Industrial Park, located in Jeffersontown near Hurstborne Lane and I-64, now houses some 300 firms and provides employment for over 5,000 persons. Among the facility's major tenants are Celanese Coatings and Specialties Technical Center, Chemtron Corporation's Votator Division, the Louisville Bedding Company, Jones Plastic and Engineering Corporation, and the Potlatch Corporation's Folding Carton Operations. The second recent industrial complex established in eastern Jefferson County was the Ford Motor Company truck assembly plant on Westport Road north of Anchorage. Opened in 1969, the facility employed nearly 4,000 workers by early 1977.³⁶

The centrifugal movement of the population during the postwar years followed several patterns and had several effects in eastern Louisville and Jefferson County. A good portion of the population gravitated toward new subdivisions near older unincorporated suburban communities such as Buechel, Fern Creek, and St. Matthew's. But an even stronger tendency was for home buyers to purchase homes in small suburban municipalities, which proliferated rapidly. Unlike numerous other metropolitan centers, where the growth of suburban municipalities had taken off during the 1920s, Jefferson County contained only 11 municipalities in 1945. Of these, Louisville, Jeffersontown, and Anchorage were incorporated before 1900, with the remaining eight being created between 1920 and 1945. Three more were established between 1945 and 1949. But 51 new suburban cities were created during the next two decades, 29 in the 1950s and 22 in the 1960s. By the beginning of 1979, Jefferson County counted more than 80 incorporated municipalities. More than two-thirds of these are located in the eastern third of the county.³⁷

The largest suburban municipalities are the fourth-class cities - Shively, created in 1938; St. Matthews, incorporated in 1950 to prevent annexation by Louisville; Jeffersontown, which advanced from fifth to fourth-class status during the mid-1960s; and St. Regis Park, located on the eastern edge of Louisville along Brown's Lane between I-64 and Taylorsville Road. St. Regis Park advanced from sixth-class to fourth-class status in 1974 after it annexed several adjacent subdivisions. But the primary vehicle of municipal organization was the sixth-class city. Under Kentucky law, an unincorporated area containing between 125 and 1,000 residents may become a city through an incorporation petition to the local circuit court. The petition must contain the signatures of at least two-thirds of the voters in the affected area, which must approximate a square at least one-half mile on each side. Opponents may attempt to prove that the proposed

city is too large or too small, or that it lacks enough people, but they may not question the wisdom of incorporation itself. If the judge finds that all legal conditions for incorporation have been met, he must grant the petition. He then must appoint at least five trustees, a police judge, a city marshall, and an assessor to serve until regular elections can be conducted.³⁸

The motives behind the creation of these "republics in miniature," as urban sociologist Scott Freer has aptly dubbed America's small suburban municipalities, may be as varied as the number of communities themselves. But in Jefferson County, three basic factors appear to have carried primary weight, regardless of the class of city that resulted. For several years, many suburban residents incorporated their subdivisions to gain the zoning powers necessary to prevent factories, service stations, and shopping centers from being constructed in their midst. But by 1964 it had become evident that to allow so many communities to exercise zoning powers made effective comprehensive planning impossible. To remedy this problem the 1964 General Assembly abolished the zoning powers of sixth-class cities and vested them in the Jefferson County Fiscal Court. Several larger sixth-class cities attempted to preserve their zoning authority by moving up to fifth-class status. But their efforts were thwarted when the 1966 General Assembly abolished the zoning powers of fifth-class cities as well. At present legislative authority for zoning is exercised only by Louisville, the fourth-class cities, and the Fiscal Court.³⁹

Although the General Assembly eliminated zoning authority as a motive for incorporation, it did not remove other factors which made it attractive. One was fear of annexation by a larger city. The most obvious source of fear was Louisville, with a property tax rate two or three times that outside its corporate boundary. Because Kentucky law makes it more difficult to annex an incorporated municipality than an unincorporated land, many suburban residents found it advantageous to incorporate and set their own low tax rate rather than risk annexation. But Louisville was not the only "enemy." More than a dozen sixth-class cities are located in the vicinity of or are surrounded by the city of St. Matthews, and many suburbanites feared annexation by that community almost as much as they did annexation by Louisville.⁴⁰

Possibly the principle motive for incorporation has been the need for tax-supported urban services. Although residents of suburban municipalities benefit from a variety of county and metropolitan agencies, such as social services and parks and recreation, many have found incorporation the cheapest and most efficient way to provide for street maintenance, street lights, police and fire protection, garbage collection, and other services. Some of these might have been obtained through the payment of dues to voluntary subdivision associations, but such organizations could not force recalcitrants to pay for services received. Moreover, municipal taxes, unlike association dues, are deductible from federal income taxes.⁴¹

Despite the efficacy with which the small municipalities have served the parochial interests of their creators, frequent objections to their proliferation have been voiced by individuals and organizations devoted to promoting an orderly pattern of growth and development in the Louisville area.

As early as 1947, a writer for The Courier-Journal complained that 15 "vest pocket towns" lay in the path of the city's growth, drawing a noose around Louisville. Although Louisville has not added any new territory since 1967, the writer's alarm proved to be premature. In spite of the increasing number of sixth-class cities, eastern Louisville experienced extensive physical growth during the two decades which followed World War II. The expansion of the city's legal boundaries which came with the outward movement of the population could not have happened without housing a considerable impact upon the population of eastern Louisville's older neighborhoods.⁴²

Between 1940 and 1950 the population of eastern Louisville remained rather stable, reflecting limited movement during the housing shortages of the wartime and immediate postwar years. Seven of the 16 census tracts in the eastern part of the city registered losses in population, but in three of these, comprising parts of Crescent Hill, Clifton, and most of Deer Park, the loss was 20 persons or less. Somewhat heavier losses occurred in Tyler Park and Douglass, but in both areas the deficit was less than 100. The heaviest declines came in the remainder of Clifton, Phoenix Hill, and Irish Hill, where the combined loss was less than 500 persons, and in Bonnycastle, which lost about 230 residents. Just as losses tended to be minimal where they occurred, so did population gains of more than 500 persons each.⁴³

During the 1950s, a pattern of declining population became much more distinct as Highland, Clifton, Cherokee Triangle, and Deer Park all experienced losses of more than 500 persons, while Tyler Park and parts of Crescent Hill felt somewhat smaller declines. Bonnycastle, Braeview, Douglass, and Belknap recorded gains of fewer than 100 persons each, but Clifton Heights, Cherokee Gardens and Spring Station each gained in excess of 500 new residents as subdivisions were platted in each neighborhood.⁴⁴

The pattern which developed during the 1950s generally continued during the following decade. By 1970 all but one of the older Highlands neighborhoods which touched Bardstown Road or Baxter Avenue between Broadway and the Watterson Expressway had lost more than 100 residents. Some of the older neighborhoods, such as Phoenix Hill, Highland, and Germantown, lost 600 or more residents. The only neighborhood which clearly gained was the Cherokee Triangle, which began to experience a resurgence during the 1960s. A substantial population increase was recorded in the census tract which includes the Gardiner Lane neighborhood, but the vast majority of that growth can be attributed to new development in the adjacent Hayfield-Dundee area, where nine subdivisions were developed during the decade. Along the Frankfort Avenue axis, Clifton continued to lose population. But for the first time, Crescent Hill also began to show a clearly discernable loss of residents throughout the neighborhood. Braeview, Cherokee Gardens and Spring Station continued to gain population, however, as previously undeveloped lots were sold and several new subdivisions were platted, particularly in Cherokee Gardens.⁴⁵

The population losses in the pre-World War II neighborhoods of eastern Louisville were substantially, if not totally, offset by the development of several completely new residential neighborhoods after the war, particularly during the 1950s and 1960s. Until about 1945 Frankfort Avenue and Bardstown Road served as the primary axes of development in eastern Louisville. After World War II Frankfort Avenue was superseded in this respect by Shelbyville Road and Brownsboro Road. Bardstown Road continued to serve as a primary development artery, but Taylorsville Road began to play a similarly strong role. Likewise, as development intensified along these major arterial streets, the function of such collector streets as Brown's Lane, Breckenridge Lane, Hike's Lane, and Goldsmith Lane and Klondike Lane grew accordingly. But the key factor and the new line of demarcation for residential development in eastern Louisville was the Watterson Expressway. Of the 10 new neighborhoods which emerged after World War II, only four - Rock Creek, the Alta Vista Road section of Braeview Addition, Bowman Field and Hayfield-Dundee - are located inside the Watterson perimeter. The remaining six - Watterson City, Green Meadows, Bon Air, Klondike, Avondale, and Hikes Point - are situated outside the Watterson, where they form a band of development which extends from Newburgh Road on the west to I-64 on the east.

Although the circumstances of development varied from place to place, the neighborhoods which grew up along Louisville's eastern fringe after the war exhibited certain common characteristics. First of all, changes in home building technology such as mass production and standardization of building materials and rising costs of skilled labor and craftsmanship contributed directly to a high degree of uniformity in the appearance of modern residential structures. Most single family houses are built in the popular ranch, split-level, or historical revival styles, depending upon the taste of the builder and the economic market which a given subdivision was aimed. The numerous apartment complexes located along the major arterial and collector streets likewise display a high degree of similarity, with mansard-roofed apartments and historical revival four-plexes being particularly common.

Despite their basic uniformity, the subdivisions of recent vintage do betray some degree of variety in their residential architecture. This is achieved in four primary ways. The first is through variations from house to house in the placement of such elements as porches, stoops, gables, garages or carports, and doors on a given block. A second is to employ a variety of exterior building materials in the construction of houses which are otherwise quite similar in their interior structure. Not surprisingly, most recent homes are built of brick or brick veneer, but stone, wood, and synthetic sidings are frequent as well. During the 1940s and 1950s asbestos siding was widely used, but the 1960s and 1970s have seen its use virtually eliminated and replaced by aluminum siding. Another frequent means of providing variety is cosmetic ornamentation, added by the home owner himself. The built-in, hand-crafted ornamentation which is commonplace in older neighborhoods is virtually nonexistent in newer subdivisions. Finally, many developers and builders provided a degree of variety by giving homebuyers the opportunity to choose their home from among three or four basic models. In some subdivisions, the choice might be among a limited number of variations on one basic style, such as ranch or split-level, while in another the developer might provide for choices from among ranch, split-level, and historical revival styles. Conspicu-

ously absent from such subdivisions, however, is the home which was custom designed by a professional architect, a factor which is attributable to steady inflation in the costs of architectural services and the relatively limited financial rewards for residential design, compared with those which can accrue to the architect involved in large commercial, institutional, and industrial design commissions.

The subdivisions developed after World War II also exhibit the complete abandonment of the gridiron street pattern, which had characterized a substantial part of eastern Louisville's growth since the Civil War. As a consequence of the land use regulations adopted in 1932, a typical recent eastern Louisville subdivision may include winding streets, cul-de-sacs, oddly-angled intersections, and other irregular features. From an aesthetic and ecological perspective, these techniques simultaneously represent an effort to improve the appearance, design, and arrangement of residential developments and to demonstrate a growing respect for the natural contours of the land. They also had the practical effect of keeping heavy through traffic off of residential streets. Nevertheless, residential developers have all too frequently been unable to resist the temptation to overbuild on ecologically sensitive terrains such as the flood plains along Beargrass Creek or to strip a building site of all its vegetation and trees before installing streets and utilities and building homes.⁴⁶

The final characteristic of recent residential development, dictated by the interaction of increasingly complex planning controls and building codes, rising land and construction cost, and the availability of long-term financing through governmental and private sources, is the extent to which the entire development process has become highly professionalized. Before the depression, professional real estate men such as William F. Randolph and Helm Bruce laid out carefully planned subdivisions, sold lots to individual home builders or speculators, and used deed restrictions to control the quality, value, and style of construction. But developers such as C.C. Hieatt, who also doubled as builders, were rare.

But during the late depression and mobilization years from 1938 through 1941, developers began to assume a much larger role in the subdivision process. Not only did they arrange for financing and site preparation, they gradually began to subcontract with or sell lots to professional builders who in turn built houses and arranged for their sale through real estate brokers. This tendency toward professionalization, though marked by numerous variations in form, accelerated as the entire land development process became more sophisticated during the postwar building boom. Thus, a developer might arrange for financing, hire a professional engineer to design the subdivision, supervise site preparation, and shepherd the development through approval by the Planning Commission, always with the legal advice of an attorney. Once the development had been approved, the developer might sell a block of lots to a builder--sometimes providing financial support as well--who usually entered into an agreement with a realtor to sell the completed homes. On the other hand, the developer might retain complete control of the development process by subcontracting one or more phases through his own auspices or through partnership with a realtor. Regardless of the variations, however, virtually all parties in the development process--developer, designer, builder, and seller--were professionals who eventually made the purchase of a home a "package deal" with lot, street, utilities, and completed house wrapped up into one price.⁴⁷

One of the earliest and northernmost areas of postwar development was Rock Creek, located adjacent to St. Matthew's and bounded by Rock Creek Lane, Seneca Park, I-65, Cannon's Lane, and Beaucamp Road. Setting a pattern which would be repeated again and again during the postwar years, development in Rock Creek was carried out by professional rather than amateur developers. Five firms were responsible for the nine subdivisions which comprise the neighborhood. Moreover, four of these are wildcat subdivisions, marking Rock Creek as the only neighborhood in eastern Louisville where wildcatting was a significant phenomenon.

The first subdivision in the neighborhood came in 1949 when Martin L. Adams and Sons, Inc., a development firm headed by Joshua B. Adams, platted the first of two sections of Rock Creek Gardens. The subdivision is situated at the south end of Chamberry Drive, where it intersects with Cannon's Lane after the latter takes a 90 degree bend at its junction with Beaucamp Road. Six years later, Adams added the second section, which extended the development all the way to Rock Creek Lane. Two years after Adams platted the first section of Rock Creek Gardens, the Eline Realty Company, headed by Anthony J. Eline, platted the first section of a wildcat subdivision called Seneca Hills. Although it initially included the property along both sides of Circle Hill Road immediately east of Seneca Park, Section No. 1 was expanded in 1952 with the addition of a second wildcat subdivision in the form of a strip of land along the west side of Homestead Boulevard. Two years later the General Assembly outlawed wildcatting. This meant that when the Eline Development Company and Fred T. Hafendorfer's Highland Investment Company moved in 1955 to lay out the second section of Seneca Hills on Starlite Road and Samoa Way, they had to seek approval from the Planning Commission.⁴⁸

In 1953, Martin L. Adams and Sons laid out its third wildcat subdivision when it began selling lots along Huntingdon Road between Rock Creek Lane and Cannons Lane. The following year, Al J. Schneider, the contractor who during the 1960s and 1970s would make his mark as a developer of hotels and bank buildings on Broadway and the downtown Riverfront, extended Huntingdon Road across Cannons Lane and began selling lots in a wildcat subdivision laid out around Chamberry Circle. In 1956 the Planning Commission approved J. Graham Brown's plat of Hollin Terrace, laid out on a section of the hotelman's farm on the west side of Beaucamp Road between Cannons Lane and the Middle Fork of Beargrass Creek. The last subdivision platted in Rock Creek was Cannonside, laid out on a small strip of undeveloped land between Huntingdon Road and Rock Creek Gardens by John R. Carpenter's Moorgate Development Company in 1958.⁴⁹

As in nearby neighborhoods such as Spring Station and Cherokee Gardens, many of the homes in Rock Creek were built in one of the historical revival modes. Likewise, the neighborhood contains a considerable number of large ranch-style houses, which were particularly popular during the 1950s. Perhaps the most outstanding house in the neighborhood, however, is the large, aging Victorian frame house with Carpenter's Gothic ornamentation which is located on Rock Creek Lane and which serves as the club house of Rock Creek Stables.

A second area of growth after World War II was the perimeter of Bowman Field airport. Scattered development dates back to 1928, when Queenie Wathen Condon and Tess Wathen laid out the Airview Subdivision in the triangle formed by Dutchman's Lane and Taylorsville Road. Nine years later developer William F. Randolph platted Seneca Vista between Seneca Gardens and Bowman Field, immediately adjacent to the west side of the airport. For a few years Seneca Vista was a sixth-class city. In 1950 it annexed both sections of McCoy Manor Subdivision, which had been laid out along McCoy Way, between Trevilian Way and Taylorsville Road, by developer Bryan S. McCoy during 1949 and 1950. But Seneca Vista's residents voted the town out of existence in the referendum on the Mallon Plan, a scheme for government reorganization under which Louisville would have been enlarged to take in a large band of its suburban fringe. Louisville voters approved the plan overwhelmingly, but only the voters of Seneca Vista and one other incorporated suburban community approved it.⁵⁰

During the middle and late 1950s, development was focused primarily on the strip between Dutchman's Lane and the Watterson Expressway. In 1953 the Eline Development Company platted Big Springs Garden immediately south of Big Springs Country Club. This particular subdivision is something of an anomaly, for while it is located entirely within the Louisville city limits, it is neither part of the city nor an incorporated municipality. Having never been annexed, Big Springs Garden remains legally an unincorporated part of Jefferson County. However, its neighbor to the east, Big Spring Village, is part of the city of Louisville. This subdivision was platted in 1957 by Bon Air Estates, Inc., a development firm headed by W.E. Cox. The same year, Bryan S. McCoy's firm began developing the first section of Kiltmoor Gardens, laid out along Abigail Drive, west of the Jewish Community Center. Four years later, McCoy added a second section, located at the interchange of Taylorsville Road and the Watterson Expressway between Dutchman's Lane and the Jewish Community Center.⁵¹

The remaining subdivision laid out in the vicinity of Bowman Field during the 1950s was the first section of Park Hills, platted at the airport's northern tip between Seneca Park and Cannons Lane by Al J. Schneider in 1955. Seven years later Fielding H. Dickey's Anfold Corporation received approval for a second section of Park Hills along Five Oaks Place between Park Hills Drive and the airport boundary.⁵²

As it had been for more than half a century, Cherokee Park remained a strong magnet for development into the 1960s. Indeed, some of the finest homes built in Louisville since the end of World War II were erected in three subdivisions developed in the Braeview Addition along the west side of Alta Vista Road between I-64 and Red Fox Road. The first such subdivision was Alta Circle, recorded in 1964 by Pruitt Built Homes, Inc., a firm headed by builder developer Lee D. Pruitt. The same developer laid out a second section of Alta Circle along Doric Court in 1968. Three years earlier, Warwick Enterprises, Inc., headed by president Robert Browne, platted Rostrevor Subdivision on the grounds surrounding the late James Ross Todd's Italian villa mansion.⁵³ Except for a handful of structures designed in contemporary styles, the new homes in Alta Circle and Rostrevor Subdivisions were executed in some form of historical revival mode.

During the early 1960, the Braeview area became the home of one of the city's distinguished educational institutions - the Louisville Presbyterian Theological Seminary. The seminary trustees had decided as early as 1954 to relocate, after learning that the North-South Expressway would encroach upon the downtown campus at First and Broadway. The first plan was to move the old English Gothic structure brick-by-brick to a 32-acre site on Cannons Lane overlooking Seneca Park. The tract had been purchased from William S. Speed. By early 1959 it had become apparent that this plan was neither practical nor economically feasible. So the trustees decided to sell the downtown campus and to build a new one, probably employing contemporary architecture, on the Seneca Park site. Later the same year, however, the State Highway Department announced that Interstate 64 would be routed through Seneca and Cherokee parks. The general route cut through the middle of the proposed seminary site. Again, the trustees were faced with the problem of finding a new site. In December the seminary paid \$330,000 for 38 acres of land on Alta Vista Road bordering Cherokee Park. A twenty-one acre section of the "Norton Tract" was purchased from the Southern Baptist Theological Seminary and the remaining 17 acres from Al J. Schneider, who had planned to develop a subdivision on the land. Unfortunately, the divinity school had to endure a third confrontation with the highway department before it could begin construction at its Alta Vista Road site.

Commissioned to design the seminary buildings was the Louisville architectural firm of Hartstern, Louis and Henry, while Miller, Wihry and Lantz, a local landscape architecture firm, was hired to plan the site. The initial result of this collaboration was a grouping of nine buildings of Indiana limestone and contemporary architecture placed in a sylvan atmosphere, and composed of, in the words of journalist Grady Clay, "vast expanses of lawns, wooded hillsides, and the priceless boon of mature trees, many of them specimens planted half a century ago on a majestic estate and carefully allowed for in the new campus". The focal point of the campus, whose construction began in 1961, is an irregular hilltop quadrangle near the rear of the campus, composed of Caldwell Chapel, the library, and the administration and student services buildings. A nearby hill was flanked initially by three dormitories and provided space for eight additional student housing structures. The move to the new facilities began in April 1963, and the new campus was dedicated the following October.⁵⁴

The fourth postwar neighborhood to develop inside the Watterson Expressway was Hayfield-Dundee, bounded by Dundee Road, Newburg Road, the expressway, and the Gardiner Lane neighborhood. Perhaps the most notable characteristic of the development process in Hayfield-Dundee is the extent to which a substantial number of the subdivisions were developed by a relatively small number of developers: only seven firms were responsible for the development of 13 subdivisions, and two firms which had common ownership and management developed six of these tracts. The first subdivision platted in the area was Gardiner Lane Park, a small tract laid out on the southeast side of Gardiner Lane between the South Fork of Beargrass Creek and Lake View Drive by Louis A. Arru's Gerald Realty Company in 1944. Twelve years later, Carl Besendorf platted Woodside Park along Verne Court, the first of several short cul-de-sacs which were laid out along the northwest side of Gardiner Lane near Newburg Road and Beargrass Creek. Two more such tracts, Williamsburg Village in 1964 and Larkwood in 1965, were laid out by the Hickory Lane Company, Inc., and William J. Steiner and Sons, Inc., respectively.⁵⁵

But these small tracts are insignificant compared to the larger multi-section subdivisions which began to consume several of the area's larger farms during the 1950s and 1960s. In 1957 the Planning Commission approved the application of L.J. Harris's Sierra Land Company to subdivide the first section of Dundee Estates. Over the next three years, scores of houses valued from \$30,000 and up were built along such winding streets as Tartan Way, Lamont Road, Fraser Drive, and Fordye Lane. A second section of Dundee Estates was added in 1960, with Dunbarton Wynde and Sutherland Drive serving as the primary residential avenues. Development along Newburg Road took place in the Clarewood Subdivision, between Tartan Way and Dunbarton Wynde, which was platted in 1959 by Lawrence W. Speckman. Three years later D. Irving Long, president of a development firm called the Fourth Avenue Amusement Company and later chairman of the city's Urban Renewal and Community Development Agency, staked out all three sections of Dell Lane Subdivision on a parcel of land in the northwest quadrant formed by the intersection of Tremont Drive and Gardiner Lane.⁵⁶

Development of the neighborhood's central core began during the second half of the 1960s after Long and his associate, Louis Arru, purchased 61 acres of the Hayfield Farm from contractor H.G. Whittenberg, Sr. Long and Arru paid \$450,000 for the historic mansion and a large parcel of rolling pasture land which previously had belonged to Colonel Robert Tyler and to Dr. Charles Wilkens Short, one of the founding professors of the University of Louisville School of Medicine. In 1966 the Planning Commission approved the application of Arru's Gerald Realty Corporation to develop two sections of Hayfield, which occupied an area roughly between Sutherland Drive in Dundee Estates and Falmouth Drive in Dell Lane. The entire development, laid out in winding lanes and cul-de-sacs, has about 145 building lots on which stand today a variety of historical revival style homes.⁵⁷

One factor which attracted many families to the Hayfield-Dundee area was Atherton High School, whose modern campus on the old Clagett estate below Dundee Road between Clagett Drive and Westlake Avenue, had been opened in the early 1960s. For many of these families, Atherton eventually became the source of a major political controversy. Although operated by the former Louisville Board of Education, Atherton was physically located within the legal jurisdiction the Jefferson County Board of Education. This unique situation existed because of a 1948 court decision which froze the boundaries of the Louisville school district, preventing it from absorbing new territory which was annexed by the city during the 1950s and 1960s. Under an agreement between the two boards of education, however, parents in Hayfield-Dundee could request that their teenagers be allowed to attend Atherton, which was within walking distance of their homes. The county school board paid the tuition of such children, but the agreement was subject to revocation if the space occupied by the county students was ever needed to accommodate rising enrollment from city school districts.⁵⁸

In 1969 enrollment at Atherton, as well as nearby Highland Junior High School and Belknap Elementary School, reached the point that revocation of the attendance agreement seemed imminent. During the summer of that year, residents of the Hayfield-Dundee and Gardiner lane areas mounted a campaign to have an area bounded roughly by Lowell Avenue, Bardstown Road, the Watterson Expressway, and Newburg Road annexed to the Louisville school district. More than 16 percent of the area's nearly 3,400 registered voters signed annexation petitions. But a transfer of jurisdiction involved complex legal and political ramifications

which could be resolved only through state legislation. In the winter of 1970 the focus of attention shifted to the General Assembly, where residents waged one of the most unusual and most intensive lobbying efforts that Frankfort had ever witnessed. Spearheaded by Mrs. Gerta Bendl, a corps of housewives popularly known as the "Dames of Dundee" tempted the legislators day-after-day with brownies, cookies, and various other baked goods.

The Assembly eventually enacted legislation which provided for annexation through referendum and which empowered the Jefferson Circuit Court to work out the logistics if the affected school boards could not negotiate an acceptable settlement within 90 days after passage of the referendum.⁵⁹

In July 1970 the Dames of Dundee collected enough signatures to have the referendum placed on the November ballot. Although the residents approved the transfer by a handsome majority, they were dealt a major setback in June 1971, when the Kentucky Court of Appeals declared the annexation law unconstitutional. In the meantime, the city school system had ceased accepting county transfer students at Atherton, Highland, and Belknap, making the issue even more critical. Undaunted, the supporters of annexation returned to the General Assembly in 1972 in an effort to gain passage of a bill that would meet the objections of the Court of Appeals. This time the Dames of Dundee were led by new Third Ward Alderman Gerta Bendl, whose prominence in the movement had propelled her into a political career and a smashing victory in the general election of November 1971. Again, the legislature passed an annexation bill. This time, the legislation allowed school district transfers if 75 percent of either an area's registered voters or property owners signed a petition for the change. During the summer of 1973 the school boards came to accord which allowed the transfer of students.⁶⁰

The entire issue became moot however, when two years later, the U.S. Sixth Circuit Court of Appeals in Cincinnati ordered the merger of the City and County school organizations as a prelude to the institution of a system-wide busing program for racial desegregation.

If comfortable homes and proximity to Atherton High School represented the attractive side of life for residents in Hayfield-Dundee, then the destructive potential of the South Fork of Beargrass Creek represented the negative side. Most of the time the shallow stream meanders lazily, attracting little, if any attention. During heavy rainstorms, however, it rises quickly as it collects the runoff from its watershed; limited flooding is frequent, especially in the winter and summer months. Historically, flooding along the South Fork posed only a minor threat to urbanized areas, except during the 1937 flood, when it contributed to general flooding downtown. Until recently, structures near the stream were elevated enough to be out of danger of flooding. During the 1950s and early 1960s, however, considerable development occurred in and near the flood plain between Newburg Road and Bashford Manor Lane.⁶¹

March 9, Beargrass Creek experienced a wave of flash flooding which sent the Trevillian Way gauge to 14.17 feet. This time the water overflowed into areas which never before had been flooded. One such area was Dundee Estates, where flooding waters swept beyond the intersection of Dunbarton Wynde and Sutherland Drive. Once the rain stopped the waters receded quickly. But as a later report by the U. S. Army Corps of Engineers noted, the flood "had clearly shown new danger areas" and had "proved how fast suburban watersheds are being urbanized - with hundreds of acres of streets, drives, sidewalks and roofs that increase the speed of rainfall runoffs." Damage along the South Fork between Eastern Parkway and Hunsinger Lane totalled \$879,500 with more than \$860,000 in damage to residential property. Because of the damage, the Corps of Engineers moved part of the South Fork Channel upstream between Bashford Manor Lane and Bardstown Road in 1966.⁶²

While the new subdivisions in such areas as Rock Creek, Braeview, Bowman Field, and Hayfield-Dundee indicate a fair amount of urban growth inside the Watterson Expressway after World War II, the heaviest development in eastern Louisville occurred outside the Watterson, between Newburg Road and Interstate 64. Statistically, the territory encompassed by the Watterson, Newburg Road, I-64, and the city limits today includes 103 subdivisions. Ninety-six of these have been platted since the end of the war. As in Hayfield-Dundee, development in most of the neighborhoods in this area was the responsibility of a small number of professionals who laid out scores of lots in large multi-unit subdivisions.⁶³

The westernmost of these recent neighborhoods is Watterson City. Bounded by Watterson Expressway, Newburg Road, Bashford Manor Lane, and Bardstown Road, the neighborhood takes its name from a large commercial complex which was built at the interchange of the Watterson and Newburg Road after most residential development had ended. The development which occurred during the 1950s consisted almost entirely of single-family subdivisions on which were built small brick and stone ranch houses and other modern vernacular dwellings. The earliest residential development in Watterson City occurred along its southern perimeter, Bashford Manor Lane. In 1952 developer Harold W. Miller laid out the first section of Bashford Manor Gardens around an oval loop formed by Tyrone Drive and Wexford Drive. Three years later he added a second section immediately to the east along Kerry Dr. While Miller was developing the east end of Bashford Manor Lane, the Manorview Subdivision to the north and west was being developed by Henry A. Hayden's Manorview Corporation and Louis A. Arru's Gerald Realty Corporation. Hayden platted the first section, along Hugh Drive, in 1952; Arru added another piece the following year along Elba Drive, and Hayden platted two more parts along Gladden and Capri drives in 1955 and 1956 respectively. Two years after Miller and Hayden initiated their tracts, Joshua B. Adams, of Martin L. Adams and Sons, Inc., platted one of the area's largest single subdivisions, Village Green, a rectangular development just off Bardstown Road and bounded by Goldsmith Lane, Summer Road, the back property line of Belmont Avenue, and an imaginary line joining Kerry Dr. and Dukehart Drive. During the second half of the 1950s, development in Watterson City was concentrated along Meadow Creek Drive and Perma Ovid, where Fielding H. Dickey laid out two sections of Meadow Creek Subdivision on land owned by B.E. Brubaker's Woodbine Enterprises, Inc.

Additional single-family residential development occurred during the early 1960s, notably Vicksburg Heights Subdivision and Vicksburg Manor Subdivision, laid out in the northeast quadrant formed by the intersection of Newburg Road and Bashford Manor Lane by Arru's Gerald Realty Company in 1965 and 1964, respectively, but most of the residential units built in Watterson City during the 1960s were in garden apartment complexes developed along Goldsmith Lane and Peabody Lane. The major force behind the construction of these apartment complexes was the development of the high rise commercial, office and residential complex called Watterson City.⁶⁴

The developer of Watterson City was Kemmons Wilson, chairman of the board of Holiday Inns of America. "When Mr. Wilson flew over the area around 1963, you couldn't have sold a waffle for miles around," recalled Watterson City manager H.P. Stainback a dozen years later. "From the plane he looked at the site's relationship to downtown, the expressways and the airport, and realized its potential." A short time later, Wilson purchased 55 acres of a former potato farm. Over the next two years Wilson's development firm, Watterson City, Inc., divided the property into three subdivisions. In 1965 he began construction of a 10 story office tower. During the next few years, two more office towers and a high rise apartment were added between Watterson Expressway and Bishop Lane. As Watterson City grew, Wilson sold parcels of his land to other developers who erected hotels, restaurants, condominiums, and garden apartments. By the early 1970s, Watterson City was Jefferson County's largest suburban commercial center.⁶⁵

Watterson City was also the site of a major new institutional development. In November 1959, the trustees of the Louisville Protestant Orphans Home paid the Kentucky Highway Department \$16,500 for a 34-acre site at the intersection of Bardstown Road and Watterson Expressway. Earlier in the year the trustees had sold the existing site on Bardstown Road in Tyler Park to the firm which subsequently built Mid-City Mall. In July 1960, work began on the institution's new campus, designed by the Louisville architect W.T. Brau and A. Bailey Ryan. Construction moved quickly, and in late November, 26 youngsters moved into their new quarters.

After several months of operation, the trustees decided that a new name should go with the new location. Thus, in July 1961 the trustees approved a change in name to Brooklawn Childrens Home.⁶⁶

Immediately east of Watterson City is Green Meadows, a group of subdivisions located between Goldsmith Lane and Hikes Lane and, for the purpose of this study, two small tracts along Dowling Way and Landon Drive between Hikes Lane and Six Mile Lane near Buechel. Green Meadows proper is composed of seven subdivisions, six of which are the responsibility of Joshua B. Adams. The seventh was developed by Fern Creek Heights, Inc., headed by John E. Kennedy. All seven sections of Green Meadows were recorded between 1956 and 1958. Built almost simultaneously with Green Meadows were two subdivisions laid along Bardstown Road between Bray Avenue and the South Fork of Beargrass Creek. The larger of the two, which lies between Bray and Liverpool Lane, is Matthews Manor, platted in 1956 by Charles M. Matthews, president of Matthews Homes, Inc. Three years later, Cesare Bertoli platted Kathbert Subdivision in the small tract between Liverpool Lane and the South Fork. The first of the two sub-

divisions south of Hikes Lane is the second section of Chevy Chase, platted by Ben Kaplan in 1960. The second, which consists of a loop formed by Landon Drive and Bradford Drive, was initiated by Joseph D. Spalding in 1960.⁶⁷ However, because of the heavy traffic along Hikes Lane, these two subdivisions apparently have little organic relationship to Green Meadows and are discussed here only because the erratic path of the city's corporated boundary provides no other alternative.

One of the major centers of development during the postwar years was Bon Air, a large, irregularly shaped neighborhood which is bounded by the Watterson Expressway on the northwest, Taylorsville Road on the north, the eastern property line behind Dogwood Way on the east, Hikes Lane, Goldsmith Lane from Hikes Point to Bardstown Road, and Bardstown Road to the Watterson. Including a couple of fringe developments which lie primarily in the unincorporated part of Jefferson County along the south side of Goldsmith Lane between Bardstown Road and Bon Air Avenue, the neighborhood is composed of just over two dozen subdivisions. These 26 subdivisions were developed by 17 firms, the lowest ratio of subdivisions to developers of any large postwar neighborhood in southeastern Louisville. Nevertheless, nearly all of the subdivisions in Bon Air were developed by experienced professionals, not by amateurs.

The earliest subdivision in Bon Air was Wellingmoor, laid out in 1939 by Ralph Drake and bounded today by the Watterson, Bon Air Avenue, Goldsmith Lane, and Stratford Avenue. Eleven years later the Jefferson Realty Company, whose members included Jack W. Riley, Jr., William M. Riley, Avery M. Riley, Betty G. Riley, and Jack W. Riley, Sr., platted Brookfield Manor, a small tract immediately west of Wellingmoor.⁶⁸

Wellingmoor and Brookfield are the only two Bon Air subdivisions located west of Bon Air Avenue. The remainder of the activity took place east of Bon Air Avenue and Goldsmith Lane. In 1948 Edgar W. Archer's Lupino Realty Company laid out Section No. 3 of Seneca Village, an extension of an earlier development in the Hawthorne neighborhood south of Gardiner Lane between Bon Air and Doreen Way. Shortly thereafter, the Kentucky Highway Department purchased the strip south of Gardiner Lane as right-of-way for Watterson Expressway, leaving only the eastern extension along Doreen Way and Commander Drive between the Watterson and Rio Rita Avenue. The eastern extension was revised and replatted in 1954 by Chipley Realty Company, a partnership including Paul Kapelow, Lewis I. Leader, and A.N. Kornman.⁶⁹

Although the Watterson obviously disrupted Archer's intentions of the completion of Seneca Village, the expressway was the major catalyst for development in Bon Air following completion of the stretch from Bardstown Road to Breckinridge Lane in late 1949. Between 1952 and 1957 a dozen subdivisions, excluding revisions, were platted in the area east of Bon Air Avenue and Goldsmith Lane. The first of these was Rosedale Subdivision, laid out in 1952 at the interchange of the Watterson and Taylorsville between Radiance Road and Hendon Road by the Grandview Realty Corporation, a firm headed by realtor C. Robert Peter, Sr. The following year, developers L. Leroy Highbaugh, Sr., and L. Leroy Highbaugh, Jr., platted Wedgewood Manor Subdivision on the tract between Seneca Village, Section No. 3 and Peter's Rosedale Subdivision.⁷⁰

One of the neighborhood's more ambitious projects was initiated in 1953, when Mr. and Mrs. W.E. Cox sold their 55-acre Tennessee walking-horse and stock farm at the Watterson Expressway and Bon Air Avenue to Bon Air Estates, Inc., a development firm headed by W.E. Cox and subdivider Roy H. Foeman. The purchase

price was \$180,000, or nearly \$3,275 per acre. The same year, Cox and Foeman recorded that tract as Bon Air Estates. Two years later, Kathleen E. Whittenberg, the widow of contractor H.G. Whittenberg, Sr., acting as trustee for their sons, added two more sections of Bon Air Estates. The first occupies a large tract immediately below the eastern half of Cox's subdivision between Goldsmith Lane and the western property line of Radiance Road, bounded on the south by the property line between Ramona Avenue and Talisman Road. The second included the eastern half of the tract immediately to the south from the Ramona - Talisman boundary to Beargrass Creek. But Mrs. Whittenberg was not the only one to take advantage of the momentum established by Cox. In 1954, Alexander Bush laid out the Monterey Villa, a small subdivision along the western end of Rio Rita Avenue between Goldsmith Lane and Boaries Avenue. The same year, developer Emery Kinhead platted Dell Brook Subdivision on the western half of Dell Brook between Goldsmith Lane and the Whittenberg property north of Beargrass Creek. In 1956, however, it was taken over by Cox and replatted as Section No. 5 of Bon Air Estates. In the meantime, Irwin Fred Harrod, president of H & C Developers, filled in the remaining area between Ramona Avenue and Rio Rita when he platted Goldsmith Manor, a small tract along the eastern end of Meadow Drive, in 1955.⁷¹

A second major development project in Bon Air, and certainly the neighborhood's most controversial, was Highgate Springs. In mid-June, 1953, Crawford Homes, Inc., a Kentucky-based subsidiary of a Louisiana development firm, called the Crawford Corporation, purchased the 230-acre Hendon farm, located south of Taylorsville Road and bounded roughly by Radiance Road, Hikes Lane, and Stanton Blvd. The company's announced intention was to develop a 1,200 home subdivision. The source of the controversy which surrounded the purchase was the Crawford firm's reputation for building modest, inexpensive homes out of materials present at and shipped from its Louisiana mills. Residents of surrounding subdivisions complained that Crawford Homes would "devalue the neighborhood", and builders feared that Crawford would "drain the town, and then leave" after absorbing the "cream" of the local market; and the building supply business feared the loss of sales since the outside firm would supply its own materials. As an indicator of feelings in the local homebuilding industry, one builder-realtor told Courier-Journal real estate editor Grady Clay, "I don't think there's a local builder who is not interested in seeing Crawford kept out of Louisville, nor any building supply house that doesn't want him kept out."⁷²

In an effort to allay local fears, Crawford Homes, Inc. agreed to a deed restriction which limited homes in the vicinity of Taylorsville Road and Hendon Lane to a minimum value of \$13,500. While that restriction applied to only nine lots, a company executive announced that home prices in Highgate Springs would range from \$12,500 to \$25,000 and that most would fall into the \$14,500 to \$16,500 bracket. The official also stated the firm's intention of having 30 homes completed by October 1953 and the remaining 11,970 homes completed one year later. But plans did not move so quickly as the company had hoped. The first two sections of the subdivision were not recorded until early 1955, after the land had been sold to Breslin Construction Company, headed by developer Frank H. Breslin. Breslin's agent for the sale of lots was realtor Bryan S. McCoy, who sold building sites to a dozen different builders. But in late May, 100 lots remained unsold. Another portion of the undeveloped land between Dogwood Way and Stanton Avenue was purchased by Louisville developer Edgar W. Archer,

who platted it as Hikes Point Subdivision in 1955. The remaining undeveloped parcel of land, located along Noe Way between Radiance Road and Hikes Lane, was platted in 1960 as Highgate Manor by the Sovereign Company, Inc., a development firm owned by R.W. Marshall.⁷³

As more and more subdivisions were platted in Bon Air during the first half of the 1950s, subdividers began to cast a longing eye at the farmland south of Hikes Lane, in what became known as the Klondike neighborhood. The Hikes Lane barrier was broken in early 1955 when developers Edward Butler and Chester Cooper purchased a 45-acre tract composed of the Fred Graf farm and part of the Hikes family's Midlane farm. The entire site included most of the area today encompassed by the city limits on the west, Hikes Lane on the north, and Klondike Lane on the east and south. A short time later, R. W. Marshall bought 20 acres between Klondike Lane and Six Mile Lane from Mrs. Florence G. Jackman. Although expanded by later acquisitions, these two tracts formed the core of the huge Midlane Park Subdivision, one of the largest single family residential development projects in the city's history. Initially a joint project of Butler and Cooper's Chester Villa Development Company and Marshall's Deerfield Company, Midlane park eventually entailed 15 sections in 13 separate recorded plats, developed over a 15-year period between 1955 and 1970. During the last eight years, the project also involved the participation of The Langan Corporation, headed by Richard I. Beckley. By the time of its completion, Midlane Park extended from Hikes Lane to Six Mile Lane west of Klondike Lane and Graf Drive and paralleled Hikes from Greenview Road on the west to Breckinridge Lane along the South Fork of Beargrass Creek.⁷⁴

Midlane Park also included two intrusions by other developers. The earliest was Klondike Manor, laid out in 1958 by Peter's Grandview Realty Company along the southern half of Jupiter Road in the quadrant formed by the 90 degree angle of Klondike Lane. The second came six years later when the Riviera Park Syndicate, Inc., a company headed by Roy F. McMahan, Sr., platted Klondike Park along Briarbridge Lane and Brinkley Way immediately south of Hikes Lane.⁷⁵

Laying aside Klondike Manor and Klondike Park, Midlane Park accounts for 12 of the 26 recorded subdivision plats which comprise the Klondike neighborhood. But it is only the most dramatic example of dominance of large scale, multi-section development in the area. The remaining subdivision plats recorded in Klondike constituted a total of four separate developments, all of which involved two or more sections.

Two of these projects followed immediately upon the heels of Midlane Park. In 1956, Peter's Grandview Realty Company platted the first section of Roselawn Subdivision along Vogue Avenue and Roselawn Boulevard just east of Klondike Lane. Smaller additions in 1956 and 1958 by the Peter Construction and Supply Company, also owned by C. Robert Peter, extended Roselawn almost to Breckinridge Lane. Also in 1956, Frank Breslin platted the first section of Klondike Acres along Dale Ann Drive and Klonway Drive between Klondike Lane and Breckinridge. He added a second section between the western property line behind Graf Drive and the eastern property line behind Manner Dale Drive along Le Man Drive and Nepperhan the same year. Klondike Acres was completed two years later with the addition of a third section immediately south of Section No. 2 along Don Dee Road and Kaye Lawn Drive. The remaining area within the present city boundaries south of Klonway Drive between Manner Dale Drive and Breckinridge Lane was developed during 1959 and 1960 as Gatewood Subdivision, a project which involved four corporations - J. & H. Homes, Inc.; Woodgate Homes, Inc.; Gatewood Builders Supply, Inc.; and Layside Homes, Inc. - all owned and operated by Joseph F. Sprauer.⁷⁶

The most recent project in the Klondike area is Midlane Terrace, a development in three sections located between Six Mile Lane and the Southern Railway tracks east of Crawford Avenue near Buechel. Midlane Terrace was initiated in 1963 by developer Robert J. Thieneman. A second section was added in 1965. The final section, ⁷⁷platted 1972, was the last subdivision laid out in the Klondike neighborhood.

If any one of the eastern Louisville neighborhoods located outside the Watterson Expressway could be considered unique, it would be Avondale. Situated in the eastern half of the triangle formed by the expressway, Taylorsville Road, and Breckinridge Lane, Avondale was initiated in 1914 by the Crown Real Estate Company. During the 1920s, however, it was taken over by C.C. Hieatt's Consolidated Realty Company. Taking advantage of the triangular-shaped subdivision's then considerable distance from the city limits, Hieatt's advertisements pictured it as a suburban retreat with city amenities. As one advertisement read:

Avondale was designed for those desiring home sites larger than the city lot. In Avondale the lots are one-half to three acres, all of which have made streets, sidewalks, and electric lights. It would be hard to find a more delightful site for a home if you searched the whole State of Kentucky. Avondale is dotted over with mammoth forest trees, elms, beech, maple and pine. Many beautiful homes have been built and many others are building, and in prospect. As a suburban neighborhood it is considered in a class all its own. ⁷⁸

Although Avondale remained the neighborhood's largest subdivision, three smaller additions were made after World War II, between the Watterson and Essex Road, Avondale's western leg. In 1948, ten property owners platted an addition to Avondale along Arden Road. Four years later, H.C. Mann and J.J. Allgeier platted Avon Court on the northwest side of the Addition to Avondale. Finally, in 1960, developer Bryan S. McCoy, president of McCoy Builders, Inc., platted Thames Subdivision at the southeastern end of Essex Road at Thames Avenue and Henrietta Avenue. ⁷⁹ As in most of the other eastern Louisville subdivisions developed during the first three decades of the twentieth century, the majority of the houses in Avondale were executed in some form of historical revival or bungaloid style. The postwar homes are mostly ranch and other contemporary styles.

Located between Avondale and Breckinridge Lane is the sixth-class city of Meadowview Estates. Formerly part of the V.V. Cooke estate it was platted in 1947 as Meadowview Estates subdivision. But in December 1952, 56 property owners petitioned Jefferson Circuit Court to give the subdivision municipal status. According to their attorney, Raymond L. Sales, the incorporators wanted safeguards against construction of cheaper homes in the fringe area. The petitioners asked the court to establish the municipality within 22 days after receipt of their request. But the decision was delayed for more than a year because of legal questions and it was not until 1954 that the court granted the petition. ⁸⁰

The last postwar neighborhood to be examined in this study is Hikes Point. This area derives its name from the triangular complex of street intersections where Taylorsville Road, Breckinridge Lane, Hikes Lane, Hunsinger Lane, Richland Avenue, and Lowe Road come together to form a complex, auto-oriented retail commercial district. Highly irregular in its configuration, the Hikes Point neighborhood is made up of two parts. The first includes the triangular area south of Taylorsville Road, bounded by Dogwood Way and the city limits and the territory on either side of Hunsinger Lane to the city limits. The other part comprises the subdivision north of Taylorsville Road, bounded by Breckinridge Lane, the Watterson Expressway to I-64, and the city limits from I-64 back to Taylorsville. In addition, the neighborhood is bordered on the east by the municipalities of St. Regis Park, Lincolnshire, Cambridge Village and Houston Acres.

Although most of Hikes Point was developed after World War II, the earliest subdivision dates to 1912, when Henry S. Gering laid out Gering's Subdivision in the southeastern wedge formed by the intersection of Taylorsville Road and Hunsinger Lane. A decade later, the Wheeler Auction Corporation, Inc., agent for owner Charles W. Hibbitt, platted Melbourne Heights in the space encompassed by Taylorsville Road, Breckinridge Lane, Hikes Lane, and Stanton Drive. Apparently not all lots were sold immediately, for in 1927 about 15 lots of Melbourne Heights bounded by Rosemont Avenue, Melbourne Avenue, Midlane,⁸¹ and Stanton Drive were resubdivided by the Wheeler Auction Company as the Zeitz Brothers Subdivision.

As in nearby neighborhoods outside the Watterson Expressway, postwar development in Hikes Point was the work of a small group of professional developers. One of the earliest was Roy F. McMahan, president of the Louisville Tool and Die Company. Described by journalist Grady Clay as the "sparkplug" of development in Hikes Point, McMahan entered the area in 1946, buying the Eberle farm which was located on the north side of Taylorsville east of Breckinridge Lane. Two years later, the Louisville and Jefferson County Planning Commission approved his application to rezone for commercial use some eight acres that fronted on the north side of Taylorsville Road between Richland Avenue and Breckinridge Lane. In 1950, McMahan platted the present city of Lincolnshire and Yorkshire Subdivision, the latter situated on part of the Eberle farm along Yorkshire Boulevard and Richland Avenue between Hillsbrook Drive and Taylorsville Road. Later the same year, he sold Yorkshire to Yorkshire Homes, Inc., headed by Louisville builder L.D. Paschal. Paschal paid approximately \$125,000 for the property, on which he planned to build 114 brick veneer homes, with an estimated sale price of \$12,000 each. In 1954 McMahan platted Sunset Terrace on the northern two thirds of the remaining tract between Breckinridge Lane and Yorkshire Subdivision along Esther Avenue.⁸²

The largest single development project in Hikes Point north of Taylorsville Road was Brookhaven Subdivision, developed in seven sections by realtors L. Leroy Highbaugh, Sr., and L. Leroy Highbaugh, Jr., between 1953 and 1960. Brookhaven is located on a site of approximately 310 acres, which was formerly the Monohan family farm. The entire subdivision is bounded roughly by Watterson Expressway, Breckinridge Lane, Hillsbrook Drive, Richland Avenue, Lowe Road, and the city limits. The Highbaughs began in the early 1950s buying land from brothers Edward, James, and Thomas Monohan. The land acquisition process ended in August 1953 with purchase of a 130-acre tract along Browns Lane. Plans for the \$20.6 million development scheme included 1,200 homes, a shopping center,

and sites for a church and school. The vast majority of the homes in Brookhaven Subdivision are of historical revival, ranch, split-level, and other contemporary, detached, single-family styles. However, the subdivision also included one apartment subdivision - Bowman Manor Apartments - platted by Jesse C. Bollinger at the interchange of the Watterson Expressway and I-64 in 1963 as a revision of a part of the fifth section of Brookhaven.⁸³

While the Highbaughs continued to develop Brookhaven, other developers began to concentrate on the southside of Taylorsville Road. In June, 1954, the Whittenberg Construction Company, headed by H.G. Whittenberg, Sr., purchased a 27-acre tract located just east of Highgate Springs opposite the entrance to Avondale. The seller was builder-developer Malcolm Coco, who had purchased the property earlier in the year from Mrs. Katherine Vogt. The sale price was in excess of \$90,000. The tract already had been recorded as Maywood Subdivision, with lots platted for approximately 110 houses. Whittenberg retained the name Maywood, but resubdivided the tract to accommodate a smaller number of somewhat larger three-bedroom homes. Because no zoning change was necessary, Whittenberg was able to begin construction immediately, and by May, 1955, most of the houses had been completed.⁸⁴

While the finishing touches were being added to Whittenberg's Maywood Subdivision, two more significant projects were instituted nearby. Immediately below and adjoining Maywood, Edgar W. Archer platted his 270-lot Hikes Point Subdivision on the 70-acre section of the Hendon Farm which he had purchased from Crawford Homes, Inc., developer of adjacent Highgate Springs. About the same time Roy McMahan paid \$143,000 for the 27-acre Phil Graf farm and the neighboring 17-acre Charles Drake farm east of Hunsinger. These tracts subsequently were platted as McMahan Village. Development in the Hikes Point area tapered off after 1955, but scattered growth did occur during the ensuing years. In 1960, McMahan platted Hill Creek Park on the southwest side of Hunsinger Lane between Breckinridge Lane and Beargrass Creek. Four years later, Joseph D. Spalding laid out Mylanta Estates between Maywood and Melbourne Heights along Mylanta Court and Diesel Way.⁸⁵

The flurry of subdivision development in eastern Louisville between 1945 and 1970 was accompanied by a wave of annexation. Between 1948 and 1967, the city of Louisville annexed 84 parcels of land in the area east of the south fork and Newburg Road. About a dozen of these were small tracts which were annexed primarily to bring the Watterson Expressway into the city in order to eliminate jurisdictional confusion over traffic control on that highway. But the vast majority of annexations involved land which already had been subdivided or which was scheduled to be subdivided. The decade of greatest expansion was the 1950s, when the city annexed 57 pieces of territory. An additional 24 tracts were added during the 1960s, the last coming in 1967, with the annexation of a strip along Hill Creek Road, part of Roy F. McMahan's Hill Creek Park subdivision west of Hunsinger Lane.⁸⁶

In most instances, annexation occurred with little or no public opposition. The reason for this is quite simple: annexation was most frequently initiated by developers of new subdivisions as a means of providing basic municipal services. Since few subdivisions had many homes at the time they were annexed, there were few people to remonstrate against annexation. It was frequently a different story, however, when the city tried to annex areas which already had been developed for some time, even if territory targeted for annexation was unincorporated.⁸⁷

It took a series of protracted court battles which lasted from mid-1946 until mid-1950 for the city to annex a large section of territory which stretched from Newburg Road between Trevilian Way and Gardiner Lane on the west almost to Beals Branch Road on the east. Included in the new addition were parts of the Belknap, Hayfield-Dundee, Gardiner Lane, and Hawthorne neighborhoods, as well as Bowman Field and Seneca Park. During the same period, court action also was required to annex Green Tree Manor and the Masonic Widows and Orphans Home on the north side of Frankfort Avenue.⁸⁸

The target of an even longer and much less successful annexation struggle was St. Matthews. During the immediate postwar years, this suburb was the most rapidly growing community in eastern Jefferson County. By the end of 1947, its population approached 10,000, and some estimates ranked St. Matthews as the largest unincorporated town in the United States. Because of its rapid growth, most Louisville officials eyed St. Matthews covetously. They were supported in their expansionist aims, moreover, by a considerable number of St. Matthews residents who favored annexation as a means of obtaining urban services. But community sentiment was hardly unanimous. Some residents preferred incorporation to annexation, and many others opposed both alternatives and hoped to remain unincorporated.⁸⁹

The city struck its first blow in 1946 by passing an ordinance proposing the annexation of the St. Matthews business district, comprised of Lexington Road east of Eline Avenue and the Gilman's Point area. In April 1947 the Board of Aldermen passed a second ordinance proposing annexation of the St. Matthews Sanitation District, an action which, if consummated would have extended Louisville's corporate boundary beyond Hubbards Lane north of Shelbyville Road and as far as Alcott Road and Alton Road south of Shelbyville Road. In the years to come, both actions were subjects of a succession of suits, trials, appeals, legislative measures, and vehement rhetoric from both proponents and opponents of annexation.

At first, events seemed to favor Louisville. In early 1948 the city gained a minor victory when residents of Nanz Subdivision asked the city to consummate annexation. In March an agreed judgement in Jefferson Circuit Court blocked the sanitation district annexation on what seemed to be a temporary basis. In November, however, Judge William H. Field directed a circuit court jury to find in the city's favor. The only negative aspect of the decision was a ruling that dropped the newly created sixth-class cities of Druid Hills and Richlawn from the case. Judge Field's order was a major victory for the city, or so it seemed. But in January 1950 the Kentucky Court of appeals ruled that the circuit court judgement of March 1948 had in fact foreclosed further action on the 1947 ordinance, that a new ordinance was required, and that according to the constitution, such legislation could not be introduced until late March 1950.⁹⁰

Knowing that Louisville would reinstitute its annexation effort as soon as the time limit had expired, residents of four subdivisions in the target areas incorporated in mid-March, forming the sixth-class cities of St. Matthews, Springlee, Bellewood, Norbourne Estates. Immediately after incorporating, the city of St. Matthews initiated its own effort to annex the St. Matthews Sanitation District. The Louisville Board of Aldermen not only passed a new

ordinance to annex the same area, but also initiated court action against St. Matthews, contending that certain legal requirements had not been met. The ordinance passed by St. Matthews was upheld in circuit court, but the ruling was overturned by the Court of Appeals in May 1951. In late August 1952, however, a special Jefferson Circuit Court jury decided against Louisville's annex ordinance. In mid-September special trial Judge Nolan Carter, of Lexington, denied the city's request for a new trial.⁹¹

The decisions of the jury and Judge Carter were a setback but not a fatal blow to Louisville's annexationist hopes. The opportunity to appeal was still open, and city officials announced their intention to do so. But at this point, the city made a fatal blunder. Under the law, Louisville had 60 days to file its appeal with the state's highest court. However, as a result of confusion over who was preparing the suit, the City Law Department inadvertently allowed the filing deadline to slip by. This meant that the jury's decision would stand and that the city would again have to wait two years before passing a new annexation ordinance. While Louisville stood inert, St. Matthews proceeded to annex more and more of the unincorporated residential territory which surrounded it. By mid-1954 St. Matthews was a fourth-class city with a population more than 6,000. For Louisville to annex St. Matthews would require approval of a majority of those voting in an annexation referendum. The first opportunity to hold such an election fell November 1954, but Mayor Andrew Broaddus was reluctant to risk a vote on such a controversial measure so soon after the constitutional moratorium against a new ordinance had expired. Two years later the citizens of St. Matthews overwhelmingly vetoed joining Louisville by their vote against the Mallon Plan.⁹²

Although the adverse court decisions and the Law Department's own error stymied further attempts to annex most of the St. Matthews residential district, they opened the way for Louisville to resume its effort to annex the St. Matthews business district. By mutual agreement, settlement of the suits pertaining to annexation of the residential district had been given first priority in the courts. But the jury's decision in Judge Nolan's court and the events - or non-events - that followed cleared the docket and allowed both sides to give full attention to the business district. In 1953 the city of Louisville announced its plans to move ahead with annexation of the business district. But in October 1955 St. Matthews passed its own ordinance to annex the business district. Although businessmen who favored annexation by Louisville were startled and angry, Louisville's officials remained calm, realizing that Louisville's ordinance took legal precedence under the Court of Appeals' "first come, first served" system in hearing annexation cases.⁹³

After months of delay, the suits over Louisville's annexation ordinance finally went to trial in late February 1955. Following a trial of almost two weeks duration, the jury returned a verdict against the Louisville ordinance.

When Judge Stephen Jones denied motions for a new trial the city took its case to the Court of Appeals. In October 1956 the high court reversed the decision of the jury in Judge Jones's court, clearing the way for Louisville to complete annexation of the core of the St. Matthews business district and several residential blocks which adjoined it. Six months later, on April 1, 1957, the Board of Aldermen passed a new ordinance, which was required to complete the annexation process. The day after the ordinance was signed, the City of Louisville extended police and fire protection and garbage collection services to the businesses and residents of the affected area. The annexation also touched off a new wave of litigation. Eight days after its passage, the City of St. Matthews appealed to Jefferson Circuit Court to void the annexation ordinance. Judge L. Lyne Smith did so on May 31. In the meantime, the city of Louisville suspended the services which it had extended to the business district. But the protests were to no avail. On July 11, 1958, the Court of Appeals ruled that the Louisville ordinance was valid. The 12-year battle over annexation had ended. ⁹⁴

The seemingly interminable legal battle over the annexation of St. Matthews attracted by far the most attention of any of Louisville's efforts to expand its boundaries during the 1900's. But St. Matthews was not the only place where the city lost fights to take in suburban residential territory. In December 1955 residents of the sixth-class city of Rolling Fields, which adjoins the Mockingbird Valley neighborhood north of Brownsboro Road, voted overwhelmingly against joining Louisville. This vote also ended any hope of annexing Indian Hills, immediately to the east of Rolling Fields, because the city was prohibited from annexing land not contiguous to its corporate boundary. Five years later Louisville was rebuffed after making overtures of annexation to the sixth-class cities of Wellington and Beechwood Village. Failures such as those encountered initially in St. Matthews and Rolling Fields and later in Wellington and Beechwood Village eventually discouraged Louisville mayors from attempting to annex heavily populated areas, especially incorporated suburbs, unless annexation was initiated by a substantial number of residents themselves. ⁹⁵

But a growing reluctance to tackle annexation of incorporated suburbs did not carry over to lucrative industrial areas. In the early 1950s the single most attractive industrial site in Jefferson County was General Electric's Appliance Park at Newburg Road and Beuchel Bank Road south of Bardstown Road. City officials had anticipated the possibility of annexing the giant electrical appliance factory for some time, but they had not presented the Board of Aldermen with the necessary legislation. On December 27, 1955, however, the Broadbush Administration suggested its future intentions by introducing an ordinance to annex the new Ford Motor Company plant, which was located south of Louisville on a 20-acre tract bounded by Grade Lane, Fern Valley Road, the Kentucky Turnpike and the Northern Ditch. The campaign to annex the Ford plant was unsuccessful. But General Electric did not wait around to find out what the results would be. Instead, it took action to head off an annexation effort before the process could even begin. ⁹⁶

Working in the company's favor was the fact that to annex the plant without having to take in a good deal of burdensome residential territory the city would have to annex a narrow corridor extending from the city limits to the

plant grounds. Such "corridor" or "spot" annexation was already the subject of much public outcry. The battleground on which General Electric chose to make its fight was the 1956 session of the General Assembly. To present its case, the company hired Clifford Smith and Joseph H. Leary, two Frankfort attorneys with close political ties with Governor Albert B. Chandler. Smith and Leary prevailed upon House Majority Leader Fred H. Morgan, a Paducah Democrat, to introduce legislation to prohibit the annexation of industrial plants without the owner's consent or unless residential areas around the plant were taken in at the same time. Although described as a measure to promote industrial development by "prohibiting unfair and unreasonable annexation," the bill did not propose to "prohibit, restrict, or hamper normal expansion." But it did require that the industrial territory to be annexed be included within a "broad, comprehensive plan of annexation," that it be both compact and contiguous to the municipality which was trying to annex it and that the accompanying residential territory contain a number of registered voters equal to or in excess⁹⁷ of 50 percent of the number of workers employed in the affected industrial plant.

Morgan's bill met furious opposition from numerous sources. The Courier-Journal called it "privilege legislation." Aldermanic President William Milburn pointed out that in many cases, both locally and in other municipalities, it would be impossible to meet the legislation's residential requirements when plants were located in sparsely populated suburban fringes. This concern was echoed by Owensboro Mayor Casper A. Gardner, president of the Kentucky Municipal League, who suggested that the bill "would stymie the growth of Kentucky cities." One of the bill's most vocal opponents was Jefferson County Judge Bertram Van Arsdale. As the county's chief executive, he was responsible for providing municipal services to the residents and businesses along Louisville's urbanizing fringe. But most of Jefferson County was still rural and the government which Van Arsdale headed was not yet capable, either financially or structurally, of providing such areas with expensive street maintenance, professional fire and police protection, and other similar services. The county government depended upon the City of Louisville to provide these services, frequently through annexation. Although it stoutly opposed corridor annexation, even the Chamber of Commerce demonstrated its dismay by taking no public stand on the bill and by passing a resolution recommending the "adoption of a formula for annexation which will not unreasonably hamper a city in carrying out its comprehensive program of annexation" and opposing "any bill which does not meet these standards." Perhaps taking a cue from the Chamber, even Ford disassociated itself from the legislation. But General Electric had plotted a winning strategy. By employing Governor Chandler's allies, the company gained his support in securing the legislation's passage by the assembly. The bill completed its transit through the legislative channels late in April and the Governor affixed his signature immediately, much to the consternation of Louisville officials.⁹⁸ With passage of the "General Electric Bill," Louisville had lost all hope of ever expanding its tax base through the annexation of industrial land.

During the 1950s and much of the 1960s annexation was a dominant theme in local politics, symbolizing the city's efforts to keep up with the rapid pace of urban development. But while city officials concerned themselves with extending

services to recently annexed subdivisions on the city's expanding fringe, many residents in older parts of the city had begun seething with resentment at increasing signs of deterioration about them. The sources of irritation were numerous decaying housing, declining services, trash-littered streets and alleys, and zoning changes which allowed the construction of unwanted apartment complexes and commercial activities. As they had for decades, citizens tried to alleviate causes of distress individually, through such means as calling their alderman, the mayor, or the appropriate administrative official.

Gradually, however, it became apparent that individual initiative was not sufficient in all cases to solve community problems and that collective action was necessary. It was this growing feeling that some problems could be solved only through group effort that undergirded the emergence of the neighborhood association movement in the early 1960s. The first major neighborhood improvement organization in eastern Louisville was the Cherokee Association, formed in September 1962. At that time, the association took in an irregularly-shaped area bounded by Cherokee Road, Patterson Avenue, Glenmary Avenue, Cherokee Parkway, and Grinstead Drive. Four years later a similar organization, the Crescent Hill Community Council, was formed in the residential neighborhood north of Frankfort Avenue.⁹⁹ During the next few years the health of these and similar neighborhood organizations waxed and waned with the severity of the crises which faced each community at a given time.

Playing a pivotal role in the organization of neighborhood associations in eastern Louisville were the churches. The most outstanding example of the church-based neighborhood organizing effort is Highlands Community Ministries, Inc. HCM's roots extended back to 1963, when a group of lay people at Bardstown Road Presbyterian Church became concerned about changing conditions in the neighborhood around the church. They took their concerns to their own minister and to the ministers of five other nearby churches - Deer Park Baptist, Edenside Christian, Douglass Boulevard Christian, Calvary Lutheran, and St. Paul United Methodist. The immediate objective was to determine what needs were perceived by people in the community and what the churches could do to meet them. The Christian Action Committee of Bardstown Road Presbyterian Church surveyed Longfellow School and learned that approximately one-third of the 300 pupils had no adult supervision when they got home from school. In addition, many residents were concerned over the lack of adequate play grounds and other recreational opportunities for young people. With a major need identified, the six churches formed a cooperative ministry called the Neighborhood Play and Study Club. This organization operated until May 1970.¹⁰⁰

The demise of the Neighborhood Play and Study Club reflected the sponsoring churches' growing awareness during late 1969 and early 1970 that there was a need for a more comprehensive program of social services in the Highlands community. Early in 1970 the congregations applied for and received \$15,000 in seed money from the Presbytery of Louisville to establish and hire a full time director for comprehensive experimental ministry. In May the six churches incorporated Highlands Community Ministries, Inc. The organization's purpose as stated in its incorporation papers is to provide a Christian Ministry to persons in the Highlands area of Louisville, to enable them to gain a mature and meaningful self-image as God's creatures, and to provide programs and ac-

tivities that will foster human growth and development without regard to race, creed, or color. On July 1, 1970, HCM hired Stan Esterle, a social worker and former Roman Catholic priest, as its first full-time director.¹⁰¹

During the years that followed, HCM grew steadily in budget, programming and sponsonship. Between 1970 and 1973 HCM devoted most of its resources to social services, setting up programs in such areas as child care, recreation, counseling, the arts, mental health, and drug abuse. But some community needs could not be met by establishing a specific program. Rather, they required concerted neighborhood action designed to expose problems and bring pressure to bear upon the appropriate officials and agencies. Thus, in 1973 and early 1974 HCM assumed the role of neighborhood organizer. Within a few months, the organization had assisted in the development of self-help associations in such neighborhoods as German-Paristown, Highland, Tyler Park, Deer Park, Bonnycastle, Belknap, and Douglass. In addition, HCM assisted churches in Crescent Hill in the organization of a similar umbrella association called United Crescent Hill Ministries.¹⁰²

It was one thing, however, to form a neighborhood organization and quite another to mobilize effectively to solve specific problems. Indeed, it seems that regardless of the nature or severity of the problems confronting a community, a major crisis is required to galvanize an organization into action. For many neighborhoods in eastern Louisville, that crisis came suddenly, dramatically, and painfully on a spring day in 1974.

WINDS OF TERROR AND CHANCE

Wednesday, April 3, 1974, dawned much as any other early spring day in the Louisville area. The morning was cool and damp, but the forecast was for a warm day, with a possibility of rain. But as Louisvillians crawled along the expressways and streets to jobs in the city's offices and factories, forces were building up hundreds of miles away which would, within a few hours, shatter the peace of the city and change for decades to come a substantial part of its landscape. For nearly 48 hours a massive storm system had been building up over the Great Plains and the Rocky Mountains. Early Wednesday morning, the storm center began moving eastward, picking up warm, moist, Gulf air as it traveled toward the Mississippi and Ohio valleys. Soon, severe thunderstorm warnings were issued for northern Alabama and Georgia, part of Missouri, and all of Tennessee, Kentucky, Indiana, and Ohio. As the storm moved toward the northeast it encountered a mass of cold air moving southward. When the two fronts converged, violent turbulence developed. To make matters worse, the Jet Stream was moving rapidly over the Ohio Valley, pulling pressure from the path of the colliding storm systems and "acting as a suction valve to speed the storm even more swiftly on its way". Conditions were growing ripe for a severe tornado.¹

The U.S. Weather Service at Standiford Field had begun tracking the storm before dawn. The first tornado warning was issued at 10:28 a.m. Subsequent warnings were broadcast at 1:19 and 2:34 p.m. Shortly after the third warning, the storm system began thrusting out a series of deadly tornados which would soon extend from Alabama to the Canadian border. The first sighting of a twister in the Kentuckiana area occurred about 2:45 p.m. near Palmyra, Indiana. Thought at first to have been a severe thunderstorm, the tornado apparently began about five minutes later between Marengo and Leavenworth. Speeding in a southwestwardly direction, it smashed into Depauw about 3:00 o'clock. Moving eastward with the fury of a nuclear blast, the twister clobbered Palmyra at 3:05. Ten minutes later, after briefly hitting Martinsburg, the storm crashed into Borden, reserving its heaviest blows for the Daisy Hill section. The twister moved unimpeded for approximately 30 minutes after leaving Borden, but at 3:51, it shattered the scenic campus of Hanover College, which overlooks the Ohio River near Madison. Seven minutes later it battered historic Madison, tore up the switchyard at Clifty Creek power plant, and destroyed half of Clifty Falls State Park. A short time later, the storm hit parts of northern Kentucky, before dying out as a rainstorm over Cincinnati about 4:35. In the space of one hour and 55 minutes, the storm had traveled 120 miles, destroyed hundreds of homes and business, and left with two Louisvillians dead.²

As the Indiana tornado sped from Hanover to Madison, Weather Service officials detected another funnel cloud near Irvington in Breckinridge County, Kentucky. A warning was broadcast immediately, but within a few minutes the twister smashed more than 60 homes, several barns, and scores of trees in the vicinity of Irvington, Hardinsburg, and Midway. This was a mere prelude, however, to what loomed ahead. At 4:10 p.m. the tornado slammed into the small Meade County town of Brandenburg, venting its full force on the Main Street business district and adjacent residential streets. A few minutes later, 30 of Brandenburg's 1,700 residents lay dead and 150 more were injured, one of whom would die later. Although it knocked down numerous trees as it whirled away from Brandenburg, the twister had spent its force by the time it crossed the Ohio River near Valley Station and moved into Indiana.³

Brandenburg's ordeal was over; but Louisville's had just begun. The drama of that ordeal is described most graphically by John Ed Pearce, a writer for The Courier-Journal, in his introduction to Tornado! April 3, 1974, a commemorative book published by The Courier-Journal and The Louisville Times the following May. Pearce's description of the tornado in Louisville is quoted verbatim:

If Louisville was unaware of the approaching danger, it was not for lack of warning. Nine times the Emergency Action Notification Signal flashed its message of possible danger at radio station WHAS. And nine times - at 10:28, 1:19, 2:34, 2:54, 3:38, 3:47, 4:02, 4:26, and 4:36 - a severe weather warning was broadcast. The last two messages made it clear that the danger was real and imminent; tornadoes were forming in the Louisville area.

But for most people, it was another afternoon of business as usual. There had been sketchy reports of the tornado near Palmyra, but it seemed to be moving out of the area, and it was generally assumed that the storm was passing north of the city. At four o'clock, people began streaming out of downtown offices and into parking lots, heading for home. The storm had not yet hit Brandenburg. There had been no urgent warning of tornadoes in the immediate vicinity, and when the warnings came at 4:02 and 4:26, many people were tuned to stations that continued to play rock music while destruction approached.

Then, at 4:18, officials at the Weather Service station at Standiford Field, fearing that the Brandenburg storm was heading for Jefferson County, picked up the red telephone that activated the area's Civil Defense sirens at 10 locations in Louisville and 29 in Jefferson County. Ironically, the storm picked its way, avoiding all but two areas within hearing distance of warning sirens and many merely wondered "what those sirens were going off for at this time of day."

As the Brandenburg storm was blowing itself out, a few miles to the east over Kosmosdale, a sector of the humid cloud mass was beginning to revolve in the familiar counter-clockwise pattern. It dipped for a moment, then drew back into the clouds and moved over Iroquois Hill, and began lowering again as it approached the flat, open expanse of Standiford Field. It was 4:35.

In his Weather Service office, John Burke, meteorologist in charge, was talking on the telephone with a WHAS radio announcer. Suddenly listeners heard Burke shout, "Good gracious sakes alive...By golly the whole thing is going. Hear it? I'm going." What Burke had seen was the violent birth of a tornado, as the storm shot its lethal tongue into a parking area in the southwest corner of the state fairgrounds. And the Louisville tornado began its grisly dance across the city.

In its beginning, and for much of its life, it was not the classic, sharp-tipped funnel, but a whirling mass, up to a quarter-mile wide, packing winds of up to 250 miles an hour. Deliberately, picking up dust, it slammed into the Kentucky State Fair and Exposition Center, almost casually ripping part of the roof from Freedom Hall, then moving majestically toward the rows of horse barns alongside the North-South Expressway. Shocked witnesses saw barn roofs suddenly lift 20 feet into the air and crash downward, shattering the buildings beneath. Eight of the 10 barns were flattened. A group of trucks and mobil homes nearby were tossed around and broken.

Swiftly, the tornado moved across Interstate 65, snarling the heavy traffic, and into the Audubon Park section where it ripped roofs from homes. It crossed Hess Lane, picking up debris as it went, and blasted into rubble one of the two wings of Audubon Elementary School. The tornado was becoming visibly more funnelshaped now, darkly defined by the dirt and debris it was picking up as it moved across the helpless city at about 50 miles an hour.

It whirled across Pindell Avenue and Delor Avenue, gouging off sides of houses, clawing away roofs, and then into George Rogers Clark Park. Huge trees fell before it, some uprooted, some snapped in two like toothpicks. An estimated 600 were destroyed, some of them giants well over a century old.

Across Poplar Level Road it roared, narrowly missing St. Xavier High School, and into the area of Eastern Parkway. Spinning across Newburg Road and smashing two-thirds of the homes on Stevens Avenue, it then leveled its fury at Bardstown Road. The main force hit in the 1500 block. Store windows exploded, cars were flung about, utility poles were hurled against or on top of buildings. In 20 seconds, the street for four long blocks was a scene of total chaos.

Inside the buildings, terrified people plunged down basement stairs, cowered under counters or tables. There were two customers in Lentini's Little Italy restaurant when the front windows popped out, and there was a terrible noise. "We just grabbed everyone and ran for the kitchen," said owner Gasper Lentini. "That's as far as we got. We just hit the kitchen floor and let the stuff fly over and around us."

Incredibly, there were no deaths on these blocks. Almost unbelieving, Shell service station operator Mel Bates watched trees and poles being snapped. "This tree," he recalled, "flattened, and I mean flattened, this brand-new car just a split second after the people in it had jumped out and run. It was as flat as a pancake."

Between Eastern Parkway and Bonnycastle Avenue a neighborhood of substantial homes and old trees felt the full fury. But along the streets on the edge of the twister, the winds wreaked their havoc, too. Cherokee Parkway, Cherokee Road, Alta, Barney, Longest, Spring Drive all suffered.

Cherokee Park now lay directly in the path of the storm. One of the oldest and most heavily-used parks in the city, and shaded by groves of towering oaks and elms and thick-trunked beeches, Cherokee

was, as a reporter wrote later, "80 years old when it died." It took the winds a little more than a minute to batter their way across the rolling hills of the park, but in that minute they destroyed an estimated 2,000 mature trees. It would be another 80 years before the park regained its beauty.

Across Cochran Hill the storm moved, mauling trees alongside and above the tunnel that carries Interstate 64 under the park. It twisted Raleigh Lane into a jumble of broken trees and homes with their roofs and sides sliced away. Across Grinstead Drive it roared, battering Barrett Junior High, smashing homes on Kennedy and Crescent courts, Bayly, Birchwood and Stiltz.

As the tornado rolled to the northeast, it dealt one of its most hurtful blows when it hit the Crescent Hill filtration and pumping plant of the Louisville Water Company. Not only did it batter the building housing pumping facilities but it demolished the electrical transformer powering the plant, causing a water shortage for 24 anxious hours. At the same time, the twister blasted Hillcrest and Pennsylvania avenues, then left Claremont Avenue in a shambles. Tommy Smith, golf pro at the Louisville Country Club, was driving on Pennsylvania Avenue toward Frankfort Avenue, on the way to pick up his son at Seneca golf course, when a roof crashed into the street and the car he was following went tumbling over him. Suddenly, Mr. Smith found his car airborne almost 10 feet. Instinctively he jammed on the brakes and clutched the steering wheel, before coming down "as if on a cushion." Switching off the ignition and diving under the dashboard, with his seat belt still in place, he endured two more flights while the car was bombarded and speared by bricks and timbers. Finally, a flying tree brought the car solidly back to earth.

One factor was working in favor of the people in the storm's path as it tore from Frankfort Avenue to Brownsboro Road; they were being warned specifically of the danger. Power was going off in much of eastern Jefferson County as utility lines were downed and substations destroyed, but many homes had battery-powered transistor radios, and most of the radio stations remained on the air. Station WAVE had a few anxious moments of waning power. WHAS lost power at its transmitter at Eastwood, but had already switched to its auxiliary generator, and those listening heard helicopter-borne traffic tracker Dick Gilbert describe the tornado at its beginning (he was about two miles away over the Watterson Expressway at the time) and then follow it through the city, giving an astonishing account of its destruction and course and providing a warning for people who lived along the path of the storm.

It was 4:50 when the storm reached Brownsboro Road, crushed a wing of Chenoweth Elementary School, ripped the rear wall from the familiar Bauer's restaurant, and began its march through three of the most expensive suburban residential areas of the county. Rolling Fields was the first to feel its wrath, as it bulldozed its way through Club Lane, Canoe Lane, Pennington and Edmond. More than 100 homes were blasted; some almost disappeared. Again, there were remarkably few casualties.

Mr. & Mrs. Charles Brooks were visiting relatives a few blocks away when the storm hit. They rushed home to 403 Country Lane to find their home devastated. But the Reverend Edwin Perry, pastor of the Broadway Baptist Church, who was making rounds at Baptist Hospital when the winds struck, hurried home to find his home wrecked and his wife trapped and injured in the wreckage. Having not heard the warning, and unable to reach the basement, Mrs. Perry had dived beneath the dining room table as the house collapsed around her. Her arm was crushed and she was a mass of cuts and bruises, many serious.

On through Indian Hills the twisting winds plowed their furrow of debris, across Indian Hills Trail and down Westwind Road. At their home at 153 Totem Road, Dr. and Mrs. Charles Pearce were watching their infant granddaughter, the maid having gone home earlier because of the storm warnings. "When the power went off, we switched to this little battery TV set we have," said Mrs. Pearce, "but we never did get the word that it was coming. All of a sudden the sky got a strange color, and I heard this roaring sound, and then it was there, and the windows sort of exploded, glass flying everywhere."

Sam Lyverse's home at 206 Travis Road was flattened. Three doors away, Moses Master was luckier. He reached home just before the wind hit, in order to be with his wife who was recovering from an illness. "It was over in seconds," he said. "We just felt this one big shudder, and it was gone. I looked out and couldn't believe that so much damage had been done in so little time. The house beside ours, the one across the street, just ruined. Blankenbaker was hit awfully hard - Hanford Smith's beautiful old place, and the Zachary Taylor home. We were lucky."

Down Knollwood and Apache the storm roared. Mrs. Bernice Orr became one of the few fatalities of the storm when, returning from market, she left her car in the driveway and ran for her home at 1824 Knollwood, hoping to find shelter. She didn't make it. The house collapsed on her before she reached the doorway. On the seat of her car, the groceries she had bought were found intact.

A few blocks away, the new Dunn Elementary School was wrecked. "It just exploded," an official said later.

Crossing Watterson Expressway, the tornado loosed its deadly barrage at Northfield. On Stannye Drive, the Clifford Marquettes had moved into their home only two days before, having come to Louisville from St. Louis, and Mrs. Marquette was in the kitchen getting things sorted out, when her husband rushed in and hurried her to the basement. They made it just as the tornado roared over. When they emerged, their new home no longer existed.

Relentlessly, the twister spun on through Lime Kiln Lane and out into more open country toward Prospect and the Oldham County line, flattening trees and ripping roofs as it went. As it moved through Oldham County, its winds decreased. It was blowing itself out. It died a few minutes later in Owen County after destroying a few trees and barns.⁴

The nightmare of Louisville ended about 20 minutes after it began. Miraculously, only two Louisvillians died from causes directly attributable to the tornado, although three more persons suffered fatal heart attacks. But the material damaged sustained during those few minutes exceeded that inflicted by the 1937 flood. More than 1800 Louisville area homes were destroyed or seriously damaged, and hundreds more suffered less severe damage. In addition, scores of businesses, especially along Bardstown Road, and boats anchored along the shore of the Ohio River were demolished.⁵

During the days that followed April 3, 1974, the immediate preoccupations were providing housing and financial assistance to tornado victims, restoring vital public services, and cleaning up the debris. The Red Cross and Salvation Army, Louisville Gas and Electric Company, the National Guard, the Louisville Department of Public Works, and numerous federal, state and local agencies, as well as many private citizens worked around the clock to help feed, clothe, and shelter the homeless and to clean trees and replace the downed power lines and poles which blocked the streets. Within a few days the vast majority of victims had located temporary shelter with friends or relatives, and vital services had been restored. By the end of April, most of the rubble had been cleared away. But as chainsaws were packed away and the huge bonfires which consumed once stately trees burned out, eastern Louisvillians turned their attention to the incredibly difficult task of rebuilding homes, businesses, institutions, and neighborhoods.

The eastern Louisville neighborhoods which sustained the major damage were Deer Park, Bonnycastle, Cherokee Triangle, and Crescent Hill. Instrumental in the rebuilding efforts in these areas were their respective neighborhood associations and such ecumenical organizations as Highlands Community Ministries, Inc. and United Crescent Hill Ministries. One of the first accomplishments of these organizations was to persuade Mayor Harvey I. Sloane to issue a temporary moratorium against the issuance of building permits that would result in land use changes in the storm-damaged parts of the neighborhoods.

Most of stricken areas were made up of single family homes, duplexes, and small apartment buildings. But much of the land on which these structures were located was zoned to permit higher densities. Many residents feared that developers would purchase damaged houses, demolish them, and build larger, high-density apartment complexes. The moratorium would give the Louisville and Jefferson County Planning Commission a chance to develop a rebuilding plan which would insure preservation of the stricken neighborhoods' historic integrity and provide for the solution of other problems which had existed for a long time.⁶

The Planning Commission issued its report in early June. Its recommendations included a new zoning classification and a provision for "down-zoning" to reduce the permissible density in the tornado-damaged areas. Called R-5A, the new zoning classification would permit construction of small apartments, row houses, and single family dwellings, but would limit density to 12 dwelling units per acre. The density permitted by the new classification would be higher than that allowed by R-5, the lowest multiple-family classification, but considerably lower than the density permitted by the R-6, R-7, and R-8 classifications which existed in parts of the afflicted areas. In addition, the Planning Commission suggested several small parks, playgrounds, bicycle paths, street improvements, and tree plantings for the affected areas.⁷

Not all of the Planning Commission recommendations were implemented. But one which did win approval was the "down-zoning" proposal. Eighteen months elapsed before the Board of Aldermen passed the ordinance to create the special zoning classification. In the meantime, however, the area affected by the legislation had been expanded considerably as a result of pressure by the Bonnycastle Homestead Association. For example, the ordinance was rewritten to extend R-5 zoning to the entire Bonnycastle neighborhood. The results of the building permit moratorium and the down-zoning ordinance have been gratifying. By heading off an anticipated wave of apartment development, the measures helped to stabilize the affected areas. Since passage of the ordinance in December 1975, neighborhoods such as Crescent Hill and Bonnycastle have experienced a substantial influx of young families and single persons who have purchased and recycled many of the neighborhoods' older houses. The result of this has been a steady increase in property values and the visible reversal of a pattern of decline which had been apparent in part of the Highlands and Crescent Hill for more than two decades.⁸

As important as it had become, the heightened interest in renovating old houses was not the only significant consequence of the tornado. Nor was the tornado the only stimulus of the neighborhood awakening in eastern Louisville during the past five years. Rather, the tornado provided the catalyst, indeed the crisis, which synergized several complementary impulses into a broad-ranging movement to revitalize and conserve older neighborhoods. Thus, success achieved in dealing with the immediate post-tornado crisis strengthened the self-help philosophy and encouraged neighborhood associations to deal more forcefully with a variety of long-standing problems such as crime, inadequate trash and junk collection, the shortage of parks and playgrounds, and that oldest of bugaboos - zoning. Likewise, efforts to assuage the effects of the tornado coincided with a new concern for neighborhood organization which emanated from City Hall and with the growing local interest in historic preservation as a tool for urban conservation. At the time of the tornado, the Board of Aldermen had been debating Mayor Harvey I. Sloane's proposal for the creation of a Neighborhood Development Office within the Executive Office of the Mayor. Conceived as a means of improving communication between City Hall and citizens in the neighborhoods, NDO has served since its passage shortly after the tornado as a major stimulus for the organization of neighborhood associations. As a consequence of the continuing work of Highland Community Ministries and the efforts of NDO, approximately 26 neighborhood organizations now exist to voice the concerns of eastern Louisvillians. In the meantime, HCM has continued to expand the reach of its social service programs, a growth represented by a combined 1978-79 administrative programmatic budget in excess of \$265,000.

Symbolic of the steady growth of the neighborhood association movement since the tornado was the creation in mid-1977, after some nine months of preparatory meeting, of the Louisville Inter-Neighborhood Coalition (LINC). A loose assembly of neighborhood associations, LINC was created to provide its member organizations with a means of sharing expertise on city-wide issues affecting neighborhoods. In a very real sense, LINC represents the logical culmination of former Mayor Sloane's emphasis on neighborhood development. It was he with the assistance of NDO, who assembled a group of neighborhood leaders and planted the idea of LINC. But instead of trying to keep a tight rein on the organizational process, he left the assembled activists to their own devices. The result was not, as some feared, the creation of a grassroots Sloane political machine, but a nonpartisan, nonprofit coalition broad enough not to be identified with any single individual or group.⁹

Although the damage to property along Eastern Parkway, Cherokee Parkway, and Longest Avenue must not be minimized, the eastern Louisville neighborhood which felt the least direct impact of the tornado's fury was Cherokee Triangle. This was, however, the neighborhood least in need of a crisis to stimulate grass roots action. The Cherokee Association was already twelve years old and possessed of considerable experience in mobilizing support for neighborhood improvements. But Cherokee Triangle's major asset was its outstanding architecture which remains a source of pride among its own residents and of admiration from other Louisvillians. The richness of this architectural heritage was given public recognition in January 1975 when the city's Historic Landmarks and Preservation Districts Commission designated the Cherokee Triangle Area as a preservation district.¹⁰

While Cherokee Triangle proper escaped the brunt of the tornado, the natural feature which helped to make it one of the most popular residential neighborhoods in the city was not so lucky. Surveying the wreckage that was Cherokee Park, Parks Department forester Gerry Rau lamented, "I don't believe anyone alive today will ever see Cherokee Park as it was before the storm."¹¹ But local citizens and city officials were determined that Cherokee Park should be rebuilt. To prepare preliminary historical documentation for the restoration, the Metropolitan Parks and Recreation Board retained the services of Olmsted Associates, Inc., successor to the firm of Frederick Law Olmsted, Sr., the park's designer.

Two weeks after the tornado, Olmsted president Artemas P. Richardson arrived in Louisville to assess the situation. What he viewed shocked even his experienced eyes. "As far as the eye could see, trees had been twisted, maimed, splintered, smashed, uprooted, desecrated by winds which...left this beloved and beautiful park looking like a beachhead, softened by repeated artillery barrages ready for amphibious assault...What nature and sensitive planning had developed in Cherokee over more than 80 years had been destroyed in little more than an instant."¹²

Using original plans, topographic maps, annotated and field-noted prints, and schematic drawings stored in the Olmsted offices in Brookline, Massachusetts, and other documentation from the Library of Congress, the firm developed the conceptual basis of a master plan for the park restoration. Commissioned to plan and execute the park restoration itself was the Ann Arbor, Michigan, landscape architecture firm of Johnson, Johnson & Roy. The restoration was financed in large part by a grant from the United States government. The money was made available under the 1974 Disaster Relief Act, which contained a provision allowing, for the first time, the use of Federal Disaster Assistance Administration funds for park restoration. But the legislation also had important strings attached.

To be eligible for federal funds, the park had to be restored to its pre-tornado design. This requirement apparently was intended to insure an aesthetically pleasing and historically accurate restoration. Economic considerations, however, prevented the use of mature trees in the reconstruction, requiring instead that the 80 or 90-year old trees destroyed by the tornado be replaced by seedlings or saplings.¹³

The federal disaster legislation also required that the restoration be completed within two years after the tornado. Between January and April 1970, JJR supervised the planting of some 2,500 trees and 4,600 shrubs. A private, non-profit group called Trees Inc. raised approximately \$100,000 to buy additional trees for the park, but such an effort could not hope to return Cherokee Park to its earlier condition. "With proper care and maintenance," historian Allen J. Share has observed, "the park should resemble its predecessor in 25 or 30 years, although some of the wounds the tornado inflicted will take generations to heal."¹⁴

It's perhaps ironic, yet appropriate, that at this point a study of eastern Louisville should return full circle to one of its early points of origin - the Bardstown Road-Baxter Avenue corridor (BARBAX). In 1974, during the aftermath of the April tornado, business owners and residents in the vicinity began to express dissatisfaction with the quality of some of the commercial facilities in the corridor. A particular source of irritation was Mid-City Mall, in the 1200 block of Bardstown Road, where complaints about crime, poor maintenance and general deterioration were frequent. In an effort to force its management to improve conditions, the Cherokee Triangle, Tyler Park, German-Paristown, and Highland neighborhood associations along with HCM, organized an economic boycott against this shopping center in February 1975. Partly as a result of the boycott, the Republic National Life Insurance Company, which holds the mortgage on Mid-City Mall, began foreclosure and receivership proceedings in the fall of 1976. On January 1, 1977, the facility was placed into receivership by Jefferson Circuit Court Judge Charlene Anderson. Appointed to manage the mall was realtor-developer Frank Metts. The center has since been purchased by Guy Ramsey of Tell City, Indiana, but Metts's firm has retained management responsibility. Since then, significant improvements have been made at Mid-City Mall and cooperation between management and residents has replaced confrontation.¹⁵

Out of the successful action against Mid-City Mall emerged a strong community sentiment that something should be done to improve commercial conditions along the entire Bardstown Road-Baxter Avenue corridor from Broadway to Eastern Parkway. In recent years many fast-food restaurants, drive-in banks, and large self-service gas stations had located along the corridor. Moreover, numerous businesses had demolished old homes or commercial buildings to expand their facilities or provide more parking space. As a result, many residents were growing fearful that such uncontrolled, poorly planned commercial development might compound the corridor's already severe traffic congestion and noise problems and contribute to the further deterioration of the quality of life in the vicinity. In the spring of 1977, the organizations which had conducted the boycott mobilized corridor merchants and formed the Highlands Commerce Guild. Its function, according to the University of Louisville political science professor David E. Blank, was to provide "a means of advancing collective concern for the revitalization of the thoroughfare and cementing improved relationships with the residents."¹⁶

Once the Highlands Commerce Guild had been organized, associations began to focus upon the development of a coherent strategy for neighborhood commercial revitalization. That would require considerable professional assistance as well as volunteer effort. In late 1977 the affected neighborhood associations, Highlands Community Ministries, and the Highlands Commerce Guild formed the Bardstown Road Improvement Coalition. This new body approached the Louisville Community Design Center (LCDC) about the possibility of its providing planning and technical assistance for a

grassroots improvement effort. LCDC accepted the coalition's proposal, and immediately set out to inventory the corridor's resources and to survey merchants and residents for their ideas about what the plan should include. On the basis of the information collected, the LCDC staff advanced three policy objectives: (1) save as many of the existing older structures along the corridor as possible; (2) expand the opportunity for pedestrian access to and enjoyment of the corridor as much as possible; (3) stimulate private, commercial reinvestment in the corridor.¹⁷

To accomplish these objectives, LCDC advanced a two point strategy. First, it suggested creation of a Local Development Corporation, composed of 25 stockholders, including representatives of the area neighborhood associations, respected civic and business leaders from the entire city of Louisville, and Highlands area merchants. Once incorporated, the corporation would be responsible for leveraging commercial loans obtained from such sources as the city's Community Development Block Grant fund, the Small Business Administration, and local banks; for conducting market research and feasibility studies; and preparing a physical development plan which would focus on parking, street improvements, and traffic circulation. Second, LCDC recommended creation of a Multiple Resources nomination under the auspices of the National Register of Historic Places. Such a measure, if approved by state and federal authorities, would make nominated properties eligible for benefits such as 60-month amortization of improvements under the Tax Reform Act of 1976 as well as federal matching funds for restoration of certain exceptional buildings.¹⁸ The preliminary planning is complete, and the Landmarks Commission is preparing the Multiple Resources nomination. The future awaits the result.

FOOTNOTES

Chapter I

1. For the fullest account of the early surveys of Louisville, see Neal O. Hammon, "The Fincastle Surveyors at the Falls of the Ohio, 1774," The Filson Club History Quarterly, 47 (January 1973), 14-28.
2. The development of stations along Beargrass Creek is discussed in Neal O. Hammon, "Early Louisville and the Beargrass Stations, FCHO, 52 (April 1978), 147-165.
3. Ibid, pp. 162-4.
4. Ibid, p. 165.
5. Louisville Herald, March 31, 1929; R. C. Riebel, Louisville Panorama: A Visual History of Louisville (Louisville: Liberty National Bank and Trust Company, 1956), p. 126.
6. "The Hikes Family House," National Register of Historic Places Inventory-Nomination Form. Prepared by Mary Cronan Oppel, Kentucky Heritage Commission, Frankfort, Ky., 1977.
7. Ibid; Walter Langsam, Preservation: Metropolitan Preservation Plan (Louisville: Falls of the Ohio Metropolitan Council of Governments, May 1973), p. 112.
8. "Spring Station," National Register of Historic Places Inventory-Nomination Form. Prepared by Elizabeth F. Jones, Historic Landmarks and Preservation Districts Commission, Louisville, Ky., 1977.
9. Langsam, Preservation, p. 118.
10. Ibid.
11. Courier-Journal, Oct. 18, 1936, Feb. 7, 1943.
12. "Howard-Gettys House," National Register of Historic Places Inventory-Nomination Form. Prepared by Mary Jean Kinsman, Historic Landmarks and Preservation Districts Commission, Louisville, Ky., 1977.
13. "Selema Hall," National Register of Historic Places Inventory-Nomination Form. Prepared by Elizabeth F. Jones, Historic Landmarks and Preservation Districts Commission, Louisville, Ky., 1977.
14. John C. Rogers, The Story of Louisville Neighborhoods (Louisville: The Courier-Journal and Louisville Times Company, 1955), p. 4.
15. Courier-Journal, June 15, 1924; Louisville Times, June 5, 27, 1974.
16. Louisville Times, June 28, 1938.

17. Robert E. McDowell, "The Wilderness Road in Jefferson County," Louisville, June 20, 1967, pp. 7-8; Turner W. Allen, "The Turnpike System in Kentucky: A Review of State Road Policy in the Nineteenth Century," FCHQ, 28 (1954), 239.
18. McDowell, "Wilderness Road in Jefferson County," p. 12.
19. Minute Book No. 1, 1784-1785, Jefferson County Court, The Filson Club; Ida Symmes Coates, "The Bardstown Road in the Early Days," Unpublished paper read before the Filson Club, October 4, 1915, p. 1.
20. Allen, "The Turnpike System in Kentucky," pp. 242-3; "An Act establishing a Turnpike on the Road leading from Georgetown to Cincinnati, and for other purposes," Acts passed at the First Session of the Twenty-Seventh General Assembly for the Commonwealth of Kentucky (Frankfort: Kendall and Russells, 1819), p. 725.
21. Louisville Turnpike Company, Minute Book, March 24, 1832, p. 19, Ms., The Filson Club. "An Act to incorporate certain Turnpike Road Companies," Acts of the Thirty-seventh session of the General Assembly (Frankfort: Amos Kendall and Company, Printers, 1829), pp. 151, 160.
22. Coats, "The Bardstown Road," pp. 1-2; Anne S. Karem, The Cherokee Area: A History, Second Edition, (Louisville: The Cherokee Association, 1975), pp. 48-9.
23. "An Act to amend an act incorporating the Lexington and Louisville Turnpike Road Company," Acts...of the Twenty-Sixth General Assembly of the Commonwealth of Kentucky (Frankfort: Kendall and Russells, Printers, 1818), pp. 478-9.
24. "An Act to incorporate a company to construct a Turnpike road from Taylorsville, in Spencer County, to intersect the Turnpike road from Bardstown to Louisville," Act of the General Assembly, 1836, pp. 122-3; "An Act to establish the Louisville and Taylorsville Turnpike Road Company," Acts of the General Assembly, 1837, p. 209; "An Act to incorporate the Louisville and Taylorsville Turnpike Road Company," Acts of the General Assembly, November Session, 1851, p. 427.
25. "An Act to amend the charter of the Campbell Turnpike Road Company, and for other purposes," Acts of the General Assembly, December Session, 1848, pp. 314-15; "An Act to amend the charter of the Louisville and Taylorsville Turnpike Company, and to incorporate the Jefferson and Brownsboro Turnpike Road Company," Ibid, pp. 238-9; "An Act to amend the charter of the Jefferson and Brownsboro Turnpike Road Company," Acts of the General Assembly, December Session 1849, pp. 557-8; "An Act to amend the charter of the Shelbyville and Louisville Turnpike Road Company," Acts of the General Assembly, November Session, 1851, p. 427.
26. The Lexington and Ohio Railroad saga is recounted in Thomas D. Clark, "The Lexington and Ohio Railroad - A Pioneer Venture," Register of the Kentucky State Historical Society, 9-28.

27. Ibid., pp. 24-8; "An Act to incorporate the Licking and Lexington Railroad Company, and Louisville and Frankfort Railroad Company," Acts of the General Assembly, December Session, 1846, pp. 47-48.
28. Louisville Times, Aug., 15, 1932.
29. Courier-Journal, May 29, 1932; Langsam, Preservation, pp. 162-3.
30. "An Act to incorporate the Eastern Cemetery, of Louisville," Acts of the General Assembly 1854, Vol. II, pp. 91-2; Louisville Herald-Post, December 7, 1935.
31. Riebel, Louisville Panorama, p. 149; Rev. Diomedee Pohlkamp. O. F. M., The Orphans on the Fairgrounds, 1849-1949: A Centenary Historical Review of St. Joseph Orphans Society, Incorporated (Louisville, 1949), p. 23; Harper's Weekly Magazine, September 26, 1857.
32. Courier-Journal, January 7, 1945, February, 23, 25, 26, 1959, November 12, 1961; Louisville Times, May 5, October 19, 1966.
33. "Louisville Water Company Pumping Station," National Register of Historic Places Inventory-Nomination Form. Prepared by K. Brown Morton, III, National Park Service, Washington, D. C., 1971.
34. Copies of Records, Department of Public Works, City Hall; M. A. Allgeier, The History of the Highland Neighborhood, Louisville, Highland Neighborhood Association, 1979; pp. 11-15, "Map of Louisville and Its Defenses," in Samuel O. Thomas, ed., Views of Louisville since 1766 (Louisville: The Courier-Journal and the Louisville Times Company, 1971), pp. 201-2.
35. Copies of Records, DPW; Louisville Herald Post, May 7, 1930, Department of Public Works, City of Louisville.
36. Bess and Langsam, Atlas of Jefferson and Oldham County, Kentucky, 1879; G. M. Hopkins, Atlas of the City of Louisville, Ky., and Environs (Philadelphia, 1884), plate 6.
37. Louisville Herald Post, January 18, 1923; Langsam, Preservation, p. 56; "Nicholas Finzer Residence," National Register of Historic Places Inventory-Nomination Form." Prepared by Marty P. Hedgepeth, Historic Landmarks and Preservation Districts Commission, Louisville, Ky., 1978.
38. Annexation Map, Department of Public Works.
39. Robert E. McDowell, City of Conflict: Louisville in the Civil War, 1861-1865 (Louisville: Louisville Civil War Round Table, Publishers, 1962), pp. 170-76.

Chapter II

1. J. Stoddard Johnston, ed., Memorial History of Louisville from Its First Settlement to the Year 1896 (Chicago and New York: American Biographical Publishing Company, Ca. (1896), Vol. 2, p. 110.
2. Meadows, "Urban Transportation in Louisville," pp. 103,111-12.
3. Ibid., pp. 110, 115, 121-2.
4. Ibid., pp. 103-4; Judith Hart English, "Louisville's Nineteenth Century Suburban Growth: Parkland, Crescent Hill, Cherokee Triangle, Beechmont and Highland Park," (Unpublished M. A. thesis, University of Louisville, 1972) p. 49.
5. English, "Louisville's Nineteenth Century Suburban Growth, p. 49.
6. Ibid., pp. 51-3.
7. Ibid., p. 56.
8. Ibid., pp. 56-7; Caron's Directory of the City of Louisville for 1874, C. K. Caron, 1874), p. 55.
9. English, "Louisville's Nineteenth Century Suburban Growth," pp. 57-8.
10. Ibid., p. 85
11. Ibid., p. 85-86; "An Act to Provide for the Establishment of Public Parks in and near Louisville and the Improvement and Management of Same," Acts of the General Assembly, 1890, Vol. II, p. 1513.
12. English, "Louisville's Nineteenth Century Suburban Growth," pp. 85-7; First Annual Report of the Board of Park Commissioners of the City of Louisville, July 1891 (Louisville; Courier-Journal Job Printing Company, 1891), pp. 8-9.
13. English, "Louisville's Nineteenth Century Suburban Growth," pp. 93-6; First Annual Report of the Board of Park Commissioners, p. 53.
14. Copies of Records, DPW; G. M. Hopkins, Atlas of the City of Louisville, Ky. and Environs, (Philadelphia, 1884, plate 7.
15. Copies of Records, DPW.
16. Ibid.
17. Ibid.; Rogers, Louisville's Neighborhoods, pp. 4-5.
18. Copies of Records, DPW.
19. Ibid.
20. Rogers, Louisville's Neighborhoods, p. 31.

21. Grady Clay, "Crescent Hill Holds the Line," Courier-Journal Magazine, October 14, 1956 (clipping); English, "Louisville's Nineteenth Century Suburban Growth," p. 72.
22. Jefferson County, Kentucky, Deed Book 203, p. 171 (1876) Book 207, p. 558 (1876); Johnston, Memorial History of Louisville, Vol. I, p. 344; The Louisville Commercial December 15, 1879; "Crescent Hill Reservoir, Gatehouse, and Superintendent's House," National Register of Historic Places Inventory-Nomination Form, Prepared by Denise E. Whittaker, Historic Landmarks and Preservation Districts Commission, Louisville, Ky., 1977.
23. English, "Louisville's Nineteenth Century Suburban Growth," pp. 70-72; Rogers, Louisville's Neighborhoods, p. 31; Clay, "Crescent Hill Holds the Line," Courier Journal Magazine, 1956.
24. Copies of Records, DPW; English, "Louisville's Nineteenth Century Suburban Growth," p. 72.
25. English, "Louisville's Nineteenth Century Suburban Growth," pp. 133-5; An Act to Incorporate the Town of Crescent Hill, in Jefferson County," Acts of the General Assembly of Kentucky, 1883-84, Vol II, pp. 166-72.
26. Copies of Records, DPW; English, "Louisville's Nineteenth Century Suburban Growth," pp. 82-3.
27. Copies of Records, DPW.
28. Ibid.
29. Ibid.
30. Ibid.
31. English, "Louisville's Nineteenth Century Suburban Growth," pp. 137-8; "An Act for the Government of Cities of the First Class," Acts of the General Assembly, 1891-93, Vol. III, p. 1265; Ordinance Book 10, pp. 141-142, 212.
32. English, "Louisville's Nineteenth Century Suburban Growth," p. 139.
33. Copies of Records, DPW.
34. Ibid.
35. Ibid.; Beautiful Crescent Hill Illustrated (Louisville: Crescent Hill Improvement Club, 1908; Reprinted Crescent Hill Community Council, 1978), p. 77.
36. Copies of Records DPW; Beautiful Crescent Hill Illustrated, pp. 60, 69.
37. Copies of Records, DPW.
38. Ibid.
39. Ibid.

40. Beautiful Crescent Hill, p. 6.
41. Clay, "Crescent Hill Holds the Line", n.p.
42. Langsam, Preservation, pp. 135-6; "The Peterson-Dumesnil House Landmark and Landmark Site Designation Report," Historic Landmarks and Preservation Districts Commission, Louisville, KY., July 1976.
43. Clay, "Crescent Hill Holds the Line," n.p.; Courier-Journal, Dec. 15, 1961.
44. "The Orphans on the Fairgrounds," pp. 17-19, 23, 27.
45. Masonic Home Journal, October 18, 1927, pp. 1-20.
46. William A. Mueller, A History of Southern Baptist Seminary, 1859-1959 (Nashville: Broadman Press, 1959), pp. 130-5, 208-9; W. E. Morrow, "The Resurgence of Louisville," Manufacturers' Record, March 25, 1926, p. 7.
47. Langsam, Preservation, p. 61.
48. Courier-Journal, Aug., 27, 1939, Oct. 20, 1940; July 13, 1967; Louisville Times, March 9, 1940, Feb. 3, 1968.
49. Copies of Records, DPW.
50. Ibid.
51. Ibid.
52. Ibid.
53. Ibid.
54. Ibid.
55. Courier-Journal, March 31, 1973.
56. Ibid., Jan. 15, 19, 1946, Jan. 22, 30, 31, Feb. 5, 1949.
57. Courier-Journal, Apr. 2, 1950; Apr. 3, 1952, Louisville Times, Aug. 16, 1965.
58. Howard-Gettys House National Register of Historic Places Nomination; Copies of Records, DPW.
59. Copies of Records, DPW; Rogers, Louisville's Neighborhoods, p. 14.
60. Louisville Times, Oct. 25, 1918, Nov. 15, 1924; Louisville Herald-Post, Nov. 16, 1930.
61. Louisville Herald, Jan. 11, 12, 1923; Louisville Times, Jan. 5, 10, 12, 1923, Nov. 15, 1924.

62. Copies of Records; Stratton O. Hammon, "Phoenix Hill Park, Louisville, Kentucky," FCHQ, 44 (April 1970), 160.
63. "Frolicking at Phoenix Hill," Phonews of Kentucky, Winter 1967-68, n.p. (clipping in Louisville Free Public Library Vertical File "Phoenix Hill") Melville O. Briney, "Phoenix Hill, Center of Song and Forum of Politics," Louisville Times, July 24, 1952.
64. Copies of Records, DPW.
65. Langsam, Preservation p. 75.
66. Ibid., Allgeier, History of the Highland Neighborhood, pp. 13-15.
67. Copies of Records, DPW.
68. Ibid.
69. Courier-Journal, Mar. 30, 1924, Jan. 19, 1964; Louisville Times, Feb. 19, 1923, Mar. 27, April 1, 1924, Apr. 27, 1927; St. Anthony Hospital, Louisville, Kentucky, 75th Anniversary, (Louisville, 1975), pp. 1-20.
70. St. Anthony Hospital 1972 Community Report, (Louisville, 1977), p. 1.
71. Karem, The Cherokee Area, pp. 2-3.
72. English, "Louisville's Nineteenth Century Suburban Growth," p. 73.
73. Ibid., p. 75; Karem, The Cherokee Area, p. 3. Although laid out in 1870, Henning and Speed's Highland Addition was not officially recorded with the County Clerk's Office until 1885. This accounts for the apparent discrepancy between the date given here and the date of record listed in the Subdivision Index in the Appendix of this volume.
74. English, "Louisville's Nineteenth Century Suburban Growth," pp. 74-6; Johnston, Memorial History of Louisville, II, 344-53; Langsam, Preservation, p. 134.
75. English, "Louisville's Nineteenth Century Suburban Growth," p. 81; Copies of Records, DPW.
76. English, "Louisville's Nineteenth Century Suburban," pp. 81-2.
77. Karem, The Cherokee Area, pp. 10, 20, 22; Cherokee Triangle Area Preservation District Designation Report (Louisville; Historic Landmarks and Preservation District Commission, January 1975), pp. 12, 59, Copies of Records, DPW
78. English, "Louisville's Nineteenth Century Suburban Growth," p. 105; Incorporation of Eastern Park Land Company, May 11, 1891, Corporation Book 7, p. 107, Jefferson County Court House.
79. Copies of Records, DPW: Plat of Eastern Park Land Company's Subdivision, Plat Book 1, p. 67, Jefferson County Clerk, Jefferson County Court House.
80. English, "Louisville's Nineteenth Century Suburban Growth," pp. 105-7.

81. Ibid., pp. 133-137; Karem, The Cherokee Area, pp. 53-4; Cherokee Triangle Designation Report, p. 130; Third Annual Report of the Board of Park Commissioners, (Louisville: Courier-Journal Job Printing Company, 1893), p. 67.
82. English, "Louisville's Nineteenth Century Suburban Growth," pp. 137-40; Annexation Map, Department of Public Works.
83. Cherokee Triangle Designation Report, p. 14; Copies of Records, DPW.
84. Cherokee Triangle Designation Report, p. 16-17.
85. Ibid.
86. Karem, The Cherokee Area, pp. 51-2.
87. Ibid., Barbara Hadley, "Upward and Outward," Louisville, February 1979, p. 78.
88. Langsam, Preservation, p. 70.
89. Karem, The Cherokee Area, pp. 52-3.
90. Copies of Records, DPW.
91. Ibid., Rogers, Louisville's Neighborhoods, pp. 8-9; Karem The Cherokee Area, pp. 49-50
92. Copies of Records; Sara Jones, "Windsor Place," in Elva Anne Lyons, ed., Local History Series, (Unpublished student papers, University of Louisville), 193-194 Vol. 13, pp. 97-102; Tom Stein, "Windsor Place," Ibid., pp. 103-118.
93. Copies of Records, DPW; Rogers, Louisville's Neighborhoods, p. 9.
94. Julian Hardaway, "Castlewood," in Lyons, Local History Series, Vol. 14, pp. 38-9.
95. Ibid., pp. 37-41; Copies of Records; Jefferson County Deed Book 622, p. 445, Deed Book 697, pp. 552-5, Deed Book 866, pp. 74-5; Jefferson County Plat Book 1, p. 69.
96. Copies of Records, DPW.
97. Langsam, Preservation, p. 74.
98. Copies of Records; DPW. Thelma Marie Meyers, "Fifty Acres of Land," in Lyons, Local History Series, Vol. 13, p. 167.
99. Copies of Records, DPW.
100. Ibid.
101. Ibid.
102. Ibid.

103. Langsam, Preservation, p. 138.
104. Copies of Records; DPW English, "Louisville's Nineteenth Century Suburban Growth," p. 65.
105. Copies of Records; DPW Dorothy Cotton, "Sulgrave Road," in Lyons, Local History
106. Ruth Strull, "The Evolution of a Neighborhood," in Lyons, Local History Series, Vol. 13, p. 267; Cotton, "Sulgrave Road," Ibid., pp. 316-17.
107. Advertisement, Louisville, January 1979, p. 36; Hadley, "Upward and Outward," p. 78.
108. "Map of Louisville Showing Population by District," reprinted in Meadows, "Urban Transportation in Louisville," plate between pp. 131 and 132.

Chapter III

1. Directory of Manufacturers and Products, 1923 (Louisville: Louisville Industrial Foundation, Inc., 1923), p. 2; Seventh Annual Report of the Louisville Industrial Foundation (Louisville, 1923), p. 11.
2. Directory of Manufacturers, 1923, p. 2; "Louisville at the Falls of the Ohio," (pamphlet), Louisville Industrial Foundation, Inc., ca. 1923, n.p.; Forty-Third Annual Report of the Louisville Industrial Foundation (Louisville, 1959), n.p.
3. Louisville Civic Opinion, September 6, 13, 27, October 18, November 1, 8, 22, 29, December 13, 1924.
4. Ibid., Sept. 6, 1924.
5. Directory of Manufacturers, 1923, p. 2, Directory of Manufacturers and Products, 1928 (Louisville: Louisville Industrial Foundation, Inc., 1928), p. 2; Louisville: Center of American Markets (Louisville: Louisville Industrial Foundation, Inc., 1928), pp. 10-11, 13; Annual Reports of the Louisville Industrial Foundation, 1924-1926, 1928-1930.
6. William E. Morison, "The Resurgence of Louisville," Manufacturers Record, March 25, 1926, p. 6; Directory of Manufacturers, 1928, p. 3; Twelfth Annual Report of the Louisville Industrial Foundation, 1928, p. 9.
7. Commercial development on Fourth Street and Broadway is discussed at great length by the author in "Two Centuries of Urban Development in Central and Southern Louisville," Louisville Survey: Central and South Report (Louisville: Historic Landmarks and Preservation Districts Commission 1978), pp. 109-111.

8. Courier-Journal, October 14, 1928; Herald-Post, January 1, 1936.
9. Herald-Post, October 8, 1925, February 5, 1928.
10. Morison, "The Resurgence of Louisville," p. 6; Leland Johnson, The Falls City Engineers: A History of the Louisville District, Corps of Engineers, United States Army (Louisville: Louisville District, U. S. Army Corps of Engineers, 1975), pp. 177-8; Herald-Post, June 5, 1924.
11. Michael Lesy, Real Life: Louisville in the Twenties (New York: Pantheon Books, 1976), pp. 62-67.
12. Ibid., pp. 67-70; Louisville Herald, August 11, Nov. 11, 1924; Riebel, Louisville Panorama, p. 159.
13. Louisville Post, Dec. 21, 1923; Courier-Journal, Dec. 21, 1923.
14. Louisville Times, Jan. 18, 19, 21, 22, 1924; Louisville Post, Jan. 21, 1924.
15. Louisville Times, Sept. 5, 1927, July 9, 1930; Herald-Post, Sept. 5, 1927.
16. Louisville Times, March 22, 1928.
17. Courier-Journal, June 22, 1926, Jan. 21, Feb. 17, 21, 22, Mar. 21, 1928; Herald-Post, Feb. 16, Mar. 21, Apr. 3, 1928; Louisville Times, Jan. 21, 1928.
18. The Civic Journal, July 9, 1921; Louisville Civic Opinion, Feb. 24, 1923; Courier-Journal, June 28, 1930; Stewart Trisler, "Getting There Was an Adventure," Louisville, January 1979, pp. 38-9.
19. Bowman Field, 1918-1978, 60th Anniversary (pamphlet) September 1978, n.p.; Trisler, "Getting There Was an Adventure," pp. 60-1.
20. Herald Post, Sept. 8, 1928, Jan. 30, 1929, Oct. 19, 1931.
21. The politics of the 1922 annexation, which included an eight year legal battle, are recounted by the author in "Two Centuries of Urban Development in Central and Southern Louisville," Louisville Survey: Central and South, pp. 122-4.
22. Langsam, Preservation, p. 148; Louisville Evening Post April 24, 1915; "Gardencourt," (Brochure), University of Louisville Urban Studies Center; Henry F. Withey and Elsie R. Withey, Biographical Dictionary of American Architects (Deceased) Los Angeles: Hennessey & Ingalls, Inc., 1970, pp. 136-7; Walter Langsam, "Louisville Mansions from the Civil War to World War," Antiques in Kentucky, April 1974, p. 864.
23. Copies of Records.
24. Ibid.
25. Ibid.
26. Herald-Post, Oct. 17, 1920.
27. Copies of Records.

28. Ibid.
29. Herald-Post, Oct. 7, 1936.
30. Ibid.
31. Copies of Records. The discussion here of subdivision development in St. Matthews involves only those subdivisions which were later annexed, either wholly or in part, by the city of Louisville during the late 1940s and 1950s.
32. Ibid.; Herald-Post, Oct. 7, 1936.
33. Copies of Records. The city of Broad Fields is Section 1 of the subdivision of the same name. The sections platted in 1958 and 1959 were sections 2-A and 2-B.
34. Rogers, Louisville Neighborhoods, p. 7.
35. Copies of Records.
36. Ibid.
37. Beverly Selph, owner, to Ann Cooper, Louisville Times reporter, December 29, 1973. (Copy in files of Landmarks Commission), Jefferson County Deed Books 69, p. 406; 235, p. 14; Will Book 2, p. 340, Jan. 1, 1927; Copies of Records.
38. Copies of Records.
39. Ibid.
40. Ibid.
41. See Charles N. Gloab, "Metropolis and Suburb: The Changing American City," in John Braeman, et. al. eds., Change and Continuity in Twentieth Century America: The 1920s (Columbus: The Ohio State University Press, 1968), pp. 425-6.
42. Copies of Records, DPW.
43. Ibid.
44. Ibid.
45. Louisville Civic Opinion, April 21, 1923.
46. Copies of Records.
47. Ibid.
48. Ibid.
49. Ibid.
50. Ibid.

51. Ibid.
52. Gloab, "Metropolis and Suburb," pp. 404-5.
53. Courier-Journal, March 24, 1968; Copies of Records; Government Municipalities, Jefferson County, Kentucky (Louisville: Louisville Area Chamber of Commerce, 1973), n.p.
54. Copies of Records; Municipalities, n.p.
55. Herald-Post, Sept. 13, 1933.
56. Ibid.
57. For a somewhat fuller discussion of the depression in Louisville, see Kramer, "The Centuries of Urban Development in Central and Southern Louisville," Louisville Survey: Central and South, pp. 132-4.
58. Ibid., p. 132.
59. Courier-Journal, Apr. 14, 1939.
60. Ibid., Apr. 26, 1939.
61. Ibid., Apr. 27, 1939.
62. Copies of Records.
63. Ibid.; Courier-Journal, Aug. 17, 1952.
64. Carl E. Kramer, "Fortunes of War," Louisville, January 1978, p. 87.
65. "Map of Louisville, Kentucky Showing Population by District, 1910-1930."
66. Ibid.; U. S. Bureau of the Census, Census of the Population, 1940.
67. M. A. Allgeier, History of the Highland Neighborhood, pp. 29-48. See also "Historic Resources of Bardstown Road and Baxter Avenue," National Register of Historic Places Inventory-Nomination (draft), prepared by M. A. Allgeier, Louisville Historic Landmarks and Preservation Districts Commission.
68. Robert Pearce, "My Community - Slaughter Avenue," in Lyon, Local History Series, Vol. 13, p. 76.
69. "Historic Resources of Bardstown Road and Baxter Avenue."
70. Brooklawn Newsletter, Nov. 1970; Courier-Journal, June 11, 1973; Karem, The Cherokee Area, pp. 50-51.
71. Marzie Waterman. "The Highlands - Deerwood Bonnycastle," in Lyon, Local History Series, Vol. 13, pp. 161-2.
72. J. S. Moulton, "My Neighborhood," in Lyon, Local History Series, Vol. 13, pp. 297-8.
73. Ibid., p. 299; Courier-Journal (Editorial), Sept. 11, 1930.

Chapter IV

1. Department of Commerce, Bureau of the Census, Census of the Population, 1940, 1950, 1960, 1970.
2. Glenn H. Beyer, Housing and Society. (New York: The Macmillan Company, 1965), pp. 159-60; Mark Gelfond, A Nation of Cities; The Federal Government and Urban America, 1933, 1965. (New York: Oxford University Press, 1975), pp. 216-8; "Louisville Business Trends, 1950-1960," Louisville, February 20, 1960, p.11; Kathleen A. Sancomb, A Place to Live: Housing in Louisville and Jefferson County (Louisville: Louisville and Jefferson County Planning Commission, 1974), p. 171, Table 48.
3. Sancomb, A Place to Live, p. 12; Courier-Journal, Nov. 16, 1952. See also Harland Bartholomew and Associates, Comprehensive City Plan (draft), (Louisville, 1931), pp. 39-40; A. J. Stewart Proposal for Downtown Louisville, (Washington, D. C.; The Urban Land Institute, 1942), pp. 34-5.
4. Courier-Journal, Nov. 16, 1952, Sept. 12, 1954.
5. Sancomb, A Place to Live, pp. 12, 41, 87.
6. Courier-Journal, Sept. 12, 1954.
7. Action to Date: Highlights from Reports of Committees (Louisville; Louisville Area Development Association, May 1945), p. 2; "Traffic Improvements - \$50 Million," Louisville, December 20, 1959, p. 45; "Louisville Business Trends," p. 9; Progress Through Planning, condensed version, (Louisville: Louisville and Jefferson County Planning and Zoning Commission, 1959), p. 15.
8. Comprehensive City Plan (draft), pp. 34-6; Action to Date, p. 7; Louisville: Five Years of Development, 1943-1948 (Louisville: Louisville Area Development Association, 1948), p. 6; Courier-Journal, Aug. 25, 1945.
9. Louisville: Five Years of Development, p. 6; Bureau of Business Research, The Effect of the Louisville Watterson Expressway on Land Use and Land Values (Lexington College of Commerce, University of Kentucky, 1920), p. 36; Courier-Journal, Aug. 24, 1952.
10. Effect of the Louisville Watterson Expressway, pp. 6, 36; Environmental and Section 4(f) Statement (draft), Interstate 264, Project 1-264-1 (48); FI 264-1(53) 17, Watterson Expressway, FHWA-Ky-EIS-73-6-D, 1973, p. 1-1; Courier-Journal, March 4, 1948, July 26, 1951.
11. Courier-Journal, July 16, 18, Aug. 24, 1952, May 2, 1953; Douglas Nunn, "The Watterson Expressway Grows Up", Courier-Journal Magazine, July 18, 1954, pp. 7ff.
12. Effect of the Louisville Watterson Expressway, p. 6; Louisville Times, Sept. 29, 1956; Environmental and Section 4(f) Statement, pp. 1-1, 13-7; John D. Rae, The American Automobile: A Brief History (Chicago: The University of Chicago Press, 1965), p. 87.

13. Courier-Journal, Jan. 18, June 15, 1947.
14. Ibid., Jan. 18, 1947.
15. Ibid., June 15, 1947.
16. Ibid., Louisville Times, Dec. 20, 1947.
17. Courier-Journal, Oct. 38, 39, Nov. 19, Dec. 24, 1947.
18. Ibid., Jan. 14, 28, Feb. 24, 1948.
19. Ibid., Mar. 4, Apr. 2, 1948.
20. Ibid., June 3, 1948.
21. Ibid., Apr. 6, 1958.
22. Ibid., May 13, 1958; Louisville Times, Jan. 9, 1958.
23. Courier-Journal, May 13, June 13, Oct. 15, 1958; Louisville Times, May 9, Sept. 8, 1958.
24. Courier-Journal, Feb. 4, Apr. 3, 1959.
25. Ibid., Apr. 3, 1959; Louisville Times, Feb. 4, May 9, 1959.
26. Louisville Times, May 8, 1959, June 8, 1960; Courier-Journal (editorial), June 9, 1960.
27. Louisville Times, May 10, 1960.
28. Ibid., Mar. 11, 1965, Jan. 12, 1966.
29. Ibid., Mar. 11, 1965, May 2, Nov. 8, 1966.
30. Ibid., Dec. 21, 23, 1966, Aug. 8, Nov. 9, 1967, Jan. 10, 1968.
31. Effect of the Louisville Watterson Expressway, pp. 12-17, 19; Lindsay Anne Kruger, Commercial/Office Space Development 1976 Comprehensive Plan Revision Background Information Series (Louisville: Louisville and Jefferson County Planning Commission, 1976), pp. 3-4.
32. Large Employers in the Louisville Area (Louisville: Louisville Area Chamber of Commerce, 1976), pp. 1-5.
33. Louisville and Jefferson County Planning and Zoning Commission, Docket File 9-64-57; Ordinance 124, Series 1957, Ordinance Books, Clerk's Office, Louisville Board of Aldermen; Louisville Times, Apr. 24, 25, 1957; Effect of the Louisville Watterson Expressway, pp. 32-3.

34. "The South's Top Manufacturing Complex," Louisville, December 20, 1959, p. 13; "The Implementer," Interview with Kenneth P. Vinsal, Louisville, January 1975, p. 54; "Bold Plans and Dynamic Actions," Production and Engineering Management, July 1953, p. 69.
35. Effects of the Louisville Watterson Expressway, p. 33; "Bold Plans," p. 67; "Grow, Louisville," Production Engineering and Management, July 1953, p. 66; "The South's Top Manufacturing Complex," p. 15; "The Implementer," p. 58.
36. "The Implementer," p. 93; Hammer, Green, Siler, Associates, Economic Prespect, Problems and Policies: Falls of the Ohio Region, Jefferson County (Louisville), Kentucky, Floyd and Clark Counties, Indiana. Prepared for the Falls of the Ohio Metropolitan Council of Governments. (Washington, D. C., and Atlanta: Hammer Green, Siler Associates, April 1968), Reprinted by Urban Studies Center, University of Louisville, p. 85; Directory of Manufacturers (Frankfort: Kentucky Department of Commerce, 1977), p. 117; Large Employers in the Louisville Area, pp. 1-5. Data on Bluegrass Research and Industrial Park was supplied by Highbaugh and Highbaugh Realtors.
37. Louisville Times, Sept. 1, 1960; Robert C. Wood, Suburbia: Its People and Their Politics (Boston: Houghton Mifflin Company, 1958), pp. 69, 83; Municipalities, passim.
38. Municipalities, passim; Kentucky Revised Statutes, 81.040, 81.050, 81.060; Courier-Journal, Feb. 23, 1947, June 15, 1965, Mar. 30, 1966.
39. Kentucky Revised Statutes, 100.137 (2); Courier-Journal, June 13, 1965; Louisville Times, Jan. 28, 1966; Scott Greer, Governing the Metropolis (New York: John Wiley and Sons, 1962), pp. 83-104.
40. Courier-Journal, June 13, 1965.
41. Ibid.
42. Ibid.; Feb. 23, 1947, June 13, 1965.
43. U. S. Bureau of the Census, Census of the Population, 1940, 1950.
44. Ibid., 1950, 1960.
45. Ibid., 1960-1970; Richard T. Shogren and Carl E. Kramer, Population Report, Louisville and Jefferson County, Kentucky (Louisville: Louisville and Jefferson County Planning Commission, 1972), p. 35.
46. Courier-Journal, June 14, 1953.
47. Ibid., Nov. 16, 1952.
48. Copies of Records.
49. Ibid.
50. Ibid.; Courier-Journal, July 14, 1950, Nov. 7, 1956.
51. Copies of Records.
52. Ibid.

53. Ibid.
54. Louisville Times, Jan. 7, 1959, Apr. 5, 1963; Courier-Journal, Dec. 9, 1959, July 3, Sept. 9, 1962, Apr. 28, 1963; Invitation to Dedication of the New Seminary and Plant, October 12, 1963.
55. Copies of Records.
56. Ibid.
57. Ibid.; Courier-Journal; Joseph Phillip Shelton, "Two Mile Town," in Lyon, Local History Series, Vol. 13, pp. 239-40.
58. Courier-Journal, July 16, 1959.
59. Ibid., July 16, Dec. 30, 1969, Jan. 19, 1970, Nov. 21, 1977.
60. Ibid., July 8, 1970, Nov. 21, 1971, July 3, 1972, Aug. 9, 1973.
61. Flood Plain Information, Beargrass and Upper Mill Creeks, Jefferson County, Kentucky (Louisville: Louisville District, U. S. Army Corps of Engineers, 1969), pp. 22-31.
62. Ibid., pp. 1-3, 8, 11, 30-6.
63. Copies of Records.
64. Anne Calvert, "High-rises in the Potato Patch: the 'Uptown Downtowns'", Louisville, March 1975, p. 37.
65. Ibid., pp. 35-7.
66. Courier-Journal, Nov. 3, 1959, Feb. 20, May 8, 1960, July 1, June 7, July 14, 1961.
67. Copies of Records.
68. Ibid.
69. Ibid.
70. Ibid.
71. Ibid.; Courier-Journal, May 3, 1953.
72. Courier-Journal, June 21, 1953.
73. Ibid. June 21, 1953, May 29, 1955; Copies of Records.
74. Courier-Journal, May 29, 1955; Copies of Records.
75. Copies of Records.
76. Ibid.
77. Ibid.

78. Ibid.; Beautiful Louisville Homes (Louisville: Hieatt Brothers Home Builders, nd), n.p. Although this publication is undated, its content places it in the late 1920s.
79. Copies of Records.
80. Ibid.; Courier-Journal, Feb. 17, Dec. 19, 1952, Feb. 5, 1953; Municipalities, n.p.
81. Copies of Records.
82. Ibid.; Courier-Journal, Sept. 20, 1950, Feb. 17, 1952.
83. Louisville Times, Aug. 18, 1943; Copies of Records.
84. Courier-Journal, June 17, 1954, May 29, 1955; Copies of Records.
85. Annexation Map, DPW.
86. Courier-Journal, May 26, 1957.
87. Courier-Journal, 1947-1950, passim.
88. Ibid., Nov. 12, 1947; Louisville Times, Nov. 12, 1947.
89. Courier-Journal, Nov. 25, 1948, Mar. 28, 1950; Louisville Times, Feb. 8, 1951; Christian Science Monitor, Dec. 3, 1948.
90. Courier-Journal, Mar. 25, 28, Apr. 19, 1950, May 30, 1950, Aug. 30, Sept. 24, 1952.
91. Ibid., Nov. 25, 1952, Sept. 1, 1954, June 5, 1957; Louisville Times, Nov. 25, 1952, Aug. 30, 1954.
92. Courier-Journal, Jan. 23, 1953; Louisville Times, Oct. 15, 1953.
93. Courier-Journal, Mar. 2, 3, 12, 1955, Apr. 2, June 11, 1957; Louisville Times, Oct. 20, 1956, July 11, 1958.
94. Courier-Journal, Sept. 10, 1954, Feb. 18, Mar. 6, Aug. 1, 1959; Louisville Times, Dec. 6, 1955.
95. Kramer, "Two Centuries of Urban Development in Central and Southern Louisville," p. 209.
96. Louisville Times, Feb. 4, Apr. 11, 1956; Kentucky Revised Statutes, 81.280, p. 207.
97. Louisville Times, Apr. 12, 28, 1956; Courier-Journal, Apr. 12, 20, 1956.
98. Courier-Journal, Sept. 30, 1962; Beautiful Crescent Hill, n.p.
99. Highland Community Ministeries, Eighth Annual Progress Report, Sept. 1978, p. 1.
100. Ibid.
101. Ibid., pp. 1-2.

Chapter V

1. John Ed Pearce, "Introduction," in Tornado! April 3, 1974, Samuel W. Thomas, ed. (Louisville: The Courier-Journal and The Louisville Times, 1974), pp. 8-9.
2. Ibid., pp. 9-10.
3. Ibid., p. 10.
4. Ibid., pp. 10-13.
5. Ibid., p. 4.
6. Louisville Times, May 15, 1974.
7. Courier-Journal, June 7, 1974.
8. George H. Yater, "Crescent Hill: Resisting Change," Louisville, September 1974, pp. 42-4, 75; Janet Rink, "Bonnycastle: Rebirth of a Neighborhood," Louisville Today, June 1977, p. 37-41; Dea Costelle, et. al, "Examination of the Effectiveness of the Bonnycastle Homestead Area Neighborhood Association," (Unpublished N. S. project, Institute of Community Development, University of Louisville, 1978), pp. 17-19.
9. Highland Community Ministeries, Eighth Annual Progress Report, pp. 5, 16-20; Kramer, "Two Centuries of Urban Development in Central and Southern Louisville," pp. 242-37.
10. Ann S. Hassett, "It's Official," Louisville, January 1976, p. 90.
11. Quoted in Thomas, (ed), Tornado! April 3, 1974, p. 95.
12. Artemus P. Richardson, "Report of Visit for the Review of Tornado Damage in Cherokee Park, George Rogers Clark Park, and Associated Parkways in Louisville, Kentucky, April 17-18, 1974," (xerox in metropolitan Parks and Recreation Board files) p. 1, quoted in Allen J. Share, "Restoration of a Tornado Ravaged Park," Landscape Architecture, September 1976, p. 456.
13. Ibid., p. 456.
14. Ibid., p. 462.
15. Highland Community Ministeries, Eighth Annual Progress Report, p. 6; David E. Blank, "Barbax Strategy," Bardstown Road / Baxter Avenue Corridor Study Report (Louisville: Louisville Community Design Center, September 1978), p. 1.
16. Blank, "Barbax Strategy," p. 1, 32.
17. Ibid., p. 32.
18. Ibid., pp. 32-3.

BIBLIOGRAPHY

DOCUMENTARY AND ARCHIVAL SOURCES

Catholic Archdiocese of Louisville
Community Development Cabinet, City of Louisville
Department of Public Works, City of Louisville
The Filson Club
Historic Landmarks and Preservation Districts Commission, City of Louisville
Jefferson County Archives and Records Service
Jefferson County Clerk's Office
Louisville and Jefferson County Planning Commission
Louisville and Nashville Railroad
Louisville Area Chamber of Commerce
Louisville Board of Aldermen (Clerk's Office)
Louisville Free Public Library (Kentucky Room)
Neighborhood Development Office, City of Louisville
University of Louisville Archives and Historical Records Center

LOUISVILLE NEWSPAPERS AND PERIODICALS

The Aegis and Louisville Literary Gazette, 1838
The American Democrat & Weekly Courier, 1845-46
The Critic, 1889-1893
The Courier-Journal, 1868-
Daily Journal and Focus, 1832
The Daily Louisville Times, 1852-56
The Farmer's Library of Ohio Intelligencer, 1801-07
The Focus, 1826-32
Louisville Anzeiger (German), 1849-1939
Louisville Board of Trade Journal, 1916-1950
The Louisville City Gazette, 1836-41
Louisville Civic Opinion, 1921-1930
Louisville Commercial, 1869-1902
Louisville Correspondent, 1813-17
Louisville Daily Courier, 1848-68
Louisville Daily Democrat, 1843-62
Louisville Daily Journal, 1830-68
Louisville Evening Post, 1878-1925
Louisville Gazette and Western Advertiser, 1807-12
Louisville Herald, 1902-1925
Louisville Herald-Post, 1925-1935
Louisville Magazine, 1950-
Louisville Public Advertiser, 1818-42
The Louisville Times, 1884-
Morning Courier and American Democrat, 1845
The Weekly Louisville Times, 1855

PUBLISHED SOURCES

Allison, Young E. The City of Louisville and a Glimpse of Kentucky. Louisville: Board of Trade, 1887.

Atwater, Caleb. Remarks Made on a Tour to Prairie du Chein; Thence to Washington City in 1829. Columbus, Ohio: I. N. Whiting, 1831.

Baker, E. N., editor. A Complete Guide to Interesting Places in Louisville, Kentucky. Louisville: Brewer's Printing House, Printers and Publishers, 1883.

Brown, Robert W. Book of Louisville and Kentucky. Louisville: Louisville Convention and Publicity League, Inc., Publisher, 1915.

Bureau of Business Research, The Effect of the Louisville Watterson Expressway on Land Use and Land Values. Investigation made for the Kentucky Department of Highways in cooperation with the Bureau of Public Roads, U. S. Department of Commerce. Lexington: University of Kentucky, 1960.

Carmichael, Omer and Weldon James. The Louisville Story. New York: Simon and Schuster, Inc., 1957.

City Directories, 1832-1978.

Clarke, James Freeman. Autobiography, Diary and Correspondence. Edited by Edward Everett Hale. Boston: Houghton-Mifflin and Company, 1891.

Compilation of Basic Data, Louisville, Kentucky. Ca. 1934-35.

Crittenden, George A., compiler. The Industries of Louisville, Containing a General Description of Geographical Advantages, Manufacturing Resources, Transportation Facilities, and Commercial Relations of Louisville as a Center of Trade. Louisville: A. N. Marquis and Company, 1881.

Deering, Richard. Louisville: Her Commercial, Manufacturing, and Social Advantages. Louisville, 1849.

Dickens, Charles. American Notes. 2 Vols. London: Chapman and Hall, 1842.

Elstner, Charles E. The Industries of Louisville, Kentucky, and New Albany, Indiana. Louisville: J. M. Elstner and Company, 1886.

Hoffman, Charles Fenno. A Winter in the West. By a New Yorker. 2 Vols. New York: Harper and Brothers, 1835.

Hutchings, Thomas. The Courses of the Ohio River Taken By Lt. T. Hutchins, anno 1760, and Two Accompanying Maps. Edited by Beverly W. Bond, Jr. Cincinnati: Historical and Philosophical Society of Ohio, 1942.

Imlay, Gilbert. A Topographical Description of the Western Territory of North America. London, 1793.

Industrial and Commercial Louisville. Louisville: Louisville and Nashville Railroad, 1887.

King, Edward. The Great South Record of Journey in Louisiana...and Kentucky. Hartford: American Publishing Company, 1875.

Louisville After the Tornado, Louisville 1890.

Louisville, The Gateway to the South: The Ideal Industrial Center of the World. Louisville: Kentucky and Indiana Terminal Railway Company, 1924.

Ripple, David A. Transportation. 1976 Comprehensive Plan Revision Background Information Series. Louisville: Louisville and Jefferson County Planning Commission, 1976.

St. Anthony Hospital, Louisville, Kentucky, 75th Anniversary. Louisville: 1975.

Sancomb, Kathleen A., and others. A Place to Live: Housing in Louisville and Jefferson County. Louisville: Louisville and Jefferson County Planning Commission, 1974.

Schultz, Christian. Travels on an Inland Voyage. 2 Vols. New York: Isaac Riley, 1810.

Shogren, Richard T. and Carl E. Kramer. Population Report, Louisville and Jefferson County, Kentucky, 1970-1990. Louisville: Louisville and Jefferson County Planning Commission, 1972.

Stierlin, Ludwig. The State of Kentucky and the City of Louisville, with Special Consideration of the German Element. Louisville, 1873. Translated from German by John J. Weisert, 1976. MS at University of Louisville Archives and Historical Records Center.

The City of Louisville and Its Resources. Louisville: The Louisville Evening Post Company, 1892.

The Yearbook... of the City of Louisville. Louisville: The Commercial Club, 1898.

BOOKS

Allgeier, M. A. History of the Highland Neighborhood. Louisville: Highland Neighborhood Association, 1979.

Beautiful Crescent Hill, Illustrated. Louisville: Crescent Hill Improvement Club, 1908; Reprinted, Crescent Hill Community Club, 1978.

Briney, Melville O. Fond Recollections. Louisville: The Louisville Times, 1955.

Brown, Theodore M. Introduction to Louisville Architecture. Louisville: Louisville Free Public Library, 1960.

Casseday, Benjamin. The History of Louisville from Its Earliest Settlement Till The Year 1852. Louisville: Hull and Brothers, 1852. Reprinted by G. R. Clark Press, 1971

Curry, Leonard P. Rail Routes South: Louisville's Fight for the Southern Market, 1865-1872. Lexington: University of Kentucky Press, 1969.

Davenport, F. Garvin. Ante-Bellum Kentucky: A Social History. Oxford, Ohio: The Mississippi Valley Press, 1943.

Durrett, Reuben Thomas. The Centenary of Louisville. Louisville: The Filson Club, 1893.

Eaton, Clement. The Growth of Southern Civilization, 1790-1860. New York: Harper and Row, Publishers, 1961.

Filson, John. The Discovery, Settlement, and Present State of Kentucke. Wilmington: James Adams, 1784. Reprinted, Ann Arbor: University of Michigan Press, 1966.

[Ford, Henry and Kate]. History of the Ohio Falls Cities and Their Counties. 2 Vols. Cleveland: L. A. Williams and Company, 1882.

Greer, Scott. Governing the Metropolis. New York: John Wiley and Sons, 1962.

Hamlin, Talbot. Greek Revival Architecture in America: Being an Account of Important Trends in American Architecture and American Life Prior to the War Between the States. New York: Dover Publications, Inc., 1944.

Havinghurst, Walter J. River to the West: Three Centuries of the Ohio. New York: G. P. Putnam's Sons, 1970.

Herr, Kincaid A. Louisville and Nashville Railroad, 1850-1963. Louisville: Louisville and Nashville Railroad, 1964.

Hunter, Louis C. Steamboats on the Western Rivers. Cambridge: Harvard University Press, 1949.

_____. Studies in the Economic History of the Ohio Valley. Northampton, Mass.: Smith College Department of History, n.d.

Jillson, Willard Rouse. The Great Flood of 1937 in Louisville, Kentucky. Louisville: The Standard Printing Company, Inc., 1937.

Johnson, Josiah Stoddard, editor. Memorial History of Louisville from Its First Settlement to the Year 1896. 2 Vols. Chicago and New York: American Biographical Publishing Company, ca. 1896.

Klein, Maury. History of the Louisville and Nashville Railroads. New York: The Macmillan Company, 1972.

Langsam, Walter E., editor. Preservation: Louisville Metropolitan Architectural and Historic Preservation Plan. Louisville: Falls of the Ohio Metropolitan Council of Governments, May 1973.

Lesy, Michael. Real Life: Louisville in the Twenties. New York: Pantheon Books, 1976.

McDowell, Robert E. City of Conflict: Louisville in the Civil War, 1861-1865. Louisville: Louisville Civil War Round Table, 1962.

McMurtrie, Henry. Sketches of Louisville and Its Environs. Louisville: S. Penn, 1819.

Medicine and Its Development in Kentucky. Compiled and Written by Medical Historical Research Project of the Works Projects Administration for the Commonwealth of Kentucky. Sponsored by the State Department of Health of Kentucky and Kentucky State Medical Association. Louisville: Standard Printing Company, 1940.

Mueller, William A. A History of Southern Baptist Seminary, 1859-1959. Nashville: Broadman Press, 1959.

Reps, John W. The Making of Urban America. Princeton: Princeton University Press, 1965.

Riebel, Raymond C. Louisville Panorama: A Visual History of Louisville. Louisville: Liberty National Bank and Trust Company, 1954.

Rogers, John C. The Story of Louisville Neighborhoods. Louisville: The Courier-Journal and Louisville Times Company, 1955.

Thomas, Samuel W., editor. Tornado! April 3, 1974. Louisville: The Courier-Journal and The Louisville Times, 1974.

Thomas, Samuel W., editor. Views of Louisville Since 1766. Louisville: The Courier-Journal and Louisville Times Company, 1971.

Wade, Richard C. Slavery in the Cities: The South, 1820-1860. New York: Oxford University Press, 1964.

_____. The Urban Frontier: Pioneer Life in Early Pittsburgh, Cincinnati, Lexington, Louisville, and St. Louis. Phoenix Books. Chicago: The University of Chicago Press, 1964.

Waring, George F. Report on the Social Statistics of Cities. 2 Vols. Washington: Government Printing Office, 1887. Reprinted, New York: Arno Press and The New York Times Company, 1970.

Wood, Robert C. Suburbia: Its People and Their Politics. Boston: Houghton Mifflin Company, 1958.

ARTICLES AND PROFESSIONAL PAPERS

Allen, Turner W. "The Turnpike System in Kentucky: A Review of State Road Policy in the Nineteenth Century," FCHQ, 28, (1954).

Andrews, Alfred J. "Gideon Shryock, Kentucky Architect, and Greek Revival Architecture in Kentucky," FCHQ, 18, (1944)

Brodley, William S. "Louisville." National Magazine, April 1903, pp. 120-28.

Breaux, Gustave A. "1937 Flood at Louisville." FCHQ, 11, (April 1937), p. 109-18.

Clark, Thomas D. "The Lexington and Ohio Railroad - A Pioneer Venture." Register, Vol. 31 (January 1933), p. 9-28.

Coats, Ida Symmes. "The Bardstown Road in the Early Days," Unpublished paper read before The Filson Club, October 4, 1915.

Congleton, Betty Carolyn. "George D. Prentice and Bloody Monday: A Reappraisal." Register, Vol. 63 (July 1965), p. 218-39.

Crevecoeur, Michael Guillaume St. Jean de. "History of Louisville." Louisville Monthly Magazine, January-February-March, 1879, pp. 29-35, 78-83, 121-25.

Deusner, Charles E. "The Know-Nothing Riots in Louisville." Register, Vol. 61 (April 1963), p. 122-48.

Fatout, Paul. "Canal Agitation at Ohio Falls." Indiana Magazine of History, Vol 57 (December 1961), p. 279-309.

Fugate, Robert. "The Bancokentucky Story." FCHQ, 50, (January 1976), 29-46.

Gloat, Charles N. "Metropolis and Suburb: The Changing American City," in John Brueman, et. al. eds., Change and Continuity in Twentieth Century America: The 1920s. Columbus: Ohio State University Press, (1968).

Guthrie, Blain A., Jr. "Captain Richard Chenoweth - A Founding Father of Louisville." FCHQ, 46 (April 1972), 147-60.

Hammon, Neal O. "The Fincastle Surveyors at the Falls of the Ohio, 1774." FCHQ, 44 (April 1970), 156-63.

Kramer, Carl E. "Images of a Developing City: Louisville, 1800-1830." FCHQ, 52, (April 1978) 166-90.

Leighton, George. "Louisville, Kentucky: An American Museum Piece." Harper's Monthly Magazine, September 1937, pp. 400-21.

McDowell, Robert E. "The Wilderness Road in Jefferson County," Louisville, June 20, 1967.

Morrow, W. E. "Resurgence of Louisville, Story of Municipal Progerss." Manufac-turers Record, March 25, 1926, p. 1-8.

Newcomb, Rexford. "Gideon Shyrook - Pioneer Greek Revivalist of the Middle West." Register, Vol. 26 (September 1928), p. 221-35.

Powledge, Fred. "City in Transition." The New Yorker, September 9, 1974, p. 42-83.

"Through Southern Cities, Louisville, Gateway to the South." Southern Magazine, May 24, 1924, pp. 67-73.

Warner, Charles Dudley. "Cincinnati and Louisville." Harper's Monthly Magazine, August 1888, p. 435-39.

THESES, DISSERTATION, ACADEMIC PAPERS

Beyerly Garland, Virginia Clasby, Kathy Dietz, Donna Straus, and Ima Willis. "The Mayor's Neighborhood Development Office and the Germantown-Paristown Association." Unpublished M. S. project, Institute of Community Development, University of Louisville, 1976.

Chenault, Elizabeth Walker. "Development of Louisville, Town and City, from the Earliest Beginnings to 1830." Unpublished M. A. thesis, University of Louisville, 1962.

Cornell, Charlene M. "Louisville in Transition: 1870-1890." Unpublished M. A. thesis, 1970.

DeJarnette, William J., Burt J. Deutsch, and Susan Yeager. "Local Government's Role in Historic Preservation of Old Louisville - A Review and Assessment." Unpublished M. S. project, Institute of Community Development, University of Louisville, 1976.

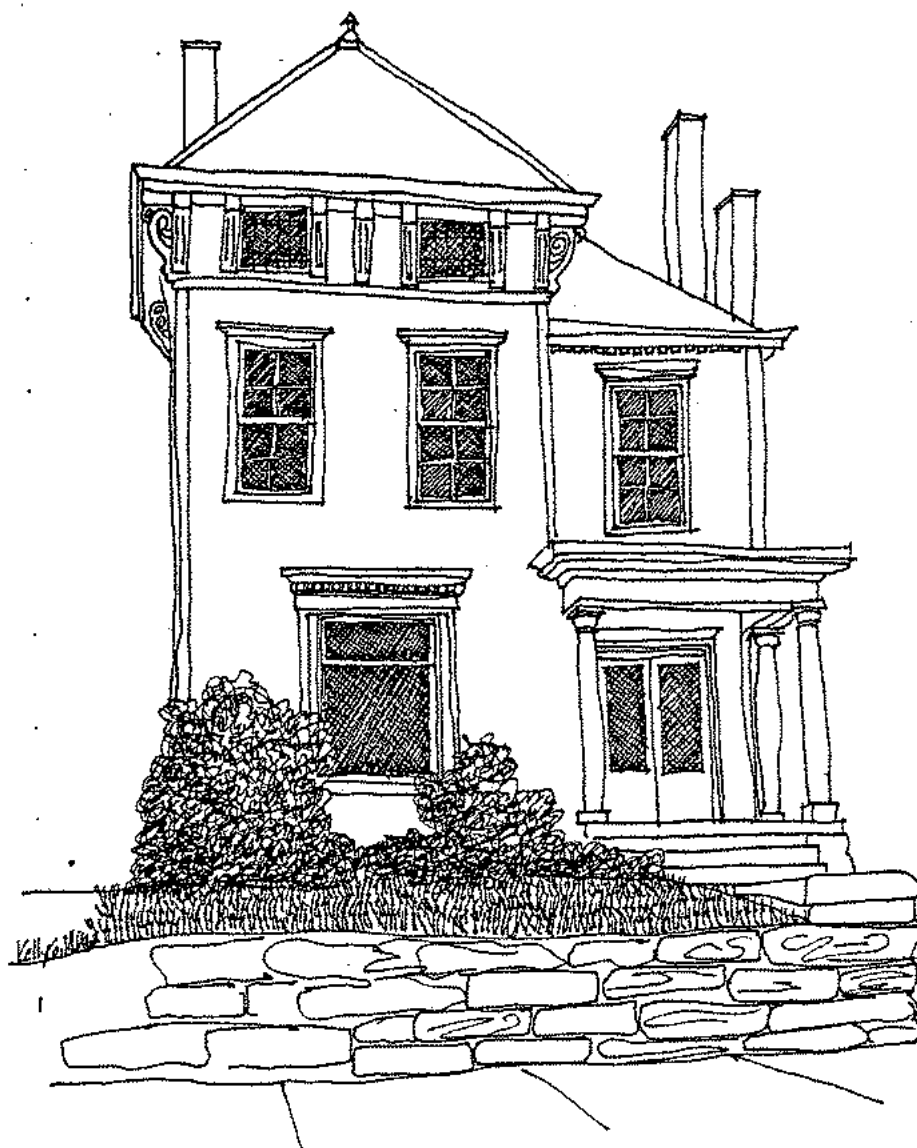
English, Judith Hart. "Louisville's Nineteenth Century Suburban Growth: Park-land, Crescent Hill, Cherokee Triangle, Beechmont and Highland Park." Unpublished M. A. thesis, University of Louisville, 1972.

Heller, John Edward. "A History of Ohio River Trade at Louisville from Its Beginning Until 1840." Unpublished M. A. thesis, University of Louisville, 1922.

Jones, Elizabeth F. "Henry Whitestone: Nineteenth-Century Louisville Architect." Unpublished M. A. thesis, University of Louisville, 1974.

Lyons, Elva Anne, editor. Local History Series. 35 Vols. Unpublished student papers, University of Louisville, 1938-1942.

Meadows, Milo M. "Urban Transportation in Louisville from 1830 to 1910." Un-published M. A. thesis, University of Louisville, 1967.



APPENDIX

LOUISVILLE SURVEY

EAST

FEBRUARY, 1978 - FEBRUARY, 1979

CITY OF LOUISVILLE COMMUNITY DEVELOPMENT CABINET

FORM 1

ADDRESS		EVEN <input type="checkbox"/>	ODD <input type="checkbox"/>	FACE
LOCATION		CENSUS	TRACT	ROLL
UTM		BLOCK	PHOTO	FRAME

MAP NO.		CONSISTENT	COMPATIBLE	POOR	POINTS
AREA	ADJACENT BLOCKS NEIGHBORHOOD				
TOTAL					

LAND USE	RESIDENTIAL	
	COMMERCIAL	
	INSTITUTIONAL	
	INDUSTRIAL	

MATERIALS	WALLS	
	WOOD	
	STONE	
	BRICK	
	STUCCO	
	ROOF	
	SHINGLE	
	METAL	
SLATE		
	TILE	

SCALE	1 STORY	1 1/2 STORY
	2 STORY	2 1/2 STORY
	3 STORY	STORY

BLOCK	LAND USE				
	SCALE				
	RHYTHM				
	ROOF SHAPES				
	DESIGN ELEMENTS				
	MATERIALS				
SETBACK					
	ENVIRONMENT				
TOTAL					

RHYTHM	REGIMENTED	
	VARYING	
	BROKEN	

SETBACK	SMALL	
	MEDIUM	
	LARGE	

ROOF	GABLE	PARAPET
	HIP	

GENERAL	OVERALL CONDITION	EXCELLENT		
		GOOD		
		FAIR		
DEVELOPMENT PERIOD		POOR		
		ANTE-BELLUM		
		VICTORIAN		
ARCHITECTURAL QUALITY		CLASSICAL		
		POST WWI		
		EXCELLENT		
TOTAL		GOOD		
		FAIR		
		POOR		

ELEM.	PORCHES	
	FENCES	

ENVIRON.	STREET TREES	
	LAWNS	
	SIDEWALK	

EVALUATION		CATEGORY
TOTAL		

LOUISVILLE SURVEY

EAST

FEBRUARY, 1978 - FEBRUARY, 1979

CITY OF LOUISVILLE COMMUNITY DEVELOPMENT CABINET

FORM 2

ADDRESS EVEN <input type="checkbox"/> ODD <input type="checkbox"/>		FACE	
LOCATION		CENSUS TRACT	ROLL
UTM		BLOCK	PHOTO FRAME

ADJACENT LAND USE	
RESIDENTIAL	COMMERCIAL
INSTITUTIONAL	INDUSTRIAL

BLOCK FACE USE	
INDIVIDUAL STRUCTURE	OPEN SPACE
NON ARCHITECTURAL	

SCALE	1 STORY	1 1/2 STORY
	2 STORY	2 1/2 STORY
	3 STORY	STORY

ELEM.	PORCHES
	FENCES

SETBACK	SMALL
	MEDIUM
	LARGE

MATERIALS	WALLS
	WOOD
	ROOF
	SHINGLE

ENVIRON.	STREET TREES
	LAWNS
	SIDEWALK

MAP NO.	
AREA	ADJACENT BLOCKS
	NEIGHBORHOOD

ADJ.	LAND USE
	BLOCK USE
TOTAL	

BLOCK	SCALE
	DESIGN ELEMENTS
	SETBACK
	MATERIALS
	ENVIRONMENT
TOTAL	

GENERAL	OVERALL CONDITION	EXCELLENT	
		GOOD	
		FAIR	
		POOR	
	DEVELOPMENT PERIOD	ANTE-BELLUM	
	VICTORIAN		
	CLASSICAL		
	POST WWI		
ARCHITECTURAL QUALITY	EXCELLENT		
	GOOD		
	FAIR		
	POOR		
TOTAL			

EVALUATION	
CATEGORY	
TOTAL	

CONSISTENT

COMPATIBLE

POOR

POINTS

Large copies of the following Subdivision and Annexation Maps and the Recommendations Maps will be available for use at the following locations:

Louisville Landmarks Commission
727 West Main Street
Fourth floor - Museum of History and Science
Louisville, KY

Filson Club
118 West Breckinridge St.
Louisville, KY

The Louisville Free Public Library
Main Library
301 West York St.
Louisville, KY

LOUISVILLE SURVEY EAST

CITY OF LOUISVILLE COMMUNITY DEVELOPMENT CABINET

LEGEND A

CITY BOUNDARY

SURVEY BOUNDARY

LOW

LOWER

MIDDLE

HIGH

RECOMMENDATIONS MAP

SCALE

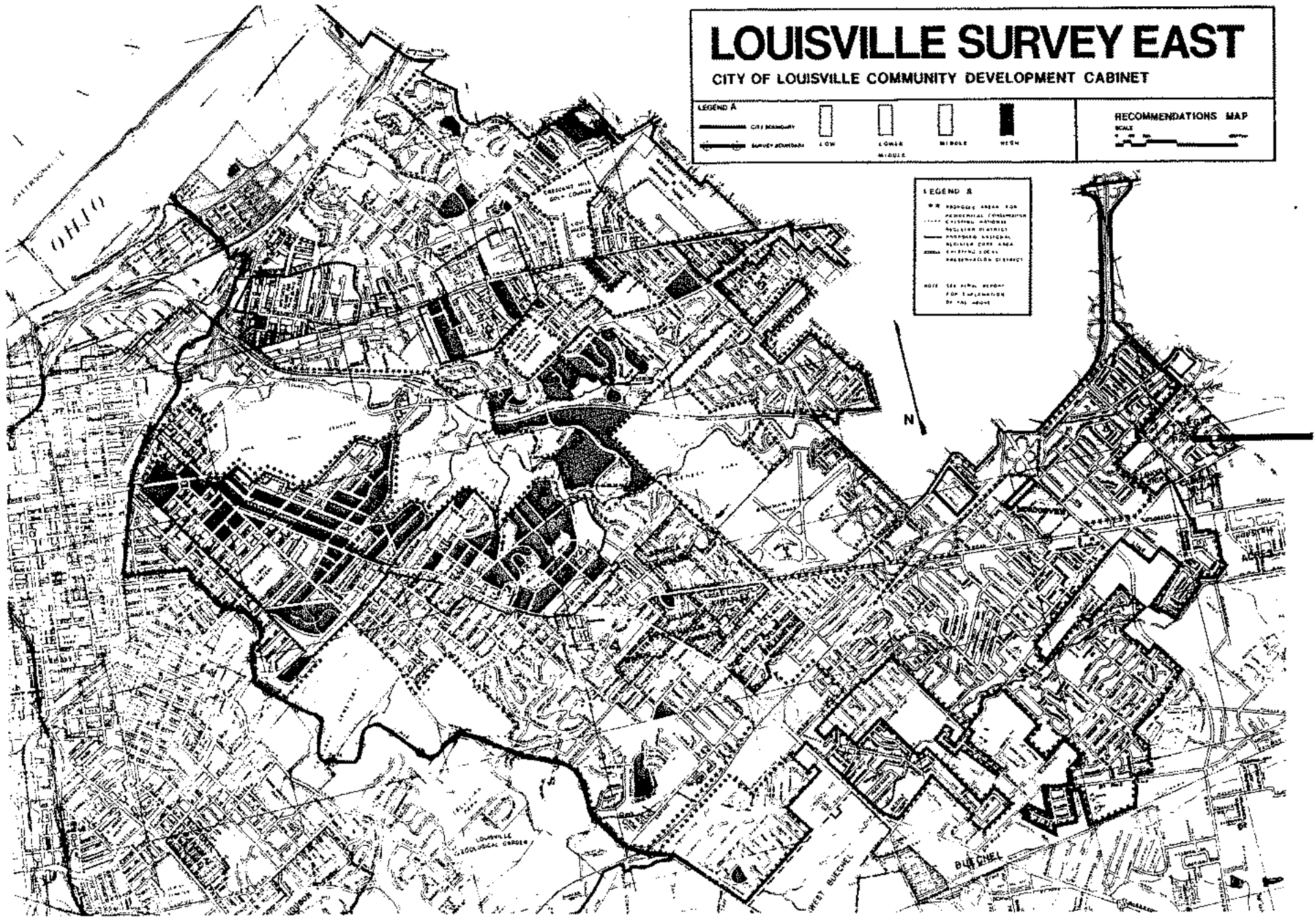
0 1/4 1/2 3/4 1

MILES

LEGEND B

WE PROPOSE AREA FOR
RESIDENTIAL DEVELOPMENT
EXISTING HIGHWAY
EXISTING PLANT
EXISTING INDUSTRIAL
EXISTING CORP. AREA
EXISTING LOCAL
EXISTING DISTRICT

NOTE: SEE MAP REPORT
FOR EXPLANATION
OF THIS MAP



LOUISVILLE SURVEY EAST

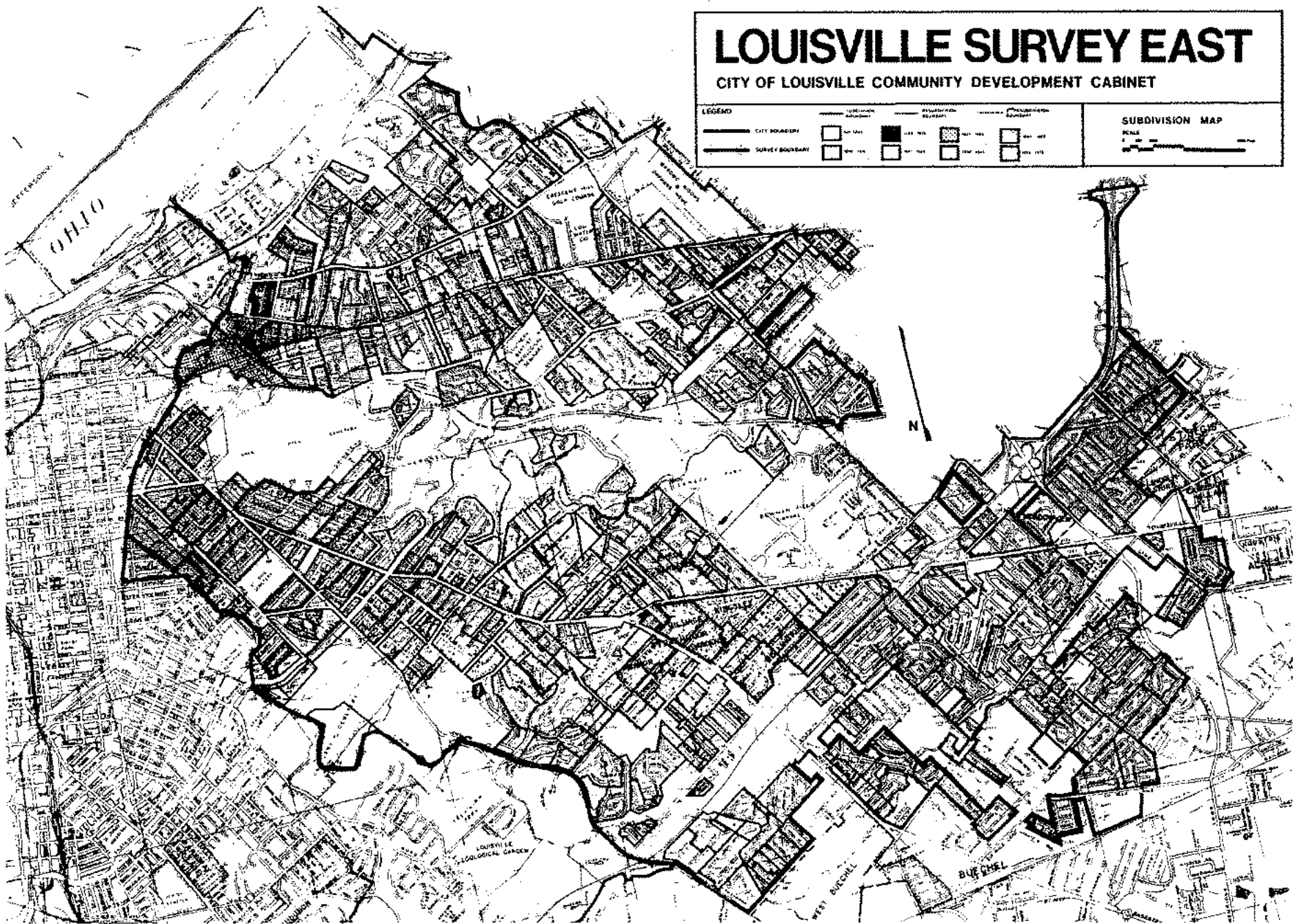
CITY OF LOUISVILLE COMMUNITY DEVELOPMENT CABINET

LEGEND

CITY BOUNDARY	LOT 1-10	LOT 11-20	LOT 21-30	LOT 31-40
SURVEY BOUNDARY	LOT 41-50	LOT 51-60	LOT 61-70	LOT 71-80

SUBDIVISION MAP


SCALE
0 100 200 FEET



CITY OF LOUISVILLE COMMUNITY DEVELOPMENT CABINET

CITY OF LOUISVILLE COMMUNITY DEVELOPMENT CABINET

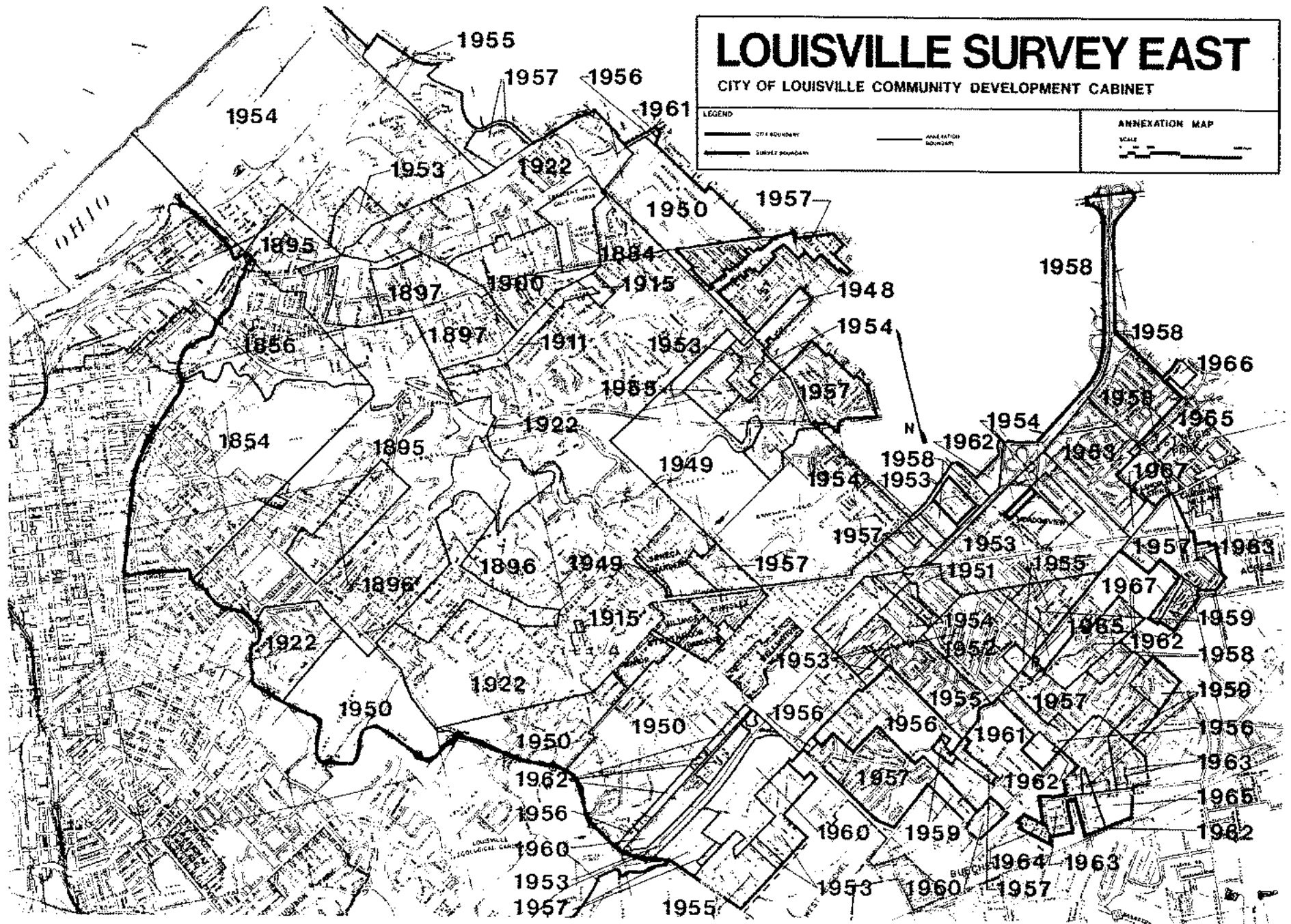
LEGEND

 Q74 GROUP
 Q75 GROUP

— ANNEX 4A FIDIC
Bidding Schedule

ANNEXATION MAP

VALUE



Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
Clifton Neighborhood				
1	19	1850	Schwing and Owings Division	Wm. F. & Sara Schwing, Samuel Schwing, J. M. Delph, Menanda Owings
2	20, 20, 22	1855	Guthrie's Eastern Enlargement	
3	190	1889	William Pope & John Edwards' Southall Tract	William Pope & John Edwards
4	460	1902	W. H. Hoskins Subdivision of the Franck Tract	John L. & Clara B. Franck
5	435	1889	Smyser and Harris's Subdivision of the Anderson Tract	Jacob L. Smyser and Theodore Harris
6	435	1883	Bowles' Dedication of Prospect Avenue and adjoining alleys	James W. & Anna Bowles F. Pope Bowles
7	289	1889	Hunter, Anderson & Bowles Addition	Jacob L. Smyser and Theodore Harris
8	178	1891	Hite & Others' Corrected Plat of Smyser & Harris Subdivision	S. S. Hite, B. W. Hite, Alfred Herr Hite, John & Josephine Drescher
9	297	1872	J. M. Bryant's Subdivision	J. M. Bryant
10	465	1902	John E. Roche's Subdivision	John E. Roche
11	298	1873	Bowles' Third Addition	James W. Bowles
	622	N.D.	Pope Heirs Division	
12	622	1863	Pope Heirs Division: Ross v. Pope, Louisville Chancery Court Case No. 17, 987	
13	622	1874	Pope Heirs Division: Atkinson v. Atkinson, Louisville Chancery Court Case No. 26-124	
14	622	1874	Pope Heirs Division: Henry D. Pope to Wallace Pope	
15	323	N.D.	Kate Pope's Addition	
16	471	1901	The Dennis Long Quarry Tract	Geo. J. Long, Nellie J. Long, Geo. Long, John H. Alderson, John D. Taggart, Florence L. Taggart, Katie Alderson, M. Henrietta Miller
17	356	1877	Cavewood Park	James W. Bowles & James Bridgeford, Assignee of Jas. M. Bowles
18	459	1902	Chas. W. Fust Subdivision	Chas. H. & Catherine Fust
19	459	1898	Rastetter's Subdivision	Joseph Rastetter
20	459	1905	Rastetter & Fust's Subdivision	Joseph Rastetter
21	804	1926	Balke's Subdivision No. 1	Wm. C. & Anna C. Balke
22	188/387	1872	Charles D. Pope's Addition	Charles D. Pope
23	288	1872	Beechland Subdivision in Pope's Addition	
24	434	1882	David Frantz's Addition	David Frantz, Jr.
25	399	1874	Adolph Rammers' Subdivision	Adolph Rammers
26	987	1893	Correction of Weissner's Subdivision	C. F. A. Weissner
27	501	1875	Bowles' Hill Side Addition Louisville Chancery Court Case No. 27, 265	J. B. Bowles' executor v. J. B. Bowles' Heirs
28	400	1896	Hawthorn Heights	J. E. & Carrie Bell
29	574	1912	Phillip Weikel Subdivision	Phillip & Jennie Weikel Dora & John Ewald Alvina & Paul Rondi
30	2035	1962	Brownsboro Heights Section No. 1	Gilbert & Emily M. Westerfield
31	412	1884	Geo. K. Speed's Crescent Hill Subdivision No. 1	Geo. K. Speed

32	481	1892	Mrs. Jennie E. Speed's Sub- division of Chatsworth	Jennie E. Speed
33	862	1927	Idlewylde	W. E. & Jane M. Koop
34	1028	1938	Idlewylde Section No. 2	Jane M Koop
35	376	1890	Galt's Subdivision in Crescent Hill	M. E. Galt & John T. G. Galt
36	371	1889	Crescent Hill Park	S. S. & Jennie H. Hite
37	701	1923	Ridge-Dale	Riner-Payne Development Co. E. A. Hail, Gertrude B. Hail, Minnie Reimers, Wm. Bell, Sr.
38	1056	N.D.	Revision of Block "B" of Ridge-Dale	
39	647	1921	Hollywood	Fidelity & Columbia Trust Co.
40	609	1915	Shippen's Subdivision	E. S. & Ada Shippen
41	380	1893	Aubindale	Columbia Finance & Trust Co.
42	474	1875	Lewis Lentz's Subdivision of Fairview	Lewis Lentz
43	474	1903	English's Crescent Hill Subdivision	Sam English, Lyda English, Rose English, Henry G. Reynolds, Florence English Reynolds
44	984	1924	Eastland-Feldhaus Subdivision	Solon & Mary Eastland to G. G. & E. Feldhaus
45	999	1934	Dedication of Westminster Court to City of Louisville	Crescent Hill Presbyterian Church
46	563	1909	Hill Crest	Cherokee Heights Land Co. G. V. Hieatt, President
47	517	1907	Blue Grass Addition	Charles M. & Maggie M. Phillips, James C. Hoskins, Bettie R. Williams
48	543	1891	Reservoir Park Company's Subdivision	Attila Cox, President Mechanics Trust Co.
49	430	1891	Raymond Subdivision	A. W. Randolph
50	430	1906	J. H. G. Wallbaum Subdivision of Part of the Raymond Place	J. H. G. Wallbaum
51	575	1910	Dumesnil and Rowland Subdivision	Edward & Carrie Rowland Harry & Eliza Dumesnil
52	439	1891	Valentine Franck's Subdivision	Valentine & Fredricka Franck
53	686	1923	Longview Land Company Subdivision	Longview Land Company V. F. Kimbel, Pres.
54	385	1891	Faust's Morningside Addition	Martin Faust, John Faust, S. S. Meddis, Chas. Southwick
55	385	1902	Ellwanger's Subdivision	Peter Ellwanger, executor of will of D. F. Ellwanger
56	620, 621	1916	Bruner's Dedication of Streets	Ambrose & Annie E. Bruner
57	461	1901	Birchwood Addition to Crescent Hill	Nancy Jane Birch
58	493	1913	Birchwood	Nancy Jane Birch
59	461	1888	Kennedy's Crescent Hill Subdivision	
60	480	1899	J. E. Bell's Subdivision in Crescent Hill	Jas. E. & Carrie Bell
61	541	1908	Eastleigh	Eastern Realty Company, Attila Cox, President
62	1069	1939	Avalon	J. H. & Laura Ruffin
63	649	1921	Upland Field "Cherokee" Subdivision	The Wheeler Company, Inc. Blakemore Wheeler, President
64	578	1911	Stilz Subdivision	Stilz Realty Company George Stilz, President
65	539	1871	Glenwood	E. W. Cannon, trustee for Mildred, John & Mildred Ann Thatcher

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
66	984	1926	Hermany Court	C. F. & Lizzie P. Jean
67	614	1907	Cherokee Heights	Cherokee Heights Land Co. G. V. Hieatt, President
68	528	1907	Eastover Park	A. McVaw
69	888	1932	Lem Realty Company's Subdivision No. 2	Lem Realty Co. Frank Short
70	861	1927	Landor Addition	Dan J. & Edna Sullivan
71	885	1928	Revision of Lots 1-10, 27, 28 in Landor Addition	Dan J. & Edna Sullivan
72	671	1922	Lightburne Subdivision of R. L. McCready Property on Cherokee Drive	Louisville Real Estate & Development Company, D. C. Clarke, President
73	1130	1942	Revision of Lots 115-121 of Lightburne Subdivision	Mildred & Thomas Vance Rose
74	798	1928	Cherokee Gardens	C. C. Hieatt & Helm Bruce
75	602	1915	Weisser Addition	F. O. Weisser
76	962	1903	Inglenook Addition to Crescent Hill	Charles D. & Anna S. Adams
77	204	1907	Inglenook Addition to Crescent Hill	Ben O. & Georgia Ford, Fred Diefenbach, Jr., H. Tobe
78	1267	1937	Green Tree Manor	Kentucky Development Corp. John J. Courtney, President
79	377	1892	Summit Park	Kentucky Excelsior Manufac- turing Company, John Drescher, President
80	377	1895	Thompson Park	Agnes N. Anderson
81	450	1897	Thompson Park	Kate L., Sarah, Richard D., Jessie L. & John S. Anderson
82	1526	1957	Mellwood Heights	Swindler Construction Co. Ben F. Swindler, President
83	526	1905	Belcourt	James E. & Carrie Bell
84	572	1910	"Indianola" Resubdivision of Anderson Park	Warren C. Callahan & Orville Stivers, Albert Forester, J. H. Schlanger
85	406	1895	Clifton Heights	Clifton Land Company Gottlieb Lettarle, President
86	1311	1950	Lindsay-Hite Subdivision	Lindsay-Hite Co., Inc. Ben F. Swindler, President
87	2153	1964	Honeysuckle Hill	Irwin & Marie B. Weyer
88	2084	1964	Le Blanc Court	James C. Irvin Co. James C. Irvin, President
89	1363	1952	Moran Place Subdivision Section No. 1	J. J. Coyle
90	1483	1954	Birchwood Manor	Highland Investment Co., Inc. Fred T. Hafendorfer, Pres.
91	2032	1962	Heather Hills Section No. 1	Eagles Company James W. Cambron, Jr. Pres.
92	2039	1962	Heather Hills Section No. 1 Revision of Lots 1-7	Eagles Company James W. Cambron, Jr. Pres.
93	2040	1962	Heather Hills Section No. 1 Revision of Lots 1-3 of Revision of Lots 1-7	Eagles Company James W. Cambron, Jr. Pres.
94	2055	1963	Heather Hills Section No. 2	Eagles Company James W. Cambron, Jr. Pres.
95	2610	1972	Highwood Apartment Complex	Ken State Development Co. & Riverhill Apartments, Inc.
96	940	1931	Dedication of Extension of Pryor Avenue	Joseph B. Hagen, Sr. & Ralph Stone, J. H. G. Wallbaum

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
Clifton Neighborhood				
97	570	1911	University Place Subdivision on Pipe Line Avenue	Andrew J. & Louise Zehnder Louis B. & Catherine Zehnder Louisville Building Co. G. H. McAlister, President
98	1112	1941	Don Warren Subdivision (Part of Lots 21-23 of University Place)	Don Warren
99	813	1928	McAlister's Eastern Subdivision	McAlister Land Company M. B. Pfeffer, President
100	1938	1960	Birchwood Place	Moorgate Development Co., Inc. John R. Carpenter, President
101	1486	1956	Regan Avenue Subdivision	Miller Finance Company Harold W. Miller, President
102	831	1926	Riedlonn Subdivision	R. D. Riedling
103	939	1931	Riedlonn Subdivision Section No. 2	R. D. Riedling & 10 others
104	934	1931	Riedlonn Subdivision Section No. 3	R. D. Riedling
105	734	1924	Brownsboro Place	Paul F. Semonin
106	2401	1967	Oaklawn Subdivision	James C. Irvin Co. James C. Irvin, President
Mockingbird Valley Neighborhood				
107	907	1912	Jutte Subdivision	Jane C. Jutte
108	1474	1955	Cherry Grove	Paul & Annabelle K. Wright
109	1430	1953	Ridgewood	Paul Semonin, Jr.
110	1426	1955	Revision of Greenleaves Subdivision Section No. 1	Zana Realty Co., Archer Dis- tributing Co., Naomi Land Co., Matilda Land Co., Edgar W. Archer, President
111	1427	1954	Greenleaves Subdivision Section No. 2	Edgar W. Archer, President
112	853	1926	Mockingbird Hill	Bushnell & Irins Co., Fidelity & Columbia Trust Co., Lightfoot Land Co.
113	715, 716	1927	Green Hills	
Braeview Neighborhood				
114	754	1924	Part of Braeview	Fehr Realty Co. Frank Fehr, President
115	764	1925	Braeview	Fehr Realty Co. Frank Fehr, President
116	2624	1972	Lexington Place	William H. Collins
Cherokee Gardens Neighborhood				
117	2497	1969	Cherokee Gardens West	W. B. Clem, Wm. A. Nunnelley, Jr., & Dahlem Realty Co.
118	791	1925	Fairfield Unit of Cherokee Gardens Subdivision	William S. Speed
119	789	1928	Cherokee Gardens	C. C. Hieatt & Helm Bruce, Jr.
120	2142	1964	Daneshall	Cambron-Kendall Co. Joseph W. Cambron, Jr., Pres.
121	2327	1966	Revision of Daneshall, Lots 11, 23-25	Cambron-Kendall Co. Joseph W. Cambron, Jr., Pres.
122	1464	1955	Cressbrook Subdivision	R. J. Stewart & Walter Wagner, Sr.
Spring Station Neighborhood				
123	1481	1955	Penwood	William M. Harris & R. N. Wathen
124	1401	1954	Propinquity Lane Subdivision	C. H. & Dorothy H. Keeling
125	1351	1952	Spring Station Subdivision	Helen B. Bruce

Sub No.	Plat No.	Year	Subdivision	Subdivider/Developer
126	1500-1501	1956	Cannonshire	Galt Avenue, Baxter Avenue, Ellwood Avenue & Glenmary Avenue Realty Cos., Joshua B. Adams, President
127	1513	1957	Revision of Cannonshire	Galt Avenue, Baxter Avenue, Ellwood Avenue & Glenmary Avenue Realty Cos., Joshua B. Adams, President
128	1066	1939	Woodland	James T. & Minnie Clark
129	1078	1940	Woodland Section No. 2	James T. & Minnie Clark
130	1110	1941	Woodland Section No. 3	James T. & Minnie Clark
			Rock Creek Neighborhood	
131	DB2787X15	1951	Seneca Hills No. 1	Eline Realty Co.
132	DB2959X245	1952	Seneca Hills Section No. 1	Eline Realty Co.
133	1857	1955	Seneca Hills Section No. 2	Eline Development Co., Anthony J. Eline, Pres. Highland Investment Co., Fred T. Hafendorfer, Pres.
134	DB3036X281	1953	Huntingdon Road	Martin Adams & Sons Co., Inc. Joshua B. Adams, President
135	1537	1958	Cannonside	Moorgate Development Co. John R. Carpenter, Pres.
136	1281	1949	Rock Creek Gardens Section No. 1	Martin L. Adams & Sons Inc.
137	1410	1955	Revision of Rock Creek Gardens Section No. 2	Martin L. Adams & Sons Inc. Joshua B. Adams, President
138	DB3131X81	1954	Chambery Circle	Nance Realty Co. Al J. Schneider, President
139	1489	1956	Hollin Terrace	Brown Hotel Firms J. Graham Brown, President
			St. Matthews Neighborhood	
140	850	1926	Cannonside Subdivision	Stewart W. & Mildred Allen
141	733	1924	Eline's Subdivision	Frank Eline & others
142	766	1925	Fairlawn	Wakefield-Davis Realty Co., William F. Randolph, Pres.
143	552	1910	Komus Subdivision	Komus Realty Co.
144	515	1907	E. T. Schmitt's Subdivision	E. T. Schmitt
145	816	1926	Lexington Manor	United States Realty Associ- ates, Inc. Ralph C. Phillips President
146	842	1926	Breckenridge Villa Section No. 1	J. C. & Lula M. Turner
147	851	1926	Breckenridge Villa Section No. 2	J. C. & Lula M. Turner
148	573a	1912	Maplewood Subdivision	Mary Nanz
149	573b	1913	Magnolia Subdivision	Louisa Neuner & F. A. & Sallie Kraft
150	631	1893	Cherokee Court Subdivision	Suburban Home Company & John A. Fisher by R. H. Thompson, President
151	1178	1946	Nanz Subdivision	Lupino Realty Company Edgar W. Archer, President
152	1286	1950	Revision of Nanz Subdivision	Lupino Realty Company Edgar W. Archer President
153	1525	1958	Broad Fields Section 2-A	Broadway & Fourth Avenue Realty Co., J. Graham Brown, President
154	1555	1959	Broad Fields Section 2-B	Broadway & Fourth Avenue Realty Co., J. Graham Brown President

Irish Hill Neighborhood				
155	273	ND	Map of Hamilton Avenue	
156	32-33	1859	Adams and Hull's Addition	Benjamin J. Adams, John C. Hull
157	360	1884	Schneikert's Subdivision	William & Julia Schneikert George & Anna Schuele
158	34	1864	Payne's Addition	Ward Payne
Phoenix Hill Neighborhood				
159	37	1891	Preston, Christy and Johnston's Subdivision of Lots 14-18	Susan Preston Hepburn, William Preston Johnston, Henrietta Preston Johnston
160	38		Rogers and Barr's Subdivision of 11 Acre Lot No. 19 in Preston's Division	
161	382	1894	Tarascon Woolen Mills Co. Plat	Tarascon Woolen Mills Co. Frank Von Borries, Pres.
Germantown-Paristown Neighborhood				
162	46		Campbells Original Addition	
163	47	1853	Beard & Wife v. Campbell	
164	42, 163	1854	T. Y. Brent's South Eastern Addition	T. Y. Brent
165	255	1870	Page's Subdivision of Original Howard and Page Subdivision	John Howard, Samuel Page (original plat Aug. 1833) DB KKK410
166	390	1870	Page's Subdivision of Lots Nos. 1 & 3	
167	176	1888	Castleman's Breckinridge Street Bridge Addition	
168	436	1896	Amendment of S. Hutching's Subdivision	Samuel & Kate Hutchings
169	986	1891	Dedication of Innis Court	Susan E. Higgins
170	691	1923	Subdivision of Rivers-Yeager Company, Inc., Tract	R. H. Rivers, Pres.
171	433	1898	Cuperton, Smith, and Norton's New Subdivision of Southern 12 Acres of Lot No. 4, Howard and Page's Division	Mary E. Caperton, Sarah S. Smith, and Anna C. Norton
172	309	1870	Guthrie's South Eastern Enlargement	Wm. B. & Ann A. Caldwell and S. Lawrence & Sarah Julia Smith
Highland Neighborhood				
173	963	1885	Dedication of Broadway and Barret, Wickliffe and Randolph Avenues	William Preston & Maria Preston Pope
174	983	1885	Plat by William Preston & Maria Preston Pope	William Preston & Maria Preston Pope
175	452	1896	Barr's Subdivision	Josephine B. McFerran, Anna W. Barr, Carolyn Barr Joyes, Morton V. Joyes, Susan B. McDermott, Edward J. McDermott Elizabeth W. Barr, J. B. McFerran, Jr.
176	166	1853	Christy and Johnston's Subdivision	
177	36	1853	Christy and Johnston's Subdivision in Preston's Eastern Enlargement	H. F. Christy and S. P. Christy
178	280	1891	Wm. Preston Johnston's Subdivision of Farm Lot No. 24	Wm. P. & Henrietta Johnston
179	280	1869	Sidney Rogers' Subdivision of Farm Lot No. 25	Sidney J. & A. Belle Rogers
180	359	1875	William Hughes Addition	Teutonia Real Estate & Building Assn., E. C. Bohne, President

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
			Tyler Park Neighborhood	
181	208	1925	Bates Court	Winthrop Allen
182	849	1926	Dedication of Hawthorne Avenue	John F. & Elnora B. Ecker
183	964	1913	Rothchild and Taylor Subdivision	Sylvia Rothchild
184	845	1926	Dedication of Dahlia Drive and Summit Avenue	C. R. & Mary Mengel
185	879	1928	Hawthorne Highlands	C. R. Mengel
186	666	1922	Castleton Subdivision Section No. 1	C. W. Gheens
187	666	1922	Castleton Subdivision Section No. 2	C. W. Gheens
188	1009	1948	Castle Vale Revision	Nance Realty Co. Al J. Schneider, President
189	1315	1950	Castle Vale Addition and Re- vision of Lots 1-4 of Castle Vale Revision	Nance Realty Co. Al J. Schneider, President
190	1347	1952	Castle Vale Addition Section No. 2	Nance Realty Co. Al J. Schneider, President
191	513	1907	E. A. Goddard's Subdivision	Edward A. & Susan Goddard
192	603	1912	Revision of E. A. Goddard's Subdivision	Edward A. & Susan Goddard
193	1049	1926	Castlewood (PB 7X70 & DB 1234X154)	H. H. Poutch, Chas. Bright, Jr., O. Byron to Helen J. Dravo wife of E. L. Dravo
194	623, 1049	1905	Castlewood (PB 1X69 & DB 622X445)	John B. Castleman
195	623, 1049	1909	Castlewood (DB 697X552-5)	
196	623, 1049	1912	Castlewood (DB 866X74-5)	John B. Castleman
197	392	1895	Section of Castlewood Addition	John B. & Alice B. Castleman
198	209	1902	Zehnder Garden Subdivision	Anton & Josephine Zehnder
199	411	1891	Forwood's Subidvision of Schmidt's Addition	Clinton W. Forwood
200	351	1882	J. S. Longest's Subdivision of 7 1/2 Acres	J. S. Longest
201	380	1889	Harry Stucky's Highland Grove Addition	Harry Stucky
202	373	1889	Meddis & Smith's Ridgeland Addition	S. S. Meddis & Charles F. Smith
203	542	1910	Windsor Place	Highland Realty Co., Henry M. Johnson, President
204	405	1873	John H. Tucker's Subdivision	John H. Tucker
205	374a	1906	Revision of the Highlands Subdivision	Charles M. Phillips
206	374b	1904	Mary Herp's Subdivision	
207	375	1893	Revision of S. S. Meddis's Subdivision of part of Lot No. 2 of Tucker's Addition	S. S. Meddis
208	374c	1891	Oechsli's Eden Side Subdivision	Joseph Oechsli
209	374e	1901	Meddis and Southwick's Subdi- vision of Part of Oechsli's Edenside Addition	Charles Southwick, S. S. Meddis
			Camp Taylor Neighborhood	
210	1201	1921	Camp Zachary Taylor Main Camp	Louisville Real Estate and Development Co., D.C. Clarke, President
			Cherokee Triangle Neighborhood	
211	358	1878	H. I. Craycroft's Subdivision	Stephen E. Jones, Trustee of H. I. Craycroft
212	468, 492	1885	Henning & Speed's Highland Addition	James W. Henning & Joshua Speed

213	468	1890	Dedication of Douglas Avenue (Dearing Court)	Thomas James
214	1098	1941	Willow Place	R. A. & Lillian Eberenz
215	492	1907	Miss Fanny L. Slaughter's Subdivision	Fanny L. Slaughter
216	747	1921	Glenmary Subdivision	Glenmary Land Company, W. Wallace McDowell
217	527	1908	Extension of Ransdell Avenue and 15 foot alley	Henry S. Barker
218	630	1915	Revision of Henry S. Baker's Subdivision	Henry S. & Kate Barker
219	186(b)	1891	Bassett & Henry Longest's Subdivision	Eastern Land Company John Stites, President
220	976(b)	1905	Bassett & Henry Longest's Subdivision	Eastern Land Company
221	186(a)	1884	Clayton Longest's Subdivision	Louisville Savings Investment Assn., John H. Sutcliffe, Pres
222	382	1894	Clayton Longest's Subdivision	Louisville Savings Investment Assn., John H. Sutcliffe, Pres
223	976(a)	1905	Clayton Longest's Subdivision Division in Louisville Chancery Court Case No. 38,204.	
224	427	1905	Eastern Park Land Co. Subdivision	Eastern Park Land Co., John Stites, President
225	469	1891	Norris's Highland Addition	John E. Norris
226	512	1906	Baringer Land Company's Subdivision	Baringer Land Company Edward F. Peter, President
227	594	1914	Deer Park Neighborhood Hartman Land Company's Subdivision	Hartman Land Company George Hartman, President
228	613	1919	Maria B. Hartman's Property Adjoining Hartman's Subidvision	Anton J. Eline, Elizabeth Hartman Eline, Mary Hartman & George S. Hartman, Trustee for Pearl Ruth Hartman
229	372	1889	N. T. Lee's Subdivision	N. T. & Martha S. Lee
230	374 d	1891	Norris's Eden Side Addition	John E. Norris
231	514	1907	Marie Gernert's Addition	Marie Gernert
232	799a	1922	Shady Lawn	Wakefield-Davis Realty Co. William F. Randolph, Pres.
233	799b	1929	Revision of Block "C" of Shady Lawn	George J. Hartman
234	702	1923	Shady Glen Subdivision	Odom Realty Company, agent, S. P. Wilkinson, owner.
235	521	1907	Subdivision of Andreas Hauck's 5 Acre Tract: Lot No. 1 in Division of Killian Allgeier's Estate	Joseph W. & Margaret Heeter
236	1000	1935	Olympia Subdivision	L. Jacobson & Sons, Inc. Ben P. Jacobson, President
237	591	1914	Gerlach Subdivision, Lot No. 12, Block No. 1	Caroline Ackerman
238	441	1894	Theodore Schwartz's Beargrass Heights Subdivision	Kentucky National Bank S. S. Bockee, President
239	508a	1906	Joseph W. Heeter Subdivision on Deerwood Ave. in the Highlands	Joseph W. Heeter
240	508b	1903	George J. Graeser's Subdivision on Deer Park Avenue	George J. & Jennie Graeser
241	508c	1907	H. T. Feldhaus Addition	Henry T. & Mary Feldhaus
242	457a	1901	Bullock's Highland Subdivision	Laurance Boreman, Talbot O. Bullock, John O. Bullock & Florence J. Bullock
243	457b	1904	Duker Subdivision	Albert G. Eilers, administra- tor of estate of Geo. Duker

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
244	457c	1901	Deer Park Annex	Meddis & Cox
245	505a	1902	Deer Park Subdivision	Harry Weissinger
246	505b	1906	Henry Subdivision	W. K. Henry, Bettie M. Henry & Edward B. Henry
247	635	1927	Revision of Forest Park	W. M. Randolph
248	569	1914	Alfresco Place Section No. 1	Albert S. & Anna C. Zimlich Leo J. & Hannah M. Zimlich
249	596	1914	Alfresco Place Section No. 2	Albert J. Zimlich Leo J. Zimlich
250	598	1915	Alfresco Place Section No. 3 Bonnycastle Neighborhood	Leo J. Zimlich
251	605	1872	Sherwood Avenue Subdivision	
252	456b	1891	Johnson's Melrose Addition	J. G. & Kate Brown N. L. & Scottie L. Johnson
253	978	1914	Parkway Addition	A. H. Marret
254	991	1904	Thompson's Sherwood Avenue Subdivision	E. V. Thompson, Sr.
255	456a	1900	Caldwell & E. J. Norton's Subdivision	Ernest & F. Zorn Norton Caldwell & Nannie Norton
256	503		Dedication of Alta Avenue	
257	591	1914	Edgewood Place	Parsons Realty Company A. L. Parsons, President
258	486b	1901	Caldwell & E. J. Norton's Subdivision No. 2	Caldwell & Nannie Norton Ernest & Ferda Norton
259	486a	1900	Bonnycastle Addition	Harriet E. Bonnycastle
260	486c	1911	L. P. Kleiderer's Addition	L. P. & Florence Kleiderer
261	571	1912	Bonnycastle Homestead Subdivision	Simon N. Jones, James M. Chilton, Clarence R. Gardiner
262	990	1905	William Krankel's Addition	William Krankel & Charles Wolke
263	717	1924	Dingle View	Dingle View Land Co. W. C. Coleman, President
264	723	1924	Sulgrave	Helm Bruce, Jr.
265	1391	1953	Cherokee Hills	Lovell N. Simpson
266	604	1907	Douglass Neighborhood Kenilworth	Highland Realty Co. Henry M. Johnson, President
267	638	1920	Lauderdale	William F. Randolph
268	657	1920	Lauderdale Section No. 1	William F. Randolph
269	658	1921	Lauderdale Section No. 2	William F. Randolph
270	724	1924	Dedication of Speed Avenue	Helm Bruce, Jr., Julia D. Henning, & Dingle View Land Co., W. C. Coleman, Pres.
271	655	1922	Cherokee Village	Consolidated Realty Co. C. C. Heatt President
272	705	1923	Cherokee Village	Consolidated Realty Co. C. C. Heatt President
273	640	1921	Woodbourne Subdivision	Starks Realty Co. Isaac F. Starks, President
274	996		Starks Place - Revision of part of Woodbourne	Kentucky Title Insurance Co. & John P. Starks, trustee of will of Sallie C. Starks
275	545	1903	Addition to Douglass Park Subdivision	Lattimore D. Carter, Trustee of will of Geo. Douglass & Sally R. Carter
276	208	1901	Lot 3 of Douglass Park Subdivision of Geo. L. Douglass Estate	
277	964	1904	Douglass Park Subdivision	Mrs. S. R. Carter
278	1107	1944	Park Acres	Fidelity & Columbia Trust Co. trustee of will of J. C. Parker

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
279	1030	1938	Millvale	Lewis S. Gorin Standiford D. Gorin
280	1089	1940	Moyle Hill	Fidelity & Columbia Trust Co.
281	1303	1950	Ingleside	William C. & Lois K. Embry
282	1352	1952	Ingleside Section No. 2	Ingleside Development Co., Inc., Wm. C. Embry, Pres.
283	1275	1949	Cherosen Hills	C. K. Reynolds
284	561	1911	Woodbourne Heights	Louisville Trust Company H. V. Loring, President
285	660	1922	Meyer's Subdivision	Elizabeth & Geo. W. Meyer
286	639	1920	Weber's Heirs Subdivision	Alois & Juliet Weber Zehnder, C. R. & Verna Weber Manemann, Alfred & Alma Grieshaber, Martin Weber, Ray D. Weber, Mrs. Bertha J. Weber, Mary Emma Weber, Bertha B. Weber
287	756	1924	DeSopo's Subdivision	Joseph DeSopo
288	644	1922	James Davis Subdivision	James H. & Virginia Davis
289	665	1922	William Talbott's Subdivision of Lot No. 5 in Matilda Talbott Division	13 lot owners
290	597	1914	Ben S. Talbott's Subdivision of Lot No. 1 in the Division of Matilda Talbott's Estate	Ben S. Talbott
291	765	1925	F. G. Von Roenn's Addition	Fred G. Von Roenn, L. B. Von Roenn, Annie Bicker
292	511	1906	Kaelin's Subdivision	Kaelin Land Company Arthur E. Mueller, Pres.
293	977	1912	Revision of Kaelin's Sub- division No. 2	Fred Kaelin
294	466	1902	Alta Vista Road Section of Braeview Addition Wilson Subdivision	John A. Fulton, assignee of Mrs. Nannie M. Wilson
295	2141	1964	Alta Circle	Pruitt Built Homes, Inc. Lee D. Pruitt, President
296	2440	1968	Alta Circle Section No. 2	Pruitt Built Homes, Inc. Lee D. Pruitt, President
297	2205	1965	Rostrevor Subdivision	Warwick Enterprises, Inc. Robert Browne, President
298	682	1923	Belknap Neighborhood Aberdeen	Wakefield-Davis Realty Co. Wm. F. Randolph, President
299	693	1923	Aberdeen Section No. 2	Wakefield-Davis Realty Co.
300	788	1925	Aberdeen Section No. 3	Wakefield-Davis Realty Co.
301	697	1923	Glenafon	Lyons Real Estate and Develop- ment Co., Lorenz & Katherine Allgeier
302	931	1931	Aberdeen Section No. 4	Wakefield-Davis Realty Co. Wm. F. Randolph, President
303	932	1931	Aberdeen Section No. 5	Wakefield-Davis Realty Co. Wm. F. Randolph, President
304	1032	1938	Aberdeen Section No. 7	J. H. Wakefield, owner and trustee
305	653	1922	Tecomah	Wakefield-Davis Realty Co. Wm. F. Randolph, President
306	1018	1937	Valley Vista Section of Aberdeen & Tecamah	J. H. Wakefield, owner and trustee
307	1969	1961	Tecomah Woods	Marbar Land Company, Inc. Charles J. Binq, President
308	1076	1939	R. J. Fanelli's Subdivision	R. J. & Louise Fanelli
309	1092	1940	Revision of R. J. Fanelli's Subdivision	R. J. & Louise Fanelli, Ralph R. & Margaret Stephens, Mary C. & Emmett S. Watkins

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
310	629	1917	University Park	International Realty Associates, St. Louis Co., Minn. N. J. Upham, Pres., Lewis A. Walter, Gen. Manager
311	681	1923	University Park	International Realty Assoc.
312	216	1924	Revision of a portion of University Park	International Realty Assoc.
313	874	1927	Walterdale Terrace	Lewis A. Walter
314	566	1913	Cherokee Plaza	Cherokee Land Company John H. Sale, President
315	566	1916	Addition to Cherokee Plaza	Cherokee Court Land Co. Fred J. Drupler, President
316	506	1901	Zimlich Addition No. 1	Victor N. Meddis
317	506	1901	Zimlich Addition No. 2	Victor N. Meddis
318	510	1907	Sils Addition	John H. & Mary Sils
319	683, 684	1923	Lakeside	Wheeler Auction Corporation W. L. Wheeler, President
320	642	1921	Eastview Park	Harry A. McKnight, R. H. Knopp, H. M. Walker
321	2025	1962	Trough Springs	David H. Wilson, Bobby Welsh
322	1034	1935	Pferrer's Subdivision	Gustav & Emma Pferrer
323	636	1920	Strathmoor-Kingsley-Seneca Gardens Area Strathmoor (City of Strathmoor Village)	Consolidated Realty Co. C. C. Hieatt, President
324	637	1921	Strathmoor Section No. 2 (City of Strathmoor Manor)	Consolidated Realty Co. C. C. Hieatt, President
325	801	1925	Strathmoor Section No. 4 (City of Strathmoor Manor)	Consolidated Realty Co. C. C. Hieatt, President
326	678	1923	Strathmoor Addition (City of Strathmoor Gardens)	Consolidated Realty Co. C. C. Hieatt, President
327	797	1925	Kingsley Extension of Strathmoor (City of Kingsley)	Hieatt Bros. C. C. Hieatt, President
328	656	1922	Broadmeade (City of Seneca Gardens)	Discher Land Company Fred Moellein, Pres. and Wetstein Land Co. Edward F. Weigel, President
329	835	1926	Broadmeade (City of Seneca Gardens)	Wetstein Land Co. Edward F. Weigel, President
330	936	1931	Broadmeade Section 5 (City of Seneca Gardens)	Wetstein Land Co. Edward F. Weigel, President
331	1006	1937	Seneca Gardens (City of Seneca Gardens)	Denver B. & Edith Cornett
332	1521	1957	Hayfield-Dundee Neighborhood Dundee Estates Section No. 1	Sierra Land Company L. J. Harris, President
333	1924	1960	Dundee Estates Section No. 2	Sierra Land Company
334	1561	1959	Clarewood	Lawrence F. & Clare W. Speckman
335	2279	1966	Hayfield Section No. 1	Gerald Realty Corp. Louis Arru, President
336	2278	1966	Hayfield Section No. 2	Gerald Realty Corp. Louis Arru, President
337	2391	1967	Hayfield Section No. 3	E. P. Dillon & Sons Co. Edward J. & David P. Dillon, partners
338	1502	1956	Woodside Park	Carl Besendorf
339	2067	1964	Williamsburg Village	Hickory Lane Company, Inc.
340	2225	1965	Larkwood	William J. Steier & Sons Charles G. Steier, William J. Steier, Jr.
341	1944	1944	Gardiner Lane Park	Gerald Realty Corp. Louis A. Arru, President

342	2041	1962	Deil Lane Section No. 1	Fourth Avenue Amusement Co. D. Irving Long, President
343	2037	1962	Deil Lane Section No. 2	Fourth Avenue Amusement Co. D. Irving Long, President
344	2038	1962	Deil Lane Section No. 3	Fourth Avenue Amusement Co. D. Irving Long, President
345	770	1925	Homelawn Subdivision on Emerson Avenue	Maddox Kinkead, Architects, Builders & Realtors Christine & Elizabeth Yann
346	741	1924	Gardiner Lane Neighborhood Villula Park	Louisville & Jefferson County Land Co., Frank Simons, Pres.
347	1059	1939	Winston Forest	Louisville & Jefferson County Land Co., Alfred Simons, Pres.
348	1062	1940	Winston Forest Section No. 2	Louisville & Jefferson County Land Co., Alfred Simons, Pres.
349	1154	1941	Gladstone Addition	Edgar & Margueritte Archer
350	626	1917	Briscoe Subdivision No. 1	Fidelity Trust Co. under will of E. D. Briscoe
351	662	1922	Revision of and Addition to Briscoe Subdivision No. 1	Fidelity and Columbia Trust Co., trustee of will of E. D. Briscoe
352	755	1924	Glendale Subdivision on Tyler Lane	Kentucky Real Estate and Development Co., George W. Yeager
353	650	1913	Tremont Drive and Cumberland Avenue Dedication	Theodore & Martha O'Toule G. L. & Marie Reuenaugh, Herman & Anna King, C. C Younger
354	711	1923	Charles Kurz Subdivision	Louis & Mary Hoock Charles & Amelia Kurz
355	731	1924	Hoock Subdivision	Louis & Mary Hoock
356	707	1923	Bonnie View Subdivision	Nicholas & Annie Schmidt Louis & Mary Hoock
357	1243	1949	Revision of Carol Acres	Sidney & Rose Schneider
358	1244	1947	Carol Acres Sections 2 & 3	Sidney & Rose Schneider
359	1269	1949	Revision of Carol Acres Section No. 3	Sidney & Rose Schneider
360	1194	1946	Sherbrooke	Lee & Emma Pruitt
361	1302	1950	Wellbrooke	Harry & Rose Taylor
362	1333	1951	Hawthorne Neighborhood Kingsley Addition	Anthony J. Driesbach
363	557	1909	Bon Air Subdivision	A. V. Thomson
364	206	1914	Lancashire Subdivision	Geo. W. Holland Mrs. A. E. Holland
365A	802	1925	Herndon Place	Wm. C. Coleman
365B	833	1928	Wellington Extension of Strathmoor (City of Wellington)	Consolidated Realty Co. C. C. Helatt, President
366	1177	1946	Alanmeade Subdivision	Edgar W. Archer
367	1263	1948	Villanova Subdivision	M. C. Elliott and Ada M. Delhommer
368	779	1925	Beaumont	Wakefield-Davis Realty Co. Wm. F. Randolph, President
369	782	1925	Beaumont Section No. 2	Wakefield-Davis Realty Co. Wm. F. Randolph, President
370	818	1926	Hathaway Subdivision	J. C. Turner, trustee
371	906	1929	Seneca Village	Dingle View Land Co. Wm. C. Coleman, President
372	1247	1948	Seneca Village Section No. 2	Lupino Realty Co., Inc. Edgar W. Archer, President
373	1308	1950	Revision of Seneca Village Section No. 2	Lupino Realty Co., Inc. Edgar W. Archer, President

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
374	2099	1964	Watterson City Neighborhood Watterson City Subdivision Section No. 1-A	Watterson City, Inc. Kemmons Wilson, President
375	2161	1965	Watterson City Subdivision Section No. 2	Watterson City, Inc. Kemmons Wilson, President
376	2289	1965	Watterson City Subdivision Section No. 3	Watterson City, Inc. Kemmons Wilson, President
377	1490	1956	Meadowcreek Subdivision	Fielding H. Dicky, Developer Owner, Woodbine Enterprises, Inc., B. E. Brubaker, Pres.
378	1546	1958	Meadowcreek Subdivision Section No. 2	Woodbine Enterprises, Inc. Owner, B. E. Brubaker, Pres. Fielding H. Dicky, Developer
379	2061	1963	Meadowcreek Subdivision Section No. 3-A	Gerald Realty Corp. Louis A. Arru, President
380	2093	1964	Meadowcreek Subdivision Section No. 3-A	Gerald Realty Corp. Louis A. Arru, President
381	2383	1967	Meadowcreek Subdivision Section No. 3-C	Gerald Realty Corp. Louis A. Arru, President
382	1460	1954	Village Green Subdivision	Martin L. Adams & Sons Joshua B. Adams, President
383	2062	1963	Vicksburg Heights Subdivision	Gerald Realty Corp. Louis A. Arru, President
384	2111	1964	Vicksburg Manor Subdivision	Gerald Realty Corp. Louis A. Arru, President
385	1371	1952	Manorview Subdivision	Manorview Corp. Henry A. Hayden, Pres.
386	1482	1955	Manorview Subdivision Section No. 2	Manorview Corp. Henry A. Hayden, Pres.
387	1492	1956	Manorview Subdivision Section No. 3	Manorview Corp. Henry A. Hayden, Pres.
388	2060	1953	Manorview Subdivision Section No. 4	Gerald Realty Corp. Louis A. Arru, President
389	1374	1952	Bashford Manor Gardens	Harold W. Miller Arthur G. Miller
390	1440	1955	Bashford Manor Gardens Section No. 2	Harold W. & Mildred L Miller
391	1504	1956	Green Meadows Neighborhood Green Meadows Section No. 1	Galt Avenue Realty Co. Ellwood Avenue Realty Co.
392	1505	1957	Green Meadows Section No. 2-A	Glenmary Avenue Realty Co.
393	1531	1958	Green Meadows Section No. 2-B	Baxter Avenue Realty Co. Joshua B. Adams, President
394	1536	1958	Green Meadows Section No. 2-C	
395	1544	1958	Green Meadows Section No. 2-D	
396	1506	1956	Green Meadows Section No. 3	Rock Castle Investment Co.
397	1507	1956	Green Meadows Section No. 4	Fern Creek Heights, Inc. John E. Kennedy, President
398	1509	1956	Matthews Manor	Matthews Homes Inc. Chas. M. Matthews, President
399	1556	1959	Katbert Subdivision	Kathleen & Cesare Bertoli
400	1807	1959	Chery Chase Section No. 2	Ben and Florence Kaplan
401	1933	1960	Landan Subdivision	Joseph D. & Doris M. Spalding
402	1312	1950	Brookfield Manor	Jefferson Realty Company Jack W. Riley, Jr., Lillian M. Riley, Avery M. Riley, Betty G. Riley, Jack W. Riley
403	1123	1939	Wellington	Ralph & Tabitha Drake
404	1254	1948	Revision of Strathmoor Park	Madison E. Douglas, Sr. and Madison E. Douglas, Jr.

405	1376	1953	Chester Villa Section No. 2	Chester Villa Corp. Chester Looper, Sec.-Treas.
406	1388	1953	Bon Air Estates	Bon Air Estates, Inc. W. E. Cox, President
407	1466	1955	Bon Air Estates Section No. 2	Kathleen E. Whittenberg, Trustee for H. G. Whittenberg, Jr., Walton D. Whittenberg, & William T. Whittenberg
408	1467	1955	Bon Air Estates Section No. 3	Kathleen E. Whittenberg
409	1484	1956	Revision of Lots 69-78 of Bon Air Estates Section No. 3	Whittenberg Engineering & Const. Co., Inc. H. G. Whittenberg, Jr., Pres.
410	1417	1954	Dell Brooke Subdivision	Emery Kinkead, Inc. Emery Kinkead, President
411	1498	1956	Bon Air Estates Section No. 5 (Supercedes Dell Brooke Sub.)	Bon Air Estates, Inc. W. E. Cox, President
412	1488	1955	Goldsmith Manor	H & C Developers, Inc. Irvin Fred Harrod, President
413	1423	1954	Monterey Villa Section No. 1	Alexander & Elizabeth Bush
414	1943	1960	Golden Heights	Chester Villa Development Co., Inc., Edw. Butler, President
415	1522	1956	Glen Oak	Gatewood Builders Supply Inc. Joseph F. Spraver, Jr., Pres.
416	1523	1957	Revision of Lots 26-35 of Glen Oak	Gatewood Builders Supply, Inc. Joseph F. Spraver, Jr., Pres.
417	1256	1948	Seneca Village Section No. 3	Lupino Realty Co., Inc. Edgar W. Archer, President
418	1411	1954	Second Revision of Seneca Village No. 3	Chipleay Realty Company, Paul Kapslow, Lewis I. Leacher, & A. N. Kornman, partners
419	1385	1953	Wedgewood Manor Subidvision	L. Leroy Highbaugh, Sr. & Jr., Developers, Marquette Realty Co. & Hiawatha Realty Co., T. L. Corcoran, Pres. owner
420	1339	1952	Revision of Rose Dale Subdivision	Grandview Realty Corp. L. Robert Peter, Pres.
421	1398	1954	Revision of Lots 106-125 of Revision of Rose Dale Sub.	Grandview Realty Corp. & Peter Const. & Supply Co., Robert Peter, President
422	1409	1954	Revision of Lots 85-105 of Revision of Rose Dale Sub.	Grandview Realty Corp. C. Robert Peter, President
423	1386	1954	Revision of Highgate Springs Section No. 1	Crawford Homes, Inc.
424	1397	1954	Revision of Highgate Springs Section No. 2	Crawford Homes, Inc.
425	1454	1955	Highgate Springs Section No. 3	Breslin Construction Co. Frank H. Breslin, Pres.
426	1919	1960	Highgate Manor	The Sovereign Co., Inc. R. W. Marshall, President
427	1946	1960	Revision of Lots 1-3 of Highgate Manor	The Sovereign Co., Inc. R. W. Marshall, President
Klondike Neighborhood				
428	1470	1955	Midlane Park Section No. 1	Chester Villa Development W. Edward Butler, President
429	1471	1955	Midlane Park Section No. 2	The Deerfield Co., Inc. R. W. Marshall, President
430	1529	1958	Midlane Park Section No. 3	Chester Villa Development Edward Butler, President
431	1541	1958	Midlane Park Section No. 4	Chester Villa Development Edward Butler, President

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
432	1545	1958	Midlane Park Sections 5 & 6	The Deerfield Co., Inc. R. W. Marshall, President
433	1992	1961	Midlane Park Section No. 7	The Deerfield Co., Inc. R. W. Marshall, President
434	2033	1962	Midlane Park Section No. 8	Chester Villa Development Co. Edward Butler, President The Langan Corporation Richard I. Beckley, President
435	2286	1965	Midlane Park Section No. 9-A	Chester Villa Development Co. Edward Butler, President The Langan Corporation Richard I. Beckley, President
436	2034	1962	Midlane Park Section No. 9-B	Chester Villa Development Co. Edward Butler, President The Langan Corporation Richard I. Beckley, President
437	2124	1964	Midlane Park Section No. 9-C	Chester Villa Development Co. The Langan Corporation
438	2520	1970	Midlane Park Section No. 9-D	Chester Villa Development Co. The Langan Corporation Edward Butler, President
439	2085	1964	Midlane Park Sections 10 & 11 and Redivision of Lots 218, 219, 248, & 249 in Section No. 7	Deerfield Co., Inc. R. W. Marshall, President
440	2080	1964	Midlane Park Section No. 12	Ed Butler Construction Co. Edward Butler, President
441	2064	1963	Midlane Terrace Section No. 12	Midlane Terrace, Inc. Robert J. Thieneman, Pres.
442	2204	1965	Midlane Terrace Section 2-A	Midlane Terrace, Inc. Robert J. Thieneman, Pres.
443	2649	1972	Midlane Terrace Section 2-B	Midlane Terrace, Inc. Robert J. Thieneman, Pres.
444	1538	1958	Klondike Manor	Grandview Realty Co., Inc. L. Robert Peter, Sr., Pres.
445	2113	1964	Klondike Park	Reviera Park Syndicate, Inc. R. F. McMahan, Sr., Pres.
446	1508	1956	Roselawn Subdivision Section No. 1	Grandview Realty Corp. L. Robert Peter, Sr. Pres.
447	1549	1958	Roselawn Subdivision Section No. 2-A	Peter Construction & Supply Co., C. Robert Peter, Pres.
448	1550	1956	Roselawn Subdivision Section No. 2-B	Peter Construction & Supply Co., C. Robert Peter, Pres.
449	1510	1956	Klondike Acres Subdivision Section No. 1	Breslin Construction Co. Frank H. Breslin, President
450	1511	1956	Klondike Acres Subdivision Section No. 2	Breslin Construction Co. Frank H. Breslin, President
451	1542	1958	Klondike Acres Subdivision Section No. 3	Breslin Construction Co. Frank H. Breslin, President
452	1557	1959	Gatewood Subidvision Section No. 1	
453	1910	1960	Gatewood Subidvision Section No. 2	J & H Homes, Woodgate Homes Inc., Gatewood Builders Supply, Inc., Layside Homes Inc., Joseph F. Spraver, Pres.
			Bowman Field Neighborhood	
454	1453	1955	Park Hills	Al J. Schneider
455	2026	1962	Park Hills Section No. 2	Anfold Corporation Fielding H. Dickey, Pres.
456	1278	1949	McCoy Manor Subdivision	McCoy Builders, Inc. Bryan S. McCoy, President

Sub. No.	Plat No.	Year	Subdivision	Subdivider/Developer
457	1301	1950	McCoy Manor Subdivision Section No. 2	McCoy Builders, Inc. Bryan S. McCoy, Pres.
458	1013	1937	Seneca Vista	Wm. F. Randolph
459	892	1928	Airview	Queenie Wathen Condon & Tess Wathen Somes
460	1516	1957	Kiltmoor Gardens Section No. 1	Bryan S. McCoy, Inc. Bryan S. McCoy, Pres.
461	1952	1961	Kiltmoor Gardens Section No. 2	Bryan S. McCoy, Inc. Bryan S. McCoy, Pres.
462	1475	1953	Avondale Neighborhood Big Springs Garden (County)	Eline Development Co., Inc. A. J. Eline, Sr., Pres.
463	1534	1957	Big Springs Village	Bon Air Estates, Inc. W. E. Cox, President
464	587	1914	Avondale	Crown Real Estate Co.
465	1260	1948	Addition to Avondale	10 property owners
466	1936	1960	Thames Subdivision	Bryan S. McCoy, Jr. Co. Bryan S. McCoy, President
467	1348	1952	Avon Court	A. C. Mann A. J. Allgeier
468	1241	1947	Meadowview Estates (City of Meadowview)	M. C. & Virginia Noe Alford
469	1402	1954	Hikes Point Neighborhood Sunset Terrace	R. F. McMahan Sr. & Jr.
470	1309	1950	Yorkshire	R. F. & Mary McMahan
471	1408	1953	Brookhaven Subdivision Section No. 1	Highbaugh Realty Co. L. LeRoy Highbaugh Sr. & Jr.
472	1461	1955	Brookhaven Subdivision Section No. 2-A	Highbaugh Realty Co. L. LeRoy Highbaugh Sr. & Jr.
473	1476	1955	Brookhaven Subdivision Section No. 2-B	Highbaugh Realty Co. L. LeRoy Highbaugh Sr. & Jr.
474	1503	1956	Brookhaven Subdivision Section No. 3	L. LeRoy Highbaugh Sr. & Jr.
475	1554	1958	Brookhaven Subdivision Section No. 4	L. LeRoy Highbaugh Sr. & Jr.
476	1558	1959	Brookhaven Subdivision Section No. 5	Highbaugh Realty Co. L. LeRoy Highbaugh Sr. & Jr.
477	2069	1963	Revision of Part of Brookhaven Subdivision Section No. 5	Bowman Manor Apts., Inc. Jeffie C. Bolhinger, President
478	1532	1960	Brookhaven Subdivision Section No. 6	L. LeRoy Highbaugh Jr.
479	1412	1954	Maywood	Whittenberg Construction Co. Inc., H. G. Whittenberg
480	2126	1964	Mylanta Estates	Mylanta Estates, Inc. Joseph Daniel Spalding, Pres.
481	1455	1955	Hikes Point Subdivision	Archer Construction Co., Inc. Kent Land Co. Inc, Archer Supply Corp, Inc., Evola Realty Co. Inc - Edgar W. Archer, President; Southern Dry Wall Co., Inc. G. B. Johnston, Pres.
482	1207	1922	Melbourne Heights	Agent - Wheeler Auction Corp. Owner - Chas. W. Hibbitt
483	1206	1927	Zeitz Bros. Subdivision of Lots 71-81 & Lots 134-139 of Melbourne Heights	Wheeler Auction Corp., Inc. agents.
484	1911	1912	Gering's Subdivision	Henry S. & Anna Gering
485	1518	1955	Revision of McMahan Village	McMahan Company, Inc. R. F. McMahan, President
486	1899	1960	Hill Creek Park	Roy F. McMahan & Alice McMahan

Appendix C: Seneca Vista Neighborhood

Supplemental Data for Seneca Vista Neighborhood

Neighborhood Summary: Located immediately west of Bowman Field, the Seneca Vista neighborhood developed by William F. Randolph in 1937. The neighborhood's primary growth occurred up through the early 1940s, with limited post-World War II infill. Seneca Vista is situated between Taylorsville Road and Denham Road and includes residential buildings along Drayton Drive and Landor Avenue. The neighborhood features a variety of mid-twentieth century homes, though styles are generally represented by Minimal Traditional and Cape Cod, with some examples of Colonial Revival of the two- story variety along Denham Road and Landor Avenue. Colonial Revival style condominiums are located along Landor Avenue and Taylorsville Road. Seneca Vista features no sidewalks, but does have uniform setbacks and general uniformity between the individual houses.

Photographs are provided of all properties within the TERPS approach surfaces; if needed, other properties were photographed to capture the architectural aesthetic of the neighborhood. Data is also provided in regard to Safety Program mitigation requirements or if easements already exist. The construction dates are drawn from the Jefferson County PVA.

Table Key

DC – District Contributing

NC – District Non-Contributing

NC (<50 yrs) – District Non-Contributing, less than 50 years old





Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)				
Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2619 Drayton Dr	1942	DC	Yes/No
	2620 Drayton Dr	1941	DC	Yes/ Existing Easement
	2621 Drayton Dr	1942	DC	Yes/ Easement Required
	2623 Drayton Dr	1942	DC	Yes/ Existing Easement

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2625 Drayton Dr	1941	DC	Yes/ Existing Easement
	2626 Drayton Dr	1942	DC	Yes/ Existing Easement
	2627 Drayton Dr	1941	DC	Yes/ Existing Easement
	2628 Drayton Dr	1941	DC	Yes/ Existing Easement
	2628 H Drayton Dr	N/A	NC	Yes/ Airport Property
	2629 Drayton Dr	1941	DC	Yes/ Existing Easement
	2630 Drayton Dr	N/A	NC	Yes/ Airport Property
	2630 H Drayton Dr	N/A	NC	Yes/ Airport Property
	2631 Drayton Dr	N/A	NC	Yes/ Airport Property
	2632 Drayton Dr	1941	DC	Yes/ Existing Easement
	2633 Drayton Dr	N/A	NC	Yes/ Airport Property

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2634 Drayton Dr	1941	DC	Yes/ Existing Easement
	2635 Drayton Dr	N/A	NC	Yes/ Airport Property
	2636 Drayton Dr	1938	NC	Yes/ Existing Easement
	2637 Drayton Dr	1939	DC	Yes/ Existing Easement
	2638 Drayton Dr	1942	DC	Yes/ Existing Easement
	2639 Drayton Dr	1940	DC	Yes/ Existing Easement
	2640 Drayton Dr	1940	DC	Yes/ Existing Easement
	2641 Drayton Dr	1941	DC	Yes/ Existing Easement

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2642 Drayton Dr	1941	DC	Yes/ No
	2643 Drayton Dr	1941	DC	Yes/ Existing Easement
	2644 Drayton Dr	1941	DC	Yes/ No
	2645 Drayton Dr	1942	DC	Yes/ Existing Easement
	2647 Drayton Dr	1942	DC	Yes/ Easement Required
	2649 Drayton Dr	1942	DC	Yes/ No
	2616 Landor Ave	1939	DC	Yes/ No
	2617 Landor Ave	1939	DC	Yes/ Easement Required

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2618 Landor Ave	1939	DC	Yes/ Existing Easement
	2619 Landor Ave	1939	DC	Yes/ No
	2620 Landor Ave	1938	DC	Yes/ No
	2621 Landor Ave	1941	DC	Yes/ Existing Easement
	2622 Landor Ave	1946	DC	Yes/ Easement Required
	2623 H Landor Ave	N/A	NC	Yes/ Airport Property
	2623 Landor Ave	1938	DC	Yes/ Existing Easement
	2624 Landor Ave	1941	DC	Yes/ Existing Easement
	2625 H Landor Ave	N/A	NC	Yes/ Airport Property
	2625 Landor Ave	N/A	NC	Yes/ Airport Property

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)


Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2626 Landor Ave	1938	DC	Yes/ Existing Easement
	2627 Landor Ave	1938	DC	Yes/ Existing Easement
	2628 Landor Ave	1938	DC	Yes/ Existing Easement
	2629 Landor Ave	1938	DC	Yes/ Existing Easement
	2630 Landor Ave	1939	DC	Yes/ No
	2631 Landor Ave	1939	DC	Yes/ Existing Easement
	2632 Landor Ave	1939	DC	Yes/ Partial Easement/ Partial Required
	2633 Landor Ave	1939	DC	Yes/ Existing Easement

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2634 Landor Ave	1939	DC	Yes/ Existing Easement
	2635 Landor Ave	1939	DC	Yes/ Easement Required
	2640 Landor Ave	Ca. 1940s	DC	Yes/ Easement Required
	2649 Taylorsville Rd	Ca. 1940s	DC	Yes/ Easement Required
	1 Denham Rd	1938	DC	No
	11 Denham Rd	1998	DC	No
	13 Denham Rd	1938	DC	No
	15 Denham Rd	1950	DC	No
	17 Denham Rd	1950	DC	No
	19 Denham Rd	1942	DC	No
	21 Denham Rd	1941	DC	No
	5 Denham Rd	1938	DC	No
	7 Denham Rd	1937	DC	No
	9 Denham Rd	1938	DC	No
	2600 Drayton Dr	1940	DC	No
	2601 Drayton Dr	1940	DC	No
	2602 Drayton Dr	1941	DC	No
	2604 Drayton Dr	1940	DC	No
	2605 Drayton Dr	1940	DC	No
	2606 Drayton Dr	1942	DC	No
	2607 1/2 Drayton Dr	1942	DC	No
	2607 Drayton Dr	1942	DC	No
	2608 Drayton Dr	1942	DC	No
	2609 Drayton Dr	1942	DC	No
	2610 Drayton Dr	1942	DC	No
	2611 Drayton Dr	1942	DC	No
	2612 Drayton Dr	1941	DC	No

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2613 Drayton Dr	1942	DC	No
	2614 Drayton Dr	1946	DC	No
	2615 Drayton Dr	1942	DC	No
	2616 Drayton Dr	1943	DC	No
	2617 Drayton Dr	1942	DC	No
	2618 Drayton Dr	1941	NC	No
	2646 Drayton Dr	1939	DC	No
	2648 Drayton Dr	1942	DC	No
	2651 Drayton Dr	1941	DC	No
	2653 Drayton Dr	1943	DC	No
	2655 Drayton Dr	1942	DC	No
	2657 Drayton Dr	1941	DC	No
	2600 Landor Ave	1942	DC	No
	2601 Landor Ave	1950	DC	No
	2602 Landor Ave	1941	DC	No
	2603 Landor Ave	1936	DC	No
	2604 Landor Ave	1939	DC	No
	2605 Landor Ave	1939	DC	No
	2606 Landor Ave	1941	DC	No
	2607 Landor Ave	1941	DC	No
	2608 Landor Ave	1938	DC	No
	2609 Landor Ave	1947	DC	No
	2610 Landor Ave	1938	DC	No
	2612 Landor Ave	1948	DC	No
	2613 Landor Ave	1938	DC	No
	2614 Landor Ave	1938	DC	No
	2615 Landor Ave	1939	DC	No
	2655 Taylorsville Rd	Ca. 1940s	DC	No
	2657 Taylorsville Rd	Ca. 1940s	DC	No
	2659 Taylorsville Rd 1	Ca. 1940s	DC	No

Table C-1. Properties Within the Seneca Vista Neighborhood (Original Plat Dated 1937)				
Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2701 Taylorsville Rd	Ca. 1960s	NC	No
	2721 Taylorsville Rd	Ca. 1990s	NC	No

Appendix D: McCoy Manor Neighborhood

Supplemental Data for McCoy Manor Neighborhood

Neighborhood Summary: McCoy Manor neighborhood was platted in 1949 by developer Bryan S. McCoy. The neighborhood consisted of houses primarily along McCoy Way, from Trevillian Way to Taylorsville Road. Primary development of the neighborhood occurred between 1949 and 1957. The neighborhood consists of 38 properties, the majority of which are single-family homes. Some multi-family units (near the intersection of McCoy Way and Gladstone Avenue) are also present. The neighborhood consists of mid-twentieth century residential architecture and is heavily represented by the Ranch and Cape Cod styles of architecture with some Colonial Revival. Building materials generally consist of all brick, brick with Bedford stone highlighting, with a small number exhibiting all Bedford stone. The single-family homes are primarily one or one-and-one half stories in height, with the multi-family homes rising two stories. The neighborhood does not feature sidewalks, but each property does feature a driveway as well as a front walk connecting the front of the house with either the driveway or the street. Some of the single-family homes have integrated carports, while others have detached garages. The homes also have consistent building setbacks to the street and regular spacing between each building.

Photographs are provided of all properties within the TERPS approach surfaces; if needed, other properties were photographed to capture the architectural aesthetic of the neighborhood. Data is also provided in regard to Safety Program mitigation requirements or if easements already exist. The construction dates are drawn from the Jefferson County PVA.

Table Key

DC – District Contributing

NC – District Non-Contributing

NC (<50 yrs) – District Non-Contributing, less than 50 years old




Table D-1. Properties Within the McCoy Manor Neighborhood (Original Plat Dated 1949)				
Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2501 Gladstone Cir	Ca. 1950s	DC	Yes/No
	2625 McCoy Way	1953	DC	Yes/No
	2626 McCoy Way	1951	DC	Yes/No

Table D-1. Properties Within the McCoy Manor Neighborhood (Original Plat Dated 1949)


Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2627 McCoy Way	1951	DC	Yes/No
	2628 McCoy Way	1953	DC	Yes/No
	2629 McCoy Way	1951	DC	Yes/No
	2630 McCoy Way	1955	DC	Yes/No
	2631 McCoy Way	1952	DC	Yes/No
	2632 McCoy Way	1953	DC	Yes/No
	2633 McCoy Way	1953	DC	Yes/No
	2634 McCoy Way	1953	DC	Yes/No

Table D-1. Properties Within the McCoy Manor Neighborhood (Original Plat Dated 1949)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2635 McCoy Way	1953	DC	Yes/No
	2638 McCoy Way	1953	DC	Yes/No
	2644 McCoy Way	1953	DC	Yes/No
	2646 McCoy Way	1957	DC	Yes/No
	2605 Denham Rd	1951	DC	No
	2606 Denham Rd	1951	DC	No
	2604 McCoy Way	1950	DC	No
	2605 McCoy Way	1950	DC	No
	2606 McCoy Way	1950	DC	No
	2607 McCoy Way	1950	DC	No
	2608 McCoy Way	1950	DC	No
	2609 McCoy Way	1950	DC	No
	2610 McCoy Way	1950	DC	No
	2611 McCoy Way	1950	DC	No
	2613 McCoy Way	1951	DC	No
	2614 McCoy Way	1951	DC	No
	2615 McCoy Way	1955	DC	No

Table D-1. Properties Within the McCoy Manor Neighborhood (Original Plat Dated 1949)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2616 McCoy Way	1955	DC	No
	2618 McCoy Way	1950	DC	No
	2619 McCoy Way	1950	DC	No
	2620 McCoy Way	1951	DC	No
	2621 McCoy Way	1951	DC	No
	2622 McCoy Way	1951	DC	No
	2623 McCoy Way	1951	DC	No
	2624 McCoy Way	1951	DC	No
	2538 Trevilian Way	1949	DC	No
	2542 Trevilian Way	1950	DC	No
	2546 Trevilian Way	1949	DC	No

Appendix E: Seneca Manor Neighborhood

Supplemental Data for Seneca Manor Neighborhood

Neighborhood Summary: Seneca Manor neighborhood was platted by the Embury Realty Company in 1937 and its development occurred gradually throughout the late 1930s through the mid-1950s. The neighborhood consists of 21 individual single-family residences, all of which are oriented on Valetta Road, except for two parcels on Taylorsville Road. The neighborhood consists of typical mid-twentieth century residential architecture, but heavily represented by two-story Colonial Revivals, with lesser numbers of one-story Colonial Revival homes. These homes are generally symmetrical in design, some with a single plane façade, others have façade projections, featuring quoining and pediments. Windows are generally wooden double-hung sash and, typical of the style, many of the doors features sidelights, transom and are topped with pediments. The lots in the immediate vicinity of Taylorsville Road include single-story Colonial Revival, and some of the later historic infill, including examples of Ranch and Split Level. The neighborhood features no sidewalks, but general uniformity in setbacks and spacing between homes.

Photographs are provided of all properties within the TERPS approach surfaces; if needed, other properties were photographed to capture the architectural aesthetic of the neighborhood. Data is also provided in regard to Safety Program mitigation requirements or if easements already exist. The construction dates are drawn from the Jefferson County PVA.

Table Key

DC – District Contributing

NC – District Non-Contributing

NC (<50 yrs) – District Non-Contributing, less than 50 years old




Table E-1. Properties Within the Seneca Manor Neighborhood (Original Plat Dated 1937)				
Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2523 Taylorsville Rd	1955	DC	Yes/No
	2525 Taylorsville Rd	1954	DC	Yes/No
	2621 Valletta Rd	1940	DC	Yes/No

Table E-1. Properties Within the Seneca Manor Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2623 Valletta Rd	1938	DC	Yes/No
	2624 Valletta Rd	1940	DC	Yes/No
	2625 Valletta Rd	1940	DC	Yes/ Easement Required
	2626 Valletta Rd	1947	DC	Yes/No
	2627 Valletta Rd	1958	DC	Yes/No
	2628 Valletta Rd	1935	DC	Yes/No
	2629 Valletta Rd	1940	DC	Yes/No
	2500 Denham Rd	1953	DC	No
	2600 Valletta Rd	1954	DC	No
	2604 Valletta Rd	0	DC	No
	2604 Valletta Rd	1940	DC	No

Table E-1. Properties Within the Seneca Manor Neighborhood (Original Plat Dated 1937)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2606 Valletta Rd	1951	DC	No
	2608 Valletta Rd	1938	DC	No
	2612 Valletta Rd	1940	DC	No
	2614 Valletta Rd	0	DC	No
	2616 Valletta Rd	1939	DC	No
	2617 Valletta Rd	1954	DC	No
	2618 Valletta Rd	0	DC	No
	2619 Valletta Rd	1951	DC	No
	2620 Valletta Rd	1947	DC	No
	2622 Valletta Rd	1945	DC	No

Appendix F: Kingsley Neighborhood

Supplemental Data for Kingsley Neighborhood

Neighborhood Summary: The Kingsley neighborhood is a sixth class city within the City of Louisville. It extends eastward from Strathmoor Village and Strathmoor Gardens to Bon Air between Taylorsville Road and Hawthorne Avenue. Kingsley was one component a broader development effort by the Hieatt Consolidated Realty Company and was platted in 1925. Development occurred regularly through the 1930s and into the 1950s. The Kingsley Neighborhood's architectural composition generally consists of detached one-to-two story single-family residences with individual or shared driveways and some detached garages. Building styles include Bungalow, Cape Cod, Colonial Revival, Tudor Revival, Minimal Traditional and Ranch. Building materials largely consist of brick, rusticated limestone, and some replacement vinyl siding in gabled ends. The neighborhood also features a system of curvilinear streets, sidewalks, uniform setbacks and spacing, and a park-like aesthetic.

Photographs are provided of all properties within the TERPS approach surfaces; if needed, other properties were photographed to capture the architectural aesthetic of the neighborhood. Data is also provided in regard to Safety Program mitigation requirements or if easements already exist. The construction dates are drawn from the Jefferson County PVA.

Table Key

DC – District Contributing

NC – District Non-Contributing

NC (<50 yrs) – District Non-Contributing, less than 50 years old

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)





Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2348 Emerson Ave	1948	DC	Yes/ No
	2351 Gladstone Ave	1995	NC (<50 yrs)	Yes/ No
	2353 Gladstone Ave	1935	DC	Yes/ No
	2361 Gladstone Ave	1989	NC (<50 yrs)	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2365 Gladstone Ave	1945	DC	Yes/ No
	2367 Gladstone Ave	1936	DC	Yes/ No
	2369 Gladstone Ave	1936	DC	Yes/ No
	2371 Gladstone Ave	1945	DC	Yes/ No
	2373 Gladstone Ave	0	DC	Yes/ No
	2375 Gladstone Ave	1936	DC	Yes/ No
	2379 Gladstone Ave	1938	DC	Yes/ No
	2501 Kings Hwy	1921	DC	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2503 Kings Hwy	1938	DC	Yes/ No
	2505 Kings Hwy	1948	DC	Yes/ No
	2507 Kings Hwy	1950	DC	Yes/ No
	2521 Kings Hwy	1937	DC	No
	2523 Kings Hwy	1938	DC	Yes/ No
	2530 Kings Hwy	1945	DC	Yes/ No
	2536 Kings Hwy	1938	DC	Yes/ No
	2537 Kings Hwy	1953	DC	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2540 Kings Hwy	1938	DC	Yes/ No
	2543 Kings Hwy	1939	DC	Yes/ No
	2544 Kings Hwy	1926	DC	Yes/ No
	2545 Kings Hwy	1951	DC	Yes/ No
	2547 Kings Hwy	1936	DC	Yes/ No
	2548 Kings Hwy	1940	DC	Yes/ No
	2549 Kings Hwy	1939	DC	Yes/ No
	2550 Kings Hwy	1936	DC	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2551 Kings Hwy	1948	DC	Yes/ No
	2552 Kings Hwy	1938	DC	Yes/ No
	2553 Kings Hwy	1949	DC	Yes/ No
	2554 Kings Hwy	1962	DC	Yes/ No
	2559 Kings Hwy	1946	DC	Yes/ No
	2601 Kings Hwy	1940	DC	Yes/ No
	2603 Kings Hwy	1946	DC	Yes/ No
	2605 Kings Hwy	1946	DC	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2522 Taylorsville Rd	Empty Lot	NC	Yes/ No
	2524 Taylorsville Rd	1951	DC	Yes/ No
	2526 Taylorsville Rd	1928	DC	Yes/ No
	2528 Taylorsville Rd	1953	DC	Yes/ No
	2530 Taylorsville Rd	1939	DC	Yes/ No
	2532 Taylorsville Rd	1934	DC	Yes/ No
	2534 Taylorsville Rd	1934	DC	Yes/ No
	2536 Taylorsville Rd	2003	NC (<50yrs)	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2538 Taylorsville Rd	1940	DC	Yes/ No
	2554 Taylorsville Rd	1926	DC	Yes/ No
	2556 Taylorsville Rd	Empty Lot	NC	Yes/ No
	2562 Taylorsville Rd	1926	DC	Yes/ No
	2564 Taylorsville Rd	1956	DC	Yes/ No
	2570 Taylorsville Rd	1938	DC	Yes/ No
	2574 Taylorsville Rd	1928	DC	Yes/ No
	2602 Taylorsville Rd	1953	DC	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2604 Taylorsville Rd	1949	DC	Yes/ No
	2606 Taylorsville Rd	1939	DC	Yes/ No
	2608 Taylorsville Rd	1942	DC	Yes/ No
	2610 Taylorsville Rd	1936	DC	Yes/ No
	2612 Taylorsville Rd	1941	DC	Yes/ No
	2614 Taylorsville Rd	1946	DC	Yes/ No
	2358 Winston Ave	1947	DC	Yes/ No
	2359 Winston Ave	1952	DC	Yes/ No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2360 Winston Ave	1938	DC	Yes/ No
	2362 Winston Ave	1938	DC	Yes/ No
	2363 Winston Ave	1936	DC	Yes/ No
	2364 Winston Ave	1936	DC	Yes/ No
	2366 Winston Ave	1941	DC	Yes/ No
	2367 Winston Ave	1926	DC	No
	2342 Emerson Ave	1928	DC	No
	2344 Emerson Ave	1926	DC	No
	2345 Emerson Ave	1930	DC	No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2346 Emerson Ave	1929	DC	No
	2335 Gladstone Ave	1937	DC	No
	2337 Gladstone Ave	1937	DC	No
	2338 Gladstone Ave	1960	DC	No
	2338 H Gladstone Ave	Off-street ½ Lot	NC	No
	2339 Gladstone Ave	1937	DC	No
	2340 Gladstone Ave	1952	DC	No
	2341 Gladstone Ave	1937	DC	No
	2356 Gladstone Ave	1952	DC	No
	2358 Gladstone Ave	1961	DC	No
	2360 Gladstone Ave	1928	DC	No
	2364 Gladstone Ave	1931	DC	No
	2366 Gladstone Ave	1953	DC	No
	2368 Gladstone Ave	1936	DC	No
	2370 Gladstone Ave	1936	DC	No
	2500 Kings Hwy	1934	DC	No
	2504 Kings Hwy	1939	DC	No
	2506 Kings Hwy	1928	DC	No
	2508 Kings Hwy	1963	DC	No
	2510 Kings Hwy	1937	DC	No
	2512 Kings Hwy	1939	DC	No
	2514 Kings Hwy	1948	DC	No
	2600 Kings Hwy	1950	DC	No
	2606 Kings Hwy	1940	DC	No
	2607 Kings Hwy	1950	DC	No
	2609 Kings Hwy	1938	DC	No
	2611 Kings Hwy	1946	DC	No
	2613 Kings Hwy	1940	DC	No
	2615 Kings Hwy	1949	DC	No
	2639 Kings Hwy	1949	DC	No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2640 Kings Hwy	1945	DC	No
	2641 Kings Hwy	1949	DC	No
	2642 Kings Hwy	1940	DC	No
	2643 Kings Hwy	1939	DC	No
	2644 Kings Hwy	1932	DC	No
	2645 Kings Hwy	1940	DC	No
	2646 Kings Hwy	1935	DC	No
	2647 Kings Hwy	1940	DC	No
	2648 Kings Hwy	1931	DC	No
	2649 Kings Hwy	1940	DC	No
	2650 Kings Hwy	1940	DC	No
	2651 Kings Hwy	1940	DC	No
	2653 Kings Hwy	1948	DC	No
	2655 Kings Hwy	1948	DC	No
	2657 Kings Hwy	1939	DC	No
	2658 Kings Hwy	1933	DC	No
	2659 Kings Hwy	1955	DC	No
	2660 Kings Hwy	1948	DC	No
	2661 Kings Hwy	0	DC	No
	2662 Kings Hwy	1948	DC	No
	2664 Kings Hwy	1940	DC	No
	2666 Kings Hwy	1978	NC (<50 yrs)	No


Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2668 Kings Hwy	1977	NC (<50 yrs)	No
	2609 Montrose Ave	1940	DC	No
	2611 Montrose Ave	1930	DC	No
	2613 Montrose Ave	1932	DC	No
	2615 Montrose Ave	1938	DC	No
	2617 Montrose Ave	1937	DC	No
	2621 Montrose Ave	1937	DC	No
	Montrose Ave	0	DC	No
	2380 Sydney Ave	1929	DC	No
	2384 Sydney Ave	1946	DC	No
	2388 Sydney Ave	1951	DC	No
	2392 Sydney Ave	1959	DC	No
	2396 Sydney Ave	1928	DC	No
	2504 Taylorsville Rd	1939	DC	No
	2506 Taylorsville Rd	1935	DC	No
	2616 Taylorsville Rd	1957	DC	No
	2618 Taylorsville Rd	1950	DC	No
	2624 Taylorsville Rd	1964	DC	No
	2646 Taylorsville Rd	1930	DC	No
	2648 Taylorsville Rd	1937	DC	No
	2652 Taylorsville Rd	1931	DC	No
	2654 Taylorsville Rd	1947	DC	No
	2656 Taylorsville Rd	1939	DC	No
	2658 Taylorsville Rd	1939	DC	No
	2660 Taylorsville Rd	1939	DC	No
	2700 Taylorsville Rd	Ca 1920s	NC	No
	2720 Taylorsville Rd	Ca 1950s	NC	No
	2317 Tyler Ln	1979	NC (<50 yrs)	No
	2318 Tyler Ln	1953	DC	No
	2319 Tyler Ln	1979	NC (<50 yrs)	No
	2320 Tyler Ln	1952	DC	No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2321 Tyler Ln	1953	DC	No
	2322 Tyler Ln	1952	DC	No
	2323 Tyler Ln	1952	DC	No
	2324 Tyler Ln	1952	DC	No
	2325 Tyler Ln	1953	DC	No
	2326 Tyler Ln	1956	DC	No
	2327 Tyler Ln	1953	DC	No
	2328 Tyler Ln	1954	DC	No
	2346 Tyler Ln	1946	DC	No
	2348 Tyler Ln	1946	DC	No
	2350 Tyler Ln	1950	DC	No
	2352 Tyler Ln	1943	DC	No
	2354 Tyler Ln	1951	DC	No
	2356 Tyler Ln	Empty Lot	NC	No
	2358 Tyler Ln	1936	DC	No
	2360 Tyler Ln	1938	DC	No
	2362 Tyler Ln	1938	DC	No
	2363 Tyler Ln	1938	DC	No
	2364 Tyler Ln	1949	DC	No
	2365 Tyler Ln	1945	DC	No
	2367 Tyler Ln	1937	DC	No
	2369 Tyler Ln	1949	DC	No
	2385 Tyler Ln	1938	DC	No
	2387 Tyler Ln	1938	DC	No
	2389 Tyler Ln	1941	DC	No
	2391 Tyler Ln	1940	DC	No
	2393 Tyler Ln	1938	DC	No
	2395 Tyler Ln	1941	DC	No
	2400 Tyler Ln	1946	DC	No
	2404 Tyler Ln	1946	DC	No
	2405 Tyler Ln	1938	DC	No
	2407 Tyler Ln	1938	DC	No
	2408 Tyler Ln	1941	DC	No
	2409 Tyler Ln	1935	DC	No
	2411 Tyler Ln	1935	DC	No
	2412 Tyler Ln	1939	DC	No
	2415 Tyler Ln	1938	DC	No
	2416 Tyler Ln	1941	DC	No
	2418 Tyler Ln	Empty ½ Lot	NC	No
	2424 Tyler Ln	1937	DC	No
	2426 Tyler Ln	1938	DC	No
	2432 Tyler Ln	1947	DC	No
	2436 Tyler Ln	1940	DC	No

Table F-1. Properties Within the Kingsley Neighborhood (Original Plat Dated 1925)

Image	Address	Date/ Style	NRHP	Within TERPS/ Safety Program
	2440 Tyler Ln	1938	DC	No
	2442 Tyler Ln	1939	DC	No
	2444 Tyler Ln	1945	DC	No
	2350 Winston Ave	1941	DC	No
	2351 Winston Ave	1951	DC	No
	2352 Winston Ave	1928	DC	No
	2353 Winston Ave	1937	DC	No
	2355 Winston Ave	1936	DC	No
	2356 Winston Ave	1936	DC	No

Appendix G: Seneca Village Neighborhood

Supplemental Data for Seneca Village Neighborhood

Neighborhood Summary: The Seneca Village neighborhood is composed of a neighborhood platted in 1929 by the by W.C. Coleman's Dingle View Land Company. Development did not begin until after 1946 and then it developed rapidly, as all lots were built out by 1951. The neighborhood is bounded roughly by Kent Road on the east, Taylorsville Road on the north, Carson way on the west, and Ribble Road to the south. At present, it contains a total of 64 residential buildings. The built environment consists of a solid Minimal Traditional theme, with no additional architectural types or styles. All of the homes feature narrow or non-existing eaves at the roofline and the homes were apparently built from a set of four or five patterns. On the whole, the district has been subject to very few incompatible alterations, either to individual homes or with infill development. The only non-historic home in the neighborhood (3004 Kent Road, constructed in 2003) and is a design sympathetic to the style, size, and setback of the surrounding historic homes.

Photographs are provided of all properties within the TERPS approach surfaces; if needed, other properties were photographed to capture the architectural aesthetic of the neighborhood. Data is also provided in regard to BFAA Safety Program mitigation requirements or if easements already exist. The construction dates are drawn from the Jefferson County PVA.

Table Key

DC – District Contributing

NC – District Non-Contributing

NC (<50 yrs) – District Non-Contributing, less than 50 years old




Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)				
Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3013 Carson Way	1947	DC	Yes/ No
	3015 Carson Way	1947	DC	Yes/ No
	3017 Carson Way	1947	DC	Yes/ No

Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3019 Carson Way	1947	DC	Yes/ No
	3021 Carson Way	1947	DC	Yes/ No
	3022 Carson Way	1948	DC	Yes/ No
	3023 Carson Way	1947	DC	Yes/ Easement Required
	3024 Carson Way	1948	DC	Yes/ No
	3025 Carson Way	1947	DC	Yes/ Easement Required
	3026 Carson Way	1948	DC	Yes/ No
	3027 Carson Way	1947	DC	Yes/ Easement Required

Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3028 Carson Way	1948	DC	Yes/ No
	3029 Carson Way	1947	DC	Yes/ Easement Required
	3030 Carson Way	1948	DC	Yes/ No
	3031 Carson Way	1947	DC	Yes/ No
	3032 Carson Way	1948	DC	Yes/ Easement Required
	3033 Carson Way	1947	DC	Yes/ Easement Required
	3034 Carson Way	1948	DC	Yes/ Easement Required
	3035 Carson Way	1947	DC	Yes/ Easement Required

Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3004 Kent Rd	2003	NC (<50 yrs)	Yes/ Easement Required
	3006 Kent Rd	1948	DC	Yes/ Existing Easement
	3008 Kent Rd	1948	DC	Yes/ No
	3009 Kent Rd	1948	DC	Yes/ No
	3010 Kent Rd	1948	DC	Yes/ Easement Required
	3011 Kent Rd	1948	DC	Yes/ Easement Required
	3012 Kent Rd	1948	DC	Yes/ Existing Easement
	3013 Kent Rd	1948	DC	Yes/ No

Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)


Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3014 Kent Rd	1948	DC	Yes/ Easement Required
	3006 Seneca Blvd	1948	DC	Yes/ Existing Easement
	3008 Seneca Blvd	1948	DC	Yes/ Easement Required
	3010 Seneca Blvd	1948	DC	Yes/ Easement Required
	3011 Seneca Blvd	N/A	DC	Yes/ Airport Property
	3012 Seneca Blvd	1948	DC	Yes/ No
	3013 Seneca Blvd	1948	DC	Yes/ No
	3014 Seneca Blvd	1948	DC	Yes/ Easement Required

Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3015 Seneca Blvd	1948	DC	Yes/ Existing Easement
	3016 Seneca Blvd	1948	DC	Yes/ Easement Required
	3017 Seneca Blvd	1948	DC	Yes/ No
	3018 Seneca Blvd	1948	DC	Yes/ Easement Required
	3019 Seneca Blvd	1948	DC	Yes/ No
	3020 Seneca Blvd	1948	DC	Yes/ Easement Required
	3021 Seneca Blvd	1948	DC	Yes/ No
	3022 Seneca Blvd	1948	DC	Yes/ Easement Required

Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3023 Seneca Blvd	1948	DC	Yes/ Easement Required
	3024 Seneca Blvd	1948	DC	Yes/ No
	3025 Seneca Blvd	1948	DC	Yes/ Easement Required
	3104 Taylorsville Rd	1952	DC	Yes/ No
	3106 Taylorsville Rd	1952	DC	Yes/ Easement Required
	3108 Taylorsville Rd	1952	DC	Yes/ Easement Required
	3110 Taylorsville Rd	1952	NC	Yes/ Easement Required
	3200 Taylorsville Rd	N/A	NC	Yes/ Airport Property
	3300 Taylorsville Rd	N/A	NC	Yes/ Airport Property
	3006 Carson Way	1950	DC	No
	3010 Carson Way	1948	DC	No

Table G-1. Properties Within the Seneca Village Neighborhood (Original Plat Dated 1929; construction began 1946)				
Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3012 Carson Way	1950	DC	No
	3014 Carson Way	1948	DC	No
	3016 Carson Way	1948	DC	No
	3018 Carson Way	1948	DC	No
	3020 Carson Way	1948	DC	No
	3018 Taylorsville Rd	1951	DC	No/ Existing Easement
	3020 Taylorsville Rd	1951	DC	No/ Existing Easement
	3022 Taylorsville Rd	Ca. 1951	DC	No
	3024 Taylorsville Rd	1952	DC	No
	3100 Taylorsville Rd	1954	DC	No
	3102 Taylorsville Rd	1952	DC	No

Appendix H: Seneca Village No. 2 Neighborhood

Supplemental Data for Seneca Village No. 2 Neighborhood

Neighborhood Summary: Seneca Village No. 2 was platted and developed by Edward W. Archer's Lupino Realty Company of Louisville. The original plat dates to 1948 with revisions in 1950 and 1951. Development occurred rapidly between 1951 and 1955, and the apartment buildings in the northern quadrant were completed by 1959. By and large, the neighborhood consists of pre-fabricated Gunnison housing, with a limited number of styles and floor plans. The houses along Joan Avenue and Betty Lane feature brick siding (partial or whole) and somewhat larger lots. In general, the homes have a Cape Cod form, with a rectangular footprint and steeply pitched roofs allowing for an additional half-story of living space. Some of the houses still retain their original metal-framed windows; many however have replacement vinyl windows. Houses along Alanmede Road, Wendell Avenue, and Gardiner Lane feature a somewhat broader stylistic variety though they still utilize a limited number of house patterns. Some utilize the half-story form mentioned above, but have lesser amounts of brick detailing. Many have original aluminum siding, though some include replacement vinyl siding. The neighborhood features regularly spaced lots, setbacks, and sidewalks. Major alterations include the demolition of 31 of houses along Gardner Lane for the widening of Watterson Expressway in the late 1980s.

Photographs are provided of all properties within the TERPS approach surfaces; if needed, other properties were photographed to capture the architectural aesthetic of the neighborhood. Data is also provided in regard to BFAA Safety Program mitigation requirements or if easements already exist. The construction dates are drawn from the Jefferson County PVA.

Table Key

DC – District Contributing

NC – District Non-Contributing

NC (<50 yrs) – District Non-Contributing, less than 50 years old




Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)				
Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2636 Alanmede Rd	1952	DC	Yes/ No
	2638 Alanmede Rd	1952	DC	Yes/ No
	2640 Alanmede Rd	1952	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2641 Alanmede Rd	1952	DC	Yes/ No
	2642 Alanmede Rd	1952	DC	Yes/ No
	2643 Alanmede Rd	1952	DC	Yes/ No
	2644 Alanmede Rd	1952	DC	Yes/ No
	2645 Alanmede Rd	1952	DC	Yes/ No
	2646 Alanmede Rd	1953	DC	Yes/ No
	2647 Alanmede Rd	1953	DC	Yes/ Easement Required
	2700 Alanmede Rd	1953	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2701 Alanmede Rd	1954	DC	Yes/ No
	2702 Alanmede Rd	1952	DC	Yes/ No
	2703 Alanmede Rd	1951	DC	Yes/ No
	2704 Alanmede Rd	1952	DC	Yes/ No
	2705 Alanmede Rd	1951	DC	Yes/ No
	2706 Alanmede Rd	1952	DC	Yes/ No
	2707 Alanmede Rd	1951	DC	Yes/ Easement Required
	2708 Alanmede Rd	1952	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2709 Alanmede Rd	1951	DC	Yes/ No
	2710 Alanmede Rd	1952	DC	Yes/ No
	2711 Alanmede Rd	1951	DC	Yes/ No
	2712 Alanmede Rd	1952	DC	Yes Yes/ No
	2713 Alanmede Rd	1951	DC	Yes/ Easement Required
	2714 Alanmede Rd	1952	DC	Yes/ No
	2715 Alanmede Rd	1951	DC	Yes Yes/ No
	2716 Alanmede Rd	1952	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2717 Alanmede Rd	1951	DC	Yes/ No
	2718 Alanmede Rd	1952	DC	Yes/ No
	2719 Alanmede Rd	1951	DC	Yes/ No
	2720 Alanmede Rd	1952	DC	Yes/ No
	2721 Alanmede Rd	1951	DC	Yes Yes/ No
	2722 Alanmede Rd	1952	DC	Yes/ No
	2723 Alanmede Rd	1951	DC	Yes/ No
	2724 Alanmede Rd	1952	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2725 Alanmede Rd	1951	DC	Yes/ No
	2726 Alanmede Rd	1952	DC	Yes/ No
	2727 Alanmede Rd	1951	DC	Yes/ No
No Photo	3008 Betty Ln	1955	DC	Yes/ Easement Required
	3009 Betty Ln	1953	DC	Yes/ No
	3010 Betty Ln	1955	DC	Yes/ No
	3011 Betty Ln	1953	DC	Yes/ No
	3012 Betty Ln	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3013 Betty Ln	1953	DC	Yes/ No
	3015 Betty Ln	1953	DC	Yes/ No
	3017 Betty Ln	1953	DC	Yes/ No
	3019 Betty Ln	1953	DC	Yes/ No
	3020 Betty Ln	1955	DC	Yes/ No
	3021 Betty Ln	1953	DC	Yes/ No
	3022 Betty Ln	1954	DC	Yes/ No
	3023 Betty Ln	1953	DC	Yes/ No Yes/
	3025 Betty Ln	1953	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3027 Betty Ln	1953	DC	Yes/ No
	3300 Carson Way	1955	DC	Yes/ No
	3301 Carson Way	1955	DC	Yes/ No
	2624 Gardiner Ln	1955	DC	Yes/ No
	2626 Gardiner Ln	1955	DC	Yes/ No
	2628 Gardiner Ln	1955	DC	Yes/ No
	2629 Gardiner Ln	1954	DC	Yes/ No
	2630 Gardiner Ln	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2631 Gardiner Ln	1954	DC	Yes/ No
	2632 Gardiner Ln	1955	DC	Yes/ No
	2633 Gardiner Ln	1954	DC	Yes/ No
	2634 Gardiner Ln	1955	DC	Yes/ No
	2635 Gardiner Ln	1954	DC	Yes/ No
	2636 Gardiner Ln	1955	DC	Yes/ No
	2637 Gardiner Ln	1954	DC	Yes/ No
	2638 Gardiner Ln	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2639 Gardiner Ln	1954	DC	Yes/ No
	2640 Gardiner Ln	1954	Demolished	Yes/ No
	2641 Gardiner Ln	1954	DC	Yes/ No
	2642 Gardiner Ln	1955	Demolished	Yes/ No
	2643 Gardiner Ln	1954	DC	Yes/ No
	2644 Gardiner Ln	1955	Demolished	Yes/ No
	2645 Gardiner Ln	1954	DC	Yes/ No
	2646 Gardiner Ln	1955	Demolished	Yes/ No
	2647 Gardiner Ln	1954	DC	Yes/ No
	2648 Gardiner Ln	1968	Demolished	Yes/ No
	2700 Gardiner Ln	1955	Demolished	Yes/ No
	2701 Gardiner Ln	1954	DC	Yes/ No
	2702 Gardiner Ln	1955	Demolished	Yes/

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
				No
	2703 Gardiner Ln	1954	DC	Yes/ No
	2704 Gardiner Ln	1955	Demolished	Yes/ No
	2705 Gardiner Ln	1954	DC	Yes/ No
	2706 Gardiner Ln	1955	Demolished	Yes/ No
	2707 Gardiner Ln	1954	DC	Yes/ No
	2708 Gardiner Ln	1955	Demolished	Yes/ No
	2709 Gardiner Ln	1954	DC	Yes/ No
	2710 Gardiner Ln	1955	Demolished	Yes/ No
	2711 Gardiner Ln	1954	DC	Yes/ No
	2712 Gardiner Ln	1955	Demolished	Yes
	2713 Gardiner Ln	1954	DC	Yes/ No
	2714 Gardiner Ln	1955	Demolished	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2715 Gardiner Ln	1954	DC	Yes/ No
	2716 Gardiner Ln	1955	Demolished	Yes/ No
	2717 Gardiner Ln	1954	DC	Yes/ No
	2718 Gardiner Ln	1955	Demolished	Yes/ No
	2719 Gardiner Ln	1954	DC	Yes/ Easement Required
	2720 Gardiner Ln	1955	Demolished	Yes/ No
	2721 Gardiner Ln	1954	DC	Yes/ No
	2722 Gardiner Ln	1955	Demolished	Yes/ No
	2723 Gardiner Ln	1954	DC	Yes/ No
	2724 Gardiner Ln	1955	Demolished	Yes/ No
	2725 Gardiner Ln	1954	DC	Yes/ No
	2726 Gardiner Ln	1955	Demolished	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2727 Gardiner Ln	1954	DC	Yes/ No
	2728 Gardiner Ln	1955	Demolished	Yes/ No
	2730 Gardiner Ln	1954	DC	Yes/ No
	2732 Gardiner Ln	1955	Demolished	Yes/ No
	2800 Gardiner Ln	N/A	Never Built	Yes/ No
	2802 Gardiner Ln	N/A	Never Built	Yes/ No
	2804 Gardiner Ln	1953	Demolished	Yes/ No
	2806 Gardiner Ln	1953	Demolished	Yes/ No
	2808 Gardiner Ln	1953	Demolished	Yes/ No
	2810 Gardiner Ln	1953	Demolished	Yes/ No
	2812 Gardiner Ln	1953	Demolished	Yes/ No
	2814 Gardiner Ln	1953	Demolished	Yes/ No
	2816 Gardiner Ln	N/A	Never Built	Yes/ No
No Photo	2801 Joan Ave	1955	DC	Yes/ No
No Photo	2803 Joan Ave	1955	DC	Yes/ No
No Photo	2805 Joan Ave	1955	DC	Yes/ No
No Photo	2807 Joan Ave	1955	DC	Yes/ No
No Photo	2809 Joan Ave	1955	DC	Yes/ No
	3010 Joan Ave	1953	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3012 Joan Ave	1953	DC	Yes/ No
	3014 Joan Ave	1953	DC	Yes/ No
	3016 Joan Ave	1953	DC	Yes Yes/ No
	3018 Joan Ave	1953	DC	Yes Yes/ No
	3020 Joan Ave	1953	DC	Yes/ Easement Required
	3022 Joan Ave	1953	DC	Yes/ No
	3023 Joan Ave	1953	DC	No
	3024 Joan Ave	1953	DC	Yes

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	Taylorsville Rd/ Bowman Manor Apts	Ca 1950s	DC	Yes/ No
	2630 Wendell Ave	1955	DC	Yes/ No
	2632 Wendell Ave	1955	DC	Yes/ No
	2634 Wendell Ave	1955	DC	Yes/ No
	2635 Wendell Ave	1955	DC	Yes/ No
	2636 Wendell Ave	1955	DC	Yes/ No
	2637 Wendell Ave	1955	DC	Yes/ No
	2638 Wendell Ave	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2639 Wendell Ave	1955	DC	Yes/ No
	2640 Wendell Ave	1955	DC	Yes/ No
	2641 Wendell Ave	1955	DC	Yes/ Easement Required
	2642 Wendell Ave	1955	DC	Yes/ No
	2643 Wendell Ave	1955	DC	Yes/ No
	2644 Wendell Ave	1955	DC	Yes/ No
	2645 Wendell Ave	1955	DC	Yes/ No
	2647 Wendell Ave	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)









Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2701 Wendell Ave	1955	DC	Yes/ No
	2702 Wendell Ave	1955	DC	Yes/ No
	2703 Wendell Ave	1955	DC	Yes/ No
	2704 Wendell Ave	1955	DC	Yes/ No
	2705 Wendell Ave	1955	DC	Yes/ No
	2706 Wendell Ave	1955	DC	Yes/ No
	2707 Wendell Ave	1955	DC	Yes/ No
	2708 Wendell Ave	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2709 Wendell Ave	1955	DC	Yes/ No
	2710 Wendell Ave	1955	DC	Yes/ No
	2711 Wendell Ave	1955	DC	Yes/ No
	2712 Wendell Ave	1955	DC	Yes/ No
	2713 Wendell Ave	1955	DC	Yes/ No
	2714 Wendell Ave	1955	DC	Yes/ No
	2715 Wendell Ave	1955	DC	Yes/ No
	2716 Wendell Ave	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2717 Wendell Ave	1955	DC	Yes/ No
	2718 Wendell Ave	1955	DC	Yes/ No
	2719 Wendell Ave	1955	DC	Yes/ No
	2720 Wendell Ave	1955	DC	Yes/ No
	2721 Wendell Ave	1955	DC	Yes/ No
	2722 Wendell Ave	1955	DC	Yes/ No
	2723 Wendell Ave	1955	DC	Yes/ No
	2724 Wendell Ave	1955	DC	Yes/ No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2725 Wendell Ave	1955	DC	Yes/ No
	2726 Wendell Ave	1955	DC	Yes/ No
	2727 Wendell Ave	1955	DC	Yes/ Easement Required
	2602 Alanmede Rd	1952	DC	No
	2603 Alanmede Rd	1953	DC	No
	2604 Alanmede Rd	1952	DC	No
	2605 Alanmede Rd	1953	DC	No
	2606 Alanmede Rd	1952	DC	No
	2607 Alanmede Rd	1953	DC	No
	2608 Alanmede Rd	1952	DC	No
	2609 Alanmede Rd	1953	DC	No
	2610 Alanmede Rd	1946	DC	No
	2611 Alanmede Rd	1953	DC	No
	2612 Alanmede Rd	1952	DC	No
	2613 Alanmede Rd	1953	DC	No
	2614 Alanmede Rd	1952	DC	No
	2615 Alanmede Rd	1953	DC	No
	2616 Alanmede Rd	1952	DC	No
	2617 Alanmede Rd	1953	DC	No
	2618 Alanmede Rd	1952	DC	No
	2619 Alanmede Rd	1953	DC	No
	2620 Alanmede Rd	1952	DC	No
	2621 Alanmede Rd	1953	DC	No
	2622 Alanmede Rd	1952	DC	No
	2623 Alanmede Rd	1953	DC	No
	2624 Alanmede Rd	1952	DC	No
	2625 Alanmede Rd	1953	DC	No
	2626 Alanmede Rd	1952	DC	No
	2627 Alanmede Rd	1953	DC	No
	2628 Alanmede Rd	1952	DC	No
	2629 Alanmede Rd	1953	DC	No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	2630 Alanmede Rd	1953	DC	No
	2631 Alanmede Rd	1953	DC	No
	2632 Alanmede Rd	1952	DC	No
	2633 Alanmede Rd	1953	DC	No
	2634 Alanmede Rd	1952	DC	No
	2635 Alanmede Rd	1953	DC	No
	2637 Alanmede Rd	1953	DC	No
	2639 Alanmede Rd	1952	DC	No
	3047 Bon Air Ave	1953	DC	No
	3101 Bon Air Ave	1954	DC	No
	3103 Bon Air Ave	1954	DC	No
	3105 Bon Air Ave	1954	DC	No
	3107 Bon Air Ave	1952	DC	No
	3109 Bon Air Ave	1954	DC	No
	2602 Gardiner Ln	1955	DC	No
	2603 Gardiner Ln	1954	DC	No
	2604 Gardiner Ln	1955	DC	No
	2605 Gardiner Ln	1954	DC	No
	2606 Gardiner Ln	1955	DC	No
	2607 Gardiner Ln	1954	DC	No
	2608 Gardiner Ln	1955	DC	No
	2609 Gardiner Ln	1954	DC	No
	2610 Gardiner Ln	1955	DC	No
	2611 Gardiner Ln	1954	DC	No
	2612 Gardiner Ln	1955	DC	No
	2613 Gardiner Ln	1954	DC	No
	2614 Gardiner Ln	1955	DC	No
	2615 Gardiner Ln	1954	DC	No
	2616 Gardiner Ln	1955	DC	No
	2617 Gardiner Ln	1954	DC	No
	2618 Gardiner Ln	1955	DC	No
	2619 Gardiner Ln	1954	DC	No
	2620 Gardiner Ln	1955	DC	No
	2621 Gardiner Ln	1954	DC	No
	2622 Gardiner Ln	1955	DC	No
	2623 Gardiner Ln	1954	DC	No
	2625 Gardiner Ln	1954	DC	No
	2627 Gardiner Ln	1954	DC	No
	2811 Joan Ave	1955	DC	No
	2813 Joan Ave	1955	DC	No
	2815 Joan Ave	1955	DC	No
	3009 Joan Ave	1953	DC	No
	3011 Joan Ave	1953	DC	No
	3013 Joan Ave	1953	DC	No
	3015 Joan Ave	1953	DC	No

Table H-1. Properties Within the Seneca Village No. 2 Neighborhood (Original Plat Dated 1948; revised 1951)

Image	Address	Date	NRHP	Within TERPS/ Safety Program
	3017 Joan Ave	1953	DC	No
	3019 Joan Ave	1953	DC	No
	3021 Joan Ave	1953	DC	No
	2602 Wendell Ave	1955	DC	No
	2603 Wendell Ave	1955	DC	No
	2604 Wendell Ave	1955	DC	No
	2605 Wendell Ave	1955	DC	No
	2606 Wendell Ave	1955	DC	No
	2607 Wendell Ave	1955	DC	No
	2608 Wendell Ave	1955	DC	No
	2609 Wendell Ave	1955	DC	No
	2610 Wendell Ave	1955	DC	No
	2611 Wendell Ave	1955	DC	No
	2612 Wendell Ave	1955	DC	No
	2613 Wendell Ave	1955	DC	No
	2614 Wendell Ave	1955	DC	No
	2615 Wendell Ave	1955	DC	No
	2616 Wendell Ave	1955	DC	No
	2617 Wendell Ave	1955	DC	No
	2618 Wendell Ave	1955	DC	No
	2619 Wendell Ave	1955	DC	No
	2620 Wendell Ave	1955	DC	No
	2621 Wendell Ave	1955	DC	No
	2622 Wendell Ave	1955	DC	No
	2623 Wendell Ave	1955	DC	No
	2624 Wendell Ave	1955	DC	No
	2625 Wendell Ave	1955	DC	No
	2626 Wendell Ave	1955	DC	No
	2627 Wendell Ave	1955	DC	No
	2628 Wendell Ave	1955	DC	No
	2629 Wendell Ave	1955	DC	No
	2631 Wendell Ave	1955	DC	No
	2633 Wendell Ave	1955	DC	No

Appendix I: Supplement to the Cultural Resources Evaluation

Supplement to the Cultural Resource Evaluation

Bowman Field Airport Area Safety Program

Prepared for:
Louisville Regional Airport Authority

Prepared by:
Hanson Professional Services Inc.

April 2016

SUPPLEMENT TO THE CULTURAL RESOURCE EVALUATION

Project Overview and Description

The Louisville Regional Airport Authority (LRAA) initiated the Bowman Field Airport Area Safety Program (Safety Program) to comply with the current Federal Aviation Administration (FAA)-required object clearing standards. Under the direction of the FAA and LRAA, Hanson Professional Services, Inc. (Hanson) is preparing an Environmental Assessment (EA) for the re-establishment and protection of runway approaches and airfield characteristics as defined by the Airport Layout Plan (ALP) that was accepted by FAA and approved by the LRAA in February 2012.

In July 2012, the LRAA contracted with Hanson to conduct the Safety Program. The first step in the Safety Program included an aerial survey of the airport and surrounding properties to determine the height of manmade and natural objects. Survey results were then submitted to the FAA for review and validation. The Flight Standards and Flight Procedures branches of the FAA then compared the data with the mandatory airspace surfaces based on current airport capabilities applicable to each runway at Bowman Field Airport. The result was a list of individual trees and tree clusters that *penetrate or are within ten feet of penetrating* the critical Terminal Instrument Procedure (TERPS) or the Federal Aviation Regulation (FAR) Part 77 approach surfaces¹ as determined by the FAA procedures in effect in February 2012. All penetrations to these FAA-defined critical approach surfaces have been determined to be trees – *no manmade objects penetrate these surfaces*. The Safety Program EA will assess feasible and prudent alternatives and identify a preferred alternative to comply with FAA standards; specifically the alternative *must maintain the airfield operating capabilities in effect as of February 2012*. The EA will assess the program details and eligibility for federal funding of the Safety Program. The Safety Program's current activities include:

- Establish priorities to address the most critical areas first (based on property location and existing tree canopy conditions);
- Acquisition of avigation easements² over necessary properties to gain airspace protection. Offers will be based on market value appraisals conducted by licensed and certified property appraisers following strict federal guidelines. Appraisals will then be sent to review appraisers for confirmation purposes;
- Trees on the new easement properties will be assessed by a certified arborist. The homeowner, in consultation with the arborist, will decide whether individual trees can be trimmed *or* is recommended for removal and replacement.
- If a tree is removed, the homeowner may select up to two replacement trees from a list compiled by a certified arborist for use in this climate. Replacement trees will be subject to parameters for maximum growth (height) potential in order to comply with safe operating airspace. The maximum allowable height will vary according to location of the easement.

¹ The approach surfaces are horizontal planes of safe operating air space that vary according to topography, but they generally increase in elevation away from the runway ends on a 20 to 1 slope.

² To be eligible for the federal grant, FAA requires that easements be purchased for properties on which obstructions are to be removed in order to maintain the operable airspace.

The Safety Program requires the acquisition of 44 aviation easements³ (shaded pink in attached Exhibit 1) on private residential properties and a private golf course; a public golf course; and a portion of a public park. On these easements are 104 trees that are currently penetrating or are within ten feet of penetrating the approach surfaces. As noted, trees that have been identified as current or near term obstructions will be assessed for trimming or replacement. If trimming is not an option, the FAA has developed guidance for the removal and replacement process:

- If trimming is not an option or if the homeowner opts to remove the tree, the primary tree being replaced on the easement property will be located in its relative setting (e.g. front yard, back yard, etc.) where feasible. The second tree's placement will be determined by the property owner.
- The replacement trees will be selected by the property owner from a list compiled by a licensed landscape architect and a certified arborist for use in this climate. These trees will be subject to the parameters for maximum growth (height) potential in order to comply with safe operating airspace and the height will vary from 20 – 100 feet above the ground according to location of the easement.
- Physical destruction of other landscape features such as curbing, gutters, pavement, sidewalks, etc., will be avoided or restored, if damaged.
- If a tree is removed in a vegetative landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees;
- The LRAA will administer tree trimming and/or removal, stump removal and yard restoration;
- All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty.

The approach surfaces for Runway 6 (southwest) and Runway 33 (southeast) are located largely over residential neighborhoods. The approach surface for Runway 15 (northwest) is located over Seneca Park (specifically the golf course) and the approach surface for Runway 24 (northeast) is over Big Spring Country Club. The number of identified obstructions (e.g. trees) within each runway varies as does the maximum height (based on surface elevation) allowed for each tree to be trimmed, or removed and replaced. In total, the Safety Program currently includes 106 obstructions (trees) across the four approach surfaces. The existing height of these trees, as well as the maximum allowable growth heights for their potential replacements, varies according to location.

The number of trees on the proposed easement properties identified for trimming or removal and replacement is summarized in the table below. The CRE identified 14 historic architectural resources and the summary table provides a breakdown of the relationship between the easements, penetrations, and the resources. Attached Tables 1-4 provide a more detailed itemization of specific trees identified for trimming or removal and replacement and Exhibit 2 provides locational information. The attached tables provide data collected during a 2012 and 2014 tree inventory, including information on current height, species, age, growth characteristics, and the maximum allowable growth height based on its location relative to the approach surfaces.

³ Airspace protection over of Seneca Park and Golf Course (Runway 15 and a portion of Runway 6) will be afforded in a Memorandum of Agreement between the LRAA and the Metro Louisville Parks.

Summary of Safety Program Easement Acquisitions and Current or Near Term Penetrations.

	Required Easement Acquisitions	Current or Near Term Penetrations (to be addressed under grant)	Trees to be Planted (if owners elect not to trim)
Runway 6 (SW) <i>Seneca Park @ Pee Wee Reese</i> <i>Seneca Vista</i> <i>McCoy Manor</i> <i>Seneca Manor</i> <i>Kingsley</i> <i>Various Outparcels</i>	9 <i>MOA w/Parks</i> 8 0 1 0 0	18 7 10 0 1 0 0	36 14 20 0 2 0 0
Runway 15 (NW) <i>Seneca Park Golf Course</i>	<i>MOA w/Parks</i>	31	62
Runway 33 (SE) <i>Seneca Village</i> <i>Seneca Village No.2</i>	34 25 9	38 28 10	76 56 20
Runway 24 (NE) <i>Big Springs CC & GC</i>	1	17	34

The Area of Potential Effect (APE)

Based on the proposed activities listed above, and the existing characteristics of the obstructions, the FAA has defined the APE for cultural resources investigations as illustrated in Exhibits 1-2. For historic architectural resources, the FAA defined the APE as those geographical areas within the approach surfaces, which contains all proposed easements to be purchased by the grant and all obstructions (e.g., trees) to be trimmed or removed and replaced through grant funding, as well as a buffer area. During a June 24, 2015 Section 106 Consulting Party meeting, comments were made regarding the location and size of the APE and potential indirect effects of the Safety Program on the affected neighborhoods (as identified in Chapter 3 of the CRE). The FAA adjusted the APE to account for potential indirect effects, including loss of canopy or shade of adjacent properties and viewshed. A canopy and land cover analysis has also been prepared to assist in confirming the APE (see Exhibits 3-11).

At the June 24 meeting, the Consulting Parties also requested the FAA consider “property devaluation” as a potential indirect effect. There are currently more than 70 easements held by the LRAA in the potentially affected areas and new easements will be based on market value appraisals conducted by certified property appraisers following federal guidelines. Therefore, the FAA determined that property devaluation did not constitute an indirect effect. Similarly, Consulting Parties requested that the FAA consider “increased noise” as a potential indirect effect. The Safety Program will result in the trimming or removal and replacement of less than two percent of the trees within the APEs. The removal or trimming and replacement of these trees will not alter the airport approach procedures that are currently in place and were in place in February 2012. In addition, the Safety Program will not result in changes to the airfield operating characteristics or capabilities. No change in aircraft operation is anticipated as a result of the Safety Program so no noise increases are contemplated. FAA has determined the undertaking will have no direct or indirect noise effects.

During the consulting party meetings of June 24 and August 15, 2015, inquiries were made regarding the potential to install lighting as an alternative in the NEPA process and, therefore, whether it should be considered in determining the extent of the APE. In its response to a consultation letter regarding the revised APE dated October 9, 2015, the KYSHPO also raised this question. Lighting has been dismissed as an EA alternative because lights would need to be installed at the apex of each penetrating obstruction, thus not removing the obstructions to provide safe air space. Therefore, this alternative did not meet the need and purpose of the project. It was not considered a viable alternative in the EA and will not be studied as part of the Section 106 process.

The FAA has determined that the APE, as defined on the attached exhibits, contains all direct and indirect effects of the currently proposed Safety Program.⁴

Attachments:

Table 1 - Runway 6, Current or Near Term Penetrations

Table 2 - Runway 15, Current or Near Term Penetrations

Table 3 - Runway 24, Current or Near Term Penetrations

Table 4 - Runway 33, Current or Near Term Penetrations

Exhibit 1 - Bowman Field Safety Program, showing APE, required and existing easements, and current or near term obstructions on the required easements

Exhibit 2 - Tree inventory conducted for Safety Program, showing APE, easements, and current or near term obstructions on the required aviation easements

Exhibits 3-11 - Canopy and Land Cover Analysis

⁴ For archaeological resources, the APE is anticipated to be limited to areas that may require ground-disturbing activities (i.e., stump grinding), once such areas are finalized.

Table 1. Runway 06, Current or Near Term Penetrations

Tree PT#	Address/Location	Subdivision/ Neighborhood	Common Name	Botanical name	Estimated Age	Maximum Allowable Height for Repl.	Current Tree Height	Maximum Species Growth Height	Current Condition
1019	2617 Landor Av.	Seneca Vista	Pin oak	<i>Quercus palustris</i>	41-80	78	75	115	Healthy/Some Decay or Weakness
1105	2635 Landor Av.	Seneca Vista	Red maple	<i>Acer rubrum</i>	31-35	69	71	111	Healthy/Healing
1112	2649 Taylorsville Rd.	Seneca Vista	Ginkgo	<i>Ginkgo biloba</i>	36-40	69	63	100	Healthy
1119	2649 Taylorsville Rd.	Seneca Vista	Pin oak	<i>Quercus palustris</i>	41-80	63	69	115	Healthy/Some Decay or Weakness
1150	2640 Landor Av.	Seneca Vista	Foster holly	<i>Ilex crenata</i>	5-15	74	74	45	Healthy
1163	2640 Landor Av.	Seneca Vista	Flowering dogwood	<i>Cornus florida</i>	16-20	73	71	44	Healthy
1175	2632 Landor Av.	Seneca Vista	Silver maple	<i>Acer sacharinum</i>	41-80	77	77	106	Healthy/Some Decay or Weakness
1227	2622 Landor Av.	Seneca Vista	Pin oak	<i>Quercus palustris</i>	41-80	78	88	115	Healthy/Some Decay or Weakness
5717	2621 Drayton Dr.	Seneca Vista	Red maple	<i>Acer rubrum</i>	31-35	66	79	111	Healthy/Healing
5770	2647 Drayton Dr.	Seneca Vista	Red maple	<i>Acer rubrum</i>	26-30	60	51	111	Healthy
6184	2625 Valletta Rd.	Seneca Manor	Pin oak	<i>Quercus palustris</i>	80+	119	117	115	Healthy
7029	Pee Wee Reese Rd.	Seneca Park	Southern magnolia	<i>Magnolia grandiflora</i>	36-40	53	60	75	Healthy
7034	Pee Wee Reese Rd.	Seneca Park	White pine	<i>Pinus strobus</i>	31-35	51	52	145	Healthy/Some Decay or Weakness
7050	Pee Wee Reese Rd.	Seneca Park	Black cherry	<i>Prunus serotina</i>	36-40	51	67	103	Healthy
7053	Pee Wee Reese Rd.	Seneca Park	Hackberry	<i>Celtis occidentalis</i>	36-40	50	72	94	N/A
7062	Pee Wee Reese Rd.	Seneca Park	Black cherry	<i>Prunus serotina</i>	41-80	52	58	103	Healthy
7080	Pee Wee Reese Rd.	Seneca Park	Hackberry	<i>Celtis occidentalis</i>	36-40	50	50	94	Healthy
7088	Pee Wee Reese Rd.	Seneca Park	American yellowwood	<i>Cladrastis kentukea</i>	16-20	49	53	58	Healthy

Table 2. Runway 15, Current or Near Term Penetrations

Tree PT#	Location	Common Name	Botanical name	Estimated Age	Maximum Allowable Height for Repl.	Current Tree Height	Maximum Species Growth Height	Condition
3011	Golf Course	Flowering dogwood	<i>Cornus florida</i>	5-15	11	13	44	Healthy
3001	Golf Course	Scotch pine	<i>Pinus sylvestris</i>	26-30	20	16	90	Healthy/Healing
3002	Golf Course	Pin oak	<i>Quercus palustris</i>	26-30	22	48	115	Healthy
3003	Golf Course	Redbud	<i>Cercis canadensis</i>	5-15	23	16	45	Healthy
3018	Golf Course	Scotch pine	<i>Pinus sylvestris</i>	16-20	24	26	90	Healthy/Healing
3009	Golf Course	Sugar maple	<i>Acer sacharum</i>	26-30	25	38	108	Healthy
3007	Golf Course	Ash	<i>Fraxinus sp.</i>	21-25	26	48	106	Healthy
3027	Golf Course	Honeylocust	<i>Gleditsia triacanthos</i>	5-15	35	31	99	Healthy
3028	Golf Course	Chinese juniper	<i>Juniperous chinensis</i>	21-25	35	38	60	Healthy
3026	Golf Course	Scotch pine	<i>Pinus sylvestris</i>	26-30	36	31	90	Healthy
2001	Golf Course	Eastern redcedar	<i>Juniperous virginiana</i>	26-30	37	36	60	Healthy/Some Decay or Weakness
2002	Golf Course	Honeylocust	<i>Gleditsia triacanthos</i>	26-30	37	44	99	Declining
2004	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	26-30	41	60	158	Healthy
2005	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	36-40	43	59	158	Healthy/Some Decay or Weakness
2036	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	50-80	44	69	158	Healthy
2035	Golf Course	Willow oak	<i>Quercus phellos</i>	26-30	45	55	101	Healthy
2034	Golf Course	Red maple	<i>Acer rubrum</i>	26-30	46	49	111	Healthy
2044	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	31-35	47	55	158	Healthy
2045	Golf Course	Little Leaf linden	<i>Tilia cordata</i>	36-40	48	49	85	Healthy
2018	Golf Course	Sugar maple	<i>Acer sacharum</i>	21-25	49	54	108	Healthy
2008	Golf Course	Sugar maple	<i>Acer sacharum</i>	26-30	49	44	108	Healthy
2009	Golf Course	Red maple	<i>Acer rubrum</i>	26-30	49	58	111	Healthy
2032	Golf Course	Pin oak	<i>Quercus palustris</i>	31-35	49	53	115	Healthy
2033	Golf Course	Black cherry	<i>Prunus serotina</i>	36-40	49	56	103	Healthy
2027	Golf Course	Red maple	<i>Acer rubrum</i>	36-40	54	48	111	Healthy
2026	Golf Course	Pin oak	<i>Quercus palustris</i>	36-40	57	73	115	Healthy
2025	Golf Course	Pin oak	<i>Quercus palustris</i>	36-40	58	64	115	Healthy

2028	Golf Course	Black cherry	<i>Prunus serotina</i>	31-35	61	68	103	Healthy/Healing
3156	Golf Course	Black cherry	<i>Prunus serotina</i>	26-30	78	78	103	Healthy/Healing
3158	Golf Course	American elm	<i>Ulmus americana</i>	21-25	69	60	114	Healthy
3159	Golf Course	Black cherry	<i>Prunus serotina</i>	26-30	67	73	103	Healthy

Table 3. Runway 24, Current and Near Term Penetrations

Tree Pt#	Location	Common Name	Botanical name	Estimated Age	Maximum Allowable Height for Repl.	Current Tree Height	Maximum Species Growth Height	Current Condition
437	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	24	NA	45	Healthy
438	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	24	NA	45	Healthy
433	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	26	NA	45	Healthy
434	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	26	NA	45	Healthy
435	Big Spring GC	Blue spruce	<i>Picea pungens</i>	15-20	26	NA	95	Healthy
436	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	26	NA	45	Healthy
182	Big Spring GC	Eastern white pine	<i>Pinus strobus</i>	30+	39	20	145	Healthy/Healing
30	Big Spring GC	White Pine	<i>Pinus strobus</i>	30+	51	47	145	Healthy/Some Decay or Weakness
31	Big Spring GC	Red maple	<i>Acer rubrum</i>	30+	52	46	111	Healthy/Healing
413_2	Big Spring GC	Eastern white pine	<i>Pinus strobus</i>	25-30	78	68	145	Healthy
604_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	90	87	115	Healthy
583_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	94	88	115	Healthy/Healing
582_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	100	93	115	Healthy
230	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	104	97	115	Healthy/Healing
581_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	106	102	115	Healthy/Healing
580_2	Big Spring GC	Yellow poplar	<i>Liriodendron tulipifera</i>	30+	109	101	158	Healthy/Healing
403	Big Spring GC	Hackberry	<i>Celtis occidentalis</i>	5-15	113	NA	94	Declining

Table 4. Runway 33, Current or Near Term Penetrations

Tree PT#	Address/Location	Subdivision/ Neighborhood	Common Name	Botanical name	Estimated Age	Maximum Allowable Height for Repl.	Current Tree Height	Maximum Species Growth Height	Current Condition
715	3106 Taylorsville Rd.	Seneca Village	Crabapple	<i>Malus sp.</i>	5-15	32	30	50	Healthy
720	3108 Taylorsville Rd.	Seneca Village	White spruce	<i>Picea alba</i>	26-30	35	29	80	Healthy
719	3108 Taylorsville Rd.	Seneca Village	Pin oak	<i>Quercus palustris</i>	41-80	35	30	115	Healthy
5460	3110 Seneca Blvd.	Seneca Village	Siberian Elm	<i>Ulmus pumila</i>	36-40	42	51	70	Healthy/Healing
5477	3010 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	31-35	51	45	111	Healthy
5474	3008 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	48	76	111	Healthy
5160	3023 Carson Wy.	Seneca Village	Bradford pear	<i>Pyrus calleryana</i>	21-25	52	45	55	Healthy
5159	3023 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	26-30	52	61	158	Healthy
742	3004 Kent Rd.	Seneca Village	Ash	<i>Fraxinus sp.</i>	36-40	54	61	106	Declining
5155	3025 Carson Wy.	Seneca Village	Red maple	<i>Acer rubrum</i>	31-35	56	57	111	Healthy
5484	3014 Seneca Blvd.	Seneca Village	Hackberry	<i>Celtis occidentalis</i>	31-35	58	58	94	Healthy
5195	3026 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	16-20	59	93	158	Healthy
5153	3027 Carson Wy.	Seneca Village	Box Elder	<i>Acer negundo</i>	36-40	60	52	95	Healthy/Healing
5486	3016 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	31-35	61	51	108	Healthy/Some Decay or Weakness
5148	3029 Carson Wy.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	31-35	64	64	108	Healthy
5492	3018 Seneca Blvd.	Seneca Village	Sweetbay magnolia	<i>Magnolia virginiana</i>	5-15	65	72	35	Healing/Some Decay or Weakness
5493	3020 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	67	67	111	Healthy
5146	3033 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	36-40	68	60	106	Healthy
5140	3035 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	31-35	69	73	106	Healthy
5204	3032 Carson Wy.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	69	70	108	Healthy/Some Decay or Weakness
812	3012 Kent Rd.	Seneca Village	Red maple	<i>Acer rubrum</i>	41-80	70	64	111	Healthy/Some Decay or Weakness
5495	3022 Seneca Blvd.	Seneca Village	Siberian Elm	<i>Ulmus pumila</i>	80+	70	77	70	Healthy
5145	3035 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	36-40	71	69	106	Thriving
5205	3034 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	36-40	71	88	158	Healthy
847	3023 Seneca Blvd.	Seneca Village	Norway Spruce	<i>Picea abies</i>	36-40	72	63	120	Healthy/Some Decay or Weakness
788	3011 Kent Rd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	72	64	111	Healthy

822	3014 Kent Rd.	Seneca Village	Pin oak	<i>Quercus palustris</i>	41-80	72	85	100	Healing/Some Decay or Weakness
850	3025 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	74	68	108	Healthy
849	3025 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	75	71	108	Healthy/Some Decay or Weakness
5129	2713 Alanmede Rd.	Seneca Village No. 2	Siberian Elm	<i>Ulmus pumila</i>	41-80	78	72	70	Healthy
5043	2647 Alanmede Rd.	Seneca Village No. 2	Siberian Elm	<i>Ulmus pumila</i>	41-80	79	73	70	Healthy
5131	2707 Alanmede Rd.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	79	81	106	Healing/Some Decay or Weakness
5108	3008 Betty Ln.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	88	87	115	Healthy
94	2712 Alanmede Rd.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	80+	90	92	115	Healthy
156	2727 Wendell Av.	Seneca Village No. 2	Silver maple	<i>Acer sacharinum</i>	80+	97	87	106	Healthy
219	2641 Wendell Av.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	98	94	115	Healthy
5385	3020 Joan Av.	Seneca Village No. 2	Red oak	<i>Quercus rubra</i>	80+	104	103	120	Healthy
588	2719 Gardiner Ln.	Seneca Village No. 2	Red maple	<i>Acer rubrum</i>	31-35	107	100	111	Healthy

Table 4. Runway 33, Current or Near Term Penetrations

Tree PT#	Address/Location	Subdivision/ Neighborhood	Common Name	Botanical name	Estimated Age	Maximum Allowable Height for Repl.	Current Tree Height	Maximum Species Growth Height	Current Condition
715	3106 Taylorsville Rd.	Seneca Village	Crabapple	<i>Malus sp.</i>	5-15	32	30	50	Healthy
720	3108 Taylorsville Rd.	Seneca Village	White spruce	<i>Picea alba</i>	26-30	35	29	80	Healthy
719	3108 Taylorsville Rd.	Seneca Village	Pin oak	<i>Quercus palustris</i>	41-80	35	30	115	Healthy
5460	3110 Seneca Blvd.	Seneca Village	Siberian Elm	<i>Ulmus pumila</i>	36-40	42	51	70	Healthy/Healing
5477	3010 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	31-35	51	45	111	Healthy
5474	3008 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	48	76	111	Healthy
5160	3023 Carson Wy.	Seneca Village	Bradford pear	<i>Pyrus calleryana</i>	21-25	52	45	55	Healthy
5159	3023 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	26-30	52	61	158	Healthy
742	3004 Kent Rd.	Seneca Village	Ash	<i>Fraxinus sp.</i>	36-40	54	61	106	Declining
5155	3025 Carson Wy.	Seneca Village	Red maple	<i>Acer rubrum</i>	31-35	56	57	111	Healthy
5484	3014 Seneca Blvd.	Seneca Village	Hackberry	<i>Celtis occidentalis</i>	31-35	58	58	94	Healthy
5195	3026 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	16-20	59	93	158	Healthy
5153	3027 Carson Wy.	Seneca Village	Box Elder	<i>Acer negundo</i>	36-40	60	52	95	Healthy/Healing
5486	3016 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	31-35	61	51	108	Healthy/Some Decay or Weakness
5148	3029 Carson Wy.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	31-35	64	64	108	Healthy
5492	3018 Seneca Blvd.	Seneca Village	Sweetbay magnolia	<i>Magnolia virginiana</i>	5-15	65	72	35	Healing/Some Decay or Weakness
5493	3020 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	67	67	111	Healthy
5146	3033 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	36-40	68	60	106	Healthy
5140	3035 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	31-35	69	73	106	Healthy
5204	3032 Carson Wy.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	69	70	108	Healthy/Some Decay or Weakness
812	3012 Kent Rd.	Seneca Village	Red maple	<i>Acer rubrum</i>	41-80	70	64	111	Healthy/Some Decay or Weakness
5495	3022 Seneca Blvd.	Seneca Village	Siberian Elm	<i>Ulmus pumila</i>	80+	70	77	70	Healthy
5145	3035 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	36-40	71	69	106	Thriving
5205	3034 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	36-40	71	88	158	Healthy
847	3023 Seneca Blvd.	Seneca Village	Norway Spruce	<i>Picea abies</i>	36-40	72	63	120	Healthy/Some Decay or Weakness
788	3011 Kent Rd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	72	64	111	Healthy

822	3014 Kent Rd.	Seneca Village	Pin oak	<i>Quercus palustris</i>	41-80	72	85	100	Healing/Some Decay or Weakness
850	3025 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	74	68	108	Healthy
849	3025 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	75	71	108	Healthy/Some Decay or Weakness
5129	2713 Alanmede Rd.	Seneca Village No. 2	Siberian Elm	<i>Ulmus pumila</i>	41-80	78	72	70	Healthy
5043	2647 Alanmede Rd.	Seneca Village No. 2	Siberian Elm	<i>Ulmus pumila</i>	41-80	79	73	70	Healthy
5131	2707 Alanmede Rd.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	79	81	106	Healing/Some Decay or Weakness
5108	3008 Betty Ln.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	88	87	115	Healthy
94	2712 Alanmede Rd.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	80+	90	92	115	Healthy
156	2727 Wendell Av.	Seneca Village No. 2	Silver maple	<i>Acer sacharinum</i>	80+	97	87	106	Healthy
219	2641 Wendell Av.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	98	94	115	Healthy
5385	3020 Joan Av.	Seneca Village No. 2	Red oak	<i>Quercus rubra</i>	80+	104	103	120	Healthy
588	2719 Gardiner Ln.	Seneca Village No. 2	Red maple	<i>Acer rubrum</i>	31-35	107	100	111	Healthy

Table 1. Runway 06, Current or Near Term Penetrations

Tree PT#	Address/Location	Neighborhood	Common Name	Botanical name	Est. Age	Max. Allowable Ht. for Repl.	Current Tree Ht.	Max. Species Growth Ht.	Curent Condition
1019	2617 Landor Av.	Seneca Vista	Pin oak	<i>Quercus palustris</i>	41-80	78	75	115	Healthy/Some Decay or Weakness
1105	2635 Landor Av.	Seneca Vista	Red maple	<i>Acer rubrum</i>	31-35	69	71	111	Healthy/Healing
1112	2649 Taylorsville Rd.	Seneca Vista	Ginkgo	<i>Ginkgo biloba</i>	36-40	69	63	100	Healthy
1119	2649 Taylorsville Rd.	Seneca Vista	Pin oak	<i>Quercus palustris</i>	41-80	63	69	115	Healthy/Some Decay or Weakness
1150	2640 Landor Av.	Seneca Vista	Foster holly	<i>Ilex crenata</i>	5-15	74	74	45	Healthy
1163	2640 Landor Av.	Seneca Vista	Flowering dogwood	<i>Cornus florida</i>	16-20	73	71	44	Healthy
1175	2632 Landor Av.	Seneca Vista	Silver maple	<i>Acer sacharinum</i>	41-80	77	77	106	Healthy/Some Decay or Weakness
1227	2622 Landor Av.	Seneca Vista	Pin oak	<i>Quercus palustris</i>	41-80	78	88	115	Healthy/Some Decay or Weakness
5717	2621 Drayton Dr.	Seneca Vista	Red maple	<i>Acer rubrum</i>	31-35	66	79	111	Healthy/Healing
5770	2647 Drayton Dr.	Seneca Vista	Red maple	<i>Acer rubrum</i>	26-30	60	51	111	Healthy
6184	2625 Valletta Rd.	Seneca Manor	Pin oak	<i>Quercus palustris</i>	80+	119	117	115	Healthy
7029	Pee Wee Reese Rd.	Seneca Park	Southern magnolia	<i>Magnolia grandiflora</i>	36-40	53	60	75	Healthy
7034	Pee Wee Reese Rd.	Seneca Park	White pine	<i>Pinus strobus</i>	31-35	51	52	145	Healthy/Some Decay or Weakness
7050	Pee Wee Reese Rd.	Seneca Park	Black cherry	<i>Prunus serotina</i>	36-40	51	67	103	Healthy
7053	Pee Wee Reese Rd.	Seneca Park	Henry Maple	<i>Acer henryi</i>	<5years	51	72	35	Healthy
7062	Pee Wee Reese Rd.	Seneca Park	Black cherry	<i>Prunus serotina</i>	41-80	52	58	103	Healthy
7080	Pee Wee Reese Rd.	Seneca Park	Hackberry	<i>Celtis occidentalis</i>	36-40	50	50	94	Healthy
7088	Pee Wee Reese Rd.	Seneca Park	American yellowwood	<i>Cladrastis kentukea</i>	16-20	49	53	58	Healthy

Table 2. Runway 15, Current or Near Term Penetrations

Tree PT#	Location	Common Name	Botanical name	Age	Max. Allowable Ht. For Repl.	Current Tree Ht.	Max. Ht. of Species	Condition
3011	Golf Course	Flowering dogwood	<i>Cornus florida</i>	5-15	11	13	44	Healthy
3001	Golf Course	Scotch pine	<i>Pinus sylvestris</i>	26-30	20	16	90	Healthy/Healing
3002	Golf Course	Pin oak	<i>Quercus palustris</i>	26-30	22	48	115	Healthy
3003	Golf Course	Redbud	<i>Cercis canadensis</i>	5-15	23	16	45	Healthy
3018	Golf Course	Scotch pine	<i>Pinus sylvestris</i>	16-20	24	26	90	Healthy/Healing
3009	Golf Course	Sugar maple	<i>Acer sacharum</i>	26-30	25	38	108	Healthy
3007	Golf Course	Ash	<i>Fraxinus sp.</i>	21-25	26	48	106	Healthy
3027	Golf Course	Honeylocust	<i>Gleditsia triacanthos</i>	5-15	35	31	99	Healthy
3028	Golf Course	Chinese juniper	<i>Juniperous chinensis</i>	21-25	35	38	60	Healthy
3026	Golf Course	Scotch pine	<i>Pinus sylvestris</i>	26-30	36	31	90	Healthy
2001	Golf Course	Eastern redcedar	<i>Juniperous virginiana</i>	26-30	37	36	60	Healthy/Some Decay or Weakness
2002	Golf Course	Honeylocust	<i>Gleditsia triacanthos</i>	26-30	37	44	99	Declining
2004	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	26-30	41	60	158	Healthy
2005	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	36-40	43	59	158	Healthy/Some Decay or Weakness
2036	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	50-80	44	69	158	Healthy
2035	Golf Course	Willow oak	<i>Quercus phellos</i>	26-30	45	55	101	Healthy
2034	Golf Course	Red maple	<i>Acer rubrum</i>	26-30	46	49	111	Healthy
2044	Golf Course	Tulip poplar	<i>Liriodendron tulipifera</i>	31-35	47	55	158	Healthy
2045	Golf Course	Little Leaf linden	<i>Tilia cordata</i>	36-40	48	49	85	Healthy
2018	Golf Course	Sugar maple	<i>Acer sacharum</i>	21-25	49	54	108	Healthy
2008	Golf Course	Sugar maple	<i>Acer sacharum</i>	26-30	49	44	108	Healthy
2009	Golf Course	Red maple	<i>Acer rubrum</i>	26-30	49	58	111	Healthy
2032	Golf Course	Pin oak	<i>Quercus palustris</i>	31-35	49	53	115	Healthy
2033	Golf Course	Black cherry	<i>Prunus serotina</i>	36-40	49	56	103	Healthy
2027	Golf Course	Red maple	<i>Acer rubrum</i>	36-40	54	48	111	Healthy
2026	Golf Course	Pin oak	<i>Quercus palustris</i>	36-40	57	73	115	Healthy
2025	Golf Course	Pin oak	<i>Quercus palustris</i>	36-40	58	64	115	Healthy

Table 2. Runway 15, Current or Near Term Penetrations

2028	Golf Course	Black cherry	<i>Prunus serotina</i>	31-35	61	68	103	Healthy/Healing
3156	Golf Course	Black cherry	<i>Prunus serotina</i>	26-30	78	78	103	Healthy/Healing
3158	Golf Course	American elm	<i>Ulmus americana</i>	21-25	69	60	114	Healthy
3159	Golf Course	Black cherry	<i>Prunus serotina</i>	26-30	67	73	103	Healthy

Table 3. Runway 24, Current and Near Term Penetrations

TreePt#	Location	Common Name	Botanical name	Age category	Max Allowable Ht.	Current Tree Ht.	Max Ht. of Species	Condition
437	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	24	NA	45	Healthy
438	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	24	NA	45	Healthy
433	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	26	NA	45	Healthy
434	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	26	NA	45	Healthy
435	Big Spring GC	Blue spruce	<i>Picea pungens</i>	15-20	26	NA	95	Healthy
436	Big Spring GC	Arborvitae	<i>Thuja sp.</i>	15-20	26	NA	45	Healthy
182	Big Spring GC	Eastern white pine	<i>Pinus strobus</i>	30+	39	20	145	Healthy/Healing
30	Big Spring GC	White Pine	<i>Pinus strobus</i>	30+	51	47	145	Healthy/Some Decay or Weakness
31	Big Spring GC	Red maple	<i>Acer rubrum</i>	30+	52	46	111	Healthy/Healing
413_2	Big Spring GC	Eastern white pine	<i>Pinus strobus</i>	25-30	78	68	145	Healthy
604_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	90	87	115	Healthy
583_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	94	88	115	Healthy/Healing
582_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	100	93	115	Healthy
230	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	104	97	115	Healthy/Healing
581_2	Big Spring GC	Pin oak	<i>Quercus palustris</i>	30+	106	102	115	Healthy/Healing
580_2	Big Spring GC	Yellow poplar	<i>Liriodendron tulipifera</i>	30+	109	101	158	Healthy/Healing
403	Big Spring GC	Hackberry	<i>Celtis occidentalis</i>	5-15	113	NA	94	Declining

Table 4. Runway 33, Current or Near Term Penetrations

Tree PT#	Address	Subdivision	Common Name	Botanical name	Est. Age	Current Tree Ht.	Max. Allowable Ht. For Repl.	Max. Species Ht.	Condition
715	3106 Taylorsville Rd.	Seneca Village	Crabapple	<i>Malus sp.</i>	5-15	30	32	50	Healthy
720	3108 Taylorsville Rd.	Seneca Village	White spruce	<i>Picea alba</i>	26-30	29	35	80	Healthy
719	3108 Taylorsville Rd.	Seneca Village	Pin oak	<i>Quercus palustris</i>	41-80	30	35	115	Healthy
5460	3110 Seneca Blvd.	Seneca Village	Siberian Elm	<i>Ulmus pumila</i>	36-40	51	42	70	Healthy/Healing
5477	3010 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	31-35	45	51	111	Healthy
5474	3008 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	76	48	111	Healthy
5160	3023 Carson Wy.	Seneca Village	Bradford pear	<i>Pyrus calleryana</i>	21-25	45	52	55	Healthy
5159	3023 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	26-30	61	52	158	Healthy
742	3004 Kent Rd.	Seneca Village	Ash	<i>Fraxinus sp.</i>	36-40	61	54	106	Declining
5155	3025 Carson Wy.	Seneca Village	Red maple	<i>Acer rubrum</i>	31-35	57	56	111	Healthy
5484	3014 Seneca Blvd.	Seneca Village	Hackberry	<i>Celtis occidentalis</i>	31-35	58	58	94	Healthy
5195	3026 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	16-20	93	59	158	Healthy
5153	3027 Carson Wy.	Seneca Village	Box Elder	<i>Acer negundo</i>	36-40	52	60	95	Healthy/Healing
5486	3016 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	31-35	51	61	108	Healthy/Some Decay or Weakness
5148	3029 Carson Wy.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	31-35	64	64	108	Healthy
5492	3018 Seneca Blvd.	Seneca Village	Sweetbay magnolia	<i>Magnolia virginiana</i>	5-15	72	65	35	Healing/Some Decay or Weakness
5493	3020 Seneca Blvd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	67	67	111	Healthy
5146	3033 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	36-40	60	68	106	Healthy
5140	3035 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	31-35	73	69	106	Healthy
5204	3032 Carson Wy.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	70	69	108	Healthy/Some Decay or Weakness
812	3012 Kent Rd.	Seneca Village	Red maple	<i>Acer rubrum</i>	41-80	64	70	111	Healthy/Some Decay or Weakness
5495	3022 Seneca Blvd.	Seneca Village	Siberian Elm	<i>Ulmus pumila</i>	80+	77	70	70	Healthy
5145	3035 Carson Wy.	Seneca Village	Silver maple	<i>Acer sacharinum</i>	36-40	69	71	106	Thriving
5205	3034 Carson Wy.	Seneca Village	Tulip poplar	<i>Liriodendron tulipifera</i>	36-40	88	71	158	Healthy
847	3023 Seneca Blvd.	Seneca Village	Norway Spruce	<i>Picea abies</i>	36-40	63	72	120	Healthy/Some Decay or Weakness
788	3011 Kent Rd.	Seneca Village	Red maple	<i>Acer rubrum</i>	36-40	64	72	111	Healthy

Table 4. Runway 33, Current or Near Term Penetrations

822	3014 Kent Rd.	Seneca Village	Pin oak	<i>Quercus palustris</i>	41-80	85	72	100	Healing/Some Decay or Weakness
850	3025 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	68	74	108	Healthy
849	3025 Seneca Blvd.	Seneca Village	Sugar maple	<i>Acer sacharum</i>	36-40	71	75	108	Healthy/Some Decay or Weakness
5129	2713 Alanmede Rd.	Seneca Village No. 2	Siberian Elm	<i>Ulmus pumila</i>	41-80	72	78	70	Healthy
5043	2647 Alanmede Rd.	Seneca Village No. 2	Siberian Elm	<i>Ulmus pumila</i>	41-80	73	79	70	Healthy
5131	2707 Alanmede Rd.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	81	79	106	Healing/Some Decay or Weakness
5108	3008 Betty Ln.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	87	88	115	Healthy
94	2712 Alanmede Rd.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	80+	92	90	115	Healthy
156	2727 Wendell Av.	Seneca Village No. 2	Silver maple	<i>Acer sacharinum</i>	80+	87	97	106	Healthy
219	2641 Wendell Av.	Seneca Village No. 2	Pin oak	<i>Quercus palustris</i>	41-80	94	98	115	Healthy
5385	3020 Joan Av.	Seneca Village No. 2	Red oak	<i>Quercus rubra</i>	80+	103	104	120	Healthy
588	2719 Gardiner Ln.	Seneca Village No. 2	Red maple	<i>Acer rubrum</i>	31-35	100	107	111	Healthy

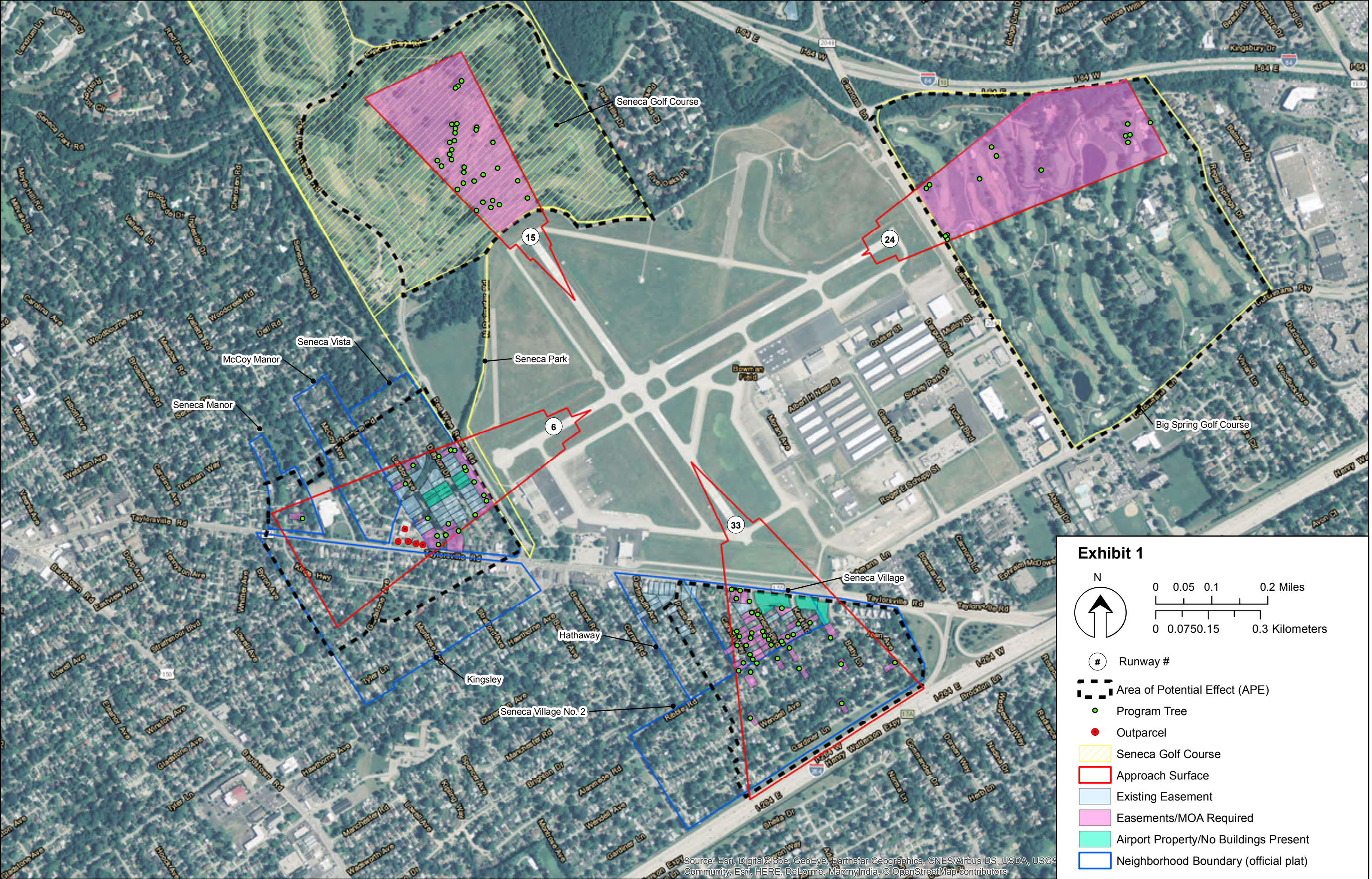


Exhibit 1

N

00.050.10.2 Miles

00.0750.150.3 Kilometers

#Runway #

Area of Potential Effect (APE)

Program Tree

Outparcel

Seneca Golf Course

Approach Surface

Existing Easement

Easements/MOA Required

Airport Property/No Buildings Present

Neighborhood Boundary (official plat)

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, SDA, Airphoto, Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors

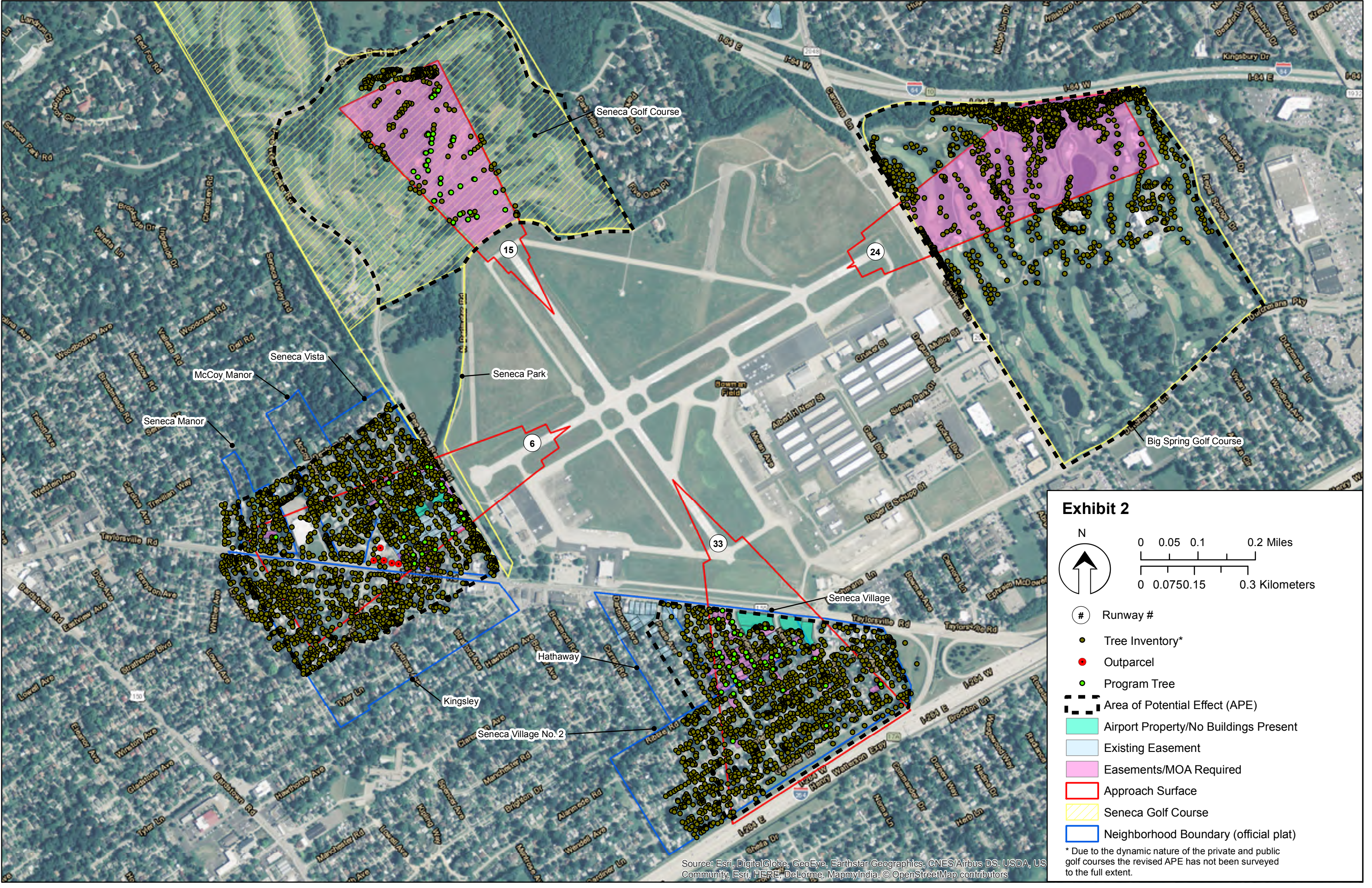
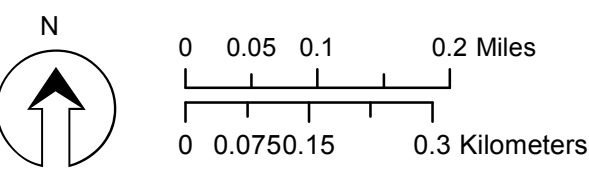
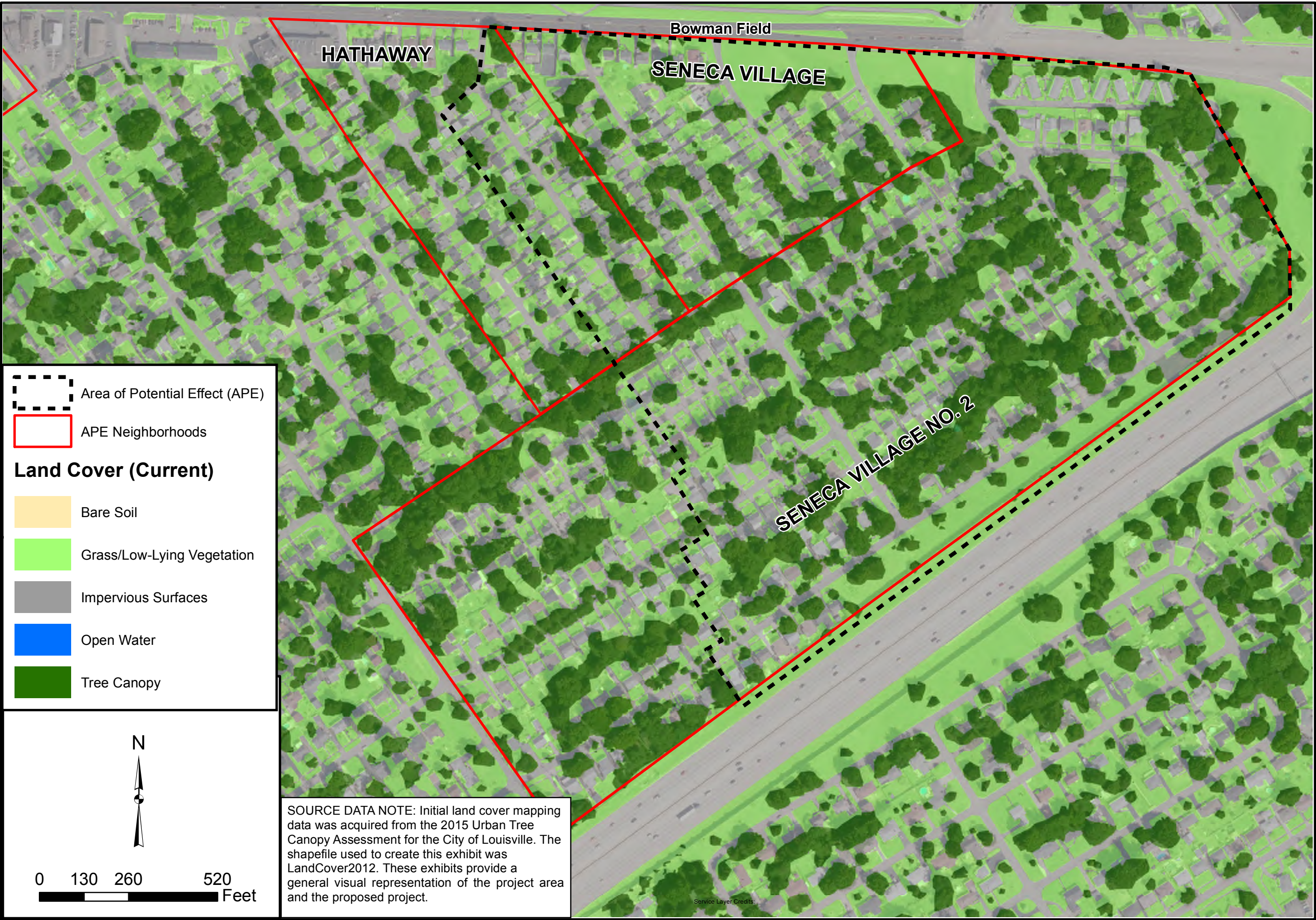


Exhibit 2



- # Runway #
- Tree Inventory*
- Outparcel
- Program Tree
- - - Area of Potential Effect (APE)
- Airport Property/No Buildings Present
- Existing Easement
- Easements/MOA Required
- Approach Surface
- Seneca Golf Course
- Neighborhood Boundary (official plat)

* Due to the dynamic nature of the private and public golf courses the revised APE has not been surveyed to the full extent.



BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

**HAWTHORNE
NEIGHBORHOOD
LAND COVER -
CURRENT
CONDITIONS**

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

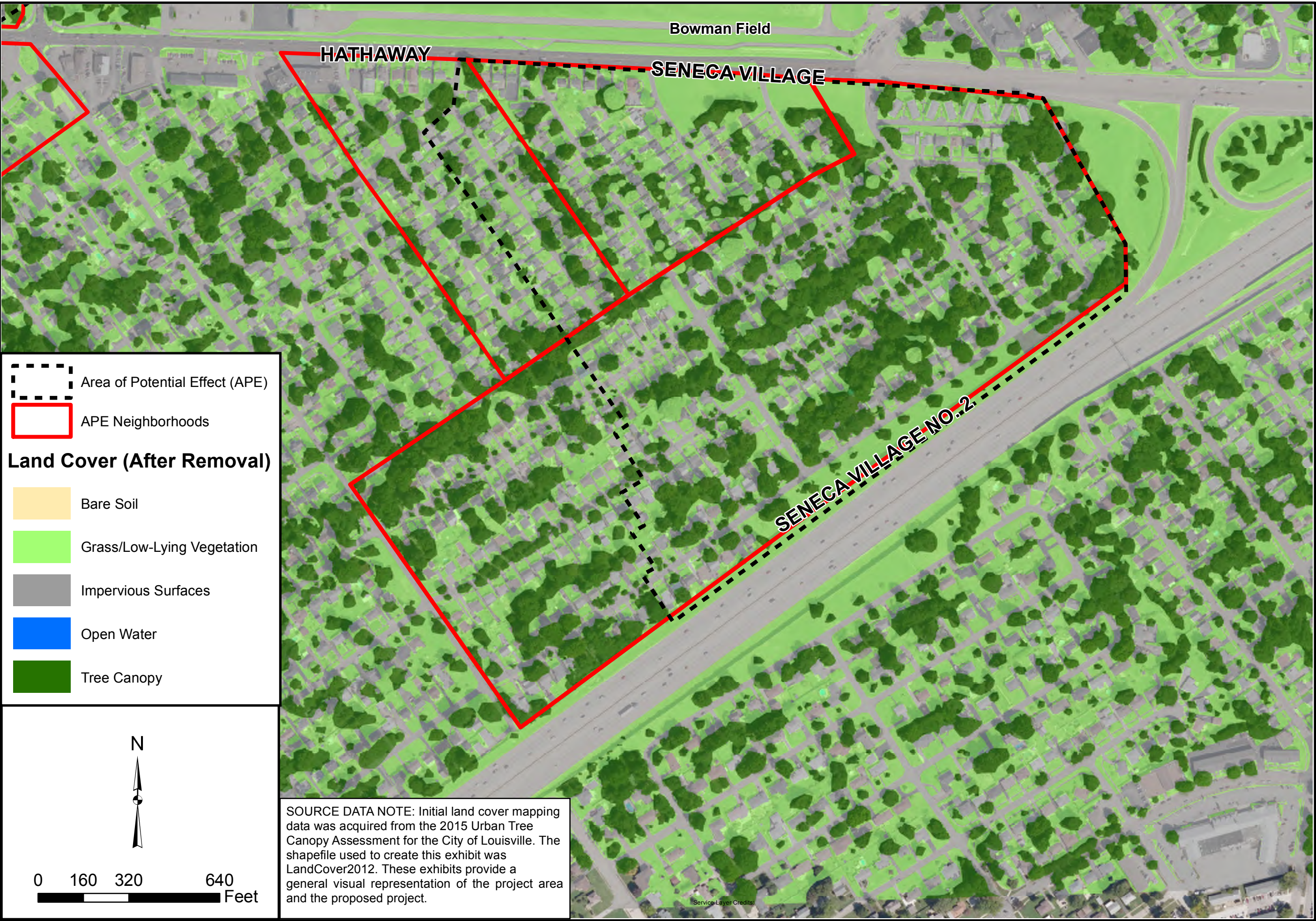
SECTION 106 COORDINATION

[illegible]

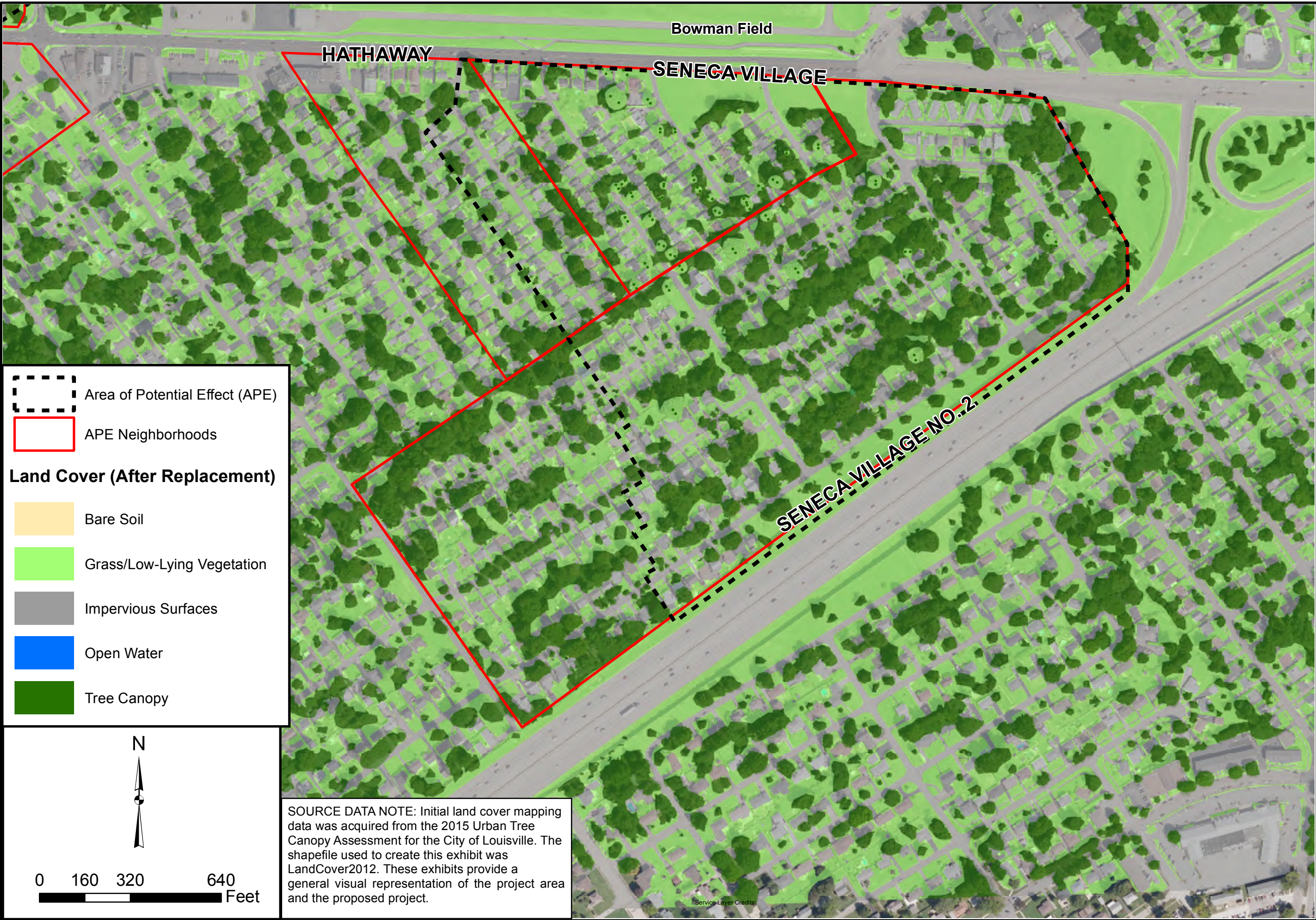
ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

HAWTHORNE
NEIGHBORHOOD
LAND COVER -
AFTER
REMOVAL

EXHIBIT 4

THURSDAY, FEBRUARY 11, 2016 11:26:44 AM GIBBS01521
\\12JOBS\12A00134\CAD\GIS\SECTION 106\HAWTHORNE 1B - FUTURE_EASEMENTS.MXD



Area of Potential Effect (APE)

APE Neighborhoods

Land Cover (After Replacement)

Bare Soil

Grass/Low-Lying Vegetation

Impervious Surfaces

Open Water

Tree Canopy

N

0 160 320 640 Feet

SOURCE DATA NOTE: Initial land cover mapping data was acquired from the 2015 Urban Tree Canopy Assessment for the City of Louisville. The shapefile used to create this exhibit was LandCover2012. These exhibits provide a general visual representation of the project area and the proposed project.

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

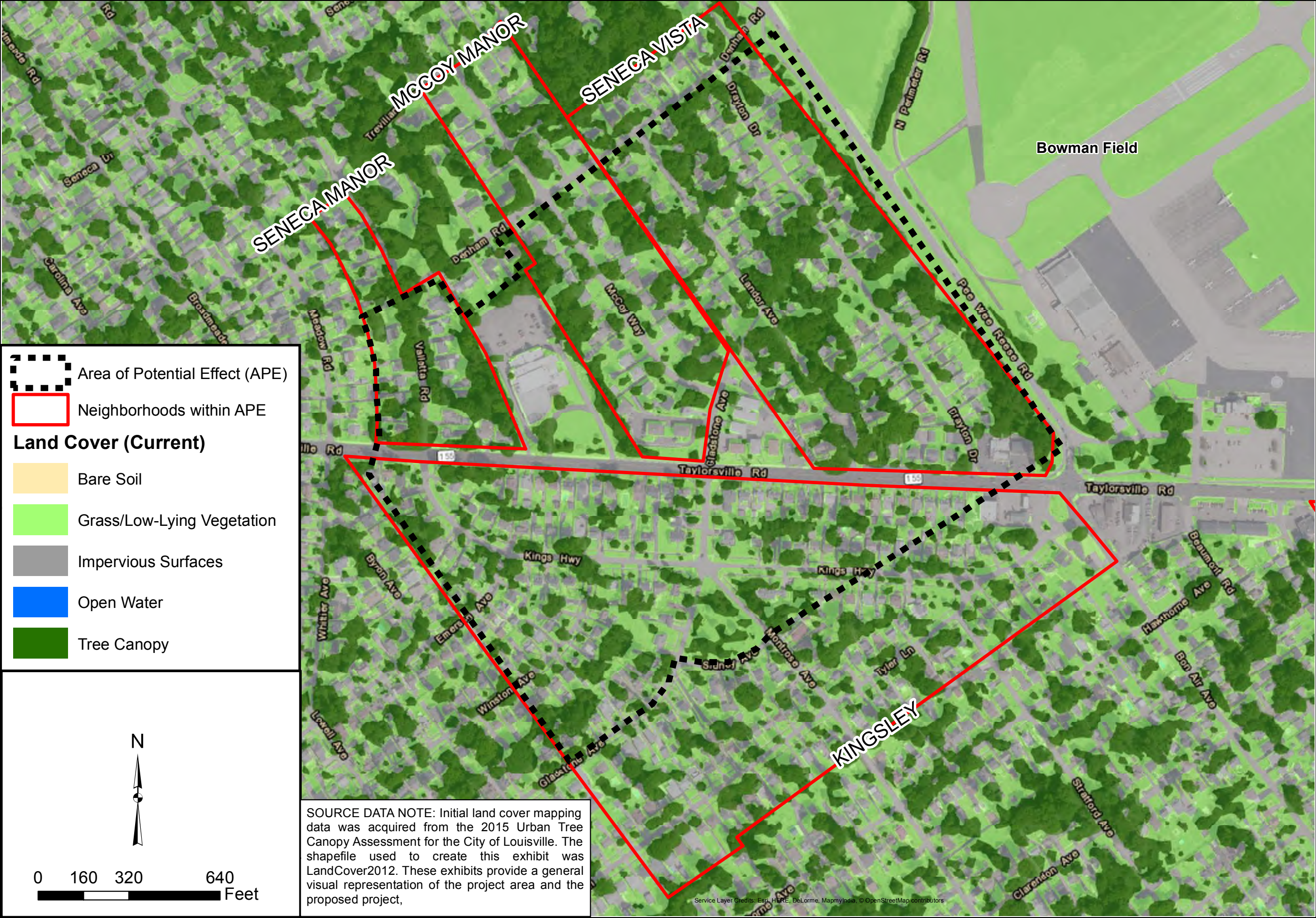
NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

**HAWTHORNE
NEIGHBORHOOD
LAND COVER -
AFTER INITIAL
REREPLACEMENT**

THURSDAY, FEBRUARY 04, 2016 11:45:37 AM GIBBS01521
I:\12\085\12A00134\CAD\GIS\SECTION 106\SENECA2A.MXD



SOURCE DATA NOTE: Initial land cover mapping data was acquired from the 2015 Urban Tree Canopy Assessment for the City of Louisville. The shapefile used to create this exhibit was LandCover2012. These exhibits provide a general visual representation of the project area and the proposed project,

Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

DRAFT

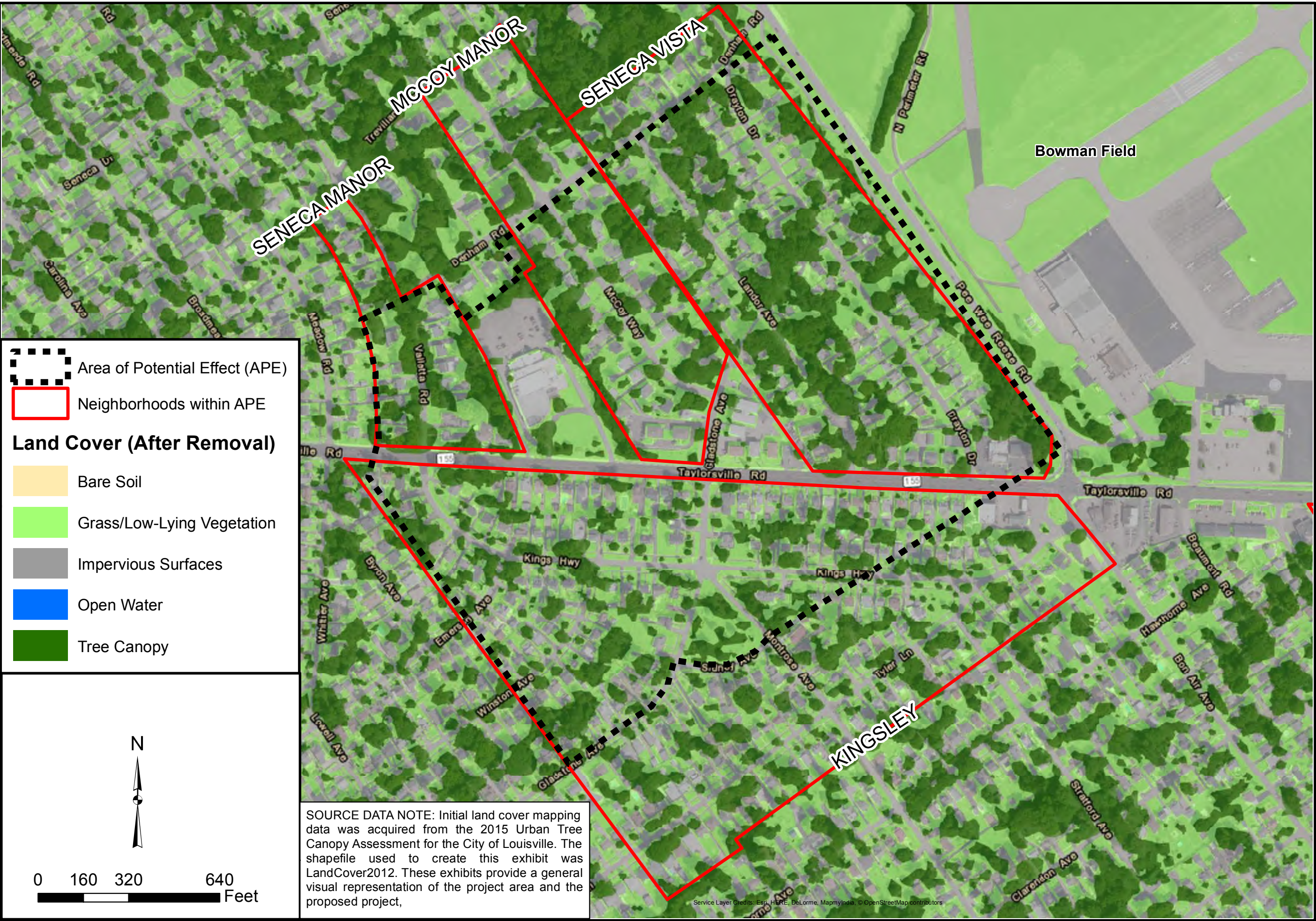
NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

**SENECA
NEIGHBORHOOD
LAND COVER -
CURRENT
CONDITIONS**

EXHIBIT 6



WEDNESDAY, FEBRUARY 10, 2016 1:02:01 PM GIBBS01521
I:\12\JOBS\12A00134\CAD\GIS\SECTION 106\SENECA2B - FUTURE EASMENTS.MXD

SOURCE DATA NOTE: Initial land cover mapping data was acquired from the 2015 Urban Tree Canopy Assessment for the City of Louisville. The shapefile used to create this exhibit was LandCover2012. These exhibits provide a general visual representation of the project area and the proposed project,

Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

SECTION 106 COORDINATION

DRAFT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

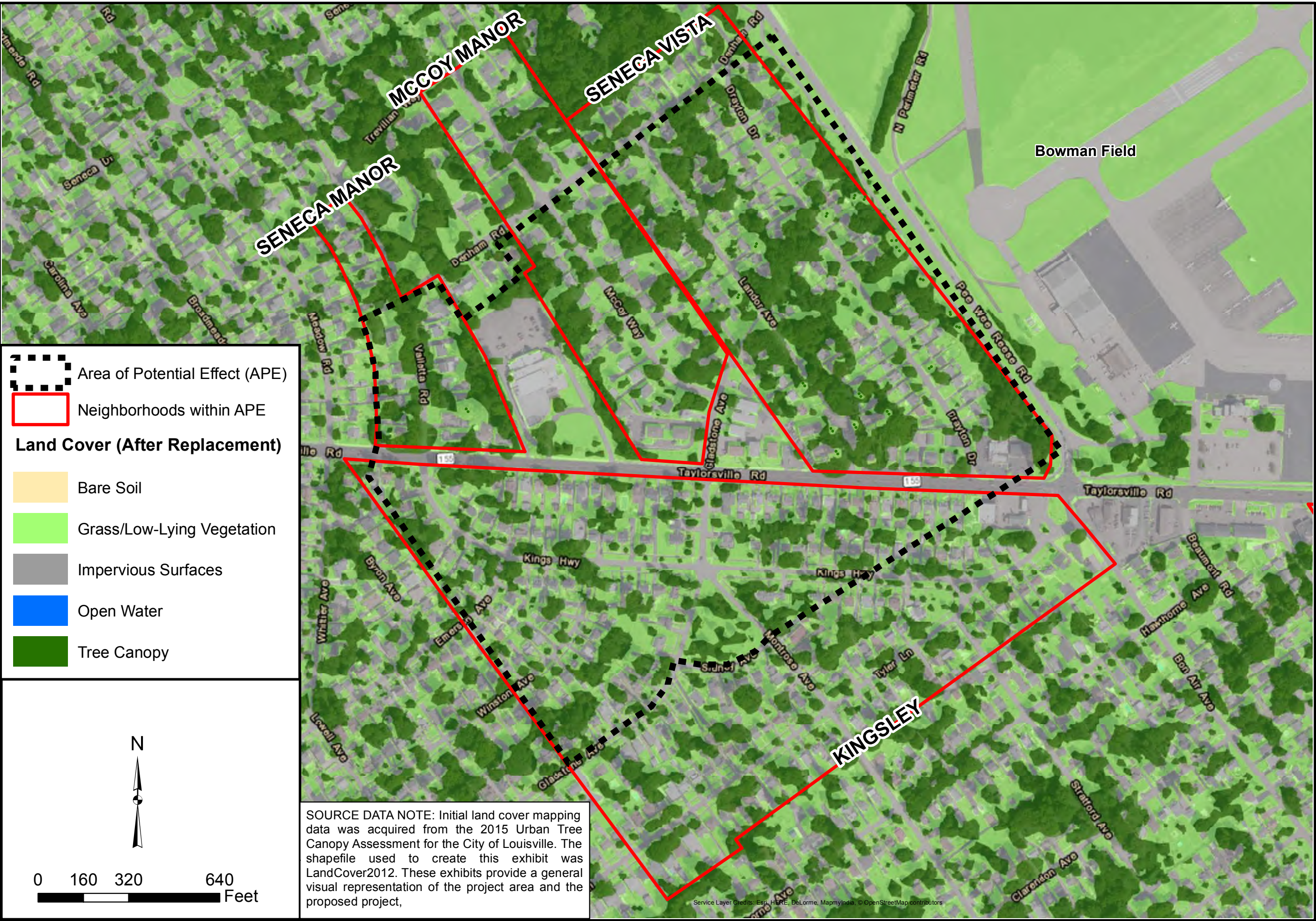
ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

SENECA NEIGHBORHOOD LAND COVER - AFTER REMOVAL

EXHIBIT 7

WEDNESDAY, FEBRUARY 10, 2016 1:11:18 PM GIBBS01521
I:\12\JOBS\12A00134\CAD\GIS\SECTION 106\SENECA 2C - FUTURE EASEMENTS (1).MXD



SOURCE DATA NOTE: Initial land cover mapping data was acquired from the 2015 Urban Tree Canopy Assessment for the City of Louisville. The shapefile used to create this exhibit was LandCover2012. These exhibits provide a general visual representation of the project area and the proposed project,

Service Layer Credits: Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

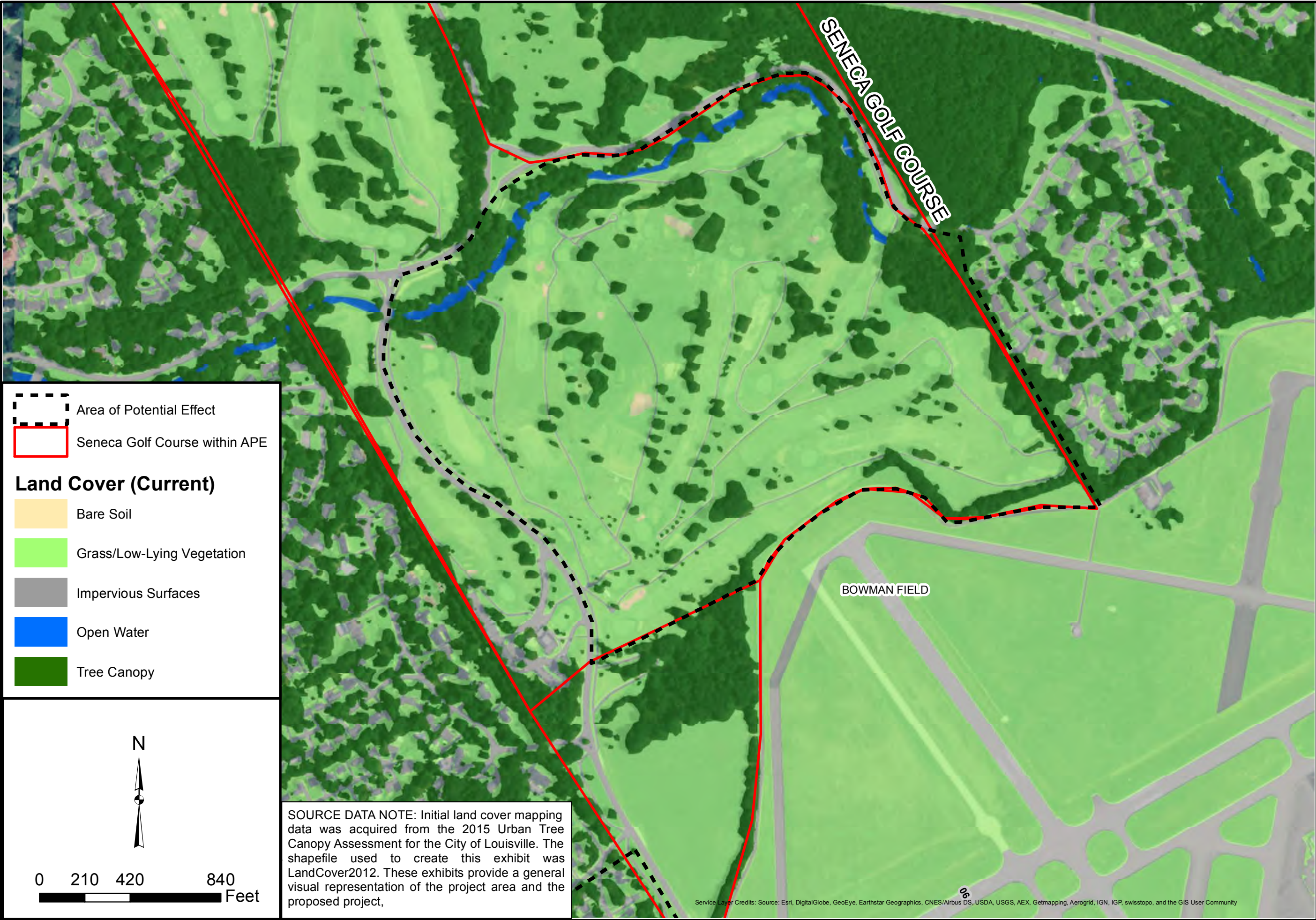
DRAFT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

**SENECA
NEIGHBORHOOD
LAND COVER -
AFTER INITIAL
REPLACEMENT**



THURSDAY, FEBRUARY 11, 2016 1:45:26 PM GIBBS01521
\\12\JOBS\12A00134\CAD\GIS\SECTION 106\SENECAGC 3A-FEATURE_EASEMENTS.MXD

SOURCE DATA NOTE: Initial land cover mapping data was acquired from the 2015 Urban Tree Canopy Assessment for the City of Louisville. The shapefile used to create this exhibit was LandCover2012. These exhibits provide a general visual representation of the project area and the proposed project,

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

SECTION 106 COORDINATION

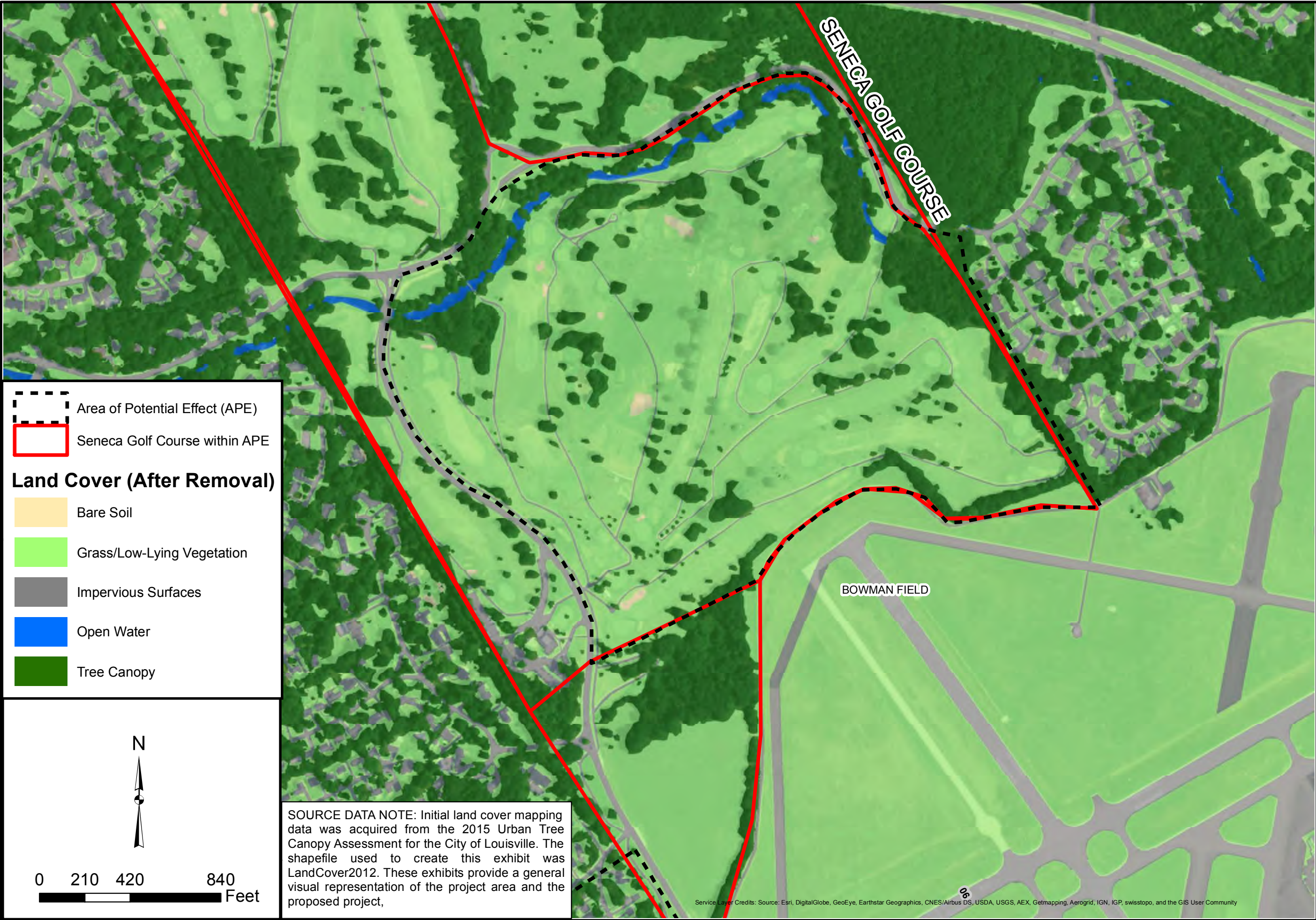
DRAFT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

SENECA GOLF COURSE LAND COVER - CURRENT CONDITIONS



THURSDAY, FEBRUARY 11, 2016 1:41:36 PM GIBBS01521
I:\12\08\12\A00134\CAD\GIS\SECTION 106\SENECAGC 3B - FEATURE_EASEMENTS.MXD

SOURCE DATA NOTE: Initial land cover mapping data was acquired from the 2015 Urban Tree Canopy Assessment for the City of Louisville. The shapefile used to create this exhibit was LandCover2012. These exhibits provide a general visual representation of the project area and the proposed project,

Service Layer Credits: Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Offices Nationwide
www.hanson-inc.com
Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772
Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

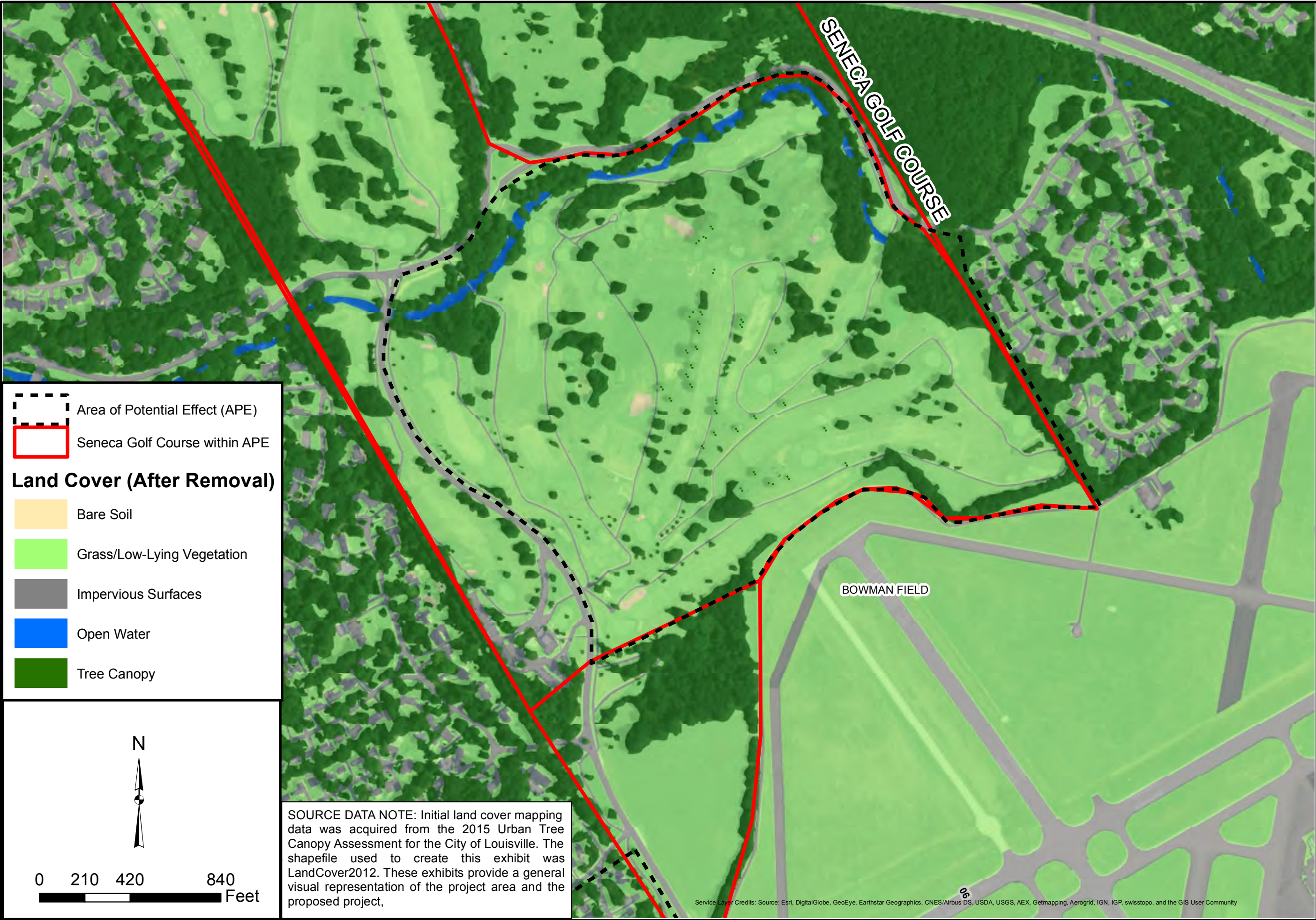
DRAFT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

**SENECA
GOLF COURSE
LAND COVER -
AFTER
REMOVAL**



BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

DRAFT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE:
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: KBS
REVIEWED BY: TSH

SHEET TITLE

**SENECA
GOLF COURSE
LAND COVER -
AFTER
REMOVAL**

EXHIBIT 11

SOURCE DATA NOTE: Initial land cover mapping data was acquired from the 2015 Urban Tree Canopy Assessment for the City of Louisville. The shapefile used to create this exhibit was LandCover2012. These exhibits provide a general visual representation of the project area and the proposed project,

SECTION 106

COORDINATION

Section 106 Substantive Email Correspondence

Braswell, Aaron (FAA)

To: Wilson, Stephen (FAA)
Subject: RE: UPDATE (Consultation Meeting Time - 10:00AM EST) - Section 106 Initial Contact Invitation

From: Williams, Lucille (FAA)
Sent: Wednesday, June 03, 2015 5:33 PM
To: Skip.Miller@flylouisville.com; craig.potts@ky.gov; michael.heitz@louisvilleky.gov; david.brown@bbandt.com; info@cityofkinglsey.org; director@preservationkentucky.org; director@preservationlouisville.org; nppkentuckiana@gmail.com; Laura.mattingly-humphrey@louisvilleky.gov; Tom.owen@louisvilleky.gov; Bill.hollander@louisvilleky.gov; Brent.ackerson@louisvilleky.gov; jeff.noble@louisvilleky.gov; kmaxwell@bigspringcc.com; Mimi.Zinniel@olmstedparks.org; lebaras@gmail.com; fitzkrc@aol.com; info@feettothefirewriters.com; drphawkins@juno.com; info@cityofkinglsey.org; mayor.information@louisvilleky.gov
Cc: Braden, Phillip (FAA); Wilson, Stephen (FAA)
Subject: UPDATE (Consultation Meeting Time - 10:00AM EST) - Section 106 Initial Contact Invitation

Hello All,

You may have or will soon be receiving a FedEx letter personally inviting you to the 36 CFR 800, Section 106 consultation meeting for the Bowman Field Area Safety Program. We inadvertently omitted the time of the meeting. A copy of this letter is attached. The consultation meeting is scheduled for **10:00AM EST on Wednesday, June 24, 2015 at the Louisville Regional Airport Authority Maintenance Facility, 4320 Park Boulevard, Louisville, KY.**

We sincerely apologize for the omission. We look forward to meeting each of you!

*****This note is being sent on behalf of Phillip J. Braden, Manager, Memphis Airports District Office.*****

Sincerely,

Lucille Williams

Management and Program Assistant
Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118
Phone (901) 322-8180
Fax (901) 322-8195



Braswell, Aaron (FAA)

From: Wilson, Stephen (FAA)
Sent: Tuesday, August 18, 2015 3:49 PM
To: Potts, Craig A. (Heritage Council); Kary Stackelbeck (Kary.Stackelbeck@ky.gov);
cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org; tom.owen@louisvilleky.gov;
bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras; d.l.b.2547@gmail.com;
brent.ackerson@louisvilleky.gov; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller,
Skip; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger
Anderson; Dupree, Tommy (FAA); Braswell, Aaron (FAA); Braden, Phillip (FAA);
patriciastallings@brockington.org; Tom FitzGerald; director@preservationkentucky.org;
Phyllis Hawkins; jchris.mccoy@gmail.com; angelakburton@hotmail.com; Hite, Lisa;
Jennifer Ryall (jennifer.ryall@ky.gov)
Cc: Williams, Lucille (FAA)
Subject: RE: Section 106 Meeting No. 2-Bowman Field Airport Area Safety Program
Attachments: Agenda Bowman Field Section 106 Meeting No 2 Rev.pdf

All-

Please see the revised Agenda for the 2nd Section 106 Meeting for Bowman Field.
Specifically, the revision is to item II.C.

Thank you

From: Wilson, Stephen (FAA)
Sent: Thursday, August 06, 2015 8:51 AM
To: 'Potts, Craig A. (Heritage Council)'; Kary Stackelbeck (Kary.Stackelbeck@ky.gov); 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras';
'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller,
Skip'; Tim Haskell - Hanson (thaskell@hanson-inc.com); 'Melissa Jenkins'; Rodger Anderson; Dupree, Tommy (FAA);
Braswell, Aaron (FAA); Braden, Phillip (FAA); patriciastallings@brockington.org; Tom FitzGerald;
'director@preservationkentucky.org'; Phyllis Hawkins; 'jchris.mccoy@gmail.com'; 'angelakburton@hotmail.com'; Hite,
Lisa; Jennifer Ryall (jennifer.ryall@ky.gov)
Cc: Williams, Lucille (FAA)
Subject: Section 106 Meeting No. 2-Bowman Field Airport Area Safety Program

All-

We have scheduled the 2nd meeting for the Bowman Field Airport Area Safety Program.
Please see the attached Agenda.

Meeting No. 2 will be held August 20, 2015 @ 10:00 AM Eastern at the following address:

Louisville Regional Airport Authority Maintenance Facility
4320 Park Boulevard
Louisville, Kentucky

Thank you

Stephen Wilson
Community Planner

FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482
901 322 8185
901 322 8195 Fax
Stephen.wilson@faa.gov

AGENDA

SECTION 106 CONSULTATION MEETING-No. 2 Bowman Field Airport Area Safety Program

**Louisville Regional Airport Authority-Maintenance Facility
4320 Park Boulevard, Louisville, KY**

**August 20, 2015
(10:00AM EST)**

- | | | |
|-------------|---|-------------------------------------|
| I. | <u>Introduction</u> | FAA |
| | A. Consulting Party Members in Attendance | |
| | B. Purpose of Meeting No. 2 | |
|
 | | |
| II. | <u>Pending Issues</u> | FAA, SHPO, LRAA,
Members |
| | A. Area of Potential Effects (APE) | |
| | B. Potential Direct/Indirect Effects of Undertaking | |
| | C. Easement Acquisition Methodology | |
| | D. Additional Items | |
|
 | | |
| III. | <u>Cultural Resources Evaluation (CRE)</u> | FAA, SHPO, Members |
| | A. Supplemental Data Requested from Meeting No. 1 | |
|
 | | |
| IV. | <u>Next Steps</u> | FAA, SHPO, Members |
| | A. Pending Issues | |
| | B. Ultimate Effects Determination | |

Braswell, Aaron (FAA)

From: Wilson, Stephen (FAA)
Sent: Tuesday, August 25, 2015 8:19 AM
To: Potts, Craig A. (Heritage Council); Kary Stackelbeck (Kary.Stackelbeck@ky.gov);
cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org;
bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras;
brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller, Skip; Tim Haskell - Hanson
(thaskell@hanson-inc.com); Melissa Jenkins; Rodger Anderson; Dupree, Tommy (FAA);
Braswell, Aaron (FAA); patriciastallings@brockington.org; Tom FitzGerald;
director@preservationkentucky.org; Phyllis Hawkins; jchris.mccoy@gmail.com;
angelakburton@hotmail.com; Hite, Lisa; Jennifer Ryall (jennifer.ryall@ky.gov); Ethridge,
Kyle; clair@guthriemayes.com; Kbooker6@gmail.com; Charles@charlescashaia.com;
Michael
Cc: Williams, Lucille (FAA)
Subject: Section 106 Meeting No 2 - Bowman Field Airport Area Safety Program
Attachments: Sign In Sheet Completed.pdf

Thank you for your representation and attendance at the Bowman Field Airport Area Safety Program Section 106 Meeting held August 20, 2015.

See the attached Sign-In Sheet.

Please forward any additional notes or comments you may have from the meeting to my attention by August 28, 2015.

Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482
901 322 8185
901 322 8195 Fax
Stephen.wilson@faa.gov

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM - SECTION 106 CONSULTATION MEETING

August 20, 2015 10 AM - Meeting No. 2

SIGN IN SHEET

	Name	Organization	Address	Phone	E-Mail
1	Phyllis G. Ashkin	City of Kingsley	2611 Kings Hwy.	502-456-6151	DrP.Hacker@aot.com
2	Mimi Zimuel	Orsted Park Lns.	1249 Trevelian Way, 40213	502-5456-8125	mimi.zimuel@orstedpark.org
3	Cheri McCoy	Cam of Kinross	2540 Kays Run 4005	502-456-2705	J.cheri.mccoy@camc.com
4	Leslie Jones	Dea Tite Trus	201 W. Clapham & 194026	502-298-1505	LeJones@Soul.com
5	Joan Hudson	Hansen	402 S. 6th St. Spokane, ID	207-836-9855	randerson@hanseninc.com
6	Chris Hurlburt	Gun PR	733 RD 57	502-619-8351	cmh@gunpr.com
7	Michael Johnson	Sevcon/Sevcon	2548 Sevcon Dr.	502-298-2458	michaeljohnson@sevcon.com
8	Kristin Baker	BDC	815 W. Market St. Ste 202	502-795-7784	kristin@bdc.com
9	Charles Cook	"	"	502-744-0650	
10	Cynthia Johnson	Metro L&C	1441 S. 5th St. Ste 300	502-574-2802	CynthiaJohnson@metroky.gov
11	Kary Steele Baker	Heritage Council	300 Washington St, Frankfurt	502-504-7005, ext. 115	Kary.Steele@ky.gov
12	Tom Russell	"	"	ext. 121	tom.russell@ky.gov
13	Lisa White	Lewisville Metro Parks		502-456-8138	lisa.white@lewisvilleky.gov
14	Aaron Brownell	FAA MEM-ADO	2600 Thousand Oaks, Ste 200 Memphis, TN 38119	901-322-8192	aaron.brownell@faa.gov
15	Phillip Bracken	FAA, Memphis ADO	"	901-322-8191	phillip.bracken@faa.gov

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM - SECTION 106 CONSULTATION MEETING

August 20, 2015 10 AM - Meeting No. 2

SIGN IN SHEET

	Name	Organization	Address	Phone	E-Mail
1	STEFAN WILSON	FAA	2802 BUSH ST 2802 THOMAS ST ALBANY NY 12212	901 322 8155	WILSON STEFAN.WILSON@FAA.GOV
2	Michael Hayman	Seneca Gardens	2548 Seneca Dr #205	502 699-2958	mhayman@glou.com
3	TOMMY DUPRE	FAA			
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

Braswell, Aaron (FAA)

From: Leslie Barras <lebarras@gmail.com>
Sent: Saturday, August 29, 2015 10:43 AM
To: Wilson, Stephen (FAA)
Cc: Braswell, Aaron (FAA)
Subject: Bowman Field 8/20/15 106 Mtg
Attachments: Conditional Easement Template from LRAA ORA Response.pdf; Bowman Field Drivers License Bureau Avigation Easement 2008.pdf

Stephen, w/ copy to Aaron:

Just a few written notes to supplement/follow up on PFTT's input at the Aug. 20 meeting:

1. PFTT hired Dr. David Ames following the meeting. (For what it is worth, Mr. Braden's performance at the end of the meeting contributed to our decision.) Dr. Ames will be on site in September. I don't expect he will have any input to our comments on the APE. However, for his report on id/evaluation of the resources w/in the visual draft APE to be timely, we need the tree inventory. An emailed pdf is best/preferred.
2. I will send a hand marked version of the draft visual APE distributed at the last meeting w/ our knowledge of potential visual effects. Before sending you a mark up: After reviewing the draft boundaries after the meeting, the only area for which it would help to get the "field survey" for potential visual effects that Mr. Braden indicated was done is between RWs 6 and 15.
3. Re the SHPO's request for easement examples, I am attaching what I will separately send to their office. The first is a Conditional Easement of the LRAA that is relatively limited to site access for trimming/clearance activities. The second is an Avigation Easement that LRAA executed with the Driver's License Bureau at Bowman Field and represents the objectionable, unlimited encumbrances on property.
4. I will send a CD with the recording of the meeting to your office sometime next week. Should I send it to your attention or Aaron's?

Please include this communication in the administrative record for this action.

Leslie Barras
502-298-1505

**DEED OF AVIGATION EASEMENTS AND DECLARATION OF AIRPORT
SERVITUDES**

This DEED OF AVIGATION EASEMENTS AND DECLARATION OF AIRPORT SERVITUDES made this 27th day of Feb., 2008, by the LOUISVILLE REGIONAL AIRPORT AUTHORITY, a body politic and corporate existing under and by virtue of Chapter 183 of the Kentucky Revised Statutes, P.O. Box 9129, Louisville, Kentucky 40209-9129 (the "Grantor").

WITNESSETH:

Grantor is the owner in fee simple absolute of the property described on Exhibit A attached hereto and made a part hereof (the "Premises") located within the area depicted on Exhibit A-1 attached hereto.

The Grantor also operates the Louisville International Airport at Standiford Field (the "Airport") for the use and benefit of the public.

Grantor has determined to impose certain easements and airport servitudes hereinafter described upon the Premises to permit use in a manner compatible with current and expected public use of the Airport and consistent with the public welfare and for the use and benefit of the Airport and the protection of the runway approach surfaces of the Airport as it is now and may be hereafter constituted and configured and to restrict the use of the Premises pursuant to the provisions of this instrument.

NOW, THEREFORE, WITNESSETH that Grantor, for itself, its successors, transferees and/or assigns, does hereby covenant, agree and declare that all of the Premises shall be held, sold and conveyed subject to the following servitudes, easements, restrictions, covenants and conditions (the "Airport Servitudes") for the reasons and purposes set forth above, all of which Airport Servitudes shall run with the Premises and shall be binding on all parties having any right, title or interest in the Premises, their heirs, successors and assigns, and shall inure to the benefit of the Grantor:

1. Airport Servitudes.

(a) No Residential Use. So long as the Airport continues to be operated as an airport, neither the Premises nor any structure now or hereafter thereon shall be used for "Residential Purposes," and no "Dwellings" shall be constructed on the Premises. For purposes hereof, "Dwellings" shall mean any building or portion thereof used for residential occupancy, other than hotels, motels and other similar places of short-term lodging that are intended for occupancy for a period no longer than 30 days. For purposes hereof, "Residential Purposes" shall mean any use of a structure for residential occupancy (including without limitation as an apartment, house or condominium), other than hotels, motels and other similar places of short-term lodging that are intended for occupancy for a period no longer than 30 days.

(b) Compatible Land Uses. So long as the Airport continues to be operated as an airport, the Premises shall not be used for any use or purpose which constitutes an

incompatible land use under the Land Use Compatibility Guidelines set forth in Table 1 to Appendix A of Title 14 Code of Federal Regulations, Part 150, or any successor regulation.

(c) Required Outdoor-to-Indoor Noise Level Reduction. As to all uses permitted to be carried out on the Premises and not prohibited herein, measures to achieve outdoor to indoor Noise Level Reduction (NLR) at least equal to the regulatory standards and guidelines specified by the Federal Aviation Administration and any successor (including but not limited to those set forth in Title 14 Code of Federal Regulations, Part 150, or any successor regulations) shall be applicable to, and incorporated in, any buildings, structures or other improvements constructed on the Premises.

(d) Right of Entry. Grantor hereby declares, reserves, imposes upon, and retains for itself, its successors in interest and assigns, the right, at reasonable times and upon reasonable notice, for the Grantor to enter upon the Premises for the purpose of determining compliance with the terms of the Airport Servitudes.

2. Part 77 Easement. Grantor hereby declares, reserves, imposes upon, and retains for itself, its successors in interest and assigns, for the use and benefit of the public for so long as the Airport is used as an airport, an easement (the "Avigation Easement") and right of way appurtenant to the Airport, for the unobstructed passage of all types of aircraft (as defined below) in and through the Avigation Easement Area (as hereafter defined). Grantor shall have the continuing rights, without additional consideration to prevent the erection or growth into the airspace within the Avigation Easement of any natural or artificial object, and to remove from the airspace within the Avigation Easement, or, at the sole option of the Grantor, as an alternative, to mark and light as an obstruction to air navigation, any such object now or in the future upon the Premises within the Avigation Easement, together with the right of reasonable ingress and egress to and from the Avigation Easement over the Premises for the aforesaid purposes upon reasonable notice; and on those occasions, if any, when it is necessary for the Grantor to come upon the Premises for the purpose of trimming any natural vegetation encroaching within the Avigation Easement herein granted, the Grantor shall have the right to cut back or trim said vegetation ten (10) feet below the Avigation Easement herein granted to accommodate future growth of said vegetation.

Those navigating the airspace contained in the Avigation Easement shall have the right to cause in and emit from the Avigation Easement such noise, vibrations, fumes, dust, fuel particles and all other effects, whether or not confined to the Avigation Easement herein granted as may be incident to the operation of aircraft within the Avigation Easement. Any and all subsequent owners of all or any portion of the Premises shall, by acceptance of conveyance of the Premises, be deemed to have expressly waived and released, and agreed to indemnify and hold the Grantor, its successors and assigns, harmless from and against, any and all claims and demands of any nature whatsoever for injury to persons or property damage that such subsequent owner, its successors in interest or assigns may now or in the future have arising out of or in any way related to the operation of aircraft within the Avigation Easement. Grantor further declares, reserves, imposes upon, and retains for itself, its successors and assigns that the Premises shall not be used in any manner so as to create interference with visual contact, radio, radar, microwave, electromagnetic or any other communication between any installation serving the Airport and aircraft, or as to make it difficult for flyers to distinguish between Airport lights and

others, or as to impair visibility in the vicinity of the Airport, or as may otherwise endanger or constitute a hazard to the landing, taking off or maneuvering of aircraft under the applicable regulations of the U.S. Department of Transportation, Federal Aviation Administration, in effect from time to time or of any successor agency, or of any other agency having jurisdiction.

For purposes of this instrument, the term "aircraft" as used herein shall mean any contrivance now known or hereafter invented, used or designed for navigation of or flight in the air without limit, now or in the future, as to speed, size, characteristics, frequency, or time of operation, by whomsoever owned and operated.

The term "Avigation Easement Area" as used herein shall mean that portion of the airspace above the Premises above an imaginary plane rising and extending in a generally northerly direction over the Premises, said imaginary plane conforming to the standards for approach surfaces for precision instrument runways stated at 49 Code of Federal Regulations § 77.25 and being approximately 696 feet Mean Sea Level above the Premises, to an infinite height above said imaginary plane, the elevation of which plane is depicted on Exhibit B attached hereto and made a part hereof. In the event of any conflict between the requirements of 49 CFR Part 77 and the drawing attached as Exhibit B, it is the Grantor's intention that the conflict shall be resolved in favor of whichever of Part 77 or Exhibit B grants to the Airport the Avigation Easement which provides for the most unobstructed passage of all types of aircraft in and through the airspace above the Premises.

3. Acknowledgement. Any and all subsequent owners of all or any portion of the Premises shall, by acceptance of conveyance of the Premises, be deemed to have acknowledged that aviation is an expanding and developing activity, and that the degree to which one or more of the rights granted herein may affect the underlying real estate may change with the passage of time, and any such changes shall not be cause for any such subsequent owner, its successors and/or assigns, to seek or recover additional compensation or damages.

4. General Provisions. The servitudes and easements imposed hereby shall be perpetual, shall benefit and be appurtenant to the Airport, and shall run with and be applicable to the Premises as covenants running with the land so long as the Airport continues to be operated as an airport, and in addition to all other enforcement rights and/or remedies by any other party, shall be specifically enforceable by the Grantor. The servitudes and easements shall inure to the benefit of the Grantor and be binding upon any and all subsequent owners of all or any portion of the Premises and their respective legal representatives, heirs, successors and/or assigns. The invalidity or unenforceability of any provision hereof shall not affect the validity or enforceability of any other provision hereof. This instrument shall be governed by and construed under the laws of the Commonwealth of Kentucky and applicable federal laws and regulations. This instrument shall not be amended, superseded, modified or released except by express written agreement of the Grantor.

IN TESTIMONY WHEREOF, witness the execution hereof by the Grantor by its duly authorized officers, as of the day and year first written above.

LOUISVILLE REGIONAL AIRPORT
AUTHORITY

BY:

C.T. Miller

TITLE:

Executive Director

COMMONWEALTH OF KENTUCKY)

COUNTY OF JEFFERSON)

The foregoing instrument was acknowledged before me this 27th day of February 2008, by C.T. Miller as Executive Director of LOUISVILLE REGIONAL AIRPORT AUTHORITY (the "Grantor"), a body politic and corporate existing pursuant to KRS Chapter 183, on behalf of the Grantor.

Notary Public, State of Large, KY

My commission expires May 4, 2008

My commission expires:

Julie S. Taylor
NOTARY PUBLIC

THIS INSTRUMENT PREPARED BY:

[Signature]
STITES & HARRISON, PLLC
400 West Market Street, Suite 1800
Louisville, KY 40202-3352
(502) 587-3400

EXHIBIT A

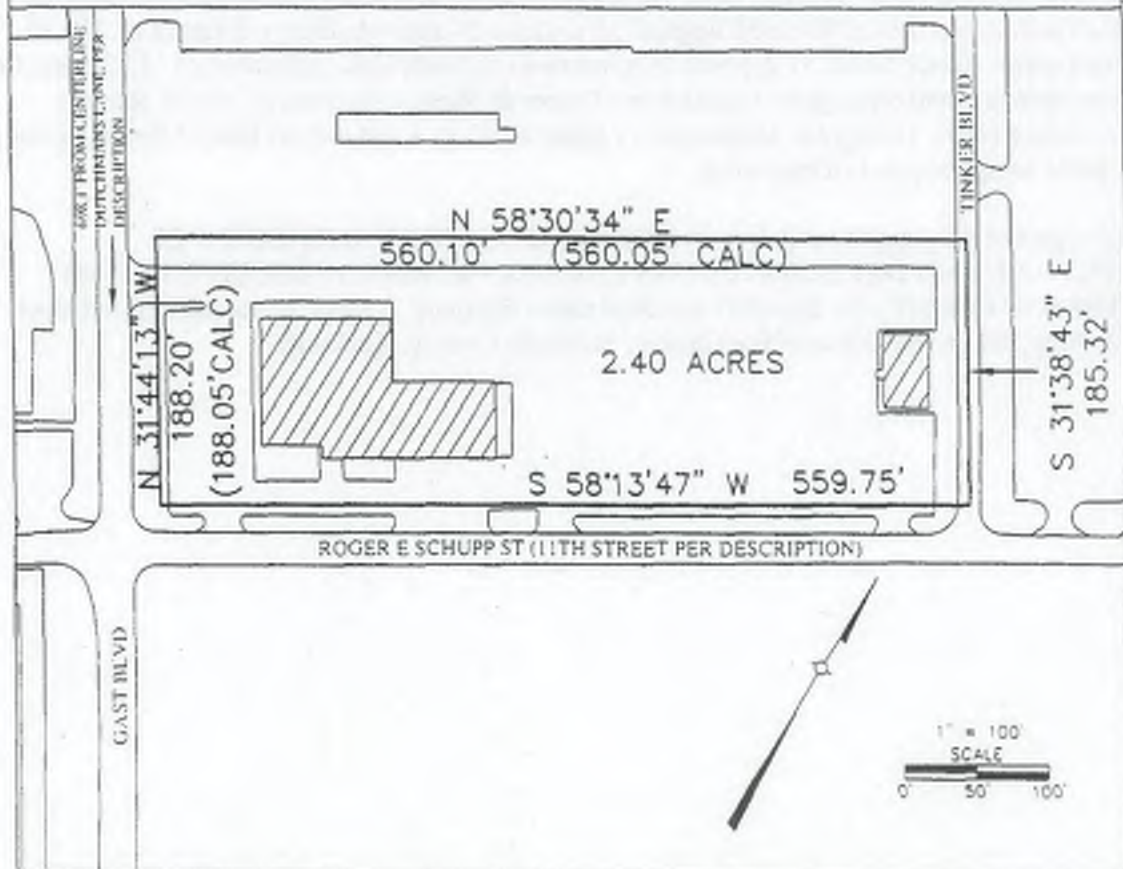
From the point of intersection of the center lines of Dutchmans Lane and Gast Boulevard, North 31 degrees 37 minutes 13 seconds West, a distance of 87.1 feet to a point; said point being the intersection of Dutchmans Lane North right of way line and the center line of Gast Boulevard; thence North 31 degrees 39 minutes 13 seconds West, a distance of 392.80 feet to a railroad spike in the intersection of the center lines of Gast Boulevard and 11th Street; thence North 31 degrees 44 minutes 13 seconds West, a distance of 218.20 feet to a railroad spike; thence North 58 degrees 30 minutes 34 seconds East, a distance of 30.00 feet to a point; said point being the point of beginning; thence North 58 degrees 30 minutes 34 seconds East, a distance of 560.10 feet to a point; thence South 31 degrees 38 minutes 43 seconds East, a distance of 185.32 feet to a point; thence South 58 degrees 13 minutes 47 seconds West, a distance of 559.75 feet to a point; thence North 31 degrees 44 minutes 13 seconds West, a distance of 188.20 feet to a point; said point being the point of beginning.

Being a part of the property acquired by REGIONAL AIRPORT AUTHORITY OF LOUISVILLE AND JEFFERSON COUNTY, successor in interest to LOUISVILLE AND JEFFERSON COUNTY AIR BOARD, by Deed dated February 2, 1948, of record in Deed Book 2332, Page 388, in the Office of the Clerk of Jefferson County, Kentucky.

EXHIBIT A - 1



"BOWMAN FIELD"



HDR | Quest

401 West Main Street, Suite 500
Louisville, KY 40202
PHONE (502)584-4118 FAX (502)589-3000

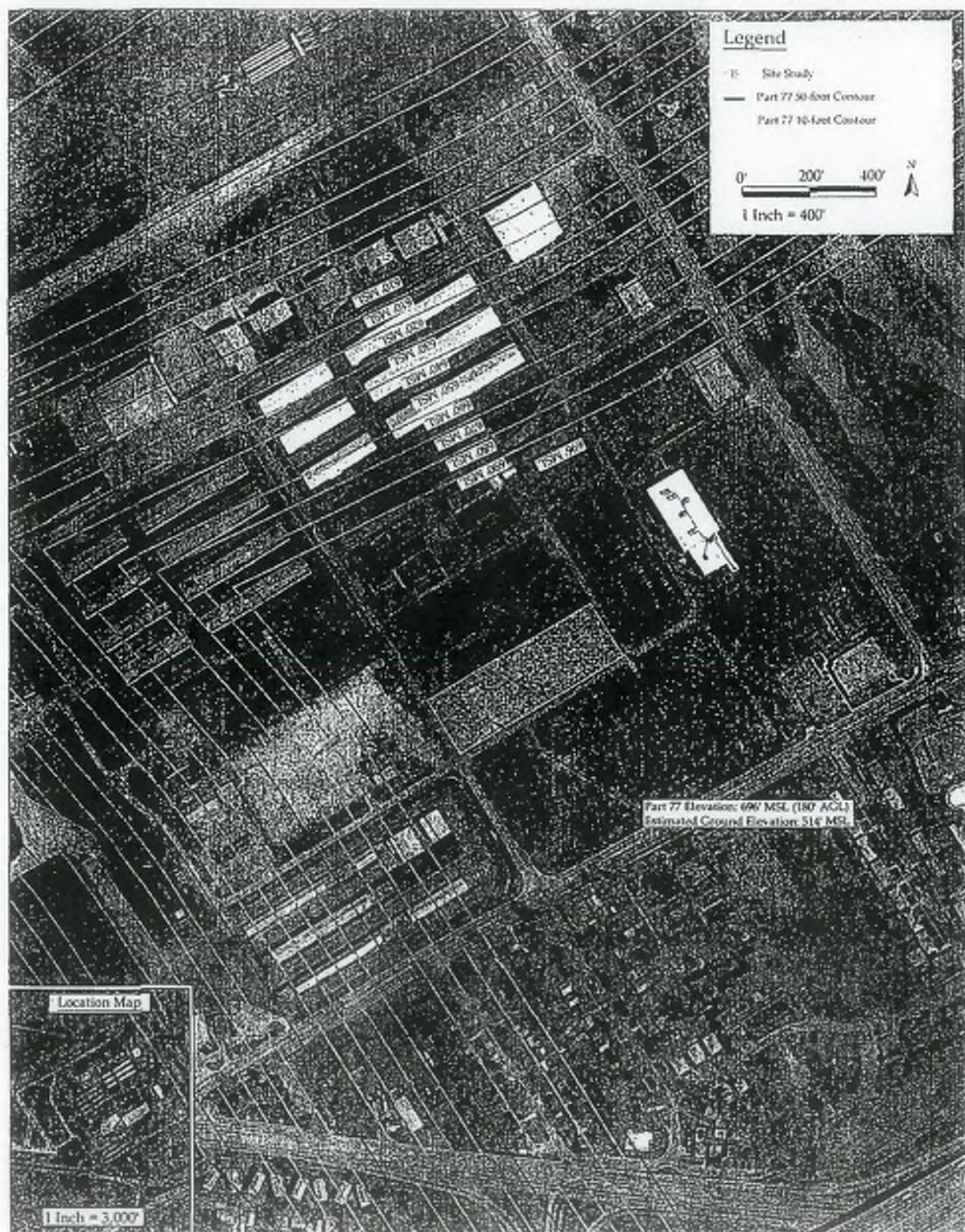
EXHIBIT
FOR
REGIONAL AIRPORT AUTHORITY
OF

DRIVERS LICENSE BUREAU
PART OF DEED BOOK 2332, PAGE 388

Document No.: DN2988831612
 Lodged By: STITES & HARRISON
 Recorded On: 03/04/2008 11:29:57
 Total Fees: 29.00
 Transfer Tax: .00
 County Clerk: BOBBIE HOLSCLAW-JEFF CO KY
 Deputy Clerk: EVERETT

Note: A title examination may reveal roads and easements of record not shown hereon.

Date: 13 JUL 07 Job #57344



Bowman Field - Airspace Analysis

CONDITIONAL EASEMENT

THIS CONDITIONAL EASEMENT (this "Instrument") is made this day of _____, 201____ among _____ (the "Property Owners") and the Louisville Regional Airport Authority of Louisville and Jefferson County, Kentucky, a body politic and corporate existing pursuant to KRS Chapter 183 ("LRAA") and _____, ("the Mortgagee").

WITNESSETH:

For the sum of _____ Dollars (\$ _____) paid in immediately available funds directly to the Property Owners as consideration for this Easement, the Property Owners hereby agree as follows:

A. The Property Owners hereby grant unto LRAA, its successors and assigns, for the use and the benefit of the general public for as long as Bowman Field (the "Airport") is used as an airport, a conditional easement (the "Easement") and right of way appurtenant to the Airport for the unobstructed passage of all aircraft in and through the airspace beginning at a Mean Sea Level of _____ feet and continuing to an infinite height above the Property Owners' property (the "Airspace") in Jefferson County, Kentucky described in Exhibit A attached hereto and made a part hereof (the "Premises"). The Property Owners agree not to erect objects on the Premises that extend within the Airspace. Subject to the conditions of this Instrument, the Property Owners agree to allow the LRAA to trim any natural vegetative growth on the Premises that extends into the Airspace or, at the reasonable discretion of the LRAA, to mark and light as an obstruction to air navigation, any object now or in the future upon the Premises within the Easement. Subject to the conditions of this Instrument and with at least five (5) days prior written notice, the Property Owners grant the LRAA the right to reasonable ingress and egress to and from the Easement for the purpose of trimming any natural vegetation which has encroached into the Easement.

B. The conditions whereupon the Property Owners grant the Easement (these "Conditions") are: 1) All existing manmade structures that extend into the Easement may, at the sole discretion of the Property Owners, remain within the Easement; 2) the LRAA will warrant all work and be responsible for all costs of vegetation trimming, removal, restoration and repair of any damage to the Premises done by the LRAA or its contractors; 3) the trimming of any vegetation may only be done by persons under the direction and supervision of a arborist who is certified by the International Society of Arboriculture and who has been previously approved by the Property Owners, which approval shall not be unreasonably withheld, and the trimming shall be done in a workmanlike manner to maximize the health and aesthetics of the vegetation; 4) the LRAA and contractors warrant that, upon the request of the Property Owners, an item of vegetation shall be completely removed if (a) for a period of two years after an item has been trimmed, the item becomes unhealthy or dies or the Property Owners, in the Property Owners' sole discretion, are dissatisfied with the resulting appearance, or (b) for an indefinite period if the trimming by the LRAA caused the vegetation to become unhealthy; 5) the LRAA shall require and ensure that all contractors entering the Premises are (a) properly licensed in Jefferson County, Kentucky,

(b) have liability insurance of at least \$2 million, which shall cover (i) all claims by the Property Owners against the contractors of the LRAA and (ii) all third party claims against the Property Owners, the LRAA and the LRAA's contractors, and (c) have workers' compensation insurance; 6) in any agreements entered into by the LRAA with contractors whose employees might enter the Premises, the LRAA shall ensure that the Property Owners will be recognized by the contractors and their insurers as third party beneficiaries; 7) the LRAA and its contractors shall defend, hold harmless and indemnify the Property Owners against all claims including third party claims resulting from any actions by the LRAA and/or its contractors; 8) any entry onto the Premises by the LRAA or its contractors in nonconformance with these Conditions shall be deemed trespassing and the LRAA and its contractors shall be jointly and severally liable in trespass to the Property Owners for all resulting damages; 9) these Conditions are hereby deemed to be rights of the Property Owners and their successors, and failure to exercise any of these rights does not constitute a waiver thereof; 10) if the LRAA contests the enforceability of these conditions and any court of competent jurisdiction determines that any provisions of these Conditions are unenforceable by the Property Owners, this Instrument and the Easement will terminate, however the liabilities, warranties and indemnifications by the LRAA and its contractors will survive the termination.

C. For the purpose of this Instrument, the term "aircraft" shall mean any aircraft categorization that is capable of safely operating at the Airport at the date of this Instrument.

D. The agreements and the Conditions of this Instrument run with the land and will be binding upon the heirs, representatives, administrators, executives, successors, and assigns of the parties to this Instrument.

The Mortgagee joins herein to subordinate and does hereby subordinate its mortgage dated _____ of record in Mortgage Book _____ page _____, in the office of the Clerk of Jefferson County, Kentucky, to the granting of this Easement, and the Mortgagee unites herein for no other reason. The LRAA is responsible for obtaining the signature of the Mortgagee.

IN TESTIMONY WHEREOF, witness the execution hereof by the Property Owner, the Mortgagee and the LRAA as of the day and year first written above.

Property Owners:

LRAA:

Print: _____

Print: _____

Print: _____

Mortgagee:

Print: _____

STATE OF)
COUNTY OF)

Subscribed and sworn to before on this ____ day of
____, 201__, by _____.

Notary Public at Large
My commission expires:

STATE OF)
COUNTY OF)

Subscribed and sworn to before on this ____ day of
____, 201__, by _____.

Notary Public at Large
My commission expires:

STATE OF)
COUNTY OF)

Subscribed and sworn to before on this ____ day of
____, 201__, by _____.

Notary Public at Large
My commission expires:

STATE OF)
COUNTY OF)

Subscribed and sworn to before on this ____ day of
____, 201__, by _____.

Notary Public at Large
My commission expires:

Braswell, Aaron (FAA)

From: Wilson, Stephen (FAA)
Sent: Tuesday, September 08, 2015 12:48 PM
To: Potts, Craig A. (Heritage Council); Kary Stackelbeck (Kary.Stackelbeck@ky.gov);
cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org;
bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras;
brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller, Skip; Tim Haskell - Hanson
(thaskell@hanson-inc.com); Melissa Jenkins; Rodger Anderson; Dupree, Tommy (FAA);
Braswell, Aaron (FAA); patriciastallings@brockington.org; Dupree, Tommy (FAA);
director@preservationkentucky.org; Phyllis Hawkins; Chris McCoy;
angelakburton@hotmail.com; Hite, Lisa; Jennifer Ryall (jennifer.ryall@ky.gov); Ethridge,
Kyle; clair@guthriemayes.com; Kbooker6@gmail.com; Charles@charlescashaia.com;
Braden, Phillip (FAA); Michael; Peter Kirsch
Subject: Meeting Notes-Bowman Field Airport Area Safety Program 106
Attachments: Meeting Notes Bowman Field Section 106_No 2.pdf

Please see attached summary of Meeting No. 2 held August 20, 2015.

Thanks

Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482
901 322 8185
901 322 8195 Fax
Stephen.wilson@faa.gov

SECTION 106 CONSULTATION MEETING NOTES

Bowman Field Airport Area Safety Program

4320 Park Boulevard, Louisville, Kentucky

August 20, 2015

Attendees:

Kary Stackelbeck, KY SHPO; Jennifer Ryall, KY SHPO; Lisa Hite, Louisville/Jefferson County Metro Government; Cynthia Johnson, Louisville/Jefferson County Metro Government; Mimi Zinniel, Olmsted Conservancy; Leslie Barras, Plea for the Trees; Mike Hayman, Kentucky Resources Council; Dr. Phyllis Hawkins; J. Chris McCoy; Angela Burton; Tim Haskell, Hanson; Rodger Anderson, Hanson; Patricia Stallings, Brockington; Charles Cash; Peter Kirsch; Kristin Booker, BDC; Brian Sinnwell, LRAA; Skip Miller, LRAA; Trish Burke, LRAA; Clair Nichols; Tommy Dupree, FAA; Aaron Braswell, FAA; Phillip Braden, FAA; Stephen Wilson, FAA

Commencement 10:00 A.M.

Meeting Comments:

- Introductions made.
- The FAA opened the discussion stating the purpose of Meeting No. 2.
- The revised APE was distributed to the Consulting Party (CP) members. The FAA explained the revised APE results from Meeting No. 1 comments and subsequent coordination with Kentucky SHPO.
- CP member recommended APE be further increased to reflect all potential direct and indirect effects.
- CP member questioned APE boundary methodology.
The revised APE provides additional buffer between project area and neighborhood boundaries, accounting for those potential direct and indirect effects.
- CP member questioned potential impacts to noise and air quality.
Per FAA Order 1050.1F, Bowman Field Airport hasn't reached the operational threshold to trigger a noise analysis. No available data indicates air quality would be impacted by undertaking.
- CP member questioned the impact of the undertaking on airport operations.
The undertaking is limited to tree removal/clearing through avigation easements. There is no plan to increase runway length or add operations.
- Kentucky SHPO requested copy of the proposed easement language.

- Peter Kirsch detailed aviation easements and the potential effects to homeowners.
- CP member requested Field Survey and Tree Inventory data.
- Discussion was held on project alternatives to easement acquisition for trimming and or removal, such as obstruction lighting and zoning authority language.

The lighting alternative is being coordinated within the FAA, Air Traffic Division for feasibility. Airport zoning examples include Hollywood-Fort Lauderdale (FLL) and Tampa (TPA) airports.

- CP member will introduce David Ames to team in September 2015.
- FAA finalizing responses to comments raised during Meeting No. 1. Once complete, FAA will circulate to CP members.

The meeting concluded at 11:30 A.M.

Summary

The FAA will coordinate with LRAA to provide easement language, tree inventory and field survey data.

Braswell, Aaron (FAA)

From: Wilson, Stephen (FAA)
Sent: Wednesday, August 05, 2015 8:32 AM
To: Potts, Craig A. (Heritage Council); Kary Stackelbeck (Kary.Stackelbeck@ky.gov);
cynthia.johnson@louisvilleky.gov; david.brown@bbandt.com; info@cityofkingsley.org;
tom.owen@louisvilleky.gov; bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie
Barras; d.l.b.2547@gmail.com; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller,
Skip; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger
Anderson; Dupree, Tommy (FAA); Braswell, Aaron (FAA); Braden, Phillip (FAA);
patriciastallings@brockington.org; fitzkrc@aol.com; director@preservationkentucky.org;
drphawkins@juno.com; jchris.mccoy@gmail.com; angelakburton@hotmail.com;
lisa.hite@louisvilleky.gov; Jennifer Ryall (jennifer.ryall@ky.gov)
Cc: Williams, Lucille (FAA)
Subject: Section 106 Meeting Notes-Bowman Field Airport Area Safety Program
Attachments: Follow Up Comments Meeting No 1.pdf; Follow Up Comments Leslie Barras.pdf

For your records, please see the attached comments received *after* the Section 106 Meeting held on June 24, 2015 .

We will be sending a notice regarding the 2nd Section 106 Meeting shortly.

Thank you

Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482
901 322 8185
901 322 8195 Fax
Stephen.wilson@faa.gov



Sent via email (stephen.wilson@faa.gov)

July 6, 2015

Mr. Stephen Wilson
Community Planner
Memphis Airports District Office
Federal Aviation Administration
2862 Business Park Drive, Bldg. G
Memphis, TN 38118-1555

RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

On June 24, 2015 I participated in the Section 106 Consultation Meeting related to the Bowman Field Program. At that meeting I made the following comments regarding Seneca Park:

Seneca Park has not been evaluated for eligibility or listing in the National Register of Historic Places. It is important that that Cultural Resource Evaluation for the Bowman Field Safety Program evaluate the resource as a whole. We believe that when this broader view is taken and national guidelines are followed, the park will be determined to be eligible, including its landscape elements.

- The Golf Course is just one element in this historic park. It's not right to isolate one amenity. Any changes to the golf course will impact all park users and usage. The golf course keeps its integrity as a designed landscape. Tree removal will be an adverse effect to the park as a whole.
- The area along PeeWee Reese Road, with the American Cancer Society Grove of memorial trees, is an integral part of the park from the original Olmsted firm general design plan of 1928 and needs to be included in the identification and evaluation. Removal of mature trees along the "automobile course" will be an adverse effect to the park as a whole.

Thank you for your attention.

Sincerely,

Mimi Zinniel, President/CEO
Olmsted Parks Conservancy
1299 Trevillian Way
Louisville KY 40213



Michael J. Heitz, AIA
Director

Post Office Box 37260
Louisville, Kentucky
40233-7260

tel 502/456-8100
fax 502/456-3269
tdd 502/456-8183

web www.metro-parks.org
email parks@louisvilleky.gov

Date: July 9, 2015
To: Mr. Stephen Wilson (stephen.wilson@faa.gov)
From: John A. Swintosky, Louisville Metro Parks Landscape Architect
on behalf of Lisa Hite, Louisville Metro Parks Senior Planner
RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

On June 24, 2015 I participated in the Section 106 Consultation Meeting related to the Bowman Field Program. At that meeting, comments were made regarding Seneca Park. Here are Louisville Metro Parks' positions regarding the Bowman Field Safety Program and the current draft of the Cultural Resource Evaluation report.

While Seneca Park has not been evaluated for eligibility or listing in the National Register of Historic Places, it is considered eligible by age (designed in 1928) and by association with the Olmsted design firm, which also designed the National Registered listed parks and parkways in Louisville. It is important that that Cultural Resource Evaluation for the Bowman Field Safety Program evaluate the Seneca Park resource as a whole – not just a portion of one designed element within the park. When this broader view is taken and national guidelines are followed, Metro Parks believes that Seneca Park will be determined to be eligible – including its landscape elements.

The golf course in Seneca Park is just one component of this historic park. It is not appropriate to isolate one designed element to determine value or integrity of an historic site. The golf course has retained its integrity as a designed landscape within the overall Seneca Park site. Any changes to the golf course – such as a significant number of tree removals and permanent alteration of the designed living landscape – will impact all park users and usage, and thus will be an adverse effect to the park as a whole.

The park property along Pee Wee Reese Road (that includes the American Cancer Society Living Grove of Memorial Trees) is an integral part of the park entry experience in the original 1928 Olmsted firm general plan for Seneca Park. This area of potential impact needs to be included in the identification and evaluation in the Cultural Resource Evaluation report. Removal of mature trees along the "automobile course" corridor will be a permanent change to the designed living landscape and an adverse effect to the park as a whole.

Thank you for your attention.

Sincerely,

John A. Swintosky, RLA
Louisville Metro Parks Landscape Architect



Greg Fischer
Mayor
Louisville
Metro Council



A nationally accredited
parks and recreation agency

Sent by email to stephen.wilson@faa.gov

Chris McCoy
2540 Kings Highway
Louisville, KY 40205

July 7, 2015

Mr. Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2482

RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

I am a commissioner on the Kingsley City Council, and I live in the Bowman Field project's APE.

Kingsley has never been surveyed for determining eligibility or listing potential for the National Register of Historic Places. The conclusions made in this document and proceeding will serve as precedents for any future federal undertakings – future FAA-assisted programs at Bowman Field; federal funding of changes to Taylorsville Road; Federal Communications Commission approvals of wireless telecommunication devices within or impacting Kingsley. It is imperative, therefore, that the landscape of the neighborhood, including its trees, be specifically acknowledged in the statement of historical significance.

Effect of Project on the City of Kingsley

The last sentence of the last paragraph of Section 3.7 (page 85, under "Safety Program Effects") presently reads: "Therefore, the Safety Program will have no effect within the NRHP eligible Kingsley neighborhood." Changes to the tree canopy of any neighborhood near Bowman Field, contrary to the statement above, will adversely affect all nearby neighborhoods, irrespective of whether or not they are in the approach surfaces APE. Unmentioned impacts:

- negative effect on esthetics of the community at large, most of which is comprised of garden suburbs
- negative contribution to air quality (from an increase in air traffic that will likely follow from Bowman Field's compliance with FAA standards), a harmful impact to garden suburbs that were originally sited due to their clean air and country setting

- increase in noise (same as air quality above), a harmful impact to the quiet suburban neighborhoods
- reduction in benefit of temperature amelioration provided by existing tree canopy
- negative effect on property values (from all the above, as well as from what will eventually be a recent history of airport-related changes to the neighborhood that might discourage prospective home buyers – not only because of changes to the neighborhood from the currently-proposed project, but also out of concern for the possibility of future projects whose effect on Kingsley and nearby neighborhoods might be as, or more, injurious than the effects of the currently-proposed project)

Historical Significance of Kingsley's Trees

Brief references are made (in the summary and in Section 3.7) to a pre-construction landscape design for Kingsley that includes trees. This fact should be referenced in Section 3.7 in a way that clearly establishes Kingsley's trees' contribution to the city's historical significance (in the parlance of the survey, "as a vegetative pattern or feature that would be considered a character-defining feature"). Evidence in support of the city designer's original intent to create a city that would meet a particular esthetic standard:

- old aerial photographs show evenly-spaced trees planted in Kingsley easements prior to construction of homes (currently mentioned only in CRE summary; s/b referenced in 3.7 Kingsley Neighborhood)
- Kingsley deed restrictions from the 1940's require setbacks to establish front yard green space and provide an area for homeowners to fashion their own landscape, including tree plantings
- Kingsley deed restrictions from the 1920's define lot owners' responsibilities during neighborhood development to keep the grass cut and to insure that "shrubs and flowers" are kept in "first class condition"

Kingsley's Ongoing Effort to Sustain Trees/Landscaping and Garden-Suburb Design

Kingsley has for many years been actively engaged in an effort to perpetuate the original garden-suburb esthetic. Supporting evidence:

- active Tree Board since 2002
- Tree City USA since 2003 (Tree City USA is a recognition conferred by the National Arbor Day Foundation through the Kentucky Department of Forestry)

- tree and sidewalk ordinances whose purpose is to preserve the original esthetic and protect and promote the use of vegetation in a way that is respectful of the city's original design

In summary, the CRE (page 84) must be revised to acknowledge the following (new language in bold and underlined):

"The Kingsley neighborhood is eligible for the NRHP under Criteria A (community planning and development), B (association with important persons), and C (architecture and design) at the local level of significance. **The district-wide landscape, including trees, is an integral feature of Kingsley's historic significance under Criterion A and C. ...**"

Respectfully submitted,

Chris McCoy

2611 Kings Hwy.
Louisville, KY 40205
July 4, 2015

Stephen Wilson, Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118 2482

Re: Historic Architecture Survey for the Bowman Field Airport Area Safety Program

Mr. Wilson,

As one of the consulting parties and a City of Kingsley resident I was dismayed by the lack of acknowledgement and appreciation for the historical and current landscape environment for Kingsley and the other neighborhoods and public areas in the December, 2014 draft report by Patricia Stallings.

My background as a Director of a public library for over 16 years and the Kingsley Tree Board chair for 6 years tells me there were minimal original local historical references used. It appears local historians were not consulted who could have directed her to valuable primary source materials for the Frederick Law Olmsted designed Seneca Park, Seneca golf course or the Autobahn Parkway now called Pee Wee Reese Road.

A golf pro is not a knowledgeable contact on the historical perspective of the Seneca golf course. There is a treasure trove of historical documents and the original Olmsted design maps on the Olmsted parks at the park headquarters off Trevilian Way.

I would like to make another point, the Louisville Cancer Society's Memorial Grove along Pee Wee Reese Road on Seneca Park property was overlooked. The Memorial Grove will be significantly impacted in a harmful way and will need serious mitigation.

The Filson Historical Society on 3rd Street is another excellent place for original local historical information on the early interurban-era garden suburbs of Louisville.

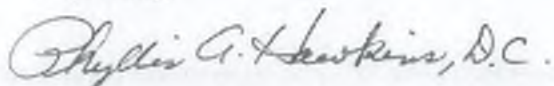
A better copy of the 1946 aerial photo of the Bowman Field area and Kingsley will clearly show the rows of trees lining all the streets in Kingsley. A good perspective on the value our residents of the area put on the landscape is on the Photo Gallery on pleaforthetrees.org website. In addition the City of Kingsley has been granted Tree City USA status for the last 13 years. The continued care of our landscape should be evident.

Another very important reference tool and guide seems to have been totally ignored. The National Register Bulletin's Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places by David L Ames should be followed.

My residence may not be in the current APE but all my trees were surveyed last summer by Paul Clinton of Beechwood Trees and Nursery. Why? For a second swipe of the apple down the road? I am most certainly in the circle of harmful historic and environmental effects that will result from the proposed Bowman Field Area Airport Safety Program.

I am looking forward to a more accurate historical landscape survey and determinations of eligibility for the landscape features for Kingsley and other affected areas in the second draft.

Respectfully,



Phyllis A. Hawkins, DC

DrPHawkins@juno.com

502-458-6151

To Stephen.wilson@faa.gov

I attended the Section 106 meeting June 24, 2015 as a representative of the Kentucky Resources Council, of which I am a member, and the city of Seneca Gardens where I am City Arborist. These are my written comments expanding what I said with respect to Seneca Gardens (including Seneca Manor) and the neighborhoods within the draft Area of Potential Effect at the June 24 meeting.

Seneca Gardens was set up as a garden suburb, beginning with the obvious use of "Gardens" in the name of the city. Some of the original trees are still in Seneca Gardens.

In the summer of 1987 a downburst destroyed 100 of the city's mature oaks and maples. The destruction of so many of the original, mature trees caused an unease in the city which led to the city creating a City Arborist position, probably the only Kentucky sixth class city with a staff arborist, and a commitment of city funds to subsidize replacement canopy and decorative trees. Since the fall of 1988, the first replanting, Seneca Gardens has subsidized more than 1000 trees planted on the private properties of our 300 homeowners.

Over the last 27 years, diverse, durable, and beautiful species have been collected from all over the United States, to be planted in the neighborhood, creating what Dr. Richard Olsen, Director, National Arboretum in Washington, D.C, endorsed in an email of May 18, 2015, "Meet Mike Hayman from Kentucky, an incredible tree advocate and administrator for the country's first neighborhood arboretum (Seneca Gardens)! "

The Seneca Gardens Neighborhood Arboretum extends in all directions beyond the borders of the city. Below are evidence of the Seneca Gardens Neighborhood impact beyond Seneca Gardens' borders.

- Seneca Gardens created a Seneca Gardens Greenspace Foundation to support and perpetuate the garden-like landscapes in and around Seneca Gardens.
- Seneca Gardens led and contributed funds to the creation of a circulation plan in Seneca Park between Taylorsville Road and Beargrass Creek.
- Seneca Gardens led and contributed funds to the creation of a planting plan in Seneca Park between Taylorsville Road and Beargrass Creek.
- Seneca Gardens and the Olmsted Conservancy were partners with the LRAA in planting the hedgerow of shrubs and small trees in Seneca Park on the western edge of Bowman Field along Pee Wee Reese Rd.
- Seneca Gardens adopted a piece of Seneca Park at Trevilian and Pee Wee Reese, paying for an updated landscape plan consistent with Olmsted design, which was required by Metro Parks because Seneca Park is an Olmsted design.
- Seneca Gardens paid for new culverts, a bridge, and pathway in Seneca Park at this same site.
- Seneca Gardens paid for and installed a 100 yard long hedge of bottlebrush buckeye between Denham Rd. and Trevilian Way.
- Seneca Gardens led the planting of 20 rare and unusual trees on Drayton Drive.

- Seneca Gardens planted 10 trees along Taylorsville Road from Pee Wee Reese to the border of Seneca Gardens.
- Seneca Gardens planted three sets of the new disease resistant American chestnuts developed by the American Chestnut Foundation into Seneca Park. These three chestnut plantings in Seneca Park interact with a strip of chestnuts in Seneca Gardens to cross pollinate and create new seedlings of these rare trees.
- Seneca Gardens led the planting of 20 varieties of native black gums in the Seneca Golf Course.
- Seneca Gardens found, propagated, grew, and planted out a collection of superior native Junipers in Seneca Park. Some have been introduced into the landscape industry.
- Seneca Gardens has given free tree consulting to adjoining garden cities and neighborhoods and helped public and private plantings in Kingsley, Strathmoor, and Highland-Douglass.

The tree resources of our community are highly valued by these neighborhoods. These community tree resources are also valued by people and organizations apart from Seneca Gardens. The Seneca Gardens Neighborhood Arboretum has been recognized by:

The American Horticulture Society, Alexandria, VA recognized Seneca Gardens with their Local Horticulture Award, 1996.

American Horticulturist, the magazine of the American Horticulture Society, published a story in their national magazine about the Seneca Gardens Neighborhood Arboretum August, 1995.

The Kentucky League of Cities recognized the Seneca Gardens Neighborhood Arboretum with their Public Works Award, 1992.

The Garden Club of America, Zone VII, Glenview Garden Club, recognized Seneca Gardens with their Civic Improvement Award, January, 2008.

The International Society of Arboriculture awarded Seneca Gardens the Gold Leaf Award for outstanding landscaping beautification activities, 1992.

The International Society of Plant Propagators, the Southern Plant Conference, The Louisville Metro Tree Advisory Commission and many local groups have taken trees tours of Seneca Gardens and the surrounding neighborhoods.

Tree people with national influence have toured the greater Seneca Gardens Neighborhood arboretum. The most influential tree person in the United States, Dr. Michael Dirr, retired, University of Georgia, author of the *Manual of Woody Landscape Plants* toured Seneca Gardens on many occasions, the most recent in May of this year (2015). Others include: Dr. J.C. Raulston, Director, North Carolina State Arboretum, Raleigh, NC; Rick Lewendowski, Director, Mt. Cuba Center, Hockessin, DE; Kris Bachtell, Vice President of Collections, Morton Arboretum, Lisle, IL.

In summary, Seneca Gardens and the surrounding neighborhoods were founded as garden communities and we have maintained and strengthened that commitment. In evaluating historic integrity, the draft cultural resources report must reflect that Seneca Gardens/Seneca Manor and other garden suburbs have intentionally worked to preserve the landscape values that are associated with the original developments. The district-wide vegetation, including trees, must be recognized as contributing to the historic significance of Seneca Gardens/Seneca Manor and the neighborhoods within the limited and full Area of Potential Effect.



Sent via regular mail and email (stephen.wilson@faa.gov)

July 10, 2015 (corrected version)

Mr. Stephen Wilson
Community Planner, Memphis Airports District Office
Federal Aviation Administration
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2452

RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

Plea For The Trees ("PFTT") hereby provides initial written comments on the draft document titled *Historic Architectural Survey for the Bowman Field Safety Program, Jefferson County, Kentucky* (Brockington and Associates, December 2014, Draft Report, hereafter "CRT" for cultural resource evaluation).¹ This submittal supplements our oral comments provided during the Section 106 consultation meeting held in Louisville on June 24, 2015 (the "June 24th meeting") regarding the Bowman Field Safety Program (the "undertaking").

Summary of Comments

At the outset, the importance of the cultural resource evaluation associated with the Bowman Field undertaking requires explanation. With the exception of Strathmore Village (just outside the narrow Area of Potential Effect for Runway 6), none of the residential suburbs in the environs of Bowman Field, nor Seneca Park (to the best of our knowledge) or Big Spring Country Club, have been evaluated for listing or eligibility for the National Register of Historic Places. Why it is that these environs have never been surveyed before with respect to Federally assisted undertakings at Bowman Field (including previous tree removals and property acquisitions, including demolition of homes) begs an important question about the sufficiency of previous Section 106 consultations, assuming they were held. Nevertheless, this Safety Program consultation is important—the findings and determinations regarding what is or is not historic, what contributes to historic significance, and what does not, will not likely be revisited for some time. The final cultural resource report will be used in future undertakings in this area—e.g., the installation of cell towers, road-widening proposals (e.g., Taylorville Road, the Watterson Expressway/I-264, I-64), and FAA-assisted programs and projects at Bowman Field.

¹As discussed in the June 24th consultation meeting, the version of the survey submitted to the Kentucky Heritage Council, marked as "Final Report," is not, in fact, a final document. For the purpose of these written comments, references to pagination are made with respect to the draft report that FAA distributed to the consulting parties prior to the initial consultation meeting.

The cultural resource firm subcontracted to Hanson Engineering for this review was undoubtedly hampered by an insufficient scope of work and budget for the effort. Nonetheless, it is important that the report meet professional standards established by the National Park Service and the Kentucky Heritage Council. The draft report does not do so.

Following this summary, our comments focus upon: (1) inadequacies in the description of the undertaking and the "purpose and need" for the project; (2) the omission of any alternatives other than removal of mature tree canopies; and (3) identification of a draft Area of Potential Effect that: (a) fails to include areas that may suffer adverse visual and noise impacts from removal of these tree canopies, and (b) fails to account for other alternatives to achieve the purpose and need for this program. Comments specific to the resources that are identified and evaluated in Section 3.0 of the draft CRT (and those that are not—Seneca Park and Bowman Field itself) are also included.

A significant objection to the draft CRT, detailed below, is the omission of any explanation of the standards used to identify and evaluate the landscape component—including the element of vegetation (e.g., trees, shrubs, and other plantings)—of the residential suburbs within the narrow Area of Potential Effect.² This omission results in incorrect determinations of "ineligibility" regarding the vegetation component of the landscape characteristics associated with the historic residential suburbs. Historic contexts and evaluation standards of the National Park Service of the U.S. Department of Interior (the federal "home" for the National Register of Historic Places) have been developed specifically for residential suburbs of the chronological periods of development represented around Bowman Field (streetcar suburbs, automobile suburbs, and post-World War II and early freeway suburbs). Additional standards for designed historic landscapes and cultural landscapes have been developed by the National Park Service. None of these standards were used or referenced in the draft CRT.

The draft CRT recommends determinations of eligibility for the six (6) historically planned neighborhoods in the narrow Area of Potential Effect, under Criterion A (community planning and development) and Criterion C (architecture and design or, in some cases, solely architecture). The report finds that the non-vegetation elements of the landscape characteristics associated with each period of development of these suburbs are still present, a finding that they retain "historic integrity."³ We agree. While not specifically distinguished as such in the draft CRT, the "contributing" landscape characteristics recognized in the report recommendations include: (1) buildings and structures (e.g., primarily the homes and their architectural styles); (2) patterns of spatial organization (e.g., consistent sizing of lots, established front and side yard setbacks, and the arrangement of homes on the private yards); and (3) circulation networks (the original features for pedestrian and vehicular access into and within the planned developments).

However, with respect to the vegetation element of these National Register-eligible neighborhoods, the report consistently states that these suburbs "did not appear to be developed

²A similar problem exists with respect to Seneca Park, the golf course and Big Spring Country Club. It should be noted that each of the evaluations in Section 3.0 of the draft CRT addresses only 98% of the *historic qualities of historic integrity*—that of design.

with a design specific to vegetation¹¹, that "plantings" (unspecified as to type) "appear to have developed organically¹² or "by individual property owners over time"; and that "neither type nor overall height of trees is considered to be a contributing element." These observations then facilitate the draft report's determination that the removal of mature tree canopies in the Bowman Field Safety Program will not result in an "adverse effect" to historic properties with respect to Section 106 of the National Historic Preservation Act.

Respectfully, this approach to the vegetation analysis turns an aphorism on its head, literally: the report fails to see the trees for the forest. *National Register Bulletin 18* (relating to designed historic landscapes) makes clear that these types of vegetative landscapes, found in subdivisions and "small residential grounds," do not have to reflect the work of a master, such as Olmsted, but include those with an "historical association with a significant trend in landscape gardening or landscape architecture" (in this case, the association is with garden suburb development) and the work of an "owner or other amateur using a recognized style or tradition."¹³ The vegetation element of the Bowman Field neighborhoods is part and parcel of the designed and vernacular landscapes of the periods in which these garden suburbs were planned, marketed, and developed. As noted in the Bowman Field National Register nomination, the "verdant setting [of the surrounding neighborhoods] is unusual and contributes to the ambience of the Bowman Field Historic District (emphasis added)."¹⁴

The report seems to find an original "design intent" for only Kingsley (which will not be affected in this phase of the Safety Program). Kingsley has the good fortune of an oblique photograph from 1930 that shows newly planted street trees. The happenstance of photographic evidence of original street trees is not a prerequisite upon which to base conclusions regarding an "original design intent" behind the vegetation component of planned subdivisions. The report fails to convey that the Louisville community builders and developers of these neighborhoods (from the early 1900s to the 1960s) consciously marketed them as "garden spots," and included vegetation in their plans and designs because of the socioeconomic classes that were their target market. Our comments below elaborate on this research-based statement.

The draft report notes (in one place, as "casual vegetation," p. 70), but does not include, plantings by individual property owners (primarily homeowners) in the evaluation of historic significance. However, the vegetation planted by individual property owners is an integral part of the landscape characteristics of these historic neighborhoods since the "private yard is a distinguishing feature of American suburbs."¹⁵ It would be interesting to know whether the individual contributions of homeowners have been the work of a master gardener (i.e., reflect a designed landscape) or a do-it-yourself, popular-trend weekend gardener (suggesting a

¹¹It is unclear what "organically" means in this context. We presume that, as living things, trees inherently develop organically. The latter may have been that some trees developed originally without human intervention. That they were kept by builders, developers, and homeowners is consistent with conscious attempts to increase the attractiveness of the residential setting (*Historic Residential Suburbs*, pp. 12-13; see p. 11 below for the full citation.)

¹²See p. 12 below for the full citation. These quotes are found on p. 2 of the designed landscape bulletin.

¹³Warren, Margaret. *Bowman Field Historic District. Nomination to the National Register of Historic Places*, p. 2, 1988.

¹⁴See p. 11 below for the full citation. This quote is found on p. 9 of *Historic Residential Suburbs*.

vernacular landscape). However, it is not necessary to pin down these distinctions on an individual lot-by-lot basis. Both types of landscapes are associated with the chronological periods of significance of these suburbs, and are still largely reflected in their respective garden settings today.

The evaluation of the vegetation component of these suburbs (and associated parks and golf courses) also needs to address all of the qualities of historic integrity, with reference to the evaluation standards of the National Park Service for the specific property types. Original plants need not still be in existence—vegetation "similar in historic species, scale, type and visual effect" will "generally convey integrity of setting although integrity of original materials may be lost."¹⁶ The qualities of *workmanship* (the planting and maintenance of vegetation, whether street trees or trees, shrubs, and flowers in private yards) and *association* are very much evident, particularly in the garden suburbs of Seneca Vista, McCoy Manor, Seneca Manor/Seneca Gardens, and Kingsley. Your agency and the LRAA heard from representatives of Kingsley and Seneca Gardens at the June 24th meeting of their ongoing, intentional efforts to preserve, perpetuate, and enhance the tree canopies in their neighborhoods (and others, such as Seneca Vista), these efforts are designed to maintain the integrity of *association* of vegetation in these garden suburbs. In sum, vegetation (including the trees) is a physical attribute that helps to establish and perpetuate the *feeling* of these neighborhoods as historic residential suburbs.¹⁷

Our detailed comments, presented in the order of the sections of the draft report, are as follows.

1.1 Project Overview and Sponsorship

The first sentence on p. 1 erroneously identifies the purpose and need for the project as "object clearing" (emphasis added). "Objects," when used in reference to aeronautical studies, are any "element of natural growth, terrain, or [human]-made structure whose height is greater than 3 inches."¹⁸ It is our understanding that, since mid-2013, FAA and LRAA have defined the purpose of the undertaking to implementation of measures to mitigate obstructions that have been determined by FAA to pose a current hazard to air navigation with respect to the Terminal Instrument Procedure (TERPS) approach surfaces. If our understanding is incorrect, please clarify.

Additionally, the use of the phrase "Safety Program" in this federally assisted program does not appear to account for the safety of those on the ground—residents, businesses, and recreational users of Seneca Park and the Big Spring Country Club. Many residents believe that *preservation of the mature tree canopy is their Safety Program*, a matter that neither the FAA nor Louisville Regional Airport Authority (LRAA) have ever acknowledged. Records of the National Transportation Safety Board (NTSB) indicate that there have been thirty-seven (37) accidents associated with Bowman Field since 1982, which resulted in eight (8) fatalities to air

¹⁶Ibid., p. 105.

¹⁷And, in the same vein, *Seneca Park, including the golf course*.

¹⁸Airport Cooperative Research Program. 2010. *ACRP Report 26, Understanding Airspace, Objects, and Their Effects on Airports*, sponsored by the Federal Aviation Administration, p. 10. www.faa.gov

crew and passengers.¹¹ All eight fatalities were associated with pilot error and/or inadequate pre-flight inspections or lack of preventative maintenance on the aircraft, not with hazardous "obstructions." It is noteworthy that no one on the ground has been hurt or killed within this period. By acknowledging that the surrounding neighborhoods are National Register-eligible residential subdivisions, the tree removal program itself will cause an adverse effect on the residential character of these neighborhoods by removing their protective barrier to operations at Bowman Field. This effect of the undertaking must be acknowledged and evaluated.

1.1.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigations, and the Area of Potential Effect

The Scope of the Undertaking is Defined Incorrectly

The scope of the undertaking that is now described by FAA is mitigating hazardous obstructions within the TERPS approach surface as of February 2012. During the June 24, 2015 consultation meeting, FAA stated that only "current" needs are addressed in this undertaking. We note that the public explanation of the Safety Program provided in the early public meetings (e.g., January 4, 2012) was based upon FAA's approval of an updated Airport Layout Plan (ALP) for Bowman Field's Master Plan. Our understanding is that the planning horizon for an ALP is ten (10) years, and is not limited to "current" conditions. The temporal difference is important. For example, with respect to a 10-yr. undertaking, cultural resources within the Area of Potential Effect that have reached 40 years of age (10 less than the threshold age of 50 years for historic significance) are identified and evaluated. Additionally, by narrowing the time horizon of this undertaking, the more widespread and harmful impacts of tree removal associated with the former 10-year planning horizon are substantially segmented in the federally required historic and environmental reviews.

As stated in the June 24th meeting, PFTT's position is that the FAA-funded aviation easements (proposed, cumulative) also are within the scope of the undertaking and subject to review under Section 106 (as well as NEPA and Section 4(f) of the Federal Transportation Act). As a recipient of FAA funding for airport planning and airport improvements, LRAA must ensure that: (1) "appropriate action will be taken to ensure that terminal airspace required to protect instrument and visual operations to the airport (including operations at established minimum flight altitudes) will be cleared and protected by mitigating existing, and preventing future, airport hazards"; and (2) appropriate action, including the adoption of zoning laws, has been or will be taken to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations.¹² Aviation easements are perpetual real property interests that permanently subject the affected home, business, or church to unlimited noise, vibration, and air pollution from aircraft and airport operations. Their presence and effects must be evaluated in the federally required reviews for this undertaking.

¹¹ www.mrb.gov/aviation/safety/index.aspx. Accessed July 7, 2015.
¹² 49 U.S. Code §47107(a)(9)(A)(10).

No Alternatives Have Been Presented to Mitigate Hazard Obstructions Other Than Tree Removal

The evaluation of alternatives to achieve an undertaking's "purpose and need" is part of the planning process mandated by the regulations implementing Section 106 (see, e.g., 36 CFR § 800.1(c), 800.8(a)(2)) and, of course, is a cornerstone of environmental evaluation of federal undertakings, such as this one, under the National Environmental Policy Act (NEPA) and the implementing regulations of the Council on Environmental Quality. The Area of Potential Effect (addressed below) should account for the range of alternatives under evaluation by the federal agency undertaking or sponsoring the proposed action. The FAA cannot permissibly limit the reviews required of your agency to one alternative—tree removal.

On September 10, 2012, the Kentucky Resources Council and PFTT jointly sent a detailed letter to Mr. Phil Braden, Manager, Memphis Airports District Office, FAA, and Mr. Skip Miller, Executive Director, LRAA, stating, among other matters, that the full range of alternatives to the "Safety Program" required evaluation. As specified in that communication to your agency and LRAA, the alternatives that are reasonable and appropriate for evaluation include, but are not limited to, "no action" (i.e., use of existing obstacle approach flight procedures), enhancement of existing navigational aids (visual, electronic), new navigational installations (aeronautical beacons to mark hazards), and waiving prescribed siting minimums, in addition to removal of mature tree canopies. Some of these alternatives may impact the utility of the airport, as stated by Mr. Skip Miller, Executive Director of the LRAA at a public meeting on Jan. 4, 2012, with respect to the "no action" alternative. Nevertheless, the FAA and LRAA cannot screen from the alternatives analysis the options that they deem undesirable.

When PFTT inquired during the June 24th meeting whether the narrow APE included alternatives, such as navigational aids, FAA and Hanson Engineering replied that it did not. Mr. Tim Haskell of Hanson Engineering stated that the community impacts of beacons or towers would be "unacceptable." As we noted during the meeting, the alternatives must be presented in both Section 106 (and NEPA). It is insufficient for FAA, its local airport sponsor, or the associated consultants to pre-determine what is and is not "acceptable" to the community. The CRE does not identify any alternatives, and, therefore, does not establish an associated APE(s) or identify and evaluate properties within the relevant alternative APE(s) for historic significance.

The Area of Potential Effect (APE) is Insufficient to Account for Direct, Indirect, and Cumulative Effects of the Tree Removal Program

The draft CRE states that "[f]or historic architectural resources, the APE consists of those geographical areas within the TERPS approach surfaces [and] contains all direct and indirect effects . . ." (p. 3). PFTT will refer to the draft APE as the "narrow APE."

With respect to the narrow APE for Runway 24 (Figure 1.4), it appears that the northernmost edge is terminated at I-64. Please explain the rationale for terminating the boundary based on the interstate. Otherwise, if the full triangle were extended north across I-64, it appears that some of the Floyd-Breckinridge Cemetery in St. Matthews would be within the draft APE. Floyd-Breckinridge Cemetery, located at 1004 Jamestown Ct. (historically in the

area of "Floyd's Station", is an approximately 0.1529-acre wooded tract owned by the Filson Historical Society that contains the graves of John Floyd (1750-1783), an early surveyor and military figure in Kentucky, Captain Alexander Breckinridge (1752-1801), an American Revolution war officer, Robert Breckinridge (1754-1833), also an American Revolution war officer, and family members.¹³

During the June 24th consultation meeting, FAA stated that the reference to "indirect" effects in the narrow APEs were meant to include visual effects. As PPTT replied, to fully account for and evaluate the indirect visual and noise effects of the proposed removal of hundreds of mature canopy trees, the APE needs to be expanded to constitute a circular APE (the "full APE") that connects the outermost edge of each of the narrow APEs associated with the four runways.

PPTT's research indicates that, within the full APE—and depending on the results of a line-of-sight analysis or other method to assess visual impacts—there are at least an additional 23 residential suburbs platted more than 50 years ago, as follows:

- Between Runway 6 and Runway 33 (south of Bowman Field): Bon Air (1909), Beaumont (1925), Highbury (1926), Strathmore Village (1922), Wellington (1920s), Alameda (1946), Wellington (1939), Wellesley (date unclear)
- Between Runway 33 and Runway 24 (southeast and east of Bowman Field): Airview (1928), Killmore Gardens (1961), Big Springs Gardens (1953), and Big Springs Village (1957).
- Between Runway 24 and Runway 15: Park Hills (1955), Williamsburg Estates (1964) (also featuring the Floyd-Breckinridge Cemetery), Broad Fields (1959), Hollin Terrace (1956), and Seneca Hills (1955)
- Between Runway 15 and Runway 6 (northwest and west of Bowman Field): Rostrevor (1965) (also featuring "Rostrevor" Country Estate, identified below); Cherron Hills (1959), Ingleside (1952), Seneca Gardens (1937), Broadmeade (1922 and later additions), and Woodbourne (1908)

It should be noted that there are several properties within the full APE that should be evaluated for individual eligibility, including, but not limited to: the Jacob and Henrietta Weinstein House at 2301 Denham Road, Rostrevor, at 1141 Rostrevor Circle, a 1908-10 Country Estate designed by the firm Carrere and Hastings Loomis in Italianate Renaissance style (to the northwest and west of Runway 15 and the Seneca Park Golf Course); and the 1955 "Idea Home of the Year" at 1200 Park Hills Dr. in the mid-20th century modern development of Park Hill (to the immediate northeast and east of Runway 15 and the Seneca Park Golf Course).

In addition to direct and indirect effects, "effects" include "reasonably foreseeable effects caused by the undertaking that may occur later in time, be further removed in distance or be cumulative," and may themselves be "adverse" to historic properties (36 CFR §800.5(a)(1)).

¹³Basic information about Floyd and the Breckinridge brothers can be found in *The Encyclopedia of Louisville*, ed. John E. Kleber, 2001, and "The Strange Genealogy of Louisville's Bowman Field and Seneca Park," Carl E. Krane, 1986.

Cumulative effects that require evaluation in this Section 106 review (including the establishment of the APE) include past tree removal actions of the LRAA, such as mature tree removal in the 1990s and the mature trees that were removed in the Big Spring Country Club in fall 2013 as part of the Bowman Field Safety Program. The fall 2013 clearing (Runway 24 penetrations) harmed 54 trees. Fifteen (15) trees were trimmed and thirty-nine (39) trees were permanently destroyed through removal. The 39 trees included silver and red maples; pin and red oak; eastern white pine; ginkgo; bald cypress; hemlock; boxelder; black cherry; white ash; black locust; and Norway spruce. Seventeen (17) of the logged trees had diameters of greater than 30 inches, indicating an age greater than 50 years.¹⁴ The Morton Arboretum of Chicago, a renowned scientific non-profit established in 1922 to collect, study, and promote trees, has published an index to the estimated age of urban trees by species and diameter at breast height: a 30-inch diameter red oak, for example (of the type permanently removed in fall 2013), may have reached 130 years of age.¹⁵

Past actions for the cumulative effects analysis include the aviation easements taken in several of the neighborhoods (including those outside of the narrow APE, but within the full APE) since 1992.

1.2 Methods of Investigation

Section 117(a)(1)(A) of the NHPA¹⁶ and the Section 106 rules of the Advisory Council on Historic Preservation (36 CFR §§800.2(a)(1) & 800.2(a)(3)) require that federal agencies, including the FAA, ensure the professional qualifications of those who carry out Section 106 responsibilities directly for the agency (e.g., consultants) or indirectly (through delegation to non-federal parties seeking federal help, such as the LRAA). Professional qualifications include those established by the Secretary of the Interior and "applicable standards and guidelines" of "affected agencies," and the State Historic Preservation Officers (SHPO).

These same authorities also require that federal agencies, including the FAA, review and endorse the documentation and determinations prepared on their behalf. When the FAA uses consultants or allows non-federal parties, such as LRAA, to carry out elements of Section 106 consultation, the agency remains responsible for independently making its own findings and determinations on the APE, identification and evaluation of historic properties, assessment of direct, indirect, and cumulative effects, and resolution of effects.

The introduction to Section 1.2 identifies the Principal Investigator as a Senior Historian with Breckington and Associates. The Principal Investigator's resume in Appendix A of the CRE indicates that her academic and work experience fulfill the Professional Qualification Standards of Appendix A to 36 CFR Part 61.¹⁷ However, the resume provided in the draft CRE

¹⁴Email dated Dec. 2, 2013 from Allan G. Young/ASO/FAA, Eastern Flight Procedures, to Joseph A. Jackson/AWA/FAA.

¹⁵Morton Arboretum, "Estimate the Age and Benefits of Trees," pp. 3-4.

¹⁶National Historic Preservation Act, 54 U.S.C. § 303101(a)(1)(A). The NHPA's original codification at title 16 U.S.C. Code, rather than the recodification in title 54 of U.S.C. Code, which became effective Dec. 19, 2014.

¹⁷The Part 61 regulation establishes procedures for state, tribal, and local government preservation programs. The National Park Service of the U.S. Department of the Interior applies the Appendix A criteria to individuals who

does not indicate any experience specific to historic residential suburbs, garden suburbs, historic landscapes (designed or vernacular), or public and private recreational properties. Of the 27 listings for "Recent Projects, Publications, Presentations and Experience" in the Principal Investigator's resume, 14 were conducted for the Department of Defense; 8 were conducted for hydroelectric (dam) projects; 2 were conducted for the Army Corps of Engineers; one was a Phase III archaeological data recovery project at Hilton Head Island Airport; one was for a local school district; and one was for a surface transportation project for a state department of transportation.

The Kentucky Heritage Council (KHC) has issued *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* to which "all fieldwork and cultural resource assessment reports" subject to the agency's review, including Section 106 reports, "shall conform" (emphasis added).¹⁸ Noting that historic properties are evaluated in a "regional context," the *SHPO's Specifications* require that Principal Investigators in Section 106 projects have "a minimum of twelve months of professional field experience in the eastern United States, of which at least three months must be in Kentucky or the Ohio Valley..."¹⁹

In addition to the absence of relevant historic residential suburb experience, the Principal Investigator's resume does not reflect the geographic experience required in the *SHPO's Specifications*. The only Kentucky project identified is documentation of the former Clarksville (TN) Base Nuclear Storage Site for Fort Campbell, Kentucky. It may be that relevant experience to the Bowman Field Safety Program Section 106 can be identified in a revised resume and/or that additional historic preservation professional consultants may be needed. In either or both cases, the FAA must ensure that the professional standards and experience requirements of the SHPO are met.

It is also not clear how the FAA is meeting, or plans to meet, the requirement that the agency make "independent" findings and determinations in the stages of Section 106 consultation. Who, specifically, within FAA has reviewed and authorized or otherwise approved the draft CRE as sufficient for purposes of this Section 106 consultation?

1.2.1 Archival Research and 1.2.2 Architectural Survey

The draft CRE reports that the Principal Investigator spent some time during the weeks of August 15 and September 15, 2014 in Louisville conducting archival research, talking to individuals, and inspecting individual properties within the narrow APE. Despite PPTT's and Kentucky Resources Council's extensive prior communication with your agency and the FAA regarding the significance of the resources and landscape, we were never contacted to provide our input (or our time) prior to this visit. None of the small cities affected, Metro Parks, or subject matter experts (e.g., the arboretum for Seneca Gardens) were contacted.

¹⁸ "Identification, evaluation, registration, and treatment activities" by or on behalf of the federal government through the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation, *Historic Preservation Professional Qualification Standards*, 48 *Federal Register* 44716 (Sept. 29, 1983).
¹⁹ Sanders, Tom. 2006 (also known as the "SHPO's Specifications").
²⁰ *Ibid.*, p. 11.

The identification and evaluation methodology is incomplete because only the portions of the resources located within the narrow APEs were visually evaluated and photographed by the Principal Investigator. Only a "sampling survey" was conducted for neighborhoods that extended beyond the narrow APE (p. 6). Seneca Park and Bowman Field were not evaluated in their entirety, while the Big Spring Country Club was, including areas outside the APE (see more below in PPTT's comments on Section 3.0). The research and survey methodology presented in these sections need to be consistent in examining each resource in its entirety.

Importantly, Sections 1.2.1 and 1.2.2 completely omit any reference to or discussion of the archival or field work that was conducted to evaluate the affected landscapes, particularly the vegetation, component of the historic property identification and evaluation phase of this Section 106 review. PPTT has provided extensive comments below with respect to the imperative of presenting an organized landscape analysis in Sections 2.0 and 3.0. The CRE references "tree types and heights" from the *Inventory of Trees Around Bowman Field*, 2014, Beechwood Trees and Gardens, Inc., prepared for Hanson. However, this inventory was not included in the report. In order to be able to participate in this federally required process in a meaningful way, PPTT For The Trees hereby requests this inventory.

The rationale for boundary selection in identifying and evaluating the six (6) different neighborhoods in the narrow APE should be explained. The approach to boundary delineation is based upon their original plans (i.e., based upon their original boundary). Boundary selection for historic residential suburbs may also be based upon a "group of contiguous subdivisions, particularly where significance is based upon design."²⁰ These Bowman Field neighborhoods share historic contexts, architectural styles, landscape features, and types and levels of integrity. Additionally, current residents of many of the narrow-APE historically planned developments are not likely to either know or consider their neighborhood as "Seneca Vista," "McCoy's Manor," "Seneca Village," and the like. Current small city geopolitical boundaries are more likely to be recognized. For example, Seneca Manor (the area that includes the "high canopy oak trees" along Valletta Road [p. 78]) and the unincorporated Kaneseth Israel synagogue is within the limits of the City of Seneca Gardens. Kingsley, on the other hand, is an incorporated municipality whose current political boundary matches the historic plat. Whatever boundary or boundaries are selected, the CRE should explain the justification.

Additionally, the SHPO's Specifications require that a KHC Inventory Form (with associated individual KHC site number) be prepared and submitted for each building, site, structure, and cemetery that is fifty years of age or older.²¹ The draft CRE lacks such documentation.

²⁰ National Register Bulletin: *Historic Residential Suburbs: Guidelines for Evaluation and Documentation* for the National Register of Historic Places. Washington D.C.: U.S. Department of the Interior, National Park Service, National Register History and Education. 2002. Prepared by David L. Arnes, University of Delaware, and Linda Platt McClelland, National Park Service, p. 107.
²¹ SHPO's Specifications, p. 27.

1.3 National Register of Historic Places Criteria

This section identifies the four primary criteria of historical significance (A through D) that are used in making Determinations of Eligibility and nominating properties to the National Register of Historic Places. The section also includes a brief review of *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*,²² and states that the first requirement for determining eligibility is that "the resource must be associated with an important historic context (emphasis added, p. 6)." The bulletin does not say that "important" historic contexts have to be assessed, but instead explains that the historic significance of properties must be evaluated within their historic contexts, the "patterns or trends in history by which a specific occurrence, property, or site is understood and its meaning (and ultimately its significance) within history or prehistory is made clear."²³ To state that historic contexts themselves require "important" could lead to faulty inferences that a post-WWII local housing context, for example, is in some degree different (worse) than a high-design country estate context. Our understanding is that differences of "import" in evaluating resources are generally reflected in the area of significance (determining the type of theme of the context, e.g., transportation, landscape architecture) and in the level of significance assigned to the resource (i.e., local, state, national), not as a function of the "import" of the context.

The seven aspects of integrity are also identified in this section of the draft CRE: location, design, setting, materials, workmanship, feeling, and association (p. 11). However, it should be noted that the subsequent evaluations of National Register-eligibility for the fourteen (14) resources in the narrow, direct-effects APE *only* address the design aspect of integrity. This omission is significant because of the integrity of location, setting, feeling, and association that are demonstrated with respect to these resources, including the vegetation element of the landscapes.

The draft CRE (p. 11) explains the National Register-eligibility evaluation process with reference to "pre-contact Native American" sites and the "ruins of African American slave settlements from the 1820s," and other antebellum-era resources. The complete omission from the draft CRE (in the narrative and References) of the National Park Service publications specific to most of the property types in the narrow (and full) APE for the Bowman Field undertaking is puzzling and unsupported. These publications include the following, as well as local contexts:

- *National Register Bulletin, Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*. Washington D.C.: U.S. Department of the Interior, National Park Service National Register History and Education, Prepared by David L. Ames, University of Delaware, and Linda Flint McClelland, National Park Service. 2002.

²²The citations to *Bulletin 15* in the draft CRE are to Savage and Pope 1998. However, the Internet-based version does not contain a revision year of 1998 and identifies Patrick W. Andrews as the primary finalization author and Rebecca Shreve as the editor. www.nps.gov/publications/bulletins/b15/. Both Savage and Pope are identified as coordinators of the last revision of the bulletin (1993).

²³*Bulletin 15*, p. 7.

- *Historic Residential Suburbs in the United States, 1820-1960. National Register of Historic Places Multiple Property Documentation Form*. Prepared by Linda Flint McClelland, David L. Ames, and Sarah Dillard Pope. 2003.
- *National Register Bulletin 18, How to Evaluate and Nominate Designated Historic Landscapes*. U.S. Department of the Interior, National Park Service, Information Resources Division. Prepared by J. Timothy Keller, ASLA, and Genevieve P. Keller, Land and Community Associates, Charlottesville, Virginia. No date.
- *Preservation Brief 36, Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes*. U.S. Department of the Interior, National Park Service, Preservation Assistance Division. Prepared by Charles A. Bimbaum, ASLA, Coordinator, Historic Landscape Initiative. 1994.
- *Suburban Development in Louisville and Jefferson County, 1868-1940. National Register of Historic Places Multiple Property Documentation Form*. 1988. Prepared by Leslie Keys, Mark Thames, Joanne Weeter, Jefferson County Office of Historic Preservation & Archives. 1988.
- *Swainsboro Village. Kentucky Historic Resources Group Survey Form*. Prepared by Rachel Kennedy and Jennifer Ryall, University of Kentucky. 2010.

Key concepts from these documents that are relevant to the identification and evaluation of the primary property type in this undertaking are summarized in Table 1, beginning on the next page. The CRE for the Bowman Field Safety Program must utilize these resources in the identification and evaluation phase of Section 106 compliance.

In addition, multiple other documents exist that are relevant to the survey and evaluation in this Section 106 consultation of the types of Bowman Field-environments historic residential suburbs include:

- *A Model for Identifying and Evaluating the Historic Significance of Post-World War II Housing*. National Cooperative Highway Research Program Report 723. Prepared by Mead & Hunt, Inc. (Pettis et al.) and Louis Berger Group, Inc. (Kuhn et al.). 2012.
- The research references and resources identified in the *Historic Residential Suburbs Multiple Property Documentation Form*, Section 1, Bibliography.
- Science-based publications for the general education of the public with respect to beautification of their private yards, such as the U.S. Department of Agriculture's "Farmers' Bulletin" series and, later, the "Home and Garden Bulletin" series. Many of these bulletins have been digitized and are available through the National Agricultural Library Digital Collections (nald.nal.usda.gov/nald/home.html).

Table 1. Key Concepts for Suburban and Associated Landscape Historic Context Development and Evaluation

Publication Concept	Page
<i>National Residential Suburbs in the United States, 1880-1980, National Register of Historic Places Multiple Property Submission</i>	
The first stages of the evolution of American suburbs, noted for the primary transportation mode of the time and early general periods of chronology: (1) Railroad and Horsecar Suburbs (1830-1890); (2) Streetcar Suburbs (1880-1920); (3) Early Automobile Suburbs (1900-1945); and (4) Post-World War II and Early Freeway Suburbs (1945-1960)	11, 3
Developers and the development process included "community builders," real estate entrepreneurs in the first third of the 20 th century who acquired large tracts of land for residential development. These builders formed zoning and subdivision regulations to "promote predictability in the land market and protect the value of their real estate investments." J. C. Nichols of Kansas City, a leader in the National Association of Real Estate Builders, "greatly affected land use policy" in the U.S.	12, 5, 13
Subdivisions developed by "community builders" often included design guidelines (streets, landscape architecture, and amenities). Prior to zoning, these builders used written deed restrictions to control the character of their development by specifying requirements and prohibitions on individual lots for development and maintenance.	11, 9
Landscape influence: Andrew J. Downing, <i>Treatise on the Theory and Practice of Landscape Gardening</i> (1841) (the "pioneering" or "textual" influence); early 20 th century American landscape practitioners such as the City Beautiful movement and the Works Progress Administration; mid-20 th century suburbanists with greatly varying taste, from tree-lined streets, open landscaped lawns and gardens, and attractive homes to a "sprawly" style.	12, 18, P. 55
<i>National Register Bulletin: Historic Residential Suburbs</i>	
The Bulletin and the Multiple Property Submission are intended to "focus the development of local and metropolitan suburbanization contexts." Focus on privately financed and constructed neighborhoods. Landscape approach (not just vegetation) based on understanding that important landscape characteristics noted, form in a three-fold process: selection of location, planning and layout, and design of the house and yard.	11-16

Table 1. Key Concepts for Suburban and Associated Landscape Historic Context Development and Evaluation (cont.)

National Register Policies: Historic Residential Suburbs (cont.)	7-9
<p>enhanced historic residential suburbs as cultural landscapes. (1) developers' site selection (geographic location, affluence of school district, etc.); transportation, accessibility; (2) subdivisions design (grid) or fence boundaries, inward crystalline streets, buildable house lots; (3) arrangement of each home and yard, including plantings. The article is in the "distinctive character" of American suburbs, but there are common themes too (parks, play grounds). Yards included some designed landscapes but also some informal ones, influenced by popular trends in home design and gardening. Whether designed or not, the domestic yard includes "an important element of the home and garden in a relationship to the street or common area. The placement of walks and the driveway, the division of front, back, and side yards, ... yards include walks, driveways, lawns, trees and shrubbery, foundation plantings, and a variety of specialized areas, including garden paths, ...". Planned setbacks remove private/public errors and chance to plant a tree, yard lot, etc.</p>	12-13
<p>Private yards and privacy – plantings per site privacy between homes. "Vegetation" – trees, shrubs, and other plantings often contribute to the historic feeling and significance of historic neighborhoods. Cautionous effort to create an attractive neighborhood (a factor by itself) in street level or private shade-instrumental), pre-existing trees may have been noticed. "By the 1930s neighborhood planning was considered important for maintaining long-term and estate value."</p>	41
<p>Guides Suburbs and Country Club Suburbs: J.C. Nichols et al sought ways to enhance the "year-like setting" of their neighborhoods and maintain the city suburb appearance, including community parks and nearby country clubs.</p>	102-109
<p>Evaluation: Critics A and C include community planning and design, activities, and landscape architectural. Includes patterns of yard design, open lawn, fence or fences, yards and outdoor activities, gardens, specimen plants, foundation plantings. Criticism C – derivative characteristics of design in planning, architecture, and landscape can include landscape architecture (unified program of street level plantings, landscape design of yards, conservation of natural features, entrance ways or roads etc., scenic views).</p>	181
<p>Historic integrity: Consider original design and evolution of the plan and the cumulative effect of multiple changes and alterations. Applying the qualities of integrity: location, design, setting (visual character created through particular settings of landscaped streets, private yards, sometimes public parks), materials (including vegetation planted in lawn, shrubs, trees, and gardens. "Original form materials may enhance the integrity, but their loss does not necessarily detract it. Vegetation similar to historic species, style, tree and trunk effect will generally enhance integrity of setting although integrity of materials may be lost (trumpets added).", virtually nothing includes planting and maintenance of vegetation. Treating the landscape cumulative effect of the other elements, and associations, the "direct link" between the suburb and important events that shaped it, including continued residential use and community tradition (such as landscaping).</p>	182-185
	(continued next page)

2.0 Historic Context

In addition to the national guidance on identification and evaluation addressed in PFTT's foregoing comments, the SHPO's Specifications provide, among other requirements, that cultural resource reports for standing structures "shall include" a summary of existing applicable historic contexts, recommendations by previous investigators concerning National Register eligibility and actual nominations prepared, and a definition of the standards used to evaluate integrity.²⁴

As explained below, the draft CRE does not address these KHC requirements. Omissions include most of the salient historic contexts to guide the evaluation of significance for the specific resources within the narrow APE, and the full APE. While the *Louisville Survey East Report* excerpts provides valuable information on the development of this area, it was not developed specifically as a historic context for the broad area of what is now near-east Louisville. In the late 1970s, when it was researched and prepared, the concept of cultural landscapes, including designed and vernacular landscapes, was not formalized, for example.

Some important historic context reports are included in the "References Cited" section of the report, i.e., *They Came, They Saw, They Bought: The Twentieth Century Housing Boom in Louisville, Kentucky, 1920-1970* (Brother, Ryall, and Stettman), *The New Deal Builds: A Historic Context of the New Deal in East Kentucky, 1933-1943* (Kennedy and Johnson), and *Home in a Box: Prefabricated Housing in the Jackson Purchase Cultural Landscape Region, 1900-1960* (Johnson and Kennedy). However, it is not clear how these architectural and public works contexts were specifically applied in the draft CRE. As noted in our comments below on Section 3.9 (Seneca Village No. 2), for example, *Home in a Box* describes the primary architectural styles of Garrison prefabricated homes (p. 39). However, the draft CRE does not distinguish the architectural styles within this neighborhood, which features predominantly Garrison homes according to the report author. The *New Deal Builds* context identifies airports as part of the New Deal Works Progress Administration (later Work Projects Administration) (WPA) and Public Works Administration (PWA) work in Kentucky (p. 116). Bowman Field's first concrete runways were installed as a WPA and PWA project; however, the draft CRE fails to evaluate the historic significance of these public works.

Historic contexts and other documents relevant to the public and private recreational areas affected by the Bowman Field Safety Programs (Seneca Park and Big Spring Country Club) are not addressed. The 1979 National Register nomination (although dated) for Louisville's Olmsted-designed Ingo Park, Shawnee Park, Cherokee Park, and parkways was apparently not reviewed, nor were any other relevant Olmsted contexts or nominations. Sometime in the mid-2000s, the Kentucky Transportation Cabinet sponsored a cultural resource evaluation, that included River Road Country Club (a private club and golf course, first established circa 1895), during the Section 106 consultation for the widening of River Road from Frankfort Avenue to Zorn Avenue. This report may be useful for comparison to the evaluation of Big Spring Country Club. Other relevant and instructive evaluation reports may be available.

²⁴ SHPO's Specifications, pp. 32, 37.

Table 1. Key Concepts for Suburban and Associated Landscape Historic Context Development and Evaluation (cont.)

NPS Bulletin 16: <i>Designated Historic Landscapes</i> Bulletin includes small residential grounds, public spaces, subdivisions, golf courses, parkways, drives, trails, etc. "Landscape" features are not just vegetation but include topography, grading, circulation system, natural features, benches, trees, planters, landscape dividers, etc.	23
Evaluating integrity: "Vegetation, another important feature of most landscapes, is not stable, and can either result, as it has in the past, in the loss of historic landscape values, or it can be maintained as a historic landscape. The condition will also be a significant risk in evaluating historic landscapes. It is not possible to evaluate historic landscapes through maintenance, replanting, or other intervention." (Implications added)	74
NPS Preservation Brief 16: <i>Preserving Cultural Landscapes</i> Historic designed landscape: "A landscape that was consciously designed or laid out by a landscape architect, master gardener, or other professional according to design principles, or an amateur gardener working in a recognized style or tradition. The landscape may be associated with a significant person, event, or effort in landscape architecture, or it may be a landscape that developed over time and is associated with a significant person, event, or effort in landscape architecture. Historic values play a significant role in designed landscapes. Examples include parks, campuses, and estates."	7
Vernacular landscape: "A landscape that evolved through use by the people whose activities or occupancy shaped the landscape. Through social or cultural attitudes of an individual, family, or a community, the landscape reflects the physical, biological, and cultural character of the everyday life. Function plays a significant role in vernacular landscapes." (Implications added)	7

2.1 Suburban Development in the Vicinity of Bowman Field

The two-page narrative presented as an "historic context" in Section 2.1 of the draft CRE is cut and paste verbatim from portions of the 110 or so pages that comprise Chapters 1 through IV ("A History of Eastern Louisville") of the 1979-1980 *Louisville Survey East Report*.²¹ I have extensively used this report going on almost two decades with respect to Clifton, a horsecar-era to post WWII-era suburb of Louisville that is now a garden suburb. The *Louisville Survey East Report* reflects a prodigious amount of historical research into a broad area of what is now near-east Louisville. However, it is important to understand the scope of the report and its limitations for use as an "historic context" in this Section 106 review. In general, the purpose of the report was to identify neighborhoods featuring "conservable" housing stock (mostly historic) that might be candidates for the Community Development Block Grant (CDBG) program that had been newly rolled out by the Federal Housing and Urban Development agency in the mid-1970s. Carl Kramer's history describes land use, transportation, politics, and sewage infrastructure at a level of detail that greatly informs our current understanding of the area within the narrow and full APNs. This history should be used to re-organize Section 2.0 into historic contexts that reflect the discrete property types and chronological periods relevant to this cultural resource evaluation. Other relevant historic contexts (listed at pp. 11-12 above) should be synthesized as well.

However, the historical narrative of the *Louisville Survey East Report* is a product of its time. It fails to address cultural landscapes and ethnic heritage (i.e., the Jewish community in the Bowman Field environs). The excerpts that are presented require clarification, and additional relevant information needs to be included. The remainder of our comments on Section 2.0 begin with the omission of an historic landscape context and ends with comments specific to the portions of Mr. Kramer's work that was excerpted in the draft CRE.

The Landscape Component of the Historic Contexts Applicable to all of the Suburban Environments of Bowman Field Must be Addressed

The CRE must address the framework, methodology, and analysis of the landscape component (designed, vernacular) of the neighborhood evaluations and those of Seneca Park and Big Springs Country Club. PETT's comments above on Sections 1.2 and 1.3 summarize the key national, state, and local historic contexts and identification and evaluation guidelines for a landscape analysis that should have been used in this Section 106 document.

Our own research indicates that the designed and vernacular landscape component of local suburban residential development (marking of homes, establishment of private yards), including vegetation such as trees, appears to have mirrored the trends underway in the U.S. over comparable chronological periods of development, from the streetcar suburbs to the freeway suburbs. The draft CRE fails to reflect that builders and developers in the Bowman Field environs realized the value of attractive, landscaped neighborhoods and lawns. Further, they consciously marketed and designed their subdivisions and demonstration homes to reflect the

²¹October 1979, *Louisville Survey East Report*, City of Louisville Community Development Cabinet. There are several acknowledged contributors to this report, including Carl U. Kramer the project historian.

current aesthetic in landscape design. "Designed landscapes," as per the National Park Service guidance, may not be present in high-style. Nevertheless, some original intent of design, as well as vernacular landscapes, is abundantly evident, represented by the planting of trees, foundation shrubs, and other aesthetically pleasing shrubs and flowers. A walk-through of these neighborhoods shows this still to be the case.

The *Louisville Survey East Report*, in a portion not excerpted in the draft CRE, notes that early 20th century plans of development in upper middle class subdivisions by Louisvillians, such as C.C. Heatt and William F. Randolph, were "calculated to respect the natural contours of the land . . . [reflecting] a growing belief among professional developers across the United States that the use of a subdivision design formula which employed large lots, served natural grove and topography, fostered good architecture, and removed through traffic from residential streets – even at the cost of lowering density – was more profitable in the long run than a repetitive checkerboard pattern, especially when appealing to the more affluent home buyers."²²



September 15, 1926 "Nested Among the Trees" advertisement in the *Louisville Courier-Journal*. Castleton is to the west of the study area in the Tyler Park neighborhood.

Directing You to Something New
WELLINGTON
HEATT BROS.
221 Fifth St.
Oct. 27, 1926

C.C. Heatt's "Wellington advertisement as a "Garden Spot" and a "modern home community." *Louisville Courier-Journal*, Sept. 27, 1926. Wellington is in the full APE, south of Taylorsville Rd.

While Louisville developers marketed the attractive vegetation settings of their upscale neighborhoods, home consumers were also consciously marketed. For example, in spring 1926

²²*Louisville Survey East Report*, p. 99.

during the period that the streetcar suburbs along Taylorville Road and the J-town interurban line were planned and slowly began to develop, the Better Homes Bureau, "personally endorsed by President Coolidge," sponsored a "Better Homes Exposition" at the Jefferson County Armory (now the Louisville Gardens). Promising the "biggest and handsomest" and "most complete and comprehensive" home expo ever attempted in Louisville, the event featured numerous booths of local vendors for all aspects of home living, including [s]hrubbery and attractive green things for the lawn or the garden.²⁷ The highest attendance, on Thursday, March 4, 1926, reached 111,574 persons.²⁸ Following the success of the Home Expo, nurseries, among other home vendors, continued to market the value of their greenery to homeowners, as the following advertisements from the *Louisville Courier-Journal* illustrate:



Come to Garden Headquarters!

The Home of the Famous Blue Ribbon Book.

Ready to do the country and you? The best place for you? Then visit Garden Headquarters. We have the best selection of books and seed catalogues in the country. Our prices are low, and our service is first class. We have the best selection of books and seed catalogues in the country. Our prices are low, and our service is first class.

It's not hard to grow Blue Ribbon seeds in your garden. We have the best selection of seeds in the country. Our prices are low, and our service is first class.

Write today and you will be proud to be a member of the Garden Headquarters.

Get Our 1984-85 Blue Ribbon Book Today!

For Free Information, Write to: Garden Headquarters, 1000 N. 1st St., Suite 100, Phoenix, AZ 85004.

The Home Grounds Beautiful
Stately Evergreens, Trees,
Shrubs, Hardy Flowers

Spring and with it planting time, is at your feet.
Make your plans now! Do not wait till the end of
the season. All indications point to a very hard sea-
son for the Nursery Man. Planning ahead is neces-
sary to grow low and avoid disappointment later on.

Be in touch with any one of the local firms who will
be glad to assist you in any way they can in solving
your planting problems.

LEWIS NURSERY CO.,
Nashua, N.H.
Pond St., Nashua 108

BILL BAKER,
Nashua and at
Salem, N.H.
Nashua Nurseries 64-65

JOHN WINTERBORN,
Nashua, N.H.
Rte. 1, Nashua 90, N.Y.
New South St.

THE BRIDGE NURSERY,
Nashua, N.H.
Nashua - Appleton Hts.

NASHUA RETAIL NURSERIES ASSOCIATION
"Let's Not Be Home With My Plants!"

Advertisement, Apr. 4, 1926, touting "Blue Ribbon seeds [Kentucky bluegrass] - flowering shrubs, trees and perennials" and "Wizard Brand Sheep Manure"

Advertisement, Mar. 7, 1926, "It's Not a Home 'Till It's Planted"

¹⁰"Horse Exhibit is Open Tonight," *Louisville Courier-Journal*, Mar. 1, 1926. Landscape booths included Louisville Nurseries (in St. Matthews) and Wood-Stubbs & Co. of 219-221 E. Jefferson St.

이

By the early-to-mid 1930s, although the interurban had ceased operating, garden suburbs continued to flourish, facilitated by automobile access. Home and garden improvements were showcased in local venues, such as the 1931 National Home Show in Louisville. The promotion of Serreca Gardens is illustrative:

Saraca Gaudens, NY

City History



Beautiful
**SENECA
GARDENS**

A beautiful leaf... one of the most beautiful homes in the country... with a view of the lake and mountains.

DRIVE OUT TODAY

and see these charming building sites

- DELL ROAD
- VALLETTA ROAD
- GLAISTONE AVE.

Attention: In each case there is a large lot, a small lot, and a medium lot. The price of the lot is \$10,000.00. The price of the house is \$10,000.00. The price of the lot is \$10,000.00. The price of the house is \$10,000.00.





Ask Dr. Fisher
 AT PRIME OFFICE ON VALLETTA RD.
 BROAD AVENUE, NEW YORK
 IDENTITY & COLUMBIA TRUST CO.
 Agent



University of C

November 1997

Page 1

"Drive to" Seneca Gardens, a "garden spot" only a "stone's throw" from Seneca Park. 1930s advertisement found in "A History of the City of Seneca Gardens," Dec. 1991.

20

This article, from the Aug. 1, 1937 edition of the *Louisville Courier-Journal*, lauded homebuyer investment in the "well-planned and well-kept" neighborhood featuring "beautified" plots.

43 Home Sites Are Sold In Seneca Gardens

17 Residences Are Constructed

An indication of the interest in new homes today in the rapid development of Seneca Gardens, Louisville, is shown by the fact that 43 home sites have been sold in this new subdivision. Seventeen new homes have been completed there and four are now under construction in the subdivision.

Seneca Gardens is a well-planned and well-kept neighborhood. These are important factors in making it a desirable place to live. It is a good thing to remember that the addition of a little gray to any two colors makes three. Two colors in large lots on both sloping and

Building Loan Men Pay Out \$590,000,000

People with money to invest in building and loan associations received about \$590,000,000 the first six months this year from companies that provided programs, plans and construction of new homes. The figures were reported by the United States Building and Loan League.

Gray, Prusner, Harman, and Harman, Inc., is a good thing to remember that the addition of a little gray to any two colors makes three. Two colors in large lots on both sloping and

The Louisville Home Show exhibitors of 1931 were equally creative in the materials used to model attractive homes and their landscapes.



Innovative use of cake for a model house and landscaping. 1931 Louisville Home Show. Item U.L.P.A. P. 62360.1 in the R.G. Potter Collection, Univ. of Louisville Photographic Archives.

The desirability of attractive, landscaped residential settings kept apace in the 1950s and 1960s. Foster Gunnison, for example, brought a military-like discipline (perhaps based on his former service to the U.S. Navy) to mass production, but a consummate salesman's acumen for marketing to the key influencer in the home purchase decision—women. Gunnison Homes, the "World's Foremost Manufacturer of Beautiful Homes," were advertised as "Man's Greatest Gift to Women."²⁰ Gunnison Home advertisements and renderings were always shown with lush, landscaped yards, even the "Champion" homes, the most affordable of the line rolled out in fall 1949 (which appear to be of the type in Seneca Village No. 2). A Champion Home advertisement in a January 1950 issue of the *Terre Haute, Indiana*, newspaper identified the "Landscaped and Soddied" lawn as one of the "Outstanding Features" of the model houses on display by the local Gunnison dealer. Pleasant Ridge in Charlestown, Indiana, across the river from Louisville, is a largely intact Gunnison subdivision (built in 1941 for Indiana Army Ammunition workers) still featuring the original winding roads and cul-de-sacs and other landscape elements, including some of the original street trees.



DIV landscaping at a Champion Ranch House left; Champion landscape idem house right. Both ca. 1951-52. From the Keith Stayton collection.

²⁰ Advertisement in the "Homemaker's Page" of the *Louisville Courier-Journal*, Mar. 21, 1949.

Garrison Home dealers worked from highly scripted sales materials and marketing approaches from headquarters, based on "statistics" that included the benefit of landscaping:

Garrison Newsletter, "The Panel," July-Aug. 1950, Vol. 1, No. 2,
p. 4 (emphasis added)

Best Techniques for Showing Demonstration Houses

- 80% of operating builders quoted new one demonstration houses—new high
- 64% first furnished demonstration houses—like a new high
- The majority drew growth by inside signs and newspaper ads
- 63% listed Sunday afternoon, 20% also after 5:00pm
- Average number of sales persons on hand—27 persons
- 18% of all visitors to relatively advanced projects, of which about half use interior placards, and other half depends on salesman's comments
- 13% of all visitors to demonstration houses, most of them fully
- 18% heard not interested in visitors, other their own or manufacturer's
- 63% do not change to show work in progress
- 18% of visitors browse through the house, 44% value visitors, and the majority do not
- 18% of visitors
- Women predominantly are most interested in 11 kitchens, 20 bedrooms, 21 living rooms
- Men predominantly are most interested in construction features
- The average demonstration house is kept open slightly more than two weeks
- Estimated average weekly attendance—1,835
- Estimated number of seriously interested prospects—11%

June, 1950—NATIONAL REAL ESTATE AND FINANCIAL JOURNAL

The two ads on the following two pages appeared in the Sept. 18, 1955 special "Home and Garden" section of the Louisville Courier-Journal. The marketing of amenities in these two early freeway suburbs (Highgate Springs and Wedgewood) by two different builder-developers, is remarkably similar (including "Landscaping" as a feature). Both of these subdivisions are located south of Seneca Village No. 2. Note that the Highgate Springs ad on the following page is a development of Bryan S. McCoy, Jr., the developer of McCoy Manor (planned in 1949), located in the narrow APE of Runway 6.

McCoy REALTY

does it again...

A New Subdivision—Section 3, Highgate Springs
Office: 1000 W. Kentucky Blvd.

Sewers, All Schools, Churches,
Shopping Centers, Buses, Sidewalks,
Paved Streets, Fireplugs, Street Lights

Call Day or Night: Sam Perkins CE 6139-L, C. Hampton CE 2643-Bryan McCoy FR 9613
McCoy Realty Company, Inc. 4211

Elmer L. Harrington, Builder
Priced from \$12,500
1500 sq. ft. to 2000 sq. ft.
Single 2400' and 2600' sq. ft.

FEATURES

- 1 1/2 baths
- 1 1/2 car garage
- Hardwood floors
- Full kitchen with
- Full living room
- Full dining room
- Full bathroom
- Full basement
- Full attic
- Full yard
- Full landscaping

Byron S. McCoy, Jr., Builder
Priced from \$12,500
1500 sq. ft. to 2000 sq. ft.
Single 2400' and 2600' sq. ft.

FEATURES

- 1 1/2 baths
- 1 1/2 car garage
- Hardwood floors
- Full kitchen with
- Full living room
- Full dining room
- Full bathroom
- Full basement
- Full attic
- Full yard
- Full landscaping

Wedgwood Subdivision

Officer Bowman's and Future Expressions

Located at Taylorville Road and Westmain Expressway in another beautiful subdivision developed by Highbaugh and Highbaugh. Homes with adaptable designs where you will enjoy more living comfort in every room. Dependable city gas, lights, water and sewer, concrete streets and sidewalks. Completely landscaped, new bus line, shopping centers, schools and churches.

\$1000 DOWN

ON CONVENTIONAL LOANS

HYA LOANS ALSO AVAILABLE

2-Bedroom Homes

- Fireplace
- Walnut Paneling
- Unfinished Upstairs
- Large Kitchen
- Full Basement

- Forced Air Furnace
- Sliding Door Closets
- Dining Area
- Youngstown Kitchen
- City Gas, Lights and Water
- Sewers

(MSRP \$15,500) **\$15,500**

(MSRP \$14,975) **\$14,975**

Finest build quality (\$15,500 MSRP)

Finest build quality (\$14,975 MSRP)

Finest and clearest view approximately \$100.00. Reserve and closing cost approximately \$117.00. Visit us at the State Fair in the M&M Bldg.

HIGHBAUGH & HIGHBAUGH

MAIN OFFICE
509 WEST MARKET
JA 8711

SALES OFFICE
3010 WEDGWOOD WAY
CH 9544

Landscaping

INCREASES
YOUR
PROPERTY
VALUE

You Save 15%

Buy Cash and Carry

Special Consideration to Builders

Korfhage

Specialty Nurseries & Landscaping

1111 and 1021 are all much of the West Frontal

**DIY landscape promotion,
Louisville Courier-Journal,
Sept. 18, 1955**

While Louisville builders and developers thus had some landscape intent and vision, even for early freeway suburbs such as Seneca Village No. 2, their "completely landscaped" home packages did not preclude individual homeowner elaborations. "Do-it-yourself" promotions abounded through advertising and volunteer groups, such as neighborhood homemakers clubs. The Strathmore Homemakers Club meeting of Oct. 9, 1950, for example, featured the club's "landscape leader," who gave a "landscape lesson" and took orders for magnolia and pink dogwood trees.³⁰

During the 1960s, beautification of the environment was elevated to national status through President Lyndon B. Johnson's and Lady Bird Johnson's interest. The Presidential Task Force on Natural Beauty formally convened May 24-25, 1965 in Washington, DC.³¹ Over 800 individuals and organizations from throughout the United States participated (including Grady Clay of Louisville). First Lady Mrs. Johnson addressed the group in an opening session and stayed throughout the two days, and the president presided over the closing session in the East Room of the White House. Groups tackled highways, parks, Army Corps projects, and other intrusive infrastructure, while the "New Suburbia" group recommended enhancements to the natural features of suburbia in America. "Beautification" trends of the 1960s definitively included early freeway-era suburbs.

In sum, the vegetative components of these eras of suburban developments still contribute to their historic significance. Retaining now to the excerpts of Louisville Survey East Report that were selected for inclusion in Section 2.0 of the draft CRE, the excerpted text requires explanation and expansion, as follows.

Eighteenth and Nineteenth Century Development Should be Addressed

The excerpted history in Section 2.0 includes little reference to land use by Euro-Americans in this area prior to the 20th century. The land that now encompasses Kingsley, Strathmore, and the suburbs west of Bowman Field (e.g., Seneca Vista, Seneca Gardens, Seneca Manor, McCoy's Manor) were part of John and Lucy Speed's Farmington estate, a Gentleman Farm. The Speeds subsequently sold this area in the 1825 to 1846 timeframe to their estate

³⁰Homemaker Clubs - Strathmore." The Jeffersonian, Jeffersonian (Jefferson County) Kentucky, Nov. 24, 1950, p. 3.

³¹The Task Force recommendations and presidential interest were instrumental in the enactment of the National Historic Preservation Act of 1966. Barris, Leslie E. 2010. Section 106 of the National Historic Preservation Act: Back to Basics - Part 2: Technical Report, pp. 6-8.

gardener Jacob (and his spouse Henrietta) Wetstein (of Swiss origin).⁴² The Westein's house at 2501 Deham Road still exists and is in the full APE. By 1913, much of the Westein tract had been subdivided in conveyances, although Fig. 2.2 in the draft CRE (p. 16) shows remaining tracts north of Taylorsville Rd. in ownership of Ed Wetstein and the Chas. Wetstein estate (sons of Jacob and Henrietta).

The Importance of the Streetcar in Spurring Suburban Development Needs Emphasis

The excerpted history could be read as emphasizing the development of early automotive suburbs around Taylorsville Road, thus minimizing the early and "potent impact" on county-wide suburban land development associated with the Beargrass Railway Company's construction of six electric trolley lines (the interurban) beginning in 1904 and operating until 1916.⁴³ Addressing the impact of the interurban with respect to suburban residential development would help correct the misimpression of some members of the general public that Bowman Field preceded all surrounding residential development.

The Jeffersonian Division ("J-town line") of the interurban served as the impetus for conversion of farms to suburban development in the present day environs of Bowman Field. A 30-ft. strip of land along Taylorsville Road was deeded by Special Commissioner W.J. Sermonia to the Louisville & Eastern Railroad Co. in June 1903,⁴⁴ which became the J-town line. Regular runs were underway by 1904, increasing property values along the entire line from 50% to 200%.⁴⁵

By 1908-09, land promotion along Taylorsville Road was in high gear, resulting in the planting of characteristically linear streetcar suburbs.⁴⁶ Kaelins Subdivision, at the intersection of Taylorsville and Bardonia Roads was planted in September 1906; Woodbourne in December 1908; and Bon Air in December 1909 (each plat depicting proximity to the "Beargrass Railroad," "Louisville Railway," or "electric car line" on Taylorsville Rd.).⁴⁷

Subsequent streetcar suburban developments included Strathmoor (1920); Broadmeade (1922); Briscoe Subdivision 1 and Addition (1922); Strathmoor Addition (1923); Kingsley (1925), platted as an "Extension of Strathmoor"; Beaumont (1925); Broadmeade Sec. 4 (1926); Hathaway (1926); Airview (1928); Seneca Village (1928); and Broadmeade Sec. 5 (1931).

In addition to the J-town line, the Okolona Division and Prospect Division resulted in other streetcar garden suburb developments that exist today and that serve as appropriate comparison when evaluating the qualities of integrity: the National-Register listed Audubon

⁴² "A History of the City of Seneca Gardens, Kentucky," December 1991. Acknowledgments of contributions provided by George Street on p. 2.

⁴³ The "potent impact" was described in "Rapid Transit Commuters County Towns Near Louisville Into Charming Suburbs," *Louisville Courier-Journal*, Jan. 2, 1909.

⁴⁴ Jefferson County Deed Book 932, 43.

⁴⁵ "Rapid Transit Commuters County Towns," Jan. 2, 1909.

⁴⁶ *Historic Residential Suburbs* notes the continuous corridor layout of streetcar suburbs, p. 20, as opposed to those of earlier railroad suburbs.

⁴⁷ FTT has prepared a table that identifies all suburban development around Bowman Field by historically planned names and includes plat book references, developers, and line information, available upon request.

Park along Preston Highway and the James T. Taylor Subdivision along Upper River Road (National Register nomination pending 2015), respectively. It should be noted that the James T. Taylor Subdivision is a streetcar-era garden suburb planned and developed by an African American developer (James T. Taylor) for African Americans exclusively (he deeded restricted "Caucasians" from the neighborhood). The district-wide interurban tree plantings (Mr. Taylor's, homeowners') are an individual contributing element to the historic significance of the neighborhood from 1920-1965.⁴⁸

The Relationship of Seneca Park and Bowman Field Should be Clarified

The excerpted text from the *Louisville Survey East Report* states that the Von Zedwitz⁴⁹ land was acquired to establish Bowman Field, which had "the effect of adding a large new section of institutional open space to the city-landscape" and that this "excess land was developed as Seneca Park" (draft CRE, p. 17). This excerpt infers that the park was an afterthought or excess to the airport property, when the two uses developed almost contemporaneously. The text should be clarified in this regard. Following conveyance of the Von Zedwitz tract to the Board of Park Commissioners (BPC), the group accepted the land into the park system and named it as "Seneca Park" at a regular meeting held on Aug. 27, 1928.⁵⁰ No doubt the success of the adjacent and contiguous Cherokee Park undoubtedly promoted the plans for another park, which was the last public park designed by the Olmsted firm in Louisville (1928). Further comments regarding Bowman Field and Seneca Park, and the omission of these resource in the draft CRE, are addressed in FTT's comments on Section 3.0 below.

The Historic Context Needs to Include the Post-WWII Early "Freeway Suburbs"

Two of the residential areas within the narrow APE—Seneca Village and Seneca Village No. 2 (located south of Taylorsville Road and Runway 33)—were developed as early freeway suburbs, during a real estate boom spurred by housing needs for war veterans and their families.⁵¹ By the time that Seneca Village No. 2 (and No. 3, to the south of No. 2, divided by the highway) were platted in 1951 and 1955, respectively, the highway was identified in the plats as the "Inner Belt Highway" and "Henry Waterson Expressway," respectively. Construction on the Inner Belt Highway (today, the Watterson I-264) began in 1949.⁵²

A basic research effort to inform the history presented in the draft CRE would have revealed the additional importance of city sewer service in the development of the post-World

⁴⁸ Ball, Robert W., *James T. Taylor Subdivision*. Nominations to the National Register of Historic Places, 2014.

⁴⁹ The *Louisville Survey East Report* refers to the "Von Zedwitz" lands, and the draft CRE repeats this spelling. The correct spelling of the family name is "Von Zedwitz," see, *inter alia*, *Von Zedwitz v. Sullivan, Allen Property Co., Inc.*, 25 F.2d 525 (DC App. 1928) (failed attempt to reclaim the confiscated land) and *Walden Conrad Von Zedwitz v. Louisville Board of Park Commissioners, Jefferson County Deed Book 1347, 95* (recorded June 14, 1928). The family name is spelled correctly in Kramer's "The Strange Genealogy of Louisville's Bowman Field and Seneca Park," 1986.

⁵⁰ "Seneca Park is Name Selected for Von Zedwitz Property Here," *Louisville Courier-Journal*, Aug. 8, 1928.

⁵¹ "House Hunters Hunt West Suburban Parter in '52 Than Any Previous Year - 67 Per Cent Built Outside of City" and "Tugboat Roads are Certain to Cause Great Changes in Real-Estate Values," by Grady Clay, *Real Estate Editor, Louisville Courier-Journal*, Jan. 18, 1953.

⁵² *Encyclopedia of Louisville*, p. 926.

War II early freeway suburbs of this area, such as Seneca Village and Seneca Village No. 2. The Taylorsville Road-Hikes Lane area was reported as second highest in suburban growth in the early-to-mid 1950s, with homes selling in the range of \$14,000-\$18,000.⁴³ "Drainage" features were prominently addressed in advertising, such as this ad for "Lynview" that ran in the *Louisville Courier-Journal's* Sunday morning special edition on homes and gardens on September 18, 1955: "No Sewerage Problems Here - Both Sanitary and Storm Sewers are in."

The draft CRE correctly notes that the architectural styles and materials of construction of these neighborhoods reflect the more modest socioeconomic conditions of the initial inhabitants, including the prevalence in Seneca Village No. 2 of pre-fabricated houses by Gunnison Housing Corporation of New Albany, Indiana. Foster Gunnison, who aspired to "organize the General Motors of the homebuilding field," pioneered the mass production and use of waterproof plywood, stressed-skin panels for walls, floors, ceilings, and roofs, a technology first developed by the U.S. Forest Products Laboratory of the U.S. Department of Agriculture.⁴⁴

The Historic Context of Jewish Settlement and Community Development Needs to be Evaluated

There are resources within the narrow and full APEs that require evaluation under Criterion A and C for associations with settlement of Jewish families and the construction of related faith and community institutions. Two written resources have primarily informed our understanding of the Jewish community in the environs of Bowman Field.⁴⁵ *Adash Louisville, The Story of a Jewish Community and Jewish Louisville, Portrait of a Community*.⁴⁶

Ely's work describes the movement of Jewish families from downtown Louisville to the Highlands/Taylorsville Road area from the 1910 to the 1970s, which was the impetus for construction of the current Jewish religious and community institutions in the Bowman Field area. While some neighborhoods had deed restrictions that prohibited sales to Jews, others did not, on a block-by-block basis. According to Ely, Castleberry Road and Village Drive were

⁴³ All Records Booked for Home Building in Louisville Area," by Michael J. O'Dea, President, Kentucky Real Estate Association, *Louisville Courier-Journal*, Sept. 18, 1955.

⁴⁴ Gunnison Homes, Inc. United States Steel Corporation Subsidiary, 1949. "A Story in Pictures," New Albany, Indiana. "A Brief History of Prefabrication," reprinted from *The Architectural Forum*, Time, Inc. 1943, pp. 10, 64.

The six articles in the "Brief History" originally appeared in the magazine's issues of Dec. 1942 and January, February, March, April, and June 1943. PFTT is fortunate to have access to these materials, and many of Gunnison's own publications from the 1950s, through a loan from Mr. Keith Stuyton, who purchased the collection at an estate sale of a Gunnison salesman who had lived in Jeffersonville, Indiana.

⁴⁵ Although there was a boom in Gunnison homes in Louisville and throughout the U.S. in the early 1950s, the first Gunnison homes were erected much earlier, including New Albany's first Gunnison, for Harry Barth on North State Street, in September 1937. "Gunnison Home Under Way Here," *The New Albany (Indiana) Ledger and Tribune*, Sept. 17, 1937, p. 7. The first Gunnison test models in Louisville were erected in July 1936 on Larchmont Avenue (1407, 1409, 1411, 1413, 1415, 1417, and 1421). Louisville Metro Architect and Records Center, "Larchmont" file (1407, 1409, 1411, 1413, 1415, 1417, and 1421). Louisville Metro Architect and Records Center, "Larchmont" file.

⁴⁶ PFTT appreciates the generosity of time and information provided by Alan Engel, the former director of the Jewish Community Center, to educate us and provide resources for further research.

⁴⁷ *Adash Louisville, The Story of a Jewish Community*. H. Landau and Associates. Louisville, KY. Ely, Carol. 2003. *Jewish Louisville, Portrait of a Community*. Jewish Community Federation of Louisville's Foundation. Louisville, KY.

almost completely Jewish in the 1950s and 1960s, but Sulgrave Road, one block over, was restricted.⁴⁸ Cherokee Gardens was restricted, but Meadows Road was not. One former resident recalled that "We grew up in the Bon Air neighborhood [south of Bowman Field], a neighborhood that the Catholic kids called 'O Little Town of Jerusalem' because of the majority of Jewish families."⁴⁹

Chapter 5 of *Adash Louisville* provides a history of the Congregation Knesseth Israel, whose synagogue at 2531 Taylorsville Road is located within the narrow APE and is wholly unevaluated in the draft CRE. This congregation, which is affiliated with the United Synagogue of Conservative Judaism, dates to 1926 when the predominantly Russian and Lithuanian B'nai Jacob and Bath Hamedrash Hagodol congregations in downtown Louisville merged because of their discomfort with "local deviations" from traditional Judaism. Construction of 1-65 demolished their initial synagogue and their second building, at Preston and Fehr, was sold to the Volunteers of America in the 1990s.⁵⁰ By the 1950s, the congregation's third synagogue, at Floyd and Jacob Streets, was distant to the member families who had moved to the confluence of Bardown Road and Taylorsville Road, prompting a 1956 vote to move to the Bowman Field area.

A 4.6-acre tract, located on Taylorsville Road and situated within a 2-mile radius of % of the Knesseth Israel members, was purchased for \$67,000.00.⁵¹ Thomas J. Nolan & Sons designed the educational center, and a groundbreaking ceremony was held on June 9, 1963 for the construction by Pfaff Construction Company. The congregation used the educational center first while they were fundraising for the sanctuary. Ultimately, groundbreaking for the sanctuary was held in June 1969 and services started March 27, 1971. Joseph & Joseph Architects, who "built much of 20th century Jewish Louisville,"⁵² designed the sanctuary and 1. Bath & Sons constructed the building. The current sanctuary is known as "The One with the Windows" because of the twelve distinctive inverted triangular windows (and associated interior artwork) that line the front façade, created by artist and member Bill Fischer.⁵³

A history of congregation Anshei Stad is found in Chapter 4 of *Adash Louisville*. Construction of 1-65 also displaced this congregation and its synagogue in downtown Louisville. Aware of the proposed highway construction in the late 1950s, the leaders considered that their membership was moving to the "east end" of Louisville and that the Young Men's Hebrew Association (YMHA) had purchased 16 acres on Duchman's Lane across from Bowman Field.⁵⁴

⁴⁸ *Jewish Louisville*, p. 151.

⁴⁹ *Ibid.*, p. 152. A current, long-term resident of Drayton Drive recalls the neighborhoods as having "religious enclaves," with Kingsley predominantly Catholic, and Valenta and Meadows Roads predominantly Jewish, a left an impression on the resident that the Jewish families had no television in their house. Personal interview with L. Barnes, July 2, 2012.

⁵⁰ *Adash Louisville*, p. 57.

⁵¹ *Ibid.*, p. 61. Ely notes that Seneca Gardens tried to block construction of the synagogue, but lost a lawsuit filed by the congregation, p. 157. See also "Suit seeks reopening of site for Synagogue Knesseth Israel, city can't block synagogue," *Louisville Courier-Journal*, Mar. 7, 1969.

⁵² *Jewish Louisville*, p. 103.

⁵³ *www.knessethisrael.com/the-one-with-the-windows.html*.

⁵⁴ *Adash Louisville*, p. 52.

In 1955, the congregation purchased 17.5 acres adjoining the YMHA property. The first phase of the synagogue construction opened in early 1958.³⁵

The current location of the Jewish Community Center (JCC) at 3600 Dutchman's Lane dates to the mid-1940s when the YMHA began fundraising for a new building to replace the one at Jacob Street and 2nd Street.³⁶ A membership survey determined that 57% of the approximately 8,000 Jewish residents of Louisville lived in the Highlands or Taylorsville Rd. area.³⁷ After a siting study that included land tracts now occupied by Mid-City Mall and Bellarmine University, the Association selected the Dutchman's Lane location, across from the Big Springs Country Club.³⁸ The JCC opened on Dutchman's Lane on Dec. 10-11, 1955.³⁹ In 1978, the City of Louisville gave land use approval to build Shalom Towers on the site of the former JCC ball fields, and the first residents began to occupy the building in September 1979.⁴⁰

3.0 Results of the Architectural Survey

PFTT provides section-by-section comments below. However, the omission of re-evaluation of the Bowman Field Historic District is addressed first.

Bowman Field Historic District

Every map depicting the undertaking in the draft CRE erroneously identifies the boundaries of the Bowman Field Historic District. In particular, the Administration Building (the Art Moderne terminal) is excluded in the maps. The drawings at the end of the National Register nomination depict the National-Register boundaries of the terminal, Curtiss Flying Service Hangar, and Army Air Corps Hangar and associated areas (approximately 15 acres) when the district was listed in 1983.⁴¹

The three buildings and immediate environs were listed under Criterion A (for association with transportation) and Criterion C for architecture, and the terminal was also listed under Criteria A and C for association with the WPA program and the work of Wischmeyer and Armistead. The CRE needs to evaluate Bowman Field in its entirety for historical significance and expanded boundaries. The nomination is almost 30 years old. Much more information is now available about Bowman Field and its unique role in civil and military aviation over the past 90 or so years.

Section 800.4(c)(1) of the ACHP's Section 106 regulations provide that "[t]he passage of time, changing perceptions of significance, or incomplete prior evaluations may require the agency official to reevaluate properties previously determined eligible"⁴² In addition, the

³⁵Ibid., p. 54.

³⁶Ibid., p. 54.

³⁷*Jewish Louisville*, p. 153.

³⁸Ibid., p. 159.

³⁹*Jewish Louisville*, p. 192.

⁴⁰*Jewish Louisville*, p. 194.

⁴¹The State Review Board minutes of its Sept. 22, 1988 meeting reflect that the LRAA objected to the listing of Bowman Field.

⁴²See also SHPO's Specifications, p. 28.

Kentucky Heritage Council's requirements for historic architectural assessment reports provide that "[e]xisting National Register properties shall be reevaluated."⁴³

With respect to the period of significance, the beginning year of the period of significance (1929) should be re-evaluated for an earlier date, possibly 1923, the year of incorporation of the Aero Club of Kentucky, the first operator. The author of the nomination selected the year 1929 based upon construction of the Curtiss Flying Service Hangar. However, there was enough air traffic that the City of Louisville adopted an ordinance on March 21, 1923 requiring planes and balloons to maintain a minimum altitude of 2,000 feet above ground level (excepting aerial photography), and establishing civil fines of \$10 to \$100 per offense.⁴⁴ During the winter of 1925, *Miss St. Praterburg*, one of Henry Ford's "tin goose" planes, departed from Dearborn, Michigan on its way to Florida to be put into air mail service. The all-metal plane veered off course due to snowstorms and hoped to land at Bowman Field, but the airport was "obscured due to smoke hovering over the city," although the plane was able to refuel there the following day.⁴⁵ Charles Lindbergh's brief stop at Bowman Field in the *Spirit of St. Louis* on August 8, 1927 was greeted by "some 10,000 spectators."⁴⁶ By 1933, the City of Louisville had adopted a master plan that included an airport component even though Bowman Field was located outside of the city limits.⁴⁷

The end date of the nomination's period of significance is 1937, when the terminal expansion was completed. We propose that the end year be advanced to 1965 (50 years from the current period). In doing so, the airfield's significance during World War II, the Korean War, and the Vietnam War would be recognized (including the conversion of WWII barracks into veterans and public housing in the late 1950s to early 1960s).

With respect to Criterion A, the 1988 nomination recognizes the expansion of the terminal in 1936 under the auspices of the New Deal WPA. However, construction of the

⁴³Ibid., p. 38.

⁴⁴*General Ordinances of the City of Louisville*, compiled by Wm. T. Hanson, Department Council, pp. 20-21. An amendment in 1921 required that planes register with the Board of Public Commissioners and prohibited advertising out of places. By 1954, the ordinance had been moved to the "Miscellaneous and Welfare" chapter of the Louisville Code of Ordinances (Sections 86.15 through 86.40), but maintained the minimum flying height restriction of 2,000 ft. and required aircraft registration with the Louisville and Jefferson County Air Board. Revisions adopted in 1961 required that fixed wing aircraft altitude be maintained no lower than 2,000 ft. and helicopters no lower than 1,000 ft. "Aircraft," Chapter 503, *The Coddified General Ordinances of Louisville*. This ordinance remained the same (except for a re-designation from Ch. 503 to Ch. 91 in 1960) through 1994. The 1994 version, Sec. 91.09 increased civil penalties for minimum height limits to \$25-\$100 and added up to 30 days imprisonment for violations. The ordinance was repealed sometime between 1995 and 2002.

⁴⁵"Lost 'Tin Goose' Falls in Effort to Reach Fleet," *Louisville Courier-Journal*, Dec. 30, 1925.

⁴⁶LeMay, Jason, SFC (R) John M. Tombridge, and CW4 (R) Harold Canon, "Kentucky's Flying Soldiers: A History of the Kentucky Army National Guard's Fixed Wing Aviation," p. 13.

⁴⁷*Legislation by governor John S. Eliot*, 1923-1925, 49th-51st General Assemblies, 1923-1925, <http://legislature.ky.gov/oldsite/legis/legis.htm>.

⁴⁸As Ordinance to adopt a plan for the location of airports as a part of the master plan for the physical development of Louisville, including areas outside its boundaries, approved Oct. 20, 1932, 1932 Supplement to the 1937 *Comprehensive Plan of the City of Louisville*, p. 256. Compiled by Glavin H. Cochran and L.L. Weber of the Department of Law.

airport's first concrete runways was also a WPA and PWA project,⁴⁸ which needs to be reflected in an updated evaluation. The original concrete runway configuration (depicted shortly after construction in Fig. 2.3, p. 18, of the draft CRE) is largely still intact, although parallel runways have been constructed. Further, the length of the original runways has been maintained as a conscious decision. The Jefferson County Air Board, predecessor to the I.R.A.A., noted in public testimony in 1967 that "[t]o lengthen the runways [at Bowman] would only open the airport to a larger category of aircraft, which should be accommodated at Standiford Field. It is believed that the runway length at Bowman "serves as a check to keep the size of the aircraft using the field commensurate with the surrounding residential neighborhood."⁴⁹

Bowman Field's historical significance under Criterion A should also be recognized for its associations with military readiness, preparedness, and response from the early-to-mid 20th century. (The 1983 nomination only touches upon a limited aspect of this theme, primarily the construction of the Army Air Corps Hangar in 1931 for the 32nd Observation Squadron, Organized Reserves.) Readily available research into Bowman Field's military past was conducted for the 2006 publication "Kentucky's Flying Soldiers: A History of the Kentucky Army National Guard's Fixed Wing Aviation." The history in this publication discusses the period from the Army's occupancy at Bowman Field starting in 1922 and the subsequent principal military tenant activities at the airfield, with an emphasis on the period through the Korean War. The loss of the Kentucky Air National Guard light aviation section and heavy maintenance section to Frankfurt's Carol City in 1960 is also reviewed.

The legacy of military use of Bowman Field is also reflected in the transition of some of the WWII-era barracks into affordable housing for returning veterans of the war, and later public housing, before their demolition in 1963.⁷⁰

3.1 Overview

3.2 Big Spring Country Club

Our consultation comments on this private club are hindered by the lack of physical access to the site and its records. It appears from Fig. 1.4 that nineteen (19) mature trees are proposed to be removed, in addition to the 54 trees that were harmed in the Safety Program's fall 2013 action (39 cut; 15 trimmed – see cumulative effects discussion above). We also note that the draft CRE evaluates Big Spring Country Club as its entirety (see also Fig. 3.1), including the areas outside of the narrow APE. What is the rationale for doing so, and yet not evaluating the full boundaries of Seneca Parkland Botanical Field in the same manner?

LIRAA has stated that the fall 2013 removal action affected trees for which there were existing easements at Big Spring; why does Fig. 1-5 then only show the area of proposed vegetation easement and not the existing easements? Elsewhere in the report (Fig. 1-6

¹⁰Statement of Peter V. Jacob Before the Mayor's Citizens' Advisory Committee," Jan. 13, 1967, p. 4. See also the Goodman-Paxton [KY WPA District] Photographic Collection, P46-041, Special Collections, University of Kentucky. http://lib01.library.uky.edu/Archives/Texts/60007_166_34/guide.htm (man joining Bowman Field runway).

Table 6.6

specifically, the report depicts existing easements outside of the narrow APE (in Highway, just southwest of Rumay 32 and south of Taylorsville Rd.).

3.1 Seneca Park Golf Course

The draft CRE erroneously evaluates only the Seneca Park Golf Course—and not the entirety of Seneca Park of which the golf course is one feature, and not to the Seneca Park lands and public paths along present-day Pee Wee Reese Road. It should be noted that there are mature trees in Seneca Park along the western edge of Pee Wee Reese Road that appear to be scheduled for destruction in the Brownman Field program and have not been evaluated in the draft CRE.

The draft report concludes that “[a]s a designed landscape, the golf course possesses little degree of its **original design integrity**” (p. 46, **emphasis added**).¹⁴ The basis for this conclusion is “ambiguities” since the previous page states that the “**original design layout** could not be located (emphasis added),” and, thus, the golf course eligibility evaluation is made with reference to a “**new layout**” dated 1955. The reference section of the draft CRE indicates that the Seneca Park Golf Club was interviewed on August 19, 2014 (p. 123).

However, the Principal Investigator did not contact any Metro Parks landscape architect or planner to obtain their professional perspectives on historical significance and evaluation of integrity or to gain access to the Seneca Park files. Through a simple search of the Metro Parks records by a PPTT volunteer, several relevant documents were obtained that are essential for an evaluation of Seneca Park and all of its features, including, but not limited to:

- The "General Plan for Seneca Park, Olmsted Brothers – Landscape Architects, Brookline – Massachusetts" (1928), showing the "parhandle" portion to the northeast and the entire north-south tract, including the original design of the golf course and the landscaped "automobile concourse" on the west side of Bowman Field (the "aviation field" is also included in the plan drawing), linking the park and Taylorsville Road. Also shown are the designs for the landscaped entrances and exits that integrated Seneca Park with the surrounding neighborhoods. The Olmsted firm's Seneca Park Planning Plan and Planting Plan of 1930 are available in the Metro Parks files.
- A 1928 aerial photograph of the park and environs by Bowman-Park Aerial Co.
- A deed from Western Land Co. to the Board of Park Commissioners (BPC) (Jefferson County Deed Book 1411, 169, Sept. 19, 1929) conveying a portion of the east side of the Seneca Vista subdivision for construction of a park road to plans and specifications of the BPC by Sept. 1, 1929. Other deeds of the same period on file at Metro Parks conveyed entrances from existing neighborhoods to the BPC for incorporation into Seneca Park.
- A deed from William Randolph to the BPC (Jefferson County Deed Book 1671, p. 88, May 2, 1938) conveying triangular lot "F." This lot is now the treed entrance to Seneca Park in the northwest corner of the intersection of Taylorsville Road and Pee Wee Reese Road, where the public walking path of the park turns to the north (along the west side of Pee Wee Reese Road). This entrance (as well as the Seneca Park land

on the east side of "Park Road" is depicted in the 1938 "Planting Plan of Taylorsville Road Entering Seneca Park," prepared by Carl Berg for the BPC.

- A Map of Seneca Park Showing Proposed Improvements, 1936-1937, Board of Park Commissioners, Carl Berg, Landscape Architect. This map presents the same overall plan view as the 1928 Olmsted General Plan, but reflects changes that had been implemented, including the elimination of the Beargrass Creek amphitheater, and the proposed changes for the WPA projects at the golf course.

Other key documents that need to be reviewed for the CRE include the *Master Plan for Louisville's Olmsted Parks and Parkway*.

Additional considerations relating to evaluation of Seneca Park as a whole, including vegetation features, are as follows:

- The period of significance should begin at least from 1928 (when the BPC acquired the Von Zedwitz tract) through 1965 (50 years from the current undertaking).
- The evaluation of Seneca Park should include the public's participation over the decades in maintaining and perpetuating the vegetation, including the tree canopy. This phenomenon is important to the associative quality of the Park's integrity (the conscious perpetuation of the vegetation). As early as 1932, fifteen trees were planted in the park by the Fifth District Federation of Women's Clubs to commemorate George Washington.¹¹ The Washington Memorial trees include "native woods" such as American elm, ash, sycamore, beech, and pine oak. The Olmsted Conservancy has spent countless hours of its staff time and been supported by volunteer labor to eradicate invasive species in the park and restore native habitat. The American Cancer Society Living Memorial Grove of Trees program at Seneca Park was initiated in 1998 and is situated along the eastern edge of Seneca Vista for donations of trees (with a minimum donation of \$1,000.00/tree), shrubs, and park benches by families and friends of loved ones lost to cancer or who have survived cancer.
- With respect to the seven qualities of integrity, we defer to Metro Parks' views as a consulting party. We offer the following observations, however:
 - **Location.** The park is still bounded within the original boundaries established through acquisition of the Von Zedwitz tract and the associated private parcel conveyances for connections to adjoining neighborhoods.
 - **Design.** In comparing the original 1928 General Plan to the 1936-37 proposed improvements, later layouts, and current conditions, it is clear that portions of the original Olmsted plan were never executed or were modified over the decades. However, that is true for all Olmsted plans. The evaluation should address how modifications to the General Plan compare to the execution of other relevant Olmsted plans, including those in Louisville.
 - **Setting.** The setting has been compromised by the intrusion of I-64 across the northern portion of the park. However, the intact tracts of the park still seem to

¹¹ "Dedication gives city 15 trees planted in Seneca Park as Washington Memorial," *Louisville Courier-Journal*, Mar. 27, 1932.

convey integrity of setting (and feeling), including the buffering that has been developed along I-64.

- **Materials and Association.** Vegetation, including trees, in Seneca Park are subject to a planned, intentional program of historic preservation treatment and ecological restoration the concepts of which are set out in the *Master Plan for Louisville's Olmsted Parks and Parkway*.
- **Workmanship.** Specific to vegetation, the plantings and their maintenance have reflected the efforts of landscape architects, including those of Metro Parks.
- The WPA program within Seneca Park included not only the golf course improvements described in the draft CRE, but an unrealized plan to develop a Recreation Center in the parkhandie position. A plan advertisement featured an outdoor "Safety Pool," flanked by a diving pool and wading pool, an indoor pool, indoor tennis courts, outdoor tennis courts, badminton courts, and horseshoe pits, all landscaped. The WPA's contribution to the \$30,000.00 was to be 65%, with the rest raised through the sale of memberships; non-members would be charged a daily use fee.¹²
- *National Register Bulletin, Historic Residential Suburbs* (p. 4) recognizes that parks and pathways located adjacent to historic neighborhoods can contribute to the significance of those neighborhoods if they are "integrally related to the neighborhood by design, plan or association and share a common period of historic significance." It is clear from the BPC's early land acquisitions of Seneca Park entrances to Seneca Vista, Cherokee Gardens, Cherokee Court, and Beals Branch Rd./Alta Vista that a seamless link between garden suburbs and the suburban park was consciously planned. Further, many of the original residential plans (e.g., Seneca Vista, Seneca Village, Seneca Gardens, and Seneca Gardens 2) identify the planned developments specifically with reference to Seneca Park. In addition to independently evaluating Seneca Park as a historic property, the evaluations of the surrounding garden suburbs should consider the park as a contributing resource to those districts.

3.4 Seneca Vista Neighborhood

The text does not identify the number of trees proposed for removal in Seneca Vista in the narrow APE. Although it is difficult to discern as Figure 1.6 of the appendix, it appears that at least seventy-five (75) mature trees are targeted for removal. However, it is not clear whether some of the mature trees on the east side of Seneca Vista are within private properties or are a part of Seneca Park, the latter of which has been wholly unevaluated in the draft CRE. Avigation easements will be newly sought for eight (8) properties in Seneca Vista (p. 29), adding to the twenty-nine (29) properties that are already permanently encumbered in the neighborhood.

Similar to the evaluation of other neighborhoods subsequently addressed in the draft CRE, Seneca Village is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 29), and a period of significance is ascribed for this residential development from 1937-1950. The ending period of significance should be

¹² Advertisement, *Louisville Courier-Journal*, July 7, 1941, Section 1, p. 12.

advanced to at least 1965, dating back 50 years from the "current" purpose and need for the undertaking. As noted below, Kingsley is the only neighborhood for which the report proposes 1964 as the end year of period of significance (50 years prior to the date of the draft CRE). Seneca Vista and the other neighborhoods need to have a comparable end period of 1965, or the rationale for the distinction explained fully.

The draft CRE notes that Seneca Vista was planned in 1937 by William F. Randolph (p. 59); the text actually says "William H. Randolph," but this is in error. Prior to Randolph's acquisition of the land, the property was owned by Joseph Discher (see Fig. 2.2, p. 17, of the draft CRE). In January 1926, Randolph's firm, the Wakefield-Davis Realty Company, purchased the approximately 27-acre Discher tract for \$55,000.⁷⁰ Although the company announced that it would begin subdivision development in the spring of 1926, the 1930 aerial photo on p. 88 of the draft CRE (Fig. 3.76) shows the land was still undeveloped. It should also be noted that Wakefield-Davis reported in the 1926 newspaper article that it would hire the "Olmstead [sic] Brothers, landscape specialists," to work on the layout of a subdivision between Shelbyville and Lexington Roads, near "Fairlawn." It is not known whether the firm did, in fact, do so; however, it is clear that Randolph was aware of the firm's work in Louisville and saw the value in using the firm's services, at least for another development. It should also be noted that Randolph's plan for Seneca Vista shows "Seneca Park" on the immediate east side of the neighborhood (instead of Bowman Field), and the realty firm subsequently sold a triangular lot from Seneca Vista to the Board of Park Commissioners to connect the neighborhood more directly to the park.

Similar to the evaluation of other neighborhoods in the draft report, the author concludes that the lot layouts, circulation features, and conversion of lots to public green space are still intact, no doubt aided by the deed restrictions that Wakefield-Davis placed upon individual lot development. Nevertheless, the author does not find an intentional design element in the original development of Seneca Vista specific to vegetation and concludes that the "type" and "overall height" of the trees are not considered to be a contributing element of the neighborhood (p. 59). The report also states that some "lesser percentage of plantings" (of what types is not specified) appear to have developed "organically" or by property owners "over time" (ibid.). PFTT submits that the vegetation in Seneca Vista is contributing.

The draft report also states that the LRAA now owns nine (9) lots within Seneca Vista that "have always been a part of the neighborhood's landscape (emphasis added)" (p. 58). It is not clear what this statement is intended to mean. The statement is factually incorrect based on a straightforward reading, because the LRAA's predecessor purchased the lots in the early 1980s based upon information in the PVA's records. This statement either needs to be removed or restated accurately.

⁷⁰ Firm Announces \$115,000 Deal - Wakefield-Davis Realty Company Expands its Activities, *Louisville Courier-Journal*, Jan. 10, 1926.

3.5 McCoy Manor

McCoy Manor is within the narrow APE, as well as the full APE. Under FAA's initial direction for the Bowman Field Safety Program (compliance with TERPS departure profile guidance), the mature tree canopy in this historic neighborhood would have been substantially harmed. Under the FAA's current instructions for this project, announced in a May 15, 2013 letter from Hanson Engineering to area property owners, there are no trees identified in the only mitigation alternative under consideration by FAA (tree removal). No aviation easements are proposed for the runway approach surface evaluation; easements would have been required if the TERPS departure surface was still the operative profile. However, it is erroneous to conclude, as the draft report does (p. 71), that this neighborhood will not suffer adverse effects from the tree removal program; it will, there will be adverse visual effects from the loss of mature tree canopy in other surrounding historic gardens suburbs.

Similar to the evaluation of other neighborhoods in the draft CRE, McCoy Manor is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 70), and ascribes a period of significance for this residential development from 1949-1957. As noted elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the "current" purpose and need for the undertaking. It should also be noted that this neighborhood features several multi-family properties that were recommended as eligible, with which PFTT agrees. However, the rationale for then determining that seemingly comparable multi-family residential properties developed as infill on Taylorsville Road (see Section 3.10 comments below) are "not eligible" is not clear, and needs to be explained.

The text further notes that key features of the original layout still exist (regularly spaced lots, uniform setbacks, pedestrian and vehicle circulation features), but that "[t]he general vegetation landscape is casual and does not feature an overall design or pattern in terms of trees or shrubbery" (p. 70). PFTT submits that the vegetation in McCoy Manor is contributing.

3.6 Seneca Manor

Under FAA's initial direction for the Bowman Field Safety Program (compliance with TERPS departure profile guidance), the mature tree canopy in this historic neighborhood, including the City of Seneca Gardens of which Seneca Manor is a part, would have been substantially harmed. Under the FAA's current instructions for this project, announced in a May 15, 2013 letter from Hanson Engineering to area property owners, there is one (1) tree that would be removed within the narrow APE. The tree is an approximately 100-ft. tall pin oak in the rear yard of a residence; an aviation easement is proposed as a permanent encumbrance on this property. The property, at 2625 Valletta Road, however, is not depicted in the photos presented in Section 3.6.

Seneca Manor is recommended for eligibility under Criterion A (for unspecified "historical associations," presumably community planning and development as an automotive garden suburb) and C (architecture, but not "design" unlike other neighborhoods) (p. 77), and ascribes a period of significance for this residential development from 1937-1958. As noted

elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the "current" purpose and need for the undertaking.

Similar to the evaluation presented for other neighborhoods, the text notes that key features of the original layout still exist (regularly spaced lots, setbacks, vehicle circulation features). Similar to the other neighborhoods, the report concludes that there was not an intentional design element in the original development specific to vegetation and that the "type" and "overall height" of the trees are not considered to be a contributing element of the neighborhood (p. 78). The report also states that some "lesser percentage of plantings" appear to have developed "organically" (e.g., along fence rows) or in "unmanaged areas" and represent the "taller growing variety" (p. 77). Plantings by individual property owners that appeared to have developed "organically" or "over time" were also observed by the report's author (ibid.).

Seneca Manor is a part of the City of Seneca Gardens, a sixth class city that has posted historical information about its origins and development on the city website.¹⁵ The city has actively promoted the preservation, maintenance, and enhancement of its public and private tree canopy over the decades, including the area originally planted as Seneca Manor. The mature street trees along Valleria Rd. (noted in the draft report as exhibiting "some uniformity of high canopy oak trees," p. 78) are a particularly prominent, though by no means, unique display of vegetative elements that contribute to the garden setting of the neighborhood. PPTT submits that the vegetation in Seneca Manor is contributing.

3.7 Kingsley

Kingsley is within the narrow APE, as well as the full APE. Under FAA's initial direction for the Bowman Field Safety Program (compliance with TERPS departure profile guidance), the mature tree canopy in this historic neighborhood and small city would have been substantially harmed. Under the FAA's current instructions for this project, announced in a May 15, 2013 letter from Harsco Engineering to area property owners, there are no trees identified in the only mitigation alternative under consideration by FAA (tree removal). No mitigation easements are proposed for the runway approach surface evaluation; easements would have been required if the TERPS departure surface was still the operative profile. However, it is erroneous to conclude, as the draft report does (p. 85), that Kingsley will not suffer adverse effects from the tree removal program; it will. As noted by Kingsley resident Phyllis Hawkins in the June 24th meeting, there will be adverse visual effects from the loss of mature tree canopy in other surrounding historic gardens suburbs.

Similar to the evaluation of other neighborhoods in the draft CRE, Kingsley is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 84), and is ascribed a period of significance from 1926 to 1964. It is curious that Kingsley is the only neighborhood for which an end year of significance dates to 50 years prior to the date of the draft CRE. PPTT agrees with this approach (although it needs to be updated to 1965), and has noted elsewhere in these comments that the endpoint of the period of significance for all resources evaluated in this report should date back to at least 1965, 50 years

¹⁵www.cityofsenecagardens.com/history.htm

from the "current" purpose and need for the undertaking. Why was Kingsley singled out for an advancement of the end period of significance to 1964/65, when the other historic neighborhoods end year of significance were terminated the year of approximate completion of development?

The draft report notes that Kingsley "retains its distinctive park-like setting of curvilinear streets, public spaces, sidewalks and setbacks" and the "high degree of architectural integrity" (p. 85). Unlike the other residential neighborhoods, the report does not address whether there seems to have been an intentional design element in the original development specific to vegetation nor does it evaluate whether the "type" and "overall height" of the trees are character-defining. Kingsley's good fortune in this regard is the happenstance of a 1930 aerial photo, shot from an oblique perspective, which gives a clear view of the street trees in Kingsley some five years after the plat recordation (Fig. 3.76, p. 88). However, the draft eligibility recommendation does not expressly identify the vegetation element of Kingsley's landscape as contributing. Our view is that the neighborhood-wide vegetation, including trees, is contributing and needs to be explicitly acknowledged in the final CRE. Nor does the evaluation include the landscapes developed in private yards, and the conscious work of the City of Kingsley over the decades to perpetuate the treescape in public and private spaces. Mr. Chris McCoy, Kingsley City Commissioner, described some of the city's efforts to preserve and enhance the treescape.

The draft CRE (p. 84) also recommends National Register-eligibility under Criterion B, for association with the developer C.C. Hieatt of Consolidated Realty Company. As a measure of Hieatt's influence, by 1925, the firm reported a total business of \$7,406,553 and, by 1926, Consolidated Realty Company claimed a net worth of over \$25 million.¹⁶ Hieatt was prominent in the National Association of Real Estate Boards (NAREB) in the 1920s,¹⁷ and, therefore, would have known J.C. Nichols, the important community builder in Kansas City noted in *Historic Residential Suburbs* for planned, garden suburb and country club developments. Hieatt also ensured that land conveyances within Kingsley contained deed restrictions, consistent with the deed restrictions imposed upon his earlier development, Strathmoor Village.¹⁸ A conveyance on March 27, 1928 for lots 66 and 67, for example, specified allowable exterior materials for cladding and roofs, specified front and side yard setbacks, front setbacks of vegetable gardens (at least 10 feet from the front building line), maximum heights of the primary structures, and size limits on outbuildings; authorized the construction of fences of vegetation or made of wire.¹⁹ Racial restrictions were also included in a clause (l) that prohibited properties from being "sold, rented or leased to or occupied by any person or persons of African descent."

¹⁶The 1925 revenues were reported in "Realty Company Names Officers," *Louisville Courier-Journal*, Jan. 15, 1926, while the 1926 net worth of the firm appears in a *Louisville Courier-Journal* advertisement that ran Mar. 5, 1926 for First Mortgage Bonds guaranteed by Consolidated Realty Company.

¹⁷Hieatt drafted NAREB's 1926 policy on legislation and taxation in the states of the U.S., which was approved at the mid-winter session in New Orleans in January 1926. "Realty OK Hieatt Plan of Taxation," *Louisville Courier-Journal*, Jan. 22, 1926.

¹⁸*Strathmoor Village, Kentucky Historic Resources Group Survey Form*, prepared by R. Kennedy and J. Ryall, p. 14 of 17. However, per the deed restrictions, Kingsley's minimum required investment per house construction was \$5,000.00 to \$6,000.00, while Strathmoor Village's was \$4,000.00.

¹⁹Jefferson County Deed Book 1126, 465-468.

3.8 Seneca Village

The text does not identify the number of trees proposed for removal in the narrow APE. Although it is difficult to discern in Figure 1.6 of the appendix, it appears that at least thirty-six (36) mature trees are targeted for removal. Avigation easements will be newly sought for twenty-three (23) homes in Seneca Village. Although the draft CRE states that four (4) parcels are encumbered by existing easements (p. 96), Figure 1.6 seems to reflect at least nine (9) residences encumbered by avigation easements (relevant to cumulative effects).

Similar to the evaluation of other neighborhoods in the draft CRE, Seneca Village is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 95), and ascribes a period of significance for this residential development from 1947-1954. As noted elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the "current" purpose and need for the undertaking. With respect to the initiation of the period of significance, the development was planned in 1929 (Fig. 3.89, the original plat, illustrates the promotion of "Seneca Park," across Taylorsville Road from the proposed development and the proximity to the "interurban railway (Jeffersonstown Division)"). However, the draft CRE states that "the historic homes were built between 1947 and 1954" (p. 95). Did the research reveal any particular reason for the deferred period of development for this ostensibly streetcar-era suburb? What do the Sanborn Maps and City Director research show regarding any potential prior uses between the plat recordation date and 1947?

The text further notes that key features of the original layout still exist (regularly spaced lots, uniform setbacks, pedestrian and vehicle circulation features). Similar to the other neighborhoods, the report concludes that there was not an intentional design element in the original development specific to vegetation and that the "type" and "overall height" of the trees are not considered to be a contributing element of the neighborhood (p. 96). The report also states that some "lesser percentage of plantings" (unspecified as to type of plantings) appear to have developed "organically" (e.g., along fence rows) or in "unmanaged areas" and represent the "taller growing variety" (ibid.). PFTT submits that the vegetation in Seneca Village is contributing.

3.9 Seneca Village No. 2

The text does not identify the number of trees proposed for removal in the narrow APE. Although it is difficult to discern in Figure 1.6 of the appendix, it appears that at least ten (10) mature trees are targeted for removal. Avigation easements will be sought for nine (9) parcels in Seneca Village No. 2, where there are none currently.

The text notes the predominance of Guinon housing;⁷⁹ however, the architectural styles of the homes are not described. As noted in *House in A Box*, Guinon design began with

⁷⁹Although the subject photos that are found at pp. 105-112 show houses with brick extensions, which certainly was not a feature of a Guinon house, at least in original construction.

traditional architectural styles, such as Cape Cod and Colonial Revival.⁸⁰ Starting in January 1951, Guinon added a ranch-style design in five sizes, two and three bedrooms, in the \$7,000 to \$10,000 range.⁸¹ The draft CRE needs to provide some overview of architectural styles of these pre-fabricated homes, as well as documenting individual styles in the required KHC survey forms.

Similar to the evaluation of other neighborhoods in the draft CRE, Seneca Village No. 2 is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (pp. 102-103), and ascribes a period of significance for this residential development from 1951-1960. As noted elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the "current" purpose and need for the undertaking. The text further notes that key features of the original layout still exist (regularly spaced lots, uniform setbacks, pedestrian and vehicle circulation features). Similar to the other neighborhoods, the report concludes that there was not an intentional design element in the original development specific to vegetation and that the "type" and "overall height" of the trees is not considered to be a contributing element of the neighborhood (p. 103). PFTT submits that the vegetation in Seneca Village No. 2 is contributing.

3.10 Outparcels

The "outparcels" described in this section consist of five properties on the north side of Taylorsville Rd., within the draft APE for Runway 6. The building at 2615 Taylorsville Rd. was built "circa 1950s" (p. 114) and is now an office building; it appears to have been built within the Seneca Vista planned development. The brick buildings at 2605, 2609, and 2613 Taylorsville Rd. and 2342 Gladstone Avenue (which all appear to have also been built within the Seneca Vista planned development) were built "circa 1950s" as multi-family housing. The CRE concludes that none of these outparcels have "significant historical association" or possess "significant architectural merit" and recommends a National Register-eligibility determination on all five properties (ibid.).

However, it is unclear why the multi-family buildings above were deemed non-contributing when the CRE recommends National Register-eligibility status for the post-WWII, brick construction, multi-family residential buildings in McCoy Manor (2634, 2638, 2644, and 2646 McCoy Way, see p. 75), and Seneca Village No. 2's Bowman Manor Apartments (now condominiums) in the 3400 block of Taylorsville Rd. (see p. 109). The CRE argues, at least with respect to the Seneca Village No. 2 units, that they were constructed "as part of the original development" of the planned neighborhood (p. 102). There is no evidence in either the plat for McCoy Manor or Seneca Village No. 2 that the particular lots were consciously planned for multi-family use, nor is it necessary for that to be the case for the units to have attained their own historic significance.

⁸⁰Johnson, Cynthia E. and Rachel Kennedy. 2006. *House in a Box: Prefabricated Housing in the Jackson Purchase Cultural Landscape Region, 1900-1960*, p. 59.
⁸¹Photograph and caption, *Louisville Courier-Journal*, Nov. 17, 1950, Section 7, p. 8.

Instead, it appears that all of these units were likely built in response to FHA-assisted financial incentives (particularly, Section 608 of the National Housing Act) to promote the construction of rental housing during the 1950s and early 1960s for veterans returning from WWII and the Korean War. Coupled with the scarcity of "suitable" building sites and the costs for demolishing existing houses, builders sought whatever infill lots they could find,¹¹ particularly on transportation arteries.

In addition to the multi-family units in the CRE, several other illustrative examples of historic affordable 1950s and 1960s apartments and duplexes exist in Louisville and should be used in the evaluation of all of the Bowman Field-area units. The National Register-listed Arcadia Apartments were constructed in 1950-51 in the streetcar-era Taylor-Berry neighborhood (southwest Louisville), assisted by Section 608 mortgage insurance.¹² Although these apartments constitute a larger complex, the commonality to the Taylorsville Road/Gladstone Avenue housing is that the infill "stands in contrast" to the neighboring structures "in terms of building stock and site placement."¹³ Similarly, and smaller in scale than the Arcadia complex, the "Brownboro Cottages" in Clifton (2018-2026 Brownboro Road) were constructed in 1950 as five "demonstrable" duplexes (possibly Garrison prefabricated structures) on one of the few remaining unbuild lots in the 400-acre neighborhood, a narrow strip of land at the base of a rocky cliff. All five duplexes (now in commercial use), have been designated as contributing to the Clifton Historic District, a predominantly Victorian-era neighborhood of quite different building styles and lot development. In summary, rather than evaluate these properties as isolated "outposts," the CRE should identify them in the originally platted neighborhood (Sececa Vista) in which they were later built, or as part of a larger suburban historic district, and address them in the context of post WWII-era housing.

With respect to the now-commercial office building at 2615 Taylorsville Road, what "archival research" (p. 114) was conducted to determine its origins and use? Were City Directories or Sanborn maps evaluated and, if so, what information did these sources provide?

Closing

Plea For The Trees appreciates the opportunity to serve as a consulting party and to contribute our own research and knowledge to the identification and evaluation of the cultural resources in the narrow (and full) APE. We look forward to reviewing the next draft of the CRE report and trust that our comments will be reflected in the next iteration. Please use my email lebaras@gmail.com or phone (502-298-1505) to reach me.

Sincerely,

Leslie E. Baras
Leslie E. Baras

¹¹ "1,000 New Lower-Rent Apartments in Louisville: 'Wouldn't Hurt the Market A Bit,' F.H.A. Official Says," by Grady Clay, *Louisville Courier-Journal*, Oct. 20, 1949.

¹² Weiner, *Baras: Arcadia Apartments. Contribution to the National Register of Historic Places*, 2010.

¹³ *Ibid.*, p. 3.

Braswell, Aaron (FAA)

From: Wilson, Stephen (FAA)
Sent: Thursday, August 06, 2015 8:51 AM
To: Potts, Craig A. (Heritage Council); Kary Stackelbeck (Kary.Stackelbeck@ky.gov);
cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org; tom.owen@louisvilleky.gov;
bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras; d.l.b.2547@gmail.com;
brent.ackerson@louisvilleky.gov; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller,
Skip; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger
Anderson; Dupree, Tommy (FAA); Braswell, Aaron (FAA); Braden, Phillip (FAA);
patriciastallings@brockington.org; Tom FitzGerald; director@preservationkentucky.org;
Phyllis Hawkins; jchris.mccoy@gmail.com; angelakburton@hotmail.com; Hite, Lisa;
Jennifer Ryall (jennifer.ryall@ky.gov)
Cc: Williams, Lucille (FAA)
Subject: Section 106 Meeting No. 2-Bowman Field Airport Area Safety Program
Attachments: Agenda Bowman Field Section 106 Meeting No 2.pdf

All-

We have scheduled the 2nd meeting for the Bowman Field Airport Area Safety Program.
Please see the attached Agenda.

Meeting No. 2 will be held August 20, 2015 @ 10:00 AM Eastern at the following address:

Louisville Regional Airport Authority Maintenance Facility
4320 Park Boulevard
Louisville, Kentucky

Thank you

Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482
901 322 8185
901 322 8195 Fax
Stephen.wilson@faa.gov

AGENDA

SECTION 106 CONSULTATION MEETING-No. 2 Bowman Field Airport Area Safety Program

**Louisville Regional Airport Authority-Maintenance Facility
4320 Park Boulevard, Louisville, KY**

**August 20, 2015
(10:00AM EST)**

- | | | |
|-------------|---|---------------------------|
| I. | <u>Introduction</u> | FAA |
| | A. Consulting Party Members in Attendance | |
| | B. Purpose of Meeting No. 2 | |
|
 | | |
| II. | <u>Pending Issues</u> | FAA, SHPO, Members |
| | A. Area of Potential Effects (APE) | |
| | B. Potential Direct/Indirect Effects of Undertaking | |
| | C. Easement Acquisition and Mitigation Measures | |
| | D. Additional Items | |
|
 | | |
| III. | <u>Cultural Resources Evaluation (CRE)</u> | FAA, SHPO, Members |
| | A. Supplemental Data Requested from Meeting No. 1 | |
|
 | | |
| IV. | <u>Next Steps</u> | FAA, SHPO, Members |
| | A. Pending Issues | |
| | B. Ultimate Effects Determination | |

Braswell, Aaron (FAA)

From: Wilson, Stephen (FAA)
Sent: Monday, June 29, 2015 3:16 PM
To: Potts, Craig A. (Heritage Council); Kary Stackelbeck (Kary.Stackelbeck@ky.gov); michael.heitz@louisvilleky.gov; cynthia.johnson@louisvilleky.gov; david.brown@bbandt.com; info@cityofkingsley.org; tom.owen@louisvilleky.gov; bill.hollander@louisvilleky.gov; mimi.zinniel@olmstedparks.org; Leslie Barras; fitzkrc@aol.com; director@preservationkentucky.org; drphawkins@juno.com; jchris.mccoy@gmail.com; angelakburton@hotmail.com
Cc: Sinnwell, Brian; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; patriciastallings@brockington.org; Rodger Anderson; Dupree, Tommy (FAA); Braden, Phillip (FAA); Braswell, Aaron (FAA); Williams, Lucille (FAA)
Subject: Bowman Field Airport Area Safety Program Section 106 Meeting

Thank you for your representation and attendance at the Bowman Field Airport Area Safety Program Section 106 Meeting held June 24, 2015.

Please forward any additional notes or comments you may have from the meeting to my attention by July 10, 2015.

All comments received will be compiled and distributed to the consulting party members.

Thanks

Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482
901 322 8185
901 322 8195 Fax
Stephen.wilson@faa.gov

Braswell, Aaron (FAA)

From: Wilson, Stephen (FAA)
Sent: Monday, July 20, 2015 11:19 AM
To: Potts, Craig A. (Heritage Council); Kary Stackelbeck (Kary.Stackelbeck@ky.gov); michael.heitz@louisvilleky.gov; cynthia.johnson@louisvilleky.gov; david.brown@bbandt.com; info@cityofkingsley.org; tom.owen@louisvilleky.gov; bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras; d.l.b.2547@gmail.com; brent.ackerson@louisvilleky.gov; Sinnwell, Brian (Brian.Sinnwell@flylouisville.com); skip.miller@flylouisville.com; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger Anderson; Dupree, Tommy (FAA); Braswell, Aaron (FAA); Braden, Phillip (FAA); patriciastallings@brockington.org; fitzkrc@aol.com; director@preservationkentucky.org; drphawkins@juno.com; jchris.mccoy@gmail.com; angelakburton@hotmail.com
Cc: Williams, Lucille (FAA)
Subject: Section 106 Meeting Notes-Bowman Field Airport Area Safety Program
Attachments: Meeting Notes Bowman Field Section 106.pdf; Sign In Sheets Meeting Day Doc - Jun 24 2015 12-31 PM.pdf

Please see the attached summary and sign-in sheet from the Section 106 Meeting held on June 24, 2015.

The summary does not include individual comments we requested by July 10, 2015. Those additional comments will be addressed before the second Section 106 meeting is held.

Please note the second meeting date has not been set.

Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482
901 322 8185
901 322 8195 Fax
Stephen.wilson@faa.gov

SECTION 106 CONSULTATION MEETING NOTES

Bowman Field Airport Area Safety Program

4320 Park Boulevard, Louisville, Kentucky

June 24, 2015

Attendees:

Betsy Hatfield, Preservation Kentucky; Kary Stackelbeck, KY SHPO; Jennifer Ryall, KY SHPO; Rachel Kennedy, KY SHPO; Michael Heitz, Louisville/Jefferson County Metro Government; Lisa Hite, Louisville/Jefferson County Metro Government; Cynthia Johnson, Louisville/Jefferson County Metro Government; David Brown, Seneca Gardens; Tom Owen, Metro Louisville Council 8th District; Bill Hollander, Metro Louisville Council 9th District; Mimi Zinniel, Olmsted Conservancy; Leslie Barras, Plea for the Trees; Mike Hayman, Kentucky Resources Council; Dr. Phyllis Hawkins; J. Chris McCoy; Angela Burton; Tim Haskell, Hanson; Melissa Jenkins, Hanson; Rodger Anderson, Hanson; Patricia Stallings, Brockington; Charles Cash; Peter Kirsch; Brian Sinnwell, LRAA; Skip Miller, LRAA; Trish Burke, LRAA; Steve Tucker, LRAA; Clair Nichols; Mary Rose Evans; Tommy Dupree, FAA; Aaron Braswell, FAA; Phillip Braden, FAA; Stephen Wilson, FAA

Commencement 10:00 A.M.

Meeting Comments:

- The FAA opened the discussion stating the importance of the project and clarifying meeting's purpose.
- All attendees acknowledged receipt of the Cultural Resources Evaluation (CRE).
- The Kentucky State Historic Preservation Office (SHPO) requested clarification on APE. The Consultant team provided an explanation on how the Area of Potential Effects (APE) was developed.
- The KY SHPO suggested the APE be expanded to include all potential effects including noise, visual and cumulative impacts.
- The project undertaking was described to the group as easement acquisition for trees currently identified as obstructions to the approach surfaces of Runways 6, 24, 15 and 33.
- The KY SHPO requested additional analysis including view shed analysis of the affected surrounding communities.
- It was clarified that the project would not include any obstructions identified in future studies.

- The FAA clarified Section 106 is a component of the National Environmental Policy Act (NEPA) document being developed for the proposed project.
- The KY SHPO suggested discussing the neighborhoods' landscapes (and providing general contextual information) as part of the "garden suburb" movement of the early twentieth century (NRHP Bulletin Residential Suburbs, Ames: 2002).
- A consulting party member (CP) suggested further evaluation of Seneca Gardens and its impact on the APE.
- CP member questioned potential impacts to noise and property value on the Kingsley neighborhood.
- CP member suggested the neighborhoods may also be eligible due to historical association with the local Jewish community and that association be researched and added to the context and evaluation.
- CP member requested clarification on tree replacement formula.
- Questions were raised related to airport noise and operational safety on Drayton Drive.
- CP requested an evaluation of Bowman Field Airport as whole.
- CP member questioned the size of the APE at each runway end.
- CP member requested the integrity of Seneca Gardens should be more clearly evaluated.
- CP member questioned CRE Author's resume.
- Question raised about other airports undergoing or have undergone similar project. FAA responded with Downtown Island Airport (DKX), Knoxville, TN.
- A copy of the tree inventory was requested.
- SHPO clarified process for submitting projects for review and its relationship with KY Clearinghouse.

The meeting concluded at 12:00 PM.

Summary

The FAA will compile comments received from individuals attending the June 24, 2015 Section 106 Meeting. The compiled comments will be distributed to those individuals in attendance. The FAA will effort to set date for second Section 106 Meeting.












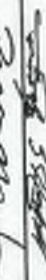
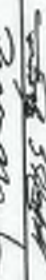

Consulting Party Sign-In Sheet

Bowman Field Airport Area Safety Program Consulting Parties Meeting
LEAA Maintenance Facility, 4320 Park Blvd, Louisville, KY 4020910:00AM
June 24, 2015

Consulting Party	Representative (Printed)	Representative (Signature)	Contact Email Address	Contact Phone Number
Louisville Regional Airport Authority Skip Miller, Executive Director				
Kentucky State Craig Potts, Executive Director	Richard Kowalski, LEAA Craig Potts, Executive Director	Richard Kowalski, LEAA Craig Potts, Executive Director	richard.kowalski@ky.gov	502-574-2848
Louisville/Jefferson County Government Mayor Craig Fisher	Cynthia Johnson Executive Director	Cynthia Johnson Executive Director	cynthia.johnson@louisville.gov	502-574-2848
Louisville/Jefferson County Metro Government Historic Preservation Office, Planning & Design Services Michael J. Hays, AIA, Director of Parks	Mike Hays Mike Hays (Hays)	Mike Hays Mike Hays (Hays)	Mike.Hays@louisville.gov	458-8130
City of Searcy Gardens David Brown, Mayor				
City of Louisville Rebecca Bell, Mayor				
Metro Louisville Council, 8th District Tom Owen	Tom Owen	Tom Owen	Tom.Owen@louisville.gov	574-1108
Metro Louisville Council, 9th District Bill Hays	Bill Hays	Bill Hays	Bill.Hays@louisville.gov	502-574-1109
Metro Louisville Council, 26th District Brent Albrecht				
Big Spring Country Club Kelly Maxwell, General Manager				
Distressed Conservancy Michael Zwick, Executive Director	Mike Zwick	Michael Zwick, Executive Director	michael.zwick@distressedconservancy.org	502-482-8125
Plan for the Trees Lyle Davis	Lyle Davis	Lyle Davis		
Kentucky Resources Council Tom Fitzgerald	Tom Fitzgerald	Tom Fitzgerald		
Preservation Kentucky, Inc. Bryant Hays	Bryant Hays	Bryant Hays		
Preservation Louisville, Inc. Marlene Zwick, Executive Director				
National Trust for Historic Preservation Division, Eastern Field Services Office				
Provo Spaulding 2811 King Hwy L. Chris McCoy	Phyllis A. Hays	Phyllis A. Hays	DrPhyllisA@Juno.com	502-458-6151
2840 King Hwy Angela Burton	Angela Burton	Angela Burton	angela.burton@louisville.gov	502-574-2848
2829 Division Dr Neighborhood Planning and Preservation, Inc. (NPP)				

Bowman Field Airport Area Safety Program Consulting Parties Meeting
LRBA Maintenance Facility, 4320 Park Blvd, Louisville, KY 40209

10:00AM
June 24, 2015

Attendee Name (Printed)		Attendee Signature		Contact Email Address	Contact Phone Number
FAA Representatives					
STEPHAN WILSON	STEPHAN WILSON		STEPHAN.WILSON@FAA.GOV	709 327-8185	
ALAN BRAYNELL	ALAN BRAYNELL		alan.braynell@faa.gov	" " 8192	
PHILIP BRADEN	PHILIP BRADEN		philip.braden@faa.gov	901.322.8180	
TOMMY DUPEIRE	TOMMY DUPEIRE		tommy.dupeire@faa.gov	901.322.8184	
LRBA Representatives					
IRISH BURKE	IRISH BURKE		irish.burke@flylouisville.com	363-8511	
BRUN SWANER	BRUN SWANER		brun.swaner@flylouisville.com	363-8512	
SKIP MILLER					
STEVE TUCKER					
CLAUDE ALLEN					
MARY ROSE BRANIS					
Consulting Team Representatives					
KANDACE ANDERSON	KANDACE ANDERSON		kandace@hanson-inc.com	217 947 9309	
HANSON TRAFFIC SERVICES	MELISSA JENKINS		myenters@hanson-tms.com	502-256-1110	
ROBIN SULLIVAN	ROBIN SULLIVAN		robin.sullivan@hanson-tms.com	638-638-1126	
CHAD LEE			chad.lee@hanson-tms.com	902-744-0656	
KEVIN KIRCH			kevin.kirch@hanson-tms.com	615-653-5305	
KEVIN KIRCH	KEVIN KIRCH		kevin.kirch@hanson-tms.com	202 959 1112	

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Thursday, September 24, 2015 11:28 AM
To: 'craig.potts@ky.gov'
Cc: 'Stackelbeck, Kary (Heritage Council)'; 'Ryall, Jennifer (Heritage Council)'; Braden, Phillip (FAA); Dupree, Tommy (FAA)
Subject: Bowman Field Airport - Area Safety Program - APE
Attachments: APE Exhibit 20150922.pdf; 20150922 FAA Letter to SHPO APE.pdf

Mr. Potts:

Today your office should receive a letter from the FAA Memphis ADO regarding the Area of Potential Effect (APE) for the Bowman Field Airport Area Safety Program project. Included with the letter is a graphic depiction of the APE. I am attaching a scanned version of those items along with a digital file of the APE in the hopes it may assist in your review.

As mentioned in the letter, please feel welcome to contact us if you have questions or would like to discuss.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486
Phone: 901-322-8180

September 22, 2015

Mr. Craig Potts
Executive Director and
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Dear Mr. Potts:

**RE: Area of Potential Effect (APE) Definition
Bowman Field Airport (LOU) – Louisville, KY**

After careful consideration of comments received by your office and other Section 106 Consulting Parties, the Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO), in conjunction with the Louisville Regional Airport Authority (LRAA), has determined the Area of Potential Effects (APE) for cultural resources for the Area Safety Program at Bowman Field Airport in Louisville, Kentucky.

The APE is graphically depicted in the attached drawing and can be described, in general terms, as the inner sections of airspace surfaces beyond airport property with additional buffer areas. The APE is comprised of four sections which correlate to the four runway ends at the airport.

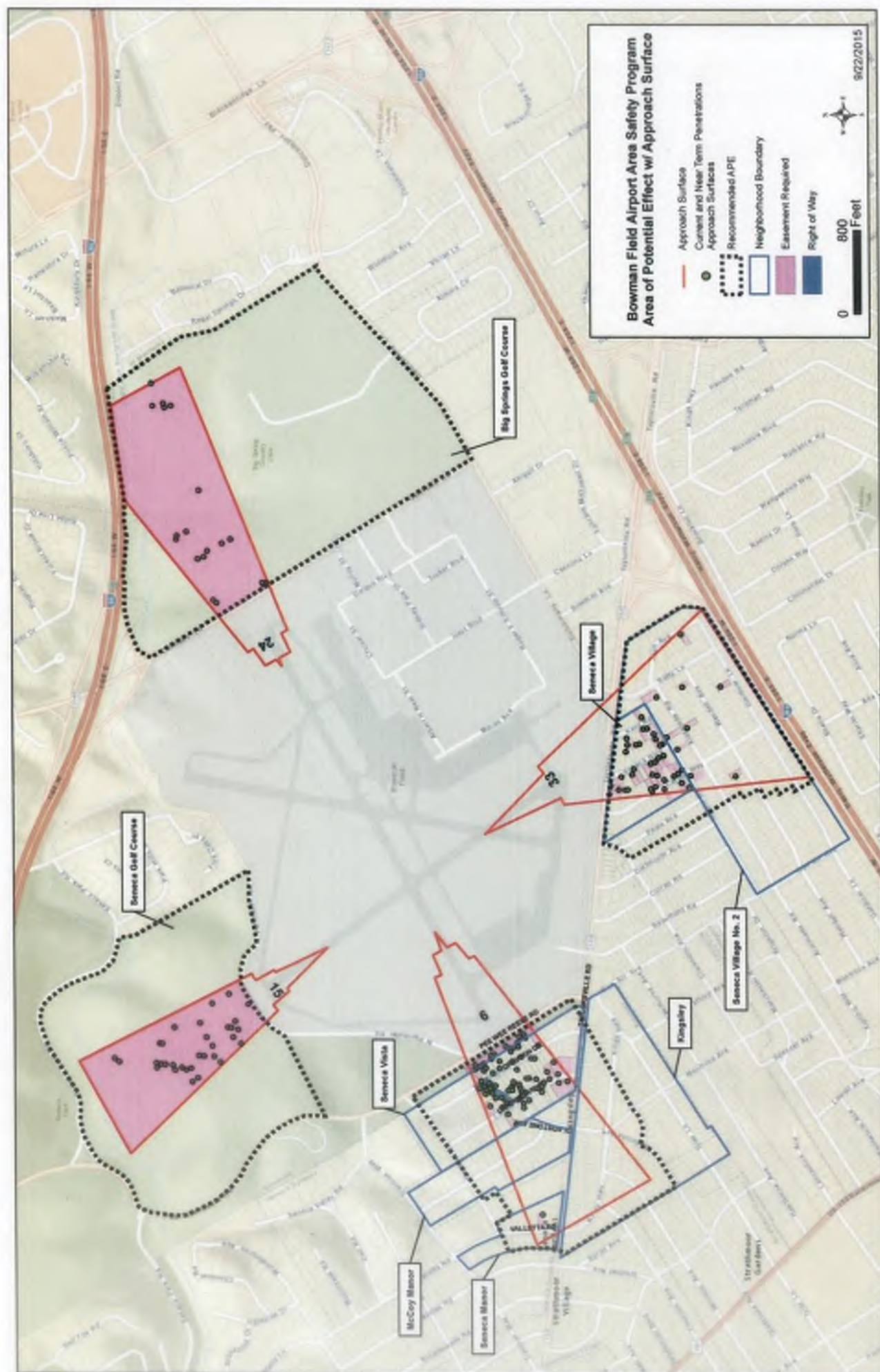
In accordance with 36 CFR § 800.4(a)(1), the MEM-ADO is seeking concurrence from your office on the APE. We respectfully request you respond within 30 days after receipt of this letter specifying concurrence or your concerns with the proposed APE. Once the APE has been established, the project proponent, LRAA, along with their consulting team will proceed with resource identification and effects analysis.

If you have any questions, please feel welcome to contact me by phone at (901) 322-8192 or email at aaron.braswell@faa.gov. You may also contact the MEM-ADO Manager, Phillip Braden, at (901) 322-8181.

Sincerely,

Aaron Braswell
Environmental Protection Specialist, Memphis Airports District Office

Enclosure



Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:07 PM
To: Potts, Craig A. (Heritage Council)
Cc: 'Stackelbeck, Kary (Heritage Council)'; Ryall, Jennifer (Heritage Council); 'Laracuenta, Nicolas (Heritage Council)'; Braden, Phillip (FAA); Dupree, Tommy (FAA); Johnson, Duane (FAA); Tim Haskell; 'skip.miller@flylouisville.com'; 'Sinnwell, Brian'
Subject: Bowman Field (LOU) Area Safety Program APE
Attachments: 20151230 FAA Letter to SHPO APE.pdf; DRAFTTreeinventorysummaryNov2015.pdf; DRAFT Avigation Easement (FAA Reviewed).pdf; EXB-LOU_Lighting_Alternative-20151217.pdf

Mr. Potts:

I am sending out a letter to you today regarding the items your office needs to review the APE for the Area Safety Program at Bowman Field. In addition to the hard copy, I am sending you electronic files of the letter and attachments to aid in your review.

Please let us know if you have questions or comments.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118
Phone: 901-322-8180

December 30, 2015

Mr. Craig Potts
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Dear Mr. Potts:

**RE: Area of Potential Effect (APE)
Bowman Field Airport (LOU) Area Safety Program
KHC # 45249**

In your letter to our office regarding the APE for the LOU Area Safety Program, dated October 9, 2015, you indicated your office required the following items prior to completing the review of the proposed APE: (1) tree inventory, (2) aviation easement language, and (3) details about the potential lighting alternative. The draft tree inventory and aviation easement language are enclosed to this letter for your review (the easement language was originally submitted electronically to your office from the airport sponsor on November 13, 2015). The following paragraphs serve to address the potential lighting alternative.

The Federal Aviation Administration (FAA) has reviewed the use of aviation red obstruction lighting (flashing and/or steady burning) as a possible alternative to tree trimming and/or removal for the Area Safety Program at LOU. As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-11L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential,

recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

- (1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.
- (2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.
- (3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.
- (4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.

In summary, given the reasons stated above, we have determined the use of obstruction lighting is not a reasonable or practical alternative.

We believe the above information, along with the enclosed documentation, will sufficiently address your requirements to complete your review of the APE. If you have any questions, please feel welcome to contact me at (901) 322-8192 or by email at aaron.braswell@faa.gov.

Sincerely,



Aaron Braswell
Environmental Protection Specialist, Memphis Airports District Office

Enclosure

cc: Mr. Skip Miller, Louisville Regional Airport Authority (electronic copy)
Mr. Tim Haskell, Hanson Professional Services, Inc. (electronic copy)

DRAFT

**Louisville Regional Airport Authority
Bowman Field Airport Area Safety Program**

**Inventory of Trees Around
Bowman Field Airport**

Summary of Findings

Prepared for:

Hanson Professional Services

2700 Moran Ave, Suite B

Louisville, Kentucky 40205

Prepared by:

Beechwood Trees & Gardens, Inc.

Paul G. Clinton, arborist

7906 Floydensburg Road

Crestwood, Kentucky 40014

Introduction:

This tree inventory was conducted to gather information for the Bowman Field Airport Area Safety Program. The inventory serves two main purposes: A: To inventory the objects (trees) that have penetrated into restricted air space and those close to penetrating, and B: To evaluate the tree population for an Environmental Assessment being prepared for the Federal Aviation Administration.

The trees have all been numbered with locations charted on a map. Each tree was identified and assessed for size, age, condition, and estimated maximum height. The identity of the trees is listed by common name and botanical name. In some cases the exact species could not be identified from a distance but the genus could be determined. For instance several ash species were probably present but all ash trees were grouped into genus *Fraxinus*. The size of the trees was estimated at a distance and grouped into size categories.

The tree inventory for Runway 24 was conducted in the fall of 2012. Runways 6, 15 and 22 were inventoried during the summer of 2014. As a result of consulting party comments, small additional areas for Runways 6 and 33 were added to the inventory in October of 2015.

Estimated species maximum height was determined by referencing several sources of tree height information and averaging them. References were: Mary Warters' Trees & Shrubs of Kentucky, Michael Dirrs' Manual of Woody Landscape Plants, Kentucky Division of Forestry, Kentucky's State Champions, Mitchell & More, The Trees of North America, and William Harlows', Textbook of Dendrology.

Analysis:

The tree inventory identified:

1866 trees near Runway 24 TERPS approach surface. This approach is primarily Big Spring Country Club. The terrain at Big Spring is rolling and many of the indigenous trees identified in the inventory grow down along the Middle Fork of Beargrass Creek. Most of these low lying trees will not get tall enough to grow into the restricted air space. 74 species are present.

2307 trees near Runway 6 TERPS approach surface. This approach consists of a neighborhood and small section of Seneca Park along Pewee Reese Road. The terrain is mostly level. A very large diversity of trees have been planted on the park land, and the neighborhood also has a large number of planted ornamentals and shade trees. 122 species are present.

1205 trees near Runway 33 TERPS approach surface. This approach is the neighborhood across Taylorsville Road. Unique to this neighborhood are fenced drainage easements that run behind every home. Most of the homes also have fenced back yards. Many indigenous trees have grown up in these fence rows. Also the neighborhood has planted Bradford pear trees along the main streets. These two factors lead to a limited diversity of ornamental trees. 62 Species are present.

311 trees near runway 15 approach surface. This approach is entirely Seneca Golf Course. The terrain is rolling and also includes low lying areas along Middle Fork of Beargrass Creek. Most of the area is mowed grass and only 33 species of trees are present.

A listing of species present is attached. See appendix 5. The dominant species, listed by abundance are: hackberry, 8%; boxelder, 6%; mulberry, 6%; flowering dogwood, 5%; ash, 5%; red maple, 4%; white pine, 4%; Bradford pear, 4%; American elm, 4%; silver maple, black cherry, Japanese maple, sugar maple.

Most of the trees inventoried (approximately 65%) were planted by the land owners or land managers with the other 35% consisting of species not typically planted but commonly found growing in fence rows and unmanaged areas.

The distribution of tree sizes shows that many of the trees are young and or small growing species. See appendix 1. In the Runway 33 neighborhoods many young trees are growing in the fence rows and drainage ways. In the Runway 6 neighborhood the trees are older and consist of many small-growing species like dogwood and Japanese maples with fewer fence row trees.

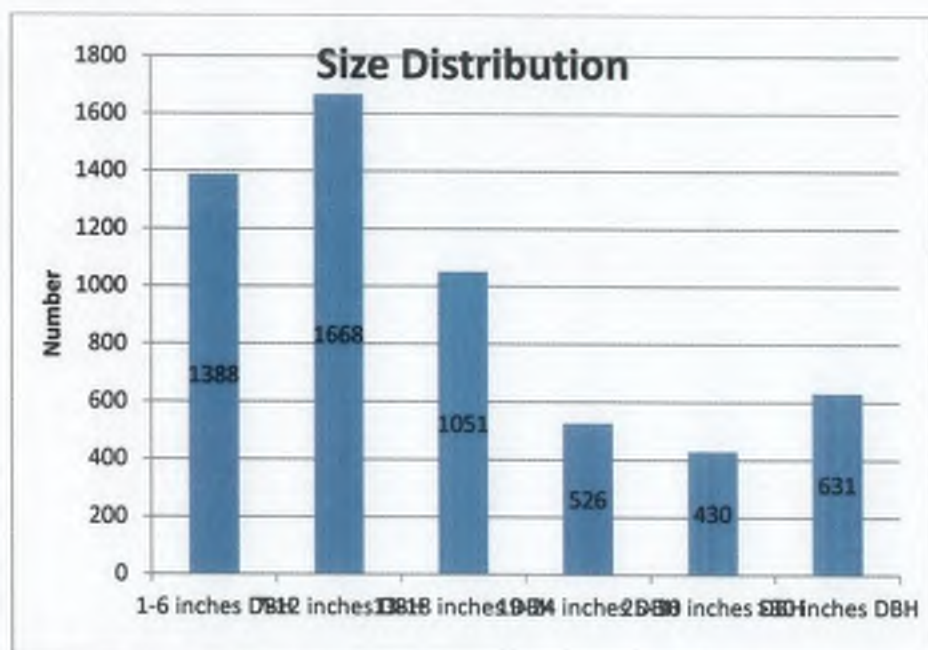
An analysis of the estimated species maximum heights shows that many of these trees are species that will grow very large and could grow into the restricted air space depending on how close they are to the runway. Approximately 65% of the trees present are species which are considered large shade trees because they grow over 60 feet tall. See appendix 2.

The majority of the trees inventoried are less than 25 years old. See appendix 3. Many of the small young trees are growing up in unattended fence rows particularly in the Runway 33 neighborhood. Also a good number of recently planted trees were observed.

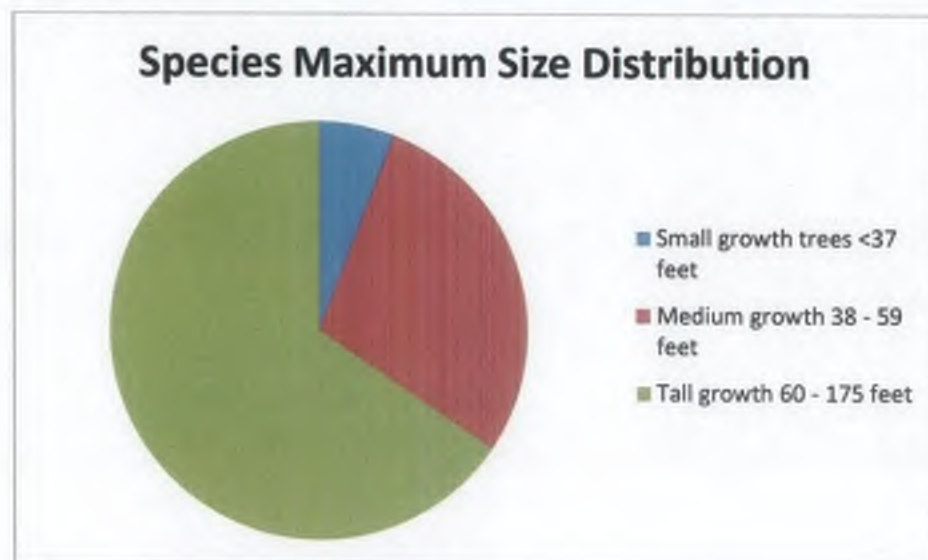
The majority of the trees are healthy. The soils in this area are deep and fertile and ideal for trees. Golf courses and neighborhoods maintain the trees well and dead or dying trees are removed and replaced quickly. See appendix 4.

DRAFT

Appendix 1:

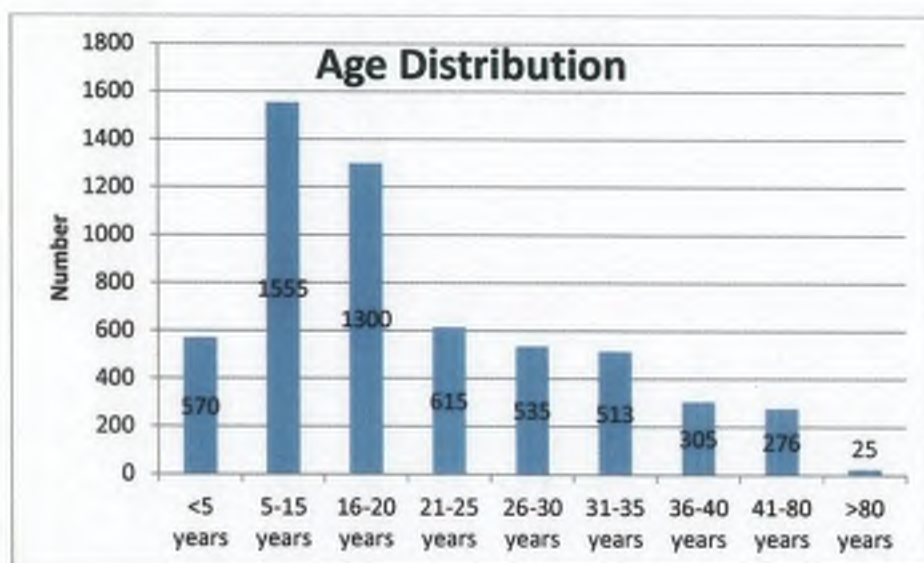


Appendix 2:

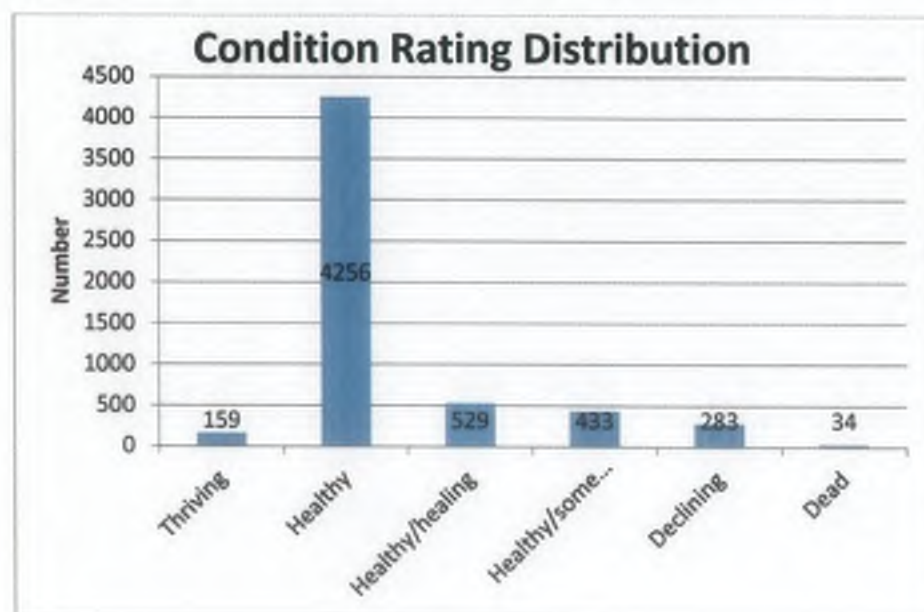


DRAFT

Appendix 3:



Appendix 4:



Appendix 5:

DRAFT

Botanical Name	Common Name	Runway 6	Runway 24	Runway 33	Runway 15	Totals
<i>Abies concolor</i>	White fir	3				3
<i>Acer amurense</i>	Amur maple	2				2
<i>Acer buergerianum</i>	Trident maple	3				3
<i>Acer griseum</i>	Paperbark maple	9				9
<i>Acer henryi</i>	Henry maple	2				2
<i>Acer miyabe</i>	State Street maple	3				3
<i>Acer negundo</i>	Boxelder	9	262	37		308
<i>Acer palmatum</i>	Japanese maple	84	2	18		104
<i>Acer platanoides</i>	Norway maple	7		5		12
<i>Acer pseudoplatanus</i>	Sycamore maple	1				1
<i>Acer rubrum</i>	Red maple	118	27	95	4	244
<i>Acer sachalinum</i>	Silver maple	59	28	105		192
<i>Acer saccharum</i>	Sugar maple	70	14	48	6	138
<i>Aesculus sp.</i>	Flowering horsechestnut	13	3		25	41
<i>Ailanthus altissima</i>	Tree-of-heaven		3		12	15
<i>Albizia julibrissin</i>	Mimosa	2		4		6
<i>Amelanchier sp.</i>	Serviceberry	23	2	1		26
<i>Asimina triloba</i>	Pawpaw	7		3		10
<i>Betula nigra</i>	River birch	33	12	9		54
<i>Betula sp.</i>	Birch	2		1		3
<i>Carpinus betulus</i>	European hornbeam	6	1			7
<i>Carpinus caroliniana</i>	American hornbeam	1				1
<i>Carya glabra</i>	Pignut hickory		1			
<i>Carya illinoensis</i>	Pecan	2	4			6
<i>Carya ovata</i>	Shagbark hickory	1	2			3
<i>Castanea mollissima</i>	Chinese chestnut	3	6	1	2	12
<i>Catalpa speciosa</i>	Catalpa	11	11	9	1	32
<i>Cedrus sp.</i>	Cedar	1				1
<i>Celtis occidentalis</i>	Hackberry	69	191	74	95	429
<i>Cercidiphyllum japonicum</i>	Japanese pagodatree	1		1		2
<i>Cercis canadensis</i>	Redbud	94	9	15	3	121
<i>Chamaecyparis obtusa</i>	Hinoki falsecypress	6				6
<i>Chionanthus virginicus</i>	Fringetree	3			3	6
<i>Cladrastis kentukea</i>	American Yellowwood	12	3			15
<i>Cornus amomum</i>	Silky dogwood				1	1
<i>Cornus florida</i>	Flowering dogwood	223	11	72	3	309
<i>Cornus kousa</i>	Kousa dogwood	20	6			26
<i>Cornus mas</i>	Cornelian cherry dogwood	5				5
<i>Corylus avellana</i>	Filbert	3				3
<i>Cotinus obovatus</i>	Smoketree	6				6
<i>Crataegus phaenopyrum</i>	Washington hawthorn	4	2		3	9
<i>Cryptomeria japonica</i>	Japanese cedar	28				28
<i>Diospyros virginiana</i>	Persimmon	3	1			4
<i>Fagus grandifolia</i>	American beech	4	1			5

<i>Fagus sylvatica</i>	European beech	3		2		5
<i>Franklinia alatamaha</i>	Franklin tree	3				3
<i>Fraxinus</i> sp.	Ash	26	188	25	14	253
<i>Ginkgo biloba</i>	Ginkgo	20	3	1		24
<i>Gleditsia triacanthos</i>	Honeylocust	12	5		5	22
<i>Gymnocladus dioica</i>	Kentucky coffeetree	7	2			9
<i>Halesia diptera</i>	Mountain silverbell	2				2
<i>Halesia carolina</i>	Silverbell	1				1
<i>Hamamelis virginiana</i>	Witchhazel	3				3
<i>Ilex crenata</i>	Foster holly	94	5	5		104
<i>Ilex opaca</i>	American holly	145	5	39	2	191
<i>Juglans cinerea</i>	Butternut			1		1
<i>Juglans nigra</i>	Black walnut	19	94	8	27	148
<i>Juniperus communis</i>	Common juniper	2				2
<i>Juniperus chinensis</i>	Chinese juniper	23		7	1	31
<i>Juniperus virginiana</i>	Eastern redcedar	75	16	18	1	110
<i>Koeleruteria paniculata</i>	Goldenrain tree	9	2	1		12
<i>Lagerstroemia indica</i>	Crape myrtle	56		16		72
<i>Liquidambar styraciflua</i>	Sweetgum	8		1		9
<i>Liriodendron tulipifera</i>	Tulip tree	15	11	16	4	46
<i>Maclura pomifera</i>	Osage orange	1	5	3		9
<i>Magnolia grandiflora</i>	Southern magnolia	23	4	12		39
<i>Magnolia</i> sp.	Magnolia	36	1	6		43
<i>Magnolia stellata</i>	Star magnolia	4		2		6
<i>Magnolia virginiana</i>	Sweetbay magnolia	21	4	1		26
<i>Magnolia x soulangeana</i>	Saucer magnolia	7	6	6		19
<i>Malus</i> sp.	Crab apple	36	5	22		63
<i>Metasequoia glyptostroboides</i>	Dawn redwood	2	5			7
<i>Morus</i> sp.	Mulberry	91	132	118	6	347
<i>Nyssa sylvatica</i>	Blackgum	10				10
<i>Parrotia persica</i>	Persian ironwood	3				3
<i>Paulownia tomentosa</i>	Paulownia		3			
<i>Picea abies</i>	Norway spruce	37	28	5	5	75
<i>Picea alba</i>	White spruce	1	1			2
<i>Picea omorica</i>	Serbian spruce	1	3	1		5
<i>Picea orientalis</i>	Oriental spruce				17	17
<i>Picea pungens</i>	Blue spruce	35	11	11	1	58
<i>Pinus nigra</i>	Austrian pine	3	6	1	1	11
<i>Pinus parviflora</i>	Japanese white pine	4				4
<i>Pinus sylvestris</i>	Scotch pine		1		8	9
<i>Pinus strobus</i>	Eastern white pine	67	118	13		198
<i>Pinus thunbergii</i>	Japanese black pine	1				1
<i>Pistacia chinensis</i>	Pistachio	1				1
<i>Platanus occidentalis</i>	American sycamore	1	56	4	5	66
<i>Platanus x acerifolia</i>	London planetree	1				1
<i>Populus deltoides</i>	Cottonwood	1	15	2		18
<i>Prunus persica</i>	Peach			1		1
<i>Prunus serotina</i>	Black cherry	53	28	29	31	141
<i>Prunus</i> sp.	Flowering cherry	54	3	22		79
<i>Prunus virginiana</i>	Chokeberry	2		1		3

<i>Pseudotsuga menziesii</i>	Douglas fir	5				5
<i>Pyrus calleryana</i>	Bradford pear	32	1	194		227
<i>Quercus acutissima</i>	Sawtooth oak	3				3
<i>Quercus alba</i>	White oak	6	5	3		14
<i>Quercus bicolor</i>	Swamp white oak	5			1	6
<i>Quercus coccinea</i>	Scarlet oak	2				2
<i>Quercus imbricaria</i>	Shingle oak	4	2			6
<i>Quercus macrocarpa</i>	Bur oak	3	2			5
<i>Quercus nigra</i>	Water oak		1			
<i>Quercus pagoda</i>	Cherrybark oak	4				4
<i>Quercus palustris</i>	Pin oak	58	45	28	5	136
<i>Quercus phellos</i>	Willow oak	12	17	1	1	31
<i>Quercus prinus</i>	Chestnut oak	5	1			6
<i>Quercus robur</i>	English oak	2				2
<i>Quercus rubra</i>	Red oak	12	15	6	5	38
<i>Quercus sp.</i>	Oak	1				1
<i>Robinia pseudoacacia</i>	Black locust	7	47	8		62
<i>Salix babylonica</i>	Weeping willow	1	1			2
<i>Salix matsudana</i>	Peking willow	3		3		6
<i>Salix sp.</i>	Willow oak	2	5			7
<i>Sassafras albidum</i>	Sassafras	3				3
<i>Styrax japonicus</i>	Japanese snowbell	1				1
<i>Syringa reticulata</i>	Japanese tree lilac	7				7
<i>Taxodium ascendens</i>	Pond cypress	3				3
<i>Taxodium distichum</i>	Bald cypress	2	28	2		32
<i>Taxus sp.</i>	Yew	3				3
<i>Thuja sp.</i>	Arborvitae	34	142	2		178
<i>Tilia americana</i>	American basswood	1	2			3
<i>Tilia cordata</i>	Little leaf linden	4	3		3	10
<i>Tsuga canadensis</i>	Hemlock	44	2	2		48
<i>Ulmus x</i>	Elm	4				4
<i>Ulmus americana</i>	American elm	34	149	36	10	229
<i>Ulmus parviflora</i>	Paperbark elm	2	1			3
<i>Ulmus pumila</i>	Siberian elm	15	7	21		43
<i>Ulmus x hollandica</i>	Jacqueline Hillier dwarf elm	1				1
<i>Viburnum prunifolium</i>	Blackhaw	7				7
<i>Zelkova serrata</i>	Zelkova	3	22	1		26
		Runway 6	Runway 24	Runway 33	Runway 15	
		2307	1866	1205	311	5689

DRAFT Copy - NOT FOR PUBLICATION

DEED OF AVIGATION EASEMENT

This DEED OF EASEMENT made this _____ day of _____, 20____, by and between _____ ("Grantors") and the Louisville Regional Airport Authority, a body politic and corporate existing pursuant to KRS Chapter 183 ("Authority").

WITNESSETH:

That for the sum _____ Dollars (\$ _____) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantors do hereby grant, bargain, sell, and convey unto the Authority, its successors and assigns, with covenant of General Warranty, for the use and the benefit of the public for so long as Bowman Field Airport (the "Airport") is a public use airport, a perpetual avigation easement and an aircraft operations and aircraft noise easement ("Easement") and right of way appurtenant to the Airport for the unobstructed use and passage of all types of aircraft (as hereafter defined) in and through the air space above Grantor's property in Jefferson County, Kentucky, described in Exhibit A attached hereto and made a part hereof (the "Premises"), which airspace is further described as follows:

All that airspace above an imaginary plane over the Premises, the elevations of which plane are depicted by the elevation lines delineated on Exhibit B attached hereto and made a part hereof, to an infinite height above said imaginary plane.

A. Together with the continuing rights, without additional consideration, the Easement shall afford the Authority the following rights:

1. The right to prevent the erection or growth into the airspace within the Easement of any natural or artificial object, tree, or vegetation;
2. The right to remove or alter from the airspace within the Easement, or at the sole option of the Authority, as an alternative, to mark and light as an obstruction to air navigation, any such natural or artificial object, tree, or vegetation now or in the future upon the Premises within the Easement;
3. The right of reasonable ingress and egress to and from the Easement over the Premises for the aforesaid purposes upon reasonable notice;
4. On those occasions, if any, when it is necessary for the Authority to come upon the Premises for the purpose of trimming any natural or artificial object, tree, or vegetation encroaching within the Easement herein granted, the right to cut back or trim said vegetation ten (10) feet below the Easement herein granted to accommodate future growth of said vegetation.

B. Grantors further covenant and agree that they will not hereafter erect or permit the erection or growth upon the Premises of any building, structure, tree, bush, or other natural or artificial vegetation, or any part thereof, extending into the airspace contained in the Easement. Grantors further covenant and agree that they will not permit or suffer to remain upon the

DRAFT Copy - NOT FOR PUBLICATION

Premises any tree or other object extending into the airspace contained in the Easement, except to the extent that any buildings or structures existing on the date of this Deed of Avigation Easement may already encroach upon the Premises, in which case the Authority shall have the right to mark and light such encroachments as obstructions to air navigation, as indicated in Paragraph A(2), or enter the Premises and trim such vegetation, as indicated in paragraph A, above.

C. For the purpose of this instrument, the term "aircraft" shall mean any contrivance now known or hereafter invented, used or designed for navigation of or flight in the air, without limitation now or in the future as to speed, size, noise, characteristics, frequency or time of operation, by whomsoever owned or operated.

D. Grantors acknowledge that aviation is an expanding and developing activity, and that the degree to which one or more of the rights granted herein may affect or burden the underlying real estate may change or increase with the passage of time, and any such changes or increases shall not be a cause for Grantors, their successors and/or assigns to seek or recover additional compensation or damages.

E. The easements, servitudes and covenants imposed hereby shall be perpetual, shall benefit and be appurtenant to the Airport, shall be binding upon and inure to the benefit of the parties hereto and their respective personal representatives, heirs, successors, transferees and/or assigns; shall constitute covenants running with the land so long as the Airport continues to be operated as an airport; and shall not be amended, superceded, modified or released except by express written agreement of the parties hereto. If any provision hereof shall be determined void or unenforceable by a court of competent jurisdiction, all other provisions hereof shall remain in full force and effect. This instrument contains the entire understanding of the parties with respect to the subject matter hereof. This instrument shall be governed and construed in accordance with the laws of the Commonwealth of Kentucky and applicable federal laws and regulations.

IN TESTIMONY WHEREOF, witness the execution hereof by the Grantors as of the day and year first written above.

GRANTORS:

DRAFT Copy – NOT FOR PUBLICATION

COMMONWEALTH OF KENTUCKY)
) SS
COUNTY OF JEFFERSON)

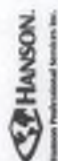
The foregoing instrument was acknowledged before me this ____ day of _____, 20__, by _____, _____, and _____.

My commission expires: _____

Notary Public

THIS INSTRUMENT PREPARED BY:

Exhibit A [Legal Description of the Grantor's Property]
Exhibit B [Drawing Showing Elevation Lines of Imaginary Plane Over the Grantor's Property]



HANSON
PROFESSIONAL SERVICES, INC.
OFFICE: Nashville
1000 Nashville Ave.
Nashville, TN 37203
Phone: (615) 417-0700
Fax: (615) 417-0701
www.hansonps.com

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

DRAFT ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION
1	1/11/2011	1st DRAFT
2	2/11/2011	2nd DRAFT
3	3/11/2011	3rd DRAFT
4	4/11/2011	4th DRAFT
5	5/11/2011	5th DRAFT
6	6/11/2011	6th DRAFT
7	7/11/2011	7th DRAFT
8	8/11/2011	8th DRAFT
9	9/11/2011	9th DRAFT
10	10/11/2011	10th DRAFT
11	11/11/2011	11th DRAFT
12	12/11/2011	12th DRAFT
13	1/12/2012	13th DRAFT
14	2/12/2012	14th DRAFT
15	3/12/2012	15th DRAFT
16	4/12/2012	16th DRAFT
17	5/12/2012	17th DRAFT
18	6/12/2012	18th DRAFT
19	7/12/2012	19th DRAFT
20	8/12/2012	20th DRAFT
21	9/12/2012	21st DRAFT
22	10/12/2012	22nd DRAFT
23	11/12/2012	23rd DRAFT
24	12/12/2012	24th DRAFT
25	1/13/2013	25th DRAFT
26	2/13/2013	26th DRAFT
27	3/13/2013	27th DRAFT
28	4/13/2013	28th DRAFT
29	5/13/2013	29th DRAFT
30	6/13/2013	30th DRAFT
31	7/13/2013	31st DRAFT
32	8/13/2013	32nd DRAFT
33	9/13/2013	33rd DRAFT
34	10/13/2013	34th DRAFT
35	11/13/2013	35th DRAFT
36	12/13/2013	36th DRAFT
37	1/14/2014	37th DRAFT
38	2/14/2014	38th DRAFT
39	3/14/2014	39th DRAFT
40	4/14/2014	40th DRAFT
41	5/14/2014	41st DRAFT
42	6/14/2014	42nd DRAFT
43	7/14/2014	43rd DRAFT
44	8/14/2014	44th DRAFT
45	9/14/2014	45th DRAFT
46	10/14/2014	46th DRAFT
47	11/14/2014	47th DRAFT
48	12/14/2014	48th DRAFT
49	1/15/2015	49th DRAFT
50	2/15/2015	50th DRAFT
51	3/15/2015	51st DRAFT
52	4/15/2015	52nd DRAFT
53	5/15/2015	53rd DRAFT
54	6/15/2015	54th DRAFT
55	7/15/2015	55th DRAFT
56	8/15/2015	56th DRAFT
57	9/15/2015	57th DRAFT
58	10/15/2015	58th DRAFT
59	11/15/2015	59th DRAFT
60	12/15/2015	60th DRAFT
61	1/16/2016	61st DRAFT
62	2/16/2016	62nd DRAFT
63	3/16/2016	63rd DRAFT
64	4/16/2016	64th DRAFT
65	5/16/2016	65th DRAFT
66	6/16/2016	66th DRAFT
67	7/16/2016	67th DRAFT
68	8/16/2016	68th DRAFT
69	9/16/2016	69th DRAFT
70	10/16/2016	70th DRAFT
71	11/16/2016	71st DRAFT
72	12/16/2016	72nd DRAFT
73	1/17/2017	73rd DRAFT
74	2/17/2017	74th DRAFT
75	3/17/2017	75th DRAFT
76	4/17/2017	76th DRAFT
77	5/17/2017	77th DRAFT
78	6/17/2017	78th DRAFT
79	7/17/2017	79th DRAFT
80	8/17/2017	80th DRAFT
81	9/17/2017	81st DRAFT
82	10/17/2017	82nd DRAFT
83	11/17/2017	83rd DRAFT
84	12/17/2017	84th DRAFT
85	1/18/2018	85th DRAFT
86	2/18/2018	86th DRAFT
87	3/18/2018	87th DRAFT
88	4/18/2018	88th DRAFT
89	5/18/2018	89th DRAFT
90	6/18/2018	90th DRAFT
91	7/18/2018	91st DRAFT
92	8/18/2018	92nd DRAFT
93	9/18/2018	93rd DRAFT
94	10/18/2018	94th DRAFT
95	11/18/2018	95th DRAFT
96	12/18/2018	96th DRAFT
97	1/19/2019	97th DRAFT
98	2/19/2019	98th DRAFT
99	3/19/2019	99th DRAFT
100	4/19/2019	100th DRAFT

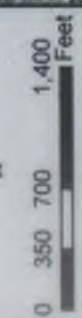
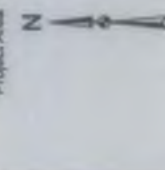
ALTERNATIVE 2

EXHIBIT 5



Legend

- Potential Lights
- TERPS Approach Surfaces
- Project Area



Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:13 PM
To: 'Stackelbeck, Kary (Heritage Council)'; 'Ryall, Jennifer (Heritage Council)'; 'Laracuenta, Nicolas (Heritage Council)'; 'Potts, Craig A. (Heritage Council)'
Subject: FW: Bowman Field (LOU) Area Safety Program APE
Attachments: 20151230 FAA Letter to SHPO APE.pdf; DRAFTTreeinventorysummaryNov2015.pdf; DRAFT Avigation Easement (FAA Reviewed).pdf

Craig

My first attempt failed due to email file size limitations. I'll try to split this up into two emails to get it through.

Aaron

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:07 PM
To: Potts, Craig A. (Heritage Council)
Cc: 'Stackelbeck, Kary (Heritage Council)'; Ryall, Jennifer (Heritage Council); 'Laracuenta, Nicolas (Heritage Council)'; Braden, Phillip (FAA); Dupree, Tommy (FAA); Johnson, Duane (FAA); Tim Haskell; 'skip.miller@flylouisville.com'; 'Sinnwell, Brian'
Subject: Bowman Field (LOU) Area Safety Program APE

Mr. Potts:

I am sending out a letter to you today regarding the items your office needs to review the APE for the Area Safety Program at Bowman Field. In addition to the hard copy, I am sending you electronic files of the letter and attachments to aid in your review.

Please let us know if you have questions or comments.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:17 PM
To: 'Potts, Craig A. (Heritage Council)'; 'Stackelbeck, Kary (Heritage Council)'; 'Ryall, Jennifer (Heritage Council)'; 'Laracuenta, Nicolas (Heritage Council)'
Subject: FW: Bowman Field (LOU) Area Safety Program APE
Attachments: EXB-LOU_Lighting_Alternative-20151217.pdf

Email 2 of 2.

Happy New Year to you and your staff

-Aaron

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:07 PM
To: Potts, Craig A. (Heritage Council)
Cc: 'Stackelbeck, Kary (Heritage Council)'; Ryall, Jennifer (Heritage Council); 'Laracuenta, Nicolas (Heritage Council)'; Braden, Phillip (FAA); Dupree, Tommy (FAA); Johnson, Duane (FAA); Tim Haskell; 'skip.miller@flylouisville.com'; 'Sinnwell, Brian'
Subject: Bowman Field (LOU) Area Safety Program APE

Mr. Potts:

I am sending out a letter to you today regarding the items your office needs to review the APE for the Area Safety Program at Bowman Field. In addition to the hard copy, I am sending you electronic files of the letter and attachments to aid in your review.

Please let us know if you have questions or comments.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:21 PM
To: 'Stackelbeck, Kary (Heritage Council)'; 'Ryall, Jennifer (Heritage Council)'; 'Laracuenta, Nicolas (Heritage Council)'; 'Potts, Craig A. (Heritage Council)'
Subject: RE: Bowman Field (LOU) Area Safety Program APE
Attachments: EXB-LOU_Lighting_Alternative-20151217.zip

Email 2 of 2.

Thanks - Aaron

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:13 PM
To: 'Stackelbeck, Kary (Heritage Council)'; 'Ryall, Jennifer (Heritage Council)'; 'Laracuenta, Nicolas (Heritage Council)'; 'Potts, Craig A. (Heritage Council)'
Subject: FW: Bowman Field (LOU) Area Safety Program APE

Craig

My first attempt failed due to email file size limitations. I'll try to split this up into two emails to get it through.

Aaron

From: Braswell, Aaron (FAA)
Sent: Wednesday, December 30, 2015 3:07 PM
To: Potts, Craig A. (Heritage Council)
Cc: 'Stackelbeck, Kary (Heritage Council)'; Ryall, Jennifer (Heritage Council); 'Laracuenta, Nicolas (Heritage Council)'; Braden, Phillip (FAA); Dupree, Tommy (FAA); Johnson, Duane (FAA); Tim Haskell; 'skip.miller@flylouisville.com'; 'Sinnwell, Brian'
Subject: Bowman Field (LOU) Area Safety Program APE

Mr. Potts:

I am sending out a letter to you today regarding the items your office needs to review the APE for the Area Safety Program at Bowman Field. In addition to the hard copy, I am sending you electronic files of the letter and attachments to aid in your review.

Please let us know if you have questions or comments.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Monday, February 22, 2016 4:05 PM
To: Potts, Craig A. (Heritage Council); cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org; tom.owen@louisvilleky.gov; bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras; d.l.b.2547@gmail.com; brent.ackerson@louisvilleky.gov; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller, Skip; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger Anderson; Dupree, Tommy (FAA); Braden, Phillip (FAA); patriciastallings@brockington.org; Tom FitzGerald; director@preservationkentucky.org; Phyllis Hawkins; jchris.mccoy@gmail.com; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA)
Subject: Bowman Field APE
Attachments: APE Exhibit 20150922.pdf

Dear Consulting Party Members,

The Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO) hereby invites you to comment on the Area of Potential Effect (APE) for the proposed obstruction mitigation undertaking, known as the Area Safety Program, at Bowman Field Airport (LOU) in Louisville, Kentucky. The FAA MEM-ADO proposes to use the APE as defined in the attached drawing (APE Exhibit 20150922 [Note that proposed APE is shown is broken black lines around the airspace surfaces depicted in the drawing]) prior to completing identification and assessment of historic resources. As lead federal agency, the FAA MEM-ADO believes the proposed APE is reasonable based on the scope of the proposed undertaking. I would like to point out, that the FAA MEM-ADO has determined that an alternative using lights to mitigate obstructions would not be reasonable or practicable. The paragraphs below my signature provide more detail on the FAA MEM-ADO determination on the lighting alternative. An additional attachment will be sent momentarily as part of the lighting alternative determination. **In order to keep the Section 106 process moving forward, I ask that you submit comments to me by no later than 5:00 PM (ET) March 8, 2016.** Comments may be issued by email or mail. If you have any questions, please feel welcome to contact me by responding to this email or calling me at the number below.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Lighting Alternative Determination:

As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-1L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

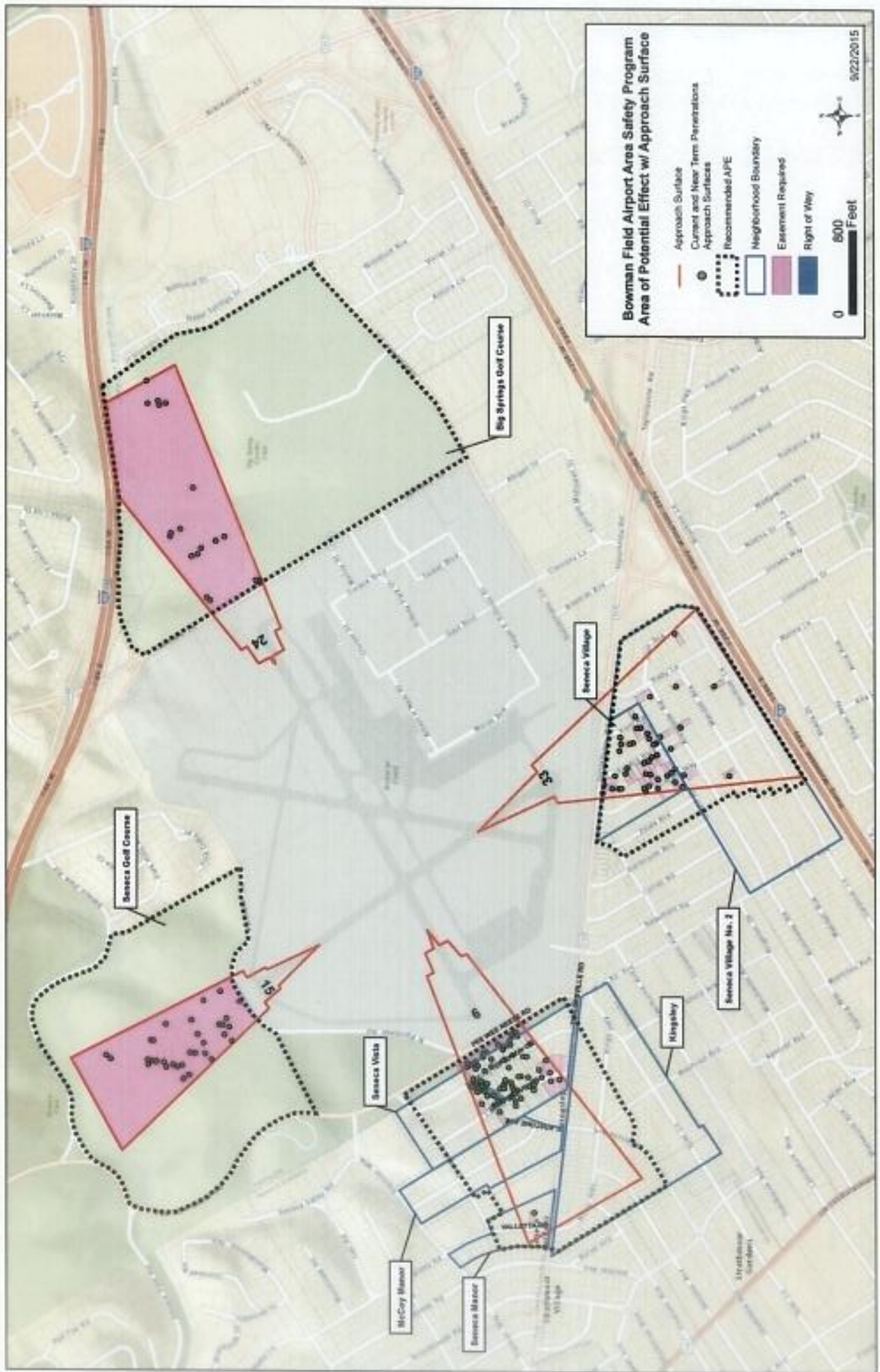
We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential, recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

(1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.

(2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.

(3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.

(4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.



Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Monday, February 22, 2016 4:07 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA); 'patriciastallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA)
Subject: RE: Bowman Field APE
Attachments: EXB-LOU_Lighting_Alternative-20151217.pdf

As discussed in the message below, here is the attachment for the lighting alternative.

Thank you

Aaron

From: Braswell, Aaron (FAA)
Sent: Monday, February 22, 2016 4:05 PM
To: Potts, Craig A. (Heritage Council); cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org; tom.owen@louisvilleky.gov; bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras; d.l.b.2547@gmail.com; brent.ackerson@louisvilleky.gov; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller, Skip; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger Anderson; Dupree, Tommy (FAA); Braden, Phillip (FAA); patriciastallings@brockington.org; Tom FitzGerald; director@preservationkentucky.org; Phyllis Hawkins; jchris.mccoy@gmail.com; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA)
Subject: Bowman Field APE

Dear Consulting Party Members,

The Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO) hereby invites you to comment on the Area of Potential Effect (APE) for the proposed obstruction mitigation undertaking, known as the Area Safety Program, at Bowman Field Airport (LOU) in Louisville, Kentucky. The FAA MEM-ADO proposes to use the APE as defined in the attached drawing (APE Exhibit 20150922 [Note that proposed APE is shown in broken black lines around the airspace surfaces depicted in the drawing]) prior to completing identification and assessment of historic resources. As lead federal agency, the FAA MEM-ADO believes the proposed APE is reasonable based on the scope of the proposed undertaking. I would like to point out, that the FAA MEM-ADO has determined that an alternative using lights to mitigate obstructions would not be reasonable or practicable. The paragraphs below my signature provide more detail on the FAA MEM-ADO determination on the lighting alternative. An additional attachment will be sent momentarily as part of the lighting alternative determination. **In order to keep the Section 106 process moving forward, I ask that you submit comments to me by no later than 5:00 PM (ET) March 8, 2016.** Comments may be issued by email or mail. If you have any questions, please feel welcome to contact me by responding to this email or calling me at the number below.

Thank you,

Aaron Braswell

Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Lighting Alternative Determination:

As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-1L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential, recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

- (1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.
- (2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.
- (3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.
- (4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.



ROMAN FIELD
2018 TAYLORVILLE RD
LOUISVILLE, KY 40206

DRAFT
ENVIRONMENTAL
ASSESSMENT[illegible]

EXHIBIT 5



Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Tuesday, February 23, 2016 12:40 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA); 'patriciastallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA)
Subject: RE: Bowman Field APE
Attachments: EXB-LOU_Lighting_Alternative (small)-20151217.pdf; APE Exhibit (small) 20150922.pdf

All,

It appears that some of you may not have received one or both emails sent yesterday due to email file size restrictions. I have resized the graphic images and have attached for your review. Below is the original email. The second email was used only to transmit one of the two graphic image files. If you have any questions, please let me know.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

From: Braswell, Aaron (FAA)
Sent: Monday, February 22, 2016 4:05 PM
To: Potts, Craig A. (Heritage Council); cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org; tom.owen@louisvilleky.gov; bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras; d.l.b.2547@gmail.com; brent.ackerson@louisvilleky.gov; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller, Skip; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger Anderson; Dupree, Tommy (FAA); Braden, Phillip (FAA); patriciastallings@brockington.org; Tom FitzGerald; director@preservationkentucky.org; Phyllis Hawkins; jchris.mccoy@gmail.com; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA)
Subject: Bowman Field APE

Dear Consulting Party Members,

The Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO) hereby invites you to comment on the Area of Potential Effect (APE) for the proposed obstruction mitigation undertaking, known as the Area Safety Program, at Bowman Field Airport (LOU) in Louisville, Kentucky. The FAA MEM-ADO proposes to use the APE as defined in the attached drawing (APE Exhibit 20150922 [Note that proposed APE is shown is broken black lines around the

airspace surfaces depicted in the drawing]] prior to completing identification and assessment of historic resources. As lead federal agency, the FAA MEM-ADO believes the proposed APE is reasonable based on the scope of the proposed undertaking. I would like to point out, that the FAA MEM-ADO has determined that an alternative using lights to mitigate obstructions would not be reasonable or practicable. The paragraphs below my signature provide more detail on the FAA MEM-ADO determination on the lighting alternative. An additional attachment will be sent momentarily as part of the lighting alternative determination. **In order to keep the Section 106 process moving forward, I ask that you submit comments to me by no later than 5:00 PM (ET) March 8, 2016.** Comments may be issued by email or mail. If you have any questions, please feel welcome to contact me by responding to this email or calling me at the number below.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Lighting Alternative Determination:

As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-1L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential, recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

- (1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.
- (2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.
- (3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.
- (4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Friday, March 18, 2016 1:55 PM
To: 'Potts, Craig A. (Heritage Council)'; Jennifer Ryall, KHC
Cc: 'Laracuenta, Nicolas (Heritage Council)'; Braden, Phillip (FAA); 'Sinnwell, Brian'
Subject: Bowman Field Area Safety Program APE
Attachments: 20160318 FAA Letter to SHPO APE concurrence.pdf

Craig and Jennifer:

I will be mailing out the attached letter later on today. We are working on the map for the tree inventory and collecting other project related details which we will pass along as soon as it becomes available. One thing I do want to mention is the airport sponsor plans to continue to work on trees (those which are on existing airport properties, existing easements, or City right-of-way [and outside of the federal action]) until March 31st. Additional work may be conducted after March 31st, but it will be limited to stump grinding, tree planting, and restoration. I'll be sharing that information with the CPs-along with other details- in our next round of correspondence which I expect to be within a few business days.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118
Phone: 901-322-8180

March 18, 2016

Mr. Craig Potts
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Dear Mr. Potts:

**RE: Area of Potential Effect (APE)
Bowman Field Airport (LOU) Area Safety Program
KHC # 45249**

In consultation with your office, the Federal Aviation Administration (FAA) Memphis Airports District Office (ADO) submitted the APE to the consulting parties in the LOU Area Safety Program Section 106 process on February 22, 2016. The correspondence provided a graphic depiction of the APE, discussed the elimination of the obstruction lighting alternative and invited comments on the APE. Four comments were received by the FAA. These comments were forwarded to your office on March 9, 2016 and primarily pertain to previous comments made by the consulting parties. It is our opinion these comments do not require or warrant further changes to the APE boundaries.

The FAA proposes that the APE as provided to your office on September 22, 2015, the remaining consulting parties on February 22, 2016, and as enclosed, be accepted for the proposed undertaking. I offer the following rationale to support the current version of the APE:

- 1) The APE has been modified since inception based on input from consulting parties. The original APE was smaller in size and closely aligned with the airspace surfaces associated with LOU. Based on feedback provided by the consulting parties, the APE was expanded to provide additional buffer for indirect effects.
- 2) The FAA believes the APE provides sufficient buffer for the proposed undertaking which is to remove and/or trim select trees within the APE.
- 3) The elimination of the obstruction lighting alternative removes the need for an additional APE with a larger area to account for effects related to light emissions.

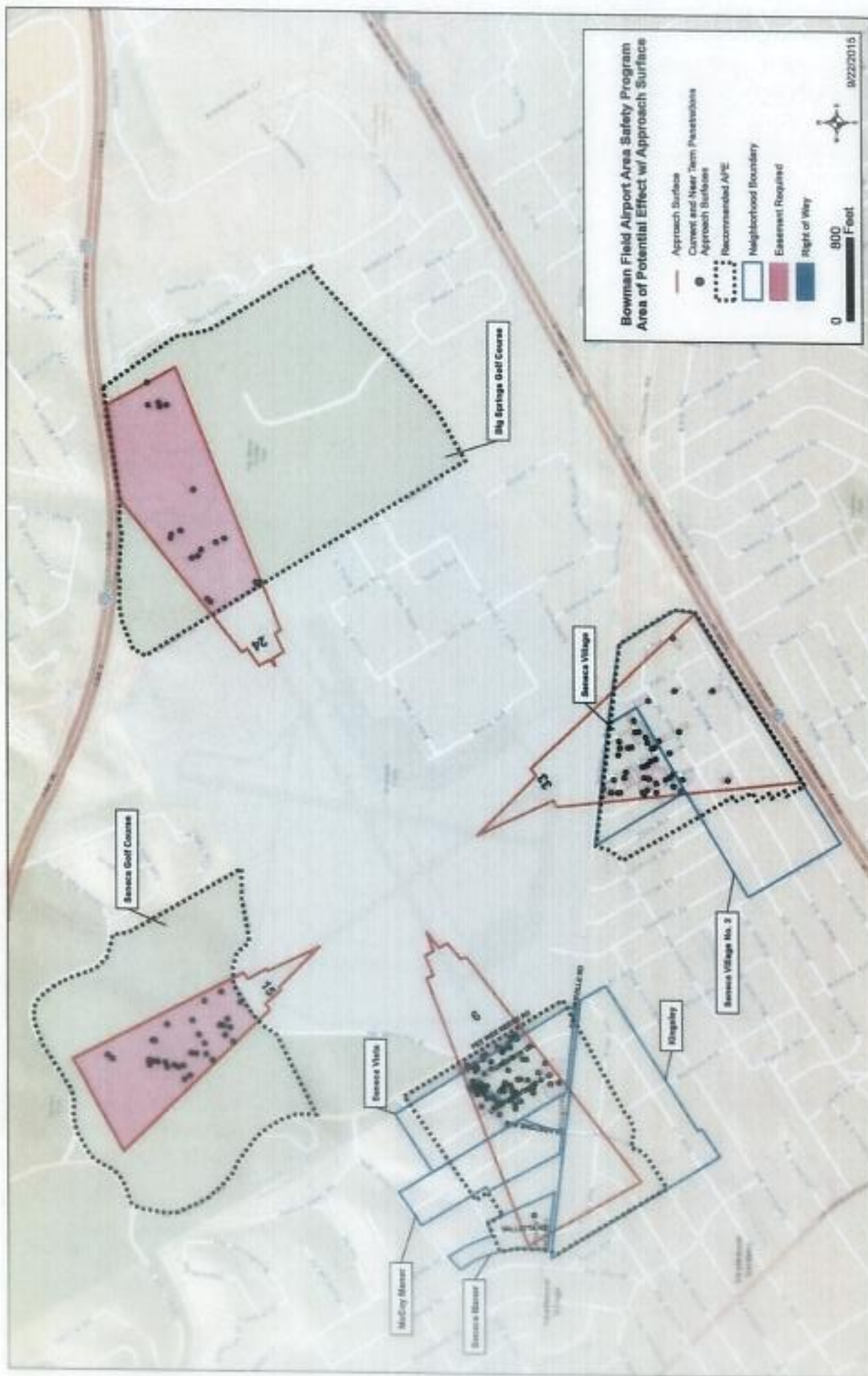
Given this information, the FAA respectfully request concurrence from the Kentucky Heritage Council on the APE. If you have any questions or concerns, please feel welcome to contact me at (901) 322-8192.

Sincerely,

Aaron Braswell
Environmental Protection Specialist, Memphis Airports District Office

cc: Mr. Skip Miller, Louisville Regional Airport Authority (electronic copy)

Enclosure



Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Monday, March 21, 2016 3:15 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov';
'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com';
'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian';
'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins';
'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA);
'patriciastallings@brockington.org'; 'Tom FitzGerald';
'director@preservationkentucky.org'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com';
'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA)
Subject: Bowman Field Section 106 Meeting #3

Dear Consulting Party Members,

The FAA will hold the next consulting party meeting on Thursday, March 31st, 2016, at 9:00 AM ET. A few details are still being worked out, but the tentative location is 4320 Park Boulevard, Louisville, Kentucky which is the same location as the previous two meetings. I'll provide an agenda prior to the meeting.

I expect to provide more information on the project within the next day or so.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Tuesday, March 22, 2016 3:47 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA); 'patriciastallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; Angela Burton; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuate, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA); Jennifer Ryall, KHC; 'Hite, Lisa'; 'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com'; 'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Cc: 'sgibbs@hanson-inc.com'
Subject: Bowman Field Section 106 - Project information
Attachments: Responses to comments.pdf; DRAFT Avigation Easement.pdf; MEM-ResponseToAmesComments_20160322.pdf

Dear Consulting Party Members,

Attached for your review are the following:

1. Sample easement language.
2. Responses to comments.
3. Response to Dr. Ames Report.

More information to follow soon. This will include an email from the consultant, Hanson, who will provide a link to download the supplement to the cultural resource evaluation.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

No.	Comment ID	Topic	Comment	Response
1	SEN#1	Seneca Park	Seneca Park has not been evaluated for eligibility or listing in the National Register of Historic Places. It is important that Cultural Resource Evaluation for the Bowman Field Safety Program evaluate the resource as a whole. We believe that when this broader view is taken and national guidelines are followed, the park will be determined to be eligible, including its landscape elements.	All trees identified for trimming or removal have been placed as part of the ongoing management of the golf course.
2	SEN#2	Seneca Park	The Golf Course is just one element in this historic park. It's not right to isolate one amenity. Any changes to the golf course will impact all park users and usage. The golf course keeps its integrity as a designed landscape. Tree removal will be an adverse effect to the park as a whole.	All trees identified for trimming or replacement are within the golf course. Two trees will be planted as replacements for each tree the golf course operator decides to remove.
3	SEN#3	Seneca Park	The area along Pee Wee Reese Road, with the American Cancer Society Grove of memorial trees, is an integral part of the park from the original Olmsted firm general design plan of 1928 and needs to be included in the identification and evaluation. Removal of mature trees along the "automobile course" will be an adverse effect to the park as a whole.	A supplement to the CRE has prepared which addresses this comment.
4	SEN#4	Seneca Park	The Louisville Cancer Society's Memorial Grove along Pee Wee Reese Road on Seneca Park property was overlooked. The memorial Grove will be significantly impacted in a harmful way and will need serious mitigation.	A supplement to the CRE has prepared which addresses this comment.
5	GEN#1	Changes to Tree Canopy	Negative effect on aesthetics of the community at large, most of which is comprised of garden suburbs.	A supplement to the CRE has prepared which addresses this comment.
6	GEN#2	Changes to Tree Canopy	Negative contribution to air quality (from an increase in air traffic that will likely follow from Bowman Field's compliance with FAA standards), a harmful impact to garden suburbs that were originally sited due to their clean air and country setting.	The proposed undertaking seeks to mitigate deductions to airspace surfaces to enhance safety of aircraft movements to and from Bowman Field Airport. Increases in aircraft activity are not anticipated as a result of the proposed undertaking. Furthermore, the airport has seen reduced aircraft operations since 2004 when the airport accommodated approximately 120,000 operations. The official FAA forecast projects 77,200 operations by 2030, an increase of less than 5% for the entire 15 year period.
7	GEN#3	Changes to Tree Canopy	Increase in noise (same as air quality above), a harmful impact to the quiet suburban neighborhoods	As mentioned in the response to comment ID GEN#2, the proposed action is not expected to result in increased aircraft activity. Therefore, noise levels are not expected to change. With respect to noise impacts caused by the removal of trees, previous studies have shown that vegetation can only significantly attenuate noise if there is a thick row (at least 100 feet of thickness) of trees and underbrush. See http://www.faa.gov/aircraft/airnoise/regulations_and_guidance/faq_nois.cfm#G8 and FAA Advisory Circular 150/5020-1, Paragraph 324.
8	GEN#4	Changes to Tree Canopy	Reduction in benefit of temperature amelioration provided by existing tree canopy.	The proposed undertaking features tree trimming or tree replacement so that reductions in shade/temperature benefits are mitigated.
9	GEN#5	Changes to Tree Canopy	Negative effect on property values (from all the above, as well as from what will eventually be a recent history of airport-related changes to the neighborhood that might discourage prospective home buyers - not only because to changes to the neighborhood from the currently-proposed project, but also out of concern for the possibility of future projects whose effect on Kingsley and nearby neighborhoods might be as, or more, injurious than the effects of the currently-proposed project)	The proposed undertaking would involve easement acquisition which would lead to the impact three percent of trees within the APE or study area. The trees that would be impacted would be replaced with other tree species or trimmed by professional arborist. Given the overall limited impact to the APE or study area, along with the proposed mitigation, it is difficult for the FAA to conclude that property values would be impacted. Also, apart from the current proposed action, there are no planned projects for Bowman Field Airport that would impact Kingsley or other neighborhoods surrounding the airport.
10	GEN#6	Tree Surveys	My residence may not be in the current APE but all my trees were surveyed last summer by Paul Clinton of Beechwood Trees and Nursery. Why? For a second swipe of the apple down the road?	In order to obtain sufficient information on the trees in the project area and to produce the reports needed for the Environmental Assessment and Section 106 Process, many trees have been surveyed and/or evaluated on multiple occasions to obtain on height, diameter, age, species, and other tree details.
11	GEN#7	Available Resources	A very important reference tool and guide seems to have been royally ignored. The National Register Bulletin's Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the national Register of Historic Places by David L. Arnes should be followed.	A supplement to the CRE has prepared which addresses this comment.
12	GEN#8	Available Resources	Knowledgeable contact on the historical perspective of the Seneca golf course. There is a treasure trove of historical documents and the original Olmsted design maps on the Olmsted parks at the park headquarters off Trevilian Way.	Following input from the consulting parties, it was determined that the federal action was not clearly defined. The CRE has been updated with a supplement to the project description. Please note that the total number of trees in the federal action has been reduced with no change to the geographic study area.

13	GENR#9	Recreation of Vegetation	Seneca Gardens and the surrounding neighborhoods were founded as garden communities and have maintained and strengthened that commitment. In evaluating historic integrity, the draft cultural resources report must reflect that Seneca Gardens/Seneca Manor and other garden suburbs have intentionally worked to preserve the landscape values that are associated with the original developments. The district-wide vegetation, including trees, must be recognized as contributing to the historic significance of Seneca Gardens/Seneca Manor and the neighborhoods within the limited and full Area of Potential Effect.	See response to Comment ID GENR#8.
14	KING#1	Kingsley Neighborhood	Kingsley's trees' contribution to the City's Historical Significance "as a vegetative pattern or feature that would be considered a character-defining feature". Old aerial photographs show evenly-spaced trees planted in Kingsley element prior to construction of homes.	See response to Comment ID GENR#8. In addition, consistent with the draft version of the CRE, the homeowner would make the determination to trim or remove and replace existing trees.
15	KING#2	Kingsley Neighborhood	Kingsley deed restrictions from the 1940's require setbacks to establish front yard green space and provide an area for homeowners to fashion their own landscape, including tree plantings.	See response to Comment ID KING#1.
16	KING#3	Kingsley Neighborhood	Kingsley deed restrictions from the 1920's define lot owners' responsibilities during neighborhood development to keep the grass cut and to insure that "shrubs and flowers" are kept in "first class condition".	Comment noted.
17	KING#4	Kingsley Neighborhood	The district-wide landscape, including trees, is an integral feature of Kingsley's historic significance under Criterion A and C.	Comment noted.
18	KING#6	Kingsley Neighborhood	The City of Kingsley has been granted Tree City USA status for the last 13 years. The continued care of our landscape should be evident.	Comment noted.
19	KING#7	Kingsley Neighborhood	The conclusions made in this document and proceeding will serve as precedents for any future federal undertakings - future FAA-assisted programs at Bowman Field, federal funding of changes to Taylorville Road, Federal Communications Commission approvals or wireless telecommunication devices within or impacting Kingsley. It is imperative, therefore, that the landscape of the neighborhood, including its trees, be specifically acknowledged in the statement of historical significance.	Comment noted.
20	PFTT#1	Summary of Comments	At the outset, the importance of the cultural resource evaluation associated with the Bowman Field undertaking requires explanation. With the exception of Spethmoor Village (just outside the narrow Area of Potential Effect for Runway 6), none of the residential suburbs in the environs of Bowman Field, nor Seneca Park or Big Spring Country Club, have been evaluated for listing in or eligibility for the National Register of Historic Places. Why it is that these environs have never been surveyed before with respect to federally assisted undertakings at Bowman Field (including previous tree removals and property acquisitions, including demolition of homes) begs an important question about the sufficiency of previous Section 106 consultations, assuming they were held.	Comment noted. This Section 106 consultation includes only the current federal action.
21	PFTT#2	Summary of Comments	The cultural resource firm subcontracted to Hanson Engineering for this review was undoubtedly hampered by an insufficient scope of work and budget for the effort. Nonetheless, it is important that the report meet professional standards established by the National Park Service and the Kentucky Heritage Council. The draft report does not do so.	The FAA is seeking to identify and evaluate historic resources with a "reasonable and good faith" level of effort in accordance with CFR 800. The Kentucky Heritage Council has previously stated the consultant preparing the CRE meets their professional standards.
22	PFTT#3	Summary of Comments	A significant objection to the draft CRE is the omission of any explanation of the standards used to identify and evaluate the landscape component—including the element of vegetation (e.g., trees, shrubs, and other plantings)—of the residential suburbs within the narrow Area of Potential Effect. This omission results in incorrect determinations of "eligibility" regarding the vegetation component of the landscape characteristics associated with the historic residential suburbs. Historic contexts and evaluation standards of the National Park Service of the U.S. Department of Interior (the federal "home" for the National Register of Historic Places) have been developed specifically for residential suburbs of the chronological periods of post-World War II and early freeway suburbs). Additional standards for designed historic landscapes and cultural landscapes have been developed by the National Park Service.	Comment noted.

23	PFTT#4	Summary of Comments	<p>The draft CRE recommends determinations of eligibility for the six (6) historically planned neighborhoods in the narrow Area of Potential Effect, under Criterion A (community planning and development) and Criterion C (architecture and design or, in some cases, solely architecture). The report finds that the non-vegetation elements of the landscape characteristics associated with each period of development of these suburbs are still present, a finding that they retain "historic integrity." Via agreed. However, with respect to the vegetation element of these National Register-eligible neighborhoods, the report consistently states that these suburbs "did not appear to be developed organically" or "by individual property owners over time", and that "neither type nor overall height of trees is considered to be a contributing element." These observations then facilitate the draft report's determination that the removal of mature tree canopies in the Bowman Field Safety Program will not result in an "adverse effect" to historic properties with respect to Section 106 of the National Historic Preservation Act. Respectfully, this approach to the vegetation analysis turns an aphorism on its head; literally, the report fails to see the trees for the forest.</p> <p>National Register Bulletin 18 (relating to designed historic landscapes) makes clear that these types of vegetative landscapes, found in subdivisions and "small residential grounds," do not have to reflect the work of a master, such as Olmsted, but include those with an "historical association with a significant trend in landscape gardening or landscape architecture" (in this using a recognized style or tradition). The vegetation element of the Bowman Field neighborhoods is part and parcel of the designed and vernacular landscapes of the periods in which these garden suburbs were planned, marketed, and developed.</p> <p>The report fails to convey that the Louisville community builders and developers of these neighborhoods (from the early 1800s to the 1900s) consciously marketed them as "garden spots," and included vegetation in their plans and designs because of the socioeconomic classes that were their target market.</p> <p>The draft report notes (in one place, as "casual vegetation," p. 70), but does not include, plantings by individual property owners (primarily homeowners) in the evaluation of historic significance. However, the vegetation planted by individual property owners is an integral part of the landscape characteristics of these historic neighborhoods since the "private yard is a distinguishing feature of American suburbs." It would be interesting to know whether the individual contributions of homeowners have been the work of a master gardener or a do-it-yourself, popular-weekend gardener.</p> <p>The evaluation of the vegetation component of these suburbs (and associated parks and golf courses) also needs to address all of the qualities of historic integrity, with reference to the evaluation standards of the National Park Service for the specific property types. In sum, vegetation (including the trees) is a physical attribute that helps to establish and perpetuate the feeling of these neighborhoods as historic residential suburbs.</p> <p>The first sentence on p. 1 erroneously identifies the purpose and need for the project as "object clearing." "Objects," when used in reference to aeronautical studies, are any "element of natural growth, terrain, or [human]-made structure whose height is greater than 3 inches." It is our understanding that, since mid-2013, FAA and URAA have defined the purpose of the undertaking to implementation of measures to mitigate obstructions that have been determined by FAA to pose a current hazard to air navigation with respect to the Terminal Instrument Procedure (TEIP) approach surfaces. If our understanding is incorrect, please clarify.</p> <p>The use of the phrase "Safety Program" in this federally assisted program does not appear to account for the safety of those on the ground—residents, businesses, and recreational users of Seneca Park and the Big Spring Country Club. Many residents believe that preservation of the mature tree canopy is their Safety Program, a matter that neither the FAA nor Louisville Regional Airport Authority (LRAA) have been thirty-seven (37) accidents associated with Bowman Field since 1982, which resulted in eight (8) fatalities to air crew and passengers.¹¹ All eight fatalities were associated with pilot error and/or inadequate preflight inspections or lack of preventative maintenance on the aircraft, not with hazardous "obstructions."</p> <p>By acknowledging that the surrounding neighborhoods are National Register-eligible residential subdivisions, the tree removal program itself will cause an adverse effect on the residential character of these neighborhoods by removing their protective barrier to operations at Bowman Field. This effect of the undertaking must be acknowledged and evaluated.</p>	<p>Comment noted.</p> <p>As previously noted, consistent with past activity and policies, the decision regarding the listing or replacement of the trees will remain with the homeowner.</p> <p>Comment noted.</p> <p>Comment noted.</p> <p>Comment noted.</p> <p>The FAA concurs, "Object" will be changed to "obstruction".</p> <p>The proposed undertaking is being pursued to meet FAA airspace guidelines. Such guidelines were developed to enhance the safety of pilots and passengers during the takeoff and landing phases of flight. In addition to airspace guidelines, the FAA has standards for the protection of people on the ground. Per FAA Advisory Circular 150/5300-13A, Paragraph 310, the area known as the Runway Proximity Zone (RPZ), is a geometric design standard to "enhance the protection of people and property on the ground." However, all of the easements associated with the proposed undertaking are outside of the RPZ boundaries. The FAA, therefore, maintains the nature of the proposed undertaking is safety and does not object to the project name.</p> <p>Comment noted.</p>
24	PFTT#5	Summary of Comments		
25	PFTT#6	Summary of Comments		
26	PFTT#7	Summary of Comments		
27	PFTT#8	Summary of Comments		
28	PFTT#9	1.1 Project Overview and Sponsorship		
29	PFTT#10	1.1 Project Overview and Sponsorship		
30	PFTT#11	1.1 Project Overview and Sponsorship		

31	PFTT#12	1.1.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigation, and the Area of Potential Effect	<p>The scope of the undertaking that is now described by FAA is mitigating hazardous obstructions within the TERPS approach surface as of February 2012. During the June 24, 2015 consultation meeting, FAA stated that only "current" needs are addressed in this undertaking. Via note that the public explanation of the Safety Program provided in the early public meetings (e.g., January 4, 2012) was based upon FAA's approval of an updated Airport Layout Plan (ALP) for Bowman Field's Master Plan. Our understanding is that the planning horizon for an ALP is ten (10) years, and is not limited to "current" conditions. The temporal difference is important.</p> <p>As stated in the June 24th meeting, PFTT's position is that the FAA-funded aviation easements (proposed, cumulative) also are within the scope of the undertaking and subject to review under Section 105 (as well as NEPA and Section 4f of the Federal Transportation Act). As a recipient of FAA funding for airport planning and airport improvements, LRAA must ensure that: (1) appropriate action will be taken to ensure that terminal airspace required to protect instrument and visual operations to the airport (including operations at established minimum flight altitudes) will be cleared and protected by mitigating existing, and preventing future, airport hazards; and (2) appropriate action, including the adoption of zoning laws, has been or will be taken to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations. Aviation easements are perpetual real property interests that permanently subject the affected home, business, or church to unlimited noise, vibration, and air pollution from aircraft and airport operations. Their presence and effects must be evaluated in the federally required reviews for this undertaking.</p>	The temporal boundaries for the project have been determined to be 10 years.
32	PFTT#13	1.1.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigation, and the Area of Potential Effect	<p>No alternatives have been presented to mitigate hazard obstructions other than tree removal. The evaluation of alternatives to achieve an undertaking's "purpose and need" is part of the planning process mandated by the regulations implementing Section 105 (see, e.g., 36 CFR § 800.1(c), 800.8(a)(2)) and, of course, is a cornerstone of environmental evaluation of federal undertakings, such as this one, under the National Environmental Policy Act (NEPA) and the implementing regulations of the Council on Environmental Quality. The Area of Potential Effect should account for the range of alternatives under evaluation by the federal agency undertaking or sponsoring the proposed action. The FAA cannot permissibly limit the reviews required of your agency to one alternative—tree removal.</p>	<p>Please see responses to comments CE-MRP2, and GENR63 for discussion on noise, air quality, and activity levels. The intent of the easement acquisition is to enable LRAA to enhance the safety of pilots and passengers by trimming or replacing trees which obstruct airspace surfaces. Impacts from air emissions, noise, and vibration, as a result of tree removal or replacement, would be negligible.</p>
33	PFTT#14	1.1.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigation, and the Area of Potential Effect	<p>The Area of Potential Effect (APE) is insufficient to Account for Direct, Indirect, and Cumulative Effects of the Tree Removal Program. The draft CRE states that "[f]or historic architectural resources, the APE consists of those geographical areas within the TERPS approach surfaces (and) contains all direct and indirect effects . . ." (p. 3). PFTT will refer to the draft APE as the "narrow APE." With respect to the narrow APE for Runway 24 (Figure 1.4), it appears that the northernmost edge is terminated at I-64. Please explain the rationale for terminating the boundary based on the interstate. Otherwise, if the full triangle were extended north across I-64, it appears that some of the Floyd-Breckinridge Cemetery in St. Matthews would be within the draft APE. Floyd-Breckinridge Cemetery, located at 1004 Jamestown Ct. (historically in the area of "Floyd's Station"), is an approximately 0.1520-acre wooded tract owned by the Faison Historical Society that contains the graves of John Floyd (1790-1783, an early surveyor and military figure in Kentucky), Captain Alexander Breckinridge (1752-1801, an American Revolution war officer), Robert Breckinridge (1794-1853, also an American Revolution war officer), and family members. During the June 24th consultation meeting, FAA stated that the reference to "indirect" effects in the narrow APEs were meant to include visual effects. As PFTT replied, to fully account for and evaluate the indirect visual and noise effects of the proposed removal of hundreds of mature canopy trees, the APE needs to be expanded to constitute a circular APE (the "full APE") that connects the outermost edge of each of the narrow APEs associated with the four runways.</p>	<p>An obstruction lighting alternative was previously considered. However, that alternative has been eliminated from consideration as it was have had more substantial environmental impacts than tree trimming or replacement. Obstruction lighting would require tree trimming or replacement to accommodate obstruction poles and utility lines. Light emissions from the obstruction lights would also create visual impacts.</p>
34	PFTT#15	1.1.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigation, and the Area of Potential Effect	<p>The APE has been revised based on the Section 106 process. The FAA believes the revised APE reflective of the scale and nature of the proposed undertaking. The supplement to the CRE addresses properties in the revised APE.</p>	

35	PFTT#16	1.1.1 Scope of the Safety Program EA, Proposed Alternatives, Mitigation, and the Area of Potential Effect	<p>PFTT's research indicates that, within the full APE—and depending on the results of a line-of-sight analysis or other method to assess visual impacts—there are at least an additional 23 residential structures planned more than 50 years ago, as follows: Between Runway 6 and Runway 33 (south of Bowman Field); Ben Air (1909), Beaumont (1925), Hathaway (1926), Slatemore Village (1927), Wellington (1928), Alameda (1946), Wellington (1950), Wellesley (late unclear), Between Runway 33 and Runway 24 (southwest and east of Bowman Field); Alview (1928), Kilmore Gardens (1961), Big Springs Gardens (1953), and Big Springs Village (1957); Between Runway 24 and Runway 15; Park Hills (1955), Williamson Estates (1954) (also featuring the Floyd-Brockmidge Cemetery); Broad Fields (1950), Hollis Terrace (1955), and Seneca Hills (1955); Between Runway 15 and Runway 6 (northwest and west of Bowman Field); Roseview (1955) (also featuring "Roseview" Country Estate, identified below); Chocoma Hills (1950), Inglewood (1952), Seneca Gardens (1937), Broadmeade (1922 and later additions), and Woodbourne (1908).</p> <p>It should be noted that there are several properties within the full APE that should be evaluated for individual eligibility, including, but not limited to: the Jacob and Henrietta Weinstein House at 2501 Decham Road; Roseview, at 1141 Roseview Circle, a 1908-10 County Estate designed by the firm Carrere and Hastings Loomis in Italianate Renaissance style (to the northwest and west of Runway 15 and the Seneca Park Golf Course); and the 1955 "Idea Home of the Year" at 1200 Park Hills Dr. in the mid-20th century modern development of Park Hill (to the immediate northeast and east of Runway 15 and the Seneca Park Golf Course).</p> <p>The fall 2013 clearing (Runway 24 penetrations) harmed 54 trees. Fifteen (15) trees were trimmed and thirty-nine (39) trees were permanently destroyed through removal. The 39 trees included elmer and red maples; pin and red oak, eastern white pine, gnats, bald cypress, hemlock, boxelder, black cherry, white ash, black locust, and Norway spruce. Seventeen (17) of the logged trees had diameters of greater than 30 inches, indicating an age greater than 50 years. Past actions for the cumulative effects analysis include the avigation easements taken in several of the neighborhoods (including those outside of the narrow APE, but within the full APE) since 1992.</p> <p>The introduction to Section 1.2 identifies the Principal Investigator as a Senior Historian with Brockington and Associates. The Principal Investigator's resume in Appendix A of the CRE indicates that her academic and work experience fulfill the Professional Qualification Standards of Appendix A to 36 CFR Part 61.17. However, the resume provided in the draft CRE does not indicate any experience specific to historic residential suburbs, garden suburbs, historic landscapes (designed or vernacular), or public and private recreational properties.</p> <p>It is also not clear how the FAA is meeting or plans to meet the requirement that the agency make "independent" findings and determinations in the stages of Section 105 consultation. Who, specifically, within FAA has reviewed and authorized or otherwise approved the draft CRE as sufficient for purposes of this Section 106 consultation?</p> <p>The identification and evaluation methodology is incomplete because only the portions of the resources located within the narrow APEs were visually evaluated and photographed by the Principal Investigator. Only a "sampling survey" was conducted for neighborhoods that extended beyond the narrow APE (p. 6). Seneca Park and Bowman Field were not evaluated in their entirety, while the Big Spring Country Club was, including areas outside the APE. The research and survey methodology presented in these sections need to be consistent in examining each resource in its entirety.</p> <p>Importantly, Sections 1.2.1 and 1.2.2 completely omit any reference to or discussion of the archival or field work that was conducted to evaluate the affected landscapes, particularly the vegetation, component of the historic property identification and evaluation phase of this Section 106 review. PFTT has provided extensive comments below with respect to the imperative of presenting an organized landscape analysis in Sections 2.0 and 3.0. The CRE references "tree types and heights" from the Inventory of Trees Around Bowman Field, 2014, Beechwood Trees and Gardens, Inc., prepared for Hanson. However, this inventory was not included in the report, in order to be able to participate in this federally required process in a meaningful way. Please For The Trees hereby requests this inventory.</p>	Please see response to Comment ID PFTT#15.
36	PFTT#17	1.1.1 Scope of the Safety Program EA, Proposed Alternatives, Mitigation, and the Area of Potential Effect	<p>All trees were trimmed or replaced at the discretion of the landowner. The easements establish a maximum height only. The landowner determines the nature of vegetation below that level.</p>	Please see response to Comment ID PFTT#15.
37	PFTT#18	1.1.1 Scope of the Safety Program EA, Proposed Alternatives, Mitigation, and the Area of Potential Effect	<p>Qualifications can be verified by the Kentucky State Historic Preservation Office.</p>	
38	PFTT#19	1.2 Methods of Investigation	<p>The Section 100 Process is usually carried out by the FAA Airports District Office environmental protection specialist, managers, and other staff as necessary.</p>	
39	PFTT#20	1.2 Methods of Investigation	<p>The APE has been expanded based on comments received during the Section 106 process. The supplement to the CRE includes analysis of properties in the expanded APE.</p>	
40	PFTT#21	1.2.1 Archival Research and 1.2.2 Architectural Survey	<p>A supplement to the CRE has prepared which addresses this comment.</p>	
41	PFTT#22	1.2.1 Archival Research and 1.2.2 Architectural Survey		

42	PFTT#23	1.2.1 Archival Research and 1.2.2 Architectural Survey	The rationale for boundary selection in identifying and evaluating the six (6) different neighborhoods in the narrow APE should be explained. The approach to boundary definition is based upon their original plans (i.e., based upon their original boundary). Boundary selection for historic residential suburbs may also be based upon a "group of contiguous subdivisions, particularly where significance is based upon design." Whatever boundary or boundaries are selected, the CRE should explain the justification.	The expanded APE has been reviewed in the supplement to the CRE and reflected in the exhibits.
43	PFTT#24	1.2.1 Archival Research and 1.2.2 Architectural Survey	Additionally, the SHPO's Specifications require that a KHC Inventory Form (with associated individual KHC site number) be prepared and submitted for each building, site, structure, and cemetery that is fifty years of age or older. The draft CRE lacks such documentation.	A supplement to the CRE has been prepared which addresses this comment.
44	PFTT#25	1.3 National Register of Historic Places Criteria	The seven aspects of integrity are also identified in this section of the draft CRE: location, design, setting, materials, workmanship, feeling, and association (p. 11). However, it should be noted that the subsequent evaluations of National Register-eligibility for the fourteen (14) resources in the narrow, direct-effects APE only address the design aspect of integrity. This omission is significant because of the integrity of location, setting, feeling, and association that are demonstrated with respect to these resources, including the vegetation element of the landscapes. The draft CRE (p. 11) explains the National Register-eligibility evaluation process with reference to "pre-contact Native American" sites and the "ruins of African American slave settlements from the 1820s" and other antebellum-era resources. The complete omission from the draft CRE (in the narrative and References) of the National Park Service publications specific to most of the property types in the narrow (and full) APE for the Bowman Field undertaking is puzzling and unappealing.	A supplement to the CRE has been prepared which addresses this comment.
45	PFTT#26	2.0 Historic Context	the draft CRE does not address these KHC requirements. Omissions include most of the salient historic contexts to guide the evaluation of significance for the specific resources within the narrow APE, and the full APE. While the Louisville Survey East Report excerpts provides valuable information on the development of this area, it was not developed specifically as a historic context for the broad area of what is now near-east Louisville. In the late 1970s, when it was researched and prepared, the concept of cultural landscapes, including designed and vernacular landscapes, was not formalized.	Comment noted.
46	PFTT#27	2.0 Historic Context	Some important historic context reports are included in the "References Cited" section of the report, i.e., They Came, They Bought: The Twentieth Century Housing Boom in Louisville, Kentucky, 1920-1970 (Butcher, Ryall, and Stotman); The New Deal Builds: A Historic Context of the New Deal in East Kentucky, 1933-1943 (Kennedy and Johnson); and House in a Box: Prefabricated Housing in the Jackson Purchase Cultural Landscape Region, 1900-1960 (Johnson and Kennedy). However, it is not clear how these architectural and public works contexts were specifically applied in the draft CRE. The New Deal Builds context identifies airports as part of the New Deal Works Projects Administration (WPA) and Public Works Administration (PWA) work in Kentucky (p. 116). Bowman Field's first concrete runways were installed as a WPA and PWA project; however, the draft CRE fails to evaluate the historic significance of these public works. Historic contexts and other documents relevant to the public and private recreational areas affected by the Bowman Field Safety Programs (Seneca Park and Big Spring Country Club) are not addressed.	Comment noted.
47	PFTT#28	2.1 Suburban development in the vicinity of Bowman Field	The Louisville Survey East Report reflects a prodigious amount of historical research into a broad area of what is now near-east Louisville. However, it is important to understand the scope of the report and its limitations for sole use as a "historic context" in this Section 106 review. This history should be used to re-organize Section 2.0 into historic contexts that reflect the discrete property types and chronological periods relevant to this cultural resource evaluation.	Comment noted.
48	PFTT#29	2.1 Suburban development in the vicinity of Bowman Field	The CRE must address the framework, methodology, and analysis of the landscape component (designed, vernacular) of the neighborhood evaluations and those of Seneca Park and Big Springs Country Club. PFTT's comments above on Sections 1.2 and 1.3 summarize the key national, state, and local historic contexts and identification and evaluation guidelines for a landscape analysis that should have been used in this Section 106 document.	Comment noted.
49	PFTT#30	2.1 Suburban development in the vicinity of Bowman Field	Seneca Gardens and McCoy Manor are located south of Seneca Village No. 2. Note that the Highgate Springs ad on the following page is a development of Bryan S. McCoy, Jr., the developer of McCoy Manor (platted in 1940), located in the narrow APE of Runway 6.	Comment noted.

50	PFTT#31	2.1 Suburban development in the vicinity of Bowman Field	The excerpted history in Section 2.0 includes little reference to land use by Euro-Americans in this area prior to the 20th century. The land that now encompasses Kingsley, Strathmore, and the suburbs west of Bowman Field (e.g., Seneca Vista, Seneca Gardens, Seneca Manor, McCoy's Manor) were part of John and Lucy Speed's Farmington estate, a Gentlemen Farm. The Speeds subsequently sold this area in the 1820s to 1840s (initially to their estate gardener Jacob and his spouse Henrietta) Weisstein (of Swiss origin). ³² The Weisstein's house at 2501 Denham Road still exists and is in the full APE. By 1913, much of the Weisstein tract had been subdivided in conveyances, although Fig. 2.2 in the draft CRE (p. 16) shows remaining tracts north of Taylorville Rd. in ownership of Ed Weisstein and the Chas. Weisstein estate (sons of Jacob and Henrietta).	Comment noted.
51	PFTT#32	The relationship of Seneca Park and Bowman Field should be clarified	The excerpted text from the Louisville Survey East Report states that the Von Zedtwitz39 land was acquired to establish Bowman Field, which had "the effect of adding a large new section of institutional open space to the city-cape" and that this "excess land was developed as Seneca Park" (draft CRE, p. 17). This excerpt infers that the park was an afterthought or excess to the airport property, when the two were developed almost contemporaneously. The text should be clarified in this regard.	Comment noted.
52	PFTT#33	The historic context of Jewish Settlement and Community Development needs to be evaluated	There are resources within the narrow and full APEs that require evaluation under Criterion A and C for associations with settlement of Jewish families and the construction of related faith and community institutions. Two written resources have primarily informed our understanding of the Jewish community in the environs of Bowman Field: Adath Loutaville, The Story of a Jewish Community and Jewish Louisville, Portrait of a Community.	A supplement to the CRE has been prepared which addresses this comment.
53	PFTT#34	The historic context of Jewish Settlement and Community Development needs to be evaluated	Chapter 5 of Adath Louisville provides a history of the Congregation Keneseth Israel, whose synagogue at 2531 Taylorville Road is located within the narrow APE and is wholly unevaluated in the draft CRE.	Comment noted.
54	PFTT#35	3.0 Results of the Architectural Survey Bowman Field Historic District	Every map depicting the undertaking in the draft CRE erroneously identifies the boundaries of the Bowman Field Historic District. In particular, the Administration Building (the Art Moderne terminal) is excluded in the maps. The drawings at the end of the National Register nomination depict the National-Register boundaries of the terminal, Curtiss Flying Service Hangar, and Army Air Corps Hangar and associated areas (approximately 15 acres) when the district was listed in 1988. The CRE needs to evaluate Bowman Field in its entirety for historical significance and expanded boundaries. The nomination is almost 30 years old. Much more information is now available about Bowman Field and its unique role in civil and military aviation over the past 90 or so years.	That boundary has been removed from the maps.
55	PFTT#36	3.0 Results of the Architectural Survey Bowman Field Historic District	With respect to the period of significance, the beginning year of the period of significance (1929) should be re-evaluated for an earlier date, possibly 1923, the year of incorporation of the Aero Club of Kentucky, the first operator.	Comment noted.
56	PFTT#37	3.2 Big Spring Country Club	We also note that the draft CRE evaluates Big Spring Country Club in its entirety (see also Fig. 3.1), including the areas outside of the narrow APE. What is the rationale for doing so, and yet not evaluating the full boundaries of Seneca Park and Bowman Field in the same manner?	The APE has been revised based on input from the consulting parties.
57	PFTT#38	3.2 Big Spring Country Club	LRAA has stated that the fall 2013 removal action affected trees for which there were existing easements at Big Spring, why does Fig. 1.5 then only show the area of proposed aviation easement and not the existing easements?	This drawing has been revised.
58	PFTT#39	3.3 Seneca Park Golf Course	The Principal Investigator did not contact any Metro Parks landscape architect or planner to obtain their professional perspectives on historical significance and evaluation of integrity or to gain access to the Seneca Park files.	Comment noted.
59	PFTT#40	3.4 Seneca Vista Neighborhood	The draft CRE notes that Seneca Vista was plotted in 1937 by William F. Randolph (p. 59); the text actually says "William H. Randolph," but this is in error.	This has been updated.
60	PFTT#41	3.4 Seneca Vista Neighborhood	The draft report also states that the LRAA now owns nine (9) lots within Seneca Vista that "have always been a part of the neighborhood's landscape (p. 59). It is not clear what this statement is intended to mean. The statement is factually incorrect based on a straightforward reading, because the LRAA's predecessor purchased the lots in the early 1900s based upon information in the PVA's records. This statement, either needs to be removed or restated accurately.	Comment noted.

61	PFTT#42	3.5 McCoy Manor	It should also be noted that this neighborhood features several multi-family properties that were recommended as eligible, with which PFTT agrees. However, the rationale for then determining that seemingly comparable multi-family residential properties developed as infill on Taylorsville Road (see Section 3.10 comments below) are "not eligible" is not clear, and needs to be explained. PFTT submits that the vegetation in McCoy Manor is contributing.	Comment noted. A supplement to the CRE has prepared which addresses this comment.
62	PFTT#43	3.5 McCoy Manor	The property, at 2025 Valerita Road, however, is not depicted in the photos presented in Section 3.6.	Comment noted. Exhibits regarding the alteration of viewscapes have been provided.
63	PFTT#44	3.6 Seneca Manor	the ending period of significance should be advanced to at least 1965. ...it is erroneous to conclude, as the draft report does (p. 85), that Kingsley will not suffer adverse effects from the tree removal program; it will. As noted by Kingsley Resident Phyllis Hawkins in the June 24th meeting, there will be adverse visual effects from the loss of mature tree canopy in other surrounding historic garden suburbs.	Comment noted.
64	PFTT#45	3.6 Seneca Manor	Why was Kingsley angled out for an advancement of the end period of significance to 1964/65, when the other historic neighborhoods and year of significance were terminated the year of approximate completion of development?	Comment noted.
65	PFTT#46	3.7 Kingsley	Our view is that the neighborhood-wide vegetation, including trees, is contributing and needs to be explicitly acknowledged in the final CRE.	Comment noted.
66	PFTT#47	3.7 Kingsley	The text does not identify the number of trees proposed for removal in the narrow APE. Although it is difficult to discern in Figure 1.6 of the appendix, it appears that at least thirty-six (36) mature trees are targeted for removal. Avigation easements will be newly sought for twenty-three (23) homes in Seneca Village. Although the draft CRE states that four (4) parcels are encumbered by existing easements (p. 96), Figure 1.6 seems to reflect at least nine (9) residences encumbered by avigation easements (relevant to cumulative effects).	As shown in the table on page 3 of the revised program description, there are 44 easements in the federal action with a total number of trees involved at 106. The total number of replacement trees, if all 106 trees are removed, would be 212. The decision to trim or remove these trees will be with the property owner.
67	PFTT#48	3.8 Seneca Village	the ending period of significance should be advanced to at least 1965. However, the draft CRE states that "the historic homes were built between 1947 and 1954". Did the research reveal any particular reason for the deferred period of development for this ostensibly streetcar-era suburb? What do the Sanborn Maps and City Directory research show regarding any potential prior uses between the plot reconfiguration date and 1947?	Comment noted.
68	PFTT#49	3.8 Seneca Village	PFTT submits vegetation in Seneca Village is contributing.	Comment noted.
69	PFTT#50	3.8 Seneca Village	The draft CRE needs to provide some overview of architectural styles of these pre-federated homes, as well as documenting individual styles in the required KHC survey forms.	A supplement to the CRE has prepared which addresses this comment.
70	PFTT#51	3.8 Seneca Village	PFTT submits vegetation in Seneca Village No. 2 is contributing.	A supplement to the CRE has prepared which addresses this comment.
71	PFTT#52	3.8 Seneca Village	The "outparcels" described in this section consist of five properties on the north side of Taylorsville Rd. within the draft APE for Runway 6. The building at 2015 Taylorsville Rd. was built "circa 1950s" (p. 114) and is now an office building; it appears to have been built within the Seneca Vista planned development. The brick buildings at 2005, 2009, and 2013 Taylorsville Rd. and 2542 Gladstone Avenue (which all appear to have also been built within the Seneca Vista planned development) were built "circa 1950s" as multi-family housing. The CRE concludes that none of these outparcels have "significant historical association" or possess "significant architectural merit" and recommends a National Register-eligibility determination on all five properties.	Nine trees have been identified in Seneca Village as penetrating critical approach surfaces. The decision to trim or remove trees will be with the property owner.
72	PFTT#53	3.9 Seneca Village No. 2	Rather than evaluate these properties as isolated "outparcels", the CRE should identify them in the originally planned neighborhood (Seneca Vista) in which they were later built, or as part of the larger suburban historic district, and address them in the context of the post WWII-era housing.	Comment noted.
73	PFTT#54	3.9 Seneca Village No. 2	What "archival research" (p.114) was conducted to determine its origins and use? Were City Directories or Sanborn maps evaluated and, if so, what information did these sources provide?	Comment noted.
74	PFTT#55	3.10 Outparcels	References are listed in the supplement to the CRE.	Comment noted.
75	PFTT#56	3.10 Outparcels		
76	PFTT#57	3.10 Outparcels		

DRAFT Copy - NOT FOR PUBLICATION

DEED OF AVIGATION EASEMENT

This DEED OF EASEMENT made this _____ day of _____, 20____, by and between _____ ("Grantors") and the Louisville Regional Airport Authority, a body politic and corporate existing pursuant to KRS Chapter 183 ("Authority").

WITNESSETH:

That for the sum _____ Dollars (\$_____) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantors do hereby grant, bargain, sell, and convey unto the Authority, its successors and assigns, with covenant of General Warranty, for the use and the benefit of the public for so long as Bowman Field Airport (the "Airport") is a public use airport, a perpetual avigation easement and an aircraft operations and aircraft noise easement ("Easement") and right of way appurtenant to the Airport for the unobstructed use and passage of all types of aircraft (as hereafter defined) in and through the air space above Grantor's property in Jefferson County, Kentucky, described in Exhibit A attached hereto and made a part hereof (the "Premises"), which airspace is further described as follows:

All that airspace above an imaginary plane over the Premises, the elevations of which plane are depicted by the elevation lines delineated on Exhibit B attached hereto and made a part hereof, to an infinite height above said imaginary plane.

A. Together with the continuing rights, without additional consideration, the Easement shall afford the Authority the following rights:

1. The right to prevent the erection or growth into the airspace within the Easement of any natural or artificial object, tree, or vegetation;
2. The right to remove or alter from the airspace within the Easement, or at the sole option of the Authority, as an alternative, to mark and light as an obstruction to air navigation, any such natural or artificial object, tree, or vegetation now or in the future upon the Premises within the Easement;
3. The right of reasonable ingress and egress to and from the Easement over the Premises for the aforesaid purposes upon reasonable notice;
4. On those occasions, if any, when it is necessary for the Authority to come upon the Premises for the purpose of trimming any natural or artificial object, tree, or vegetation encroaching within the Easement herein granted, the right to cut back or trim said vegetation ten (10) feet below the Easement herein granted to accommodate future growth of said vegetation.

B. Grantors further covenant and agree that they will not hereafter erect or permit the erection or growth upon the Premises of any building, structure, tree, bush, or other natural or artificial vegetation, or any part thereof, extending into the airspace contained in the Easement. Grantors further covenant and agree that they will not permit or suffer to remain upon the

DRAFT Copy - NOT FOR PUBLICATION

Premises any tree or other object extending into the airspace contained in the Easement, except to the extent that any buildings or structures existing on the date of this Deed of Avigation Easement may already encroach upon the Premises, in which case the Authority shall have the right to mark and light such encroachments as obstructions to air navigation, as indicated in Paragraph A(2), or enter the Premises and trim such vegetation, as indicated in paragraph A, above.

C. For the purpose of this instrument, the term "aircraft" shall mean any contrivance now known or hereafter invented, used or designed for navigation of or flight in the air, without limitation now or in the future as to speed, size, noise, characteristics, frequency or time of operation, by whomsoever owned or operated.

D. Grantors acknowledge that aviation is an expanding and developing activity, and that the degree to which one or more of the rights granted herein may affect or burden the underlying real estate may change or increase with the passage of time, and any such changes or increases shall not be a cause for Grantors, their successors and/or assigns to seek or recover additional compensation or damages.

E. The easements, servitudes and covenants imposed hereby shall be perpetual, shall benefit and be appurtenant to the Airport, shall be binding upon and inure to the benefit of the parties hereto and their respective personal representatives, heirs, successors, transferees and/or assigns; shall constitute covenants running with the land so long as the Airport continues to be operated as an airport; and shall not be amended, superceded, modified or released except by express written agreement of the parties hereto. If any provision hereof shall be determined void or unenforceable by a court of competent jurisdiction, all other provisions hereof shall remain in full force and effect. This instrument contains the entire understanding of the parties with respect to the subject matter hereof. This instrument shall be governed and construed in accordance with the laws of the Commonwealth of Kentucky and applicable federal laws and regulations.

IN TESTIMONY WHEREOF, witness the execution hereof by the Grantors as of the day and year first written above.

GRANTORS:

TO: Aaron Braswell, Federal Aviation Administration

FROM: Hanson Professional Services Inc.

DATE: March 21, 2016

SUBJECT: Response to Dr. Ames' comments

On October 21, 2015, Dr. David Ames delivered his evaluation of the Cultural Resources Evaluation for the Bowman Field Airport Area Safety Program to Pleas for the Trees. The FAA has asked that it be addressed as a part of the 106 submission to the Kentucky State Historic Preservation Office for the project. In short, the report purports that the CRE does not adequately evaluate the historic significance or context of the resources within the Area of Project Effect, nor does it adequately assess the contribution of the vegetation to the historic properties within which it occurs.

The CRE cites appropriate state and local reference works used to define the historic contexts used in the evaluation of properties adjacent to Bowman field where the proposed federal activity will take place. The Ames report is quick to acknowledge that the National Register Bulletin that he coauthored is not cited. However, it is common for determinations of eligibility not to cite every single resource applicable. What was cited directly allowed the researcher to define six (6) suburbs as meeting the criteria for eligibility to the National Register of Historic Places at the local level for their ability to exhibit trends in early to mid-20th century development of suburban Louisville. Seneca Golf Course was also included in the assessment but lacks sufficient integrity to be eligible for the National Register due to extensive remodeling over the years.

Once this historic context was established, the reviewer defined periods of significance for each of the subdivisions evaluated as eligible:

Seneca Vista 1937-1955
Seneca Manor 1937-1958
Kingsley 1926-1964
Seneca Village 1947-1954
Seneca Village 2 1951-1960
Hathaway 1927-1966

These periods of significance are correctly assessed in accordance with the NPS definition as "span of time in which the property attained the significance for which it meets the National Register criteria"; specifically, the period of development of the lots offered for sale and building. Further, it is acknowledged that features within the historic districts that contribute to our understanding of the historic nature of this context include all elements from that period of significance, including but not limited to the houses, garages, streets, sidewalks, fencing and vegetative growth, whether designed or casual.

It can be demonstrated from the attached exhibits that the vast majority of existing trees (specifically addressed here as they are the landscape feature affected by the proposed project) are less than 25 years old and therefore, do not date anywhere near the period of significance for any of the identified districts. Exhibits identify those trees that are believed to be over 50 years old and date either within the period of significance or close to it. Due to a very small number of these trees, it can be seen on the exhibit that the safety program will not affect enough of the historically significant canopy to have any effect on those qualities that cause these suburbs to be eligible to the National Register of Historic Places.

BOWMAN FIELD

BOWMAN FIELD
 2815 TAYLORVILLE RD
 LOUISVILLE, KY 40295

**BOWMAN FIELD
 AIRPORT AREA
 SAFETY
 PROGRAM**

**SECTION 106
 COORDINATION**

NO.	DATE	DESCRIPTION
1	10/1/2009	10/1/2009

NAME	DATE
240/254	10/1/2009
ADJUTANT	10/1/2009
ADJUTANT	10/1/2009
ADJUTANT	10/1/2009

SECTION 106
 HAWTHORNE
 NEIGHBORHOOD
 TREES
 APPROXIMATELY
 50 YEARS OLD
 OR OLDER

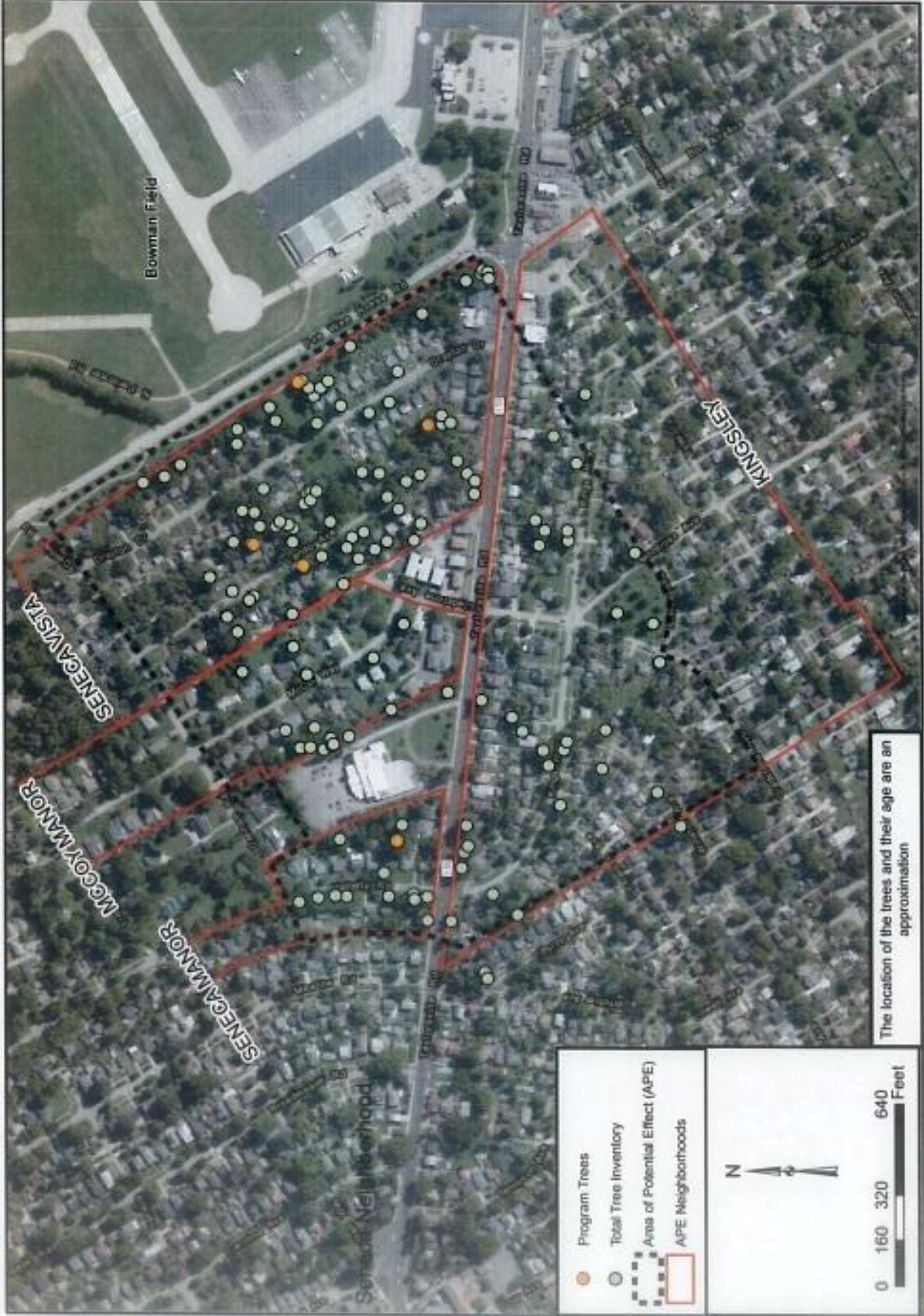
EXHIBIT 1



NO.	DATE	DESCRIPTION

DATE	DESCRIPTION

SECTION	DESCRIPTION





BOUMAN FIELD
2805 TAYLORVILLE RD
LOUISVILLE, KY 40205

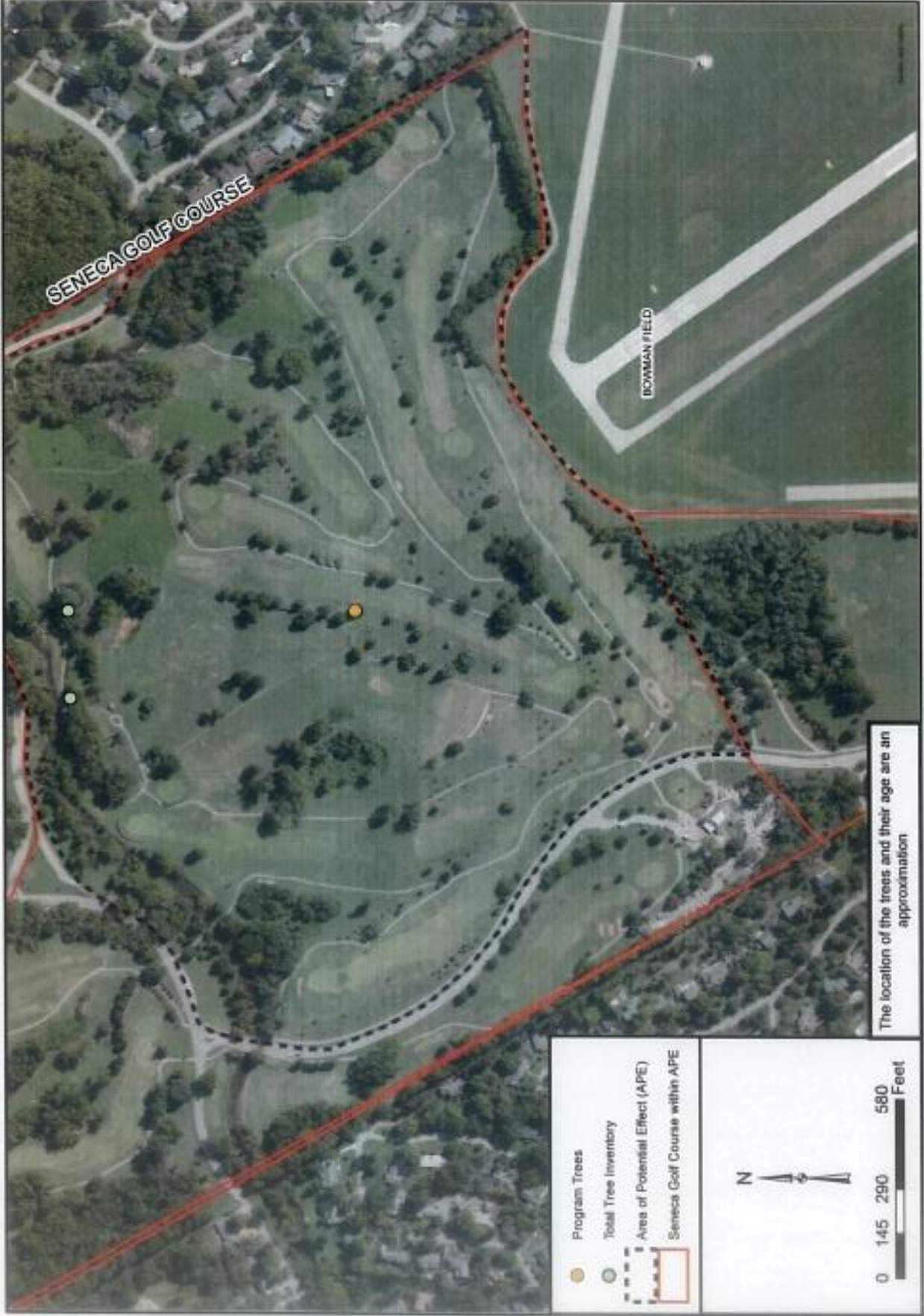
**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

SECTION 105
COORDINATION[illegible]

NAME	DATE
1. NAME	2. DATE
3. NAME	4. DATE
5. NAME	6. DATE
7. NAME	8. DATE
9. NAME	10. DATE
11. NAME	12. DATE
13. NAME	14. DATE
15. NAME	16. DATE
17. NAME	18. DATE
19. NAME	20. DATE
21. NAME	22. DATE
23. NAME	24. DATE
25. NAME	26. DATE
27. NAME	28. DATE
29. NAME	30. DATE
31. NAME	32. DATE
33. NAME	34. DATE
35. NAME	36. DATE
37. NAME	38. DATE
39. NAME	40. DATE
41. NAME	42. DATE
43. NAME	44. DATE
45. NAME	46. DATE
47. NAME	48. DATE
49. NAME	50. DATE
51. NAME	52. DATE
53. NAME	54. DATE
55. NAME	56. DATE
57. NAME	58. DATE
59. NAME	60. DATE
61. NAME	62. DATE
63. NAME	64. DATE
65. NAME	66. DATE
67. NAME	68. DATE
69. NAME	70. DATE
71. NAME	72. DATE
73. NAME	74. DATE
75. NAME	76. DATE
77. NAME	78. DATE
79. NAME	80. DATE
81. NAME	82. DATE
83. NAME	84. DATE
85. NAME	86. DATE
87. NAME	88. DATE
89. NAME	90. DATE
91. NAME	92. DATE
93. NAME	94. DATE
95. NAME	96. DATE
97. NAME	98. DATE
99. NAME	100. DATE

SENECA
GOLF COURSE
TREES
APPROXIMATELY
50 YEARS OLD
OR OLDER

EXHIBIT 3



Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Wednesday, March 23, 2016 7:56 AM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov';
'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com';
'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian';
'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins';
'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA);
'patriciastallings@brockington.org'; 'Tom FitzGerald';
'director@preservationkentucky.org'; 'Angela Burton'; 'Phyllis Hawkins';
'jchris.mccoy@gmail.com'; 'Laracuate, Nicolas (Heritage Council)'; Johnson, Duane
(FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa';
'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com';
'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field Section 106 - Project information
Attachments: Trees_Over_25_Years_Old_sm.pdf; Treeinventorysummary.pdf

Good morning all,

Attached is the tree inventory which includes maps depicting trees which are estimated to be at least 25 years of age.

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

BOWMAN FIELD

BOWMAN FIELD
2815 SALT CREEK RD
LOANVILLE, NY 14026

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

NO.	DATE	REVISION
1	08/14/2014	ISSUED FOR PERMIT
2	08/14/2014	ISSUED FOR PERMIT
3	08/14/2014	ISSUED FOR PERMIT
4	08/14/2014	ISSUED FOR PERMIT
5	08/14/2014	ISSUED FOR PERMIT
6	08/14/2014	ISSUED FOR PERMIT
7	08/14/2014	ISSUED FOR PERMIT
8	08/14/2014	ISSUED FOR PERMIT
9	08/14/2014	ISSUED FOR PERMIT
10	08/14/2014	ISSUED FOR PERMIT

NAME	JENNIFER L. HANSON
DATE	08/14/2014
PROJECT	BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM
SECTION	SECTION 106 COORDINATION
SCALE	AS SHOWN

**HAWTHORNE
NEIGHBORHOOD
TREES
APPROXIMATELY
25 YEARS OLD
OR OLDER**

EXHIBIT 1





[Faint text in the bottom left corner, possibly a footer or page number.]	[Faint text in the bottom right corner, possibly a footer or page number.]
---	--

BOWMAN FIELD

BOWMAN FIELD
2815 NORTONVILLE RD
LOUISVILLE, KY 40206

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 106
COORDINATION**

NO.	DATE	DESCRIPTION
1	10/1/2014	10/1/2014
2	10/1/2014	10/1/2014
3	10/1/2014	10/1/2014
4	10/1/2014	10/1/2014
5	10/1/2014	10/1/2014
6	10/1/2014	10/1/2014
7	10/1/2014	10/1/2014
8	10/1/2014	10/1/2014
9	10/1/2014	10/1/2014
10	10/1/2014	10/1/2014
11	10/1/2014	10/1/2014
12	10/1/2014	10/1/2014
13	10/1/2014	10/1/2014
14	10/1/2014	10/1/2014
15	10/1/2014	10/1/2014
16	10/1/2014	10/1/2014
17	10/1/2014	10/1/2014
18	10/1/2014	10/1/2014
19	10/1/2014	10/1/2014
20	10/1/2014	10/1/2014
21	10/1/2014	10/1/2014
22	10/1/2014	10/1/2014
23	10/1/2014	10/1/2014
24	10/1/2014	10/1/2014
25	10/1/2014	10/1/2014
26	10/1/2014	10/1/2014
27	10/1/2014	10/1/2014
28	10/1/2014	10/1/2014
29	10/1/2014	10/1/2014
30	10/1/2014	10/1/2014
31	10/1/2014	10/1/2014
32	10/1/2014	10/1/2014
33	10/1/2014	10/1/2014
34	10/1/2014	10/1/2014
35	10/1/2014	10/1/2014
36	10/1/2014	10/1/2014
37	10/1/2014	10/1/2014
38	10/1/2014	10/1/2014
39	10/1/2014	10/1/2014
40	10/1/2014	10/1/2014
41	10/1/2014	10/1/2014
42	10/1/2014	10/1/2014
43	10/1/2014	10/1/2014
44	10/1/2014	10/1/2014
45	10/1/2014	10/1/2014
46	10/1/2014	10/1/2014
47	10/1/2014	10/1/2014
48	10/1/2014	10/1/2014
49	10/1/2014	10/1/2014
50	10/1/2014	10/1/2014
51	10/1/2014	10/1/2014
52	10/1/2014	10/1/2014
53	10/1/2014	10/1/2014
54	10/1/2014	10/1/2014
55	10/1/2014	10/1/2014
56	10/1/2014	10/1/2014
57	10/1/2014	10/1/2014
58	10/1/2014	10/1/2014
59	10/1/2014	10/1/2014
60	10/1/2014	10/1/2014
61	10/1/2014	10/1/2014
62	10/1/2014	10/1/2014
63	10/1/2014	10/1/2014
64	10/1/2014	10/1/2014
65	10/1/2014	10/1/2014
66	10/1/2014	10/1/2014
67	10/1/2014	10/1/2014
68	10/1/2014	10/1/2014
69	10/1/2014	10/1/2014
70	10/1/2014	10/1/2014
71	10/1/2014	10/1/2014
72	10/1/2014	10/1/2014
73	10/1/2014	10/1/2014
74	10/1/2014	10/1/2014
75	10/1/2014	10/1/2014
76	10/1/2014	10/1/2014
77	10/1/2014	10/1/2014
78	10/1/2014	10/1/2014
79	10/1/2014	10/1/2014
80	10/1/2014	10/1/2014
81	10/1/2014	10/1/2014
82	10/1/2014	10/1/2014
83	10/1/2014	10/1/2014
84	10/1/2014	10/1/2014
85	10/1/2014	10/1/2014
86	10/1/2014	10/1/2014
87	10/1/2014	10/1/2014
88	10/1/2014	10/1/2014
89	10/1/2014	10/1/2014
90	10/1/2014	10/1/2014
91	10/1/2014	10/1/2014
92	10/1/2014	10/1/2014
93	10/1/2014	10/1/2014
94	10/1/2014	10/1/2014
95	10/1/2014	10/1/2014
96	10/1/2014	10/1/2014
97	10/1/2014	10/1/2014
98	10/1/2014	10/1/2014
99	10/1/2014	10/1/2014
100	10/1/2014	10/1/2014

SENECA
NEIGHBORHOOD
TREES
APPROXIMATELY
25 YEARS OLD
OR OLDER

EXHIBIT 2



WOLFE AND J. J. BENTLEY
2018 TRANSCENDENTALIST
CITYMANAGEMENT

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

SECTION 106
COORDINATION[illegible]

SENECA
GOLF COURSE
TREES
APPROXIMATELY
25 YEARS OLD
OR OLDER

EXHIBIT 3



BOWMAN FIELD

ROCHESTER FIELD
2000 TARTAN DRIVE
ROCHESTER, NY 42378

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

[illegible]

NAME _____
ADDRESS _____
CITY _____
STATE _____
ZIP _____
COUNTRY _____
TELEPHONE _____
FAX _____
E-MAIL _____

BIG SPRING
GOLF COURSE
TREES
APPROXIMATELY
25 YEARS OLD
OR OLDER

EXHIBIT 4



Louisville Regional Airport Authority
Bowman Field Airport Area Safety Program

Inventory of trees for runways 6, 24 and 33

Summary of findings

Prepared for:

Hanson Engineering

1601 Belevvedere Rd. Suite 303 South

West Palm Beach, Florida 33406

Prepared by:

Beechwood Trees & Gardens, Inc.

Paul G. Clinton, arborist

7906 Floydsburg Road

Crestwood, Kentucky 40014

Introduction:

This tree inventory was conducted to gather information for the Bowman Field Airport Area Safety Program. The inventory serves two main purposes: 1. To identify the objects (trees) that have penetrated into restricted air space and those close to penetrating, and 2. To evaluate the tree population for an environmental report being prepared for the Federal Aviation Administration.

The trees have all been numbered and locations charted on a map. Each tree was identified and assessed for size, age, condition, and estimated maximum height. The identity of the trees is listed by common name and botanical name. In some cases the exact species could not be identified from a distance but the genus could be determined. For instance several ash species were probably present but all ash trees were grouped into genus *Fraxinus*. The size of the trees was estimated at a distance and grouped into size categories.

Estimated maximum height was determined by referencing several sources of tree height information and averaging them. References were: Mary Warton's Trees & Shrubs of Kentucky, Michael Dirr's Manual of Woody Landscape Plants, Kentucky Division of Forestry, Kentucky's State Champions, Mitchell & More, The Trees of North America, and William Harlow, Textbook of Dendrology.

Analysis:

The complete tree inventory of runways 6, 24 and 33 consists of 3,512 trees. The dominant species, listed by abundance are: flowering dogwood, hackberry, Bradford pear, mulberry, red maple, American holly, Silver maple, black cherry, Japanese maple, sugar maple.

Most of the trees inventoried (approximately 70%) were planted by the land owners or land managers with the other 30% consisting of species not typically planted but commonly found growing in fence rows and unmanaged areas. Many of these natural growth trees are species that grow very tall and may grow into the restricted air space.

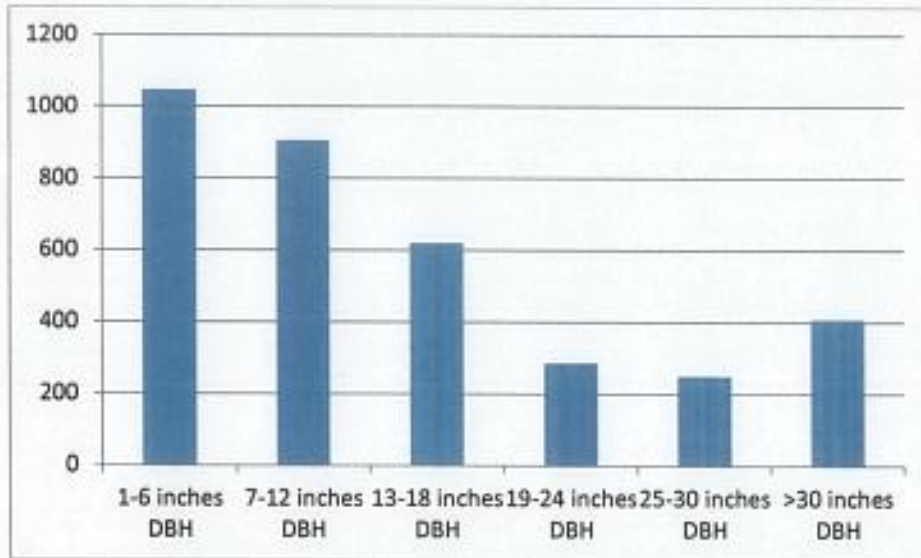
The distribution of tree sizes shows that many of the trees are young and or small growing species. In the runway 33 neighborhoods many young trees are growing in the fence rows and drainage ways. In the runway 6 neighborhood the trees are older and consist of many small-growing species like dogwood and Japanese maples with fewer fence row trees.

An analysis of the estimated maximum heights shows that many of these trees are species that will grow very large and may grow into the restricted air space. Over 50% of the trees present were species that will grow over 70 feet tall.

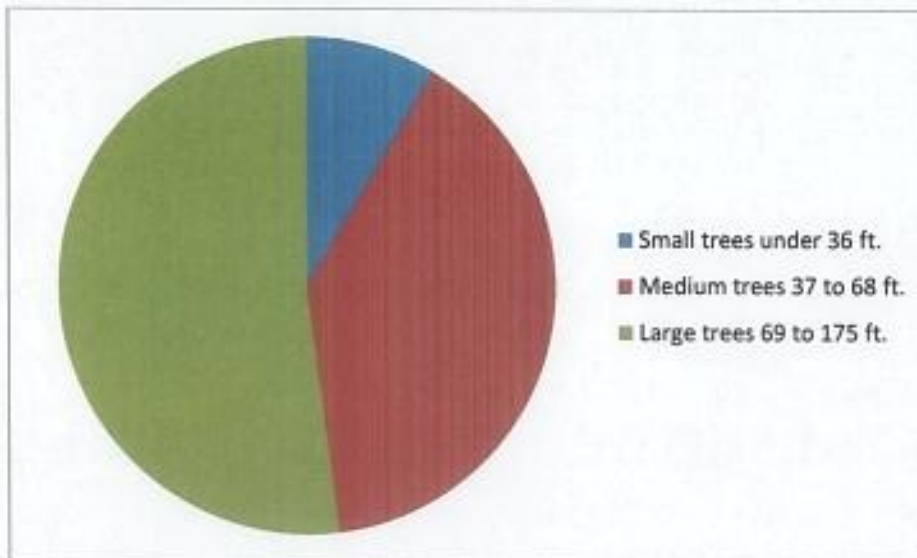
The majority of the trees inventoried are less than 25 years old. Many of the young trees are growing up in unattended fence rows particularly in the runway 33 neighborhood. Many recently planted trees were counted showing that people are actively planting a lot of new trees.

The majority of the trees are healthy. The soils in this area are deep and fertile and ideal for trees.

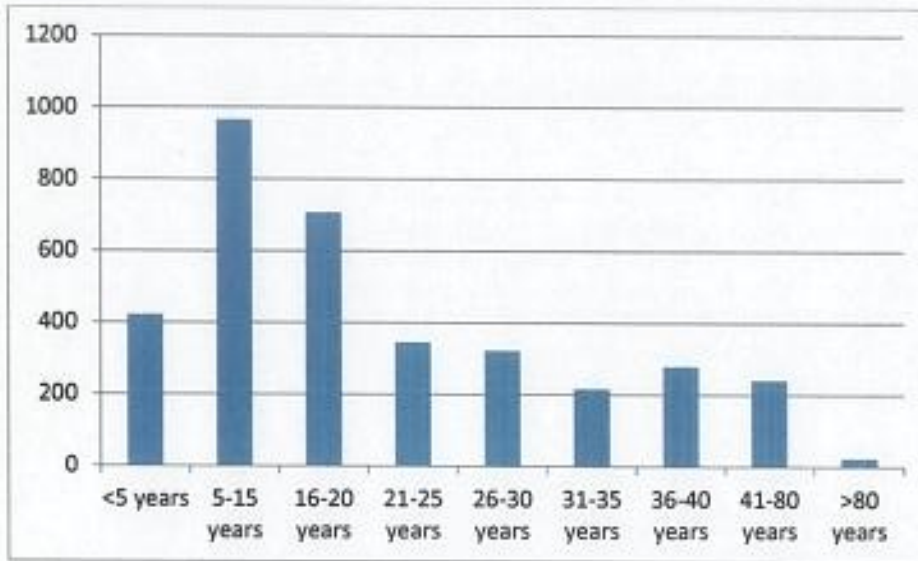
Tree sizes:



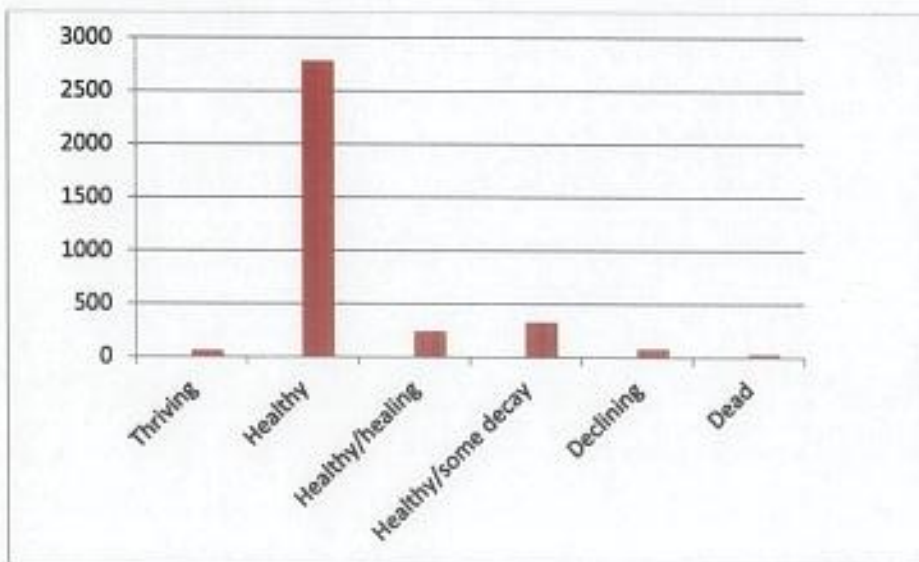
Estimated Maximum Heights:



Tree age categories:



Tree condition class:



Appendix 5:

DRAFT

Botanical Name	Common Name	Runway 6	Runway 24	Runway 33	Runway 15	Totals
<i>Abies concolor</i>	White fir	3				3
<i>Acer amurense</i>	Amur maple	2				2
<i>Acer buergerianum</i>	Trident maple	3				3
<i>Acer griseum</i>	Paperbark maple	9				9
<i>Acer henryi</i>	Henry maple	2				2
<i>Acer miyabe</i>	State Street maple	3				3
<i>Acer negundo</i>	Boxelder	9	262	37		308
<i>Acer palmatum</i>	Japanese maple	84	2	18		104
<i>Acer platanoides</i>	Norway maple	7		5		12
<i>Acer psuedoplatanus</i>	Sycamore maple	1				1
<i>Acer rubrum</i>	Red maple	118	27	95	4	244
<i>Acer sacharinum</i>	Silver maple	59	28	105		192
<i>Acer saccharum</i>	Sugar maple	70	14	48	6	138
<i>Aesculus sp.</i>	Flowering horsechestnut	13	3		25	41
<i>Ailanthus altissima</i>	Tree-of-heaven		3		12	15
<i>Albizia julibrissin</i>	Mimosa	2		4		6
<i>Amelanchier sp.</i>	Serviceberry	23	2	1		26
<i>Asimina triloba</i>	Pawpaw	7		3		10
<i>Betula nigra</i>	River birch	33	12	9		54
<i>Betula sp.</i>	Birch	2		1		3
<i>Carpinus betulus</i>	European hornbeam	6	1			7
<i>Carpinus caroliniana</i>	American hornbeam	1				1
<i>Carya glabra</i>	Pignut hickory		1			
<i>Carya illinoensis</i>	Pecan	2	4			6
<i>Carya ovata</i>	Shagbark hickory	1	2			3
<i>Castanea mollissima</i>	Chinese chestnut	3	6	1	2	12
<i>Catalpa speciosa</i>	Catalpa	11	11	9	1	32
<i>Cedrus sp.</i>	Cedar	1				1
<i>Celtis occidentalis</i>	Hackberry	69	191	74	95	429
<i>Cercidiphyllum japonicum</i>	Japanese pagodatree	1		1		2
<i>Cercis canadensis</i>	Redbud	94	9	15	3	121
<i>Chamaecyparis obtusa</i>	Hinoki falsecypress	6				6
<i>Chionanthus virginicus</i>	Fringetree	3			3	6
<i>Cladrastis kentukea</i>	American Yellowwood	12	3			15
<i>Cornus amomum</i>	Silky dogwood				1	1
<i>Cornus florida</i>	Flowering dogwood	223	11	72	3	309
<i>Cornus kousa</i>	Kousa dogwood	20	6			26
<i>Cornus mas</i>	Cornelian cherry dogwood	5				5
<i>Corylus avellana</i>	Filbert	3				3
<i>Cotinus obovatus</i>	Smoketree	6				6
<i>Crataegus phaenopyrum</i>	Washington hawthorn	4	2		3	9
<i>Cryptomeria japonica</i>	Japanese cedar	28				28
<i>Diospyros virginiana</i>	Persimmon	3	1			4
<i>Fagus grandifolia</i>	American beech	4	1			5

<i>Fagus sylvatica</i>	European beech	3		2		5
<i>Franklinia alatamaha</i>	Franklin tree	3				3
<i>Fraxinus</i> sp.	Ash	26	188	25	14	253
<i>Ginkgo biloba</i>	Ginkgo	20	3	1		24
<i>Gleditsia triacanthos</i>	Honeylocust	12	5		5	22
<i>Gymnocladus dioica</i>	Kentucky coffeetree	7	2			9
<i>Halesia diptera</i>	Mountain silverbell	2				2
<i>Halesia carolina</i>	Silverbell	1				1
<i>Hamamelis virginiana</i>	Witchhazel	3				3
<i>Ilex crenata</i>	Foster holly	94	5	5		104
<i>Ilex opaca</i>	American holly	145	5	39	2	191
<i>Juglans cinerea</i>	Butternut			1		1
<i>Juglans nigra</i>	Black walnut	19	94	8	27	148
<i>Juniperus communis</i>	Common juniper	2				2
<i>Juniperus chinensis</i>	Chinese juniper	23		7	1	31
<i>Juniperus virginiana</i>	Eastern redcedar	75	16	18	1	110
<i>Koeleruteria paniculata</i>	Goldenraintree	9	2	1		12
<i>Lagerstroemia indica</i>	Crape myrtle	56		16		72
<i>Liquidambar styraciflua</i>	Sweetgum	8		1		9
<i>Liriodendron tulipifera</i>	Tulip tree	15	11	16	4	46
<i>Maclura pomifera</i>	Osage orange	1	5	3		9
<i>Magnolia grandiflora</i>	Southern magnolia	23	4	12		39
<i>Magnolia</i> sp.	Magnolia	36	1	6		43
<i>Magnolia stellata</i>	Star magnolia	4		2		6
<i>Magnolia virginiana</i>	Sweetbay magnolia	21	4	1		26
<i>Magnolia x soulangeana</i>	Saucer magnolia	7	6	6		19
<i>Malus</i> sp.	Crab apple	36	5	22		63
<i>Metasequoia glyptostoboides</i>	Dawn redwood	2	5			7
<i>Morus</i> sp.	Mulberry	91	132	118	6	347
<i>Nyssa sylvatica</i>	Blackgum	10				10
<i>Parrotia persica</i>	Persian ironwood	3				3
<i>Paulownia tomentosa</i>	Paulownia		3			
<i>Picea abies</i>	Norway spruce	37	28	5	5	75
<i>Picea alba</i>	White spruce	1	1			2
<i>Picea omorica</i>	Serbian spruce	1	3	1		5
<i>Picea orientalis</i>	Oriental spruce				17	17
<i>Picea pungens</i>	Blue spruce	35	11	11	1	58
<i>Pinus nigra</i>	Austrian pine	3	6	1	1	11
<i>Pinus parviflora</i>	Japanese white pine	4				4
<i>Pinus sylvestris</i>	Scotch pine		1		8	9
<i>Pinus strobus</i>	Eastern white pine	67	118	13		198
<i>Pinus thunbergii</i>	Japanese black pine	1				1
<i>Pistacia chinensis</i>	Pistachio	1				1
<i>Platanus occidentalis</i>	American sycamore	1	56	4	5	66
<i>Platanus x acerifolia</i>	London planetree	1				1
<i>Populus deltoides</i>	Cottonwood	1	15	2		18
<i>Prunus persica</i>	Peach			1		1
<i>Prunus serotina</i>	Black cherry	53	28	29	31	141
<i>Prunus</i> sp.	Flowering cherry	54	3	22		79
<i>Prunus virginiana</i>	Chokeberry	2		1		3

<i>Pseudotsuga menziesii</i>	Douglas fir	5				5
<i>Pyrus calleryana</i>	Bradford pear	32	1	194		227
<i>Quercus acutissima</i>	Sawtooth oak	3				3
<i>Quercus alba</i>	White oak	6	5	3		14
<i>Quercus bicolor</i>	Swamp white oak	5			1	6
<i>Quercus coccinea</i>	Scarlet oak	2				2
<i>Quercus imbricaria</i>	Shingle oak	4	2			6
<i>Quercus macrocarpa</i>	Bur oak	3	2			5
<i>Quercus nigra</i>	Water oak		1			
<i>Quercus pagoda</i>	Cherrybark oak	4				4
<i>Quercus palustris</i>	Pin oak	58	45	28	5	136
<i>Quercus phellos</i>	Willow oak	12	17	1	1	31
<i>Quercus prinus</i>	Chestnut oak	5	1			6
<i>Quercus robur</i>	English oak	2				2
<i>Quercus rubra</i>	Red oak	12	15	6	5	38
<i>Quercus sp.</i>	Oak	1				1
<i>Robinia pseudoacacia</i>	Black locust	7	47	8		62
<i>Salix babylonica</i>	Weeping willow	1	1			2
<i>Salix matsudana</i>	Peking willow	3		3		6
<i>Salix sp.</i>	Willow oak	2	5			7
<i>Sassafras albidum</i>	Sassafras	3				3
<i>Styrax japonicus</i>	Japanese snowbell	1				1
<i>Syringa reticulata</i>	Japanese tree lilac	7				7
<i>Taxodium ascendens</i>	Pond cypress	3				3
<i>Taxodium distichum</i>	Bald cypress	2	28	2		32
<i>Taxus sp.</i>	Yew	3				3
<i>Thuja sp.</i>	Arborvitae	34	142	2		178
<i>Tilia americana</i>	American basswood	1	2			3
<i>Tilia cordata</i>	Little leaf linden	4	3		3	10
<i>Tsuga canadensis</i>	Hemlock	44	2	2		48
<i>Ulmus x</i>	Elm	4				4
<i>Ulmus americana</i>	American elm	34	149	36	10	229
<i>Ulmus parviflora</i>	Paperbark elm	2	1			3
<i>Ulmus pumila</i>	Siberian elm	15	7	21		43
<i>Ulmus x hollandica</i>	Jacqueline Hillier dwarf elm	1				1
<i>Viburnum prunifolium</i>	Blackhaw	7				7
<i>Zelkova serrata</i>	Zelkova	3	22	1		26
		Runway 6	Runway 24	Runway 33	Runway 15	
		2307	1866	1205	311	5689

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Wednesday, March 23, 2016 10:58 AM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA); 'patricia.stallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; 'Angela Burton'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuate, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa'; 'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com'; 'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field Section 106 - Project information
Attachments: APE Exhibit 20150922.pdf

Dear Consulting Party members:

At this point, you should have received the following items.

- 1) Responses to comments made during the Section 106 Process.
- 2) Response to the Dr. Ames report.
- 3) Email from Melissa Jenkins, with Hanson Inc., with a link to download the Supplemental Cultural Resource Evaluation.
- 4) Tree Inventory with map of trees estimated to be older than 25 years.
- 5) Sample easement language.

Please review these items. We will discuss them at the March 31 Consultation meeting. **In addition, we request you submit comments by 5:00 PM ET on April 22, 2016.**

I also want to mention that after receiving comments on the APE and elimination of the lighting alternative, the FAA has proposed to accept the latest version of the APE (see attachment) as the official APE for the proposed undertaking.

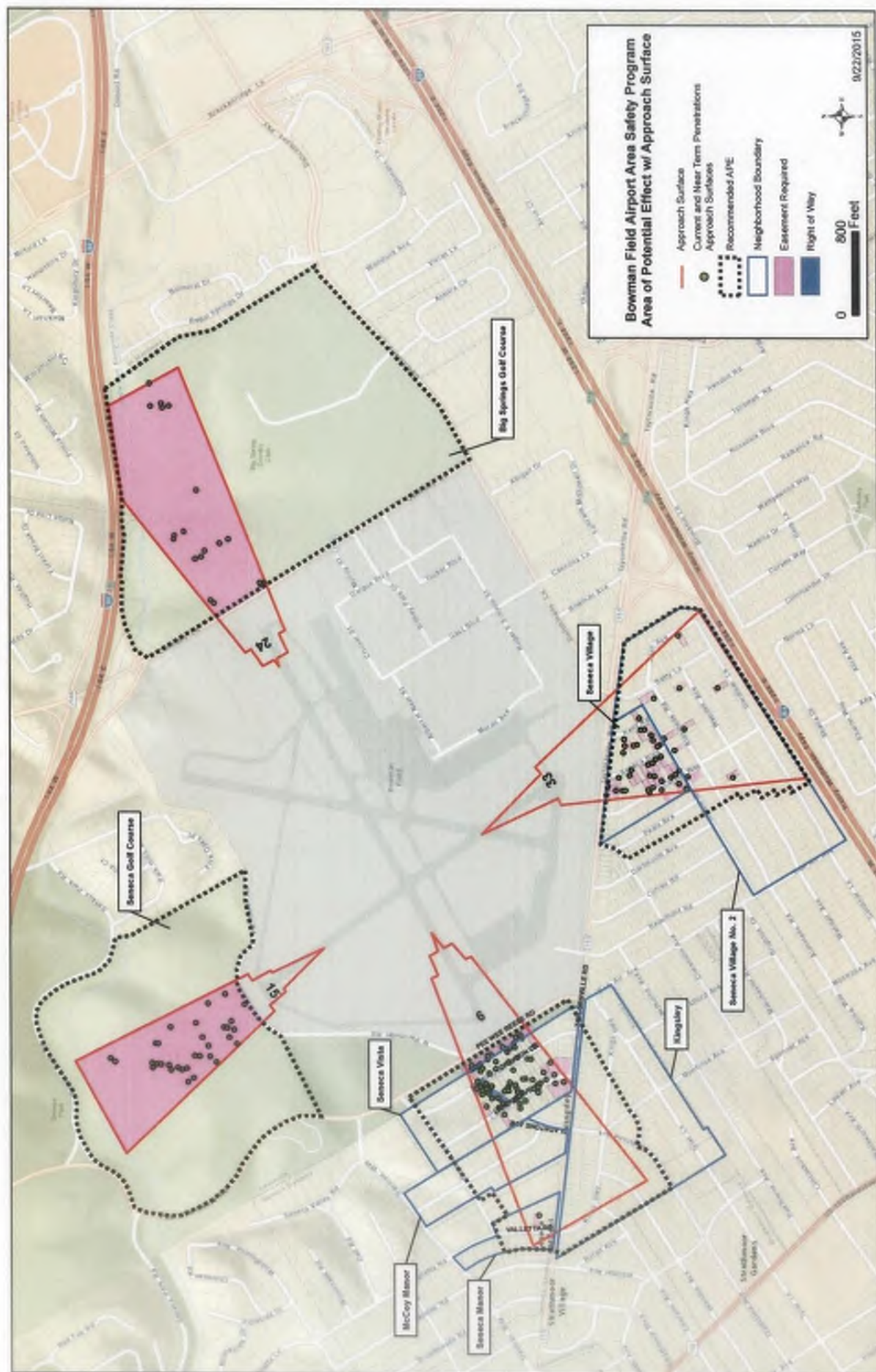
Lastly, as many of you may be aware, the LRAA recently completed tree removal and trimming in areas that overlap the APE. The trees were located near the end of Runway 6 on properties with an existing aviation easement, on Airport Authority-owned property, and on public right-of ways as permitted by Metro Government. These efforts were funded entirely by LRAA. Consequently, in accordance with federal guidance, removal of these trees did not initiate a federal action by the FAA; therefore, these actions are not subject to Section 106 and National Environmental Policy Act (NEPA) reviews. LRAA will continue with the aforementioned tree removal and/or trimming efforts until March 31st. Some additional work may occur after March 31st, but it is expected to include stump removal, tree plantings, and restoration.

We are working with the sponsor to see if we can let you know how many trees will be impacted by their efforts, and of those how many are estimated to be over 25 years of age.

Thank you for your continued participating in the Section 106 process. If you have any questions, please let me know.

Sincerely,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192



Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Monday, March 28, 2016 10:13 AM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov';
'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com';
'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian';
'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins';
'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA);
'patriciastallings@brockington.org'; 'Tom FitzGerald';
'director@preservationkentucky.org'; 'Angela Burton'; 'Phyllis Hawkins';
'jchris.mccoy@gmail.com'; 'Laracuate, Nicolas (Heritage Council)'; Johnson, Duane
(FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa';
'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com';
'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field Section 106 - Tree Maintenance Program
Attachments: LOU_TreeAgeActual_20160324.pdf

Dear Consulting Party members:

Here is an update to the tree Maintenance Program currently taking place around the Bowman Field Airport. As noted in previous emails, this effort by LRAA is not federally funded and not a federal action for review under Section 106 or NEPA. The Maintenance Program concerns only trees beyond the Runway 6 and Runway 33 ends. As of last week, there were 65 trees in the program that were obstructions to critical airspace surfaces. In addition to those, another 61 trees have been added to the Maintenance Program at the request of property owners. This is a total of 126 trees-again, as of last week. Those numbers may change as property owners refine their preferences for tree removal, tree trimming, or adding trees to the program.

I've enclosed a list of trees in the Maintenance Program by address, species, size, and estimated age.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

**RUNWAY 6 & 33 APPROACH MAINTENANCE PROGRAM
AGE COMPARISON OF TREES ACTUAL to ESTIMATE**

Tree Number	Address	Type	SIZE		AGE	
			Estimated	Actual	Estimated	Actual
02D	Drayton Drive	Silver maple	30-36"	34"	41-80	40
03D	Drayton Drive	White pine	12-18"	17"	26-30	40
29D	Drayton Drive	Silver maple	36+"	42"	41-80	35
01G	Gladstone ROW	Pin oak	30-36"	33"	36-40	42
03G	Gladstone ROW	Silver maple	24-30"	27"	31-35	35
04K	Kent Road	Red maple	30-36"	34"	41-80	54
04L	Landor Ave	Silver maple	30-36"	33"	41-80	43
06L	Landor Ave	Siberian elm	36+	44"	41-80	62
07L	Landor Ave	Siberian elm	30-36"	33"	41-80	63
08L	Landor Ave	Silver maple	36+	40"	41-80	65
11L	Landor Ave	Hackberry	24-30"	25"	36-40	45
17L	Landor Ave	Hemlock	0-12"	6"	16-20	27
18L	Landor Ave	Hemlock	0-12"	6"	16-20	27
19L	Landor Ave	Hemlock	0-12"	7"	16-20	27
20L	Landor Ave	Ash	24-30"	28"	16-20	27
15A	Drayton Drive	Pin oak	36+	48"	80+	56
16A	Drayton Drive	Silver maple	36+	52"	80+	55
17A	Drayton Drive	American elm	12-18"	16"	26-30"	12
20A	Landor Ave	Black cherry	24-30"	27"	36-40	42
21A	Landor Ave	Black cherry	24-30"	26"	36-40	41
22A	Landor Ave	American elm	24-30"	26"	36-40	40
23A	Landor Ave	Black walnut	30-36"	36"	5-15 ??	40
24A	Landor Ave	Black walnut	18-24"	18"	31-35	35
25A	Landor Ave	Tulip poplar	30-36"	30"	36-40	45
26A	Landor Ave	Catalpa	24-30"	25"	36-40	45
27A	Landor Ave	Black cherry	18-24"	20"	31-35	24
28A	Landor Ave	Black walnut	18-24"	20"	31-35	28
29A	Landor Ave	Tulip poplar	12-18"	15"	26-30	20
30A	Landor Ave	Sugar maple	12-18"	15"	26-30	24
31A	Landor Ave	American elm	7-12"	12"	26-30	15
32A	Landor Ave	Ginkgo	7-12"	9"	21-25	15
33A	Landor Ave	Blue spruce	7-12"	12"	21-25	27
34A	Landor Ave	Blue spruce	7-12"	12"	21-25	27
35A	Landor Ave	Blue spruce	7-12"	10"	21-25	27

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Monday, March 28, 2016 1:41 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov';
'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com';
'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian';
'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins';
'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA);
'patriciastallings@brockington.org'; 'Tom FitzGerald';
'director@preservationkentucky.org'; 'Angela Burton'; 'Phyllis Hawkins';
'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane
(FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa';
'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com';
'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field Section 106 Meet #3

Dear Consulting Party Members;

This is in response to the meeting scheduled for Thursday, March 31, 2016. We recognize the meeting notice is not as long as prior meetings. However, we feel this is adequate time to make arrangements for attendance. We understand that scheduling conflicts can occur no matter the amount of advanced notice.

We will continue on the path of holding the meeting at the scheduled date and time. If you are unable to attend in person, but can participate by phone, please let us know in order to make necessary arrangements.

We look forward to continuing the discussion on this important topic.

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Tuesday, March 29, 2016 9:52 AM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov';
'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com';
'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian';
'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins';
'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA);
'patriciastallings@brockington.org'; 'Tom FitzGerald';
'director@preservationkentucky.org'; 'Angela Burton'; 'Phyllis Hawkins';
'jchris.mccoy@gmail.com'; 'Laracuate, Nicolas (Heritage Council)'; Johnson, Duane
(FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa';
'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com';
'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field Section 106 Meeting #3 Agenda
Attachments: Agenda Bowman Field Section 106 Meeting No 3.pdf

All:

The agenda for Meeting #3 is attached for your review.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

AGENDA

**SECTION 106 CONSULTATION MEETING-No. 3
Bowman Field Airport Area Safety Program**

**Louisville Regional Airport Authority-Maintenance Facility
4320 Park Boulevard, Louisville, KY**

**March 31, 2016
(9:00AM EST)**

- I. Introduction**
- II. The Proposed Federal Undertaking**
- III. LOU Tree Maintenance Program**
- IV. Area of Potential Effect**
- V. Recap of Materials Provided**
- VI. Overview of Supplement to the CRE**
- VII. Future Steps**
- VIII. Questions and Answers**

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Friday, April 01, 2016 11:03 AM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA); 'patriciastallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; 'seve.ghose@louisvilleky.gov'; 'Angela Burton'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa'; 'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com'; 'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field
Attachments: Meeting 3 sign in sheet.pdf

All:

Thank you again to those who were able to attend the meeting yesterday. As you may recall, one issue that was raised was that not all consulting parties have been able to retrieve the email files I've attempted to share over the past few weeks. So that files can be shared more easily, I am putting all files recently submitted to you on dropbox. The dropbox folder will include the following items:

1. Attendee sign-in sheet from meeting 3
2. Recent emails -Email text files beginning with the request to comment on APE in Feb 2016.
3. Recent drawings and files – these are files that were attached to those emails and include the following:
 - a. APE Exhibit
 - b. Draft Avigation Easement
 - c. EXB-LOU_Lighting_alternative-20151217 (drawing showing number of lights needed for obstruction lighting alternative)
 - d. LOU_TreeAgeActual_20160324 (table accompanied email from March 28, 2016 on LOU Tree Maintenance program)
 - e. MEM-ResponsetoAmesComments_20160322
 - f. REP-CRE_Supplement-20160322 (Supplement to the original CRE)
 - g. Responses to comments
 - h. Treeinventorysummary
 - i. Trees_Over_25_years_old (Maps that accompany the tree inventory which show trees estimated to be 25 years old or more [shown in orange color-though they appear gold in color in my print version])

I have also attached the sign-in sheet to this email. More information will be coming soon.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office

2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM - SECTION 106 CONSULTATION MEETING

March 31, 2016 9 AM - Meeting No. 3

SIGN IN SHEET

Name	Organization	Address	Phone	E-Mail
1 Aaron Braswell	FAA	2600 Thompsons Blvd Shawnee, MO 64781	901 322 8192	aaron.braswell@faa.gov
2 Samuel Stover	FAA	2600 Thompsons Blvd Memphis, TN 38118	901-322-8185	Samal.Stover@faa.gov
3 Duane Johnson	FAA	"	901-322-8191	duane.johnson@faa.gov
4 Tommy Dupree	FAA	"	" - " - 8182	tommy.dupree@faa.gov
5 Cynthia Johnson	Lou Metro	444 S 5th St 40202	(502) 574-3865	cynthia.johnson@louisvilleky.gov
6 Steve Grose	Louis. Metro	1297 Memorial	502-574-7275	SEVER.GROSE@LOUISVILLEKY.GOV
7 Lisa Hite	Louisville Metro Parks	1297 Memorial	502-574-6105	lisa.hite@louisvilleky.gov
8 Michael Hayman	KRC of Sevier Park	2548 Sevier Dr	502-649-2458	m.hayman@sevierpark.com
9 Mimi Zinniel	Oliver Park Conservancy	17 Rio Vista Dr Louisville, KY 40207	502-456-8125	MIMI.ZINNIEL@oliverpark.org
10 Chris Lumbard	PPH	932 Audubon Parkway/B	502-631-3137	Chris.Lumbard@pph.com
11 Mary Rose Evans	LRAA Board	817 Perryville	502 314-8854	MaryRoseEvans@lraa.com
12 B.S. Sennel	CPAA	40214	502-363-8512	B.Sennel@cpaa.com
13 Craig Nichols	CPAA	535 S 3rd	502/649-8956	Craig.Nichols@cpaa.com
14 Trish Burke	CPAA		363-8506	Trish.Burke@cpaa.com
15 Tom Owen	Metro Council	City Hall	502 574 1108	Tom.Owen@louisvilleky.gov

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM - SECTION 106 CONSULTATION MEETING

March 31, 2016 9 AM - Meeting No. 3

SIGN IN SHEET

Name	Organization	Address	Phone	E-Mail
1 CHARLES CASH	Becker Design Co.	7011 202 815 W. Market	502-744-0656	
2 MIKE Blankenship	Metaco Parks	40202	502-817-9077	
3 JOHN SWINTOSKY	Metro Parks		502-574-6435	
4 Craig Potts	KHC-SHD	300 Washington St.	502-564-7005	
5 Jennifer Ryall	KHC	300 Washington St.	502-564-7005, ext 121	Jennifer.Ryall@ky.gov
6 Phillip J. Becker	Phil Becker's AEO		901.322.8180	phillip.becker@ky.gov
7 SKIP MILLER	LRDA		502-363-8501	SKIP.MILLER@LOUISVILLER.COM
8 Tim Hagstedt	Hanson		615.653.5305	thagstedt@hanson-inc.com
9 Melissa Vastor	Hanson	2700 Muram Ave Ste B Lex, KY 40205	502-451-0772	mvastor@hanson-inc.com
10				
11				
12				
13				
14				
15				

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Monday, April 11, 2016 11:19 AM
To: 'Ryall, Jennifer (Heritage Council)'; 'Potts, Craig A. (Heritage Council)'
Subject: Bowman Field airport project

Jenn & Craig

Here is the information on Gladstone ROW as it relates to Bowman Field. As you may recall, this was the source of a number of questions and concerns during our last consultation meeting and is where the airport removed a number of trees over the past few weeks as part of their "non-federal action". If you need more information on it or need me to ID it on a map, let me know.

I would like to send this information out to the CPs in the next day or so along with your APE concurrence letter. Do you all have any concerns with me sharing the APE concurrence letter at this time?

Thanks!

Aaron

From: Melissa Vasher [<mailto:MVasher@hanson-inc.com>]
Sent: Wednesday, April 06, 2016 4:58 PM
To: Braden, Phillip (FAA)
Cc: Tim Haskell; Sinnwell, Brian (Brian.Sinnwell@flylouisville.com)
Subject: RE:

Phillip,

Sorry for the delay in responding, thought I got this out to you yesterday and it fell through this am.

The trees that were trimmed or removed on the Gladstone Right of Way (ROW) are not part of the federal action of the EA and Section 106 process. The trees have previously been maintained by the LRAA - trees were trimmed on this ROW in 1997 and 2005 according to plans on file at LRAA. Plans for trimming of trees in all neighborhoods around Bowman exist for 1987, 1991 and 2005. The removal of certain trees in the Gladstone ROW rather than trimming was at the direction of the Louisville Metro Forrester due to the amount of trimming that would be required and was made on a tree by tree decision with regards to amount of trimming required and species of tree. The Metro Forrester is a certified arborist.

This is the area the gentleman from Metro Parks brought up in discussion during the meeting last week.

Please let me know if you need anything else.

Thank you,

Melissa

From: Phillip.Braden@faa.gov [mailto:Phillip.Braden@faa.gov]
Sent: Monday, April 04, 2016 5:58 PM
To: Melissa Vasher <MVasher@hanson-inc.com>
Cc: Tim Haskell <THaskell@hanson-inc.com>
Subject:

Good Afternoon Melissa,

I was checking in to see if you had any further information regarding the trees LRAA removed after discussion with metro parks. These would be trees on removed w/o federal funds. I am looking for best way to described this process.

Any assistance for be appreciated. Call me if you would like to further discuss this prior to responding.

Thank you in advance.

Phillip J. Braden, Manager
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., STE 2250
Memphis, TN 38118-2462
901.322.8181
901.322.8195 fax

Respect your fellow human being, treat them fairly, disagree with them honestly, enjoy their friendship, explore your thoughts about one another candidly, work together for a common goal and help one another achieve it. ~Bill Bradley

Disclaimer

This entire e-mail may contain confidential information belonging to the sender which is legally privileged. This information is intended only for the use of the individual(s) or entity named above. If you are not the intended recipient you are hereby notified that any disclosure, copying, distribution or the taking of any action in reliance on the contents of this information is strictly prohibited. If you have received this e-mail in error please notify the sender immediately by e-mail and then delete this e-mail from your system.
Mail delivered by Hanson Professional Services Inc. mail system.

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Sunday, May 22, 2016 9:09 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov';
'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com';
'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian';
'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins';
'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA);
'patriciastallings@brockington.org'; 'Tom FitzGerald';
'director@preservationkentucky.org'; 'seve.ghose@louisvilleky.gov'; 'Angela Burton';
'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)';
Johnson, Duane (FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa';
'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com';
'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field Airport Update
Attachments: 20160520 FAA Responses to comments.pdf; BowmanAPE SHPO concurrence letter.pdf

Good evening all,

I wanted to provide a quick update on the Bowman Field Airport Area Safety Plan. To begin, I have attached two files: 1) a letter from the Kentucky Heritage Council regarding the APE and 2) responses to comments we received after the third consultation.

Second, I expect that our office will be issuing a Section 106 determination in the near future. Around that same time, we will release the draft EA for public review and comment. You should also be receiving hard copies of all relevant documentation in the mail in the coming days.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

**FAA Responses to Comments
Bowman Field Airport (LOU)
Area Safety Program
May 20, 2016**

The FAA (Federal Aviation Administration) received several comments from consulting parties after the third Section 106 consultation meeting for the undertaking known as the Area Safety Program at Bowman Field Airport in Louisville, KY. The following paragraphs include a summation of the comments received along with FAA responses.

1. Comment concerning Louisville Regional Airport Authority (LRAA) resolution to potentially withdraw from Federal participation:

The Louisville Regional Airport Authority (LRAA) issued a public notice and resolution indicating they will withdraw from Federal participation in the undertaking/proposed action if Section 106 and National Environmental Policy Act (NEPA) processes are not completed in a timely manner. As mentioned in the Section 106 consultation meeting held on March 31, 2016, the undertaking/proposed action is considered a Federal action because of FAA funding for NEPA/Section 106 as well as anticipated (FAA) funding for the easement acquisition and tree replacement/trimming. Should LRAA choose not to seek FAA funding for the undertaking/proposed action, and reimburses the FAA for grants issued for completing the NEPA/Section 106 processes, the FAA would no longer consider the undertaking/proposed action a Federal action.

2. Comments concerning: (a) consulting party disagreements on statements/conclusions in the Cultural Resource Evaluation (CRE); (b) lack of sufficient recognition of consulting party input; (c) concerns on Area of Potential Affect (APE); and (d) age of trees:

The FAA Memphis Airports District Office (MEM-ADO) recognizes that all consulting parties have invested substantial time and effort in participating in the Section 106 consultation process. The agency also recognizes that many who have commented on the undertaking have considerable knowledge and experience in the fields of Section 106, historic resources and trees/vegetation. However, we must consider the information provided in the Cultural Resource Evaluation (CRE) and other supporting documents. Consequently, we do not agree with all the comments made by the consulting parties. One case where the FAA MEM-ADO concurred with the consulting parties was the definition of the APE. Although some may believe the APE is still not sufficient, it has changed over the course of the Section 106 Consultation process and was expanded to better account for indirect effects. The FAA MEM-ADO believes the APE is now sufficient for the undertaking.

The consulting team has also spent considerable time completing the CRE and surveying trees in the project area. Brockington, Inc., who prepared the CRE, used standard and customary practices to carry out the survey. Although some consulting parties disagree with the conclusions made in the CRE, the FAA believes the document represents a good faith effort to identify and evaluate historic resources. Certified arborists completed tree surveys using their professional judgment to estimate tree age. Unfortunately, the only accurate method to determine a tree's age is to cut it down. Based on previous tree replacement in the project area, arborists noted that many trees were younger than previously estimated, while others were older than estimated. A table with additional information on tree age comparisons is attached.

3. Comment concerning purpose of the undertaking:

The FAA MEM-ADO does not characterize the undertaking as logging since the intent is not to harvest trees and prepare timber. The intent is safety enhancement. The undertaking seeks to obtain property easements and replace or trim trees that are obstructing FAA airspace surfaces. Both the FAA MEM-ADO and LRAA recognize that the trees are an important characteristic of the communities near Bowman Field Airport. Thus, LRAA has proposed to replace two trees for every one tree that is removed. Trees that are trimmed rather than replaced would be trimmed by professional arborists in order to maintain the trees' health and its benefits.

4. Comment concerning FAA involvement with property easements:

The FAA does not have authority to govern land-use controls around federally obligated airports. As such, the agency has limited prescriptive guidance for land-use controls including easements. The draft easements were provided to consulting parties as an example. The terms and conditions of an easement can be negotiated between the property owner and the airport authority.

5. Comment concerning recent tree clearing in the project area:

Trees that have been removed in the past months are trees located on airport property, existing easement areas, or City right-of-way. Please note, tree removal on City right-of-way is considered ongoing maintenance, as those tree areas have been trimmed/removed in the past.

6. Comment concerning availability of draft environmental assessment:

The draft EA will be released in the near future. In accordance with FAA guidance, a 30-day public review and comment period will coincide with the draft release. A public hearing will be held at the conclusion of the 30-day review period.

7. Comment concerning the number of trees involved in the undertaking at Seneca Park near Pee Wee Reese Road:

Based on the tree survey, there are seven trees in Seneca Park at Pee Wee Reese Road. The table in the Supplement to the CRE has been corrected.

8. Comment concerning previous response to comment #1:

The phrase "have been placed" means that trees in the golf course of Seneca Park have been placed with the ongoing tree management of golf course officials.

9. Comment concerning tree #7053:

Tree #7053 was originally coded as a Henry Maple. The tree is actually a Hackberry. Table 1 in the Supplement to the CRE has been corrected.

10. Comment concerning the footnote on page 4 of the Supplement to the CRE:

The footnote on page 4 of the CRE supplement refers to the APE for archaeological resources. If a homeowner chooses to replace trees rather than trim them, the existing tree and stump would be removed. The APE for archaeological resources would be limited to the trees to be removed. Since the decision to remove trees is that of the homeowner, it is not yet known which trees would be removed.



MATTHEW G. BEVIN
GOVERNOR

DON PARKINSON
SECRETARY

**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

THE STATE HISTORIC PRESERVATION OFFICE

300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

REGINA STIVERS
DEPUTY SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

April 7, 2016

Aaron Braswell, Environmental Protection Specialist
Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486

Re: Bowman Field Area of Potential Effect (APE)

Dear Mr. Braswell:

Thank you for your letter and copy of "Bowman Field Airport Area Safety Program Area of Potential Effect w/Approach Surface" map showing the recommended APE for this project. Since our last letter, the FAA has provided the requested additional information including the tree inventory (and map), standard language for the proposed aviation easements (including trees which may be cut or trimmed in the future but which need to be considered as part of the Section 106 consultation for this project), and a response that the obstruction lighting alternative has been eliminated. We can concur that the APE has been modified since its inception based on input from consulting parties as well as our office, Hanson, and Brockington.

Additionally, FAA has sent a table of responses to consulting party comments and provided a response (via Hanson) to Dr. Ames' comments. Consulting parties have also received an explanation of tree clearing efforts undertaken by the Louisville Regional Airport Authority which overlap the APE, but which are either on public right-of-way or on aviation easements which have already been acquired and are therefore not a part of the current undertaking. LRAA will be following with additional information on these tree clearing efforts making clear that they were part of ongoing maintenance in these areas. Although we had initially requested information on whether aviation easement "future" trees fall within the recommended APE, at the most recent consulting parties meeting (3-31-16) Louisville Regional Airport Authority (LRAA) made us aware of the difficulty in identifying individual "future" trees of concern; in that meeting, we verbally agreed to address these trees as part of the effects assessment for this project and address obstruction clearing efforts on "future" aviation easement trees in an agreement document.

#Preservation50: Commemorating the 50th anniversary of the National Historic Preservation Act
and the Kentucky Heritage Council 1966-2016

KentuckyUnbridledSpirit.com



An Equal Opportunity Employer M/F/D

Page 2

Re: Bowman Field Area of Potential Effect (APE)

April 7, 2016

The recommended APE appears to include all trees currently proposed for trimming or removal and thus provides adequately for direct effects; our office also feels that the recommended APE provides a sufficient buffer to address indirect (visual) effects around affected trees currently proposed for trimming or removal within approach surfaces. As such, our office is formally concurring that FAA's recommended APE is appropriate for this undertaking.

At the March 31, 2016, consulting parties meeting FAA and LRAA also verbally agreed with Hanson/Brockington that we would receive an updated, single combined report containing the initial CHS, the addendum CHS which was recently prepared, and the supporting documentation (tree inventory/maps, lighting information, responses, etc.) to better facilitate our review. We look forward to receiving that and reviewing that combined report/CHS. Should you have any questions, feel free to contact Jennifer Ryall of my staff at 502.564.7005, extension 121.

Sincerely,



Craig A. Potts,
Executive Director and State Historic Preservation Officer

CP: jr, KHC #46554

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Sunday, May 22, 2016 10:01 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA); 'patriciastallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; 'seve.ghose@louisvilleky.gov'; 'Angela Burton'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa'; 'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com'; 'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: RE: Bowman Field Airport Update
Attachments: LOU_TreeAgeActual_20160324.pdf

The previous message did not include the attached table which is being submitted as part of the responses to comments.

Thank you,

Aaron

From: Braswell, Aaron (FAA)
Sent: Sunday, May 22, 2016 9:09 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA); 'patriciastallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; 'seve.ghose@louisvilleky.gov'; 'Angela Burton'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa'; 'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com'; 'mhayman@iglou.com'; 'Charles@charlescashaia.com'
Subject: Bowman Field Airport Update

Good evening all,

I wanted to provide a quick update on the Bowman Field Airport Area Safety Plan. To begin, I have attached two files: 1) a letter from the Kentucky Heritage Council regarding the APE and 2) responses to comments we received after the third consultation.

Second, I expect that our office will be issuing a Section 106 determination in the near future. Around that same time, we will release the draft EA for public review and comment. You should also be receiving hard copies of all relevant documentation in the mail in the coming days.

Thank you,

Aaron Braswell

Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

RUNWAY 6 & 33 APPROACH MAINTENANCE PROGRAM
AGE COMPARISON OF TREES ACTUAL to ESTIMATE

Tree Number	Address	Type	SIZE		AGE	
			Estimated	Actual	Estimated	Actual
02D	Drayton Drive	Silver maple	30-36"	34"	41-80	40
03D	Drayton Drive	White pine	12-18"	17"	26-30	40
29D	Drayton Drive	Silver maple	36+"	42"	41-80	35
01G	Gladstone ROW	Pin oak	30-36"	33"	36-40	42
03G	Gladstone ROW	Silver maple	24-30"	27"	31-35	35
04K	Kent Road	Red maple	30-36"	34"	41-80	54
04L	Landor Ave	Silver maple	30-36"	33"	41-80	43
06L	Landor Ave	Siberian elm	36+	44"	41-80	62
07L	Landor Ave	Siberian elm	30-36"	33"	41-80	63
08L	Landor Ave	Silver maple	36+	40"	41-80	65
11L	Landor Ave	Hackberry	24-30"	25"	36-40	45
17L	Landor Ave	Hemlock	0-12"	6"	16-20	27
18L	Landor Ave	Hemlock	0-12"	6"	16-20	27
19L	Landor Ave	Hemlock	0-12"	7"	16-20	27
20L	Landor Ave	Ash	24-30"	28"	16-20	27
15A	Drayton Drive	Pin oak	36+	48"	80+	56
16A	Drayton Drive	Silver maple	36+	52"	80+	55
17A	Drayton Drive	American elm	12-18"	16"	26-30"	12
20A	Landor Ave	Black cherry	24-30"	27"	36-40	42
21A	Landor Ave	Black cherry	24-30"	26"	36-40	41
22A	Landor Ave	American elm	24-30"	26"	36-40	40
23A	Landor Ave	Black walnut	30-36"	36"	5-15 ??	40
24A	Landor Ave	Black walnut	18-24"	18"	31-35	35
25A	Landor Ave	Tulip poplar	30-36"	30"	36-40	45
26A	Landor Ave	Catalpa	24-30"	25"	36-40	45
27A	Landor Ave	Black cherry	18-24"	20"	31-35	24
28A	Landor Ave	Black walnut	18-24"	20"	31-35	28
29A	Landor Ave	Tulip poplar	12-18"	15"	26-30	20
30A	Landor Ave	Sugar maple	12-18"	15"	26-30	24
31A	Landor Ave	American elm	7-12"	12"	26-30	15
32A	Landor Ave	Ginkgo	7-12"	9"	21-25	15
33A	Landor Ave	Blue spruce	7-12"	12"	21-25	27
34A	Landor Ave	Blue spruce	7-12"	12"	21-25	27
35A	Landor Ave	Blue spruce	7-12"	10"	21-25	27

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Monday, October 03, 2016 4:30 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov'; 'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov'; 'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com'; 'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian'; 'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins'; 'Rodger Anderson'; 'Dupree, Tommy (FAA)'; 'Braden, Phillip (FAA)'; 'patriciastallings@brockington.org'; 'Tom FitzGerald'; 'director@preservationkentucky.org'; 'seve.ghose@louisvilleky.gov'; 'Angela Burton'; 'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuate, Nicolas (Heritage Council)'; 'Johnson, Duane (FAA)'; 'Stovall, Jamal (FAA)'; 'Jennifer Ryall, KHC'; 'Hite, Lisa'; 'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com'; 'mhayman@iglou.com'; 'Charles@charlescashaia.com'; 'Stovall, Jamal (FAA)'; 'Ashley, Kristi (FAA)'; 'Andrus, Katherine (FAA)'
Subject: Bowman Field Airport Update
Attachments: 20160930 FAA letter to ACHP.pdf

Dear Bowman Field Consulting Parties,

Pursuant to CFR § 800.5(c)(2)(i), the FAA has requested the Advisory Council on Historic Preservation (ACHP) review the undertaking at the Bowman Field Airport. The request was received today by ACHP. As required in the aforementioned regulation, we are notifying you concurrently with the submittal to ACHP. The cover letter used in the ACHP submittal is enclosed. We are working with the airport sponsor to make the submittal documentation available to the public.

If you have any questions, please let me know.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486
Phone: 901-322-8180

September 30, 2016

Mr. Reid Nelson
Director, Office of Federal Agency Programs
Advisory Council on Historic Preservation
401 F Street NW, Suite 308
Washington, DC 20001-2637

**RE: Request for Advisory Council Review of FAA Determination of No Adverse
Effect - Bowman Field Airport (LOU), Louisville, KY**

Dear Mr. Nelson:

The Federal Aviation Administration (FAA) Memphis Airports District Office has been involved in consultation, under Section 106 of the National Historic Preservation Act, for an undertaking around the Bowman Field Airport in Louisville, KY. The undertaking consists of easement acquisition and tree trimming/replacement around the airport. A thorough description of the undertaking is included in the enclosed documentation.

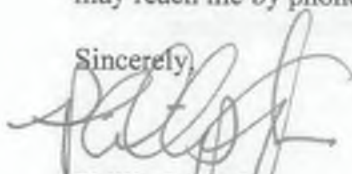
The FAA initiated consultation under Section 106 beginning in 2015 and held three consultation meetings with consulting parties. After careful consideration of the undertaking, potential effects, and comments from the consulting parties, the FAA issued a Determination of No Adverse Effect on May 24, 2016. After releasing the determination, multiple consulting parties objected. Therefore, in accordance with 36 Code of Federal Regulations (CFR) § 800.5(c)(2)(i), the FAA requests that the Advisory Council review the FAA finding pursuant to 36 CFR § 800.5(c)(3)(i). To assist in your review, the following items are enclosed:

1. FAA Determination of No Adverse Effect, which includes a description of the undertaking specifying the FAA's involvement, its area of potential effect, including photographs and maps, steps taken to identify historic properties, an assessment of effects on historic properties and the FAA's finding of No Adverse Effect.
2. Memo from Katherine Andrus, FAA Federal Preservation Officer, which explains in greater detail why the criteria of adverse effect were found to be inapplicable.
3. Conditional concurrence letter from the Kentucky Heritage Council.
4. Section 106 Documentation.
5. Comments from Section 106 Consulting Parties.

The FAA appreciates the Advisory Council's participation in this matter. Our plan was to submit this request to you earlier this year; however, due to the applicant's indecision on whether to continue the process, our submittal has been delayed.

As you conduct the review, please feel free to contact me with questions and/or concerns. You may reach me by phone at (901) 322-8181 or by email at Phillip.Braden@FAA.gov.

Sincerely,



Phillip J. Braden
Manager, Memphis Airports District Office

Braswell, Aaron (FAA)

From: Andrus, Katherine (FAA)
Sent: Tuesday, November 01, 2016 3:05 PM
To: Najah Duvall-Gabriel (ngabriel@achp.gov)
Cc: Charlene Vaughn
Subject: Additional information on Bowman Field Safety Program

Importance: High

Najah: Thank you for updating me on the status of your review of our finding of "No Adverse Effect" for the Bowman Field Safety Program. You mentioned that you had some questions about two aspects of our Section 106 review, which I have attempted to address below.

Conditions listed in 6/27/16 letter from Craig Potts:

With the exception of the first and last conditions, these have been part of the discussion of mitigation measures and are identified in the Draft Environmental Assessment at 1.2.1, p. 1. LRAA has previously stated that they intend to fulfill these commitments and I have no reason to think they would change that, but to be conservative I did not assume this mitigation in my assessment of effects (i.e., I assumed that all of the trees identified as obstructions would be removed with no replacement plantings).

Condition #1 calls for additional documentation, including boundaries for all eligible historic districts and a full evaluation of Seneca Park. We have provided proposed boundaries for the historic districts based on the historic subdivision plats, and in the case of the golf courses, on the historic designs (omitting the area that was taken for the highway project in the 1960s. In response to comments from consulting parties I also looked at the potential for one or more of these districts to form part of a larger district, but determined that this would not change the outcome of our assessment of effects. In the case of Seneca Park, I noted that it is likely to be eligible for the National Register, but that documentation of this larger area is outside the scope of the FAA's identification obligations under Section 106.

Condition # 7 calls for putting these conditions in the EA/FONSI as "planned components of the project/undertaking." The final EA and FONSI have not yet been issued (they are awaiting the conclusion of the Section 106 process) so I cannot comment on whether the conditions will be part of that finding.

Foreseeable Adverse Effects: The Bowman Field Safety Program is intended to address obstructions to airspace in the form of trees, which would allow restoration of the prior operating conditions of the airport (i.e., re-establish nighttime instrument approach procedure that had been temporarily suspended due to the height of the trees). The undertaking is not expected to result in foreseeable or cumulative effects in the number or type of operations at Bowman Field. The only foreseeable effect that we have identified is the future trimming of trees on the parcels the LRAA-acquired easements which may be necessary as trees grow and penetrate the TERPS approach surfaces. (The TERPS surfaces slope upwards from the runway ends -- they get higher the further away you get from the airport).

The LRAA would acquire easements on 44 parcels located in the runway approaches.. Those parcels are shown in pink on the attached APE -- they are also depicted in pink on Figure 1.6 of the Draft EA; existing parcels under easement to LRAA are shown on the same graphic in yellow. In response to requests from the SHPO, we prepared a tree inventory (included in our supporting documentation) for the undertaking, which identified 3,512 trees in the APE, which encompasses a much larger area than the parcels proposed for acquisition. Approximately 50% of those trees are species that are expected to grow to over 70' at maturity. Depending on their location, these trees might eventually penetrate the TERPS approach surfaces. I do not have a precise number of trees on the proposed easement parcels, but

qualitatively they are a fraction of the number of trees in the overall area, and are likewise a small percentage of the total number of trees in each of the historic districts that include easements.

The foreseeable effects of the LRAA's acquisition of avigation easements on these parcel include selective trimming of the taller trees as they continue to grow. Under the terms of the Avigation Easement (sample included in our submission), the easement is for airspace above the property, extending upwards from an imaginary plane (i.e., surface) which is defined for each individual parcel. LRAA has right to trim trees, but only to 10' below that imaginary surface to accommodate future growth. The grantor (i.e., the property owner) agrees not to permit the growth of trees or other vegetation into this airspace in the future. Therefore, the property owner has an ongoing duty to trim their trees to prevent them from becoming obstructions in the future. Of course, these same owners may trim or remove trees on their property for other reasons at any time, as may other property owners in the historic districts.

As mentioned in my July 8th memo, the natural cycle and historic pattern of residential subdivisions includes a change in the mixture of tree species, age and height as trees mature and are removed and replaced. Based on the characteristics of these historic districts, in which trees contribute to the park-like setting but are not part of a formal landscape design and do not in and of themselves contribute to the historic district, I conclude that selective trimming of taller trees would be in keeping with the historic character and would not be adverse.

Regards,

Katherine

Katherine B. Andrus
Federal Preservation Officer and National Tribal Consultation Official
Office of Environment and Energy (AEE-400)
202-267-9548
Katherine.andrus@faa.gov

Braswell, Aaron (FAA)

From: Braswell, Aaron (FAA)
Sent: Tuesday, December 13, 2016 5:07 PM
To: 'Potts, Craig A. (Heritage Council)'; 'cynthia.johnson@louisvilleky.gov';
'info@cityofkingsley.org'; 'tom.owen@louisvilleky.gov'; 'bill.hollander@louisvilleky.gov';
'Zinniel, Mimi M'; 'Leslie Barras'; 'd.l.b.2547@gmail.com';
'brent.ackerson@louisvilleky.gov'; 'brent.ackerson@louisvilleky.gov'; 'Sinnwell, Brian';
'Miller, Skip'; 'Tim Haskell - Hanson (thaskell@hanson-inc.com)'; 'Melissa Jenkins';
'Rodger Anderson'; Dupree, Tommy (FAA); Braden, Phillip (FAA);
'patriciastallings@brockington.org'; 'Tom FitzGerald';
'director@preservationkentucky.org'; 'seve.ghose@louisvilleky.gov'; 'Angela Burton';
'Phyllis Hawkins'; 'jchris.mccoy@gmail.com'; 'Laracuenta, Nicolas (Heritage Council)';
Johnson, Duane (FAA); Stovall, Jamal (FAA); 'Jennifer Ryall, KHC'; 'Hite, Lisa';
'Kyle.Ethridge@louisvilleky.gov'; 'clair@guthriemayes.com'; 'Kbooker6@gmail.com';
'mhayman@iglou.com'; 'Charles@charlescashaia.com'; Stovall, Jamal (FAA); Ashley, Kristi
(FAA); Andrus, Katherine (FAA); Fineman, Michael (FAA)
Subject: Bowman Field Airport
Attachments: FONSI-ROD & Cover Page_signed 20161213.pdf; ky.faa.bowman field
airport.con.03nov16.pdf; 20161208 FAA response to ACHP 20161103 Subject Louisville
Bowman Field.pdf

Dear Consulting Parties,

As you are aware, the FAA submitted documentation to the Advisory Council on Historic Preservation (ACHP), on October 3, 2016, concerning the Section 106 Undertaking (known as the Area Safety Program) at Bowman Field (LOU) in Louisville, Kentucky. As part of the letter, the FAA stated the preliminary effect determination was "No Adverse Effect".

The ACHP responded on November 3, 2016, stating they believe the appropriate determination should be "Adverse Effect".

On December 8, 2016, the FAA responded to ACHP and acknowledged that after careful consideration the "No Adverse Effect" determination would stand. The ACHP letter and FAA response letter are attached for your records.

This concludes the Section 106 consultation process. Your time and effort contributing to the consultation have been a key part of the process and we thank you for your participation.

With respect to the National Environmental Policy Act (NEPA) process, the FAA has issued a Finding of No Significant Impact (FONSI)/Record of Determination (ROD). The FONSI/ROD is also attached for your records. The final EA with FONSI/ROD will be made available in the near future.

Again, thank you for your participation.

Sincerely,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250



Preserving America's Heritage

November 3, 2016

Mr. Elliott Black
Director, Office of Airports
Planning and Programs
Federal Aviation Administration
800 Independence Avenue, S.W.
Washington, DC 20591

Ref: *Proposed Easement Acquisition and Tree Trimming/Replacement Project
Bowman Field Airport, Louisville, KY*

Dear Mr. Black:

On October 3, 2016, the Advisory Council on Historic Preservation (ACHP) received the letter from the Federal Aviation Administration (FAA), dated September 30, 2016, requesting our advisory opinion regarding FAA's disputed "no adverse effect" (NAE) finding for the referenced project. The NAE finding was issued on May 24, 2016, in accordance with Section 106 of the National Historic Preservation Act (NHPA), and its implementing regulations, "Protection of Historic Properties" (36 CFR Part 800) for a grant application from the Louisville Regional Airport Authority (LRAA) to address obstructions to air navigation posed by trees that penetrate the critical Terminal Instrument Procedure (TERPS) approach surfaces of Bowman Field Airport. The FAA proposes to acquire aviation easements for the trimming or removal and replacement of trees that are, or may become, an obstruction to TERPS approach services to runway 06, 15, 24 and 33. After receiving multiple objections from consulting parties who were actively involved in the Section 106 consultation, FAA is requesting the ACHP's advisory opinion in accordance with 36 CFR § 800.5(c)(3)(i).

Following a careful analysis of FAA's finding and background information, and the objections from consulting parties, the ACHP opines that the FAA's NAE finding is incorrectly limited in that it assesses effects on individual historic properties while the undertaking appears to be a program of related vegetation management activities that may have an effect on all sides of the Bowman Field Airport. FAA's finding is problematic because it focuses on the number of trees to be trimmed or removed without giving due consideration to the diminishment of integrity of historic districts that may result from the overall operation of the safety improvement program (e.g. alteration of tree canopies resulting in visual and auditory effects).

At the outset, it is important to acknowledge that all of the consulting parties have indicated their support of the safety improvement measures that LRAA will need to take to facilitate the operation and use of Bowman Field. However, they continue to disagree with FAA's analysis about the effects on historic properties. We acknowledge that FAA reconsidered the boundaries of the area of potential effects (APE) in March 2016 and received the concurrence of the Kentucky State Historic Preservation Officer (SHPO) that such an APE better reflects the extent to which direct and indirect effects may occur on historic

ADVISORY COUNCIL ON HISTORIC PRESERVATION

401 F Street NW, Suite 308 • Washington, DC 20001-2637
Phone: 202-517-0200 • Fax: 202-517-6381 • achp@achp.gov • www.achp.gov

properties. Likewise, we acknowledge the efforts of FAA's Federal Preservation Officer (FPO) in conducting a supplemental analysis of effects on historic properties in the memorandum drafted on July 8, 2016, in response to comments received regarding the May 2016 NAE.

However, we find that the application of the criteria of adverse effect (AE) has not been adequately applied on all eligible historic districts in a manner that addresses the effect of substantial tree removal on the settings of these historic properties. The removal and trimming of mature trees in several of the historic residential suburbs may change the character of the property's use or the physical features within the property's setting that contribute to its historic significance (see 36 CFR § 800.5(a)(2) iv). FAA does not document how it has assessed the effect of the undertaking and all its parts. Further, consulting parties raised concerns about the cumulative effects that have already and will likely result from previous vegetation management activities around the airport. FAA has not adequately addressed these issues despite repeated requests from consulting parties. Accordingly, we believe that since there is the potential for an AE resulting from the acquisition of easements and the tree trimming and removal, the appropriate effect determination would be an "adverse effect."

Some of the proposed minimization and mitigation measures that should be considered by FAA in negotiating a Memorandum of Agreement are outlined in the Kentucky SHPO letter of June 27, 2016. Other measures have been recommended in correspondence from the consulting parties which emphasize the need to compensate for the loss of significant features in the historic residential suburbs. In that regard, and in closing, the ACHP recommends that FAA consider developing a Section 106 agreement with the LRAA, Kentucky SHPO, and other consulting parties. Although we have not been an active participant in this consultation, the ACHP would like to formally participate since this project will likely set a precedent for how easement acquisitions and tree trimming and removal will be handled at other local airports around the nation.

In accordance with 36 CFR § 800.5(c)(3)(ii)(B) of our regulations, FAA is required to take into account this advisory opinion in reaching a final decision on its finding of No Adverse Effect, and provide to the ACHP, the Kentucky SHPO, and other consulting parties a summary of how these advisory comments were considered by FAA. If FAA's initial finding will be revised, it should proceed in accordance with the revised finding set forth in 36 CFR § 800.6(a). However, should the final decision of FAA be to affirm the initial finding of No Adverse Effect, once the summary decision has been sent to the ACHP, the Kentucky SHPO, and the consulting parties, the FAA's Section 106 responsibilities are fulfilled.

If you have any questions regarding this matter, please contact Charlene Dwin Vaughn, AICP, Assistant Director, Office of Federal Agency Programs at 202-517-0207, or via e-mail at cvaughn@achp.gov.

Sincerely,



Reid Nelson
Director
Office of Federal Agency Programs



U.S. Department
of Transportation
**Federal Aviation
Administration**

Office of Airport Planning
and Programming

800 Independence Avenue, SW.
Washington, DC 20591

December 8, 2016

Mr. Reid Nelson
Director, Office of Federal Agency Programs
Advisory Council on Historic Preservation
401 F Street NW, Suite 308
Washington, DC 20001-2637

**Subject: Advisory Opinion on the FAA's Determination of No Adverse Effect
Bowman Field Airport (LOU), Louisville, Kentucky**

Dear Mr. Nelson:

Thank you for your advisory opinion letter of November 3, 2016, in response to our request for the Advisory Council on Historic Preservation's (ACHP) review¹ of our finding of "No Adverse Effect" (NAE) for the subject undertaking by the Louisville Regional Airport Authority (LRAA).

We appreciate that your letter stated in part that "all of the consulting parties have indicated their support of the safety improvement measures that LRAA will need to take to facilitate the operation and use of Bowman Field." We also appreciate that your letter included the following key acknowledgements:

We acknowledge that FAA reconsidered the boundaries of the area of potential effects (APE) in March 2016 and received the concurrence of the Kentucky State Historic Preservation Officer (SHPO) that such an APE better reflects the extent to which direct and indirect effects may occur on historic properties. Likewise, we acknowledge the efforts of FAA's Federal Preservation Officer (FPO) in conducting a supplemental analysis of effects on historic properties in the memorandum drafted on July 8, 2016, in response to comments received regarding the May 2016 NAE.

After careful review of both the ACHP advisory opinion and of the extensive stakeholder input that the LRAA and Federal Aviation Administration (FAA) considered, we respectfully disagree with the ACHP's characterization of the proposed undertaking as representing "substantial tree removal," and the ACHP's opinion that the FAA had not adequately documented its evaluation of the overall undertaking.

I am attaching a more detailed response to ACHP's key points. After careful consideration of the ACHP's advisory opinion, the details of the proposed undertaking and the extensive environmental review process that has been conducted—as well as further consultation with

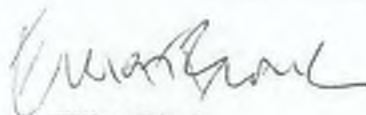
¹ Pursuant to 36 CFR § 800.5(c)(3)(i)

the FAA's Federal Preservation Officer (FPO)—we are confirming our finding that the Bowman Field Airport Area Safety Program would have no adverse effect on any historic property.

It may be helpful to note that the FAA's FPO is not part of the FAA's Office of Airports. Rather, that position is part of the Office of Environment and Energy, and provides a valuable independent perspective on proposed undertakings such as this one.

If you have any questions about this, please contact Katherine B. Andrus, FAA's Federal Preservation Officer and National Tribal Consultation Official, at 202-267-9458, or by email at Katherine.Andrus@faa.gov.

Sincerely,



Elliott Black
Director, Office of Airport Planning and Programming

Attachment

cc: Katherine Andrus, Federal Preservation Officer, FAA
Steven Hicks, Acting Director, Southern Region Airports Division, FAA
Phillip Braden, Manager, Memphis Airports District Office, FAA
Michael Hines, Manager, Airport Planning and Environmental Division, FAA

**Summary of the FAA's Review and Consideration of the ACHP's Opinion Regarding
FAA's "No Adverse Effect" Finding for the Bowman Field Safety Program**

On May 24, 2016 the Federal Aviation Administration FAA made a finding of "No Adverse Effect" under Section 106 of the National Historic Preservation Act for the Bowman Field Safety Program. We requested that the Advisory Council on Historic Preservation (ACHP) review our finding under 36 CFR § 800.5(c)(3)(i). The ACHP provided its advisory opinion by letter dated November 3, 2016. The ACHP advised the FAA that "the criteria of adverse effect (AE) has not been adequately applied on all eligible historic districts in a manner that addresses the effect of substantial tree removal on the settings of these historic properties," and provided specific comments which are addressed below.

- 1) *... FAA's NAE finding is incorrectly limited in that it assesses effects on individual historic properties while the undertaking appears to be a program of related vegetation management activities that may have an effect on all sides of the Bowman Field Airport.*

FAA Response: In support of our request for the ACHP's review, the FAA provided a description of the undertaking specifying the FAA's involvement, the APE (including photographs and maps), and steps taken to identify historic properties. That documentation clearly identifies the undertaking as acquisition of easements by the Louisville Regional Airport Authority (not the FAA, as the ACHP states in its letter) on 44 residential parcels shown on the map depicting the APE and the trimming or removal of trees on these parcels and other publicly-owned land that penetrate the Terminal Instrument Procedures (TERPS) approach surfaces of the airport.

The undertaking involves selective trimming and/or replacement of those trees that have or may reach a certain height (determined with respect to the location of the tree within the TERPS approach area) within the APE, which consists of four discrete areas corresponding to runway ends.² This does not, in the FAA's view, constitute "a program . . . that may have an effect on all sides of the Bowman Field Airport."

We assessed the effects of the undertaking on all historic properties³ within the APE, taking into consideration the distinct character of each of these historic districts. We also considered the location of the parcels proposed for easement acquisition and the location of specific trees proposed for trimming or removal, which are concentrated in three of the

² The FAA initially proposed an APE confined to the four areas in which the easements would be obtained and trees trimmed or removed, but after consulting with the SHPO, and other consulting parties reached consensus on an expanded APE consisting of four larger, but still distinct areas. According to the SHPO, this APE encompasses "a sufficient buffer to address indirect (visual) effects around affected trees currently proposed for trimming or removal within approach surfaces." Letter from Craig Potts, Executive Director and State Historic Preservation Officer, Kentucky Heritage Council to Aaron Braswell, Memphis Airports District Office, FAA (April 27, 2016).

³ These historic properties include one historic district listed in the National Register and nine potentially eligible historic districts. There were no additional historic properties identified within the APE by the SHPO or any other consulting party.

districts: Seneca Golf Course, Seneca Vista and Seneca Village. We felt that looking at the particularized impacts on each historic district was the most conservative approach to assessing the effects of the undertaking, which would impact only about 4 percent of trees in the overall project area. We did consider whether assessing effects on a larger potential district (i.e., the entirety of Seneca Park, or a much larger historic district encompassing all of the residential subdivisions, as recommended by one of the consulting parties) and determined that the overall outcome – a finding of “No Adverse Effect” – would be the same. Therefore, we conclude that our assessment of effects was not “incorrectly limited” and indeed took into consideration the entirety of historic properties potentially affected.

- 2) *FAA’s finding is problematic because it focuses on the number of trees to be trimmed or removed without giving due consideration to the diminishment of integrity of historic districts that may result from the overall operation of the safety improvement program (e.g., alteration of tree canopies resulting in visual and auditory effects).*

FAA Response: The FAA explicitly and thoroughly considered the extent to which the proposed removal of trees⁴ would alter the characteristics of each historic property that qualify it for the National Register, and whether such alteration would diminish the integrity of the landscape setting. The ACHP does not explain what diminishment of integrity it anticipates might result from the overall operation of the undertaking beyond the trimming and removal of trees. As noted in our assessment, the undertaking would not eliminate the mature tree canopy throughout the historic districts.

- 3) *The removal and trimming of mature trees in several of the historic residential suburbs may change the character of the property’s use or the physical features within the property’s setting that contribute to its historic significance (see 36 CFR § 800.5(a)(2)iv).*

FAA Response: In applying the criteria of adverse effect, the FAA expressly considered whether and how the removal of trees might affect the character of the landscape features within the historic properties’ setting (the properties’ use is not expected to change as a result of the undertaking), and the way in which those features contribute to each property’s historic significance.

- 4) *FAA does not document how it assessed the effect of the undertaking and all its parts.*

FAA Response: The FAA provided the ACHP with extensive documentation prepared by consultants to the LRAA, supplemented by an independent analysis of that documentation and comments from the consulting parties prepared by the FAA’s FPO, which laid out the step-by-step process through which the FAA assessed the effects of the undertaking to reach its finding of No Adverse Effect.

⁴ To be conservative in our evaluation, we assumed that all of the trees proposed for trimming or removal would be removed, but that is not actually the LRAA’s proposed undertaking.

- 5) . . . consulting parties raised concerns about the cumulative effects that have already and will likely result from previous vegetation management activities around the airport. FAA has not adequately addressed these issues despite repeated requests from consulting parties.

FAA Response: The FAA recognizes that adverse effects “may include reasonably foreseeable effects caused by the undertaking that may occur later in time . . . or be cumulative” (36 CFR 800.5), and addressed this issue at several points in the consultation process. We received a request from the ACHP for further information on our assessment of cumulative effects on Friday, October 28, 2016, and we provided a response the following Tuesday, November 1, 2016. That response explained that the foreseeable effects of the LRAA’s acquisition of aviation easements on these parcels include selective trimming of taller species of trees as they continue to grow.

Under the terms of the Aviation Easement (a sample of which was included in our submission to the ACHP), the LRAA would be acquiring an easement for airspace above the property, extending upwards from an imaginary plane (i.e., surface which is defined for each individual parcel. Under the easements, LRAA would acquire the right to trim trees to accommodate future growth up to 10 feet below that imaginary surface. The property owner would agree not to permit the growth of trees or other vegetation into this airspace in the future. The property owners may trim or remove trees on their property for other reasons at any time, as may other property owners in the historic districts.

Although no one can predict the precise extent of future tree trimming activities, which is dependent on the rate of growth and the mature height of different tree species (or the extent of tree trimming and removal by either the LRAA or individual property owners in the past), we noted that the natural cycle and historic pattern of residential subdivisions includes a change in the mixture of tree species, age and height as trees mature and are removed and replaced. Based on the characteristics of these historic districts, in which trees contribute to the park-like setting but are not part of a formal landscape design and do not in and of themselves contribute to the historic district, we concluded that selective trimming of taller trees would be in keeping with the historic character, and would not be cumulatively or foreseeably adverse.

Conclusion

After careful consideration of the ACHP’s advisory opinion and based on the details of the proposed undertaking, the FAA is confirming its finding that the Bowman Field Airport Area Safety Program would have No Adverse Effect on any historic property.



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486
Phone: 901-322-8180

December 13, 2016

Mr. C.T. "Skip" Miller
Executive Director
Louisville Regional Airport Authority
PO Box 9129
Louisville, KY 40209

Dear Mr. Miller:

**RE: Area Safety Program – Finding of No Significant Impact/Record of Decision
Bowman Field (LOU), Louisville, KY**

The Federal Aviation Administration (FAA) Memphis Airports District Office has reviewed the Final Environmental Assessment for the Area Safety Program for Bowman Field (LOU) in Louisville, KY. Based on our review, the document supports a Finding of No Significant Impact (FONSI)/Record of Decision (ROD). The FONSI/ROD is attached for your records. Please note the FAA will issue a Federal Register Notice for the FONSI/ROD.

If you have any questions related to this environmental review, please contact me at (901) 322-8181.

Sincerely,



Phillip J. Braden
Manager, Memphis Airports District Office



Department of Transportation
Federal Aviation Administration

**FINDING OF NO SIGNIFICANT IMPACT
and
RECORD OF DECISION**

Airport Area Safety Program at Bowman Field Airport
Louisville, Jefferson County, Kentucky
December 2016

Memphis Airports District Office
Memphis, Tennessee

I. INTRODUCTION / BACKGROUND

In compliance with the *National Environmental Policy Act* (NEPA), Council on Environmental Quality (CEQ) Regulations, 40 Code of Federal Regulations (CFR) Parts 1500-1508, and Federal Aviation Administration (FAA) Orders 1050.1E¹ and 5050.4B, this Finding of No Significant Impact (FONSI) and Record of Decision (ROD) announces final agency determinations and approvals for those Federal actions by the Federal Aviation Administration (FAA) that are necessary to support implementation of the Airport Area Safety Program at the Bowman Field Airport (LOU) in Louisville, Kentucky. The project elements of the Airport Area Safety Program are described below in Section II, Proposed Action. The airport sponsor for the project is the Louisville Regional Airport Authority (LRAA). The agency decision is based on information contained in the *Environmental Assessment for the Airport Area Safety Program*, December 2016 (EA), incorporated by reference herein, and all other applicable documents available to the agency.

II. PROPOSED ACTION

The Sponsor has requested FAA Airport Improvement Program (AIP) financial assistance to implement the Airport Area Safety Program. This request for Federal assistance is referred to as "the proposed Federal action." The Proposed Action is graphically depicted in Appendix A, Exhibit 4 of the EA. Specifically, the Proposed Action will:

1. Acquire 44 property easements to authorize the LRAA to trim and/or replace approximately 104 trees that penetrate, or are within ten feet of penetrating, approach surfaces, as defined in Federal Aviation Regulation (FAR) Part 77, and/or Terminal Instrument Procedures (TERPS), as covered in FAA Order 8260.3C, associated with LOU. The determination to trim and/or replace trees would be left to the property owner. Trees that are trimmed would be trimmed by professional arborist and would be trimmed in a manner that would preclude the trees from penetrating approach and/or TERPS surfaces. Trees that are replaced would be replaced at a 2:1 ratio (planting of two new trees for every tree removed). The tree being removed would be cut no more than six inches below ground level. Tree roots would remain in place.
2. Trim and/or replace trees that penetrate, or are within ten feet of penetrating, approach and/or TERPS surfaces associated with LOU at Seneca Park. Trees that are trimmed would be trimmed by a professional arborist and would be cropped in a manner that would preclude the trees from penetrating approach and TERPS surfaces. Trees that are replaced would be replaced at a 2:1 ratio (planting of two new trees for every tree removed). The tree being removed would be cut no more than six inches below ground level. Tree roots would remain in place.
3. Continued maintenance (trimming and/or replacement) of trees every five years to ensure the trees in easement areas do not penetrate approach and TERPS surfaces.

¹ The original EA began in 2013, well prior to the issuance of FAA Order 1050.1F in July 16, 2015. Section 1-9 of FAA Order 1050.1F provides that, "[t]he procedures in this Order apply to the extent practicable to ongoing activities and environmental documents begun before the effective date. However, procedures contained in this Order should not apply to ongoing environmental reviews where substantial revisions to ongoing environmental documents would be required." Given the substantial analysis that was completed on the EA prior to the issuance of Order 1050.1F, the FAA has determined that continued application of FAA order 1050.1E is appropriate.

III. PURPOSE AND NEED

As covered in Section 1.4 of the EA, the Sponsor has defined the purpose and need for implementing the Proposed Action as being necessary to provide a safe, efficient, viable and usable airfield at LOU while serving their current fleet mix and complying with FAR 77 regulations and TERPS standards. In addition, the purpose is to preserve the existing airfield geometry and re-establish the nighttime instrument approach procedures and therefore restore the airport conditions present in 2012.

IV. ALTERNATIVES

Federal guidelines concerning the environmental review process require that all reasonable and practicable alternatives that might accomplish the objectives of a proposed project be identified and evaluated. Such an examination ensures that an alternative that addresses the project's purpose and that might enhance environmental quality, or have a less detrimental effect, has not been prematurely dismissed from consideration. Reasonable and practicable alternatives for the Proposed Action were carefully examined in Section 2.2 of the EA. Six alternatives were initially considered:

1. Alternative 1: This alternative involves the acquisition of aviation easements for the trimming and/or replacement of individual trees that have or may become an obstruction to the approach and/or TERPS surfaces to Runways 6, 15, 24, and 33. This alternative is described in more detail in Section II, above, Proposed Action. This alternative is graphically depicted in Appendix A, Exhibit 4.
2. Alternative 2: The alternative involves the acquisition of easements and lighting obstructions to Runways 6, 15, 24, and 33. This alternative would require that a lighted pole be installed adjacent to each tree identified as penetrating or within ten feet of the approach or TERPS surfaces. Approximately 81 lights would be required to mitigate the airspace obstructions. Since these trees are located on non-airport property, both an aviation easement and permanent utility easement would be required to allow for the installation and maintenance of the lights. The installation of lights would also involve further tree clearing to accommodate the connection of power lines to the light fixtures. This alternative is graphically depicted in Appendix A, Exhibit 5.
3. Alternative 3: Alternative 3 involves constructing a new north/south runway and extending Runway 15 to the northwest. The new runway would be 4,357 feet in length and 75 feet in width. Under this alternative Runway 6-24 would be removed. Runway 15-33 would be extended 1,200 feet to the northwest making it 3,579 feet in length. This alternative would also include the relocation of public roads, airport access roads, airport buildings, and connector taxiways. To accommodate the new runway and runway extension, several properties would have to be acquired including Seneca Park, several commercial properties, and a portion of Hawthorne Estates. Once the property was acquired, buildings, trees, and landscaping would be removed. The acquisition of Hawthorne Estates would also require additional tree trimming and/or replacement. Two segments of the Middle Fork of Beargrass Creek would be realigned under this

alternative. Alternative 3 is illustrated in Appendix A, Exhibit 6.

4. Alternative 4: Alternative 4 consists of extending Runway 24 to the northeast and Runway 15 to the northwest. Runway 24 would be extended 950 feet making Runway 6-24 4,357 feet in length and 75 feet in width. Runway 15 would be extended 1,200 feet which would bring Runway 15-33 to a length of 3,579 with a width of 75 feet. The change in airport geometry would require the relocation of on-airport access roads and connector taxiways. Under this alternative, both Seneca Park and Big Springs Country Club would be acquired by LRAA. Once the property was acquired, buildings, trees, and landscaping would be removed. Cannons Lane, a public road, would be relocated. Two segments of the Middle Fork of Beargrass Creek would be realigned. This alternative is shown in Appendix A, Exhibit 7.
5. Alternative 5: Alternative 5 would feature the construction of a new airport in close proximity to the existing facilities in Louisville, Kentucky to continue to serve existing airport users. This alternative would involve substantial property acquisition, tree removal or replacement, relocation of roadways, new airfield development, navigation aides, new utilities, and other ancillary development.
6. No Action Alternative: Under the No Action Alternative, no actions would be taken to construct new airfield pavement (such as runways) and no property/easement acquisition and tree trimming/replacement would occur. However, LRAA would be required to relocate runway thresholds to comply with FAA design specifications and safety requirements. Specifically, the Runway 6 threshold would be moved inward from the runway end by 640 feet; the Runway 15 threshold would be moved in by 692 feet; and the Runway 33 threshold would be moved in 980 feet. The resulting reduction in usable runway pavement would eliminate operations by the airport's critical aircraft group.

Alternatives 3, 4, and 5 were eliminated from further consideration because they would not meet the purpose and need to preserve the existing airfield geometry and re-establish the nighttime instrument approach procedures, thereby restoring the airport conditions present in 2012. The elimination of these alternatives is discussed in Section 2.3 of the EA.

V. SELECTION OF PREFERRED ALTERNATIVE

With Alternatives 3, 4, and 5 removed from further consideration, only the No Action Alternative, Alternative 1, and Alternative 2 were carried forward for additional analysis in the EA. The No Action Alternative was evaluated in the EA pursuant to CEQ Regulation 40 CFR § 1502.14(d). Under the No Action Alternative, The tree obstructions would remain without mitigation (no obstruction lighting or trimming and/or replacement of trees). Three of the four runway thresholds would have to be relocated inward from their respective runway ends which would reduce the usable pavement length available to aircraft. The shortened runways would prevent the use of the airport's critical aircraft group. As such, the No Action Alternative would not satisfy the purpose and need.

Alternative 2 was also evaluated in detail in the EA. The use of obstruction lights would mitigate airspace obstructions caused by the trees. However, the installation of lights would require additional utility infrastructure (light poles and power lines). This alternative would still require substantial tree trimming and/or replacement. Furthermore, the light emissions generated by the obstruction lights would cause additional impacts. Although Alternative 2 meets the purpose and need, the anticipated impacts it would create would exceed those of Alternative 1. For these reasons, Alternative 1 was selected as the Preferred Alternative.

VI. ENVIRONMENTAL IMPACTS

As described above and documented in the EA, two action alternatives (Alternatives 1 and 2) and the No Action Alternative were evaluated for potential impacts to all environmental resource categories outlined in FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *NEPA Implementing Instructions for Airport Actions*. Table 8 in the EA compares the impacts between the No Action Alternative, Alternative 1, and Alternative 2. Under the No Action Alternative, no new airfield development actions would be taken and there would be no associated environmental impacts. Because of the installation and use of obstruction lights, Alternative 2 would create more impacts than Alternative 1.

The following is a discussion of those resources potentially impacted under Alternative 1:

VI A. Noise (Section 4.2)

As covered in Section 4.2 of the EA, the Proposed Action is not expected to cause a change in aircraft operations. Therefore noise levels are anticipated to remain at or near the 2012 conditions. As part of the tree removal activities, some localized and temporary noise emissions may occur from construction vehicles and equipment. Impacts are not expected to be significant.

VI B. Land Use Impacts (Section 4.3)

The airport sponsor intends to acquire property easements in the vicinity of the airport to replace or trim trees. These actions will not impact existing land use or zoning around the airport.

VI C. Social Impacts (Section 4.4)

The Proposed Actions is not expected to cause social impacts such as dividing established communities or disrupt surface transportation systems.

VI D. Induced Socio-economic Impacts (Section 4.5)

The Proposed Action involves the acquisition of property easements and tree trimming and/or replacement. The trimming and/or replacement of trees, when compared to complete tree removal, will ensure that the impacted properties and resources in the project area will retain their character.

VI E. Air Quality (Section 4.6)

The Proposed Action is not expected to result in changes to aircraft operations at the airport. In addition, the number of trees impacted is relatively small compared to the overall population of trees within the area. During the construction phase of the project, there may be a decrease in local air quality due to emissions from construction vehicles and equipment. However, those impacts will be temporary.

VI F. Water Resources (Water Quality, Wetlands, and Floodplains) (Sections 4.7, 4.12, and 4.13)

The Proposed Action involves easement acquisition and tree trimming and/or replacement. It is not expected that impacts to water resources will occur. There are no streams or wetlands within the tree trimming/replacement area. Trees within the floodplain may be trimmed and/or removed. However, removal of trees in floodplain boundaries will be handled in a manner to eliminate impacts to the floodplain beneficial values. Impacts to water resources or water quality are not expected.

VI G. Department of Transportation Act Section 4(f) Lands (Section 4.8)

The Proposed Action would result in trimming and/or replacing trees in Seneca Park, a public use park and a Section 4(f) resource. Seneca Park features several amenities including a golf course, ball fields, basketball court, walking/biking trails, picnic tables, hiking trails, horse riding trails, and playground. The agency with jurisdiction over the park is Louisville Metro Parks.

The trees that would be impacted under the Proposed Action are within the golf course. LRAA intends to mitigate impacts to the park by replacing trees at a 2:1 ratio. After considering impacts to the park, proposed mitigation, and public comments, the FAA initially notified Louisville Metro Parks on June 23, 2016, it intended to make a "de minimis" finding, as defined in 23 CFR § 774.17, for Section 4(f) impacts to Seneca Park. After reviewing public comments, the FAA coordinated with Louisville Metro Parks and advised they would continue to seek a "de minimis" determination. On November 23, 2016, Louisville Metro Parks issued a letter to the FAA concurring with the "de minimis" finding. Relevant correspondence to the "de minimis" finding is available in Appendix E of the EA.

VI H. Archaeological, Architectural, Historic, and Cultural Resources (Section 4.9)

The Proposed Action includes the trimming and/or replacement of trees. As such, the Proposed Action has the potential to cause effects to archaeological, architectural, historical, or cultural resources. Therefore, the FAA, pursuant to 36 CFR 800.3, established an undertaking and initiated the Section 106 process.

The FAA sent invitations to 18 different agencies and local property owners to join the process as Section 106 Consulting Parties. Twelve accepted the invitation. Three meetings

were held as part of the Section 106 process. The meetings were held at the Louisville Regional Airport Authority Maintenance Facility at 4320 Park Boulevard, Louisville, Kentucky. The meetings were held on June 24, 2015; August 20, 2015; and March 30, 2016.

During the consultation process, the FAA worked with the consulting parties, including the Kentucky Heritage Council, which serves as the State Historic Preservation Office (SHPO) and LRAA, to develop the area of potential effects (APE). The APE was based on the project area with a sufficient buffer to account for direct and indirect effects. The FAA submitted a letter to the SHPO on September 22, 2015, recommending the adoption of the APE. The SHPO responded on October 9, 2015, requesting additional information, and subsequently requested that the FAA solicit comments from all consulting parties. After providing additional information and soliciting comments on the APE, the FAA re-submitted the proposed APE to the SHPO on March 18, 2016. The SHPO issued a letter on April 7, 2016, which concurred with the definition of the APE.

A Historic Architectural Survey was completed in December 2014 based on a preliminary APE and a Cultural Resources Evaluation (CRE) was prepared by consultants to LRAA. Consulting parties were afforded an opportunity to review and comment on the CRE and, as a result, a draft supplement to the survey was prepared in March 2016. As part of survey, archival and field research was undertaken to identify resources listed in or eligible for the National Register of Historic Places (NRHP). One resource, the Bowman Field Historic District, was identified as listed for NRHP under criteria A and C. The survey also identified 14 potentially eligible resources within the APE. The FAA considers eight of these 14 resources eligible for the NRHP. The eligible resources are listed below along with the associated NRHP criteria.

- Seneca Park Golf Course-Criteria A
- Seneca Vista Historic District-Criteria A, B, and C
- Seneca Manor Historic District-Criteria A and C
- McCoy Manor Historic District-Criteria A and C
- Kingsley Historic District-Criteria A, B, and C
- Seneca Village Historic District-Criteria A and C
- Seneca Village No. 2 Historic District-Criteria A and C
- Hathaway Historic District-Criteria A

The FAA took into account the information produced by the survey, additional information provided by consulting parties, and comments received during the Section 106 process in assessing the effects of the undertaking on these historic properties. The FAA considered the contribution of landscape elements, and particularly trees, to the characteristics and setting of each property and whether the undertaking would alter the characteristics that qualify each historic property for the NRHP, including whether removal of these trees would affect the integrity of the landscapes setting. The results of the assessment are detailed in Appendix B of the EA.

The FAA issued to the consulting parties a proposed finding of No Adverse Effect on May 24, 2016. The FAA received written objections to the proposed finding from multiple consulting parties. Therefore, in accordance with 36 CFR § 800.5(c)(3)(i), the FAA submitted the finding to the Advisory Council on Historic Preservation (ACHP) for review. The ACHP provided its advisory opinion in a letter to the FAA on November 3, 2016². In their letter, the ACHP advised the FAA that "the criteria of adverse effect (AE) has not been adequately applied on all eligible historic districts in a manner that addresses the effect of substantial tree removal on the settings of these historic properties."

The FAA took the ACHP's advisory opinion into account in confirming the finding that the Bowman Field Airport Area Safety Program would have no adverse effect on any historic property.

Appendix B of the EA contains documentation pertaining to the Section 106 process.

VI I. Biotic Communities (Section 4.10)

The Proposed Action will require the trimming and/or replacement of trees. The trees impacted by the project are not unique to the surrounding area. In addition, the number of trees impacted is a small percentage of the total trees in the area. Due to the large number of trees and vegetation adjacent to or near the project area, there is comparable habitat for displaced organism to emigrate. The trees will be trimmed or removed in the winter months when most organisms are dormant and are unlikely to be actively utilizing the trees.

VI J. Endangered and Threatened Species (Section 4.11)

The Proposed Action will involve the trimming and removal of trees in the project area. This action has the potential to affect two federally-listed species: Indiana Bat (*Myotis Sodalis*-endangered) and Northern Long Eared Bat (*Myotis Septentrionalis*-threatened).

Potential indirect effects to both bat species include the loss of potential summer roosting, foraging and corridor habitat. Summer roosting habitat for both bats is considered to be trees with a diameter at breast height of three or more inches. Typically, the bats roost in trees with cavities, snags or exfoliating bark and in closed to semi-open forest adjacent to water features for access to foraging areas.

²The FAA's request was received by ACHP on October 3, 2016, which began the 15-day period provided in the regulation for the ACHP to provide its opinion. By letter dated October 18, 2016, ACHP advised FAA's Federal Preservation Officer (FPO) that additional time was needed due to the complex issues associated with this undertaking, and that ACHP was invoking its discretion under 36 CFR § 800.5(c)(3)(i) to extend the review period for an additional 15 days. The October 18 letter stated that the ACHP "will provide you with our advisory opinion by November 2, 2016." Under the provisions of 36 CFR § 800.5(c)(3)(i), if the ACHP does not respond within the applicable time period, the agency official's responsibilities under section 106 are fulfilled. Notwithstanding the fact that the FAA ACHP's advisory opinion was not issued until after 5:00p.m. on November 3, 2016, a full day after the close of the extended review period, the FAA has taken the ACHP's advisory opinion into consideration in making a final finding on this undertaking.

To avoid impacts to the bats, seasonal tree clearing has been proposed by LRAA. This means tree removal activities will take place between October 15 and March 31 when bats are usually in their winter hibernacula. Correspondence from the U.S. Fish and Wildlife Service (USFWS), which can be found in Appendix C, indicates that the USFWS concurs that the action will not have an adverse effect on the bats if seasonal clearing is used.

VI K. Farmland (Section 4.14)

The Proposed Action involves the acquisition of property easements and replacement and trimming of trees. The project is not within any unique or prime farmland areas. No impacts are expected to occur to this environmental resource.

VI L. Energy Supply and Natural Resources (Section 4.15)

The Proposed Action will utilize construction vehicles and equipment to remove, replace, and trim trees. The use of construction vehicles and equipment require fuel both for the initial tree obstruction mitigation and subsequent maintenance of trees. However, energy use is not expected to require substantial natural resources, including those in short supply.

VI M. Light Emissions (Section 4.16)

The Proposed Action consists of easement acquisition and tree trimming and replacement. No permanent (light fixtures) or temporary (construction lighting) will be used. Therefore, impacts from light emissions are not expected.

VI N. Construction Impacts (Section 4.17)

As part of the Proposed Action, construction vehicles and equipment will be utilized to trim, remove, and replace trees. The use of such equipment may lead to short-term, localized impacts to noise levels, surface transportation, air quality, and water quality. Construction activities will take place during daylight hours so as to reduce noise impacts at nighttime. Significant impacts are not expected.

VI O. Solid Waste (Section 4.18)

The Proposed Action will result in the disposal of trees and tree branches/limbs. Tree waste generated from the project will be reused or disposed in accordance with city ordinances. Significant impacts are not expected.

VI P. Hazardous Waste (Section 4.19)

The Proposed Action will impact trees only. No known hazardous substances or sites are within the project area. The trimming and/or replacement of trees will not involve the use of hazardous chemicals. Impacts to this resource are not expected.

**VI Q. Environmental Justice and Children's Environmental Health Risks
(Section 4.21)**

The Proposed Action will involve easement acquisition and tree trimming and/or replacement. The displacement of individuals or businesses is not part of the action. Impacts are not anticipated to occur to a disproportionately high number of minorities or low-income families. In addition, there are no elements of the Proposed Action that would create environmental health or safety risks that could disproportionately affect children.

VI R. Climate Change/Greenhouse Gases³ (Section 4.22)

The Proposed Action involves the acquisition of property easements and trimming and replacement of trees in the vicinity of the Bowman Field Airport. The overall number of trees impacted is relatively small when compared to the overall number of trees in the surrounding area. Any trees removed will be replaced at a ratio of 2:1. As such, the project will result in a net increase of trees in the project area. In addition, the Proposed Action is not expected to cause a change in aircraft activity levels at the airport. Therefore, significant impacts to Climate change/greenhouse gases are not expected.

VI S. Cumulative Impacts (Section 4.20)

In considering past, present, and reasonably foreseeable future actions, the airport has had minimal impacts on the local environs. Some past and present off-airport projects have occurred in the project area and others are expected to occur in the future. It is anticipated that local road projects proposed by the City of Louisville and/or Jefferson County as well as other community projects would not have negative impacts on the airport environs. However, until specific off-airport project plans are known, it is not possible to fully quantify specific cumulative impacts.

VI. SPONSOR COMMITMENTS

In addition to carrying out standard best management practices required by FAA grant assurances outlined in FAA Advisory Circular (AC) 150/5370-10, "Standards for Specifying Construction of Airports," and minimization and mitigation measures mandated by permitting requirements and/or other special purpose laws, the Sponsor has committed to the following activities as part of the project:

- Trees that are to be removed will be replaced at a ratio of 2:1.
- Trees that are removed will be cut no more than six inches below ground level. Top soil and grass seed and/or sod will be used to replace stump grinded area.
- Tree roots will remain in place.
- Trees that are to be trimmed will be trimmed by a professional arborist.

³ While climate change is not identified as a discrete impact category in FAA Order 1050.1E, climate change was analyzed in accordance with CEQ regulations and FAA Memorandum, *Considering Greenhouse Gases and Climate Under the National Environmental Policy Act (NEPA); Interim Guidance* (January 12, 2012).

This FONSI/ROD is issued in acknowledgment of and contingent upon the Sponsor's fulfillment of these commitments. As referenced above, there are regulatory permits or certifications that impose mitigation requirements to minimize environmental impacts during implementation of the Proposed Action. The Sponsor is responsible for acquiring and complying with all applicable permits and certifications throughout the implementation/construction of the Proposed Action.

Regulatory permits or certificates required for the Proposed Action include:

- Metropolitan Sewer District Site Disturbance Permit
- Louisville Metro Parks Permit
- FAA Notice of Proposed Construction Form 7460
- Kentucky Application to Permit or Alter Structure TC 55-2

In addition to permits and certifications, LRAA has made the following commitments on the Proposed Action:

- If a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees.
- LRAA will pay for tree trimming or removal/replacement, stump removal and yard restoration.
- All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty.

VII. PUBLIC INVOLVEMENT

As part of the EA, several Federal, state, and local agencies reviewed project proposals and issued comments. The following agencies received early coordination letters and a draft EA:

- The Commonwealth of Kentucky E-Clearing House
- Kentucky Department of Aviation
- Kentucky Department of Environmental Protection
- U.S. Army Corps of Engineers
- U.S. Department of the Interior- Fish and Wildlife Service
- U.S. Department of Transportation-Federal Aviation Administration
- U.S. Environmental Protection Agency
- U.S. Department of Agriculture

Comments from these agencies are incorporated into the EA at Appendix E. However, no agency indicated that significant impacts would occur based on their review.

In addition to agency reviews, public outreach was held. LRAA issued a public notice of availability of the draft EA and held a public hearing to receive comments on the Proposed Action. The public notice was published in the Louisville Courier-Journal on May 27, 2016. The draft EA was made available in electronic format on the LRAA website. In addition, printed copies of the draft EA were made available at the Louisville Public Library (301 York Street, Louisville, KY 40203), LRAA Administration Building (700 Administrative Drive, Louisville, KY 40209), and the Bowman Field Business Center (2700 Moran Avenue, Louisville, KY 40205). The

public hearing was held June 28, 2016, from 5:30 PM – 7:30 PM at the Breckinridge Inn located at 2800 Breckinridge Lane, Louisville, KY 40220. Various comments were received during the comment period and at the public hearing, many of which resulted in changes to the EA. The comments received are summarized below:

- Project will lead to increased activity and higher noise levels along with degradation of air quality. This will lead to adverse health effects. Additional studies are needed to address effects.
- The existing presence of the airport is a safety concern as aircraft may crash into houses.
- The removal and/or trimming of trees will reduce shade and raise energy cost. Additional studies are needed to consider these effects.
- Louisville is considered a heat island and the removal of trees will exacerbate the problem. This includes direct effects from storm water runoff and soil erosion due to loss of tree roots and tree canopy.
- Tree canopy is essential to our city. Do not remove trees.
- Cutting trees will make area look less desirable.
- Do not expand airport.
- Construct a new runway at airport to avoid tall trees and residential areas.
- Tree removal will impact biotic species.
- Plant new trees if tall trees are removed.
- Aircraft at Bowman Field should use other airports. The EA should include an alternative for using other airports.
- Commenters disappointed FAA representatives did not attend public hearing.
- Commenters disturbed by lack of transparency on tree removal program.
- EA lacks scientific evidence and is inadequate. Additional studies are needed for air quality and noise.
- EA is too technical and should be more succinct.
- EA does not adequately consider impacts to historic resources, Olmstead's design, and Seneca Park.
- Project should be referred to as a tree replacement project rather than a tree removal project.
- Current mitigation plan for tree replacement is inadequate.
- The project benefits only limited aviation users but impacts more residents.
- The project will lead to increased revenue for airport authority.
- How will property easement values be determined?
- The removal of trees will adversely impact home values.
- Public hearing facility was not large enough to accommodate the public.
- Incorrect information was shared during public hearing.
- Format of public meeting was not a hearing.
- Public notices should be issued much earlier.

Appendix E of the EA contains all comments received during the public comment period and responses thereto.

VIII. AGENCY FINDINGS

In accordance with applicable law, the FAA has made an independent review of the EA and makes the following findings/determinations for the Proposed Action, based upon the appropriate information and data contained in the EA.

- Certification under 49 U.S.C. § 44502(b) (formerly Section 308 of the *Federal Aviation Act of 1958*, as amended). The undersigned certifies that the proposed improvement project is reasonably necessary for use in air commerce or for national defense
- Based on the EA, no significant environmental impacts would be incurred as a result of the Federal action.

IX. DECISION AND ORDER

The FAA has determined that environmental and other relevant concerns presented by interested agencies and private citizens have been addressed sufficiently in the EA and fully and properly considered in the decision-making resulting in this ROD. The FAA concludes there are no outstanding environmental issues to be resolved by it with respect to the proposed project.

The No Action Alternative fails to meet the purpose and need for the proposed project. For reasons summarized earlier in this ROD, and supported by disclosures and analysis detailed in the EA, the FAA has determined that Alternative 1, the Preferred Alternative and Proposed Action, is a reasonable, feasible, practicable and prudent alternative for a Federal decision in light of the established goals and objectives. An FAA decision to take the actions and approvals required by the Sponsor is consistent with its statutory mission and policies supported by the findings and conclusions reflected in the environmental documentation and this ROD.

After reviewing the EA and all of its related materials, I have carefully considered the FAA's goals and objectives in relation to various aeronautical aspects of the proposed development actions discussed in the EA, including the purpose and need to be met by this project, the alternative means of achieving them, the environmental impacts of these alternatives, the mitigation necessary to preserve and enhance the environment, and the costs and benefits of achieving the purpose and need.

While this decision does not approve Federal funding for the proposed airport development and does not constitute a Federal funding commitment, it does provide the environmental findings and approval for proceeding to funding actions in accordance with established procedures and applicable requirements.

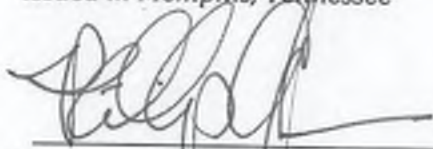
After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action is consistent with the national environmental policies and objectives as set forth in Section 101(a) of NEPA and that with the mitigation that is a part of the project it will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to Section 101(2) (C) of NEPA.

This ROD presents the FAA's final decision and approvals for the actions identified, including those taken under the provisions of Title 49 of the United States Code, Subtitle VII, Parts A and B.

Finding of No Significant Impact / Record of Decision

These actions constitute a final order of the Administrator subject to review by the Court of Appeals of the United States in accordance with the provisions of 49 U.S.C. § 46110.

Issued in Memphis, Tennessee



Phillip J. Braden
Manager
FAA, Memphis Airports District Office

12/13/2016

Date

Section 106 ACHP Submittal



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486
Phone: 901-322-8180

September 30, 2016

Mr. Reid Nelson
Director, Office of Federal Agency Programs
Advisory Council on Historic Preservation
401 F Street NW, Suite 308
Washington, DC 20001-2637

**RE: Request for Advisory Council Review of FAA Determination of No Adverse
Effect - Bowman Field Airport (LOU), Louisville, KY**

Dear Mr. Nelson:

The Federal Aviation Administration (FAA) Memphis Airports District Office has been involved in consultation, under Section 106 of the National Historic Preservation Act, for an undertaking around the Bowman Field Airport in Louisville, KY. The undertaking consists of easement acquisition and tree trimming/replacement around the airport. A thorough description of the undertaking is included in the enclosed documentation.

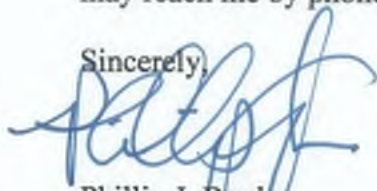
The FAA initiated consultation under Section 106 beginning in 2015 and held three consultation meetings with consulting parties. After careful consideration of the undertaking, potential effects, and comments from the consulting parties, the FAA issued a Determination of No Adverse Effect on May 24, 2016. After releasing the determination, multiple consulting parties objected. Therefore, in accordance with 36 Code of Federal Regulations (CFR) § 800.5(c)(2)(i), the FAA requests that the Advisory Council review the FAA finding pursuant to 36 CFR § 800.5(c)(3)(i). To assist in your review, the following items are enclosed:

1. FAA Determination of No Adverse Effect, which includes a description of the undertaking specifying the FAA's involvement, its area of potential effect, including photographs and maps, steps taken to identify historic properties, an assessment of effects on historic properties and the FAA's finding of No Adverse Effect.
2. Memo from Katherine Andrus, FAA Federal Preservation Officer, which explains in greater detail why the criteria of adverse effect were found to be inapplicable.
3. Conditional concurrence letter from the Kentucky Heritage Council.
4. Section 106 Documentation.
5. Comments from Section 106 Consulting Parties.

The FAA appreciates the Advisory Council's participation in this matter. Our plan was to submit this request to you earlier this year; however, due to the applicant's indecision on whether to continue the process, our submittal has been delayed.

As you conduct the review, please feel free to contact me with questions and/or concerns. You may reach me by phone at (901) 322-8181 or by email at Phillip.Braden@FAA.gov.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Phillip J. Braden', with a stylized flourish at the end.

Phillip J. Braden
Manager, Memphis Airports District Office

**FAA Determination of No
Adverse Effect**



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118
Phone: 901-322-8180

May 24, 2016

Mr. Craig Potts
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Dear Mr. Potts:

**RE: DETERMINATION OF EFFECTS
BOWMAN FIELD AIRPORT, AREA SAFETY PROGRAM
LOUISVILLE, KY
KHC # 45249**

The Federal Aviation Administration (FAA) Memphis Airports District Office (ADO) is proposing a "Determination of No Adverse Effect" under Section 106 of the National Historic Preservation Act (NHPA) for the undertaking at the Bowman Field Airport (LOU) in Louisville, KY. As you are aware, the undertaking consists of easement acquisition and tree trimming/replacement. The purpose of the undertaking is to enhance safety by removing tree obstructions and restore the airport's capabilities for nighttime instrument approach procedures.

After careful consideration of the information provided by the project proponent, the Louisville Regional Airport Authority, the Kentucky Heritage Council (State Historic Preservation Office), and consulting parties during the Section 106 consultation process, the FAA has concluded the undertaking would not adversely affect historic properties. This conclusion is predicated on our assessment that the impacts to the trees are not a contributing element to the historic resources. I respectfully request your review and concurrence or objection to the enclosed determination.

In closing, I would like to mention that your office, along with the other consulting parties in this undertaking, will soon be receiving a hard copy of documents related to the proposed project. The documents are being provided in accordance with our discussions at the last Section 106 consultation on March 31, 2016.

Thank for your participation in the consultation. If you have any questions, please feel welcome to contact me at (901) 322-8181 or Aaron Braswell of my staff at (901) 322-8192.

Sincerely,



Phillip J. Braden
Manager, Memphis Airports District Office

Enclosures

cc: Bowman Field Airport Section 106 Consulting Parties

Section 106 Effects Determination

**Federal Aviation Administration (FAA)
Memphis Airports District Office
2600 Thousand Oaks Boulevard, Suite 2250
Memphis, TN 38118
May 24, 2016**

Section I. Airport and Project Proponent Information:

Airport: Bowman Field Airport (LOU), 2815 Taylorsville Road, Louisville, KY 40205

Project Proponent: Louisville Regional Airport Authority, 600 Terminal Drive, Louisville, KY 40209

Section II. Description of Proposed Undertaking:

The Louisville Regional Airport Authority (LRAA) is proposing a project that would involve reducing tree heights so that nighttime instrument approach capabilities would be restored to the Bowman Field Airport. Specifically, the project would enable the airport to re-establish nighttime instrument approach procedures which have been temporarily suspended due to obstructions within FAA airspace surfaces. The proposed undertaking involves the following elements:

1. Easement acquisition for 44 residential parcels near the Bowman Field Airport.
2. The trimming or replacement (as determined by property owner) of 104 trees located on the easement acquisition properties as well as Seneca Park and Big Springs Golf Course. Tree trimming would be completed by arborists. This includes reducing tree heights below applicable FAA airspace surfaces. Tree replacement would be accomplished at a 2:1 ratio (planting of two trees for every tree removed). The replacement trees will be of species that will not grow to the same height as the tree being replaced so as to prevent future airspace obstructions.
3. The removal of trees would involve cutting trees near the surface elevation. Project specifications would require stump removal to a depth of six inches below surface elevation. Existing tree roots would remain in place.

The FAA Memphis Airports District (MEM-ADO) determined that the proposed undertaking had the potential to cause effects on potentially eligible historic properties. Therefore, the Section 106 consultation process was initiated.

Section III. Determination and Description of the Area of Potential Effects (APE):

The FAA sent invitations to 18 different agencies and local property owners to join the process as Section 106 Consulting Parties. Twelve accepted the invitation. During the consultation process, the FAA worked

with the consulting parties, including the Kentucky Heritage Council (KHC) and the project proponent, to develop the area of potential effects (APE). The APE is based on the project area with a sufficient buffer to account for direct and indirect effects. The FAA submitted a letter to the KHC on September 22, 2015, recommending the adoption of the APE. The KHC responded on October 9, 2015, requesting additional information, and subsequently requested that the FAA solicit comments from all consulting parties. After providing additional information and soliciting comments on the APE, the FAA re-submitted the proposed APE to the KHC on March 18, 2016. The KHC issued a letter on April 7, 2016, which concurred with the definition of the APE. The APE is graphically depicted in the attached document.

Section IV. Steps Taken to Identify Historic Properties in the APE:

A draft Cultural Resources Evaluation (CRE) was completed by Brockington and Associates, Inc., a subcontractor to Hanson, Inc. in December of 2014 based on a preliminary APE. Consulting parties were afforded an opportunity to review and comment on this report and as a result, a draft Supplement to the CRE was prepared in March 2016. The Final CRE and Supplement documents are attached to this determination.

As part of the preparation of the CRE, Brockington and Associates, Inc. conducted archival research to identify listed resources on the National Register of Historic Places (NRHP). One resource, the Bowman Field Historic District, was identified as it is listed for NRHP criteria¹ A and C. Brockington and Associates, Inc. then completed field research to identify potentially eligible resources within the APE. Thirteen resources were identified as potentially eligible under criteria A, B, and/or C and consist of: two golf courses, six districts, and five individual structures. Seven of the 13 resources were deemed eligible for the NRHP. The resources are listed below along with the associated eligibility criteria.

- (1) Seneca Park-Criteria A
- (2) Seneca Vista Historic District-Criteria A, B, and C
- (3) Seneca Manor Historic District-Criteria A and C
- (4) McCoy Manor Historic District-Criteria A and C
- (5) Kingsley Historic District-Criteria A, B, and C
- (6) Seneca Village Historic District-Criteria A and C
- (7) Seneca Village No. 2 Historic District-Criteria A and C

Section V. Assessment of Effects

The CRE contains the assessment of effects on the resources described above in Section IV. The following paragraphs summarize the undertaking and effects analysis.

¹NRHP criteria for evaluation consists of four categories. These are: "A" associated with events that have made a significant contribution to the broad patterns of our history; "B" associated with the lives of significant persons in our past; "C" embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; "D" have yielded or may be likely to yield, information important in history or prehistory.

The undertaking would affect 37 trees at Seneca Park. The CRE notes the vegetative landscape for the park developed organically and much of the golf course landscape was altered by the development of I-64 during the 1960s. No trees were identified that would qualify as character-defining features for the golf course, and as such, the undertaking would have no adverse effect on the resource.

The undertaking would involve the acquisition of eight easements to trim/replace 11 trees in the Seneca Vista District. The CRE indicates that the neighborhood did not appear to be developed with a design specific to vegetation. Plantings appear to have developed organically or by individual property owners. In addition, neither the type nor overall height of the trees is considered to be a contributing element of the neighborhood. Therefore, the proposed undertaking would have no adverse effect.

The undertaking includes acquisition of one easement in the Seneca Manor District to trim/replace one tree. Plantings in the neighborhood appear to have developed organically or by property owners, although there is some uniformity of high canopy oak trees west Valletta Road north of the APE. Neither the type nor overall height of the trees is considered to be a contributing element of the neighborhood. Therefore, the proposed undertaking would have no adverse effect on the resource.

No easements or tree trimming/replacement is proposed in the Kingsley or McCoy Manor Districts. The undertaking would have no adverse effect on these resources.

The undertaking includes acquisition of 25 easements to trim/replace 28 trees within the Seneca Village District. The CRE notes the neighborhood did not appear to be developed with a design specific to vegetation. Vegetation plantings appear to have developed organically or by property owners. Neither the type nor overall height of the trees is considered to be a contributing element to the neighborhood. Based on this information, the undertaking would have no adverse effect on the resource.

The undertaking includes acquisition of nine easements in the Seneca Village No. 2 District and the trimming/replacement of 10 trees. The CRE states the neighborhood did not appear to be developed with a design specific to vegetation. The only existing vegetation design element is the tree lined streets, which consist of Bradford Pear Trees planted around 1990; none of those trees are part of the undertaking. Neither the type nor overall height of the trees is considered to be a contributing element. As such, the undertaking would have no adverse effect on the resource.

Section VI. Summary and Conclusions:

- The undertaking consists of acquisition of 44 property easements to trim and replace trees. A total of 104 trees have been identified for trimming/replacement.
- There is one National Register -listed historic district within the APE, the Bowman Field Historic District. However, no trees are proposed to be affected within the District.
- Thirteen (13) additional resources were identified within the APE. Seven (7) were determined to be eligible under NRHP criteria A, B, and/or C.
- The undertaking would have no adverse effect on eligible resources as the vegetative plantings are not a contributing element to eligibility of any of the resources.

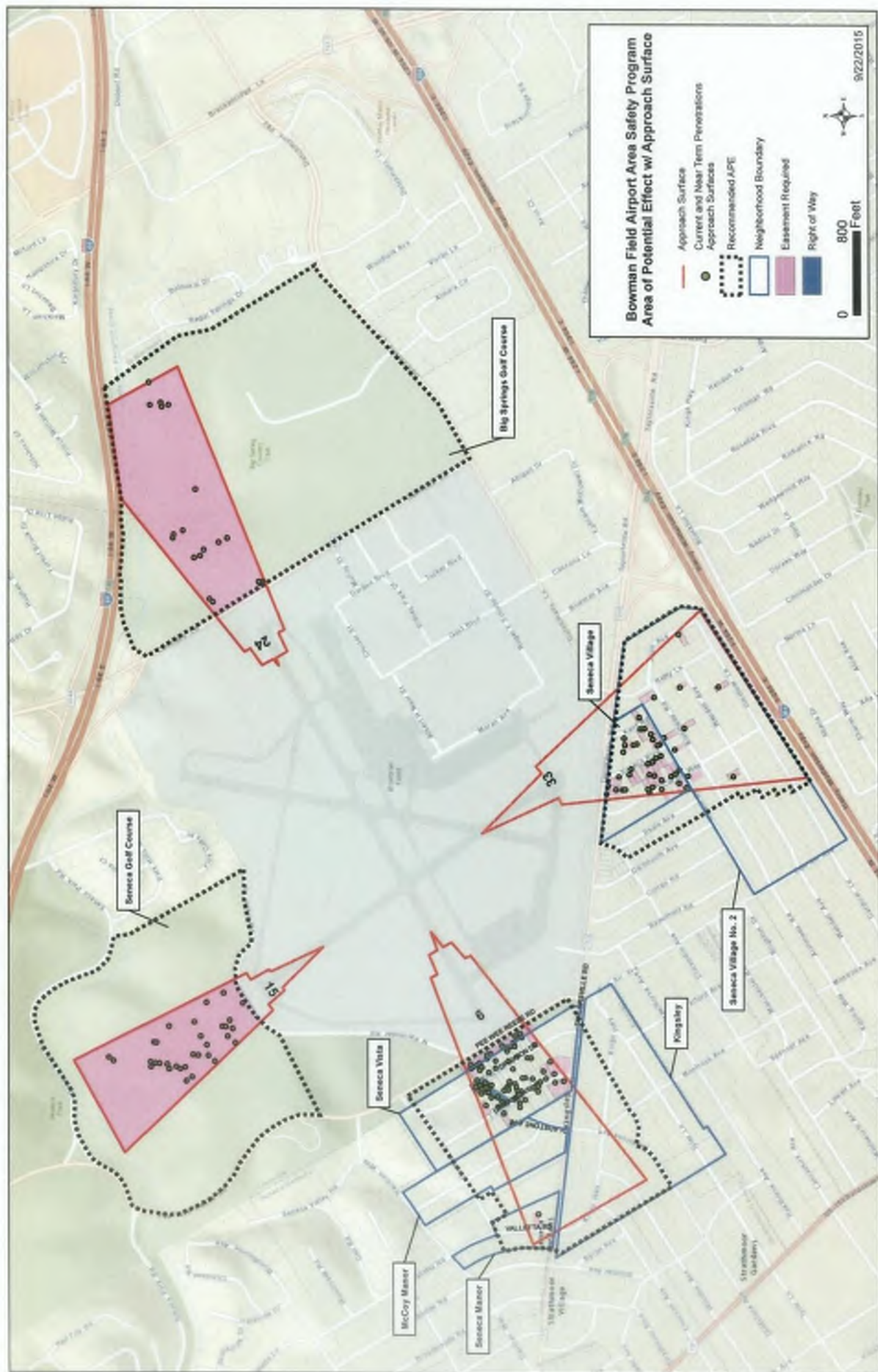
- Viewshed impacts would only be temporary. Trimmed trees would not be reduced to a height that would alter the viewshed of eligible resources. Replacement trees would provide coverage similar to trees being replaced.
- Impacts to potential below ground resources are not likely to occur as stump removal will be limited to a depth of six inches below surface elevation and tree roots will remain in place.

Section VII. FAA Determination of No Adverse Effect under NHPA:

Based on the research completed and documented in the Cultural Resource Evaluation, and the Section 106 consultation process, the FAA has concluded that the undertaking/proposed action would have no adverse effect on eligible resources within the APE. This determination concludes the consultation under Section 106 and constitutes the FAA's finding of no adverse effect under 36 C.F.R. Part 800.


 Phillip J. Braden, Manager
 Federal Aviation Administration
 Memphis Airports District Office

May 24, 2016
 Date



MEMO From Katherine Andrus



Federal Aviation Administration

Memorandum

Date: July 8, 2016

To: Phillip J. Braden, Manager, Memphis Airports District Office

From: Katherine Andrus, Federal Preservation Officer, AEE-400 *KBA*

Subject: Updated Review of Findings Under Section 106 of the National Historic Preservation Act for the Bowman Field Airport Area Safety Program

The FAA is considering the grant application of the Louisville Regional Airport Authority (LRAA) for funding to address obstructions to air navigation posed by trees that penetrate the critical Terminal Instrument Procedure (TERPS) approach surfaces of Bowman Field Airport. The LRAA proposes to acquire aviation easements for the trimming or removal and replacement of trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. The FAA's Airports District Office followed the process set forth in regulations at 36 CFR part 800 and in FAA guidance to evaluate the effect of this undertaking on historic properties, and proposed a finding of "No Adverse Effect."

As the FAA's Federal Preservation Officer, I reviewed the basis and justification for this finding and provided you with a memorandum dated June 17, 2016. Subsequent to transmitting that memorandum, the FAA received comments from consulting parties on the proposed finding. I appreciate the information and views provided by the consulting parties; however, after a thorough review and reconsideration of my earlier analysis in light of those comments I am confirming my initial conclusion that the proposed finding of "No Adverse Effect" is appropriate and consistent with the requirements of the applicable regulations and guidance. I have amended the analysis below to reflect the additional information provided by consulting parties since my previous memorandum.

I reviewed the final Cultural Resources Evaluation (CRE) and supplement prepared by Brockington and Associates, Inc. as well as information provided during the consultation process. This included a report dated October 21, 2015 prepared by David L. Ames on behalf of Plea for the Trees ("Ames Report"). In addition, I reviewed other available materials such as the National Register of Historic Places Multiple Property Documentation Form for the historic context of "Suburban Development in Louisville and Jefferson County, 1868-1940; the National Register nominations for Bowman Field and the Olmsted Park System; and the Louisville Survey East Report. Although I was

not able to conduct a site visit, I supplemented the photographic documentation in the CRE with Google Maps Street View, which afforded a visual survey of near-current conditions.

I have not reviewed information on Seneca Park in the files of the Louisville Metro Parks and Recreation Department, the Filson Historical Society, the Olmsted National Historical Site in Brookline, MA or the Library of Congress, as suggested by the Louisville Olmsted Parks Conservancy and several other consulting parties. This type of archival research, while extremely valuable for scholarship and preservation purposes, goes well beyond the "Reasonable and Good Faith" identification standard for Section 106 review in 36 CFR §800.4(b)(1). I note that I studied landscape history at Boston University as part of my Masters in Preservation Planning and worked with the Massachusetts Association of Olmsted Parks, the Olmsted National Historic Site, and many of the leading scholars cited in the comments submitted by consulting parties, so I am conversant with the work of Frederick Law Olmsted and his successor firm, Olmsted Brothers. I was able to bring this knowledge to bear on my evaluation of eligibility of Seneca Park for the National Register of Historic Places and the implications of its potential eligibility on the assessment of effects.

I was guided in my evaluation of the eligibility of these properties and the characteristics that would qualify each historic property for inclusion in the National Register by National Register Bulletins "*How to Apply the National Register Criteria for Evaluation*," "*How to Complete the National Register Registration Form*," "*How to Evaluate and Nominate Designed Historic Landscapes*" and "*Historic Residential Suburbs – Guidelines for Evaluation and Documentation for the National Register of Historic Places*." I then applied the Advisory Council's regulatory definition of effect and criteria for adverse effects to reach a conclusion about the impact of this undertaking on each of these properties.

Identification of Historic Properties

In conducting its review of historic properties, the FAA is guided by the Advisory Council on Historic Preservation's *Meeting the "Reasonable and Good Faith" Identification Standard in Section 106 Review*. The LRAA, as project sponsor, commissioned Brockington and Associates, Inc., a subcontractor to Hanson, Inc., to prepare the CRE. An initial draft was completed in December of 2014. The FAA proposed an Area of Potential Effect (APE) in September 2015; after further consultation and input from the consulting parties, the FAA proposed a revised APE on March 18, 2016; the KHC concurred on April 7, 2016. Based on input from consulting parties and the revised APE, a supplement to the CRE was issued in March 2016. The final CRE and supplement, along with additional material provided by consulting parties, informed the FAA's proposed findings with respect to the eligibility of properties for the National Register of Historic Places.

One property, the **Bowman Field Historic District**, is listed in the National Register. The CRE recommended seven additional properties as eligible for the National Register: **Seneca Golf Course** and the neighborhoods of **Seneca Vista**, **McCoy Manor**, **Seneca Manor**, **Kingsley**, **Seneca Village** and **Seneca Village No. 2**. The supplement identified an additional neighborhood, **Hathaway**, and recommended it as National Register-eligible. I agree with these recommendations as discussed below. I also agree with the recommendation that Big Spring Country Club is not eligible for the National Register, due to extensive alterations in the first decade of the 21st century.

For purposes of evaluating the effect of this undertaking it is important to identify the characteristics that make each property potentially eligible for the National Register. The CRE contains a thorough description of these properties and a discussion of their historic significance. Consulting party comments emphasize the contribution of the landscape to the historic setting of the neighborhoods and to the significance of Seneca Park. I have considered these characteristics in assessing the effects of the undertaking on these resources. Consulting parties also raised questions about the appropriate periods of significance, boundaries and contributing status of infill parcels; I considered each of these comments and concluded that any changes to the eligibility analysis in these areas would not affect the assessment of effects. Similarly, I considered the recommendation of Dr. Ames and several consulting parties that much larger areas be evaluated as potential historic districts. Although these larger potential districts may also be eligible, it was unnecessary to evaluate them because all of the relevant properties within the APE are already being treated as eligible and there is no indication that viewing these areas as part of a larger district would change the assessment of effects. Additional analysis and documentation, including boundary justifications, would be required to nominate these properties to the National Register, which is beyond the scope of this identification effort.

Many of the consulting parties have requested further investigation and documentation of the history and significance of these resources, particularly Seneca Park. Nothing in the FAA's assessment or findings would preclude further research or the future nomination of Seneca Park or any of the historic neighborhoods to the National Register of Historic Places; and the documentation supporting the FAA's findings, which has been made publicly available, could be useful in this effort. However, under Section 106, the FAA is not obligated to conduct additional research on these properties or pursue their nomination to the National Register. In keeping with the FAA's standard practice, we rely on 36 CFR § 800.4(c)(2), which states that "if the agency official determines any of the criteria are met and the SHPO/THPO agrees, the property shall be considered eligible for the National Register for section 106 purposes. If the agency official determines that the criteria are not met and the SHPO/THPO agrees, the property shall be considered not eligible." (These regulations also provide for the agency official to obtain a determination of eligibility from the Keeper of the National Register where there is disagreement between the agency and the SHPO/THPO, or if the ACHP or Secretary of Interior so request.) In this case, the FAA and the KHC have reached general agreement on the nature and location of eligible properties. Consulting parties have not raised any

objections to the eligibility of these properties, and have not identified any additional resources as potentially eligible (as discussed above, in some cases consulting parties have suggested larger districts encompassing one or more of the eight properties identified, but none of these would result in additional historic properties within the APE and would not affect the assessment of effects). The FAA is treating these eight properties as eligible for purposes of this Section 106 review.

Assessment of Effects

36 CFR § 800.16(i) defines "effect" as an "alteration to the characteristics of a historic property qualifying it for inclusion in or eligibility for the National Register." In order to determine if historic properties may be affected by an undertaking, it is necessary to understand the characteristics that make it significant. Because this undertaking involves tree-trimming and removal, I focused my analysis on the contribution of landscape elements, and particularly trees, to the characteristics and setting of each property and specifically whether the proposed removal of trees would alter the characteristics of each historic property in the APE that qualify it for the National Register. I have highlighted those characteristics in the following discussion of effects on each of these properties.

The effect of an undertaking is *adverse* if it alters any of the characteristics that qualify the property for inclusion in the NRHP in a way that diminishes the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. 36 CFR § 800.5(a)(1). Examples of adverse effects include changes to "physical features within the property's setting that contribute to its historic significance." 36 CFR § 800.5(a)(2)(iv). I specifically considered whether removal of these trees would affect the integrity of the landscape setting.

I examined the eight identified properties and reached a conclusion for each one based on its characteristics and the trees proposed to be removed or trimmed in that area. I have provided a separate analysis for each property below.

Seneca Golf Course appears eligible for listing as a district under Criterion A for its association with the Works Progress Administration (WPA). Three buildings dating from the 1930s – the clubhouse, the old caddy shack, and the maintenance building – are contributing elements to this potential district.

The golf course itself, which has been significantly altered since its completion in 1934, does not appear to have retained sufficient integrity of design, materials or workmanship to make it a contributing element of the Seneca Golf Course Historic District or to be individually eligible as a site under Criterion C. (Note that "landscape" is not a separate property type defined under National Register regulations – historic landscapes must be listed as a site, as a district, or as a contributing element of a district.)

The Louisville Olmsted Parks Conservancy states that the Golf Course was an element of the original Olmsted design, but did not provide documentation of this original design. As mentioned, I did not have access to the archives that might contain the original Olmsted Brothers plan for Seneca Park and I was not able to locate a copy via the Internet. Although the original design of Seneca Golf Course was not available for this analysis, there is evidence that the course layout was substantially redesigned at least once within the past 50 years and the property boundaries were changed as part of construction of I-64 in the late 1960s. Even if the 1955 "new layout" were considered significant in its own right, it has been dramatically altered.

National Register guidance notes that features that a designed historic landscape must retain will differ for various landscape types, but may include spatial relationships, vegetation, original property boundary, topography/grading, site furnishings, design intent, architectural features, and circulation system. (*Designed Historic Landscapes*, p. 6). In the case of the Seneca Golf Course, the course does not appear to retain its original vegetation, boundaries, grading, or design intent. For a golf course, the design intent (i.e., the layout of the holes and greens) is of particular significance, because it distinguishes this type of landscape from a park or other open expanse of turf. The original design intent has been compromised by changes to the course layout and a change in how vegetation is used to frame holes.

National Register guidance acknowledges that vegetation, although an important feature of most landscapes, is not stable and is always changing by season, maturation, pruning, removal, neglect, and other forces, but cautions that it is first necessary to determine that the more stable elements of the designed landscape are sufficiently intact to represent the original design intent. (*Designed Historic Landscapes*, p. 7) In this case, the most stable element of the landscape design – the layout of the course – has been altered. Furthermore, historic aerial photographs show that the earlier layout featured an open expanse for play, with limited vegetation and few trees. Much of the current vegetation was planted in the past three decades to provide screening for errant shots for greater player safety between holes. However, while the features of the golf course have been altered, it continues to provide an appropriate setting for the group of buildings, and might be included in the boundaries of a district encompassing the associated buildings.

The Golf Course is located within Seneca Park, one of 18 parks and 6 parkways that make up the Louisville park system, and the last component of the system to be designed by the Olmsted landscape architecture firm. The original components of the Louisville park system, consisting of Cherokee, Iroquois and Shawnee Parks and Algonquin, Eastern, Northwestern, Southwestern and Southern parkways, were listed in the National Register as "The Olmsted Park System" in 1982. The nomination does not mention Seneca Park. F.L. Olmsted & Co. received the commission for the Louisville park system in 1891, and Frederick Law Olmsted was personally involved in the development of the Master Plan and the first three components of the park system (Cherokee, Iroquois and Shawnee Parks). After his retirement in 1895 and death in 1903,

the continuing development of the Louisville park system, including the development of Seneca Park in 1928, was overseen by his successor firm, Olmsted Brothers, which consisted of his stepson/nephew, John Charles Olmsted and his son, Frederick Law Olmsted, Jr. John Charles Olmsted died in 1920, so the 1928 plan for Seneca Park would have been overseen by Frederick Law Olmsted, Jr., who in addition to carrying on the legacy and vision of his father was an important figure in landscape architecture in his own right.

The Louisville Board of Parks Commissioners purchased 540 acres to expand park space in 1928. This property included 200 acres that had been leased for use as an airfield to Abram H. Bowman, an aviation enthusiast, who began offering airplane rides to the public from this site in approximately 1919. In 1922 Bowman's lease on the property was taken over by the U.S. Army and Bowman Field, a military/civilian facility, was formally dedicated on August 25, 1923. (See National Register nomination for Bowman Field and Aviation: *From Sand Dunes to Sonic Booms, A National Register of Historic Places Travel Itinerary* at <https://www.nps.gov/nr/travel/aviation/bow.htm>). Upon purchase of the larger property, the Louisville Parks Commissioners leased 200 acres to Bowman Field and commissioned the Olmsted Brothers firm to design a park on the remainder. This property was expanded two years later to connect Seneca Park to Cherokee Park. According to the Louisville Olmsted Parks Conservancy's web site: "The design plan for Seneca was in stark contrast to neighboring Cherokee Park because of its formal style and also because the plan included an 18-hole golf course along with many other recreation facilities." (<http://www.olmstedparks.org/our-parks/seneca-park/>) Its history and development is closely linked to that of Bowman Field and played a role in the subsequent suburban development of the area. It is likely that Seneca Park is eligible for listing in the National Register, either individually or as part of the Louisville park system, under criteria A and C.

The Golf Course might be included in the boundaries of a historic district encompassing the entirety of Seneca Park. According to the Louisville Olmsted Parks Conservancy, the Golf Course was an element of the original Olmsted design (presumably the 1928 Olmsted Brothers plan for Seneca Park rather than the 1891 Master Plan), but it is unclear whether it was actually laid out at that time. Other evidence indicates that it was laid out in 1933 and completed in 1934. It is possible that the Olmsted Brothers 1928 plan indicated a golf course but that the specific layout of the holes was left to others to design. Even assuming that it formed an integral part of the original Seneca Park, the Golf Course's loss of integrity would likely render it non-contributing as a designed landscape element to a larger potential historic district encompassing the entire park. Due to the extensive alterations in the 1960s, the Golf Course does not reflect the original design intent or plant material. The current vegetation of Seneca Park – consisting of open areas of mown grass punctuated by stands of trees – is in keeping with the overall character of Seneca Park and might be viewed as part of the setting of the larger park.

Consulting parties also pointed out that Pee Wee Reese Road forms part of the original automotive corridor or concourse associated with Seneca Park. This may be a contributing element to a potential Seneca Park Historic District. Because the only portion of Pee Wee Reese Road within the APE runs along the border of the Seneca Vista subdivision, I have addressed effects to Pee Wee Reese Road in my assessment of effects to Seneca Vista, below.

The LRAA proposes removing approximately 34 trees within Seneca Golf Course. My assessment of the effects of the undertaking on the characteristics of the portion of the park within the APE is the same whether the Golf Course is considered as a discrete district or as part of a larger district encompassing the entire park. Based on what is known about the historic characteristics of the landscape during its period of significance (1928/1934 – c.1966), trees in the APE are not character-defining features of the property qualifying it for the National Register. Therefore, I conclude that the undertaking would have **no effect** on Seneca Golf Course or on Seneca Park as a whole.

Subdivisions

The remaining seven properties are subdivisions laid out between 1925 and 1951, and reflect various phases in the suburban development of Louisville. The Ames Report suggests organizing these areas into two suburban properties: Garden Suburb and Early Freeway. National Register guidelines identifies legally recorded boundaries of a subdivision as a factor to consider in establishing the boundaries of a historic district (*How to Complete the National Register Registration Form*, p. 57); but elsewhere notes that “[f]or residential suburbs that developed in several stages . . . boundaries are generally drawn to encompass the largest area that took form during the historic period and that possesses historic importance.” (*Historic Residential Suburbs*, p. 107). Although these neighborhoods share a broad historic context, they have different dates of platting and construction (and therefore different periods of significance) and were developed by different companies, and boundaries could be justified based on the historic subdivision plats. Expanding the identification of historic properties to encompass neighborhoods outside the APE would go beyond the “reasonable and good faith” identification standard under Section 106, which defines the geographic limits of federal responsibility as the APE and does not require that the agency search for all historic properties in a given area. (*Meeting the “Reasonable and Good Faith” Identification Standard in Section 106 Review*, p. 3). Therefore, for the purposes of Section 106 I have treated these areas as distinct districts and assessed effects on each individual subdivision taking into consideration any distinctive characteristics. I did consider whether any of my findings regarding eligibility or effects would be affected by viewing these properties as part of a larger district and concluded that the overall outcome would be the same.

National Register guidance on Historic Residential Suburbs explains that subdivision developments can be “read” as a series of layers imprinted on the land: The first layer is geographical location and its relationship to natural topography and cultural factors; the

second is the subdivision design, and the third is the arrangement of elements on each lot, including buildings, driveways, fences and plantings. (*Historic Residential Suburbs*, p. 8). This guidance cross-references the National Register guidance on Designed Historic Landscapes discussed above, which suggests that if the more stable elements of the designed landscape are sufficiently intact, the relevant question is whether the existing vegetation taken as a whole reinforces or supports the original design intent. (*Designed Historic Landscapes*, p. 7)

The first and second layers of all of these subdivisions can still be easily read. They were laid out on land that was previously in agricultural use, adjacent to or near Bowman Field. The growing transportation network, including the airfield, the extension of the streetcar lines, and the roadways contributed to the development of this area. The construction of both the airport and the subdivision was made easier by the relatively flat land cleared of virgin forest (see historic context "*Agriculture in Louisville and Jefferson County, Kentucky 1800-1930*" Multiple Property Documentation Form, Addendum to Context (1990), Section E, p.11). Each of the subdivisions retains its spatial organization including its original street layout and circulation, lot sizes and set-backs.

The third layer – the overall arrangement of elements within this design – is generally consistent with the character of early-to-mid-20th century suburbs. There is no evidence of an original planting scheme for any of the subdivisions; rather, the vegetation appears to have been planted by property-owners over time and likely has evolved with changing tastes and availability of plant material. In this respect, the subdivisions evaluated here are probably best understood as designed historic landscapes, in the form of subdivisions, overlaid with a vernacular landscape in the form of residential plantings.

National Register guidance on designed historic landscapes suggests the following questions as relevant to evaluating the integrity of a designed historic landscape: 1) To what degree does the landscape convey its historic character? 2) To what degree has the original fabric been retained? 3) Are changes to the landscape irrevocable or can they be corrected so that the property retains integrity? (*Designed Historic Landscapes*, p. 6). Each of these subdivisions still conveys its historic character, with much of the original hardscaping and architectural elements intact. To the extent that trees or other plant material have been changed or removed, these are reversible changes that have not irrevocably changed the character of the neighborhoods.

The current landscape in all of these districts consists of mown lawns, flower beds and foundation plantings and a broad variety of ornamental shrubs and trees. Some lots have hedges marking property lines or bordering the street, but most houses are set on open lawns that merge into one another, forming a continuous park-like expanse characteristic of suburban landscapes of this era. Low-canopy trees or large shrubs typically are planted on front and side lawns; taller shade trees are found primarily in backyards or in open areas along the streets and other public-rights-of-way. Most of these appear to have been planted as specimen trees on lawns or in regular intervals along streets, though others are

likely “volunteers” that have grown up in less-intensively landscaped areas as part of a natural succession. Some of the taller trees show evidence of pruning to avoid interference with utility lines, particularly those along the streets.

National Register guidance explains that a designed historic landscape need not exist today exactly as it was first executed if integrity of location and visual effect has been preserved. Moreover, if the more stable elements of the designed landscape are sufficiently intact to represent the original design intent, the absence of original vegetation may not diminish integrity if the same or similar species of appropriate size have been replanted to replace dead, diseased or mature specimens. (*Designed Historic Landscapes*, p. 7). The historic character and setting of these subdivisions is the result of a variety of trees, shrubs and open lawn, rather than the contribution of specific trees or types of trees. The species and age of individual trees is therefore less important than the overall effect. To the extent that tree species or type is relevant, ornamental non-native cultivars of low-canopy trees are as likely to be in keeping with the historic character of these subdivisions as native species.

Although most of the plant material does not appear to be original, changes over time in the plantings are consistent with the natural and expected cycle of growth, and the existing vegetation taken as a whole reinforces the original design intent of a “Garden Suburb.” The layout of streets, lawns and vegetation in each of these subdivisions forms “an open, parklike setting” creating a semi-rural environment within commuting distance of Louisville. (*Historic Residential Suburbs*, p. 103)

The distinguishing characteristics of each subdivision are described below.

South of Seneca Golf Course and immediately west of Bowman Field at the end of Runway 6 three subdivisions – Seneca Vista, McCoy Manor and Seneca Manor – make up what is today called the Seneca Gardens Neighborhood. Because these were developed as individual subdivisions we evaluated them separately.

Seneca Vista, platted in 1937 and developed through the early 1940s, appears eligible for listing as a district under Criterion A in the area of community planning and development as an example of early automobile suburban development in Louisville, and under Criterion C in the area of architecture and landscape design as a collection of early to mid-twentieth century residential architecture set within a street and lot pattern representative of suburban development of the pre-World War II era. The district may also be eligible under Criterion B for its association with developer William H. Randolph, whose career made a significant impact on the built environment of suburban Louisville.

The eastern boundary of Seneca Vista is Pee Wee Reese Road, which forms part of the original parkway associated with Seneca Park, and could be included in a potential Seneca Park Historic District. The road is bordered by mown grass, punctuated by trees

and shrubs. Although some stretches of the road are planted with species trees at regular intervals, the portion within the APE is more open and varied, with low shrubs planted along the airport fence line on one side and a mix of large shrubs, low-canopy and high-canopy trees on the other side.

There are no sidewalks either in the original plan or today. The platted design for the extension of Gladstone Avenue, which would have connected through to Drayton Avenue to form a curvilinear spine of the subdivision, was never implemented and the public rights-of-way for the unbuilt avenue have been maintained as green space. Seneca Vista features uniform setbacks and lot sizes, with some broader lots along Landor Avenue. Nine lots purchased by Jefferson County early in the development of Seneca Vista to protect airspace for Runway 6 flight paths are maintained as a strip of mown grass edged by trees forming an allée; however, this was not part of the original layout of the subdivision and is not a design feature characteristic of this type of cultural landscape. There is evidence that trees were a valued feature early in the development of Seneca Vista – the deed conveying the nine lots for airport easements stipulated that “the only tree to be destroyed is the burnt one. Other [trees] shall not be trimmed lower than the top of the Evans house.”

The general contribution of trees to the park-like setting of Seneca Vista, one of the characteristics qualifying it for the National Register, leads me to conclude that trimming or removal of any trees would affect this historic property. The next step is to determine if that effect is adverse – that is, if it diminishes the integrity of the property’s location, design, setting, materials, workmanship, feeling, or association.

Within Seneca Vista, 29 parcels are already subject to an aviation easement that has meant periodic trimming or removal of tall trees. The addition of eight additional parcels being placed under aviation easement and the subsequent trimming or removal of approximately 17 of the tallest trees would not affect the location, design, materials, workmanship or association of this district and would not alter the setting or feeling to the point of diminishing its integrity. The undertaking would not eliminate the mature tree canopy throughout the property or eradicate any species of tree, and would not replace trees with open lawn, shrubs or hardscaping. Rather, the undertaking will result in a change in the mixture of tree species, age and height which is consistent with the natural cycle and historic pattern of this landscape. The fact that the remaining vegetation and replacement plantings will continue to provide an appropriate park-like setting supports a finding of *no adverse effect* on Seneca Vista.

Seneca Manor, like Seneca Vista, was platted in 1937, but its development occurred more gradually over a longer span through the mid-1950s. It appears eligible for listing as a district under Criterion A in the area of community planning and development as an example of early automobile suburban development in Louisville, and under Criterion C in the area of architecture and landscape design as a collection of early to mid-twentieth century residential architecture set within a street and lot pattern representative of

suburban development of the pre- and post-World War II era. The subdivision consists of 21 individual single-family residences on Valetta Road and two parcels on Taylorsville Road, with mid-twentieth century residential architecture, mostly two-story Colonial Revivals and a few one-story Colonial Revival homes. The lots in the immediate vicinity of Taylorsville Road include some later infill, including examples of Ranch and Split Level. The neighborhood does not have sidewalks. Oak trees planted at regular intervals along a portion of Valetta Road may be part of a formal planting scheme, although it is uncertain if this was original to the subdivision design.

Only one tree has been identified as requiring trimming or removal, and the LRAA is proposing placing a single parcel under an avigation easement. The general contribution of trees to the park-like setting of Seneca Manor, one of the characteristics qualifying it for the National Register, leads me to conclude that trimming or removal of any trees would affect this historic property. However, this action will not affect the location, design, materials, workmanship or association of this district and will not alter the setting or feeling to the point of diminishing its integrity. The Safety Program would have *no adverse effect* on Seneca Manor.

McCoy Manor, platted in 1949 as infill between Seneca Vista and Seneca Manor and developed over the next eight years, appears eligible for listing as a district under Criterion A in the area of community planning and development as an example of post-World War II and Early Freeway suburban development in Louisville, and under Criterion C in the area of architecture and landscape design as a collection of mid-twentieth century residential architecture set within a street and lot pattern representative of suburban development of the post-World War II era. The buildings consist of small-scale mid-twentieth century homes constructed of brick, brick with Bedford stone highlighting, or all Bedford stone. Each property features a driveway as well as a front walk connecting the front of the house with either the driveway or the street; there are no sidewalks. Trees are generally smaller and set back further from the street than in Seneca Vista or Seneca Manor.

No trees within McCoy Manor have been identified as requiring trimming or removal and none of the parcels are proposed for avigation easements. Therefore, this undertaking would have *no effect* on McCoy Manor.

Kingsley, located south of Seneca Gardens on the other side of Taylorsville Road, was one component of a broader development platted in 1925. Development occurred regularly through the 1930s and into the 1950s. It appears eligible for listing as a district under Criterion A in the area of community planning and development as an example of suburban development in Louisville spanning the Streetcar to Early Freeway Era, and under Criterion C in the area of architecture and landscape design as a collection of early to mid-twentieth century residential architecture set within a street and lot pattern representative of suburban development of the pre- and post-World War II era. The district may also be eligible under Criterion B for its association with developer C.C.

Hicatt, whose career made a significant impact on the development of suburban Louisville.

The Kingsley neighborhood generally consists of detached one-to-two story single-family residences in a park-like setting. Building styles include Bungalow, Cape Cod, Colonial Revival, Tudor Revival, Minimal Traditional and Ranch. Building materials largely consist of brick, rusticated limestone, and some replacement vinyl siding in gabled ends. The subdivision layout employs a system of curvilinear streets, sidewalks and a centralized public park planted with specimen trees.

No trees within Kingsley have been identified as requiring trimming or removal and none of the parcels are proposed for avigation easements. Therefore, this undertaking would have *no effect* on Kingsley.

Farther to the east along Taylorsville Road and directly south of Bowman Field at the end of Runway 33 are three more subdivisions: Hathaway, Seneca Village and Seneca Village No. 2.

Hathaway was laid out in 1926, but the housing appears to have been constructed post-World War II. It appears eligible for listing as a district under Criterion A in the area of community planning and development as an example of post-World War II and Early Freeway suburban development in Louisville, and under Criterion C in the area of architecture and landscape design as a collection of early to mid-twentieth century residential architecture set within a street and lot pattern representative of suburban development of the pre- and post-World War II era. The building stock consists of small-scale brick houses in a Cape Cod or Cape Cod/front gable form. Brick or concrete walkways lead from the front doors to narrow driveways; the subdivision does not have sidewalks but many lots have paved parking pads along the street.

No trees within Hathaway have been identified as requiring trimming or removal and none of the parcels are proposed for avigation easements. Therefore, this undertaking would have *no effect* on Hathaway.

Seneca Village was platted in 1929 but construction did not begin until after the war and then it developed rapidly, with all lots were built out by 1951. It appears eligible for listing as a district under Criterion A in the area of community planning and development as an example of post-World War II and Early Freeway suburban development in Louisville, and under Criterion C in the area of architecture and landscape design as a collection of mid-twentieth century residential architecture set within a street and lot pattern representative of suburban development of the pre- and post-World War II era. A total of 64 homes built in four or five designs similar to the Hathaway development make up the housing stock. Unlike Hathaway, Seneca Village has sidewalks set off from the street by a wide strip of mown grass. Lots along the east side of Seneca Boulevard and Taylorsville Road between Seneca Boulevard and Kent Road were purchased by the

airport and never developed. They have been maintained as open lawn to protect airspace for Runway 33.

The LRAA proposes placing another 23 parcels under aviation easements, with the subsequent trimming or removal of approximately 26 of the tallest trees. The contribution of trees to the park-like setting of Seneca Village, one of the characteristics qualifying it for the National Register, leads me to conclude that trimming or removal of any trees would affect this historic property. Ten to twelve parcels within Seneca Village are owned by the LRAA and an additional four have existing aviation easements. The addition of 23 more lots placed under aviation easements and the subsequent trimming or removal of trees would not affect the location, design, materials, workmanship or association of this district. The undertaking would not eliminate the mature tree canopy throughout the property or eradicate any species of tree, and would not replace trees with open lawn, shrubs or hardscaping. Rather, the undertaking will result in a change in the mixture of tree species, age and height which is consistent with the natural cycle and historic pattern of this landscape. The remaining vegetation and replacement plantings will continue to provide an appropriate park-like setting, supporting a finding of *no adverse effect* on Seneca Village.

Seneca Village No. 2, was platted and developed in 1948 with revisions in 1950 and 1951. Development occurred rapidly between 1951 and 1955, and the apartment buildings in the northern quadrant were completed by 1959. Despite the demolition of 31 houses along Gardner Lane for the widening of Watterson Expressway in the late 1980s, Seneca Village No. 2 appears eligible for listing as a district under Criterion A in the area of community planning and development as an example of post-World War II and Early Freeway suburban development in Louisville, and under Criterion C in the area of architecture and landscape design as a collection of early to mid-twentieth century residential homes utilizing a new form of mass-produced pre-fabricated housing set within a street and lot pattern representative of suburban development of the post-World War II era. The neighborhood consists of pre-fabricated Gunnison housing, with a limited number of styles and floor plans. The houses along Joan Avenue and Betty Lane feature brick siding (partial or whole) and somewhat larger lots. In general, the homes have a Cape Cod form. Bradford Pear trees, planted c. 1990, line several of the streets within the neighborhood.

The Safety Program would place nine parcels under aviation easements, and requiring the trimming or removal of approximately 10 trees. The general contribution of trees to the park-like setting of Seneca Village No. 2, one of the characteristics qualifying it for the National Register, leads me to conclude that trimming or removal of any trees would affect this historic property. However, this action will not affect the location, design, materials, workmanship or association of this district. The undertaking would not eliminate the mature tree canopy throughout the property or eradicate any species of tree, and would not replace trees with open lawn, shrubs or hardscaping. Rather, the undertaking will result in a change in the mixture of tree species, age and height which is

consistent with the natural cycle and historic pattern of this landscape. The fact that the remaining vegetation and replacement plantings will continue to provide an appropriate park-like setting supports a finding of *no adverse effect* on Seneca Village No. 2.

Conclusion

Based on the foregoing considerations, I agree with the proposed finding that the Bowman Field Airport Area Safety Program would have *no adverse effect* on any historic property.

**Correspondence from
Kentucky Heritage Council
including Conditional
Concurrence Letter**



**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

MATTHEW G. BEVIN
GOVERNOR

DON PARKINSON
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

REGINA STIVERS
DEPUTY SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

June 27, 2016

Phillip J. Braden
Manager
Memphis Airports District Office
Federal Aviation Administration
2862 Business Park Drive, Bldg G
Memphis, TN 38118-1555

RE: Determination of Effects; Bowman Field Airport Area Safety Program, Louisville KY

Dear Mr. Braden:

The Kentucky Heritage Council, State Historic Preservation Office has received for review and comment, the above referenced Determination of Effects evaluation for the Bowman Field Area Safety Program in Louisville, Kentucky. The purpose of this undertaking is to reduce tree heights so that nighttime instrument approach capabilities would be restored to the Bowman Field Airport. More than 100 mature trees in neighborhoods/areas adjacent to Bowman Field will be trimmed or removed entirely as part of this undertaking, in order to comply with safety requirements.

In accordance with 36 CFR §800, the FAA identified this project as an "undertaking" due to its potential to affect historic properties. Participants in the process were defined as the lead federal agency (FAA), the applicant (Louisville Regional Airport Authority (LRAA)), the Kentucky State Historic Preservation Officer (KYSHPO), Louisville Metro Government, and invited consulting parties (§800.3). A listing of those consulting parties is attached with this letter.

Through consultation under 36 CFR §800.4, the undertaking's Area of Potential Effect (APE) was defined, refined, and concurred upon, and the applicants' consultants (Brockington Cultural Resources Consultants and Hansen Professional Services, Inc.) submitted a Historic Architectural Survey, a Cultural Resource Evaluation report (CRE), and a supplemental CRE report. Due to certain inadequacies contained within the various reports (such as boundary demarcations for eligible historic properties and districts), KYSHPO and the consulting parties did not concur with the final determination of eligibility. While general agreement on the nature and location of eligible and listed historic properties was reached, a finalized CRE document containing all historic properties, with defined boundaries located within (or partially within) the APE, has yet to be received.

In accordance with 36 CFR §800.5 (Assessment of adverse effects), The FAA provided a Determination of Effects letter that was received on May 27, 2016. In that letter, the FAA determined that the following sites are eligible for or listed on the National Register of Historic Places:

- Bowman Field Historic District;
- Seneca Park;
- Seneca Vista Historic District;
- Seneca Manor Historic District;
- McCoy Manor Historic District;
- Kingsley Historic District;
- Seneca Village Historic District; and
- Seneca Village No. 2 Historic District.

The FAA recommended that the removal of mature trees from within the undefined boundaries of certain historic districts mentioned above would have no adverse effect because, "...the vegetative plantings are not a contributing element to eligibility of any of the resources."

In the regulations found at 36CFR§800.5 (a)(1), it is stated that, "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, *setting* [emphasis added], materials, workmanship, feeling or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." It is further stated in 36 CFR §800.5(a)(2)(iv) that, "Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance" is an example of an adverse effect.

The removal or alteration of more than 100 mature trees within historic districts such as the Olmstead designed Seneca Park has a particularly clear impact on integrity of setting. That said, it seems clear that certain safety program enhancements already proposed by the applicant could significantly reduce the overall impact. After reviewing the consulting party comments that were received in reply to the FAA's "Determination of Effects" letter, it appears that incorporation of the following conditions into the project will streamline the process and resolve disagreement between parties included through 36 CFR §800.3. Those conditions are as follows:

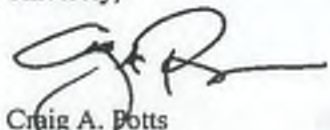
1. The applicant (LRAA) will compel its cultural resource management consultants to complete the CRE document as requested by the KYSHPO and consulting parties by September 30, 2016. This includes compiling all of the various elements of historic property evaluation into one comprehensive document and providing defensible boundaries for all eligible historic districts and a full evaluation of the Olmstead designed Seneca Park;
2. Trees will be assessed by a professional arborist as to whether they can be trimmed or should be removed;

3. All trees that are removed will be replaced with an appropriately diverse selection of low canopy trees at a ratio of two to one (2:1) within the above referenced historic districts. Homeowners may select less than two trees for each existing tree that is removed from their property, but the overall replanting ratio of two to one (2:1) will be maintained project-wide, regardless of homeowner preferences;
4. If a tree is removed in a landscaped area of the yard, the homeowner will be eligible for a re-landscaping allowance up to \$2,500.00. The landscaping allowance will be over and above the cost of replacement trees;
5. The LRAA will pay for all tree trimming and/or removal, stump removal and yard restoration directly related to this project;
6. All new landscape planting, including shrubs, perennials, ornamental grasses, and ground covers, will carry a one (1) year warranty; replacement trees will carry a two (2) year warranty by the LRAA; and
7. The aforementioned conditions, provisions numbered one (1) through six (6) above, will be added to the project's Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) as planned components of the project/undertaking.

So long as the referenced measures, provisions one (1) through seven (7) above, are adopted, implemented, and carried out, it is the determination of this office that the undertaking would avoid adverse effects. This undertaking is therefore provided a **conditional No Adverse Effect finding**. Please respond with your decision regarding the adoption of provisions one (1) through seven (7) above into the project design.

Should you have any questions, please contact me at 502-564-7005 x 111.

Sincerely,



Craig A. Potts
Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

Attachments: Invited consulting parties list, pursuant to 36 CFR §800.3

CC: Don Parkinson, Secretary, Tourism, Arts, and Heritage Cabinet
Leigh Powers, General Counsel, Tourism, Arts, and Heritage Cabinet
Skip Miller, Executive Director, Louisville Regional Airport Authority
Invited consulting parties

Invitation List – Bowman Field Safety Program

1. Skip Miller, Executive Director, LRAA
2. Craig Potts, Executive Director, Kentucky SHPO

Government representatives:

3. Mayor Greg Fischer
Louisville/Jefferson County Metro Government
Metro Hall / 4th Floor
527 W. Jefferson St.
Louisville, KY 40202
4. Louisville/Jefferson County Metro Government
Historic Preservation Officer
Planning & Design Services
444 S. 5th St.
Louisville, KY 40202
(502) 574-5210
5. Louisville/Jefferson County Metro Government
Michael J. Heitz, AIA, Director of Parks
Administration Building
1297 Trevilian Way
Louisville, KY 40213
(502) 456-8100
michael.heitz@louisvilleky.gov
6. City of Seneca Gardens
David Brown, Mayor
2547 Dell Road
Louisville, KY 40205-2309
david.brown@bbandt.com
7. City of Kingsley
Rebecca Beld, Mayor
P.O. Box 5515
Louisville, KY 40255-0515
Mayor: (502) 452-6478
City Clerk: Marilyn Whistler, info@cityofkingsley.org; (502) 458-7398

Affected Metro Louisville Council Members:

Mailing address: City Hall, 3rd floor, 601 W. Jefferson St., Louisville, KY 40202-2741

8. Tom Owen, 8th District
(502) 574-3455
Tom.owen@louisvilleky.gov
Legislative aide: Terra Long, terra.long@louisvilleky.gov
9. Bill Hollander, 9th District
(502) 574-1109
Bill.hollander@louisvilleky.gov
Legislative aide: Ms. Kyle Ethridge, kyle.ethridge@louisvilleky.gov
10. Brent Ackerson, 26th District
(502) 574-1126
Brent.ackerson@louisvilleky.gov
Legislative aide: Jeff Noble, jeff.noble@louisvilleky.gov

Organizations:

11. Big Spring Country Club
Mr. Kelly Maxwell, General Manager
5901 Dutchmans Lane
Louisville, Kentucky 40205-3275
(502) 459-2622 Work
(502) 693-3837 Cell
(502) 451-2988 Fax
kmaxwell@bigspringcc.com
www.bigspringcc.com
12. Olmsted Conservancy
Mimi Zinniel, Executive Director
1299 Trevilian Way
Louisville, KY 40213
(502) 456-8125 Work
Mimi.Zinniel@olmstedparks.org
13. Plea for The Trees
c/o Leslie Barras
2337 Frankfort Avenue, #350
Louisville, KY 40206
(502) 298-1505
leharras@gmail.com
14. Kentucky Resources Council
Tom Fitzgerald, Director
PO Box 1070
Frankfort, KY 40602
fitzkrc@aol.com

Individuals (Submitted written requests)

15. Phyllis Hawkins (Close Proximity to APE)
2611 Kings Hwy.
Louisville, KY 40205
16. J. Chris McCoy (In APE)
2540 Kings Hwy.
Louisville, KY 40205
17. Angela Burton (In APE)
2629 Drayton Dr.
Louisville, KY 40205



MATTHEW G. BEVIN
GOVERNOR

DON PARKINSON
SECRETARY

**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

THE STATE HISTORIC PRESERVATION OFFICE

300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

REGINA STIVERS
DEPUTY SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

April 7, 2016

Aaron Braswell, Environmental Protection Specialist
Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486

Re: Bowman Field Area of Potential Effect (APE)

Dear Mr. Braswell:

Thank you for your letter and copy of "Bowman Field Airport Area Safety Program Area of Potential Effect w/Approach Surface" map showing the recommended APE for this project. Since our last letter, the FAA has provided the requested additional information including the tree inventory (and map), standard language for the proposed aviation easements (including trees which may be cut or trimmed in the future but which need to be considered as part of the Section 106 consultation for this project), and a response that the obstruction lighting alternative has been eliminated. We can concur that the APE has been modified since its inception based on input from consulting parties as well as our office, Hanson, and Brockington.

Additionally, FAA has sent a table of responses to consulting party comments and provided a response (via Hanson) to Dr. Ames' comments. Consulting parties have also received an explanation of tree clearing efforts undertaken by the Louisville Regional Airport Authority which overlap the APE, but which are either on public right-of-way or on aviation easements which have already been acquired and are therefore not a part of the current undertaking. LRAA will be following with additional information on these tree clearing efforts making clear that they were part of ongoing maintenance in these areas. Although we had initially requested information on whether aviation easement "future" trees fall within the recommended APE, at the most recent consulting parties meeting (3-31-16) Louisville Regional Airport Authority (LRAA) made us aware of the difficulty in identifying individual "future" trees of concern; in that meeting, we verbally agreed to address these trees as part of the effects assessment for this project and address obstruction clearing efforts on "future" aviation easement trees in an agreement document.

#Preservation50: Commemorating the 50th anniversary of the National Historic Preservation Act
and the Kentucky Heritage Council 1966-2016

KentuckyUnbridledSpirit.com



An Equal Opportunity Employer M/F/D

Page 2

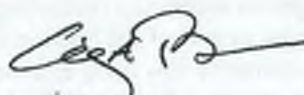
Re: Bowman Field Area of Potential Effect (APE)

April 7, 2016

The recommended APE appears to include all trees currently proposed for trimming or removal and thus provides adequately for direct effects; our office also feels that the recommended APE provides a sufficient buffer to address indirect (visual) effects around affected trees currently proposed for trimming or removal within approach surfaces. As such, our office is formally concurring that FAA's recommended APE is appropriate for this undertaking.

At the March 31, 2016, consulting parties meeting FAA and LRAA also verbally agreed with Hanson/Brockington that we would receive an updated, single combined report containing the initial CHS, the addendum CHS which was recently prepared, and the supporting documentation (tree inventory/maps, lighting information, responses, etc.) to better facilitate our review. We look forward to receiving that and reviewing that combined report/CHS. Should you have any questions, feel free to contact Jennifer Ryall of my staff at 502.564.7005, extension 121.

Sincerely,



Craig A. Potts,
Executive Director and State Historic Preservation Officer

CP: jr, KHC #46554



STEVEN L. BESHEAR
GOVERNOR

TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL

BOB STEWART
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

CRAIG A. POTTS
EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

October 9, 2015

Aaron Braswell, Environmental Protection Specialist
Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486

Re: Area of Potential Effect (APE) Definition
Bowman Field Airport (LOU) - Louisville, KY

Dear Mr. Braswell:

Thank you for your letter and copy of "Bowman Field Airport Area Safety Program APE w/Approach Surface" received by our office on September 24, 2015. At the most recent consulting parties meeting on August 20, 2015, the FAA agreed to provide our office with additional information to aid in our review of the APE for this project. That additional information was to include the tree inventory, which is informing the FAA's studies of which obstructions will need to be removed or trimmed, as well as the expected standard language for the proposed aviation easements. If the aviation easements will encompass activities that have not as yet been discussed in the Section 106 consultation, the APE as currently proposed may be inadequate to adjudicate potential impacts to historic properties. Additionally, the FAA was asked to provide a response about whether the installation of lighting for trees penetrating approach surfaces had been determined to be a possible treatment measure as a part of the NEPA process for the proposed undertaking. If lighting is being considered as a viable alternative to tree removal or trimming, we request additional details on that proposed activity so we may determine whether and how that affects the proposed APE.

As neither the tree inventory, aviation easement language, nor details about the potential lighting alternative has been submitted to our office, we are currently lacking the information we need to complete our review of the proposed APE. Upon receipt of this additional information, we will provide comments accordingly. Should you have any questions, feel free to contact Jennifer Ryall of my staff at 502.564.7005, extension 121.

Sincerely,

Craig A. Potts,
Executive Director and
State Historic Preservation Officer

CP: jr, KHC #45249



STEVEN L. BESHEAR
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

BOB STEWART
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

CRAIG A. POTTS
EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

May 15, 2015

Phillip J. Braden
Manager
Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118

Re: Cultural Resources Evaluation – Bowman Field Safety Area Program
Consulting Party List
Bowman Field Airport (LOU)
Jefferson County, KY

And,

Historic Architectural Survey – Bowman Field Safety Area Program
Area of Potential Effect (APE) Evaluation
Bowman Field Airport (LOU)
Jefferson County, KY

Dear Mr. Braden:

On April 15, 2015, the Kentucky Heritage Council, State Historic Preservation Office received for review and comment the above referenced letter regarding prospective consulting parties to the Section 106 process for the Bowman Field Safety Area Program project. Thank you for agreeing to reach out to many of the organizations/individuals we suggested should be given the opportunity to participate as consulting parties.

While we are in agreement that the organizations/individuals included in your list (and attached with this letter) are appropriate to invite as consulting parties, we object to the exclusion of Neighborhood Planning & Preservation, Inc. (NPP). This Louisville non-profit preservation advocacy organization has been in existence for many years and could provide valuable insight and perspective during the Section 106 process. We therefore encourage the FAA to reconsider its decision to exclude them from being invited to participate.

It is important to note that additional consulting parties could come forward during the consultation period, whether they are specifically invited to participate or not. Their inclusion should be considered on a case by case basis as outlined in 36 CFR Part 800. The attached list should not therefore be considered fully "complete" or "final."

We would also like to take this opportunity to provide comments regarding the proposed Area of Potential Effect (APE) outlined in the *Historic Architectural Survey for the Bowman Field Airport Area Safety Program* report completed by Brockington and Associates in December, 2014. In the Executive Summary of that report it states that, "the FAA defined the Area of Potential Effect (APE) as those geographical areas within TERPS [Terminal Instrument Procedures] approach surfaces." Little additional information was provided regarding justification for the delineation of the APE itself.

We are in the very early stages of Section 106 consultation, and the full range of potential effects to historic properties is not clear. While we offer no specific objection to the APE proposed, it should be pointed out that four separate, very narrowly defined areas such as those presented in the report are unusual for an undertaking of this type. We do not feel confident at this point that the APE(s) fully consider all potential effects, and we therefore reserve the right to consult further on those boundaries. To reiterate however, we offer no specific objection at this time.

Thank you for coordinating with this office. If you have any questions, please contact me at 502-564-7005 ext. 111.

Sincerely,



Craig A. Potts, Director
Kentucky Heritage Council and
State Historic Preservation Officer

Invitation List – Bowman Field Safety Program

1. Skip Miller, Executive Director, LRAA
2. Craig Potts, Executive Director, Kentucky SHPO

Government Representatives:

3. Mayor Greg Fischer
Louisville/Jefferson County Metro Government
Metro Hall / 4th Floor
527 W. Jefferson St.
Louisville, KY 40202
4. Louisville/Jefferson County Metro Government
Historic Preservation Officer
Planning & Design Services
444 S. 5th St.
Louisville, KY 40202
(502) 574-5210
5. Louisville/Jefferson County Metro Government
Michael J. Heitz, AIA, Director of Parks
Administration Building
1297 Trevilian Way
Louisville, KY 40213
(502) 456-8100
michael.heitz@louisvilleky.gov
6. City of Seneca Gardens
David Brown, Mayor
2547 Dell Road
Louisville, KY 40205-2309
david.brown@bbandt.com
7. City of Kingsley
Rebecca Beld, Mayor
P.O. Box 5515
Louisville, KY 40255-0515
(502) 452-6478
City Clerk, Marilyn Whistler, info@cityofkingsley.org, (502) 458-7398

Affected Metro Louisville Council Members:

Mailing Address: City Hall, 3rd floor, 601 W. Jefferson St., Louisville, KY 40202-2741

8. Tom Owen, 8th District
(502) 574-3455
Tom.owen@louisvilleky.gov
Legislative Aide: Terra Long, terra.long@louisvilleky.gov
9. Bill Hollander, 9th District
(502) 574-1109
Bill.hollander@louisvilleky.gov
Legislative Aide: Ms. Kyle Ethridge, kyle.ethridge@louisvilleky.gov
10. Brent Ackerson, 26th District
(502) 574-1126
Brent.ackerson@louisvilleky.gov
Legislative Aide: Jeff Noble, jeff.noble@louisvilleky.gov

Organizations:

11. Big Spring Country Club
Mr. Kelly Maxwell, General Manager
5901 Dutchmans Lane
Louisville, Kentucky 40205-3275
(502) 459-2622 Work
(502) 693-3837 Cell
(502) 451-2988 Fax
kmaxwell@bigspringcc.com
www.bigspringcc.com
12. Olmsted Conservancy
Mimi Zinniel, Executive Director
1299 Trevilian Way
Louisville, KY 40213
(502) 456-8125 Work
Mimi.Zinniel@olmstedparks.org
13. Plea for The Trees
c/o Leslie Barras
2337 Frankfort Avenue, #350
Louisville, KY 40206
(502) 298-1505
lebarras@gmail.com
14. Kentucky Resources Council
Tom Fitzgerald, Director
PO Box 1070
Frankfort, KY 40602
fitzkrc@aol.com

15. Preservation Kentucky, Inc.
Rachel Kennedy, Director
306 W. Main St., Ste. 501
Frankfort, KY 40602
(502) 871-4570
director@preservationkentucky.org
16. Preservation Louisville, Inc.
Marianne Zickuhr, Executive Director
631 S. 5th St.
Louisville, KY 40202
(502) 540-5146
director@preservationlouisville.org
17. National Trust for Historic Preservation
Director, Eastern Field Services Office
William Aiken House
456 King St., 3rd Floor
Charleston, SC 29403
(843) 722-8652

Individuals (submitted written requests)

18. Phyllis Hawkins (Close Proximity to APE)
2611 Kings Hwy.
Louisville, KY 40205
19. J. Chris McCoy (In APE)
2540 Kings Hwy.
Louisville, KY 40205x
20. Angela Burton (In APE)
2629 Drayton Dr.
Louisville, KY 40205



STEVEN L. BESHEAR
GOVERNOR

**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

BOB STEWART
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

CRAIG A. POTTS
EXECUTIVE DIRECTOR AND
STATE HISTORIC PRESERVATION OFFICER

July 8, 2014

Paul Friedman, Assistant Manager
Memphis Airports District Office
Federal Aviation Administration
2862 Business Park Drive, Bldg. G
Memphis, TN 38118-1555

Re: Bowman Field Airport Safety Program, Louisville, Jefferson County, Kentucky

Dear Mr. Friedman,

The State Historic Preservation office has recently been made aware that work on Section 106 compliance activities is about to get underway for the Bowman Field Airport Area Safety Program (hereafter Bowman Field Safety Program) in Louisville, Jefferson County, Kentucky. It is our understanding FAA has announced funding for Louisville Regional Airport Authority (LRAA) to conduct environmental studies, and that a consultant has been identified to handle cultural resource evaluations.

We would like to take this opportunity to outline some of the information we've conveyed to your agency and LRAA as part of early coordination on this undertaking. In previous conversations with our office, FAA staff has maintained that no undertaking had yet been established, but the announcement of funding for studies which generally include Section 106 compliance is a good indicator that consultation will begin soon. Developing an appropriate area of potential effect will be important before any cultural resource work is undertaken.

It is our understanding that the Bowman Field Safety Program is largely focused on removing obstructions around the airfield. We have been advised by Hanson, Inc., (the consultant assisting LRAA) that only trees will be removed; we have been told no buildings or other types of built obstructions have been identified at this time. In addition to removing obstructions, aviation easements may also be pursued.

Our conversations with LRAA, Hanson, and the FAA have consistently centered on three key items:

- It is critical that FAA be able to document that the Section 106 process is completed fully, in accordance with the regulations. There is high public interest in this project, and it appears to be the type of project with potential to affect historic properties which may be present through changes in design, setting and feeling as a result of tree removal in neighborhoods and other areas surrounding Bowman Field.

- Consulting parties need to be invited and involved from the very beginning of the process – not just if an adverse effect is found. The regulations allow for their participation in all stages of the Section 106 process. We have already advised Hanson and LRAA that there has been very little cultural historic survey in the vicinity of Bowman Field, for instance, meaning usual planning tools like preliminary site checks with our office and the Office of State Archaeology will be of little use. While this lack of existing information will need to be addressed through survey as part of Section 106, we believe there are consulting parties with information that might inform the step of identifying historic properties. To that end, we have previously offered our assistance to the FAA in vetting an area of potential effect that could then be circulated amongst consulting parties.

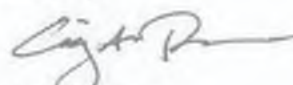
We have also already provided our preliminary recommendations for consulting parties to both the FAA and Hanson. Once we have a final map showing the project area, we are happy to work with the FAA in refining the list. To date, there are at least three consulting parties requests we are aware of: Dorn Crawford and Preservation Louisville, whose requests had been forwarded to Hanson as we were instructed to do, and Plea for the Trees, which was submitted by the organization directly to your agency. We anticipate others will formally request this status, and we encourage the FAA to invite other appropriate individuals, agencies and groups. Of the three requests already submitted, we only know of one FAA response to Plea for the Trees. It left us with questions about the process FAA intends to use to comply with Section 106. For example, the response indicates the FAA does not yet know if Section 106 consultation will be needed, but it goes on to say the FAA will be formally consulting with our office (SHPO) and references 36 CFR Part 800.4(a). If you plan to consult with our office under the Section 106 regulations, then it can be said Section 106 consultation is needed, and we see no reason you cannot move forward with decision-making about consulting party participation at this time, particularly since 36 CFR Part 800.4(a)(3) allows for it.

We respectfully request that the FAA notify us about the agency's preferred protocol for consulting parties requests, i.e. where they should be sent and the person to whom they should be addressed. If the FAA chooses not to involve us in refining the list of recommended consulting parties, we would also request that we be provided with a list of any other entities ultimately invited to participate, along with a copy of the correspondence used to contact those entities.

- The FAA should plan to be a presence in consultation. To our knowledge, the federal agency's Section 106 compliance responsibilities have not been formally delegated. With the strong, local interest in this project, we strongly encourage the FAA to show good faith by participating in the Section 106 process so that participants can feel their suggestions and comments are being heard.

We would be pleased to respond to any questions you may have about these comments, or about our role in the Section 106 process. We look forward to working with the FAA and LRAA on the Bowman Field Safety Program. When you are prepared to move forward, please feel free to contact Jill Howe at (502) 564-7005, extension 121.

Sincerely,



Craig A. Potts
Executive Director and
State Historic Preservation Officer

Cc: Plea for the Trees
Dorn Crawford
Preservation Louisville
Stephen Wilson (FAA)
Phillip Braden (FAA)
Hanson, Inc.
Charles Miller, LRAA

CP:jh

1. The purpose of this document is to provide information regarding the proposed project and to solicit comments from interested parties. The information provided herein is for informational purposes only and does not constitute a commitment or guarantee of any kind. The project is subject to change without notice and is not intended to be used for any other purpose than the one for which it was prepared.



Chief of Police
Greenville Police Department
Greenville, South Carolina

1. The purpose of this document is to provide information regarding the proposed project and to solicit comments from interested parties. The information provided herein is for informational purposes only and does not constitute a commitment or guarantee of any kind. The project is subject to change without notice and is not intended to be used for any other purpose than the one for which it was prepared.

RECEIVED
JUL 18 2014
BY: _____



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118
Phone: 901-322-8180

December 30, 2015

Mr. Craig Potts
Executive Director and State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Dear Mr. Potts:

**RE: Area of Potential Effect (APE)
Bowman Field Airport (LOU) Area Safety Program
KHC # 45249**

In your letter to our office regarding the APE for the LOU Area Safety Program, dated October 9, 2015, you indicated your office required the following items prior to completing the review of the proposed APE: (1) tree inventory, (2) aviation easement language, and (3) details about the potential lighting alternative. The draft tree inventory and aviation easement language are enclosed to this letter for your review (the easement language was originally submitted electronically to your office from the airport sponsor on November 13, 2015). The following paragraphs serve to address the potential lighting alternative.

The Federal Aviation Administration (FAA) has reviewed the use of aviation red obstruction lighting (flashing and/or steady burning) as a possible alternative to tree trimming and/or removal for the Area Safety Program at LOU. As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-11L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential,

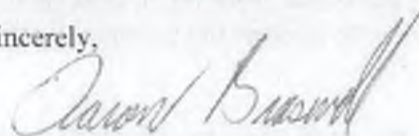
recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

- (1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.
- (2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.
- (3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.
- (4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.

In summary, given the reasons stated above, we have determined the use of obstruction lighting is not a reasonable or practical alternative.

We believe the above information, along with the enclosed documentation, will sufficiently address your requirements to complete your review of the APE. If you have any questions, please feel welcome to contact me at (901) 322-8192 or by email at aaron.braswell@faa.gov.

Sincerely,



Aaron Braswell
Environmental Protection Specialist, Memphis Airports District Office

Enclosure

cc: Mr. Skip Miller, Louisville Regional Airport Authority (electronic copy)
Mr. Tim Haskell, Hanson Professional Services, Inc. (electronic copy)



U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2486
Phone: 901-322-8180

September 22, 2015

Mr. Craig Potts
Executive Director and
State Historic Preservation Officer
Kentucky Heritage Council
300 Washington Street
Frankfort, KY 40601

Dear Mr. Potts:

**RE: Area of Potential Effect (APE) Definition
Bowman Field Airport (LOU) – Louisville, KY**

After careful consideration of comments received by your office and other Section 106 Consulting Parties, the Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO), in conjunction with the Louisville Regional Airport Authority (LRAA), has determined the Area of Potential Effects (APE) for cultural resources for the Area Safety Program at Bowman Field Airport in Louisville, Kentucky.

The APE is graphically depicted in the attached drawing and can be described, in general terms, as the inner sections of airspace surfaces beyond airport property with additional buffer areas. The APE is comprised of four sections which correlate to the four runway ends at the airport.

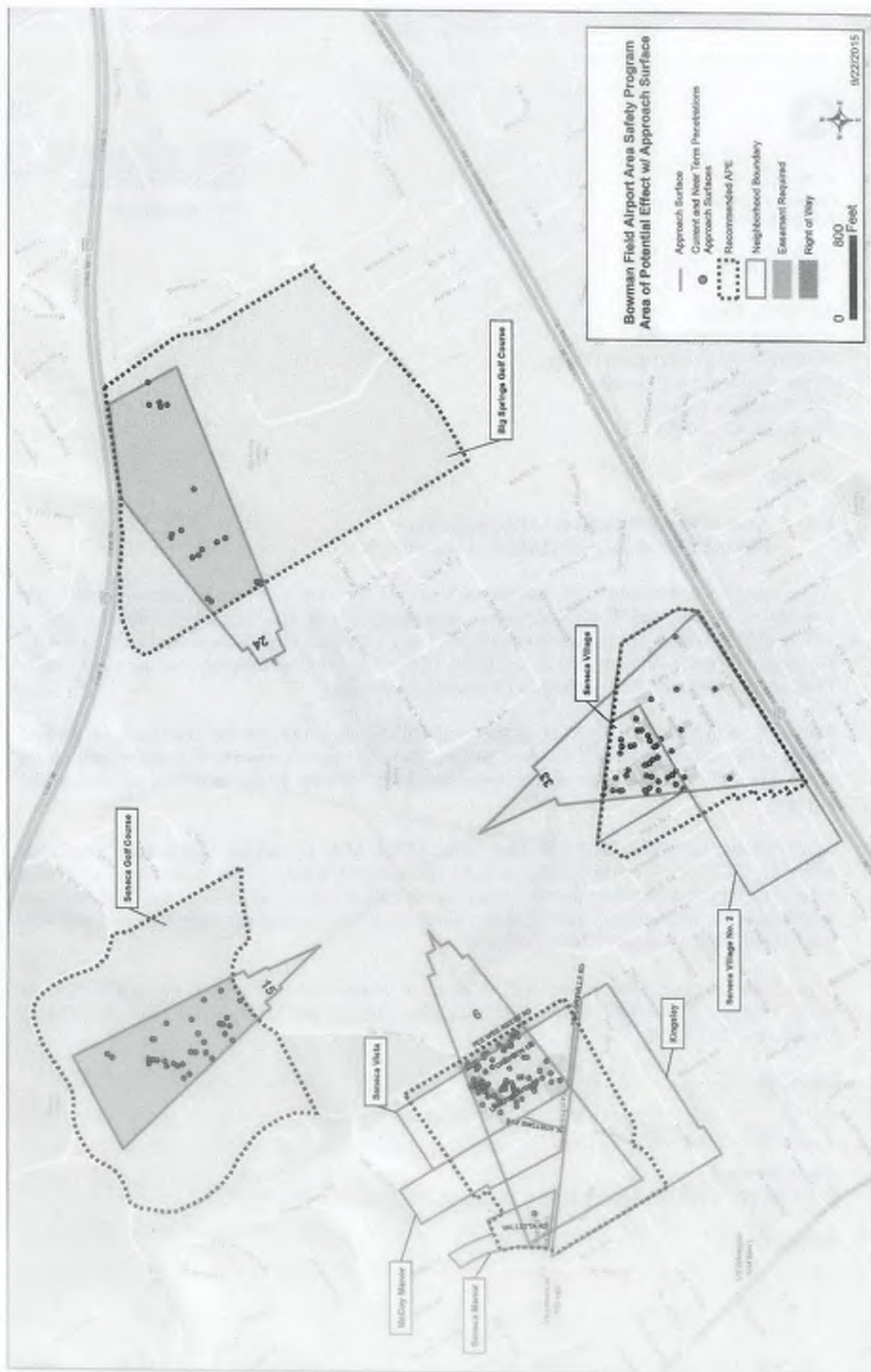
In accordance with 36 CFR § 800.4(a)(1), the MEM-ADO is seeking concurrence from your office on the APE. We respectfully request you respond within 30 days after receipt of this letter specifying concurrence or your concerns with the proposed APE. Once the APE has been established, the project proponent, LRAA, along with their consulting team will proceed with resource identification and effects analysis.

If you have any questions, please feel welcome to contact me by phone at (901) 322-8192 or email at aaron.braswell@faa.gov. You may also contact the MEM-ADO Manager, Phillip Braden, at (901) 322-8181.

Sincerely,

Aaron Braswell
Environmental Protection Specialist, Memphis Airports District Office

Enclosure





U.S. Department
of Transportation
**Federal Aviation
Administration**

Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118
Phone: 901-322-8180

July 30, 2014

Mr. Craig A. Potts
Executive Director, State Historic
Preservation Office
300 Washington Street
Frankfort, KY 40601

Subject: Bowman Field Safety Program
Bowman Field Airport
Louisville, Kentucky

Dear Mr. Potts:

Thank you for your July 8, 2014 letter regarding the Bowman Field Safety Program. You raise several issues in the letter. For future reference, I would like to clarify those issues for you.

As you know, the Louisville Regional Airport Authority (LRAA), as the airport sponsor, is preparing an Environmental Assessment (EA) to satisfy the National Environmental Policy Act (NEPA). A component of the EA will be a Cultural Resources Evaluation (CRE) to determine the presence of potentially eligible historic properties within the Area of Potential Effects (APE).

Regarding the Section 106 documentation regulations, the Federal Aviation Administration (FAA) Memphis Airports District Office (ADO) intends to follow the applicable regulatory requirements of 36 CFR Part 800. Per those requirements, we will review the project to determine if the proposed actions establish an undertaking having the potential to cause effects on historic properties.

Your letter states that you are offering assistance in determining the APE. In addition, you have received requests from entities requesting consulting party status. At this time, we have not invited members of the public to participate in identifying historic properties.

Another issue mentioned in your letter is the process for selecting Section 106 consulting parties. Per 36 CFR §§ 800.3(f) and 800.4(a)(3), in consultation with your office, the FAA Memphis ADO will seek information from consulting parties, as is appropriate. We will work with you to determine the level and extent of what is appropriate after the APE is complete.

Finally, you mentioned that the FAA should plan on being a presence in the consultation process. Because the FAA retains full control of our compliance responsibilities, we trust that any interested parties will have ample opportunity during the Section 106 process to voice their comments and become aware of the FAA's involvement.

Thank you again for your interest in this proposal.

Should you have questions, please contact me at 901-322-8181, or by email at Phillip.Braden@faa.gov. You may also contact our KY Aviation Planner, Stephen Wilson at 901-322-8185, or by email at Stephen.Wilson@faa.gov.

Sincerely,



Phillip J. Braden
Manager, Memphis ADO

cc: Charles Miller, LRAA

Section 106 Documentation

Louisville Regional Airport Authority
Bowman Field Airport Area Safety Program

Inventory of trees for runways 6, 24 and 33

Summary of findings

Prepared for:

Hanson Engineering

1601 Belevedere Rd. Suite 303 South

West Palm Beach, Florida 33406

Prepared by:

Beechwood Trees & Gardens, Inc.

Paul G. Clinton, arborist

7906 Floydshurg Road

Crestwood, Kentucky 40014

Introduction:

This tree inventory was conducted to gather information for the Bowman Field Airport Area Safety Program. The inventory serves two main purposes: 1. To identify the objects (trees) that have penetrated into restricted air space and those close to penetrating, and 2. To evaluate the tree population for an environmental report being prepared for the Federal Aviation Administration.

The trees have all been numbered and locations charted on a map. Each tree was identified and assessed for size, age, condition, and estimated maximum height. The identity of the trees is listed by common name and botanical name. In some cases the exact species could not be identified from a distance but the genus could be determined. For instance several ash species were probably present but all ash trees were grouped into genus *Fraxinus*. The size of the trees was estimated at a distance and grouped into size categories.

Estimated maximum height was determined by referencing several sources of tree height information and averaging them. References were: Mary Warton's Trees & Shrubs of Kentucky, Michael Dirr's Manual of Woody Landscape Plants, Kentucky Division of Forestry, Kentucky's State Champions, Mitchell & More, The Trees of North America, and William Harlow, Textbook of Dendrology.

Analysis:

The complete tree inventory of runways 6, 24 and 33 consists of 3,512 trees. The dominant species, listed by abundance are: flowering dogwood, hackberry, Bradford pear, mulberry, red maple, American holly, Silver maple, black cherry, Japanese maple, sugar maple.

Most of the trees inventoried (approximately 70%) were planted by the land owners or land managers with the other 30% consisting of species not typically planted but commonly found growing in fence rows and unmanaged areas. Many of these natural growth trees are species that grow very tall and may grow into the restricted air space.

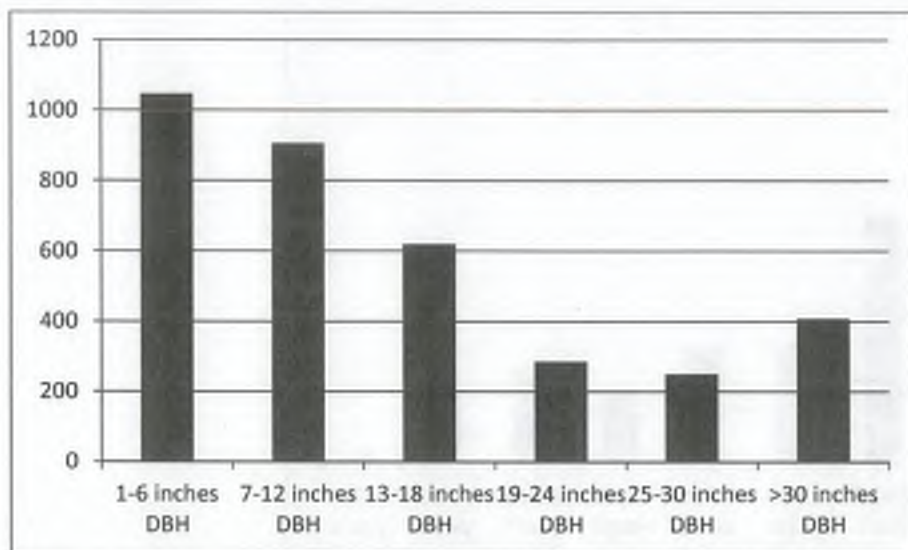
The distribution of tree sizes shows that many of the trees are young and or small growing species. In the runway 33 neighborhoods many young trees are growing in the fence rows and drainage ways. In the runway 6 neighborhood the trees are older and consist of many small-growing species like dogwood and Japanese maples with fewer fence row trees.

An analysis of the estimated maximum heights shows that many of these trees are species that will grow very large and may grow into the restricted air space. Over 50% of the trees present were species that will grow over 70 feet tall.

The majority of the trees inventoried are less than 25 years old. Many of the young trees are growing up in unattended fence rows particularly in the runway 33 neighborhood. Many recently planted trees were counted showing that people are actively planting a lot of new trees.

The majority of the trees are healthy. The soils in this area are deep and fertile and ideal for trees.

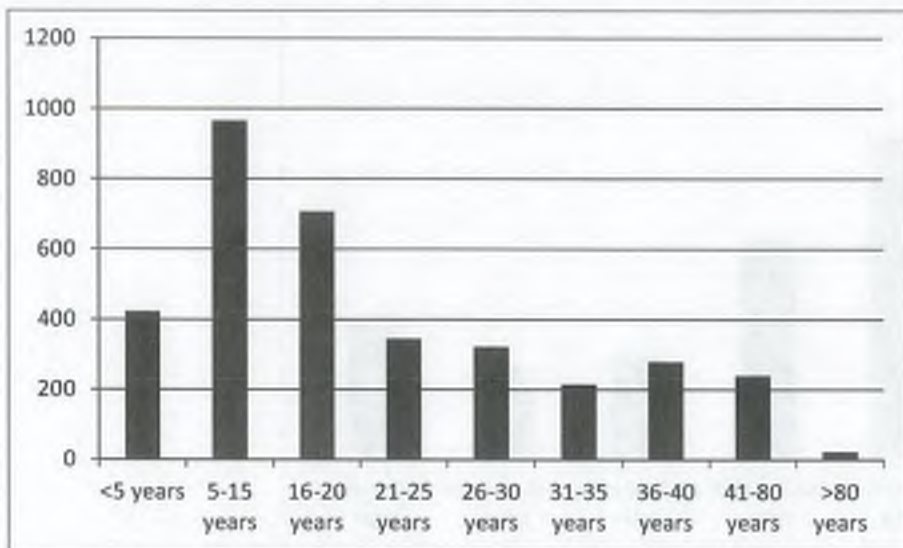
Tree sizes:



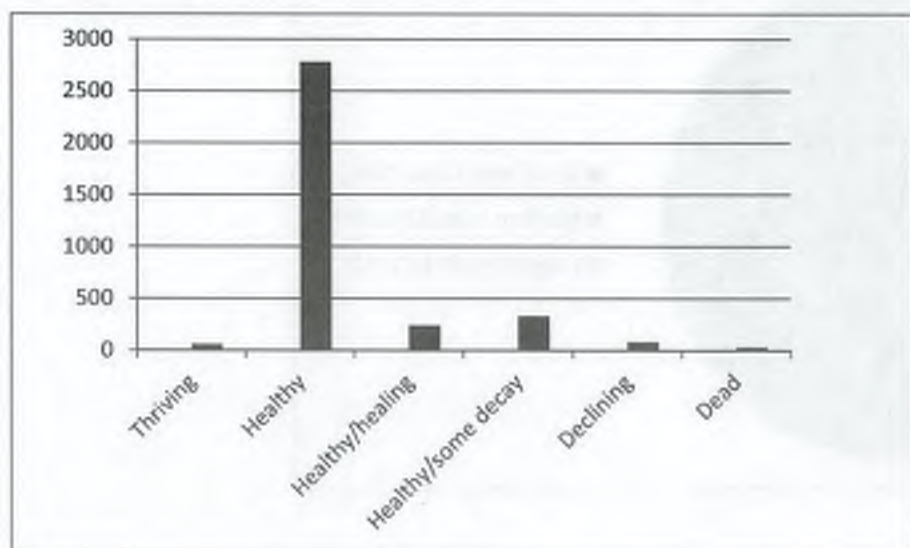
Estimated Maximum Heights:



Tree age categories:



Tree condition class:



Appendix 5:

DRAFT

Botanical Name	Common Name	Runway 6	Runway 24	Runway 33	Runway 15	Totals
<i>Abies concolor</i>	White fir	3				3
<i>Acer amurense</i>	Amur maple	2				2
<i>Acer buergerianum</i>	Trident maple	3				3
<i>Acer griseum</i>	Paperbark maple	9				9
<i>Acer henryi</i>	Henry maple	2				2
<i>Acer miyabe</i>	State Street maple	3				3
<i>Acer negundo</i>	Boxelder	9	262	37		308
<i>Acer palmatum</i>	Japanese maple	84	2	18		104
<i>Acer platanoides</i>	Norway maple	7		5		12
<i>Acer pseudoplatanus</i>	Sycamore maple	1				1
<i>Acer rubrum</i>	Red maple	118	27	95	4	244
<i>Acer sachalinum</i>	Silver maple	59	28	105		192
<i>Acer saccharum</i>	Sugar maple	70	14	48	6	138
<i>Aesculus sp.</i>	Flowering horsechestnut	13	3		25	41
<i>Ailanthus altissima</i>	Tree-of-heaven		3		12	15
<i>Albizia julibrissin</i>	Mimosa	2		4		6
<i>Amelanchier sp.</i>	Serviceberry	23	2	1		26
<i>Asimina triloba</i>	Pawpaw	7		3		10
<i>Betula nigra</i>	River birch	33	12	9		54
<i>Betula sp.</i>	Birch	2		1		3
<i>Carpinus betulus</i>	European hornbeam	6	1			7
<i>Carpinus caroliniana</i>	American hornbeam	1				1
<i>Carya glabra</i>	Pignut hickory		1			
<i>Carya illinoensis</i>	Pecan	2	4			6
<i>Carya ovata</i>	Shagbark hickory	1	2			3
<i>Castanea mollissima</i>	Chinese chestnut	3	6	1	2	12
<i>Catalpa speciosa</i>	Catalpa	11	11	9	1	32
<i>Cedrus sp.</i>	Cedar	1				1
<i>Celtis occidentalis</i>	Hackberry	69	191	74	95	429
<i>Cercidiphyllum japonicum</i>	Japanese pagodatree	1		1		2
<i>Cercis canadensis</i>	Redbud	94	9	15	3	121
<i>Chamaecyparis obtusa</i>	Hinoki falsecypress	6				6
<i>Chionanthus virginicus</i>	Fringetree	3			3	6
<i>Cladrastis kentukea</i>	American Yellowwood	12	3			15
<i>Cornus amomum</i>	Silky dogwood				1	1
<i>Cornus florida</i>	Flowering dogwood	223	11	72	3	309
<i>Cornus kousa</i>	Kousa dogwood	20	6			26
<i>Cornus mas</i>	Cornelian cherry dogwood	5				5
<i>Corylus avellana</i>	Filbert	3				3
<i>Cotinus obovatus</i>	Smoketree	6				6
<i>Crataegus phaenopyrum</i>	Washington hawthorn	4	2		3	9
<i>Cryptomeria japonica</i>	Japanese cedar	28				28
<i>Diospyros virginiana</i>	Persimmon	3	1			4
<i>Fagus grandifolia</i>	American beech	4	1			5

<i>Fagus sylvatica</i>	European beech	3		2		5
<i>Franklinia alatamaha</i>	Franklin tree	3				3
<i>Fraxinus</i> sp.	Ash	26	188	25	14	253
<i>Ginkgo biloba</i>	Ginkgo	20	3	1		24
<i>Gleditsia triacanthos</i>	Honeylocust	12	5		5	22
<i>Gymnocladus dioica</i>	Kentucky coffeetree	7	2			9
<i>Halesia diptera</i>	Mountain silverbell	2				2
<i>Halesia carolina</i>	Silverbell	1				1
<i>Hamamelis virginiana</i>	Witchhazel	3				3
<i>Ilex crenata</i>	Foster holly	94	5	5		104
<i>Ilex opaca</i>	American holly	145	5	39	2	191
<i>Juglans cinerea</i>	Butternut			1		1
<i>Juglans nigra</i>	Black walnut	19	94	8	27	148
<i>Juniperus communis</i>	Common juniper	2				2
<i>Juniperus chinensis</i>	Chinese juniper	23		7	1	31
<i>Juniperus virginiana</i>	Eastern redcedar	75	16	18	1	110
<i>Koeleruteria paniculata</i>	Goldenrain tree	9	2	1		12
<i>Lagerstroemia indica</i>	Crape myrtle	56		16		72
<i>Liquidambar styraciflua</i>	Sweetgum	8		1		9
<i>Liriodendron tulipifera</i>	Tulip tree	15	11	16	4	46
<i>Maclura pomifera</i>	Osage orange	1	5	3		9
<i>Magnolia grandiflora</i>	Southern magnolia	23	4	12		39
<i>Magnolia</i> sp.	Magnolia	36	1	6		43
<i>Magnolia stellata</i>	Star magnolia	4		2		6
<i>Magnolia virginiana</i>	Sweetbay magnolia	21	4	1		26
<i>Magnolia x soulangeana</i>	Saucer magnolia	7	6	6		19
<i>Malus</i> sp.	Crab apple	36	5	22		63
<i>Metasequoia glyptostroboides</i>	Dawn redwood	2	5			7
<i>Morus</i> sp.	Mulberry	91	132	118	6	347
<i>Nyssa sylvatica</i>	Blackgum	10				10
<i>Parrotia persica</i>	Persian ironwood	3				3
<i>Paulownia tomentosa</i>	Paulownia		3			
<i>Picea abies</i>	Norway spruce	37	28	5	5	75
<i>Picea alba</i>	White spruce	1	1			2
<i>Picea omorica</i>	Serbian spruce	1	3	1		5
<i>Picea orientalis</i>	Oriental spruce				17	17
<i>Picea pungens</i>	Blue spruce	35	11	11	1	58
<i>Pinus nigra</i>	Austrian pine	3	6	1	1	11
<i>Pinus parviflora</i>	Japanese white pine	4				4
<i>Pinus sylvestris</i>	Scotch pine		1		8	9
<i>Pinus strobus</i>	Eastern white pine	67	118	13		198
<i>Pinus thunbergii</i>	Japanese black pine	1				1
<i>Pistacia chinensis</i>	Pistachio	1				1
<i>Platanus occidentalis</i>	American sycamore	1	56	4	5	66
<i>Platanus x acerifolia</i>	London planetree	1				1
<i>Populus deltoides</i>	Cottonwood	1	15	2		18
<i>Prunus persica</i>	Peach			1		1
<i>Prunus serotina</i>	Black cherry	53	28	29	31	141
<i>Prunus</i> sp.	Flowering cherry	54	3	22		79
<i>Prunus virginiana</i>	Chokeberry	2		1		3

<i>Pseudotsuga menziesii</i>	Douglas fir	5				5
<i>Pyrus calleryana</i>	Bradford pear	32	1	194		227
<i>Quercus acutissima</i>	Sawtooth oak	3				3
<i>Quercus alba</i>	White oak	6	5	3		14
<i>Quercus bicolor</i>	Swamp white oak	5			1	6
<i>Quercus coccinea</i>	Scarlet oak	2				2
<i>Quercus imbricaria</i>	Shingle oak	4	2			6
<i>Quercus macrocarpa</i>	Bur oak	3	2			5
<i>Quercus nigra</i>	Water oak		1			
<i>Quercus pagoda</i>	Cherrybark oak	4				4
<i>Quercus palustris</i>	Pin oak	58	45	28	5	136
<i>Quercus phellos</i>	Willow oak	12	17	1	1	31
<i>Quercus prinus</i>	Chestnut oak	5	1			6
<i>Quercus robur</i>	English oak	2				2
<i>Quercus rubra</i>	Red oak	12	15	6	5	38
<i>Quercus sp.</i>	Oak	1				1
<i>Robinia pseudoacacia</i>	Black locust	7	47	8		62
<i>Salix babylonica</i>	Weeping willow	1	1			2
<i>Salix matsudana</i>	Peking willow	3		3		6
<i>Salix sp.</i>	Willow oak	2	5			7
<i>Sassafras albidum</i>	Sassafras	3				3
<i>Styrax japonicus</i>	Japanese snowbell	1				1
<i>Syringa reticulata</i>	Japanese tree lilac	7				7
<i>Taxodium ascendens</i>	Pond cypress	3				3
<i>Taxodium distichum</i>	Bald cypress	2	28	2		32
<i>Taxus sp.</i>	Yew	3				3
<i>Thuja sp.</i>	Arborvitae	34	142	2		178
<i>Tilia americana</i>	American basswood	1	2			3
<i>Tilia cordata</i>	Little leaf linden	4	3		3	10
<i>Tsuga canadensis</i>	Hemlock	44	2	2		48
<i>Ulmus x</i>	Elm	4				4
<i>Ulmus americana</i>	American elm	34	149	36	10	229
<i>Ulmus parviflora</i>	Paperbark elm	2	1			3
<i>Ulmus pumila</i>	Siberian elm	15	7	21		43
<i>Ulmus x hollandica</i>	Jacqueline Hillier dwarf elm	1				1
<i>Viburnum prunifolium</i>	Blackhaw	7				7
<i>Zelkova serrata</i>	Zelkova	3	22	1		26
		Runway 6	Runway 24	Runway 33	Runway 15	
		2307	1866	1205	311	5689

RUNWAY 6 & 33 APPROACH MAINTENANCE PROGRAM
AGE COMPARISON OF TREES ACTUAL to ESTIMATE

Tree Number	Address	Type	SIZE		AGE	
			Estimated	Actual	Estimated	Actual
02D	Drayton Drive	Silver maple	30-36"	34"	41-80	40
03D	Drayton Drive	White pine	12-18"	17"	26-30	40
29D	Drayton Drive	Silver maple	36+"	42"	41-80	35
01G	Gladstone ROW	Pin oak	30-36"	33"	36-40	42
03G	Gladstone ROW	Silver maple	24-30"	27"	31-35	35
04K	Kent Road	Red maple	30-36"	34"	41-80	54
04L	Landor Ave	Silver maple	30-36"	33"	41-80	43
06L	Landor Ave	Siberian elm	36+"	44"	41-80	62
07L	Landor Ave	Siberian elm	30-36"	33"	41-80	63
08L	Landor Ave	Silver maple	36+"	40"	41-80	65
11L	Landor Ave	Hackberry	24-30"	25"	36-40	45
17L	Landor Ave	Hemlock	0-12"	6"	16-20	27
18L	Landor Ave	Hemlock	0-12"	6"	16-20	27
19L	Landor Ave	Hemlock	0-12"	7"	16-20	27
20L	Landor Ave	Ash	24-30"	28"	16-20	27
15A	Drayton Drive	Pin oak	36+"	48"	80+	56
16A	Drayton Drive	Silver maple	36+"	52"	80+	55
17A	Drayton Drive	American elm	12-18"	16"	26-30"	12
20A	Landor Ave	Black cherry	24-30"	27"	36-40	42
21A	Landor Ave	Black cherry	24-30"	26"	36-40	41
22A	Landor Ave	American elm	24-30"	26"	36-40	40
23A	Landor Ave	Black walnut	30-36"	36"	5-15 ??	40
24A	Landor Ave	Black walnut	18-24"	18"	31-35	35
25A	Landor Ave	Tulip poplar	30-36"	30"	36-40	45
26A	Landor Ave	Catalpa	24-30"	25"	36-40	45
27A	Landor Ave	Black cherry	18-24"	20"	31-35	24
28A	Landor Ave	Black walnut	18-24"	20"	31-35	28
29A	Landor Ave	Tulip poplar	12-18"	15"	26-30	20
30A	Landor Ave	Sugar maple	12-18"	15"	26-30	24
31A	Landor Ave	American elm	7-12"	12"	26-30	15
32A	Landor Ave	Ginkgo	7-12"	9"	21-25	15
33A	Landor Ave	Blue spruce	7-12"	12"	21-25	27
34A	Landor Ave	Blue spruce	7-12"	12"	21-25	27
35A	Landor Ave	Blue spruce	7-12"	10"	21-25	27



Haworth Professional Services Inc.

General Methods

www.kaplan.com

Research Professional: Please email the results to info@businessinsights.com

© 2000 Blackwell Science Ltd, *Journal of Clinical Pharmacy and Therapeutics*, 25, 1-6

phone (603) 883-6577

Professorial Lecturer C

#1146 06/06/04

1

BOWMAN FIELD

QUESTIONS

2875 7471, ORONO, ME 04468

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

SECTION 105
COORDINATION

Age	Gender	Year	Month	Day	Hour	Minute	Second	Millisecond	Microsecond	Nanosecond	Picosecond	Femtosecond	Attosecond	Zeptosecond	Yoctosecond
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
11	11	11	11	11	11	11	11	11	11	11	11	11	11	11	11
12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
14	14	14	14	14	14	14	14	14	14	14	14	14	14	14	14
15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15
16	16	16	16	16	16	16	16	16	16	16	16	16	16	16	16
17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
21	21	21	21	21	21	21	21	21	21	21	21	21	21	21	21
22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24
25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25
26	26	26	26	26	26	26	26	26	26	26	26	26	26	26	26
27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27
28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
29	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29
30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

HAWTHORNE
NEIGHBORHOOD
TREES
APPROXIMATELY
25 YEARS OLD
OR OLDER



The location of the trees and their age are an approximation

HANSON
 HANSON PROFESSIONAL SERVICES, INC.

Office: 1000 Main Street
 Seneca, New York 13153
 Phone: (315) 417-1111
 Fax: (315) 417-1112
 Email: info@hansonps.com

BOWMAN FIELD

2015 TREE INVENTORY
 LOCATION: 106000

**BOWMAN FIELD
 AIRPORT AREA
 SAFETY
 PROGRAM**

**SECTION 106
 COORDINATION**

NO.	DATE	DESCRIPTION
1	03/21/2016	106000
2	03/21/2016	106000
3	03/21/2016	106000
4	03/21/2016	106000
5	03/21/2016	106000
6	03/21/2016	106000
7	03/21/2016	106000
8	03/21/2016	106000
9	03/21/2016	106000
10	03/21/2016	106000

**SENECA
 GOLF COURSE
 TREES
 APPROXIMATELY
 25 YEARS OLD
 OR OLDER**

EXHIBIT 3

DRAFT Copy - NOT FOR PUBLICATION

DEED OF AVIGATION EASEMENT

This DEED OF EASEMENT made this _____ day of _____, 20____, by and between _____ ("Grantors") and the Louisville Regional Airport Authority, a body politic and corporate existing pursuant to KRS Chapter 183 ("Authority").

WITNESSETH:

That for the sum _____ Dollars (\$ _____) and other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Grantors do hereby grant, bargain, sell, and convey unto the Authority, its successors and assigns, with covenant of General Warranty, for the use and the benefit of the public for so long as Bowman Field Airport (the "Airport") is a public use airport, a perpetual avigation easement and an aircraft operations and aircraft noise easement ("Easement") and right of way appurtenant to the Airport for the unobstructed use and passage of all types of aircraft (as hereafter defined) in and through the air space above Grantor's property in Jefferson County, Kentucky, described in Exhibit A attached hereto and made a part hereof (the "Premises"), which airspace is further described as follows:

All that airspace above an imaginary plane over the Premises, the elevations of which plane are depicted by the elevation lines delineated on Exhibit B attached hereto and made a part hereof, to an infinite height above said imaginary plane.

A. Together with the continuing rights, without additional consideration, the Easement shall afford the Authority the following rights:

1. The right to prevent the erection or growth into the airspace within the Easement of any natural or artificial object, tree, or vegetation;
2. The right to remove or alter from the airspace within the Easement, or at the sole option of the Authority, as an alternative, to mark and light as an obstruction to air navigation, any such natural or artificial object, tree, or vegetation now or in the future upon the Premises within the Easement;
3. The right of reasonable ingress and egress to and from the Easement over the Premises for the aforesaid purposes upon reasonable notice;
4. On those occasions, if any, when it is necessary for the Authority to come upon the Premises for the purpose of trimming any natural or artificial object, tree, or vegetation encroaching within the Easement herein granted, the right to cut back or trim said vegetation ten (10) feet below the Easement herein granted to accommodate future growth of said vegetation.

B. Grantors further covenant and agree that they will not hereafter erect or permit the erection or growth upon the Premises of any building, structure, tree, bush, or other natural or artificial vegetation, or any part thereof, extending into the airspace contained in the Easement. Grantors further covenant and agree that they will not permit or suffer to remain upon the

DRAFT Copy - NOT FOR PUBLICATION

Premises any tree or other object extending into the airspace contained in the Easement, except to the extent that any buildings or structures existing on the date of this Deed of Aviation Easement may already encroach upon the Premises, in which case the Authority shall have the right to mark and light such encroachments as obstructions to air navigation, as indicated in Paragraph A(2), or enter the Premises and trim such vegetation, as indicated in paragraph A, above.

C. For the purpose of this instrument, the term "aircraft" shall mean any contrivance now known or hereafter invented, used or designed for navigation of or flight in the air, without limitation now or in the future as to speed, size, noise, characteristics, frequency or time of operation, by whomsoever owned or operated.

D. Grantors acknowledge that aviation is an expanding and developing activity, and that the degree to which one or more of the rights granted herein may affect or burden the underlying real estate may change or increase with the passage of time, and any such changes or increases shall not be a cause for Grantors, their successors and/or assigns to seek or recover additional compensation or damages.

E. The easements, servitudes and covenants imposed hereby shall be perpetual, shall benefit and be appurtenant to the Airport, shall be binding upon and inure to the benefit of the parties hereto and their respective personal representatives, heirs, successors, transferees and/or assigns; shall constitute covenants running with the land so long as the Airport continues to be operated as an airport; and shall not be amended, superceded, modified or released except by express written agreement of the parties hereto. If any provision hereof shall be determined void or unenforceable by a court of competent jurisdiction, all other provisions hereof shall remain in full force and effect. This instrument contains the entire understanding of the parties with respect to the subject matter hereof. This instrument shall be governed and construed in accordance with the laws of the Commonwealth of Kentucky and applicable federal laws and regulations.

IN TESTIMONY WHEREOF, witness the execution hereof by the Grantors as of the day and year first written above.

GRANTORS:

DRAFT Copy – NOT FOR PUBLICATION

COMMONWEALTH OF KENTUCKY)
) SS
COUNTY OF JEFFERSON)

The foregoing instrument was acknowledged before me this _____ day of _____, 20____, by _____, _____, and _____.

My commission expires: _____

Notary Public

THIS INSTRUMENT PREPARED BY:

Exhibit A	[Legal Description of the Grantor's Property]
Exhibit B	[Drawing Showing Elevation Lines of Imaginary Plane Over the Grantor's Property]

TO: Aaron Braswell, Federal Aviation Administration

FROM: Hanson Professional Services Inc.

DATE: March 21, 2016

SUBJECT: Response to Dr. Ames' comments

On October 21, 2015, Dr. David Ames delivered his evaluation of the Cultural Resources Evaluation for the Bowman Field Airport Area Safety Program to Pleas for the Trees. The FAA has asked that it be addressed as a part of the 106 submission to the Kentucky State Historic Preservation Office for the project. In short, the report purports that the CRE does not adequately evaluate the historic significance or context of the resources within the Area of Project Effect, nor does it adequately assess the contribution of the vegetation to the historic properties within which it occurs.

The CRE cites appropriate state and local reference works used to define the historic contexts used in the evaluation of properties adjacent to Bowman field where the proposed federal activity will take place. The Ames report is quick to acknowledge that the National Register Bulletin that he coauthored is not cited. However, it is common for determinations of eligibility not to cite every single resource applicable. What was cited directly allowed the researcher to define six (6) suburbs as meeting the criteria for eligibility to the National Register of Historic Places at the local level for their ability to exhibit trends in early to mid-20th century development of suburban Louisville. Seneca Golf Course was also included in the assessment but lacks sufficient integrity to be eligible for the National Register due to extensive remodeling over the years.

Once this historic context was established, the reviewer defined periods of significance for each of the subdivisions evaluated as eligible:

Seneca Vista 1937-1955
Seneca Manor 1937-1958
Kingsley 1926-1964
Seneca Village 1947-1954
Seneca Village 2 1951-1960
Hathaway 1927-1966

These periods of significance are correctly assessed in accordance with the NPS definition as "span of time in which the property attained the significance for which it meets the National Register criteria"; specifically, the period of development of the lots offered for sale and building. Further, it is acknowledged that features within the historic districts that contribute to our understanding of the historic nature of this context include all elements from that period of significance, including but not limited to the houses, garages, streets, sidewalks, fencing and vegetative growth, whether designed or casual.

It can be demonstrated from the attached exhibits that the vast majority of existing trees (specifically addressed here as they are the landscape feature affected by the proposed project) are less than 25 years old and therefore, do not date anywhere near the period of significance for any of the identified districts. Exhibits identify those trees that are believed to be over 50 years old and date either within the period of significance or close to it. Due to a very small number of these trees, it can be seen on the exhibit that the safety program will not affect enough of the historically significant canopy to have any effect on those qualities that cause these suburbs to be eligible to the National Register of Historic Places.



Chen, Y. and
Chen, Y. and

© 2000 Professional Publications, Inc.

[illegible]

Industrial Service Corporation

BOWMAN FIELD

BOYMAN FIELD
CHATTANOOGA, TN 37403
LOUISVILLE, KY 40203

BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAMSECTION 106
COORDINATION[illegible]

2001
 2002
 2003
 2004
 2005
 2006
 2007
 2008
 2009
 2010
 2011
 2012
 2013
 2014
 2015
 2016
 2017
 2018
 2019
 2020
 2021
 2022
 2023
 2024
 2025
 2026
 2027
 2028
 2029
 2030
 2031
 2032
 2033
 2034
 2035
 2036
 2037
 2038
 2039
 2040
 2041
 2042
 2043
 2044
 2045
 2046
 2047
 2048
 2049
 2050
 2051
 2052
 2053
 2054
 2055
 2056
 2057
 2058
 2059
 2060
 2061
 2062
 2063
 2064
 2065
 2066
 2067
 2068
 2069
 2070
 2071
 2072
 2073
 2074
 2075
 2076
 2077
 2078
 2079
 2080
 2081
 2082
 2083
 2084
 2085
 2086
 2087
 2088
 2089
 2090
 2091
 2092
 2093
 2094
 2095
 2096
 2097
 2098
 2099
 2100
 2101
 2102
 2103
 2104
 2105
 2106
 2107
 2108
 2109
 2110
 2111
 2112
 2113
 2114
 2115
 2116
 2117
 2118
 2119
 2120
 2121
 2122
 2123
 2124
 2125
 2126
 2127
 2128
 2129
 2130
 2131
 2132
 2133
 2134
 2135
 2136
 2137
 2138
 2139
 2140
 2141
 2142
 2143
 2144
 2145
 2146
 2147
 2148
 2149
 2150
 2151
 2152
 2153
 2154
 2155
 2156
 2157
 2158
 2159
 2160
 2161
 2162
 2163
 2164
 2165
 2166
 2167
 2168
 2169
 2170
 2171
 2172
 2173
 2174
 2175
 2176
 2177
 2178
 2179
 2180
 2181
 2182
 2183
 2184
 2185
 2186
 2187
 2188
 2189
 2190
 2191
 2192
 2193
 2194
 2195
 2196
 2197
 2198
 2199
 2200
 2201
 2202
 2203
 2204
 2205
 2206
 2207
 2208
 2209
 2210
 2211
 2212
 2213
 2214
 2215
 2216
 2217
 2218
 2219
 2220
 2221
 2222
 2223
 2224
 2225
 2226
 2227
 2228
 2229
 2230
 2231
 2232
 2233
 2234
 2235
 2236
 2237
 2238
 2239
 2240
 2241
 2242
 2243
 2244
 2245
 2246
 2247
 2248
 2249
 2250
 2251
 2252
 2253
 2254
 2255
 2256
 2257
 2258
 2259
 2260
 2261
 2262
 2263
 2264
 2265
 2266
 2267
 2268
 2269
 2270
 2271
 2272
 2273
 2274
 2275
 2276
 2277
 2278
 2279
 2280
 2281
 2282
 2283
 2284
 2285
 2286
 2287
 2288
 2289
 2290
 2291
 2292
 2293
 2294
 2295
 2296
 2297
 2298
 2299
 2300
 2301
 2302
 2303
 2304
 2305
 2306
 2307
 2308
 2309
 2310
 2311
 2312
 2313
 2314
 2315
 2316
 2317
 2318
 2319
 2320
 2321
 2322
 2323
 2324
 2325
 2326
 2327
 2328
 2329
 2330
 2331
 2332
 2333
 2334
 2335
 2336
 2337
 2338
 2339
 2340
 2341
 2342
 2343
 2344
 2345
 2346
 2347
 2348
 2349
 2350
 2351
 2352
 2353
 2354
 2355
 2356
 2357
 2358
 2359
 2360
 2361
 2362
 2363
 2364
 2365
 2366
 2367
 2368
 2369
 2370
 2371
 2372
 2373
 2374
 2375
 2376
 2377
 2378
 2379
 2380
 2381
 2382
 2383
 2384
 2385
 2386
 2387
 2388
 2389
 2390
 2391
 2392
 2393
 2394
 2395
 2396
 2397
 2398
 2399
 2400
 2401
 2402
 2403
 2404
 2405
 2406
 2407
 2408
 2409
 2410
 2411
 2412
 2413
 2414
 2415
 2416
 2417
 2418
 2419
 2420
 2421
 2422
 2423
 2424
 2425
 2426
 2427
 2428
 2429
 2430
 2431
 2432
 2433
 2434
 2435
 2436
 2437
 2438
 2439
 2440
 2441
 2442
 2443
 2444
 2445
 2446
 2447
 2448
 2449
 2450
 2451
 2452
 2453
 2454
 2455

EXHIBIT 1





BOWMAN FIELD
3815 TAYLORSVILLE RD
LOUISVILLE, KY 40206

SECTION 108
COORDINATION[illegible]

NAME
NORTH
QUINCY
RIVER
WALKER RD
NEWPORT, TN

STREET

SENECA
NEIGHBORHOOD
TREES
APPROXIMATELY
50 YEARS OLD
OR OLDER

EXHIBIT 2



The location of the trees and their age are an approximation

© 1999 by John Wiley & Sons, Inc. All rights reserved.
This publication is registered at the Copyright Clearance Center, Inc., 222 Rosewood Drive, Danvers, MA 01923.

BOWMAN FIELD

BOWMAN FIELD
2915 TAYLORVILLE RD
LOUISVILLE, KY 40295

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**SECTION 105
COORDINATION**

NO.	DATE	BY	DESCRIPTION

DATE: 10/1/2014
DRAWN BY: J. HANSON
CHECKED BY: J. HANSON
APPROVED BY: J. HANSON

**SENeca
GOLF COURSE
TREES
APPROXIMATELY
50 YEARS OLD
OR OLDER**

EXHIBIT 3



Comments from Consulting Parties

Comments
on
DOE

Hayman 1

Braswell, Aaron (FAA)

From: Michael <mhayman@iglou.com>
Sent: Friday, June 17, 2016 3:22 PM
To: Braswell, Aaron (FAA)
Subject: Comment on Bowman Field 106

Aaron,

Please acknowledge reception of this email.

The loss of 300 mature trees around Bowman Field is a permanent loss of canopy in a city that has the fastest growing heat island in the US according to Dr. Brian Stone, Georgia Tech University. Two for one smaller trees replaces about 1 percent of the canopy lost in the short term.

Long term, most replacement trees will not survive 50 years to maturity. Some homeowners opt not to take both replacement trees. The result is a severe and permanent loss that should be mitigated in neighborhoods and in Bowman Field itself.

Michael Hayman

Hayman 2

Braswell, Aaron (FAA)

From: Michael Hayman <mhayman@iglou.com>
Sent: Tuesday, June 21, 2016 1:24 PM
To: Braswell, Aaron (FAA)
Subject: Re: Comment on Bowman Field 106

Aaron, just to be clear, please add this to my comment. Thank you.

Bowman Field, the historic garden suburbs, and Olmsted-designed Seneca Park all have historic standing. All suffer loss that should be mitigated.

Consider this a formal objection to FAA's no adverse effects determination.

On Jun 21, 2016, at 10:16 AM, <Aaron.Braswell@faa.gov> <Aaron.Braswell@faa.gov> wrote:

Mr. Hayman,

Your comments have been received.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard
Suite 2250
Memphis, TN 38118
Phone: 901-322-8192

-----Original Message-----

From: Michael [mailto:mhayman@iglou.com]
Sent: Friday, June 17, 2016 3:22 PM
To: Braswell, Aaron (FAA)
Subject: Comment on Bowman Field 106

Aaron,

Please acknowledge reception of this email.

The loss of 300 mature trees around Bowman Field is a permanent loss of canopy in a city that has the fastest growing heat island in the US according to Dr. Brian Stone, Georgia Tech University. Two for one smaller trees replaces about 1 percent of the canopy lost in the short term.

KRC 1

Braswell, Aaron (FAA)

From: Ky Resources Council <fitzkrc@aol.com>
Sent: Monday, June 27, 2016 12:31 PM
To: Braswell, Aaron (FAA)
Cc: lebarras@gmail.com
Subject: 106 Review

Dear Aaron:

Regarding objections to the 106 review process for the Bowman Field Safety Program, KRC has previously endorsed the comments submitted by Angela Burton regarding inadequacies in the scope and analysis conducted. By this letter, I respectfully request that KRC be listed as endorsing as our own comments, those objections previously submitted by Plea For The Trees, Phyllis Hawkins, J. Chris McCoy, Michael Hayman, Angela Burton, Mimi Zinniel, President and CEO, Olmsted Parks Conservancy, Earl Jones, Chair, Olmsted Parks Conservancy Board (on behalf of the Board), and Seve Ghose, Metro Park.

Thank you very much.

Fitz

Tom FitzGerald
Director
Kentucky Resources Council, Inc.

Hawkins 1

Braswell, Aaron (FAA)

From: Phyllis Hawkins <drphawkins28@gmail.com>
Sent: Wednesday, June 22, 2016 5:04 PM
To: Phillip Branden
Cc: Braswell, Aaron (FAA); craig.potts@ky.gov
Subject: Section 106 Comments due by 4 p.m.

June 22, 2016

Aaron Braswell:

I disagree with and object to the FAA's determination of "no adverse effect" in the Section 106 process for the properties within the Area of Potential Effect. As I have stated before, the landscape has historic significance and the loss of hundreds of trees is an adverse effect to the setting.

Phyllis A Hawkins
2611 Kings Hwy
Louisville, KY 40205

McCoy 1

Braswell, Aaron (FAA)

From: Chris McCoy <j.chris.mccoy@gmail.com>
Sent: Thursday, June 23, 2016 3:34 PM
To: Braden, Phillip (FAA)
Cc: craig.potts@ky.gov; Braswell, Aaron (FAA)
Subject: Bowman Field - Section 106

Dear Mr. Braden:

Please accept this email as a formal objection to the FAA's "Determination of No Adverse Effect" under Section 106 of the National Historic Preservation Act for the undertaking at Bowman Field. Please find below a summary of my objections:

The finding fails to acknowledge that changes to the tree canopy of any of the neighborhoods near Bowman Field will adversely affect all nearby neighborhoods, irrespective of whether or not they are in the approach surfaces APE. Unacknowledged impacts include: a.) negative effect on the esthetic of the community at large, most of which is comprised of garden suburbs; b.) negative contribution to air quality from an increase in air traffic that will likely follow from Bowman Field's compliance with FAA standards; c.) an increase in noise that will accompany any increase in air traffic; d.) reduction in benefit of temperature amelioration provided by an existing tree canopy that will not be replicated by fulfillment of the proposed tree replanting program; e.) negative impact on property values from cumulative consequences of impacts above.

The finding fails to reflect the contribution to the Section 106 process of Dr. David Ames, whose expertise in the process is indisputable.

The finding has been achieved without legitimate consideration of any of the comments presented by consulting parties to the Section 106 process. Per the FAA's count, 76 separate comments were received from the consulting parties. Of these 76 comments, not a single one was considered of sufficient merit to effect any change to the CRE.

It is likely that the vast majority of residents in the neighborhoods surrounding Bowman Field would not want to see conditions imposed on the airport so detrimental to its operations that its viability would be in jeopardy, but those same residents do not want to see changes to the airport or its environs that would diminish property values or their quality of life. A determination of "No Adverse Effect" represents an unfortunate abandonment of the opportunity to find a balance between the interests of the airport and the interests of the surrounding communities.

Please acknowledge your receipt of this email.

Chris McCoy

Braswell, Aaron (FAA)

From: Leslie Barras <lebarras@gmail.com>
Sent: Friday, June 24, 2016 3:52 PM
To: Braden, Phillip (FAA)
Cc: Jennifer Ryall, KHC; Potts, Craig A. (Heritage Council); Braswell, Aaron (FAA); Dupree, Tommy (FAA)
Subject: PFTT - Bowman Field NAE Disagreement Submittal
Attachments: PFTT Objection to BFSP NAE determination_062416.pdf

Mr. Braden -

I have attached Plea For The Trees formal written disagreement with the FAA's no adverse effect findings in the Bowman Field Safety Program Section 106 consultation. These are also being sent via certified mail.

Would you acknowledge your receipt of this email?

Thank you,
Leslie Barras



June 24, 2016

Sent via email to Phillip.Braden@faa.gov and certified mail 7016 0910 0000 7559 4532

Mr. Phillip Braden
Manager, Memphis Airports District Office
Federal Aviation Administration
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2482

RE: Bowman Field Safety Program; Louisville, KY
Written Disagreement with "No Adverse Effect" Determination; 36 CFR §
800.5(c)(2)(ii)

Dear Mr. Braden:

Plea For The Trees (PFTT) submits this written disagreement with the Federal Aviation Administration's (FAA) proposed finding of "no adverse effect" with respect to the Bowman Field Safety Program, for the reasons described below. This submittal constitutes a formal "disagreement with finding" pursuant to the regulations of the Advisory Council on Historic Preservation (Advisory Council) that implement Section 106 of the National Historic Preservation Act. In particular, this written submittal is provided pursuant to 36 Code of Federal Regulations (CFR) § 800.5(c)(2)(ii).

Summary

Plea For The Trees submits this written disagreement with the FAA's proposed no adverse effect findings for: **Seneca Park** (including the Golf Course and parkland along Pee Wee Reese Road), **Seneca Vista Historic District**, **McCoy Manor Historic District**, **Seneca Manor Historic District** (within the unevaluated City of Seneca Gardens), **Kingsley Historic District**, **Seneca Village Historic District**, and **Seneca Village No. 2 Historic District**.

Overview – Adverse Effects are Associated with the Type and Function of Trees Removed and Targeted for Removal

The FAA and LRAA fail to understand that the adverse effects to the historic landscapes are associated primarily with the types and function of trees lost and targeted for removal, and not the absolute number of trees lost in relation to the absolute number of trees in each affected area in the Bowman Field environs. This lack of understanding is particularly revealed in the FAA's "Section 106 Effects Determination," which states that "Replacement trees would provide coverage similar to trees being replaced." (p. 4.)

PFTT has compiled specific information on 176 trees permanently removed and planned for removal in the Bowman Field Safety Program through Open Records Act and Freedom of Information Act requests. This is an incomplete list because the LRAA has not provided the complete inventory of trees removed in the first quarter of 2016. Of the 176 trees for which we have data, 84 percent are high-value native hardwoods and evergreens that have reached 90 feet or more in height or that, in maturity, would reach 90 feet or more in height. These canopy trees include pin oak, red oak, willow oak, red maple, silver maple, sugar maple, black cherry, black walnut, American elm, ash, tulip poplar, yellow poplar, honey locust, ginkgo, hackberry, spruce, hemlock, and baldcypress. As explained in the report of Dr. David L. Ames submitted to you by Plea For The Trees in October 2015, these canopy native trees have ecological, social, and cultural functions unique to their species and size. Their loss will never be replaced or mitigated by plantings of low-canopy trees.

Representative photos of these trees are provided below. They include trees removed in the first quarter of 2016 from Seneca Vista, and examples of trees targeted for removal in Seneca Village, Seneca Manor, and Seneca Park. The statement that "Replacement trees would provide coverage similar to trees being replaced" is dispelled by the realities of the removal program; two dogwoods will never "provide coverage" similar to the trees below. Adverse effects will occur from the permanent removal of the mature tree canopy in these garden suburbs and Seneca Park.







In addition, seven (7) percent of the 176 trees are native hardwoods and evergreens that have a maturity height of between 50 and 90 feet, e.g., Southern magnolia, sweet-bay magnolia, linden, boxelder, black locust, American yellowwood, catalpa, and eastern white pine, or are native understory trees (less than 50 feet in height at maturity), e.g., dogwood, redbud, crabapple. Only six (6) percent of the 176 trees represent non-native or cultivar species, none of which reach canopy heights of 90 feet or more, e.g., arborvitae, Foster holly, Siberian elm, mulberry, and one Bradford pear.

Clearly, the trees permanently lost from these historic landscapes are high-value, high-canopy native hardwoods and evergreens and their loss is a permanent adverse effect. The loss of the mid-story native trees also contributes to the adverse effects.

Contested Determinations of Eligibility

The FAA's proposed findings of no adverse effect are based upon the agency's determinations regarding whether a number of properties within the limited Area of Potential Effect (APE) are eligible for listing in the National Register of Historic Places and the specific criteria and qualifying characteristics regarding eligibility. The report titled "Historic Architectural Survey for the Bowman Field Airport Area Safety Program," (Brockington, December 2014) is relied upon by FAA in its "Section 106 Effects Determination," and, consistent with your reference, is hereafter referred to as the "CRE" (Cultural Resource Evaluation).

As stated in your May 24, 2016 Determinations of Effect cover letter to the State Historic Preservation Officer (SHPO), the no adverse effects determination is "predicated" on the FAA's assessment that the trees are not a contributing element to the historic resources within the APE. We want to be clear that PFTT's and other consulting parties' opposition to the scope of FAA's Determinations of Eligibility remain, based upon the CRE's:

- Failure to recognize the *landscapes and landscape design* as a contributing element to eligibility under Criteria A and C for Seneca Park, Seneca Vista, McCoy Manor (a part of

the unevaluated City of Seneca Gardens), Seneca Manor, Kingsley, Seneca Village, and Seneca Village No. 2.

- Incorrect time periods of significance and failure to address levels of significance.
- Failure to include outparcels as contributing infill in the historic districts in which they were built.

In the absence of achieving a consensus on the Determinations of Eligibility in the Section 106 consultation process, the FAA should submit all contested determinations to the Keeper of the National Register of Historic Places pursuant to the procedures outlined in 36 CFR Part 63. PFTT, and any other consulting party, also has the option of bringing these contested determinations to the Keeper's attention (*see* 36 CFR § 63.2(c)), as well as the Advisory Council's (*see* 36 CFR §§ 800.9 and 800.11).

Specific Districts for which there are Contested No Adverse Effect Findings

As described in the Advisory Council regulations,

[A]n adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. . . . Adverse effects may include reasonably foreseeable effects caused by the undertaking, be farther removed in distance or be cumulative.

36 CFR § 800.5(a)(1).

The regulation includes as an example of an adverse effect changes in a property's physical features within the property's setting that contribute to its historic significance. *Id.* at § 800.5(a)(2)(iv). The definition and examples form the basis for our position that the loss of mature tree canopies within the settings of Seneca Park and the historic residential districts are direct adverse effects and also cause visual adverse effects within each property and to surrounding historic districts.

The specific properties and districts upon which we disagree with your agency's proposed findings of no adverse effect are as follows and in the order they appear in the CRE:

- (1) **Seneca Park** – The CRE addresses this resource in Section 3.4 (pp. 55-67), beginning with the following summary:

"Property Type: Golf Course
 Period of Significance: 1933-1964 (pre re-design)
 Architecture: Casual, organic landscape
 General Integrity: Medium NRHP
 Status: Eligible (Criteria A) Safety
 Program Effect: No Adverse Effect"

Objections to the failure to evaluate Seneca Park in its entirety, and documentation regarding the National Register eligibility of the Park in its entirety (with an expanded period of significance) including its landscape, have been thoroughly documented in the administrative record previously. These submittals include, but are not limited to, Section 106 consulting party comments of PFTT (July 10, 2015), Metro Parks (July 9, 2015), the Olmsted Parks Conservancy (July 6, 2015), and Dr. David L. Ames (October 21, 2015), co-author of *National Register Bulletin, Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*. (2002) Washington D.C.: U.S. Department of the Interior, National Park Service National Register History and Education.

The CRE concludes that "approximately 34 trees" would be removed, although it is not clear if this number includes the trees along Pee Wee Reese Road, the original "automotive concourse" of the Olmsted firm's plan. In addition to the direct loss, adverse visual effects will be experienced in Seneca Vista Historic District and Kingsley Historic District. Additionally, the LRAA has removed mature trees within the Park since at least the early 1990s and no Section 106 consultation was conducted whatsoever. The cumulative effects of these removals have not been addressed in the proposed no adverse effects finding.

- (2) **Seneca Vista Neighborhood** - The CRE addresses this district in Section 3.5 (pp. 68-79), beginning with the following summary:

"Property Type: Early Automobile Suburb

Period of Significance: 1937-1950

Architecture: Mid-Twentieth Century (Largely Minimal Traditional; examples of Cape Cod and Colonial Revival)

General Integrity: Moderate

NRHP Status: Eligible (Criteria A, B, and C)

Safety Program Effect: No Adverse Effect"

Objections to the failure to recognize that the landscape contributes to the historic setting have been thoroughly documented in the administrative record previously, including comments submitted to your agency in July 2015 by PFTT, Angela Burton, Michael Hayman, Phyllis Hawkins, and Chris McCoy, as well as Dr. Ames' report referenced above.

Seneca Vista has borne the brunt of the Bowman Field Safety Program, both in terms of the tree removals already conducted in the first quarter of 2016 (and those planned following acquisition of avigation easements (an additional ten [10]) and the seven (7) trees along Pee Wee Reese Road/Seneca Park, essentially in the back yards of the Drayton Drive residents. No evaluation of effects has been made for the fourteen (14) or so avigation easements to be purchased or condemned. Additionally, the LRAA has removed mature trees within the Seneca Vista Historic District since acquiring 51 easements in the early 1990s, and removed trees and demolished homes when it purchased several tracts in Seneca Vista at that time. No Section 106 consultation was conducted whatsoever for any of these federally funded actions. The cumulative effects of these removals, which are visually striking within and outside the district, have not been addressed in the proposed no adverse effects finding.

- (3) **McCoy Manor** - The CRE addresses this district in Section 3.6 (pp. 80-86), beginning with the following summary:

"Property Type: Post-War Suburb

Period of Significance: 1949-1957

Architecture: Mid-Twentieth Century Single and Multi-Family Residences (Examples of Ranch, Minimal Traditional, Cape Cod, and Colonial Revival)

General Integrity: High

NRHP Status: Eligible (Criteria A and C)

Safety Program Effect: No Adverse Effect"

Objections to the failure to recognize that the landscape contributes to the historic setting of McCoy Manor have been thoroughly documented in the administrative record previously, including comments submitted to your agency in July 2015 by PFTT and Dr. Ames' report.

The CRE claims that there will be no adverse effects to McCoy Manor Historic District because no avigation easements will be acquired and no trees will be removed. However, there will be adverse effects to the larger garden suburb setting of which this development is a component, as well as adverse visual effects from the loss of mature tree canopy in the individual neighborhood historic districts adjacent to McCoy Manor.

- (4) **Seneca Manor Neighborhood (within the unevaluated City of Seneca Gardens, historically Seneca Gardens neighborhood)** - The CRE addresses this district in Section 3.7 (pp. 87-93), beginning with the following summary:

"Property Type: Post-War Suburb

Period of Significance: 1937-1958

Architecture: Mid-Twentieth Century (Largely Colonial Revival, with historic infill with Ranch and Split Level)

General Integrity: High

NRHP Status: Eligible (Criteria A and C)

Safety Program Effect: No Adverse Effect"

Objections to the failure to recognize that the landscape contributes to the historic setting of Seneca Manor, which should be evaluated within the City of Seneca Gardens, have been thoroughly documented in the administrative record previously, including comments submitted to your agency in July 2015 by PFTT, Angela Burton, Michael Hayman, Phyllis Hawkins, and Chris McCoy, as well as Dr. Ames' report referenced above.

At present, the CRE claims that one (1) tree, at 2625 Valletta, will be removed (depicted at the bottom of p. 3 of this submittal). An avigation easement is also proposed for acquisition by purchase or condemnation, and has not been addressed at all in the no adverse effect finding. Additionally, the LRAA may have removed mature trees within the Seneca Manor Historic District since at least the early 1990s and no Section 106 consultation was conducted whatsoever. The cumulative effects of any such removals have not been addressed in the proposed no adverse effect finding.

- (5) **Kingsley** - The CRE addresses this district in Section 3.8 (pp. 94-104), beginning with the following summary:

"Property Type: Early Automobile Suburb
 Period of Significance: 1926-1964
 Architecture: Early to Mid-Twentieth Century (Cape Cod, Craftsman, Tudor Revival, Colonial Revival, Dutch Colonial Revival; limited Ranch)
 General Integrity: High
 NRHP Status: Eligible (Criteria A, B, and C)
 Safety Program Effect: No Adverse Effect"

The draft CRE concluded that the landscape of Kingsley contributed to and was part of the historic district. The final CRE appears less clear in this regard and, to the extent, the text has been modified to remove or minimize the landscape elements, PFTT hereby objects.

The CRE claims that there will be no adverse effects to the Kingsley Historic District because no avigation easements will be acquired and no trees will be removed. However, there will be adverse effects to the larger garden suburb setting of which this development is a component—the earliest one—as well as adverse visual effects from the loss of mature tree canopy in Seneca Vista Historic District and Seneca Park, both adjacent to Kingsley.

- (6) **Seneca Village Neighborhood** - The CRE addresses this district in Section 3.9 (pp. 105-111), beginning with the following summary:

"Property Type: Post-War Suburb
 Period of Significance: 1947-1954
 Architecture: Minimal Traditional
 General Integrity: High
 NRHP Status: Eligible (Criteria A and C)
 Safety Program Effect: No Adverse Effect"

Objections to the failure to recognize that the landscape contributes to the historic setting of Seneca Village have been thoroughly documented in the administrative record previously, including comments submitted to your agency by PFTT and Dr. Ames.

At present, the CRE identifies twenty-nine (29) trees targeted for removal. This is a relatively small neighborhood and the visual impacts of trees already removed is striking, including the completely bare land now owned by the LRAA along Taylorsville Road, which is almost all of the frontage of the historic district. Twenty-three (23) avigation easements are also proposed for acquisition by purchase or condemnation, and have not been addressed at all in the no adverse effects finding. Additionally, LRAA has demolished homes after land acquisition and then removed mature trees within Seneca Village Historic District since at least the early 1990s, with no Section 106 consultation whatsoever. LRAA removed mature trees on its property and homes where it has avigation easements as recently as the first quarter of 2016 during the pending consultation. LRAA has not disclosed or released the number and types of trees affected, although

PFTT has sought this information in an Open Records Act request. The cumulative effects of these removals have not been addressed in the proposed no adverse effects finding.

- (7) **Seneca Village No. 2 Neighborhood** - The CRE addresses this district in Section 3.10 (pp. 112-123), beginning with the following summary:

“Property Type: Post-War Suburb
 Period of Significance: 1951-1960
 Architecture: Pre-Fabricated Housing; Multi-family Housing
 General Integrity: Moderate
 NRHP Status: Eligible (Criteria A and C)
 Safety Program Effect: No Adverse Effect”

Objections to the failure to recognize that the landscape contributes to the historic setting of Seneca Village No. 2 have been thoroughly documented in the administrative record previously, including comments submitted to your agency by PFTT and Dr. Ames.

At present, the CRE identifies nine (9) trees targeted for removal, including the tree depicted at the top of p. 3 of this submittal. This is a relatively small neighborhood. The visual impacts of these removed trees will be striking within the confined boundaries of the original development, and also because Seneca Village No. 2 and Seneca Village essentially appear as one “neighborhood” between Taylorsville Rd. and the Watterson (I-264). Nine (9) avigation easements are also proposed for acquisition by purchase or condemnation, and have not been addressed at all in the no adverse effects finding.

Documentation Relied Upon in this Disagreement Submittal

PFTT’s formal disagreements are based upon the following documentation relating to your agency’s proposed no adverse effect finding:

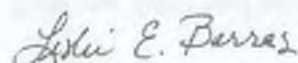
- May 24, 2016 email from Phillip Braden to consulting parties providing three attachments described as “FAA’s Section 106 Determination of Effect Cover letter to Kentucky Heritage Council (KY SHPO), Section 106 determination, and associated documentation (APE exhibit). The final CRE and supplement will be forwarded to you in a separate email from Hanson . . .”
- May 25, 2016 email (8:53 a.m.) from Shawn Gibbs, Hanson, to consulting parties providing a file-sharing link to access “the final CRE and supplement.”
- May 25, 2016 email (10:19 a.m.) from Shawn Gibbs, Hanson, to consulting parties providing a “new link to access the CRE and [s]upplement.”

If your agency is also relying upon any other documentation, required by 36 CFR § 800.11 “to enable any reviewing parties to understand its basis” in support of the FAA’s proposed no adverse effect findings, please let us know immediately. We find it necessary to seek this clarification since your letter of May 24, 2016 to the SHPO states that all of the consulting parties “will soon be receiving a hard copy of documents related to the proposed project,” which did not occur.

In closing, it is unfortunate that the FAA has not consulted within either the spirit or requirements of Section 106. We believe a meaningful consultation, as we encouraged beginning in January 2012, would have resulted in early, consensus-based agreements on the scope of eligibility determinations and resolution of adverse effects that would have facilitated the implementation of the Bowman Field Safety Program. We remain willing to dialogue with your agency, as the federal funding and approval agency, to resolve our differences.

We anticipate that the FAA will now proceed with the notices and processes required by the Advisory Council's regulations regarding written objections of consulting parties to the no adverse effect proposed findings, and we will evaluate our options regarding the contested eligibility determinations.

Sincerely,



Leslie E. Barras
221 N. Clifton Avenue #19
Louisville, KY 40206
leharras@gmail.com

c:
Craig Potts, State Historic Preservation Officer and Executive Director, Kentucky Heritage Council
Jennifer Ryall, Environmental Review Coordinator, Kentucky Heritage Council
Aaron Braswell, Environmental Specialist, FAA ADO Memphis

Zinniel 1

Braswell, Aaron (FAA)

From: Zinniel, Mimi M <Mimi.Zinniel@olmstedparks.org>
Sent: Thursday, June 23, 2016 9:37 AM
To: Braden, Phillip (FAA)
Cc: craig.potts@ky.gov; Braswell, Aaron (FAA)
Subject: Bowman Field Section 106 comments

Dear Mr. Braden:

As Consulting Party in the Section 106 Consultation process, I have the following comments to make regarding the Historic Architectural Survey for the Bowman Field Airport Area Safety Program.

I concur that safety is of great concern, and I agree that the removal of the necessary obstructions to safe approaches and departures from Bowman Field is paramount.

However, I have concerns about several items, which I believe can be easily addressed:

1. I object to the FAA's determination that there will be no Adverse Effects on Seneca Park. It is known that removal of trees adversely affects air temperature, air quality, water quality and many socio-economic factors. Moreover, the loss of trees is an adverse effect to the landscape setting of Seneca Park. I stated this in earlier comments during the Section 106 process.
2. I disagree with the FAA's determination that the Areas of Potential Effect do not include the entirety of Seneca Park. Seneca Park as a whole is impacted when any element of it is impacted. Just as a playground or ball field or water fountain in Seneca Park is not an entity unto itself, separate from the Park, neither is the Golf Course. Please adjust the Areas of Potential Impact to include Seneca Park as a whole.
3. I disagree with and object to the FAA's determinations of ineligibility for Seneca Park based on its landscape. Seneca Park as a whole is eligible for listing in the National Register of Historic Places based on its landscape elements. This includes the Golf Course, an element of the original Olmsted design.
4. I assert that the Historic Architectural Survey commissioned by the LRAA via its hired consultant Hanson Professional Services, and produced by Brockington and Associates, is inadequate, and request it not be allowed to stand as written. Brockington lists only one Seneca Park-related document in the Reference Listing: *Program for the 25th Amateur Public Links Championship of the United States Golf Association*. A review of the original Olmsted design for the Park, and subsequent recent landscape work in the Park planned and executed by Olmsted design experts, would have revealed much more historic context based on landscape elements. Brockington either disregarded or did not consult the in-depth and informative volumes of information easily accessible in Louisville Metro Parks and Recreation Department's files; the Filson Historic Society's files; the Olmsted National Historic Site in Brookline MA; and the Library of Congress in Washington DC. All these sources were and are available for research.

In summary:

- I request that the FAA revise its determination to acknowledge that the removal of trees will have adverse effects on Seneca Park.

Zinniel 2

- I request that Seneca Park be considered as a whole within the context of a broad look at its history and historical landscape.
- I request that Seneca Park be recognized as eligible for Historic Registry based on, among other things, its landscape.
- I request that the Brockington document not be accepted until it is revised to more accurately reflect the historic nature of the subject properties.

Finally, while I acknowledge that the removal of certain magnificent, century old canopy trees cannot in this case be avoided, I sincerely hope agreement can be reached on generous mitigation to offset, at least in small part, the negative economic, environmental and emotional impacts of the loss of these important public and private assets.

Mimi Zinniel
Section 106 Consulting Party
President/CEO Olmsted Parks Conservancy

Burton 1

Braswell, Aaron (FAA)

From: angela burton <angelakburton@hotmail.com>
Sent: Thursday, June 23, 2016 11:13 AM
To: Braden, Phillip (FAA)
Cc: Braswell, Aaron (FAA); craig.potts@ky.gov
Subject: Bowman Field Airport Area Safety Program Section 106 Consulting Party Comments

Dear Mr. Braden,

As a Consulting Party in the Section 106 Consultation process, I submit to you the following comments regarding the Historic Architectural Survey for the Bowman Field Airport Area Safety Program.

Safety is undoubtedly a top priority for everyone impacted by this program, and I understand that the removal of certain obstructions to safe approaches and departures from Bowman Field is necessary.

It cannot go without saying, however, that I have reservations about the following points, which I hope will be taken into wholehearted consideration:

I object to the FAA's determination that there will be no Adverse Effects on the surrounding neighborhoods or Seneca Park. The removal of trees, specifically large canopy trees, causes an unnecessary and adverse effect on existing wildlife, air temperature, air quality, water quality (drainage issues) and various socio-economic factors. Further, the loss of trees is an adverse effect to the landscape setting of our neighborhoods, namely Seneca Gardens, Seneca Vista and Kingsley to mention a few. Seneca Park itself is greatly impacted too for the same reasons.

I disagree with the FAA's determination that the Areas of Potential Effect do not include the entirety of surrounding neighbors and Seneca Park. When one area is affected, it is impossible that adjacent areas are not impacted as well. The neighborhoods are not boxed, as if in cubicles. Any act that directly affects certain homes and portions of neighborhoods, as well as Seneca Park will undoubtedly impact, even indirectly, the totality of its surroundings. Please include the Areas of Potential Impact to encompass Seneca Park as a whole and the surrounding neighborhood areas.

I disagree with and object to the FAA's determinations of ineligibility for Seneca Park and the Seneca Gardens, Seneca Vista and Kingsley based on its landscape. It is known that Seneca Park as a whole is eligible for listing in the National Register of Historic Places simply based on its landscape elements. This includes the Golf Course, an element of the original Olmsted design.

Further, I question whether the Historic Architectural Survey commissioned by the LRAA via its hired consultant Hanson Professional Services, and produced by Brockington and Associates, is adequate, and formally ask that it be revisited and rewritten thoroughly. It appears there are numerous elements that have been omitted wrongfully, some of which are details that should have been included and could have been cited via Louisville Metro Parks files, the Olmsted National Historic Site, the Filson Historic Society, etc. Many of these sources were and are available for research.

In summary:

Burton 2

I request that the FAA revise its determination to acknowledge that the removal of trees will have adverse effects on both the designated neighborhoods and Seneca Park.

I request that surrounding neighborhoods and Seneca Park be considered as a whole within the broad context regarding historical landscape.

I request that affected neighborhoods and Seneca Park be recognized as eligible for Historic Registry based certainly on landscape.

I request that the Brockington report not be accepted unless it is revised to be more inclusive of the historical facts of the properties being affected.

To conclude, though I am disheartened by the dramatic removal of particular impressive, old-growth canopy trees, I remain hopeful that all parties will reach a fair mitigation to balance the negative environmental, historical, economic and emotional impacts of the loss of this valued tree canopy.

Sincerely,
Angela Burton

Angela Burton
Founder/Chief Writing Motivator
Feet to the Fire Writers' Workshops
502.299.5861



<http://www.feettothefirewriters.com/message>
Facebook: <https://www.facebook.com/pages/Feet-to-the-Fire-Writers-Workshops/1501453800112033?fref=nf&pnref=story>
Twitter@onfirewriters

Earl Jones

Braswell, Aaron (FAA)

From: Jones, Earl F (GE Appliances) <EARLJONES@GE.COM>
Sent: Friday, June 24, 2016 9:47 PM
To: Braden, Phillip (FAA)
Cc: craig.potts@ky.gov; Braswell, Aaron (FAA); Mimi.Zinniel@olmstedparks.org; Beth Peabody; Bill Juckett; Brett Jeffreys; Brian Cahoe; Caroline Seay Borgman; Charlie Marsh; Chris Reid; Chuck Schnatter; Craig, Sherri; David Brown; David Dunn; David Power; Drew Perkins; Geoff White; Ghose, Seve; Gwen Tilton; John Bajandas; John Hollenbach; John Thomas; Jonathan Henney; Keith Jones; Kennedy Simpson; LouAnn Atlas; Mark Preston; Mary Anne Thornton; Mike Mays; Morgan Ward; Nancy Bush; Nancy Woodcock; Rob Auerbach; Rob Townsend; Robert Conroy; Robert Fulk; Tony Deye; Mary Ellen Wiederwohl; DeHart, Liz J; Perkins, Amanda; Wilhelmus, Anne; Roth, Frances; Ward, Susan G.; Wolff, Sarah C; Waltman, Major
Subject: Bowman Field 106 Comments

Dear Mr. Braden:

The Louisville Olmsted Parks Conservancy ("Conservancy") is a 501(c)(3) corporation that was founded in 1989 as a public private partnership with the City of Louisville. The conservancy's mission is to restore, enhance and forever protect the city's Frederick Law Olmsted-designed parks and parkways. Since 1989 the Conservancy has raised over \$30 million to fund capital investments in our Olmsted-designed parks.

Olmsted, known as the father of American landscape architecture, had designed New York's Central Park, Boston's Emerald Necklace, the grounds of the U.S. Capitol and other historical landscapes before he was prevailed upon by Louisville's city fathers to come to their city to design the city's parks. He combined the best of what he had learned in his previous efforts to design Louisville's system of parks and parkways, which comprise his most complete park system. Seneca Park, which was dedicated in 1928, was the last of the parks designed by the Olmsted firm.

On behalf of the Conservancy and its board of directors, I am submitting the following comments regarding the Historic Architectural Survey for the Bowman Field Airport Area Safety Program.^[1]

At the outset, the board wished to affirm its support for the continued operation of Bowman Field and the safety program's objective to improve operational safety of the airport. Safe operation of the airport is critical not only for the pilots and aviation users but also for neighbors and Seneca Park users. If improved safety requires removal of park trees that have intruded into flight paths, we do not object to their being lit, topped, or removed to ensure safe approaches and departures.

Having acknowledged that safety concerns require the removal of many native canopy trees, our responsibility as stewards of the park requires that we insist that adverse impacts to the park be recognized and minimized, that appropriate remediation be implemented and that the historical nature of the park be recognized and protected. Our more specific concerns are set forth below:

1. The Historic Architectural Survey produced by Brockington and Associates as it relates to Seneca Park is inadequate, is not informed by professional standards of historical preservation assessment and landscape design and must be revised.

Brockington lists only one Seneca Park-related document in the Reference Listing: *Program for the 25th Amateur Public Links Championship of the United States Golf Association*. More appropriate and relevant information regarding the park's historic landscape elements would have been provided by

the original Olmsted design for the Park and by recent landscape work done in the Park and planned by experts schooled in Olmsted's design.

If Brockington ignored this information, which is easily accessible in files in Louisville Metro Parks and Recreation Department; the Filson Historical Society; the Olmsted National Historic Site in Brookline MA; and the Library of Congress in Washington D.C., Brockington's professional dereliction is evident. If Brockington rejected the information, the basis for the rejection should have been discussed. Not having done so is additional evidence of failing to meet professional standards.

Seneca Park as a whole is eligible for listing in the National Register of Historic Places based on its landscape elements. This includes the Golf Course, an element of the original Olmsted design, and the original automobile concourse corridor, today Pee Wee Reese Road and park land on the west. The Brockington report's determination of ineligibility of the landscape and omission of the park as a whole are not supported by the evidence.

The Brockington report as it relates to Seneca Park does not meet required professional standards of historical preservation and historic landscape design assessment. For these reasons, it must be rejected.

- II. The determination that there will be no Adverse Effects on Seneca Park as an entity defies common sense and is not supported by the weight of the evidence.

Removal of trees adversely affects air temperature, air quality, water quality and, as a result, park enjoyment and usability. Moreover, the loss of trees adversely affects the Seneca Park landscape. Seneca Park as a whole is impacted when any element of it is. As an example, any single feature of a park-- a playground or ball field or water fountain-- is not just a stand-alone entity or separate from the Park itself. And, neither is the Golf Course or original automotive corridor. All areas, facilities and elements of the park together comprise the park and the Area of Potential Effect to be assessed is Seneca Park as a whole.

The determination that the Areas of Potential Effect do not include the entirety of Seneca Park must be reversed. The Board formally objects to the No Adverse Effect finding.

III. Conclusion

The Conservancy demands that the FAA acknowledge that the removal of trees will have adverse effects on Seneca Park and revise the determination to so find. In revising the determination, the agency must assess Seneca Park as a single, whole entity with an historical landscape as justified by its design and history. And, for this reason, the FAA must eschew any effort to deprive Seneca Park of eligibility for the National Register of Historic Places based on, among other things, omission of its landscape.

The Brockington report should not be accepted until it is revised to more accurately reflect the historic nature of the park.

The Conservancy is committed to working with the Louisville Regional Airport Authority, Louisville Metro Parks & Recreation, Bowman Field neighbors and other stakeholders to reach agreement on appropriate mitigation to offset as much as possible the negative historic, economic and environmental impacts on the park.

Sincerely,

Earl F. Jones,
Board Chair



**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

MATTHEW G. BEVIN
GOVERNOR

DON PARKINSON
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

REGINA STIVERS
DEPUTY SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

June 27, 2016

Phillip J. Braden
Manager
Memphis Airports District Office
Federal Aviation Administration
2862 Business Park Drive, Bldg G
Memphis, TN 38118-1555

RE: Determination of Effects; Bowman Field Airport Area Safety Program, Louisville KY

Dear Mr. Braden:

The Kentucky Heritage Council, State Historic Preservation Office has received for review and comment, the above referenced Determination of Effects evaluation for the Bowman Field Area Safety Program in Louisville, Kentucky. The purpose of this undertaking is to reduce tree heights so that nighttime instrument approach capabilities would be restored to the Bowman Field Airport. More than 100 mature trees in neighborhoods/areas adjacent to Bowman Field will be trimmed or removed entirely as part of this undertaking, in order to comply with safety requirements.

In accordance with 36 CFR §800, the FAA identified this project as an "undertaking" due to its potential to affect historic properties. Participants in the process were defined as the lead federal agency (FAA), the applicant (Louisville Regional Airport Authority (LRAA)), the Kentucky State Historic Preservation Officer (KYSHPO), Louisville Metro Government, and invited consulting parties (§800.3). A listing of those consulting parties is attached with this letter.

Through consultation under 36 CFR §800.4, the undertaking's Area of Potential Effect (APE) was defined, refined, and concurred upon, and the applicants' consultants (Brockington Cultural Resources Consultants and Hansen Professional Services, Inc.) submitted a Historic Architectural Survey, a Cultural Resource Evaluation report (CRE), and a supplemental CRE report. Due to certain inadequacies contained within the various reports (such as boundary demarcations for eligible historic properties and districts), KYSHPO and the consulting parties did not concur with the final determination of eligibility. While general agreement on the nature and location of eligible and listed historic properties was reached, a finalized CRE document containing all historic properties, with defined boundaries located within (or partially within) the APE, has yet to be received.

In accordance with 36 CFR §800.5 (Assessment of adverse effects), The FAA provided a Determination of Effects letter that was received on May 27, 2016. In that letter, the FAA determined that the following sites are eligible for or listed on the National Register of Historic Places:

- Bowman Field Historic District;
- Seneca Park;
- Seneca Vista Historic District;
- Seneca Manor Historic District;
- McCoy Manor Historic District;
- Kingsley Historic District;
- Seneca Village Historic District; and
- Seneca Village No. 2 Historic District.

The FAA recommended that the removal of mature trees from within the undefined boundaries of certain historic districts mentioned above would have no adverse effect because, "...the vegetative plantings are not a contributing element to eligibility of any of the resources."

In the regulations found at 36CFR§800.5 (a)(1), it is stated that, "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, *setting* [emphasis added], materials, workmanship, feeling or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." It is further stated in 36 CFR §800.5(a)(2)(iv) that, "Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance" is an example of an adverse effect.

The removal or alteration of more than 100 mature trees within historic districts such as the Olmstead designed Seneca Park has a particularly clear impact on integrity of setting. That said, it seems clear that certain safety program enhancements already proposed by the applicant could significantly reduce the overall impact. After reviewing the consulting party comments that were received in reply to the FAA's "Determination of Effects" letter, it appears that incorporation of the following conditions into the project will streamline the process and resolve disagreement between parties included through 36 CFR §800.3. Those conditions are as follows:

1. The applicant (LRAA) will compel its cultural resource management consultants to complete the CRE document as requested by the KYSHPO and consulting parties by September 30, 2016. This includes compiling all of the various elements of historic property evaluation into one comprehensive document and providing defensible boundaries for all eligible historic districts and a full evaluation of the Olmstead designed Seneca Park;
2. Trees will be assessed by a professional arborist as to whether they can be trimmed or should be removed;

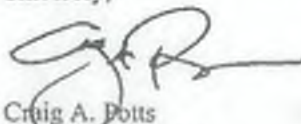
SHPO 3

3. All trees that are removed will be replaced with an appropriately diverse selection of low canopy trees at a ratio of two to one (2:1) within the above referenced historic districts. Homeowners may select less than two trees for each existing tree that is removed from their property, but the overall replanting ratio of two to one (2:1) will be maintained project-wide, regardless of homeowner preferences;
4. If a tree is removed in a landscaped area of the yard, the homeowner will be eligible for a re-landscaping allowance up to \$2,500.00. The landscaping allowance will be over and above the cost of replacement trees;
5. The LRAA will pay for all tree trimming and/or removal, stump removal and yard restoration directly related to this project;
6. All new landscape planting, including shrubs, perennials, ornamental grasses, and ground covers, will carry a one (1) year warranty; replacement trees will carry a two (2) year warranty by the LRAA; and
7. The aforementioned conditions, provisions numbered one (1) through six (6) above, will be added to the project's Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) as planned components of the project/undertaking.

So long as the referenced measures, provisions one (1) through seven (7) above, are adopted, implemented, and carried out, it is the determination of this office that the undertaking would avoid adverse effects. This undertaking is therefore provided a *conditional* No Adverse Effect finding. Please respond with your decision regarding the adoption of provisions one (1) through seven (7) above into the project design.

Should you have any questions, please contact me at 502-564-7005 x 111.

Sincerely,



Craig A. Potts
Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

Attachments: Invited consulting parties list, pursuant to 36 CFR §800.3

CC: Don Parkinson, Secretary, Tourism, Arts, and Heritage Cabinet
Leigh Powers, General Counsel, Tourism, Arts, and Heritage Cabinet
Skip Miller, Executive Director, Louisville Regional Airport Authority
Invited consulting parties

Invitation List – Bowman Field Safety Program

1. Skip Miller, Executive Director, LRAA
2. Craig Potts, Executive Director, Kentucky SHPO

Government representatives:

3. Mayor Greg Fischer
Louisville/Jefferson County Metro Government
Metro Hall / 4th Floor
527 W. Jefferson St.
Louisville, KY 40202
4. Louisville/Jefferson County Metro Government
Historic Preservation Officer
Planning & Design Services
444 S. 5th St.
Louisville, KY 40202
(502) 574-5210
5. Louisville/Jefferson County Metro Government
Michael J. Heitz, AIA, Director of Parks
Administration Building
1297 Trevilian Way
Louisville, KY 40213
(502) 456-8100
michael.heitz@louisvilleky.gov
6. City of Seneca Gardens
David Brown, Mayor
2547 Dell Road
Louisville, KY 40205-2309
david.brown@bhandt.com
7. City of Kingsley
Rebecca Beld, Mayor
P.O. Box 5515
Louisville, KY 40255-0515
Mayor: (502) 452-6478
City Clerk: Marilyn Whistler, info@cityofkingsley.org; (502) 458-7398

Affected Metro Louisville Council Members:

Mailing address: City Hall, 3rd floor, 601 W. Jefferson St., Louisville, KY 40202-2741

8. Tom Owen, 8th District
(502) 574-3455
Tom.owen@louisvilleky.gov
Legislative aide: Terra Long, terra.long@louisvilleky.gov
9. Bill Hollander, 9th District
(502) 574-1109
Bill.hollander@louisvilleky.gov
Legislative aide: Ms. Kyle Ethridge, kyle.ethridge@louisvilleky.gov
10. Brent Ackerson, 26th District
(502) 574-1126
Brent.ackerson@louisvilleky.gov
Legislative aide: Jeff Noble, jeff.noble@louisvilleky.gov

Organizations:

11. Big Spring Country Club
Mr. Kelly Maxwell, General Manager
5901 Dutchmans Lane
Louisville, Kentucky 40205-3275
(502) 459-2622 Work
(502) 693-3837 Cell
(502) 451-2988 Fax
kmaxwell@bigspringcc.com
www.bigspringcc.com
12. Olmsted Conservancy
Mimi Zinniel, Executive Director
1299 Trevilian Way
Louisville, KY 40213
(502) 456-8125 Work
Mimi.Zinniel@olmstedparks.org
13. Plea for The Trees
c/o Leslie Barras
2337 Frankfort Avenue, #350
Louisville, KY 40206
(502) 298-1505
leharras@gmail.com
14. Kentucky Resources Council
Tom Fitzgerald, Director
PO Box 1070
Frankfort, KY 40602
fitzkr@csl.com

Individuals (Submitted written requests)

15. Phyllis Hawkins (Close Proximity to APE)
2611 Kings Hwy.
Louisville, KY 40205
16. J. Chris McCoy (In APE)
2540 Kings Hwy.
Louisville, KY 40205
17. Angela Burton (In APE)
2629 Drayton Dr.
Louisville, KY 40205

Ghose 1

Braswell, Aaron (FAA)

From: Ghose, Seve <Seve.Ghose@louisvilleky.gov>
Sent: Friday, June 24, 2016 3:22 PM
To: Braden, Phillip (FAA)
Cc: Braswell, Aaron (FAA)
Subject: Seneca Park, Louisville, KY
Attachments: Louisville Metro Parks and Recreation Letter(s).pdf

Hello Mr. Braden,

Attached are two items related to the continuing work at Seneca Park and Bowman Field in Louisville.

In conversation with Mr. Braswell today, we agreed that Metro Parks and Recreation as the property owner of Seneca Park looks forward to working closely with you and other partners in moving the project forward. We also understand that the current NEPA findings do not preclude Seneca Park from ever being dropped from the process for historic designation.

If there are direct questions of me please contact me at the address below. Have a great weekend!

Regards,
Seve

Seve Ghose, CPRE/MOL
Director,
Louisville Metro Parks and Recreation
1297 Trevilian Way
Louisville, KY 40213.
502-574-PARK (7275)
Seve.Ghose@louisvilleky.gov



METRO PARKS
AND RECREATION



Ghose
(Blank)

... ..
... ..
... ..
... ..
... ..
... ..

... ..

... ..

... ..
... ..
... ..
... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

... ..

Ghose 2



DEPARTMENT OF METRO PARKS
LOUISVILLE, KENTUCKY

GREG FISCHER
MAYOR

SEVE GHOSE, CPRE
DIRECTOR

June 24, 2016

Sent via U.S. Mail and to Phillip.Braden@faa.gov

Mr. Phillip Braden
Manager, Memphis Airports District Office
Federal Aviation Administration
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482

Re: Bowman Field Safety Program; Louisville, KY

Dear Mr. Braden:

Metro Parks received your email communication of May 24, 2016 regarding the FAA's Section 106 Determination of Effect cover letter and Section 106 determination document for the above-referenced project.

Metro Parks appreciates that the Bowman Field Safety Program is needed to ensure the functionality of the airport and meet FAA standards. We continue in our willingness to work with the FAA and LRAA in a constructive manner to accomplish these objectives.

Our views on the eligibility of Seneca Park in its entirety, and the impact of the Program on the park was stated in the enclosed letter of July 9, 2015 to your office, and remain the views of the department.

If you have any questions, please do not hesitate to contact me at Seve.Ghose@louisvilleky.gov or 502-574-6186.

Sincerely,


Seve Ghose, CPRE/MOL
Director, Louisville Metro Parks and Recreation

Enclosure



A NATIONALLY ACCREDITED PARKS AND RECREATION AGENCY

WWW.LOUISVILLEKY.GOV

P.O. BOX 17280 LOUISVILLE KENTUCKY 40213-7280 PHONE: 502.456.8100 FAX: 502.456.3269 TDD: 502.456.8183
WEB: METRO-PARKS.COM WEB: BESTPARKSEVER.COM EMAIL: PARKS@LOUISVILLEKY.GOV



Michael J. Heltz, AIA
Director

Post Office Box 37280
Louisville, Kentucky
40233-7280

tel 502/456-8100
fax 502/456-3269
tdd 502/456-8183

web www.metro-parks.org
email parks@louisvilleky.gov

Date: July 9, 2015
To: Mr. Stephen Wilson (stephen.wilson@faa.gov)
From: John A. Swintosky, Louisville Metro Parks Landscape Architect
on behalf of Lisa Hite, Louisville Metro Parks Senior Planner
RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

On June 24, 2015 I participated in the Section 106 Consultation Meeting related to the Bowman Field Program. At that meeting, comments were made regarding Seneca Park. Here are Louisville Metro Parks' positions regarding the Bowman Field Safety Program and the current draft of the Cultural Resource Evaluation report.

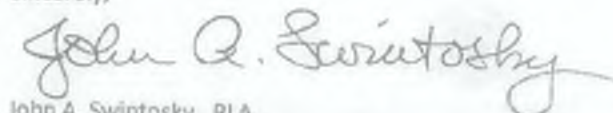
While Seneca Park has not been evaluated for eligibility or listing in the National Register of Historic Places, it is considered eligible by age (designed in 1928) and by association with the Olmsted design firm, which also designed the National Registered listed parks and parkways in Louisville. It is important that that Cultural Resource Evaluation for the Bowman Field Safety Program evaluate the Seneca Park resource as a whole – not just a portion of one designed element within the park. When this broader view is taken and national guidelines are followed, Metro Parks believes that Seneca Park will be determined to be eligible – including its landscape elements.

The golf course in Seneca Park is just one component of this historic park. It is not appropriate to isolate one designed element to determine value or integrity of an historic site. The golf course has retained its integrity as a designed landscape within the overall Seneca Park site. Any changes to the golf course – such as a significant number of tree removals and permanent alteration of the designed living landscape – will impact all park users and usage, and thus will be an adverse effect to the park as a whole.

The park property along Pee Wee Reese Road (that includes the American Cancer Society Living Grove of Memorial Trees) is an integral part of the park entry experience in the original 1928 Olmsted firm general plan for Seneca Park. This area of potential impact needs to be included in the identification and evaluation in the Cultural Resource Evaluation report. Removal of mature trees along the "automobile course" corridor will be a permanent change to the designed living landscape and an adverse effect to the park as a whole.

Thank you for your attention.

Sincerely,



John A. Swintosky, RLA
Louisville Metro Parks Landscape Architect



Greg Fischer
Mayor

Louisville
Metro Council



A nationally accredited
parks and recreation agency

Comments on
APE

Braswell, Aaron (FAA)

From: Leslie Barras <lebarras@gmail.com>
Sent: Tuesday, March 08, 2016 7:08 AM
To: Braswell, Aaron (FAA)
Cc: Potts, Craig A. (Heritage Council); Johnson, Cynthia; info@cityofkingsley.org; Owen, Tom; Hollander, Bill H.; Zinnel, Mimi M; David B-personal; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Skip.Miller@flylouisville.com; thaskell@hanson-inc.com; MJenkins@hanson-inc.com; RAnderson@hanson-inc.com; Dupree, Tommy (FAA); Braden, Phillip (FAA); patriciastallings@brockington.org; Tom FitzGerald; Rachel Kennedy; Phyllis Hawkins; jchris.mccoy@gmail.com; Nicolas.Laracuente@ky.gov; Johnson, Duane (FAA); Stovall, Jamal (FAA); Chris McCoy; Jennifer Ryall, KHC; Ethridge, Kyle; Long, Terra L
Subject: Bowman Field APE

March 8, 2016

Mr. Braswell,

This email communication responds to your email of February 22, 2016 requesting consulting party comments on APE Exhibit 20150922, regarding the Bowman Field Safety Program.

Plea For The Trees submitted extensive comments on the APE in its July 10, 2015 submittal to your office. It is not clear that any of our comments are addressed in this draft APE. Further, we understood from the last consultation meeting on August 20, 2015 that FAA based the visual effect APE on a field survey that would be provided to the consulting parties. This survey would be particularly helpful in understanding why the FAA believes there will not be *potential* visual effects in the area between (and including a portion of) Seneca Park and the historic neighborhoods north of the Runway 6 APE and in the historic neighborhoods between Runways 6 and 33. We have not yet been provided this document.

We believe the current draft exhibit continues to fail to reflect the Area of *Potential* Effect that fully accounts for the indirect visual and noise effects of the proposed removal of hundreds of mature canopy trees. The APE needs to be expanded to constitute a circular APE (the "full APE") that connects the outmost edge of each of the narrow APEs associated with the four runways and includes Bowman Field itself.

Leslie Barras

Plea For The Trees

On Mon, Feb 22, 2016 at 4:05 PM, <Aaron.Braswell@faa.gov> wrote:

Dear Consulting Party Members,

The Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO) hereby invites you to comment on the Area of Potential Effect (APE) for the proposed obstruction mitigation undertaking, known as the Area Safety Program, at Bowman Field Airport (LOU) in Louisville, Kentucky. The FAA MEM-ADO proposes to use the APE as defined in the attached drawing (APE Exhibit 20150922 [Note that proposed APE is shown as broken black lines around the airspace surfaces depicted in the drawing]) prior to completing identification and assessment of historic resources. As lead federal agency, the FAA MEM-ADO believes the proposed APE is reasonable based on the scope of the proposed undertaking. I would like to point out, that the FAA MEM-ADO has determined that an alternative using lights to mitigate obstructions would not be reasonable or practicable. The paragraphs below my signature provide more detail on the FAA MEM-ADO determination on the lighting alternative. An additional attachment will be sent momentarily as part of the lighting alternative determination. **In order to keep the Section 106 process moving forward, I ask that you submit comments to me by no later than 5:00 PM (ET) March 8, 2016.** Comments may be issued by email or mail. If you have any questions, please feel welcome to contact me by responding to this email or calling me at the number below.

Thank you,

Aaron Braswell

Environmental Protection Specialist

Federal Aviation Administration

Memphis Airports District Office

2600 Thousand Oaks Boulevard

Suite 2250

Memphis, TN 38118

Phone: 901-322-8192

Lighting Alternative Determination:

As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-1L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential, recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

- (1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.
- (2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.
- (3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.
- (4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.

Braswell, Aaron (FAA)

From: Zinniel, Mimi M <Mimi.Zinniel@olmstedparks.org>
Sent: Tuesday, March 08, 2016 9:25 PM
To: Braswell, Aaron (FAA)
Subject: Re: Bowman Field APE

Mr. Braswell -

I am concerned that the comments already submitted by me and others from Plea for the Trees regarding the inadequate APE parameters surrounding Bowman Field goal have not been considered by you, the FAA or the LRAA. Could you please provide a comprehensive list of the questions and concerns that have been voiced (in our meetings and in writing) with your responses to each? I am certain the Section 106 process can not succeed without your due consideration of our comments.

Thank you.
Mimi Zinniel

Mimi Zinniel
502-541-3202

On Feb 22, 2016, at 5:05 PM, "Aaron.Braswell@faa.gov" <Aaron.Braswell@faa.gov> wrote:

Dear Consulting Party Members,

The Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO) hereby invites you to comment on the Area of Potential Effect (APE) for the proposed obstruction mitigation undertaking, known as the Area Safety Program, at Bowman Field Airport (LOU) in Louisville, Kentucky. The FAA MEM-ADO proposes to use the APE as defined in the attached drawing (APE Exhibit 20150922 [Note that proposed APE is shown is broken black lines around the airspace surfaces depicted in the drawing]) prior to completing identification and assessment of historic resources. As lead federal agency, the FAA MEM-ADO believes the proposed APE is reasonable based on the scope of the proposed undertaking. I would like to point out, that the FAA MEM-ADO has determined that an alternative using lights to mitigate obstructions would not be reasonable or practicable. The paragraphs below my signature provide more detail on the FAA MEM-ADO determination on the lighting alternative. An additional attachment will be sent momentarily as part of the lighting alternative determination. **In order to keep the Section 106 process moving forward, I ask that you submit comments to me by no later than 5:00 PM (ET) March 8, 2016.** Comments may be issued by email or mail. If you have any questions, please feel welcome to contact me by responding to this email or calling me at the number below.

Thank you,

Aaron Braswell
Environmental Protection Specialist
Federal Aviation Administration
Memphis Airports District Office
2600 Thousand Oaks Boulevard

Lighting Alternative Determination:

As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-1L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential, recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

- (1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.
- (2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.
- (3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.
- (4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.

Braswell, Aaron (FAA)

From: Chris McCoy <j.chris.mccoy@gmail.com>
Sent: Wednesday, March 09, 2016 9:58 AM
To: Braswell, Aaron (FAA)
Subject: Fwd: Bowman Field APE
Attachments: EXB-LOU_Lighting_Alternative (small)-20151217.pdf; APE Exhibit (small) 20150922.pdf

Mr. Braswell,

There appears to be no difference between the most recent APE and its predecessor. I can only assume that all previous comments (my own and others) either were not considered or were for some reason completely discounted in the production of this latest version. As there has been no discernible change made to the APE, all of my previous comments on the issue still apply. A summary of those comments would be that the current APE is woefully inadequate in representing the true geography of the areas that will be affected by this project.

If it so happens that my previous comments on the APE were considered but dismissed, I do not think it unreasonable to expect a response from the FAA that provides an explanation for why my concerns (and the concerns of all who have previously commented) were not reflected in a redrawn APE.

Respectfully submitted,

Chris McCoy

----- Forwarded message -----

From: <Aaron.Braswell@faa.gov>
Date: Tue, Feb 23, 2016 at 1:40 PM
Subject: RE: Bowman Field APE
To: craig.potts@ky.gov, cynthia.johnson@louisvilleky.gov, info@cityofkingsley.org, tom.owen@louisvilleky.gov, bill.hollander@louisvilleky.gov, Mimi.Zinniel@olmstedparks.org, lebarras@gmail.com, d.l.b.2547@gmail.com, brent.ackerson@louisvilleky.gov, Brian.Sinnwell@flylouisville.com, Skip.Miller@flylouisville.com, thaskell@hanson-inc.com, M.Jenkins@hanson-inc.com, RAnderson@hanson-inc.com, Tommy.Dupree@faa.gov, Phillip.Braden@faa.gov, patriciastallings@brockington.org, fitzkrc@aol.com, director@preservationkentucky.org, drphawkins@juno.com, jchris.mccoy@gmail.com, Nicolas.Laracuente@ky.gov, Duane.Johnson@faa.gov, Jamal.Stovall@faa.gov

All,

It appears that some of you may not have received one or both emails sent yesterday due to email file size restrictions. I have resized the graphic images and have attached for your review. Below is the original email. The second email was used only to transmit one of the two graphic image files. If you have any questions, please let me know.

Thank you,

Aaron Braswell

Environmental Protection Specialist

Federal Aviation Administration

Memphis Airports District Office

2600 Thousand Oaks Boulevard

Suite 2250

Memphis, TN 38118

Phone: 901-322-8192

From: Braswell, Aaron (FAA)

Sent: Monday, February 22, 2016 4:05 PM

To: Potts, Craig A. (Heritage Council); cynthia.johnson@louisvilleky.gov; info@cityofkingsley.org; tom.owen@louisvilleky.gov; bill.hollander@louisvilleky.gov; Zinniel, Mimi M; Leslie Barras; d.l.b.2547@gmail.com; brent.ackerson@louisvilleky.gov; brent.ackerson@louisvilleky.gov; Sinnwell, Brian; Miller, Skip; Tim Haskell - Hanson (thaskell@hanson-inc.com); Melissa Jenkins; Rodger Anderson; Dupree, Tommy (FAA); Braden, Phillip (FAA); patriciastallings@brockington.org; Tom FitzGerald; director@preservationkentucky.org; Phyllis Hawkins; jchris.mccoy@gmail.com; 'Laracuenta, Nicolas (Heritage Council)'; Johnson, Duane (FAA); Stovall, Jamal (FAA)

Subject: Bowman Field APE

Dear Consulting Party Members,

The Federal Aviation Administration (FAA) Memphis Airports District Office (MEM-ADO) hereby invites you to comment on the Area of Potential Effect (APE) for the proposed obstruction mitigation undertaking, known as the Area Safety Program, at Bowman Field Airport (LOU) in Louisville, Kentucky. The FAA MEM-ADO proposes to use the APE as defined in the attached drawing (APE Exhibit 20150922 [Note that proposed APE is shown is broken black lines around the airspace surfaces depicted in the drawing]) prior to completing identification and assessment of historic resources. As lead federal agency, the FAA MEM-ADO believes the proposed APE is reasonable based on the scope of the proposed undertaking. I would like to point out, that the FAA MEM-ADO has determined that an alternative using lights to mitigate obstructions would not be reasonable or practicable. The paragraphs below my signature provide more detail on the FAA MEM-ADO determination on the lighting alternative. An additional attachment will be sent momentarily as part of the

lighting alternative determination. **In order to keep the Section 106 process moving forward, I ask that you submit comments to me by no later than 5:00 PM (ET) March 8, 2016.** Comments may be issued by email or mail. If you have any questions, please feel welcome to contact me by responding to this email or calling me at the number below.

Thank you,

Aaron Braswell

Environmental Protection Specialist

Federal Aviation Administration

Memphis Airports District Office

2600 Thousand Oaks Boulevard

Suite 2250

Memphis, TN 38118

Phone: 901-322-8192

Lighting Alternative Determination:

As currently indicated by the most recent aeronautical survey, there are approximately 200 trees (clusters) that impact Runways 6-24 and 15-33. In accordance with FAA's Advisory Circular 70/7460-1L, "Obstruction Marking and Lighting", lighting of all 200 tree (clusters) would not be required; however, even given this criteria, there still would be a substantial amount of lighting required as shown in the attached exhibit (Alternative 2, Exhibit 5).

The process to determine the use of obstruction lights to mitigate obstructions to airspace surfaces would (1) require the airport sponsor to develop an obstruction lighting layout similar to the attached exhibit; (2) this would include the obstruction light poles/structures that would need to be reviewed and approved under FAA's airspace evaluation process; (3) the obstruction lighting plan would then be submitted to the FAA Flight Standards Procedures Review Board for a formal review and acceptance as mitigation; (4) and, if approved, the airport sponsor could then proceed to implement the lighting plan as approved.

We have determined that even if an obstruction lighting plan to address the existing obstructions is developed, submitted, and approved, its impact on residential, recreational, and historic properties would be more intrusive visually and practically than an alternative of tree trimming or removal. Our determination is based on the following:

(1) While 200 lighting structures may not be required, there still would be considerable light emissions on numerous properties.

(2) The obstruction lights would have to be mounted on separate poles/structures and located higher than the obstructions they would address.

(3) The obstruction lights would require maintenance easements from property owners to supply power to and maintain the lights.

(4) The tree canopy surrounding the obstruction lights would still need to be kept below the lights. Therefore, there still would be a need to trim trees to maintain the effectiveness of the lighting and their acceptance as mitigation.

Other comments
during 106
process

2611 Kings Hwy.

Louisville, KY 40205

July 4, 2015

Stephen Wilson, Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118 2482

Re: Historic Architecture Survey for the Bowman Field Airport Area Safety Program

Mr. Wilson,

As one of the consulting parties and a City of Kingsley resident I was dismayed by the lack of acknowledgement and appreciation for the historical and current landscape environment for Kingsley and the other neighborhoods and public areas in the December, 2014 draft report by Patricia Stallings.

My background as a Director of a public library for over 16 years and the Kingsley Tree Board chair for 6 years tells me there were minimal original local historical references used. It appears local historians were not consulted who could have directed her to valuable primary source materials for the Frederick Law Olmsted designed Seneca Park, Seneca golf course or the Autobahn Parkway now called Pee Wee Reese Road.

A golf pro is not a knowledgeable contact on the historical perspective of the Seneca golf course. There is a treasure trove of historical documents and the original Olmsted design maps on the Olmsted parks at the park headquarters off Trevilian Way.

I would like to make another point, the Louisville Cancer Society's Memorial Grove along Pee Wee Reese Road on Seneca Park property was overlooked. The Memorial Grove will be significantly impacted in a harmful way and will need serious mitigation.

The Filson Historical Society on 3rd Street is another excellent place for original local historical information on the early interurban-era garden suburbs of Louisville.

A better copy of the 1946 aerial photo of the Bowman Field area and Kingsley will clearly show the rows of trees lining all the streets in Kingsley. A good perspective on the value our residents of the area put on the landscape is on the Photo Gallery on pleaforthetrees.org website. In addition the City of Kingsley has been granted Tree City USA status for the last 13 years. The continued care of our landscape should be evident.

Another very important reference tool and guide seems to have been totally ignored. The National Register Bulletin's Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places by David L Ames should be followed.

My residence may not be in the current APE but all my trees were surveyed last summer by Paul Clinton of Beechwood Trees and Nursery. Why? For a second swipe of the apple down the road? I am most certainly in the circle of harmful historic and environmental effects that will result from the proposed Bowman Field Area Airport Safety Program.

I am looking forward to a more accurate historical landscape survey and determinations of eligibility for the landscape features for Kingsley and other affected areas in the second draft.

Respectfully,

A handwritten signature in cursive script that reads "Phyllis A. Hawkins, D.C.".

Phyllis A. Hawkins, DC

DrPHawkins@Juno.com

502-458-6151



Sent via email (stephen.wilson@faa.gov)

July 6, 2015

Mr. Stephen Wilson
Community Planner
Memphis Airports District Office
Federal Aviation Administration
2862 Business Park Drive, Bldg. G
Memphis, TN 38118-1555

RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

On June 24, 2015 I participated in the Section 106 Consultation Meeting related to the Bowman Field Program. At that meeting I made the following comments regarding Seneca Park:

Seneca Park has not been evaluated for eligibility or listing in the National Register of Historic Places. It is important that that Cultural Resource Evaluation for the Bowman Field Safety Program evaluate the resource as a whole. We believe that when this broader view is taken and national guidelines are followed, the park will be determined to be eligible, including its landscape elements.

- The Golf Course is just one element in this historic park. It's not right to isolate one amenity. Any changes to the golf course will impact all park users and usage. The golf course keeps its integrity as a designed landscape. Tree removal will be an adverse effect to the park as a whole.
- The area along PeeWee Reese Road, with the American Cancer Society Grove of memorial trees, is an integral part of the park from the original Olmsted firm general design plan of 1928 and needs to be included in the identification and evaluation. Removal of mature trees along the "automobile course" will be an adverse effect to the park as a whole.

Thank you for your attention.

Sincerely,

Mimi Zinniel, President/CEO
Olmsted Parks Conservancy
1299 Trevilian Way
Louisville KY 40213



Michael J. Heitz, AIA
Director

Post Office Box 37280
Louisville, Kentucky
40233-7280

tel 502/456-8100
fax 502/456-3269
tdd 502/456-8183

web www.metro-parks.org
email parks@louisvilleky.gov

Date: July 9, 2015
To: Mr. Stephen Wilson (stephen.wilson@faa.gov)
From: John A. Swintosky, Louisville Metro Parks Landscape Architect
on behalf of Lisa Hite, Louisville Metro Parks Senior Planner
RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

On June 24, 2015 I participated in the Section 106 Consultation Meeting related to the Bowman Field Program. At that meeting, comments were made regarding Seneca Park. Here are Louisville Metro Parks' positions regarding the Bowman Field Safety Program and the current draft of the Cultural Resource Evaluation report.

While Seneca Park has not been evaluated for eligibility or listing in the National Register of Historic Places, it is considered eligible by age (designed in 1928) and by association with the Olmsted design firm, which also designed the National Registered listed parks and parkways in Louisville. It is important that that Cultural Resource Evaluation for the Bowman Field Safety Program evaluate the Seneca Park resource as a whole – not just a portion of one designed element within the park. When this broader view is taken and national guidelines are followed, Metro Parks believes that Seneca Park will be determined to be eligible - including its landscape elements.

The golf course in Seneca Park is just one component of this historic park. It is not appropriate to isolate one designed element to determine value or integrity of an historic site. The golf course has retained its integrity as a designed landscape within the overall Seneca Park site. Any changes to the golf course – such as a significant number of tree removals and permanent alteration of the designed living landscape – will impact all park users and usage, and thus will be an adverse effect to the park as a whole.

The park property along Pee Wee Reese Road (that includes the American Cancer Society Living Grove of Memorial Trees) is an integral part of the park entry experience in the original 1928 Olmsted firm general plan for Seneca Park. This area of potential impact needs to be included in the identification and evaluation in the Cultural Resource Evaluation report. Removal of mature trees along the "automobile course" corridor will be a permanent change to the designed living landscape and an adverse effect to the park as a whole.

Thank you for your attention.

Sincerely,

John A. Swintosky, RLA
Louisville Metro Parks Landscape Architect



Greg Fischer
Mayor
Louisville
Metro Council



A nationally accredited
parks and recreation agency

To Stephen.wilson@faa.gov

From M. Hayman

I attended the Section 106 meeting June 24, 2015 as a representative of the Kentucky Resources Council, of which I am a member, and the city of Seneca Gardens where I am City Arborist. These are my written comments expanding what I said with respect to Seneca Gardens (including Seneca Manor) and the neighborhoods within the draft Area of Potential Effect at the June 24 meeting.

Seneca Gardens was set up as a garden suburb, beginning with the obvious use of "Gardens" in the name of the city. Some of the original trees are still in Seneca Gardens.

In the summer of 1987 a downburst destroyed 100 of the city's mature oaks and maples. The destruction of so many of the original, mature trees caused an unease in the city which led to the city creating a City Arborist position, probably the only Kentucky sixth class city with a staff arborist, and a commitment of city funds to subsidize replacement canopy and decorative trees. Since the fall of 1988, the first replanting, Seneca Gardens has subsidized more than 1000 trees planted on the private properties of our 300 homeowners.

Over the last 27 years, diverse, durable, and beautiful species have been collected from all over the United States, to be planted in the neighborhood, creating what Dr. Richard Olsen, Director, National Arboretum in Washington, D.C, endorsed in an email of May 18, 2015, "Meet Mike Hayman from Kentucky, an incredible tree advocate and administrator for the country's first neighborhood arboretum (Seneca Gardens)!"

The Seneca Gardens Neighborhood Arboretum extends in all directions beyond the borders of the city. Below are evidence of the Seneca Gardens Neighborhood impact beyond Seneca Gardens' borders.

- Seneca Gardens created a Seneca Gardens Greenspace Foundation to support and perpetuate the garden-like landscapes in and around Seneca Gardens.
- Seneca Gardens led and contributed funds to the creation of a circulation plan in Seneca Park between Taylorsville Road and Beargrass Creek.
- Seneca Gardens led and contributed funds to the creation of a planting plan in Seneca Park between Taylorsville Road and Beargrass Creek.
- Seneca Gardens and the Olmsted Conservancy were partners with the LRAA in planting the hedgerow of shrubs and small trees in Seneca Park on the western edge of Bowman Field along Pee Wee Reese Rd.
- Seneca Gardens adopted a piece of Seneca Park at Trevilian and Pee Wee Reese, paying for an updated landscape plan consistent with Olmsted design, which was required by Metro Parks because Seneca Park is an Olmsted design.
- Seneca Gardens paid for new culverts, a bridge, and pathway in Seneca Park at this same site.
- Seneca Gardens paid for and installed a 100 yard long hedge of bottlebrush buckeye between Denham Rd. and Trevilian Way.

- Seneca Gardens led the planting of 20 rare and unusual trees on Drayton Drive.
- Seneca Gardens planted 10 trees along Taylorsville Road from Pee Wee Reese to the border of Seneca Gardens.
- Seneca Gardens planted three sets of the new disease resistant American chestnuts developed by the American Chestnut Foundation into Seneca Park. These three chestnut plantings in Seneca Park interact with a strip of chestnuts in Seneca Gardens to cross pollinate and create new seedlings of these rare trees.
- Seneca Gardens led the planting of 20 varieties of native black gums in the Seneca Golf Course.
- Seneca Gardens found, propagated, grew, and planted out a collection of superior native Junipers in Seneca Park. Some have been introduced into the landscape industry.
- Seneca Gardens has given free tree consulting to adjoining garden cities and neighborhoods and helped public and private plantings in Kingsley, Strathmoor, and Highland-Douglass.

The tree resources of our community are highly valued by these neighborhoods. These community tree resources are also valued by people and organizations apart from Seneca Gardens. The Seneca Gardens Neighborhood Arboretum has been recognized by:

The American Horticulture Society, Alexandria, VA recognized Seneca Gardens with their Local Horticulture Award, 1996.

American Horticulturist, the magazine of the American Horticulture Society, published a story in their national magazine about the Seneca Gardens Neighborhood Arboretum August, 1995.

The Kentucky League of Cities recognized the Seneca Gardens Neighborhood Arboretum with their Public Works Award, 1992.

The Garden Club of America, Zone VII, Glenview Garden Club, recognized Seneca Gardens with their Civic Improvement Award, January, 2008.

The International Society of Arboriculture awarded Seneca Gardens the Gold Leaf Award for outstanding landscaping beautification activities, 1992.

The International Society of Plant Propagators, the Southern Plant Conference, The Louisville Metro Tree Advisory Commission and many local groups have taken trees tours of Seneca Gardens and the surrounding neighborhoods.

Tree people with national influence have toured the greater Seneca Gardens Neighborhood arboretum. The most influential tree person in the United States, Dr. Michael Dirr, retired, University of Georgia, author of the *Manual of Woody Landscape Plants* toured Seneca Gardens on many occasions, the most recent in May of this year (2015). Others include: Dr. J.C. Raulston, Director, North Carolina State Arboretum, Raleigh, NC; Rick Lewendowski, Director, Mt. Cuba Center, Hockessin, DE; Kris Bachtell, Vice President of Collections, Morton Arboretum, Lisle, IL.

In summary, Seneca Gardens and the surrounding neighborhoods were founded as garden communities and we have maintained and strengthened that commitment. In evaluating historic integrity, the draft cultural resources report must reflect that Seneca Gardens/Seneca Manor and other garden suburbs have intentionally worked to preserve the landscape values that are associated with the original developments. The district-wide vegetation, including trees, must be

recognized as contributing to the historic significance of Seneca Gardens/Seneca Manor and the neighborhoods within the limited and full Area of Potential Effect.

Sent by email to stephen.wilson@faa.gov

Chris McCoy
2540 Kings Highway
Louisville, KY 40205

July 7, 2015

Mr. Stephen Wilson
Community Planner
FAA, Memphis Airports District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118-2482

RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

I am a commissioner on the Kingsley City Council, and I live in the Bowman Field project's APE.

Kingsley has never been surveyed for determining eligibility or listing potential for the National Register of Historic Places. The conclusions made in this document and proceeding will serve as precedents for any future federal undertakings – future FAA-assisted programs at Bowman Field; federal funding of changes to Taylorsville Road; Federal Communications Commission approvals of wireless telecommunication devices within or impacting Kingsley. It is imperative, therefore, that the landscape of the neighborhood, including its trees, be specifically acknowledged in the statement of historical significance.

Effect of Project on the City of Kingsley

The last sentence of the last paragraph of Section 3.7 (page 85, under "Safety Program Effects") presently reads: "Therefore, the Safety Program will have no effect within the NRHP eligible Kingsley neighborhood." Changes to the tree canopy of any neighborhood near Bowman Field, contrary to the statement above, will adversely affect all nearby neighborhoods, irrespective of whether or not they are in the approach surfaces APE. Unmentioned impacts:

- negative effect on esthetics of the community at large, most of which is comprised of garden suburbs
- negative contribution to air quality (from an increase in air traffic that will likely follow from Bowman Field's compliance with FAA standards), a harmful impact to garden suburbs that were originally sited due to their clean air and country setting

- increase in noise (same as air quality above), a harmful impact to the quiet suburban neighborhoods
- reduction in benefit of temperature amelioration provided by existing tree canopy
- negative effect on property values (from all the above, as well as from what will eventually be a recent history of airport-related changes to the neighborhood that might discourage prospective home buyers – not only because of changes to the neighborhood from the currently-proposed project, but also out of concern for the possibility of future projects whose effect on Kingsley and nearby neighborhoods might be as, or more, injurious than the effects of the currently-proposed project)

Historical Significance of Kingsley's Trees

Brief references are made (in the summary and in Section 3.7) to a pre-construction landscape design for Kingsley that includes trees. This fact should be referenced in Section 3.7 in a way that clearly establishes Kingsley's trees' contribution to the city's historical significance (in the parlance of the survey, "as a vegetative pattern or feature that would be considered a character-defining feature"). Evidence in support of the city designer's original intent to create a city that would meet a particular esthetic standard:

- old aerial photographs show evenly-spaced trees planted in Kingsley easements prior to construction of homes (currently mentioned only in CRE summary; s/b referenced in 3.7 Kingsley Neighborhood)
- Kingsley deed restrictions from the 1940's require setbacks to establish front yard green space and provide an area for homeowners to fashion their own landscape, including tree plantings
- Kingsley deed restrictions from the 1920's define lot owners' responsibilities during neighborhood development to keep the grass cut and to insure that "shrubs and flowers" are kept in "first class condition"

Kingsley's Ongoing Effort to Sustain Trees/Landscaping and Garden-Suburb Design

Kingsley has for many years been actively engaged in an effort to perpetuate the original garden-suburb esthetic. Supporting evidence:

- active Tree Board since 2002
- Tree City USA since 2003 (Tree City USA is a recognition conferred by the National Arbor Day Foundation through the Kentucky Department of Forestry)

- tree and sidewalk ordinances whose purpose is to preserve the original esthetic and protect and promote the use of vegetation in a way that is respectful of the city's original design

In summary, the CRE (page 84) must be revised to acknowledge the following (new language in bold and underlined):

"The Kingsley neighborhood is eligible for the NRHP under Criteria A (community planning and development), B (association with important persons), and C (architecture and design) at the local level of significance. **The district-wide landscape, including trees, is an integral feature of Kingsley's historic significance under Criterion A and C. ...**"

Respectfully submitted,

Chris McCoy



Sent via regular mail and email (stephen.wilson@faa.gov)

July 10, 2015 (corrected version)

Mr. Stephen Wilson
Community Planner, Memphis Airports District Office
Federal Aviation Administration
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118 2482

RE: Bowman Field Safety Program; Louisville, KY
Section 106 of the National Historic Preservation Act

Dear Mr. Wilson:

Plea For The Trees ("PFTT") hereby provides initial written comments on the draft document titled *Historic Architectural Survey for the Bowman Field Safety Program, Jefferson County, Kentucky* (Brockington and Associates. December 2014. Draft Report, hereafter "CRE" for cultural resource evaluation).¹ This submittal supplements our oral comments provided during the Section 106 consultation meeting held in Louisville on June 24, 2015 (the "June 24th meeting") regarding the Bowman Field Safety Program (the "undertaking").

Summary of Comments

At the outset, the importance of the cultural resource evaluation associated with the Bowman Field undertaking requires explanation. With the exception of Strathmoor Village (just outside the narrow Area of Potential Effect for Runway 6), none of the residential suburbs in the environs of Bowman Field, nor Seneca Park (to the best of our knowledge) or Big Spring Country Club, have been evaluated for listing in or eligibility for the National Register of Historic Places. Why it is that these environs have never been surveyed before with respect to federally assisted undertakings at Bowman Field (including previous tree removals and property acquisitions, including demolition of homes) begs an important question about the sufficiency of previous Section 106 consultations, assuming they were held. Nevertheless, this Safety Program consultation is important—the findings and determinations regarding what is or is not historic, what contributes to historic significance, and what does not, will not likely be re-visited for some time. The final cultural resource report will be used in future undertakings in this area—e.g., the installation of cell towers, road-widening proposals (e.g., Taylorsville Road, the Watterson Expressway/I-264, I-64), and FAA-assisted programs and projects at Bowman Field.

¹As discussed in the June 24th consultation meeting, the version of the survey submitted to the Kentucky Heritage Council, marked as "Final Report," is not, in fact, a final document. For the purpose of these written comments, references to pagination are made with respect to the draft report that FAA distributed to the consulting parties prior to the initial consultation meeting.

The cultural resource firm subcontracted to Hanson Engineering for this review was undoubtedly hampered by an insufficient scope of work and budget for the effort. Nonetheless, it is important that the report meet professional standards established by the National Park Service and the Kentucky Heritage Council. The draft report does not do so.

Following this summary, our comments focus upon: (1) inadequacies in the description of the undertaking and the “purpose and need” for the project; (2) the omission of any alternatives other than removal of mature tree canopies; and (3) identification of a draft Area of Potential Effect that: (a) fails to include areas that may suffer adverse visual and noise impacts from removal of these tree canopies, and (b) fails to account for other alternatives to achieve the purpose and need for this program. Comments specific to the resources that are identified and evaluated in Section 3.0 of the draft CRE (and those that are not—Seneca Park and Bowman Field itself) are also included.

A significant objection to the draft CRE, detailed below, is the omission of any explanation of the standards used to identify and evaluate the landscape component—including the element of vegetation (e.g., trees, shrubs, and other plantings)—of the residential suburbs within the narrow Area of Potential Effect.² This omission results in incorrect determinations of “ineligibility” regarding the vegetation component of the landscape characteristics associated with the historic residential suburbs. Historic contexts and evaluation standards of the National Park Service of the U.S. Department of Interior (the federal “home” for the National Register of Historic Places”) have been developed specifically for residential suburbs of the chronological periods of development represented around Bowman Field (streetcar suburbs, automotive suburbs, and post-World War II and early freeway suburbs). Additional standards for designed historic landscapes and cultural landscapes have been developed by the National Park Service. *None* of these standards were used or referenced in the draft CRE.

The draft CRE recommends determinations of eligibility for the six (6) historically platted neighborhoods in the narrow Area of Potential Effect, under Criterion A (community planning and development) and Criterion C (architecture and design or, in some cases, solely architecture). The report finds that the non-vegetation elements of the landscape characteristics associated with each period of development of these suburbs are still present, a finding that they retain “historic integrity.”³ We agree. While not specifically distinguished as such in the draft CRE, the “contributing” landscape characteristics recognized in the report recommendations include: (1) buildings and structures (e.g., primarily the homes and their architectural styles); (2) patterns of spatial organization (e.g., consistent sizing of lots, established front and side yard setbacks, and the arrangement of homes on the private yards); and (3) circulation networks (the original features for pedestrian and vehicular access into and within the planned developments).

However, with respect to the vegetation element of these National Register-eligible neighborhoods, the report consistently states that these suburbs “did not appear to be developed

²A similar problem exists with respect to Seneca Park/the golf course and Big Spring Country Club.

³It should be noted that each of the evaluations in Section 3.0 of the draft CRE addresses only one of the seven qualities of historic integrity—that of design.

with a design specific to vegetation"; that "plantings" (unspecified as to type) "appear to have developed organically"⁴ or "by individual property owners over time"; and that "neither type nor overall height of trees is considered to be a contributing element." These observations then facilitate the draft report's determination that the removal of mature tree canopies in the Bowman Field Safety Program will not result in an "adverse effect" to historic properties with respect to Section 106 of the National Historic Preservation Act.

Respectfully, this approach to the vegetation analysis turns an aphorism on its head, literally: the report fails to see the trees for the forest. *National Register Bulletin 18* (relating to designed historic landscapes) makes clear that these types of vegetative landscapes, found in subdivisions and "small residential grounds," do not have to reflect the work of a master, such as Olmsted, but include those with an "historical association with a significant trend in landscape gardening or landscape architecture" (in this case, the association is with garden suburb development) and the work of an "owner or other amateur using a recognized style or tradition."⁵ The vegetation element of the Bowman Field neighborhoods is part and parcel of the designed and vernacular landscapes of the periods in which these garden suburbs were platted, marketed, and developed. As noted in the Bowman Field National Register nomination, the "verdant setting [of the surrounding neighborhoods] is unusual and contributes to the ambience of the Bowman Field Historic District (emphasis added)."⁶

The report seems to find an original "design intent" for only Kingsley (which will not be affected in this phase of the Safety Program). Kingsley has the good fortune of an oblique photograph from 1930 that shows newly planted street trees. The happenstance of photographic evidence of original street trees is not a prerequisite upon which to base conclusions regarding an "original design intent" behind the vegetation component of planned subdivisions. The report fails to convey that the Louisville community builders and developers of these neighborhoods (from the early 1900s to the 1960s) consciously marketed them as "garden spots," and included vegetation in their plans and designs because of the socioeconomic classes that were their target market. Our comments below elaborate on this research-based statement.

The draft report notes (in one place, as "casual vegetation," p. 70), but does not include, plantings by individual property owners (primarily homeowners) in the evaluation of historic significance. However, the vegetation planted by individual property owners is an *integral* part of the landscape characteristics of these historic neighborhoods since the "private yard is a distinguishing feature of American suburbs."⁷ It would be interesting to know whether the individual contributions of homeowners have been the work of a master gardener (i.e., reflect a designed landscape) or a do-it-yourself, popular-trend weekend gardener (suggesting a

⁴It is unclear what "organically" means in this context. We presume that, as living things, trees inherently develop organically. The intent may have been that some trees developed originally without human intervention. That they were kept by builders, developers, and homeowners is consistent with conscious attempts to increase the attractiveness of the residential setting (*Historic Residential Suburbs*, pp. 12-13; see p. 11 below for the full citation.)

⁵See p. 12 below for the full citation. These quotes are found on p. 2 of the designed landscape bulletin.

⁶Warminski, Margaret. *Bowman Field Historic District. Nomination to the National Register of Historic Places*, p. 2. 1988.

⁷See p. 11 below for the full citation. This quote is found on p. 9 of *Historic Residential Suburbs*.

vernacular landscape). However, it is not necessary to pin down these distinctions on an individual lot-by-lot basis. Both types of landscapes are associated with the chronological periods of significance of these suburbs, and are still largely reflected in their respective garden settings today.

The evaluation of the vegetation component of these suburbs (and associated parks and golf courses) also needs to address all of the qualities of historic integrity, with reference to the evaluation standards of the National Park Service for the specific property types. Original plants need not still be in existence—vegetation “similar in historic species, scale, type and visual effect” will “generally convey integrity of **setting** although integrity of original **materials** may be lost.”⁸ The qualities of **workmanship** (the planting and maintenance of vegetation, whether street trees or trees, shrubs, and flowers in private yards) and **association** are very much evident, particularly in the garden suburbs of Seneca Vista, McCoy Manor, Seneca Manor/Seneca Gardens, and Kingsley. Your agency and the LRAA heard from representatives of Kingsley and Seneca Gardens at the June 24th meeting of their ongoing, intentional efforts to preserve, perpetuate, and enhance the tree canopies in their neighborhoods (and others, such as Seneca Vista); these efforts are designed to maintain the integrity of **association** of vegetation in these garden suburbs. In sum, vegetation (including the trees) is a physical attribute that helps to establish and perpetuate the **feeling** of these neighborhoods as historic residential suburbs.⁹

Our detailed comments, presented in the order of the sections of the draft report, are as follows.

1.1 Project Overview and Sponsorship

The first sentence on p. 1 erroneously identifies the purpose and need for the project as “*object* clearing” (emphasis added). “Objects,” when used in reference to aeronautical studies, are any “element of natural growth, terrain, or [human]-made structure whose height is greater than 3 inches.”¹⁰ It is our understanding that, since mid-2013, FAA and LRAA have defined the purpose of the undertaking to implementation of measures to mitigate obstructions that have been determined by FAA to pose a current hazard to air navigation with respect to the Terminal Instrument Procedure (TERPS) approach surfaces. If our understanding is incorrect, please clarify.

Additionally, the use of the phrase “Safety Program” in this federally assisted program does not appear to account for the safety of those on the ground—residents, businesses, and recreational users of Seneca Park and the Big Spring Country Club. **Many residents believe that preservation of the mature tree canopy is *their* Safety Program**, a matter that neither the FAA nor Louisville Regional Airport Authority (LRAA) have ever acknowledged. Records of the National Transportation Safety Board (NTSB) indicate that there have been thirty-seven (37) accidents associated with Bowman Field since 1982, which resulted in eight (8) fatalities to air

⁸Ibid., p. 105.

⁹And, in the same vein, Seneca Park, including the golf course.

¹⁰Airport Cooperative Research Program. 2010. *ACRP Report 38, Understanding Airspace, Objects, and Their Effects on Airports*, sponsored by the Federal Aviation Administration, p. 10. www.trb.org.

crew and passengers.¹¹ All eight fatalities were associated with pilot error and/or inadequate pre-flight inspections or lack of preventative maintenance on the aircraft, not with hazardous “obstructions.” It is noteworthy that no one on the ground has been hurt or killed within this period. By acknowledging that the surrounding neighborhoods are National Register-eligible residential subdivisions, the tree removal program itself will cause an adverse effect on the residential character of these neighborhoods by removing their protective barrier to operations at Bowman Field. This effect of the undertaking must be acknowledged and evaluated.

1.1.1 Scope of the Safety Program EA: Proposed Alternatives, Mitigation, and the Area of Potential Effect

The Scope of the Undertaking is Defined Incorrectly

The scope of the undertaking that is now described by FAA is mitigating hazardous obstructions within the TERPS approach surface as of February 2012. During the June 24, 2015 consultation meeting, FAA stated that only “current” needs are addressed in this undertaking. We note that the public explanation of the Safety Program provided in the early public meetings (e.g., January 4, 2012) was based upon FAA’s approval of an updated Airport Layout Plan (ALP) for Bowman Field’s Master Plan. Our understanding is that the planning horizon for an ALP is ten (10) years, and is not limited to “current” conditions. The temporal difference is important. For example, with respect to a 10-yr. undertaking, cultural resources within the Area of Potential Effect that have reached 40 years of age (10 less than the threshold age of 50 years for historic significance) are identified and evaluated. Additionally, by narrowing the time horizon of this undertaking, the more widespread and harmful impacts of tree removal associated with the former 10-year planning horizon are substantially segmented in the federally required historic and environmental reviews.

As stated in the June 24th meeting, PFTT’s position is that the FAA-funded aviation easements (proposed, cumulative) also are within the scope of the undertaking and subject to review under Section 106 (as well as NEPA and Section 4f of the federal Transportation Act). As a recipient of FAA funding for airport planning and airport improvements, LRAA must ensure that: (1) “appropriate action will be taken to ensure that terminal airspace required to protect instrument and visual operations to the airport (including operations at established minimum flight altitudes) will be cleared and protected by mitigating existing, and preventing future, airport hazards”; and (2) appropriate action, including the adoption of zoning laws, has been or will be taken to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations.”¹² Aviation easements are perpetual real property interests that permanently subject the affected home, business, or church to unlimited noise, vibration, and air pollution from aircraft and airport operations. Their presence and effects must be evaluated in the federally required reviews for this undertaking.

¹¹ www.nts.gov/aviationquery/index.aspx. Accessed July 7, 2015.

¹² 49 U.S. Code §47107(a)(9)&(10).

No Alternatives Have Been Presented to Mitigate Hazard Obstructions Other Than Tree Removal

The evaluation of alternatives to achieve an undertaking's "purpose and need" is part of the planning process mandated by the regulations implementing Section 106 (see, e.g., 36 CFR § 800.1(c), 800.8(a)(2)) and, of course, is a cornerstone of environmental evaluation of federal undertakings, such as this one, under the National Environmental Policy Act (NEPA) and the implementing regulations of the Council on Environmental Quality. The Area of Potential Effect (addressed below) should account for the range of alternatives under evaluation by the federal agency undertaking or sponsoring the proposed action. The FAA cannot permissibly limit the reviews required of your agency to one alternative—tree removal.

On September 10, 2012, the Kentucky Resources Council and PFTT jointly sent a detailed letter to Mr. Phil Braden, Manager, Memphis Airports District Office, FAA, and Mr. Skip Miller, Executive Director, LRAA, stating, among other matters, that the full range of alternatives to the "Safety Program" required evaluation. As specified in that communication to your agency and LRAA, the alternatives that are reasonable and appropriate for evaluation include, but are not limited to, "no action" (i.e., use of existing obstacle approach flight procedures); enhancement of existing navigational aids (visual, electronic); new navaid installations (aeronautical beacons to mark hazards); and waiving prescribed siting minimums, in addition to removal of mature tree canopies. Some of these alternatives may impact the utility of the airport, as stated by Mr. Skip Miller, Executive Director of the LRAA at a public meeting on Jan. 4, 2012, with respect to the "no action" alternative. Nevertheless, the FAA and LRAA cannot screen from the alternatives analysis the options that they deem undesirable.

When PFTT inquired during the June 24th meeting whether the narrow APE included alternatives, such as navaids, FAA and Hanson Engineering replied that it did not. Mr. Tim Haskell of Hanson Engineering stated that the community impacts of beacons or towers would be "unacceptable." As we noted during the meeting, the alternatives must be presented in both Section 106 (and NEPA). It is insufficient for FAA, its local airport sponsor, or the associated consultants to pre-determine what is and is not "acceptable" to the community. The CRE does not identify any alternatives, and, therefore, does not establish an associated APE(s) or identify and evaluate properties within the relevant alternative APE(s) for historic significance.

The Area of Potential Effect (APE) is Insufficient to Account for Direct, Indirect, and Cumulative Effects of the Tree Removal Program

The draft CRE states that "[f]or historic architectural resources, the APE consists of those geographical areas within the TERPS approach surfaces [and] contains all direct and indirect effects . . ." (p. 3). PFTT will refer to the draft APE as the "narrow APE."

With respect to the narrow APE for Runway 24 (Figure 1.4), it appears that the northernmost edge is terminated at I-64. Please explain the rationale for terminating the boundary based on the interstate. Otherwise, if the full triangle were extended north across I-64, it appears that some of the Floyd-Breckinridge Cemetery in St. Matthews would be within the draft APE. Floyd-Breckinridge Cemetery, located at 1004 Jamestown Ct. (historically in the

area of “Floyd’s Station”), is an approximately 0.1529-acre wooded tract owned by the Filson Historical Society that contains the graves of John Floyd (1750-1783, an early surveyor and military figure in Kentucky), Captain Alexander Breckinridge (1752-1801, an American Revolution war officer), Robert Breckinridge (1754-1833, also an American Revolution war officer), and family members.¹³

During the June 24th consultation meeting, FAA stated that the reference to “indirect” effects in the narrow APEs were meant to include visual effects. As PFTT replied, to fully account for and evaluate the indirect visual and noise effects of the proposed removal of hundreds of mature canopy trees, the APE needs to be expanded to constitute a circular APE (the “full APE”) that connects the outmost edge of each of the narrow APEs associated with the four runways.

PFTT’s research indicates that, within the full APE—and depending on the results of a line-of-sight analysis or other method to assess visual impacts—there are at least an additional 23 residential suburbs platted more than 50 years ago, as follows:

- Between Runway 6 and Runway 33 (south of Bowman Field): Bon Air (1909), Beaumont (1925), Hathaway (1926), Strathmoor Village (1922), Wellington (1920s), Alanmeade (1946), Wellingmoor (1939), Wellesley (date unclear).
- Between Runway 33 and Runway 24 (southeast and east of Bowman Field): Airview (1928), Kiltmore Gardens (1961), Big Springs Gardens (1953), and Big Springs Village (1957).
- Between Runway 24 and Runway 15: Park Hills (1955), Williamsburg Estates (1964) (also featuring the Floyd-Breckinridge Cemetery), Broad Fields (1959), Hollin Terrace (1956), and Seneca Hills (1955).
- Between Runway 15 and Runway 6 (northwest and west of Bowman Field): Rostrevor (1965) (also featuring “Rostrevor” Country Estate, identified below); Cherosen Hills (1959), Ingleside (1952), Seneca Gardens (1937), Broadmeade (1922 and later additions), and Woodbourne (1908).

It should be noted that there are several properties within the full APE that should be evaluated for individual eligibility, including, but not limited to: the Jacob and Henrietta Wetstein House at 2501 Denham Road; Rostrevor, at 1141 Rostrevor Circle, a 1908-10 Country Estate designed by the firm Carrere and Hastings Loomis in Italianate Renaissance style (to the northwest and west of Runway 15 and the Seneca Park Golf Course); and the 1955 “Idea Home of the Year” at 1200 Park Hills Dr. in the mid-20th century modern development of Park Hill (to the immediate northeast and east of Runway 15 and the Seneca Park Golf Course).

In addition to direct and indirect effects, “effects” include “reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative,” and may themselves be “adverse” to historic properties (36 CFR §800.5(a)(1)).

¹³Basic information about Floyd and the Breckinridge brothers can be found in *The Encyclopedia of Louisville*, ed. John E. Kleber. 2001, and “The Strange Genealogy of Louisville’s Bowman Field and Seneca Park,” Carl E. Kramer, 1986.

Cumulative effects that require evaluation in this Section 106 review (including the establishment of the APE) include past tree removal actions of the LRAA, such as mature tree removal in the 1990s and the mature trees that were removed in the Big Spring Country Club in fall 2013 as part of the Bowman Field Safety Program. The fall 2013 clearing (Runway 24 penetrations) harmed 54 trees. Fifteen (15) trees were trimmed and thirty-nine (39) trees were permanently destroyed through removal. The 39 trees included silver and red maples; pin and red oak, eastern white pine, ginkgo, bald cypress, hemlock, boxelder, black cherry, white ash, black locust, and Norway spruce. Seventeen (17) of the logged trees had diameters of greater than 30 inches, indicating an age greater than 50 years.¹⁴ The Morton Arboretum of Chicago, a renowned scientific non-profit established in 1922 to collect, study, and promote trees, has published an index to the estimated age of urban trees by species and diameter at breast height: a 30-inch diameter red oak, for example (of the type permanently removed in fall 2013), may have reached 130 years of age.¹⁵

Past actions for the cumulative effects analysis include the avigation easements taken in several of the neighborhoods (including those outside of the narrow APE, but within the full APE) since 1992.

1.2 Methods of Investigation

Section 112(a)(1)(A) of the NHPA¹⁶ and the Section 106 rules of the Advisory Council on Historic Preservation (36 CFR §§800.2(a)(1) & 800.2(a)(3)) require that federal agencies, including the FAA, ensure the professional qualifications of those who carry out Section 106 responsibilities directly for the agency (e.g., consultants) or indirectly (through delegation to non-federal parties seeking federal help, such as the LRAA). Professional qualifications include those established by the Secretary of the Interior and “applicable standards and guidelines” of “affected agencies,” and the State Historic Preservation Officers (SHPO).

These same authorities also require that federal agencies, including the FAA, review and endorse the documentation and determinations prepared on their behalf. When the FAA uses consultants or allows non-federal parties, such as LRAA, to carry out elements of Section 106 consultation, the agency remains responsible for independently making its own findings and determinations on the APE, identification and evaluation of historic properties, assessment of direct, indirect, and cumulative effects, and resolution of effects.

The introduction to Section 1.2 identifies the Principal Investigator as a Senior Historian with Brockington and Associates. The Principal Investigator’s resume in Appendix A of the CRE indicates that her academic and work experience fulfill the Professional Qualification Standards of Appendix A to 36 CFR Part 61.¹⁷ However, the resume provided in the draft CRE

¹⁴Email dated Dec. 2, 2013 from Allan G. Young/ASO/FAA, Eastern Flight Procedures, to Joseph A. Jackson/AWA/FAA.

¹⁵Morton Arboretum, “Estimate the Age and Benefits of Trees,” pp. 3-4. www.mortonarb.org/files/Find%20the%20Age%20of%20a%20Tree%20-%20high%20school.pdf.

¹⁶This submittal will refer to the section numbering for the NHPA’s original codification at title 16 U.S. Code, rather than the recodification in title 54 of U.S. Code, which became effective Dec. 19, 2014.

¹⁷The Part 61 regulations establish procedures for state, tribal, and local government preservation programs. The National Park Service of the U.S. Department of the Interior applies the Appendix A criteria to individuals who

does not indicate *any* experience specific to historic residential suburbs, garden suburbs, historic landscapes (designed or vernacular), or public and private recreational properties. Of the 27 listings for “Recent Projects, Publications, Presentations and Experience” in the Principal Investigator’s resume, 14 were conducted for the Department of Defense; 8 were conducted for hydroelectric (dam) projects; 2 were conducted for the Army Corps of Engineers; one was a Phase III archaeological data recovery project at Hilton Head Island Airport; one was for a local school district; and one was for a surface transportation project for a state department of transportation.

The Kentucky Heritage Council (KHC) has issued *Specifications for Conducting Fieldwork and Preparing Cultural Resource Assessment Reports* to which “[a]ll fieldwork and cultural resource assessment reports” subject to the agency’s review, including Section 106 reports, “shall conform” (emphasis added).¹⁸ Noting that historic properties are evaluated in a “regional context,” the SHPO’s *Specifications*, require that Principal Investigators in Section 106 projects have “a minimum of twelve months of professional field experience in the eastern United States, of which at least three months must be in Kentucky or the Ohio Valley”¹⁹

In addition to the absence of relevant historic residential suburb experience, the Principal Investigator’s resume does not reflect the geographic experience required in the SHPO’s *Specifications*. The only Kentucky project identified is documentation of the former Clarksville [TN] Base Nuclear Storage Site for Fort Campbell, Kentucky. It may be that relevant experience to the Bowman Field Safety Program Section 106 can be identified in a revised resume and/or that additional historic preservation professional consultants may be needed. In either or both cases, the FAA must ensure that the professional standards and experience requirements of the SHPO are met.

It is also not clear how the FAA is meeting, or plans to meet, the requirement that the agency make “independent” findings and determinations in the stages of Section 106 consultation. Who, specifically, within FAA has reviewed and authorized or otherwise approved the draft CRE as sufficient for purposes of this Section 106 consultation?

1.2.1 Archival Research and 1.2.2 Architectural Survey

The draft CRE reports that the Principal Investigator spent some time during the weeks of August 15 and September 15, 2014 in Louisville conducting archival research, talking to individuals, and inspecting individual properties within the narrow APE. Despite PFTT’s and Kentucky Resources Council’s extensive prior communication with your agency and the FAA regarding the significance of the resources and landscape, we were never contacted to provide our input (or our time) prior to this visit. None of the small cities affected, Metro Parks, or subject matter experts (e.g., the arborist for Seneca Gardens) were contacted.

perform “identification, evaluation, registration, and treatment activities” by or on behalf of the federal government through *The Secretary of the Interior’s Standards and Guidelines for Archeology and Historic Preservation, Historic Preservation Professional Qualification Standards*, 48 *Federal Register* 44716 (Sept. 29, 1983).

¹⁸Sanders, Tom. 2006 (also known as the “SHPO’s Specifications”).

¹⁹*Ibid.*, p. 11.

The identification and evaluation methodology is incomplete because only the portions of the resources located within the narrow APEs were visually evaluated and photographed by the Principal Investigator. Only a “sampling survey” was conducted for neighborhoods that extended beyond the narrow APE (p. 6). Seneca Park and Bowman Field were not evaluated in their entirety, while the Big Spring Country Club was, including areas outside the APE (see more below in PFTT’s comments on Section 3.0). The research and survey methodology presented in these sections need to be consistent in examining each resource in its entirety.

Importantly, Sections 1.2.1 and 1.2.2 completely omit any reference to or discussion of the archival or field work that was conducted to evaluate the affected landscapes, particularly the vegetation, component of the historic property identification and evaluation phase of this Section 106 review. PFTT has provided extensive comments below with respect to the imperative of presenting an organized landscape analysis in Sections 2.0 and 3.0. The CRE references “tree types and heights” from the *Inventory of Trees Around Bowman Field, 2014*, Beechwood Trees and Gardens, Inc., prepared for Hanson. However, this inventory was not included in the report. In order to be able to participate in this federally required process in a meaningful way, Plea For The Trees hereby requests this inventory.

The rationale for boundary selection in identifying and evaluating the six (6) different neighborhoods in the narrow APE should be explained. The approach to boundary delineation is based upon their original plats (i.e., based upon their original boundary). Boundary selection for historic residential suburbs may also be based upon a “group of contiguous subdivisions, particularly where significance is based upon design.”²⁰ These Bowman Field neighborhoods share historic contexts, architectural styles, landscape features, and types and levels of integrity. Additionally, current residents of many of the narrow-APE historically platted developments are not likely to either know or consider their neighborhood as “Seneca Vista,” “McCoy’s Manor,” “Seneca Village,” and the like. Current small city geopolitical boundaries are more likely to be recognized. For example, Seneca Manor (the area that includes the “high canopy oak trees” along Valletta Road [p. 78] and the unevaluated Keneseth Israel synagogue) is within the limits of the City of Seneca Gardens. Kingsley, on the other hand, is an incorporated municipality whose current political boundary matches the historic plat. Whatever boundary or boundaries are selected, the CRE should explain the justification.

Additionally, the SHPO’s *Specifications* require that a KHC Inventory Form (with associated individual KHC site number) be prepared and submitted for each building, site, structure, and cemetery that is fifty years of age or older.²¹ The draft CRE lacks such documentation.

²⁰National Register Bulletin, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*. Washington D.C.: U.S. Department of the Interior, National Park Service National Register History and Education. 2002. Prepared by David L. Ames, University of Delaware, and Linda Flint McClelland, National Park Service, p. 107.

²¹SHPO’s *Specifications*, p. 27.

1.3 National Register of Historic Places Criteria

This section identifies the four primary criteria of historical significance (A through D) that are used in making Determinations of Eligibility and nominating properties to the National Register of Historic Places. The section also includes a brief review of *National Register Bulletin 15: How to Apply the National Register Criteria for Evaluation*,²² and states that the first requirement for determining eligibility is that “the resource must be associated with an *important* historic context (emphasis added, p. 6).” The bulletin does not say that “important” historic contexts have to be assessed, but instead explains that the historic *significance* of properties must be evaluated within their historic contexts, the “patterns or trends in history by which a specific occurrence, property, or site is understood and its meaning (and ultimately its significance) within history or prehistory is made clear.”²³ To state that historic contexts themselves require “import” could lead to faulty inferences that a post-WWII local housing context, for example, is in some degree different (lesser) than a high-design country estate context. Our understanding is that differences of “import” in evaluating resources are generally reflected in the *area* of significance (determining the type of theme of the context, e.g., transportation, landscape architecture) and in the *level* of significance assigned to the resource (i.e., local, state, national), not as a function of the “import” of the context.

The seven aspects of *integrity* are also identified in this section of the draft CRE: location, design, setting, materials, workmanship, feeling, and association (p. 11). However, it should be noted that the subsequent evaluations of National Register-eligibility for the fourteen (14) resources in the narrow, direct-effects APE ***only address the design aspect of integrity***. This omission is significant because of the integrity of location, setting, feeling, and association that are demonstrated with respect to these resources, including the vegetation element of the landscapes.

The draft CRE (p. 11) explains the National Register-eligibility evaluation process with reference to “pre-contact Native American” sites and the “ruins of African American slave settlements from the 1820s,” and other antebellum-era resources. The complete omission from the draft CRE (in the narrative and References) of the National Park Service publications specific to most of the property types in the narrow (and full) APE for the Bowman Field undertaking is puzzling and unsupportable. These publications include the following, as well as local contexts:

- *National Register Bulletin, Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*. Washington D.C.: U.S. Department of the Interior, National Park Service National Register History and Education, Prepared by David L. Ames, University of Delaware, and Linda Flint McClelland, National Park Service. 2002.

²²The citations to *Bulletin 15* in the draft CRE are to Savage and Pope 1998. However, the Internet-based version does not contain a revision year of 1998 and identifies Patrick W. Andrus as the primary finalization author and Rebecca Shrimpton as the editor. www.nps.gov/nr/publications/bulletins/nrb15/. Beth Savage and Sarah Pope are identified as coordinators of the last revision of the bulletin (1997).

²³*Bulletin 15*, p. 7.

- *Historic Residential Suburbs in the United States, 1830-1960. National Register of Historic Places Multiple Property Documentation Form.* Prepared by Linda Flint McClelland, David L. Ames, and Sarah Dillard Pope. 2003.
- *National Register Bulletin 18, How to Evaluate and Nominate Designed Historic Landscapes.* U.S. Department of the Interior, National Park Service, Interagency Resources Division. Prepared by J. Timothy Keller, ASLA, and Genevieve P. Keller, Land and Community Associates, Charlottesville, Virginia. No date.
- *Preservation Brief 36, Protecting Cultural Landscapes: Planning, Treatment and Management of Historic Landscapes.* U.S. Department of the Interior, National Park Service, Preservation Assistance Division. Prepared by Charles A. Birnbaum, ASLA, Coordinator, Historic Landscape Initiative. 1994.
- *Suburban Development in Louisville and Jefferson County, 1868-1940. National Register of Historic Places Multiple Property Documentation Form.* 1988. Prepared by Leslee Keys, Mark Thames, Joanne Weeter, Jefferson County Office of Historic Preservation & Archives. 1988.
- *Strathmoor Village. Kentucky Historic Resources Group Survey Form.* Prepared by Rachel Kennedy and Jennifer Ryall, University of Kentucky. 2010.

Key concepts from these documents that are relevant to the identification and evaluation of the primary property type in this undertaking are summarized in Table 1, beginning on the next page. The CRE for the Bowman Field Safety Program must utilize these resources in the identification and evaluation phase of Section 106 compliance.

In addition, multiple other documents exist that are relevant to the survey and evaluation in this Section 106 consultation of the types of Bowman Field-environs historic residential suburbs include:

- *A Model for Identifying and Evaluating the Historic Significance of Post-World War II Housing.* National Cooperative Highway Research Program Report 723. Prepared by Mead & Hunt, Inc. (Pettis et al.) and Louis Berger Group, Inc. (Kuhn et al.). 2012.
- The research references and resources identified in the *Historic Residential Suburbs Multiple Property Documentation Form*, Section I, Bibliography.
- Science-based publications for the general education of the public with respect to beautification of their private yards, such as the U.S. Department of Agriculture's "Farmers' Bulletin" series and, later, the "Home and Garden Bulletin" series. Many of these bulletins have been digitized and are available through the National Agricultural Library Digital Collections (naldc.nal.usda.gov/naldc/home.xhtml).

Table 1. Key Concepts for Suburban and Associated Landscape Historic Context Development and Evaluation

Publication/Concept	Page
<i>Historic Residential Suburbs in the United States, 1830-1960, National Register of Historic Places Multiple Property Submission</i>	
The four stages of the evolution of American suburbs, named for the primary transportation mode of the time and with general periods of chronology: (1) Railroad and Horsecar Suburbs (1830-1890); (2) Streetcar Suburbs (1888-1928); (3) Early Automotive Suburbs (1908-1945); and (4) Post-World War II and Early Freeway Suburbs (1945-1960)	E, 3
Developers and the development process included "community builders," real estate entrepreneurs in the first decade of the 20 th century who acquired large tracts of land for residential development. These builders favored zoning and subdivision regulations to "promote predictability in the land market and protect the value of their real estate investments." J.C. Nichols of Kansas City, a leader in the National Association of Real Estate Boards, "greatly affected land use policy" in the U.S.	E, 9, 13
Subdivision development by community builders often included design professionals (engineers, landscape architects, and architects). Prior to zoning, these builders used written deed restrictions to control the character of their development by specifying requirements and prohibitions on individual lot development and maintenance.	E, 9
Landscape influences: Andrew J. Downing, <i>Treatise on the Theory and Practice of Landscape Gardening</i> (1841) (the "picturesque" or "beautiful" "aesthetic ideal") later influenced American landscape practices associated with the City Beautiful movement and WWI-era English Garden City planning, resulting in "distinctive American garden suburbs with gently curving, tree lined streets; open landscaped lawns and gardens; and attractive homes in a panoply of styles."	E, 14; F, 55
<i>National Register Bulletin: Historic Residential Suburbs</i>	
The Bulletin and the Multiple Property Submission are intended to "foster the development of local and metropolitan suburbanization contexts." Focus is on privately financed and constructed neighborhoods. Landscape approach (not just vegetation) based on understanding that important landscape characteristics took form in a three-layered process: selection of location; platting and layout; and design of the house and yard.	iii-iv

(continued next page)

Table 1. Key Concepts for Suburban and Associated Landscape Historic Context Development and Evaluation (cont.)

<i>National Register Bulletin: Historic Residential Suburbs (cont.)</i>	
Understanding historic residential suburbs as cultural landscapes: (1) developer's site selection (geographic location), affected by cultural factors (e.g., transportation, amenities); (2) subdivision design (plot) w/ precise boundaries, internal circulation network, buildable house lots; (3) arrangement of each home and yard, including plantings. The private yard is the "distinguishing feature" of American suburbs , but there are common areas too (parks, playgrounds). Yards included some designed landscapes but also vernacular landscapes influenced by popular trends in home design and gardening. Whether designed or not, the domestic yard includes "arrangement of the house and garage in relationship to the street or common areas; the placement of walks and a driveway; and the division of front, back, and side yards . . . yards include walks, driveways, lawns, trees and shrubbery, foundation plantings, and a variety of specialized areas, including gardens, patios, . . ." Platted setbacks ensure private-public green space and chance to plant a front yard tree.	7-9
Private yards and privacy – plantings provide privacy between homes. "Vegetation" – trees, shrubs, and other plantings often contribute to the historic setting and significance of historic neighborhoods. Conscious effort to create an attractive neighborhood (whether by street trees or private shade/ornamental); pre-existing trees may have been retained. "By the 1930s neighborhood planting was considered important for maintaining long-term real estate value."	12, 13
Garden Suburbs and Country Club Suburbs: J.C. Nichols et al sought ways to enhance the "park-like setting" of their neighborhoods and reinforce the city/suburb separation, including community parks and nearby country clubs.	41
Evaluation: Criteria A and C include community planning and design, architecture, and landscape architecture. Includes patterns of yard design: open lawns, fences or hedges, patios and outdoor terraces, gardens, specimen plants, foundation plantings. Criterion C - distinctive characteristics of design in planning, architecture, and landscape and can include landscape architecture (unified program of street tree plantings, landscape design of yards, conservation of natural features, entrance ways or roadways, scenic vistas).	92-99
Historic integrity: Consider original design and evolution of the plan and the cumulative effect of multiple changes and alterations.	101
Applying the qualities of integrity: location; design; setting ("semi-rural character created through park-like settings of landscaped streets, private yards, sometimes public parks"); materials (including vegetation planted as lawns, shrubs, trees, and gardens: "Original plant materials may enhance the integrity, but their loss does not necessarily destroy it. Vegetation similar in historic species, scale, type and visual effect will generally convey integrity of setting although integrity of materials may be lost (emphasis added)"); workmanship includes planting and maintenance of vegetation; feeling – the intangible, cumulative effect of the other elements; and association , the "direct link" between the suburb and important events that shaped it, including continued residential use and community traditions (such as landscaping).	102-105
(continued next page)	

Table 1. Key Concepts for Suburban and Associated Landscape Historic Context Development and Evaluation (cont.)

<i>NPS Bulletin 18: Designed Historic Landscapes</i>	
Bulletin includes small residential grounds, public spaces, subdivisions, golf courses, parkways, drives, trails, etc. "Landscape" features are not just vegetation but include topography/grading, circulation system, natural features, benches, urns, planters, landscape dividers, etc.	2-3
Evaluating integrity: "Vegetation, another important feature of most landscapes, is not stable. . . . <u>A designed historic landscape need not exist today exactly as it was originally designed or first executed if integrity of location and visual effect have been preserved.</u> " <u>"Condition will play a significant role in evaluating integrity [of vegetation]. It may be possible to enhance integrity through maintenance, replanting, or other restoration...."</u> (emphases added)	7-8
<i>NPS Preservation Brief 36: Protecting Cultural Landscapes</i>	
Historic designed landscape – "a landscape that was consciously designed or laid out by a landscape architect, master gardener, architect, or horticulturist according to design principles, or an amateur gardener working in a recognized style or tradition. The landscape may be associated with a significant person(s), trend, or event in landscape architecture; or illustrate an important development in the theory and practice of landscape architecture. Aesthetic values play a significant role in designed landscapes. Examples include parks, campuses, and estates."	2
Historic vernacular landscape – "a landscape that evolved through use by the people whose activities or occupancy shaped that landscape. Through social or cultural attitudes of an individual, family or a community, the landscape reflects the physical, biological, and cultural character of those everyday lives. Function plays a significant role in vernacular landscapes. . . ."	2

2.0 Historic Context

In addition to the national guidance on identification and evaluation addressed in PFTT's foregoing comments, the SHPO's *Specifications* provide, among other requirements, that cultural resource reports for standing structures "shall include" a summary of existing applicable historic contexts, recommendations by previous investigators concerning National Register eligibility and actual nominations prepared, and a definition of the standards used to evaluate integrity.²⁴

As explained below, the draft CRE does not address these KHC requirements. Omissions include most of the salient historic contexts to guide the evaluation of significance for the specific resources within the narrow APE, and the full APE. While the *Louisville Survey East Report* excerpts provides valuable information on the development of this area, it was not developed specifically as a historic context for the broad area of what is now near-east Louisville. In the late 1970s, when it was researched and prepared, the concept of cultural landscapes, including designed and vernacular landscapes, was not formalized, for example.

Some important historic context reports are included in the "References Cited" section of the report, i.e., *They Came, They Saw, They Bought!: The Twentieth Century Housing Boom in Louisville, Kentucky, 1920-1970* (Brother, Ryall, and Stottman), *The New Deal Builds: A Historic Context of the New Deal in East Kentucky, 1933-1943* (Kennedy and Johnson), and *House in a Box: Prefabricated Housing in the Jackson Purchase Cultural Landscape Region, 1900-1960* (Johnson and Kennedy). However, it is not clear how these architectural and public works contexts were specifically applied in the draft CRE. As noted in our comments below on Section 3.9 (Seneca Village No. 2), for example, *House in A Box* describes the primary architectural styles of Gunnison prefabricated homes (p. 39). However, the draft CRE does not distinguish the architectural styles within this neighborhood, which features predominantly Gunnison homes according to the report author. The *New Deal Builds* context identifies airports as part of the New Deal Works Progress Administration (later Work Projects Administration) (WPA) and Public Works Administration (PWA) work in Kentucky (p. 116). Bowman Field's first concrete runways were installed as a WPA and PWA project; however, the draft CRE fails to evaluate the historic significance of these public works.

Historic contexts and other documents relevant to the public and private recreational areas affected by the Bowman Field Safety Programs (Seneca Park and Big Spring Country Club) are not addressed. The 1979 National Register nomination (although dated) for Louisville's Olmsted-designed Iroquois Park, Shawnee Park, Cherokee Park, and parkways was apparently not reviewed, nor were any other relevant Olmsted contexts or nominations. Sometime in the mid-2000s, the Kentucky Transportation Cabinet sponsored a cultural resource evaluation, that included River Road Country Club (a private club and golf course, first established circa 1895), during the Section 106 consultation for the widening of River Road from Frankfort Avenue to Zorn Avenue. This report may be useful for comparison to the evaluation of Big Spring Country Club. Other relevant and instructive evaluation reports may be available.

²⁴SHPO's *Specifications*, pp. 32, 37.

2.1 Suburban Development in the Vicinity of Bowman Field

The ten-page narrative presented as an “historic context” in Section 2.1 of the draft CRE is cut and paste verbatim from portions of the 110 or so pages that comprise Chapters I through IV (“A History of Eastern Louisville”) of the 1979-1980 *Louisville Survey East Report*.²⁵ I have extensively used this report going on almost two decades with respect to Clifton, a horsecar-era to post WWII-era suburb of Louisville that is *not* a garden suburb. The *Louisville Survey East Report* reflects a prodigious amount of historical research into a broad area of what is now near-east Louisville. However, it is important to understand the scope of the report and its limitations for sole use as an “historic context” in this Section 106 review. In general, the purpose of the report was to identify neighborhoods featuring “conservable” housing stock (mostly historic) that might be candidates for the Community Development Block Grant (CDBG) program that had been newly rolled out by the federal Housing and Urban Development agency in the mid-1970s. Carl Kramer’s history describes land use, transportation, politics, and sewage infrastructure at a level of detail that greatly informs our current understanding of the area within the narrow and full APEs. This history should be used to re-organize Section 2.0 into historic contexts that reflect the discrete property types and chronological periods relevant to this cultural resource evaluation. Other relevant historic contexts (listed at pp. 11-12 above) should be synthesized as well.

However, the historical narrative of the *Louisville Survey East Report* is a product of its time. It fails to address cultural landscapes and ethnic heritage (i.e., the Jewish community in the Bowman Field environs). The excerpts that are presented require clarification, and additional relevant information needs to be included. The remainder of our comments on Section 2.0 begin with the omission of an historic landscape context and ends with comments specific to the portions of Mr. Kramer’s work that was excerpted in the draft CRE.

The Landscape Component of the Historic Contexts Applicable to all of the Suburban Environs of Bowman Field Must be Addressed

The CRE must address the framework, methodology, and analysis of the landscape component (designed, vernacular) of the neighborhood evaluations and those of Seneca Park and Big Springs Country Club. PFTT’s comments above on Sections 1.2 and 1.3 summarize the key national, state, and local historic contexts and identification and evaluation guidelines for a landscape analysis that should have been used in this Section 106 document.

Our own research indicates that the designed and vernacular landscape component of local suburban residential development (marketing of homes, establishment of private yards), including vegetation such as trees, appears to have mirrored the trends underway in the U.S. over comparable chronological periods of development, from the streetcar suburbs to the freeway suburbs. The draft CRE fails to reflect that builders and developers in the Bowman Field environs realized the value of attractive, landscaped neighborhoods and lawns. Further, they consciously marketed and designed their subdivisions and demonstration homes to reflect the

²⁵October 1979. *Louisville Survey East Report*. City of Louisville Community Development Cabinet. There are several acknowledged contributors to this report, including Carl E. Kramer the project historian.

current aesthetic in landscape design. "Designed landscapes," as per the National Park Service guidance, may not be present in high-style. Nevertheless, some original intent of design, as well as vernacular landscapes, is abundantly evident, represented by the planting of trees, foundation shrubs, and other aesthetically pleasing shrubs and flowers. A walk-through of these neighborhoods shows this still to be the case.

The *Louisville Survey East Report*, in a portion not excerpted in the draft CRE, notes that early 20th century plans of development in upper middle class subdivisions by Louisvillians, such as C.C. Hieatt and William F. Randolph, were "calculated to respect the natural contours of the land. . . [reflecting] a growing belief among professional developers across the United States that the use of a subdivision design formula which employed large lots, served natural greenery and topography, fostered good architecture, and removed through traffic from residential streets

— even at the cost of lowering density — was more profitable in the long run than a repetitive checkerboard pattern, especially when appealing to the more affluent home buyers."²⁶



Home Sites
Nestled Among The Trees

APPROXIMATELY 5,000 people visited Castleton last Sunday to see the beautiful home sites, the exclusive Old English homes and the "Haddon House" now completely furnished.

Your opportunity to secure an ideal setting for your future home is now while property values are lowest.

Our representatives are on the ground to tell you all about them. Don't wait—come out today.

DEGRAW PROPERTIES CO., Owners
MUNIEL & MITCHELL CO., Selling Agents
PHONE CITY 4012

Castleton
LOUISVILLE'S BEAUTIFUL COLONY OF EXCLUSIVE OLD ENGLISH HOMES

GATEWAYS ON EASTERN PARKWAY AND ON BARRET AVENUE - LOCATED JUST ACROSS FROM CASTLEWOOD

The illustration shows the wonderful setting of the "Haddon House" now open to the public afternoon and evening. It is of the Old English style and completely furnished by Dillinger. Interior decoration by Lillian Thomas Bell.

September 15, 1926 "Nestled Among the Trees" advertisement in the *Louisville Courier-Journal*. Castleton is to the west of the study area in the Tyler Park neighborhood.

Directing You to Something New
Out the Bardonia Road Just Beyond "City Taxes" You Will Find Under Development a Garden Spot for Your Inspection.

WELLINGTON

A Hieatt Brothers development, embodying all the latest ideas of a modern home community.

Representative in Property Every Address You Want

HIEATT BROS.
City 8899 231 Fifth St. City 8899

C.C. Hieatt's "Wellington advertisement as a "Garden Spot" and a "modern home community." *Louisville Courier-Journal*, Sept. 27, 1926. Wellington is in the full APE, south of Taylorsville Rd.

While Louisville developers marketed the attractive vegetation settings of their upscale neighborhoods, home consumers were also consciously marketed. For example, in spring 1926

²⁶*Louisville Survey East Report*, p. 99.

during the period that the streetcar suburbs along Taylorsville Road and the J-town interurban line were platted and slowly began to develop, the Better Homes Bureau, "personally endorsed by President Coolidge," sponsored a "Better Homes Exposition" at the Jefferson County Armory (now the Louisville Gardens). Promising the "biggest and handsomest" and "most complete and comprehensive" home expo ever attempted in Louisville, the event featured numerous booths of local vendors for all aspects of home living, including "[s]hrubbery and attractive green things for the lawn or the garden."²⁷ The highest attendance, on Thursday, March 4, 1926, reached 11,574 persons.²⁸ Following the success of the Home Expo, nurseries, among other home vendors, continued to market the value of their greenery to homeowners, as the following advertisements from the *Louisville Courier-Journal* illustrate:



Come to Garden Headquarters!
The Home of the Famous Blue Ribbon Seeds

Nowhere in the country will you find better seed for your lawn and garden than those we offer you. Our seed is fresh and clean, full of life and vigor. It has been carefully tried and tested and we stand squarely back of its quality.

If you have never grown Blue Ribbon seeds we urge you to give them a trial this season. Their unfailing high quality will make a lawn and garden you will be proud of.

Use Our Wizard Brand Sheep Manure For Best Results
Evergreen Lawn Grass Seed Makes the Finest Lawn

Call City 4610—We Deliver Anywhere in Louisville.

For Flowering Shrubs, Trees and Perennials
Call Highland 2482—The Louisville Nurseries
—Daily Deliveries

Wood-Stubbs & Co.
City 4610—219-221 E. Jefferson, Opposite's Haymarket, Louisville, Ky.—City 4610

Advertisement, Apr. 4, 1926, touting "Blue Ribbon seeds [Kentucky bluegrass] - Flowering Shrubs, Trees and Perennials" and "Wizard Brand Sheep Manure"

The Home Grounds Beautiful
Stately Evergreens, Trees, Shrubs, Hardy Flowers

Spring, and with it planting time, is at your door. Make your plans now! Do not wait till the end of the season. All indications point to a very busy season for the Nursery Man. Planting stock is scarce—order now and avoid disappointment later on.

Get in touch with any one of the local firms who will be glad to assist you in any way they can in solving your planting problems.

DEWE NURSERY CO.,
St. Matthews, Ky.
Phone St. Matthews 106

R. L. HAAG,
Taylorsville Road at
Kennedy Station
Phone Jeffersontown 55-B.

LOES KORPHAGE,
18th St. Road, Shively, Ky.
Phone South 345.

LOUISVILLE NURSERY,
St. Matthews, Ky.
Phone St. Matthews 113.

W. H. LEEMING,
18th St. Road, Shively, Ky.
Phone 571-M.

RAY'S ST. MATTHEWS NURSERY,
St. Matthews, Ky.
Phone St. Matthews 92.

JACOB SCHULZ CO.,
Bardstown Road and
Gardiner Lane.
Phone Highland 3100 and
Main 223.

THE WALKER NURSERY,
Fulton Street Road.
Phone South 927.

MEMBERS RETAIL NURSERYMEN'S ASSOCIATION.
"It's Not a Home 'Till It's Planted"

Advertisement, Mar. 7, 1926, "It's Not a Home 'Till It's Planted"

²⁷"Home Exhibit is to Open Tonight," *Louisville Courier-Journal*, Mar. 1, 1926. Landscape booths included Louisville Nurseries (in St. Matthews) and Wood-Stubbs & Co. of 219-221 E. Jefferson St.

²⁸"Homes Exhibit Draws 10,000," *Louisville Courier-Journal*, Mar. 5, 1926.

By the early-to-mid 1930s, although the interurban had ceased operating, garden suburbs continued to flourish, facilitated by automobile access. Home and garden improvements were showcased in local venues, such as the 1931 National Home Show in Louisville. The promotion of Seneca Gardens is illustrative:

Seneca Gardens, KY

City History

Beautiful
SENECA GARDENS

A garden spot . . . one of the most desirable home building locations about Louisville! Low in cost—per lot—but high in ideals as to design and construction.



DRIVE OUT TODAY
and see these charming building sites . . .

- DELL ROAD
- VALLETTA ROAD
- GLADSTONE AVE.

A gorgeous vista of scenic beauty where one can really live in peace and enjoyment . . . far from the noise of the city . . . yet close to the heart of Seneca.






Visit Us Today
AT FIELD OFFICE ON VALLETTA RD.
FRANK BROOKE, Sales Agent
FIDELITY & COLUMBIA TRUST CO.
Agents

“Drive to” Seneca Gardens, a “garden spot” only a “stone’s throw” from Seneca Park. 1930s advertisement found in “A History of the City of Seneca Gardens,” Dec. 1991.

This article, from the Aug. 1, 1937 edition of the *Louisville Courier-Journal*, lauded homebuyer investment in the "well-planned and well-kept" neighborhood featuring "beautified" plots.

43 Home Sites Are Sold In Seneca Gardens

17 Residences Are Constructed

An indication of the interest in new homes today is the rapid development of Seneca Gardens, where since April, 1936, forty-three home sites have been sold. Seventeen new homes have been completed there and four are now under construction in the subdivision.

Developers of the area declare that the home site buyer of today is extremely careful to select a lot in a location that provides him with modern improvements, such as gas, city water, lighted streets, wide building lines and a well-planned and well-kept neighborhood. These are important for maintaining future values and for obtaining proper financing at an attractive rate, it was said.

Seneca Gardens was laid out in large lots on both sloping and

level ground, with all the factors affecting land and neighborhood values borne in mind, the developers said.

The majority of homes being built today are well-designed and planned to utilize all available space. Plots are beautified by proper landscaping and planting. Modern heating, plumbing, kitchen equipment and insulation all play their part in the making of the modern comfortable, livable home.

Popularity of Seneca Gardens was attributed to the trend in recent years to outlying areas close to or adjoining the city boundary but readily accessible to the center of the city.

Building, Loan Men Pay Out \$590,000,000

People with money in savings, building and loan associations received about \$590,000,000 the first six months this year from completed savings programs, dividends and conversions of their holdings either partially or fully into cash, reported the United States Building and Loan League.

Gray Promotes Harmony.

When mixing paint, it is a good thing to remember that the addition of a little gray to any two colors makes those two colors harmonize.

The Louisville Home Show exhibitors of 1931 were equally creative in the materials used to model attractive homes and their landscapes.



Innovative use of cake for a model house and landscaping. 1931 Louisville Home Show. Item ULPA P_02360.1 in the R.G. Potter Collection, Univ. of Louisville Photographic Archives.

The desirability of attractive, landscaped residential settings kept apace in the 1950s and 1960s. Foster Gunnison, for example, brought a military-like discipline (perhaps based on his former service to the U.S. Navy) to mass production, but a consummate salesman's acumen for marketing to the key influencer in the home purchase decision—women. Gunnison Homes, the “World’s Foremost Manufacturer of Beautiful Homes,” were advertised as “Man’s Greatest Gift to Women.”²⁹ Gunnison Home advertisements and renderings were always shown with lush, landscaped yards, even the “Champion” homes, the most affordable of the line rolled out in fall 1949 (which appear to be of the type in Seneca Village No. 2). A Champion Home advertisement in a January 1950 issue of the *Terre Haute, Indiana*, newspaper identified the “Landscaped and Sodded” lawn as one of the “Outstanding Features” of the model houses on display by the local Gunnison dealer. Pleasant Ridge in Charlestown, Indiana, across the river from Louisville, is a largely intact Gunnison subdivision (built in 1941 for Indiana Army Ammunition workers) still featuring the original winding roads and cul-de-sacs and other landscape elements, including some of the original street trees.



DIY landscaping at a Champion Ranch House left; Champion landscape idea house right. Both ca. 1951-52. From the Keith Stayton collection.

²⁹Advertisement in the “Homemaker’s Page” of the *Logansport [IN] Pharos-Tribune*, Mar. 21, 1949.

Gunnison Home dealers worked from highly scripted sales materials and marketing approaches from headquarters, based on "statistics" that included the benefit of landscaping:

Gunnison Newsletter, "The Panel," July-Aug. 1950, Vol. 1, No. 2,
p. 4 (emphasis added)

Best Techniques for Showing Demonstration Houses

- 90 % of operative builders queried now use demonstration houses—a new high
- 66 % favor furnished demonstration houses—also a new high
- The majority draw crowds by on-site signs and newspaper ads
- 63 % favor Sunday afternoons; 20 % also show Saturdays
- Average number of sales persons on hand—2.7 persons
- 86 % call attention to nationally advertised products, of which about half use interior placards, and other half depends on salesman's comments
- 85 % landscape their demonstration houses, most of them fully
- 58 % hand out literature to visitors, either their own or manufacturers'
- 63 % do not attempt to show work in process
- 88 % let visitors browse through the house, 44 % usher visitors, and the majority do not rope off areas
- Women predominantly are most interested in 1) kitchens, 2) bathrooms, 3) living rooms
- Men predominantly are most interested in construction features
- The average demonstration house is kept open slightly more than two weeks
- Estimated average weekly attendance—1,855
- Estimated number of seriously interested prospects—11 %

June, 1950—NATIONAL REAL ESTATE AND BUILDING JOURNAL

The two ads on the following two pages appeared in the Sept. 18, 1955 special "Home and Garden" section of the *Louisville Courier-Journal*. The marketing of amenities in these two early freeway suburbs (Highgate Springs and Wedgewood) by two different builder-developers, is remarkably similar (including "Landscape" as a feature). Both of these subdivisions are located south of Seneca Village No. 2. Note that the Highgate Springs ad on the following page is a development of Bryan S. McCoy, Jr., the developer of McCoy Manor (platted in 1949), located in the narrow APE of Runway 6.

M'COY REALTY

does it again...

A New Subdivision—Section 3, Highgate Springs
Hikes Lane at Ferman Blvd.

Sewers, All Schools, Churches,
Shopping Centers, Buses, Sidewalks,
Paved Streets, Fireplugs, Street Lights

Call Day or Night: Sam Putnam CH 6139—E. C. Hampton CH 2643—Bryan McCoy FR 9653
McCoy Realty Company CH 6331

FEATURES

- 2 Bedrooms
- Solid Veneer
- 1 1/2 Baths, all tiled
- 5 Double Closets
- Basement
- Large Kitchen with built-in eating area
- Dining Room
- General Electric Air-Well Heating
- Landscaped
- Front Porch
- Designed for Air-Conditioning

Elmer L. Norrington, Builder
Priced from \$17,500
1260 SQUARE FEET
OPEN DAILY and SUNDAYS



Beauty and utility were the links of this desirable home. And two outstanding features of this planned Subdivision Kitchen are the L. & U. custom built-in range and the Shurflo ventilating hood. It's good news for every housewife to have these attractive features included in a kitchen. Get the kitchen beautifully planned by Kitchen Unlimited, 3429 Sanderson Road, CH 6842.



Bryan S. McCoy, Jr.,
Builder

Priced from \$18,250
1300 Square Feet and larger
OPEN DAILY and SUNDAYS



Whisper to the beauty of the opportunity to live in a beautiful Subdivision with a kitchen featuring an automatic water and range. In Subdivision plan the best in kitchen ventilating for housewife. Get the kitchen beautifully planned by Kitchen Unlimited, 3429 Sanderson Road — CH 6842.

FEATURES

- 2 Bedrooms
- Solid Veneer
- 2 or 1 1/2 Baths
- Fireplaces
- Basement
- Kitchen-engineered kitchen with built-in range and oven
- 2 Large Double and 3 Single Closets
- Dining Room
- Forced Air Gas Furnace
- Designed for Air-Conditioning
- Landscaped



Wedgwood Subdivision



Offers Basements and Future Expansion

Located at Taylorsville Road and Watterson Expressway is another beautiful subdivision developed by Highbaugh and Highbaugh, Realtors. Homes with adaptable designs where you will enjoy more living comfort in every room. Wedgwood has city gas, lights, water and sewers, concrete streets and sidewalks. Completely landscaped, near bus line, shopping centers, schools and churches.



\$1000 DOWN

ON CONVENTIONAL LOANS

FHA LOANS ALSO AVAILABLE

2-Bedroom Homes

- Fireplace
- Walnut Paneling
- Unfinished Upstairs
- Large Kitchen
- Full Basement

- Forced Air Furnace
- Sliding Door Closets
- Dining Area
- Youngstown Kitchen
- City Gas, Lights and Water
- Sewers

(With brick gables \$100.00 more)

\$15,500

(With brick gables \$100.00 more)

\$14,975

Escrow and closing cost approximately \$203.37

Escrow and closing cost approximately \$197.39

Visit us at the State Fair in the M&M Bldg.

HIGHBAUGH & HIGHBAUGH

MAIN OFFICE
509 WEST MARKET
JA 8111

Realtors

SALES OFFICE
3010 WEDGWOOD WAY
CH 9564

While Louisville builders and developers thus had some landscape intent and vision, even for early freeway suburbs such as Seneca Village No. 2, their “completely landscaped” home packages did not preclude individual homeowner elaborations. “Do-it-yourself” promotions abounded through advertising and volunteer groups, such as neighborhood homemakers clubs. The Strathmoor Homemakers Club meeting of Oct. 9, 1950, for example, featured the club’s “landscape leader,” who gave a “landscape lesson” and took orders for magnolia and pink dogwood trees.³⁰

During the 1960s, beautification of the environment was elevated to national status through President Lyndon B. Johnson’s and Lady Bird Johnson’s interest. The Presidential Task Force on Natural Beauty formally convened May 24-25, 1965 in Washington, DC.³¹ Over 800 individuals and organizations from throughout the United States participated (including Grady Clay of Louisville). First Lady Mrs. Johnson addressed the group in an opening session and stayed throughout the two days, and the president presided over the closing session in the East Room of the White House. Groups tackled highways, parks, Army Corps projects, and other intrusive infrastructure, while the “New Suburbia” group recommended enhancements to the natural features of suburbia in America. “Beautification” trends of the 1960s definitively included early freeway-era suburbs.

In sum, the vegetative components of these eras of suburban developments still contribute to their historic significance. Returning now to the excerpts of *Louisville Survey East Report* that were selected for inclusion in Section 2.0 of the draft CRE, the excerpted text requires explanation and expansion, as follows.

Eighteenth and Nineteenth Century Development Should be Addressed

The excerpted history in Section 2.0 includes little reference to land use by Euro-Americans in this area prior to the 20th century. The land that now encompasses Kingsley, Strathmoor, and the suburbs west of Bowman Field (e.g., Seneca Vista, Seneca Gardens, Seneca Manor, McCoy’s Manor) were part of John and Lucy Speed’s Farmington estate, a Gentleman Farm. The Speeds subsequently sold this area in the 1825 to 1846 timeframe to their estate

DIY landscape promotion,
Louisville Courier-Journal,
Sept. 18, 1955

³⁰“Homemaker Clubs - Strathmoor,” *The Jeffersonian, Jeffersontown (Jefferson County) Kentucky*, Nov. 24, 1950, p. 3.

³¹The Task Force recommendations and presidential interest were instrumental in the enactment of the National Historic Preservation Act of 1966. Barras, Leslie E. 2010. *Section 106 of the National Historic Preservation Act: Back to Basics - Part 2: Technical Report*, pp. 6-8.

gardener Jacob (and his spouse Henrietta) Wetstein (of Swiss origin).³² The Wetstein's house at 2501 Denham Road still exists and is in the full APE. By 1913, much of the Wetstein tract had been subdivided in conveyances, although Fig. 2.2 in the draft CRE (p. 16) shows remaining tracts north of Taylorsville Rd. in ownership of Ed Wetstein and the Chas. Wetstein estate (sons of Jacob and Henrietta).

The Importance of the Streetcar in Spurring Suburban Development Needs Emphasis

The excerpted history could be read as emphasizing the development of early automotive suburbs around Taylorsville Road, thus minimizing the early and "potent impact" on county-wide suburban land development associated with the Beargrass Railway Company's construction of six electric trolley lines (the interurban) beginning in 1904 and operating until 1936.³³ Addressing the import of the interurban with respect to suburban residential development would help correct the misimpression of some members of the general public that Bowman Field preceded all surrounding residential development.

The Jeffersontown Division ("J-town line") of the interurban served as the impetus for conversion of farms to suburban development in the present day environs of Bowman Field. A 30-ft. strip of land along Taylorsville Road was deeded by Special Commissioner W.J. Semonin to the Louisville & Interurban Railroad Co. in June 1903,³⁴ which became the J-town line. Regular runs were underway by 1904, increasing property values along the entire line from 50% to 200%.³⁵

By 1908-09, land promotion along Taylorsville Road was in high gear, resulting in the platting of characteristically linear streetcar suburbs.³⁶ Kaelins Subdivision, at the intersection of Taylorsville and Bardstown Roads was platted in September 1906; Woodbourne in December 1908; and Bon Air in December 1909 (each plat depicting proximity to the "Beargrass Railroad," "Louisville Railway," or "electric car line" on Taylorsville Rd.).³⁷

Subsequent streetcar suburban developments included Strathmoor (1920); Broadmeade (1922); Briscoe Subdivision 1 and Addition (1922); Strathmoor Addition (1923); Kingsley (1925, platted as an "Extension of Strathmoor"); Beaumont (1925); Broadmeade Sec. 4 (1926); Hathaway (1926); Airview (1928); Seneca Village (1929); and Broadmeade Sec. 5 (1931).

In addition to the J-town line, the Okolona Division and Prospect Division resulted in other streetcar garden suburb developments that exist today and that serve as appropriate comparison when evaluating the qualities of integrity: the National-Register listed Audubon

³²"A History of the City of Seneca Gardens, Kentucky," December 1991. Acknowledgements of contributors provided by George Stroud on p. 2.

³³The "potent impact" was described in "Rapid Transit Converts Country Towns Near Louisville Into Charming Suburbs," *Louisville Courier-Journal*, Jan. 2, 1909.

³⁴Jefferson County Deed Book 592, 43.

³⁵"Rapid Transit Converts Country Towns," Jan. 2, 1909.

³⁶*Historic Residential Suburbs* notes the continuous corridor layout of streetcar suburbs, p. 20, as opposed to those of earlier railroad suburbs.

³⁷PFTT has prepared a table that identifies all suburban development around Bowman Field by historically platted names and includes plat book references, developers, and like information, available upon request.

Park along Preston Highway and the James T. Taylor Subdivision along Upper River Road (National Register nomination pending 2015), respectively. It should be noted that the James T. Taylor Subdivision is a streetcar-era garden suburb planned and developed by an African American developer (James T. Taylor) for African Americans exclusively (he deed restricted “Caucasians” from the neighborhood). The district-wide intentional tree plantings (Mr. Taylor’s, homeowners’) are an individual contributing element to the historic significance of the neighborhood from 1920-1965.³⁸

The Relationship of Seneca Park and Bowman Field Should be Clarified

The excerpted text from the *Louisville Survey East Report* states that the Von Zedtwitz³⁹ land was acquired to establish Bowman Field, which had “the effect of adding a large new section of institutional open space to the city-scape” and that this “excess land was developed as Seneca Park” (draft CRE, p. 17). This excerpt infers that the park was an afterthought or excess to the airport property, when the two uses developed almost contemporaneously. The text should be clarified in this regard. Following conveyance of the Von Zedtwitz tract to the Board of Park Commissioners (BPC), the group accepted the land into the park system and named it as “Seneca Park” at a regular meeting held on Aug. 27, 1928.⁴⁰ No doubt the success of the adjacent and contiguous Cherokee Park undoubtedly promoted the plans for another park, which was the last public park designed by the Olmsted firm in Louisville (1928). Further comments regarding Bowman Field and Seneca Park, and the omission of these resource in the draft CRE, are addressed in PFTT’s comments on Section 3.0 below.

The Historic Context Needs to Include the Post-WWII Early “Freeway Suburbs”

Two of the residential areas within the narrow APE—Seneca Village and Seneca Village No. 2 (located south of Taylorsville Road and Runway 33)—were developed as early freeway suburbs, during a real estate boom spurred by housing needs for war veterans and their families, ...⁴¹ By the time that Seneca Village No. 2 (and No. 3, to the south of No. 2, divided by the highway) were platted in 1951 and 1955, respectively, the highway was identified in the plats as the “Inner Belt Highway” and “Henry Watterson Expressway,” respectively. Construction on the Inner Belt Highway (today, the Watterson/I-264) began in 1949.⁴²

A basic research effort to inform the history presented in the draft CRE would have revealed the additional importance of city sewer service in the development of the post-World

³⁸Ball, Robert W. *James T. Taylor Subdivision. Nomination to the National Register of Historic Places*. 2014.

³⁹The *Louisville Survey East Report* refers to the “Von Zedtwitz” lands, and the draft CRE repeats this spelling. The correct spelling of the family name is “Von Zedtwitz,” see, *inter alia*, *Von Zedtwitz v. Sullivan, Alien Property Custodian*, 26 F.2d 525 (DC App. 1928) (failed attempt to reclaim the confiscated land) and Waldemar Conrad Von Zedtwitz’s conveyance of 540.07 acres to the Louisville Board of Park Commissioners, Jefferson County Deed Book 1347, 95 (recorded June 14, 1928). The family name is spelled correctly in Kramer’s “The Strange Genealogy of Louisville’s Bowman Field and Seneca Park,” 1986.

⁴⁰“Seneca Park is Name Selected for Von Zedtwitz Property Here,” *Louisville Courier-Journal*, Aug. 8, 1928.

⁴¹“House Hunters Here Went Suburban Faster in ‘52 Than Any Previous Year – 67 Pct. Built Outside of City” and “Express Roads are Certain to Cause Great Changes in Real-Estate Values,” by Grady Clay, Real Estate Editor, *Louisville Courier-Journal*, Jan. 18, 1953.

⁴²*Encyclopedia of Louisville*, p. 926.

War II early freeway suburbs of this area, such as Seneca Village and Seneca Village No. 2. The Taylorsville Road-Hikes Lane area was reported as second highest in suburban growth in the early-to-mid 1950s, with homes selling in the range of \$14,000-\$18,000.⁴³ "Drainage" features were prominently addressed in advertising, such as this ad for "Lynnview" that ran in the *Louisville Courier-Journal's* Sunday morning special edition on homes and gardens on September 18, 1955: "No Sewerage Problems Here - Both Sanitary and Storm Sewers are in."

The draft CRE correctly notes that the architectural styles and materials of construction of these neighborhoods reflect the more modest socioeconomic conditions of the initial inhabitants, including the prevalence in Seneca Village No. 2 of pre-fabricated houses by Gunnison Housing Corporation of New Albany, Indiana. Foster Gunnison, who aspired to "organize the General Motors of the homebuilding field," pioneered the mass production and use of waterproof plywood, stressed-skin panels for walls, floors, ceilings, and roofs, a technology first developed by the U.S. Forest Products Laboratory of the U.S. Department of Agriculture.⁴⁴

⁴⁵

The Historic Context of Jewish Settlement and Community Development Needs to be Evaluated

There are resources within the narrow and full APEs that require evaluation under Criterion A and C for associations with settlement of Jewish families and the construction of related faith and community institutions. Two written resources have primarily informed our understanding of the Jewish community in the environs of Bowman Field:⁴⁶ *Adath Louisville, The Story of a Jewish Community* and *Jewish Louisville, Portrait of a Community*.⁴⁷

Ely's work describes the movement of Jewish families from downtown Louisville to the Highlands/Taylorsville Road area from the 1930 to the 1970s, which was the impetus for construction of the current Jewish religious and community institutions in the Bowman Field area. While some neighborhoods had deed restrictions that prohibited sales to Jews, others did not, on a block-by-block basis. According to Ely, Castleberry Road and Village Drive were

⁴³"All Records Broken for Home Building in Louisville Area," by Michael J. O'Dea, President, Kentucky Real Estate Association, *Louisville Courier-Journal*, Sept. 18, 1955.

⁴⁴Gunnison Homes, Inc. United States Steel Corporation Subsidiary. 1949. "A Story In Pictures," New Albany, Indiana; "A Brief History of Prefabrication," reprinted from *The Architectural Forum*, Time, Inc. 1943, pp. 10, 64. The six articles in the "Brief History" originally appeared in the magazine's issues of Dec. 1942 and January, February, March, April, and June 1943. PFTT is fortunate to have access to these materials, and many of Gunnison's own publications from the 1950s, through a loan from Mr. Keith Stayton, who purchased the collection at an estate sale of a Gunnison salesman who had lived in Jeffersonville, Indiana.

⁴⁵Although there was a boom in Gunnison houses in Louisville and throughout the U.S. in the early 1950s, the first Gunnison homes were erected much earlier, including New Albany's first Gunnison, for Harry Barth on North State Street, in September 1937. "Gunnison Home Under Way Here," *The New Albany (Indiana) Ledger and Tribune*, Sept. 17, 1937, p. 7. The first Gunnison test models in Louisville were erected in July 1936 on Larchmont Avenue (1407, 1409, 1411, 1413, 1415, 1417, and 1432). Louisville Metro Archives and Records Center, "Larchmont" file.

⁴⁶PFTT appreciates the generosity of time and information provided by Alan Engel, the former director of the Jewish Community Center, to educate us and provide resources for further research.

⁴⁷Landau, Herman. 1981. *Adath Louisville, The Story of a Jewish Community*. H. Landau and Associates. Louisville, KY. Ely, Carol. 2003. *Jewish Louisville, Portrait of a Community*. Jewish Community Federation of Louisville's Foundation. Louisville, KY.

almost completely Jewish in the 1950s and 1960s, but Sulgrave Road, one block over, was restricted.⁴⁸ Cherokee Gardens was restricted, but Meadows Road was not. One former resident recalled that “We grew up in the Bon Air neighborhood [south of Bowman Field], a neighborhood that the Catholic kids called ‘O Little Town of Jerusalem’ because of the majority of Jewish families.”⁴⁹

Chapter 5 of *Adath Louisville* provides a history of the Congregation Keneseth Israel, whose synagogue at 2531 Taylorsville Road is located within the narrow APE and is wholly unevaluated in the draft CRE. This congregation, which is affiliated with the United Synagogue of Conservative Judaism, dates to 1926 when the predominantly Russian and Lithuanian B’nai Jacob and Beth Hamedrash Hagodol congregations in downtown Louisville merged because of their discomfort with “local deviations” from traditional Judaism. Construction of I-65 demolished their initial synagogue and their second building, at Preston and Fehr, was sold to the Volunteers of America in the 1930s.⁵⁰ By the 1950s, the congregation’s third synagogue, at Floyd and Jacob Streets, was distant to the member families who had moved to the confluence of Bardstown Road and Taylorsville Road, prompting a 1956 vote to move to the Bowman Field area.

A 4.6-acre tract, located on Taylorsville Road and situated within a 2-mile radius of ¾ of the Keneseth Israel members, was purchased for \$67,000.00.⁵¹ Thomas J. Nolan & Sons designed the educational center, and a groundbreaking ceremony was held on June 9, 1963 for the construction by Platoff Construction Company. The congregation used the educational center first while they were fundraising for the sanctuary. Ultimately, groundbreaking for the sanctuary was held in June 1969 and services started March 27, 1971. Joseph & Joseph Architects, who “built much of 20th century Jewish Louisville,”⁵² designed the sanctuary and I. Bush & Sons constructed the building. The current sanctuary is known as “The One with the Windows” because of the twelve distinctive inverted triangular windows (and associated interior artwork) that line the front façade, created by artist and member Bill Fischer.⁵³

A history of congregation Anshel Stard is found in Chapter 4 of *Adath Louisville*. Construction of I-65 also displaced this congregation and its synagogue in downtown Louisville. Aware of the proposed highway construction in the late 1950s, the leaders considered that their membership was moving to the “east end” of Louisville and that the Young Men’s Hebrew Association (YMHA) had purchased 16 acres on Dutchman’s Lane across from Bowman Field.⁵⁴

⁴⁸*Jewish Louisville*, p. 151.

⁴⁹*Ibid.*, p. 152. A current, long-term resident of Drayton Drive recalls the neighborhoods as having “religious enclaves,” with Kingsley predominantly Catholic, and Valletta and Meadows Roads predominantly Jewish; it left an impression on the resident that the Jewish families had no televisions in their house. Personal interview with L. Barras, July 2, 2012.

⁵⁰*Adath Louisville*, p. 57.

⁵¹*Ibid.*, p. 61. Ely states that Seneca Gardens tried to block construction of the synagogue, but lost a lawsuit filed by the congregation, p. 157. See also “Suit seeks rezoning of site for Synagogue Keneseth Israel, city can’t block synagogue,” *Louisville Courier-Journal*, Mar. 7, 1959.

⁵²*Jewish Louisville*, p. 103.

⁵³www.kenesethisrael.com/#!/the-one-with-the-windows/c10z0.

⁵⁴*Adath Louisville*, p. 52.

In 1955, the congregation purchased 17.5 acres adjoining the YMHA property. The first phase of the synagogue construction opened in early 1958.⁵⁵

The current location of the Jewish Community Center (JCC) at 3600 Dutchman's Lane dates to the mid-1940s when the YMHA began fundraising for a new building to replace the one at Jacob Street and 2nd Street.⁵⁶ A membership survey determined that 57% of the approximately 8,000 Jewish residents of Louisville lived in the Highlands or Taylorsville Rd. area.⁵⁷ After a siting study that included land tracts now occupied by Mid-City Mall and Bellarmine University, the Association selected the Dutchman's Lane location, across from the Big Springs Country Club.⁵⁸ The JCC opened on Dutchman's Lane on Dec. 10-11, 1955.⁵⁹ In 1978, the City of Louisville gave land use approval to build Shalom Towers on the site of the former JCC ball fields, and the first residents began to occupy the building in September 1979.⁶⁰

3.0 Results of the Architectural Survey

PFTT provides section-by-section comments below. However, the omission of re-evaluation of the Bowman Field Historic District is addressed first.

Bowman Field Historic District

Every map depicting the undertaking in the draft CRE erroneously identifies the boundaries of the Bowman Field Historic District. In particular, the Administration Building (the Art Moderne terminal) is excluded in the maps. The drawings at the end of the National Register nomination depict the National-Register boundaries of the terminal, Curtiss Flying Service Hangar, and Army Air Corps Hangar and associated areas (approximately 15 acres) when the district was listed in 1988.⁶¹

The three buildings and immediate environs were listed under Criterion A (for association with transportation) and Criterion C for architecture, and the terminal was also listed under Criteria A and C for association with the WPA program and the work of Wischmeyer and Arrasmith. The CRE needs to evaluate Bowman Field *in its entirety* for historical significance and expanded boundaries. The nomination is almost 30 years old. Much more information is now available about Bowman Field and its unique role in civil and military aviation over the past 90 or so years.

Section 800.4(c)(1) of the ACHP's Section 106 regulations provide that "[t]he passage of time, changing perceptions of significance, or incomplete prior evaluations may require the agency official to reevaluate properties previously determined eligible . . ."⁶² In addition, the

⁵⁵Ibid., p. 54.

⁵⁶Ibid., p. 94.

⁵⁷*Jewish Louisville*, p. 153.

⁵⁸Ibid., p. 159.

⁵⁹*Adath Louisville*, p. 102.

⁶⁰*Jewish Louisville*, p. 198.

⁶¹The State Review Board minutes of its Sept. 22, 1988 meeting reflect that the LRAA objected to the listing.

⁶²See also *SHPO's Specifications*, p. 28.

Kentucky Heritage Council's requirements for historic architectural assessment reports provide that "[e]xisting National Register properties shall be reevaluated."⁶³

With respect to the period of significance, the beginning year of the period of significance (1929) should be re-evaluated for an earlier date, possibly 1923, the year of incorporation of the Aero Club of Kentucky, the first operator. The author of the nomination selected the year 1929 based upon construction of the Curtiss Flying Service Hangar. However, there was enough air traffic that the City of Louisville adopted an ordinance on March 21, 1923 requiring planes and balloons to maintain a minimum altitude of 2,000 feet above ground level (excepting aerial photography), and establishing civil fines of \$10 to \$100 per offense.⁶⁴ During the winter of 1925, *Miss St. Petersburg*, one of Henry Ford's "tin geese" planes, departed from Dearborn, Michigan on its way to Florida to be put into air mail service. The all-metal plane veered off course due to snowstorms and hoped to land at Bowman Field, but the airport was "obscured due to smoke hovering over the city," although the plane was able to refuel there the following day.⁶⁵ Charles Lindbergh's brief stop at Bowman Field in the *Spirit of St. Louis* on August 8, 1927 was greeted by "some 10,000 spectators."⁶⁶ By 1933, the City of Louisville had adopted a master plan that included an airport component even though Bowman Field was located outside of the city limits.⁶⁷

The end date of the nomination's period of significance is 1937, when the terminal expansion was completed. We propose that the end year be advanced to 1965 (50 years from the current period). In doing so, the airfield's significance during World War II, the Korean War, and the Vietnam War would be recognized (including the conversion of WWII barracks into veterans and public housing in the late 1950s to early 1960s).

With respect to Criterion A, the 1988 nomination recognizes the expansion of the terminal in 1936 under the auspices of the New Deal WPA. However, construction of the

⁶³Ibid. p. 38.

⁶⁴"Aeroplanes and Balloons Flying at Certain Heights," Sections 1-3, approved Mar. 21, 1923. *1923 Compilation of General Ordinances of the City of Louisville*, compiled by Wm. T. Bassett, Department Counsel, pp. 20-21. An amendment in 1931 required that planes register with the Board of Park Commissioners and prohibited throwing advertisements out of planes. By 1954, the ordinance had been moved to the "Morals, Safety and Welfare" chapter of the Louisville Code of Ordinances (Sections 86-35 through 86-40), but maintained the minimum flying height restriction of 2,000 ft. and required aircraft registration with the Louisville and Jefferson County Air Board. Revisions adopted in 1961 required that fixed wing aircraft altitude be maintained no lower than 2000 ft. and helicopters no lower than 1000 ft. "Aircraft," Chapter 503. *The Codified General Ordinances of Louisville*. This ordinance remained the same (except for a re-designation from Ch. 503 to Ch. 91 in 1980) through 1994. The 1994 version, Sec. 91.99 increased civil penalties for minimum height limits to \$25-\$100 and added up to 30 days imprisonment for violations. The ordinance was repealed sometime between 1995 and 2002.

⁶⁵"Lost 'Tin Goose' Fails in Efforts to Rejoin Fleet," *Ludington [OH] Daily News*, Dec. 30, 1925.

⁶⁶LeMay, Jason, SFC(R) John M. Trowbridge, and CW4(R) Harold Canon, "Kentucky's Flying Soldiers, A History of the Kentucky Army National Guard's Fixed Wing Aviation," p. 13.
<http://kynghistory.ky.gov/nr/rdonlyres/e2347f73-5996-4924-ad3f-7b1e58f4300a/0/kynghistory60thhistory.pdf>.

⁶⁷"An Ordinance to adopt a plan for the location of airports as a part of the master plan for the physical development of Louisville, including areas outside its boundaries," approved Oct. 20, 1932. *1933 Supplement to the 1931 Compilation of the General Ordinances of the City of Louisville*, p. 296. Compiled by Gavin H. Cochran and L.L. Wehner of the Department of Law.

airport's first concrete runways was also a WPA and PWA project,⁶⁸ which needs to be reflected in an updated evaluation. The original concrete runway configuration (depicted shortly after construction in Fig. 2.3, p. 18, of the draft CRE) is largely still intact, although parallel runways have been constructed. Further, the length of the original runways has been maintained as a conscious decision. The Jefferson County Air Board, predecessor to the LRAA, noted in public testimony in 1967 that "[t]o lengthen the runways [at Bowman] would only open the airport to a larger category of aircraft, which should be accommodated at Standiford Field. It is believed that the runway length at Bowman "serves as a check to keep the size of the aircraft using the field compatible with the surrounding residential neighborhood."⁶⁹

Bowman Field's historical significance under Criterion A should also be recognized for associations with military readiness, preparedness, and response from the early-to-mid 20th century. (The 1988 nomination only touches upon a limited aspect of this theme, primarily the construction of the Army Air Corps Hangar in 1931 for the 325th Observation Squadron, Organized Reserves.) Readily available research into Bowman Field's military past was conducted for the 2006 publication "Kentucky's Flying Soldiers, A History of the Kentucky Army National Guard's Fixed Wing Aviation." The history in this publication discusses the period from the Army's occupancy at Bowman Field starting in 1922 and the subsequent principal military tenant activities at the airfield, with an emphasis on the period through the Korean War. The loss of the Kentucky Air National Guard light aviation section and heavy maintenance section to Frankfort's Capitol City Airport in 1960 as also reviewed.

The legacy of military use of Bowman Field is also reflected in the transition of some of the WWII-era barracks into affordable housing for returning veterans of the war, and later public housing, before their demolition in 1963.⁷⁰

3.1 Overview

3.2 Big Spring Country Club

Our consultation comments on this private club are hindered by the lack of physical access to the site and its records. It appears from Fig. 1.4 that nineteen (19) mature trees are proposed to be removed, in addition to the 54 trees that were harmed in the Safety Program's fall 2013 action (39 cut; 15 trimmed – see cumulative effects discussion above). We also note that the draft CRE evaluates Big Spring Country Club in its entirety (see also Fig. 3.1), including the areas outside of the narrow APE. What is the rationale for doing so, and yet not evaluating the full boundaries of Seneca Park and Bowman Field in the same manner?

LRAA has stated that the fall 2013 removal action affected trees for which there were existing easements at Big Spring; why does Fig. 1.5 then only show the area of proposed aviation easement and not the existing easements? Elsewhere in the report, Fig. 1.6

⁶⁸Statement of Foster V. Jones Before the Mayor's Citizens' Advisory Committee," Jan. 13, 1967, p. 4. See also the Goodman-Paxton [KY WPA Director] Photographic Collection, PA64M1, Special Collections, University of Kentucky. http://kdl.kyvl.org/catalog/xt7nvx05xv47_266_34/guide (men paving Bowman Field runway).

⁶⁹Statement of Foster Jones," p. 5.

⁷⁰Ibid., p. 6.

specifically, the report depicts existing easements outside of the narrow APE (in Hathaway, just southwest of Runway 33 and south of Taylorsville Rd.).

3.3 Seneca Park Golf Course

The draft CRE erroneously evaluates only the Seneca Park Golf Course—and not the entirety of Seneca Park of which the golf course is one feature, and not to the Seneca Park lands and public paths along present-day Pee Wee Reese Road. It should be noted that there are mature trees in Seneca Park along the western edge of Pee Wee Reese Road that appear to be slated for destruction in the Bowman Field program and have not been evaluated in the draft CRE.

The draft report concludes that “[a]s a designed landscape, the golf course possesses little degree of its **original design integrity** (p. 46, emphasis added).” The basis for this conclusion is dubious since the previous page states that the “**original design layout** could not be located (emphasis added),” and, thus, the golf course eligibility evaluation is made with reference to a “new layout” dated 1955. The reference section of the draft CRE indicates that the Seneca Park golf pro was interviewed on Aug. 19, 2014 (p. 121).

However, the Principal Investigator did not contact any Metro Parks landscape architect or planner to obtain their professional perspectives on historical significance and evaluation of integrity or to gain access to the Seneca Park files. Through a simple search of the Metro Parks records by a PFTT volunteer, several relevant documents were obtained that are essential for an evaluation of Seneca Park and all of its features, including, but not limited to:

- The “General Plan for Seneca Park, Olmsted Brothers – Landscape Architects, Brookline – Massachusetts” (1928), showing the “panhandle” portion to the northeast and the entire north-south tract, including the original design of the golf course and the landscaped “automobile concourse” on the west side of Bowman Field (the “aviation field” is also included in the plan drawing), linking the park and Taylorsville Road. Also shown are the designs for the landscaped entrances and exits that integrated Seneca Park with the surrounding neighborhoods. The Olmsted firm’s Seneca Park Planning Plan and Planting Plan of 1930 are available in the Metro Parks files.
- A 1928 aerial photograph of the park and environs by Bowman-Park Aero Co.
- A deed from Wetstein Land Co. to the Board of Park Commissioners (BPC) (Jefferson County Deed Book 1411, 169, Sept. 19, 1929) conveying a portion of the east side of the Seneca Vista subdivision for construction of a park road to plans and specifications of the BPC by Sept. 1, 1929. Other deeds of the same period on file at Metro Parks conveyed entrances from existing neighborhoods to the BPC for incorporation into Seneca Park.
- A deed from William Randolph to the BPC (Jefferson County Deed Book 1671, p. 88, May 2, 1938) conveying triangular lot “F.” This lot is now the treed entrance to Seneca Park in the northwest corner of the intersection of Taylorsville Road and Pee Wee Reese Road, where the public walking path of the park turns to the north (along the west side of Pee Wee Reese Road). This entrance (as well as the Seneca Park land

on the east side of "Park Road") is depicted in the 1938 "Planting Plan of Taylorsville Road Entering Seneca Park," prepared by Carl Berg for the BPC.

- A Map of Seneca Park Showing Proposed Improvements, 1936-1937, Board of Park Commissioners, Carl Berg, Landscape Architect. This map presents the same overall plan view as the 1928 Olmsted General Plan, but reflects changes that had been implemented, including the elimination of the Beargrass Creek amphitheater, and the proposed changes for the WPA projects at the golf course.

Other key documents that need to be reviewed for the CRE include the *Master Plan for Louisville's Olmsted Parks and Parkways*

Additional considerations relating to evaluation of Seneca Park as a whole, including vegetation features, are as follows:

- The period of significance should begin at least from 1928 (when the BPC acquired the Von Zedtwitz tract) through 1965 (50 years from the current undertaking).
- The evaluation of Seneca Park should include the public's participation over the decades in maintaining and perpetuating the vegetation, including the tree canopy. This phenomenon is important to the associative quality of the Park's integrity (the conscious perpetuation of the vegetation). As early as 1932, fifteen trees were planted in the park by the Fifth District Federation of Women's Clubs to commemorate George Washington.⁷¹ The Washington Memorial trees include "native woods" such as American elm, ash, sycamore, beech, and pine oak. The Olmsted Conservancy has spent countless hours of its staff time and been supported by volunteer labor to eradicate invasive species in the park and restore native habitat. The American Cancer Society Living Memorial Grove of Trees program at Seneca Park was initiated in 1998 and is situated along the eastern edge of Seneca Vista for donations of trees (with a minimum donation of \$1,000.00/tree), shrubs, and park benches by families and friends of loved ones lost to cancer or who have survived cancer.
- With respect to the seven qualities of integrity, we defer to Metro Parks' views as a consulting party. We offer the following observations, however:
 - **Location.** The park is still bounded within the original boundaries established through acquisition of the Von Zedtwitz tract and the associated private parcel conveyances for connections to adjoining neighborhoods.
 - **Design.** In comparing the original 1928 General Plan to the 1936-37 proposed improvements, later layouts, and current conditions, it is clear that portions of the original Olmsted plan were never executed or were modified over the decades. However, that is true for all Olmsted plans. The evaluation should address how modifications to the General Plan compare to the execution of other relevant Olmsted plans, including those in Louisville.
 - **Setting.** The setting has been compromised by the intrusion of I-64 across the northern portion of the park. However, the intact tracts of the park still seem to

⁷¹"Federation gives city 15 trees planted in Seneca Park as Washington Memorial," *Louisville Courier-Journal*, Mar. 27, 1932.

convey integrity of setting (and feeling), including the buffering that has been developed along I-64.

- **Materials and Association.** Vegetation, including trees, in Seneca Park are subject to a planned, intentional program of historic preservation treatment and ecological restoration the concepts of which are set out in the *Master Plan for Louisville's Olmsted Parks and Parkways*.
- **Workmanship.** Specific to vegetation, the plantings and their maintenance have reflected the efforts of landscape architects, including those of Metro Parks.
- The WPA program within Seneca Park included not only the golf course improvements described in the draft CRE, but an unrealized plan to develop a Recreation Center in the panhandle portion. A plan advertisement featured an outdoor "Safety Pool," flanked by a diving pool and wading pool; an indoor pool; indoor tennis courts; outdoor tennis courts; badminton courts; and horseshoe pits, all landscaped. The WPA's contribution to the \$80,000.00 was to be 65%, with the rest raised through the sale of memberships; non-members would be charged a daily use fee.⁷²
- *National Register Bulletin, Historic Residential Suburbs* (p. 4) recognizes that parks and pathways located adjacent to historic neighborhoods can contribute to the significance of those neighborhoods if they are 'integrally related to the neighborhood by design, plan or association and share a common period of historic significance.' It is clear from the BPC's early land acquisitions of Seneca Park entrances to Seneca Vista, Cherokee Gardens, Cherokee Court, and Beals Branch Rd./Alta Vista that a seamless link between garden suburbs and the suburban park was consciously planned. Further, many of the original residential plats (e.g., Seneca Vista, Seneca Village, Seneca Gardens, and Seneca Gardens 2) identify the planned developments specifically with reference to Seneca Park. In addition to independently evaluating Seneca Park as a historic property, the evaluations of the surrounding garden suburbs should consider the park as a contributing resource to those districts.

3.4 Seneca Vista Neighborhood

The text does not identify the number of trees proposed for removal in Seneca Vista in the narrow APE. Although it is difficult to discern in Figure 1.6 of the appendix, it appears that at least seventy-five (75) mature trees are targeted for removal. However, it is not clear whether some of the mature trees on the east side of Seneca Vista are within private properties or are a part of Seneca Park, the latter of which has been wholly unevaluated in the draft CRE. Avigation easements will be newly sought for eight (8) properties in Seneca Vista (p. 59), adding to the twenty-nine (29) properties that are already permanently encumbered in the neighborhood.

Similar to the evaluation of other neighborhoods subsequently addressed in the draft CRE, Seneca Village is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 59), and a period of significance is ascribed for this residential development from 1937-1950. The ending period of significance should be

⁷²Advertisement, *Louisville Courier-Journal*, July 7, 1941, Section 1, p. 12.

advanced to at least 1965, dating back 50 years from the “current” purpose and need for the undertaking. As noted below, Kingsley is the only neighborhood for which the report proposes 1964 as the end year of period of significance (50 years prior to the date of the draft CRE). Seneca Vista and the other neighborhoods need to have a comparable end period of 1965, or the rationale for the distinction explained fully.

The draft CRE notes that Seneca Vista was platted in 1937 by William F. Randolph (p. 59; the text actually says “William H. Randolph,” but this is in error). Prior to Randolph’s acquisition of the land, the property was owned by Joseph Discher (see Fig. 2.2, p. 17, of the draft CRE). In January 1926, Randolph’s firm, the Wakefield-Davis Realty Company, purchased the approximately 27-acre Discher tract for \$55,000.⁷³ Although the company announced that it would begin subdivision development in the spring of 1926, the 1930 aerial photo on p. 88 of the draft CRE (Fig. 3.76) shows the land was still undeveloped. It should also be noted that Wakefield-Davis reported in the 1926 newspaper article that it would hire the “Olmstead [sic] Brothers, landscape specialists,” to work on the layout of a subdivision between Shelbyville and Lexington Roads, near “Fairlawn.” It is not known whether the firm did, in fact, do so; however, it is clear that Randolph was aware of the firm’s work in Louisville and saw the value in using the firm’s services, at least for another development. It should also be noted that Randolph’s plat for Seneca Vista shows “Seneca Park” on the immediate east side of the neighborhood (instead of Bowman Field), and the realty firm subsequently sold a triangular lot from Seneca Vista to the Board of Park Commissioners to connect the neighborhood more directly to the park.

Similar to the evaluation of other neighborhoods in the draft report, the author concludes that the lot layouts, circulation features, and conversion of lots to public green space are still intact, no doubt aided by the deed restrictions that Wakefield-Davis placed upon individual lot development. Nevertheless, the author does not find an intentional design element in the original development of Seneca Vista specific to vegetation and concludes that the “type” and “overall height” of the trees are not considered to be a contributing element of the neighborhood (p. 59). The report also states that some “lesser percentage of plantings” (of what types is not specified) appear to have developed “organically” or by property owners “over time” (ibid.). PFTT submits that the vegetation in Seneca Vista is contributing.

The draft report also states that the LRAA now owns nine (9) lots within Seneca Vista that “have *always* been a part of the neighborhood’s landscape (emphasis added)” (p. 58). It is not clear what this statement is intended to mean. The statement is factually incorrect based on a straightforward reading, because the LRAA’s predecessor purchased the lots in the early 1980s based upon information in the PVA’s records. This statement either needs to be removed or restated accurately.

⁷³“Firm Announces \$115,000 Deals – Wakefield-Davis Realty Company Expands its Activities,” *Louisville Courier-Journal*, Jan. 10, 1926.

3.5 McCoy Manor

McCoy Manor is within the narrow APE, as well as the full APE. Under FAA's initial direction for the Bowman Field Safety Program (compliance with TERPS departure profile guidance), the mature tree canopy in this historic neighborhood would have been substantially harmed. Under the FAA's current instructions for this project, announced in a May 15, 2013 letter from Hanson Engineering to area property owners, there are no trees identified in the only mitigation alternative under consideration by FAA (tree removal). No avigation easements are proposed for the runway approach surface evaluation; easements would have been required if the TERPS departure surface was still the operative profile. However, it is erroneous to conclude, as the draft report does (p. 71), that this neighborhood will not suffer adverse effects from the tree removal program; it will: there will be adverse visual effects from the loss of mature tree canopy in other surrounding historic gardens suburbs.

Similar to the evaluation of other neighborhoods in the draft CRE, McCoy Manor is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 70), and ascribes a period of significance for this residential development from 1949-1957. As noted elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the "current" purpose and need for the undertaking. It should also be noted that this neighborhood features several multi-family properties that were recommended as eligible, with which PFTT agrees. However, the rationale for then determining that seemingly comparable multi-family residential properties developed as infill on Taylorsville Road (see Section 3.10 comments below) are "not eligible" is not clear, and needs to be explained.

The text further notes that key features of the original layout still exist (regularly spaced lots, uniform setbacks, pedestrian and vehicle circulation features), but that "[t]he general vegetation landscape is casual and does not feature an overall design or pattern in terms of trees or shrubbery" (p. 70). PFTT submits that the vegetation in McCoy Manor is contributing.

3.6 Seneca Manor

Under FAA's initial direction for the Bowman Field Safety Program (compliance with TERPS departure profile guidance), the mature tree canopy in this historic neighborhood, including the City of Seneca Gardens of which Seneca Manor is a part, would have been substantially harmed. Under the FAA's current instructions for this project, announced in a May 15, 2013 letter from Hanson Engineering to area property owners, there is one (1) tree that would be removed within the narrow APE. The tree is an approximately 100-ft. tall pin oak in the rear yard of a residence; an avigation easement is proposed as a permanent encumbrance on this property. The property, at 2625 Valletta Road, however, is not depicted in the photos presented in Section 3.6.

Seneca Manor is recommended for eligibility under Criterion A (for unspecified "historical associations," presumably community planning and development as an automotive garden suburb) and C (architecture, but not "design" unlike other neighborhoods) (p. 77), and ascribes a period of significance for this residential development from 1937-1958. As noted

elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the “current” purpose and need for the undertaking.

Similar to the evaluation presented for other neighborhoods, the text notes that key features of the original layout still exist (regularly spaced lots, setbacks, vehicle circulation features). Similar to the other neighborhoods, the report concludes that there was not an intentional design element in the original development specific to vegetation and that the “type” and “overall height” of the trees are not considered to be a contributing element of the neighborhood (p. 78). The report also states that some “lesser percentage of plantings” appear to have developed “organically” (e.g., along fence rows) or in “unmanaged areas” and represent the “taller growing variety” (p. 77). Plantings by individual property owners that appeared to have developed “organically” or “over time” were also observed by the report’s author (ibid.).

Seneca Manor is a part of the City of Seneca Gardens, a sixth class city that has posted historical information about its origins and development on the city website.⁷⁴ The city has actively promoted the preservation, maintenance, and enhancement of its public and private tree canopy over the decades, including the area originally platted as Seneca Manor. The mature street trees along Valletta Rd. (noted in the draft report as exhibiting “some uniformity of high canopy oak trees,” p. 78) are a particularly prominent, though by no means, unique display of vegetative elements that contribute to the garden setting of the neighborhood. PFTT submits that the vegetation in Seneca Manor is contributing.

3.7 Kingsley

Kingsley is within the narrow APE, as well as the full APE. Under FAA’s initial direction for the Bowman Field Safety Program (compliance with TERPS departure profile guidance), the mature tree canopy in this historic neighborhood and small city would have been substantially harmed. Under the FAA’s current instructions for this project, announced in a May 15, 2013 letter from Hanson Engineering to area property owners, there are no trees identified in the only mitigation alternative under consideration by FAA (tree removal). No aviation easements are proposed for the runway approach surface evaluation; easements would have been required if the TERPS departure surface was still the operative profile. However, it is erroneous to conclude, as the draft report does (p. 85), that Kingsley will not suffer adverse effects from the tree removal program; it will. As noted by Kingsley resident Phyllis Hawkins in the June 24th meeting, there will be adverse visual effects from the loss of mature tree canopy in other surrounding historic gardens suburbs.

Similar to the evaluation of other neighborhoods in the draft CRE, Kingsley is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 84), and is ascribed a period of significance from 1926 to 1964. It is curious that Kingsley is the only neighborhood for which an end year of significance dates to 50 years prior to the date of the draft CRE. PFTT agrees with this approach (although it needs to be updated to 1965), and has noted elsewhere in these comments that the endpoint of the period of significance for *all* resources evaluated in this report should date back to at least 1965, 50 years

⁷⁴www.cityofsenecagardens.com/history.htm.

from the “current” purpose and need for the undertaking. Why was Kingsley singled out for an advancement of the end period of significance to 1964/65, when the other historic neighborhoods end year of significance were terminated the year of approximate completion of development?

The draft report notes that Kingsley “retains its distinctive park-like setting of curvilinear streets, public spaces, sidewalks and setback[s]” and the “high degree of architectural integrity” (p. 85). Unlike the other residential neighborhoods, the report does not address whether there seems to have been an intentional design element in the original development specific to vegetation nor does it evaluate whether the “type” and “overall height” of the trees are character-defining. Kingsley’s good fortune in this regard is the happenstance of a 1930 aerial photo, shot from an oblique perspective, which gives a clear view of the street trees in Kingsley some five years after the plat recordation (Fig. 3.76, p. 88). However, the draft eligibility recommendation does not expressly identify the vegetation element of Kingsley’s landscape as contributing. Our view is that the neighborhood-wide vegetation, including trees, is contributing and needs to be explicitly acknowledged in the final CRE. Nor does the evaluation include the landscapes developed in private yards, and the conscious work of the City of Kingsley over the decades to perpetuate the treescape in public and private spaces. Mr. Chris McCoy, Kingsley City Commissioner, described some of the city’s efforts to preserve and enhance the treescape.

The draft CRE (p. 84) also recommends National Register-eligibility under Criterion B, for association with the developer C.C. Hieatt of Consolidated Realty Company. As a measure of Hieatt’s influence, by 1925, the firm reported a total business of \$7,406,553 and, by 1926, Consolidated Realty Company claimed a net worth of over \$25 million.⁷⁵ Hieatt was prominent in the National Association of Real Estate Boards (NAREB) in the 1920s,⁷⁶ and, therefore, would have known J.C. Nichols, the important community builder in Kansas City noted in *Historic Residential Suburbs* for planned, garden suburb and country club developments. Hieatt also ensured that land conveyances within Kingsley contained deed restrictions, consistent with the deed restrictions imposed upon his earlier development, Strathmoor Village.⁷⁷ A conveyance on March 27, 1928 for lots 66 and 67, for example, specified allowable exterior materials for cladding and roofs; specified front and side yard setbacks, front setbacks of vegetable gardens (at least 10 feet from the front building line), maximum heights of the primary structures, and size limits on outbuildings; authorized the construction of fences of vegetation or made of wire.⁷⁸ Racial restrictions were also included in a clause (I) that prohibited properties from being “sold, rented or leased to or occupied by any person or persons of African descent.”

⁷⁵The 1925 revenues were reported in “Realty Company Names Officers,” *Louisville Courier-Journal*, Jan. 15, 1926, while the 1926 net worth of the firm appears in a *Louisville Courier-Journal* advertisement that ran Mar. 5, 1926 for First Mortgage Bonds guaranteed by Consolidated Realty Company.

⁷⁶Hieatt drafted NAREB’s 1926 policy on legislation and taxation in the states of the U.S., which was approved at the mid-winter session in New Orleans in January 1926. “Realtors OK Hieatt Plan of Taxation,” *Louisville Courier-Journal*, Jan. 22, 1926.

⁷⁷*Strathmoor Village, Kentucky Historic Resources Group Survey Form*, prepared by R. Kennedy and J. Ryall, p. 14 of 17. However, per the deed restrictions, Kingsley’s minimum required investment per house construction was \$5,000.00 to \$6,000.00, while Strathmoor Village’s was \$4,000.00.

⁷⁸Jefferson County Deed Book 1326, 405-408.

3.8 Seneca Village

The text does not identify the number of trees proposed for removal in the narrow APE. Although it is difficult to discern in Figure 1.6 of the appendix, it appears that at least thirty-six (36) mature trees are targeted for removal. Avigation easements will be newly sought for twenty-three (23) homes in Seneca Village. Although the draft CRE states that four (4) parcels are encumbered by existing easements (p. 96), Figure 1.6 seems to reflect at least nine (9) residences encumbered by avigation easements (relevant to cumulative effects).

Similar to the evaluation of other neighborhoods in the draft CRE, Seneca Village is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (p. 95), and ascribes a period of significance for this residential development from 1947-1954. As noted elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the “current” purpose and need for the undertaking. With respect to the initiation of the period of significance, the development was platted in 1929 (Fig. 3.89, the original plat, illustrates the promotion of “Seneca Park,” across Taylorsville Road from the proposed development and the proximity to the “interurban railway (Jeffersonstown Division)”). However, the draft CRE states that “the historic homes were built between 1947 and 1954” (p. 95). Did the research reveal any particular reason for the deferred period of development for this ostensibly streetcar-era suburb? What do the Sanborn Maps and City Director research show regarding any potential prior uses between the plat recordation date and 1947?

The text further notes that key features of the original layout still exist (regularly spaced lots, uniform setbacks, pedestrian and vehicle circulation features). Similar to the other neighborhoods, the report concludes that there was not an intentional design element in the original development specific to vegetation and that the “type” and “overall height” of the trees are not considered to be a contributing element of the neighborhood (p. 96). The report also states that some “lesser percentage of plantings” (unspecified as to type of plantings) appear to have developed “organically” (e.g., along fence rows) or in “unmanaged areas” and represent the “taller growing variety” (ibid). “Plantings” by individual property owners over time are were also observed (ibid.). PFTT submits that the vegetation in Seneca Village is contributing.

3.9 Seneca Village No. 2

The text does not identify the number of trees proposed for removal in the narrow APE. Although it is difficult to discern in Figure 1.6 of the appendix, it appears that at least ten (10) mature trees are targeted for removal. Avigation easements will be sought for nine (9) parcels in Seneca Village No. 2, where there are none currently.

The text notes the predominance of Gunnison housing;⁷⁹ however, the architectural styles of the houses are not described. As noted in *House in A Box*, Gunnison design began with

⁷⁹Although the select photos that are found at pp. 105-112 show houses with brick exteriors, which certainly was not a feature of a Gunnison house, at least in original construction.

traditional architectural styles, such as Cape Cod and Colonial Revival.⁸⁰ Starting in January 1951, Gunnison added a ranch-style design in five sizes, two and three bedrooms, in the \$7,000 to \$10,000 range.⁸¹ The draft CRE needs to provide some overview of architectural styles of these pre-fabricated homes, as well as documenting individual styles in the required KHC survey forms.

Similar to the evaluation of other neighborhoods in the draft CRE, Seneca Village No. 2 is recommended for eligibility under Criterion A (community planning and development) and C (architecture and design) (pp. 102-103), and ascribes a period of significance for this residential development from 1951-1960. As noted elsewhere, the ending period of significance should be advanced to at least 1965, dating back 50 years from the “current” purpose and need for the undertaking. The text further notes that key features of the original layout still exist (regularly spaced lots, uniform setbacks, pedestrian and vehicle circulation features). Similar to the other neighborhoods, the report concludes that there was not an intentional design element in the original development specific to vegetation and that the “type” and “overall height” of the trees is not considered to be a contributing element of the neighborhood (p. 103). PFTT submits that the vegetation in Seneca Village No. 2 is contributing.

3.10 Outparcels

The “outparcels” described in this section consist of five properties on the north side of Taylorsville Rd., within the draft APE for Runway 6. The building at 2615 Taylorsville Rd. was built “circa 1950s” (p. 114) and is now an office building; it appears to have been built within the Seneca Vista platted development. The brick buildings at 2605, 2609, and 2613 Taylorsville Rd. and 2542 Gladstone Avenue (which all appear to have also been built within the Seneca Vista platted development) were built “circa 1960s” as multi-family housing. The CRE concludes that none of these outparcels have “significant historical association” or possess “significant architectural merit” and recommends a National Register-ineligibility determination on all five properties (ibid).

However, it is unclear why the multi-family buildings above were deemed non-contributing when the CRE recommends National Register-eligibility status for the post-WWII, brick construction, multi-family residential buildings in McCoy Manor (2634, 2638, 2644, and 2646 McCoy Way, see p. 75), and Seneca Village No. 2’s Bowman Manor Apartments (now condominiums) in the 3400 block of Taylorsville Rd. (see p. 109). The CRE argues, at least with respect to the Seneca Village No. 2 units, that they were constructed “as part of the original development” of the platted neighborhood (p. 102). There is no evidence in either the plat for McCoy Manor or Seneca Village No. 2 that the particular lots were consciously platted for multi-family use, nor is it necessary for that to be the case for the units to have attained their own historic significance.

⁸⁰Johnson, Cynthia E. and Rachel Kennedy. 2006. *House in a Box: Prefabricated Housing in the Jackson Purchase Cultural Landscape Region, 1900-1960*, p. 39.

⁸¹Photograph and caption, *Louisville Courier-Journal*, Nov. 17, 1950, Section 3, p. 8.

Instead, it appears that all of these units were likely built in response to FHA-assisted financial incentives (particularly, Section 608 of the National Housing Act) to promote the construction of rental housing during the 1950s and early 1960s for veterans returning from WWII and the Korean War. Coupled with the scarcity of “suitable” building sites and the costs for demolishing existing homes, builders sought whatever infill lots they could find,⁸² particularly on transportation arteries.

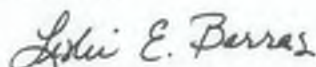
In addition to the multi-family units in the CRE, several other illustrative examples of historic affordable 1950s and 1960s apartments and duplexes exist in Louisville and should be used in the evaluation of all of the Bowman Field-area units. The National Register-listed Arcadia Apartments were constructed in 1950-51 in the streetcar-era Taylor-Berry neighborhood (southwest Louisville), assisted by Section 608 mortgage insurance.⁸³ Although these apartments constitute a larger complex, the commonality to the Taylorsville Road/Gladstone Avenue housing is that the infill “stands in contrast” to the neighboring structures “in terms of building stock and site placement.”⁸⁴ Similarly, and smaller in scale than the Arcadia complex, the “Brownsboro Cottages” in Clifton (2018-2026 Brownsboro Road) were constructed in 1950 as five “demountable” duplexes (possibly Gunnison prefabricated structures) on one of the few remaining unbuilt lots in the 400-acre neighborhood, a narrow strip of land at the base of a rocky cliff. All five duplexes (now in commercial use), have been designated as contributing to the Clifton Historic District, a predominantly Victorian-era neighborhood of quite different building styles and lot development. In summary, rather than evaluate these properties as isolated “outparcels,” the CRE should identify them in the originally platted neighborhood (Seneca Vista) in which they were later built, or as part of a larger suburban historic district, and address them in the context of post WWII-era housing.

With respect to the now-commercial office building at 2615 Taylorsville Road, what “archival research” (p. 114) was conducted to determine its origins and use? Were City Directories or Sanborn maps evaluated and, if so, what information did these sources provide?

Closing

Plea For The Trees appreciates the opportunity to serve as a consulting party and to contribute our own research and knowledge to the identification and evaluation of the cultural resources in the narrow (and full) APE. We look forward to reviewing the next draft of the CRE report and trust that our comments will be reflected in the next iteration. Please use my email lebarra@gmail.com or phone (502-298-1505) to reach me.

Sincerely,



Leslie E. Barras

⁸²“1,000 New Lower-Rent Apartments in Louisville ‘Wouldn’t Hurt the Market A Bit,’ F.H.A. Official Says,” by Grady Clay. *Louisville Courier-Journal*, Oct. 30, 1949.

⁸³Weeter, Joanne. *Arcadia Apartments. Nomination to the National Register of Historic Places*. 2010.

⁸⁴*Ibid.*, p. 3.

October 21, 2015

Ms. Leslie Barras
Plea For The Trees
221 N. Clifton Avenue, #19
Louisville, KY 40206

Dear Ms. Barras:

On behalf of Plea For The Trees ("PFTT"), you have requested my evaluation and opinion with respect to documentation developed during the initial phase of consultation under Section 106 of the National Historic Preservation Act relating to the Bowman Field (Louisville, KY) Safety Program.

Background of the Undertaking

As I understand, Bowman Field is a general aviation airport managed by the local airport sponsor, the Louisville Regional Airport Authority ("LRAA"), and operated with oversight by the Memphis Airports District Office of the Federal Aviation Administration ("FAA"). In its oversight role, the FAA formally evaluates and approves the Airport Layout Plan ("ALP"), an element of the overall Master Plan for the airport. LRAA eligibility for federal Airport Improvement Program funding is linked to meeting FAA requirements for the Master Plan, particularly the ALP element.

The FAA has established a number of imaginary airspace surfaces on and around Bowman Field relating to aircraft approach areas and departure areas for each of the four existing runways ("RW"). Human-made and natural obstructions that penetrate these surfaces and that are determined by FAA to constitute a hazard to navigable airspace are required to be addressed as part of the ALP process. The FAA indicated in December 2011, when this project was first announced publicly, that the relevant surface was the aircraft departure elevation/slope surfaces at each runway end. In May 2013, the LRAA informed property owners around the airport that the undertaking is now based upon FAA's application of the aircraft approach elevation/slope surfaces. According to the FAA and LRAA, there are hundreds of trees that penetrate the approach profile that require "mitigation." To date, the agencies' sole proposed approach to "mitigation" is destruction of these trees through complete removal or trimming the trees. The specifics of the affected trees and proposed mitigation measures for each tree have not been publicly disclosed to date.

PFTT submitted a request to FAA to be recognized as a consulting party in the Section 106 process on May 23, 2014. On June 1, 2015, the FAA responded by letter by informing PFTT that the first consultation meeting would be held on June 24, 2015 and providing a draft Cultural Resource Evaluation. The draft document is titled "Draft Report. Historic Architectural Survey for the Bowman Field Safety Program, Jefferson County, Kentucky" (Brockington and Associates. December 2014) (hereafter "draft CRE," and "Brockington" or "author").

Scope of Evaluation

Per our discussions, the scope of the evaluation consisted of:

1. A review of Brockington's draft Cultural Resource Evaluation and comments on the draft CRE by Plea For The Trees and other Section 106 consulting parties.
2. A review of relevant state and local documentation (e.g., cultural resource study specifications of the Kentucky State Historic Preservation Office ["SHPO"], relevant local contexts and National Register nominations). Additionally, I asked for the tree inventory that Brockington's draft report cites, but understand that the FAA has not provided the inventory to the consulting parties after their requests.
3. A site visit to Bowman Field and its environs and discussions with Michael Hayman, arborist for Seneca Gardens.
4. Development of a written opinion as to whether the vegetation element of the landscapes in the historic residential suburbs within the draft Areas of Potential Effect ("APE") contributes to the historic significance of these residential areas.

In addition, I developed a brief historic context on the suburbanization of the Bowman Field area generally from Cave Hill Cemetery to Bowman Field and from Bardstown/Taylorsville Roads to Frankfort Avenue. This effort was required for me to undertake the required identification and evaluation of potential historic properties for the purpose of eligibility recommendations because the information presented by Brockington as an "historic context" in the draft CRE does not meet National Register specifications as a framework for evaluation. Further, Brockington's work ignored other national, state, and local contexts essential to developing evaluation criteria for the particular areas and landscapes

under review. Since the draft CRE contains none of these criteria, I have developed them in this report.

I have now completed my review of the documentation and undertaken a site visit to Bowman Field and environs on September 22, 2015. This letter report contains my written opinion as to whether the vegetation in the suburbs in question is contributing to the historic significance of these suburbs. Note that this report is intended to supplement the comments previously provided by the consulting parties. There are aspects of those comments, including PFTT's, which I have not addressed in this report, but that do need to be addressed by the FAA to fulfill its Section 106 responsibilities, such as the re-evaluation of the boundaries and areas of significance of Bowman Field.

Qualifications

A resume is provided in Attachment 1 to this letter report. My work experience spans over four decades, with primary areas of applied experience in geography, community and transportation planning, urban and suburban development, historic preservation, and ecology and natural resources. For the purpose of presenting my resume as part of this report and opinion, the description of relevant experience focuses upon the period from the early 2000s to date. During that time, I have also served as the Director of the Center for Historic Architecture and Design at the University of Delaware and co-directed the establishment of the Masters' Program in Historic Preservation at the University. My academic position at the University of Delaware is Professor of Urban Affairs & Public Policy, Geography and Material Culture Studies.

In the late 1990s, the National Park Service, through the Office of the Keeper ("Keeper") of the National Register of Historic Places, became interested in developing a comprehensive work drawing upon a cultural landscape approach for the identification, evaluation, and National Register-listing of privately financed and constructed suburban neighborhoods and associated suburban resources (e.g., parks, schools) in the United States. In my role as Director of the Center for Historic Architecture and Design at the University, I had previously directed and developed an historic context for Wilmington. That work led to discussions with the Keeper regarding the need for a more extensive, national framework for nominations of these resources.

The outcome of these discussions and extensive research and writing effort was the September 2002 publication of the *National Register Bulletin, Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, co-authored by myself and Linda Flint McClelland, at that time, a historian for the National Register. Additionally, a national Multiple Property Listing, "Historic Residential Suburbs in the United States, 1830-1960, MPS" was developed in tandem with our Bulletin work to promote surveys of these resources, development of local contexts, and facilitate determinations of eligibility and National Register nominations. Additional information regarding my role in this publication is found in the "Foreword" section of the Bulletin, by Carol D. Schull, the Keeper at the time of the publication.

I should also note that I was familiar with Bowman Field and its environs prior to your contact and my September 2015 visit there, having visited and stayed in Louisville several times.

Summary of Conclusions

With respect to whether or not the vegetation in the Bowman Field suburban neighborhoods has historic significance, the answer is yes, and on two levels. The first level is that, by definition under the National Register of Historic Places, the subdivision is the basic suburban property type in which the **land and its vegetation** are character-defining features that reflect the American suburban ideal of a group of single-family houses on their own parcels in a semi-rural environment. The second level is that, within this context, the vegetative elements of the two Suburban Property Types in the narrow APEs (Garden Suburb, Post World War II and Early Freeway Suburb) around Bowman Field are very significant historically, at a level of significance not grasped by the draft CRE.

Following this introductory material and summary of conclusions, the remainder of this report is organized and presented as follows:

1. Presentation of an historic context for the suburban neighborhoods as the basis for evaluation of eligibility,
2. Review and evaluation of Brockington's draft CRE's recommendations regarding overall eligibility of each of neighborhoods and public and private parks and golf courses in the narrow APEs,

3. Presentation of existing national guidelines regarding evaluation of the vegetative aspect of historic residential suburbs,
4. Review and evaluation of Brockington's draft CRE's recommendations regarding whether vegetation is contributing to the resources within the narrow APEs, and
5. Conclusions

Areas of Potential Effect

As background, Section 106 regulations of the Advisory Council on Historic Preservation define an APE as:

The geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties . . . (36 CFR 800.4(d))

The draft APEs in the CRE appear to have been drawn to only capture the areas in which trees are proposed to be cut. In addition to direct physical effects from the blast or undertaking, in defining an APE, federal agencies must consider the potential for secondary physical effects, visual effects, auditory effects, social-cultural effects, and effects on historically and culturally significant natural resources, such as plants.

PFTT recognizes the inadequacy in the APEs, commenting that the draft APEs are insufficient to account for direct, indirect, and cumulative effects of the tree removal program. Thomas F. King, a leading authority on the Section 106 process, states that "One common mistake agencies make is to equate the APE with the undertaking's footprint for example the construction site." This mistake has been made by FAA in the Bowman Field case where APEs have been erroneously established as the areas of impact of tree "mitigation," emanating from the runway extensions, which PFTT calls the "narrow" APEs. King uses the analogy of throwing a live hand grenade to establish effects – the place where the grenade lands is the footprint of the project, but the area of effect is equivalent to the blast radius of the grenade exploding.

To fully account for the full effects of the undertaking on the suburban landscape, and evaluate the indirect noise, visual, and related effects of the proposal removal of hundreds of canopy trees, PFTT recommends expanding the APE to a larger circular APE that connects the outmost edge of each of the narrow APEs associated with the four runways. I think this is an

excellent recommendation. In order to present and describe the historic contexts below, I will use references to the "narrow" APEs and the "full" APE.

Suburban Historic Context for the Bowman Field Area

Under the National Register, the significance of an historic property can be judged and explained only when evaluated within its historic context. An historic context consists of three parts: an historic theme of which the properties are a manifestation, the chronological periods into which the theme can be divided and the geographic extent of the properties. As the PFTT comments point out, Section 2.0 in the draft CRE is presented as a suburban historic context, but is not an historic context at all. Instead, it is a narrative that cobbles together sections of histories of the area from one particular and very dated report, the 1979-1980 *Louisville East Survey*.

Another shortcoming of the CRE pointed out by PFTT is the draft report's failure to use the excellent contexts and nominations developed for suburban historic properties in the Louisville area to frame their methodology. These readily available resources include the historic context on historic Louisville housing, *They Came, They Saw, They Bought* (by Janie-Rice Brothers, et.al.) and, most importantly, an outstanding National Register Multiple Property Nomination *Suburban Development in Louisville and Jefferson County, 1868 - 1940*. Although this nomination concentrates on the railroad-oriented country houses of the late nineteenth century, it also develops a basic context, which includes the Cave Hill-to-Bowman Field area. Additionally, given the importance of vegetation and trees as character-defining features in the Bowman Field area, it is surprising that Brockington did not incorporate the National Register Nomination for the Olmsted Park System in Louisville into their research and recommendations. And, finally, the National Register Nomination for the Bowman Field Historic District is not referenced or used in the evaluation of the surrounding area even though it specifically identifies the verdant setting of these environs as contributing to the "ambiance" of the airport.

The chronological periods or stages in the development of suburbs in the United States are tied to the development of transportation technologies, which made outward movement from the city and suburbanization possible. According to the *National Register Bulletin, Historic Residential Suburbs*, the general periods of suburban development are comprised of the

Railroad and Horsecar Suburbs (1830 to 1890), Streetcar Suburbs (1888 to 1928), Early Automobile Suburbs (1908 to 1945), and Post World War ("WW") II and Early Freeway Suburbs (1945 to 1960).

With the information in the local documentation you provided, PFTT's comments, and the full historical narrative in *Louisville Survey East*, it is fairly straightforward to put together a basic historic context for the suburbs in the Bowman Field area.

Suburban Context of the Full APE. The appropriate geographic extent of the Bowman Field Suburban Historic Context includes the area from Cave Hill Cemetery to Bowman Field and from Bardstown/Taylorsville Roads to Frankfort Avenue. The subdivision-by-subdivision approach that was used in the identification and evaluation of residential areas in the draft CRE fragments these important overall patterns and areas of community development.

In terms of a suburban historic context, PFTT's comments call for increased attention to nineteenth century suburban development, to place greater emphasis on the role of the streetcar in spurring suburban development, and, finally, to include the Post WW II and Early Freeway Suburbs. The area within the narrow and full APEs experienced development in all four periods of transportation history, which fosters a rich collection of associated suburban areas. The subdivisions associated with these periods are listed in the Table 1 below. Although in this short analysis, I cannot do more than skim the history of suburban development, I will touch on the points raised by PFTT.

The Railroad Period began in 1858 and extended into the 1920s according to the Jefferson County Multiple Resource Nomination. A rail line paralleled Frankfort Avenue, facilitating early suburban development in communities such as Clifton. Without access to rails, Bardstown Road developed more slowly. By the early 1860s, however, "the southern side of Bardstown Road, the entirety of Lexington Road and Frankfort Avenue and the first few miles of Brownsboro and River Roads were lined with country houses." (p. E7) The scattered country estate development continued into the 1900s.

However, with the arrival and development of the streetcar from 1905 to 1930, suburban development accelerated with the construction of six radiating trolley lines called "Interurbans," according to an early (1909) *Courier-Journal* description provided by PFTT. The Jefferson County Multiple Resource Nomination on suburbs notes that "the interurban rail

system spawned upper middle class communities, such as Audubon Park... (p. E4), and it appears that the Bowman Field environs similarly attracted upper middle class families. The most significant streetcar line to the development of subdivisions in the Bowman Field area was the Jeffersontown Division or "J-Line" that ran out Bardstown/Taylorville Roads and beyond Bowman Field.

The interurban lines continued to run until approximately 1933. It was during this period that the Garden Suburb became a popular type of suburban development, for which the natural character of the areas was ideally suited, featuring vegetation of canopied hardwoods and park-like character. Further, during this early suburbanization period, large areas within the area of the narrow and full APEs were developed as public and private open spaces and recreational activities (Seneca Park and Big Spring Country Club), and Bowman Field itself was established.

Following the start of the Great Depression in 1929, the break from the Streetcar to the Early Automobile Period was abrupt, when the streetcars were discontinued around 1933. The early automobile allowed suburban development to infill between the streetcar lines, which continued until 1945. In terms of Post WWII subdivisions, PFTT points out that "Seneca Village and Seneca Village No. 2... were developed as early freeway suburbs during a real estate boom spurred by housing needs for veterans and their families." McCoy Manor is also a post WWII subdivision, but is infill between Seneca Vista and Seneca Manor.

PFTT identified thirty-three (33) subdivisions in the full APE that are categorized by the periods and years in Table 1 below. A suburban boom occurred in the area during the Streetcar Period from 1906 to 1929 with the construction of thirteen (13) subdivisions, followed by five (5) subdivisions platted in the period from the Great Depression until the start of WWII.

A "boom" appears following WWII and with the start of the Early Freeway era, marked by the platting of fifteen (15) subdivisions.

Table 1: Chronological Periods for the Suburban Historic Context for the Full Area of Potential Effect

STREETCAR SUBURBS AND ASSOCIATED SUBURBAN RESOURCES (1900-1929):	Year
1. Kaelin Subdivision	1906
2. Woodbourne	1908
3. Bon Air	1909
4. Strathmoor	1920
5. Wellington	1920s
6. Broadmeade	1922
7. Briscoe	1922
8. Strathmoor Village	1922
9. Beaumont	1925
10. Kingsley*	1926
11. Broadmeade 4	1926
12. Hathaway	1926
13. Airview	1928
14. Big Spring Country Club and Golf Course*	1927
15. Seneca Park and Golf Course*	1928
16. BOWMAN FIELD	1929**
EARLY AUTOMOBILE SUBURBS (1930-1944):	
17. Broadmeade Section 5	1931
18. Seneca Manor*	1934
19. Seneca Vista*	1935
20. Seneca Gardens	1937
21. Wellingmoor	1939
POST WWII AND EARLY FREEWAY (1945-1960):	
22. Alanmeade	1946
23. Seneca Village*	1947
24. McCoy Manor*	1949
25. Seneca Village No. 2*	1951
26. Ingleside	1952
27. Big Springs Gardens	1953
28. Park Hills	1955
29. Seneca Hills	1955
30. Hollin Terrace	1956
31. Big Springs Village	1957
32. Broad Fields	1959
33. Cherosen Hills	1959
34. Kiltmore Gardens	1961
35. Williamsburg Estates	1964
36. Rostrevor	1965

*Property within the draft narrow APEs.

**Start date of period of significance based on the National Register nomination. Wellesley's subdivision date is not entirely clear.

The foregoing historic context provides the basis for interpreting the significance of the suburban areas and their associated resources in the narrow APEs, described as follows.

Sub-Suburban Historic Context for the Narrow APEs. From the larger context described above, I developed a suburban historic context framework of the thirteen (13) historic properties in the Bowman Field narrow APEs, including the six subdivisions. Methodologically, I also combined the subdivisions within the narrow APEs to analyze their overall vegetative cover. Brockington's evaluation of individual properties fragmented the landscape and led to erroneous conclusions about the significance of the vegetative cover. The six sub-subdivisions in the narrow APEs are Seneca Vista, McCoy Manor, Seneca Manor, Kingsley, Seneca Village, and Seneca Village No. 2.

Table 2: Themes and Chronological Periods of Suburban Historic Properties in the Narrow APEs

STREETCAR SUBURBS (and associated suburban resources) (1900-1929):	Year
Kingsley	1926
Big Spring Country Club and Golf Course	1927
Seneca Park and Golf Course	1928
BOWMAN FIELD	1929
EARLY AUTOMOBILE SUBURBS (1930-1944):	
Seneca Manor (and Seneca Gardens)	1934
Seneca Vista	1935
POST WWII AND EARLY FREEWAY (1945-1960):	
Seneca Village	1947
McCoy Manor	1949
Seneca Village No. 2	1951

Overall then, of the six subdivisions, one is of the Streetcar period, two are associated with the Early Automobile period, and three are Post WWII and Early Freeway developments. Seneca Park/Golf Course, Big Spring Country Club/Golf Course, and Bowman Field itself fall in the Streetcar period. When the properties are organized by the four narrow APEs, a distinct geographic pattern can be seen as reflected in Table 3 below. Four of the six subdivisions are concentrated in the W/SW APE associated with RW 6 and two are in the S/SE APE associated

with RW 33. Three of the four subdivisions in the RW 6 W/SW APE were established in the 1920s and 1930s (and the portion of Seneca Park along the east side of these subdivisions date to these decades as well). The one Post WW II subdivision of McCoy Manor is a one-street infill between Seneca Vista and Seneca Manor.

The RW 33 S/SE APE contains two Post WWII suburbs. The RW 15N/NE APE covers the larger area of Seneca Park/Golf Course affected by the proposed tree removal, while the RW 24 NW APE includes the Big Spring Country Club/Golf Course.

Table 3: Historic Properties Organized by Narrow APEs

Narrow APE Identifier	Themes/Chronological Periods	Property
RW 6, W/SW	Streetcar (1900-1929)	Kingsley Seneca Park
	Early Automobile (1930-1944)	Seneca Manor (and Seneca Garden) Seneca Vista
	Post WW II and Early Freeway (1945-1960)	McCoy Manor
RW 33, S/SE	Post WW II and Early Freeway (1945-1960)	Seneca Village Seneca Village No. 2
RW 24, NE	Streetcar (1900-1929)	Big Spring Country Club and Golf Course
RW 15, N, NW	Streetcar (1900-1929)	Seneca Park and Golf Course

This organization essentially results in two suburban properties: Garden Suburb in the RW 6 APE and Post WWII and Early Freeway in the RW 33 APE. This framework will be used in my own evaluation of identification and eligibility below.

Review of the Draft CRE's Overall Evaluation of Resources for Eligibility

In their architectural survey of the historic properties in the four narrow APEs, Brockington generally surveyed thirteen (13) properties, consisting of one (1) public park and associated golf course, one (1) private club and associated golf course, six (6) suburban neighborhoods and some of their buildings, and five (5) individual buildings. The draft CRE recommends seven (7) properties as eligible for the National Register of Historic Places: Seneca Park Golf Course and all six of the subdivisions. The standard, boilerplate justification for all subdivisions is that Subdivision X "is eligible for the NRHP" under Criteria A (community planning and design), B (association with important persons), and/or C (architecture and

design). The specific recommendations of the draft report regarding the properties and associated criteria are Big Spring Country/Club Golf Course (not eligible due to lack of integrity), Seneca Park Golf Course (although declaring the golf course lacks integrity, the report recommends eligibility under Criterion A), Seneca Vista (A,B,C), McCoy Manor (A, C), Seneca Manor (A, C), Kingsley, (A,B, C), Seneca Village (A,C), and Seneca Village No. 2 (A,C).

As presented, the recommendations for overall eligibility or ineligibility of the properties are not supported by any applied analysis of the National Register criteria for historic significance or evaluation of all aspects of integrity. The draft report simply declares properties as eligible or ineligible. There is not even a reference to explain what theme applies to a property that is recommended as eligible under Criteria A and C, such as "represents an important planning trend of Garden Suburbs." Although my conclusion is that the properties are eligible (as explained below), the draft CRE alone is insufficient for eligibility determinations in this consultation. Some of the specific omissions are addressed as follows.

In Section 2.0 of the draft CRE (the narrative that is presented as a "historic context" for the suburbs), Brockington does not reference, refer to, or use the basic document for evaluating historic suburbs, the *National Register Bulletin: Historic Residential Suburbs, Guidelines for Evaluation and Documentation*. This Bulletin develops the national historic context: "The Suburbanization of Metropolitan Areas in the United States 1839 to 1960." This context was prepared through the Office of the Keeper of the National Register of Historic Places with the express intent of being adapted and applied at the state, metropolitan, and local levels to evaluate suburban properties. Brockington seems to be unaware that it exists and, thus, does not apply the National Register criteria for evaluating suburbs to determine the eligibility of the six subdivisions. And, as PFTT notes, they also seemed to be unaware of the National Cooperative Highway Research Board's *A Model for Identifying and Evaluating the Historic Significance of Post WWII Housing*.

In terms of the National Register guidelines for evaluation, the report only uses the most general *National Register Bulletin, How to Apply the National Register Criteria for Evaluation*. Even then, the draft report manages to misapply these guidelines, especially with regard to determining "integrity." In addition to meeting one or more of the National Register criteria of significance, a property should meet at least three or four of the seven aspects of integrity: location, design, setting, materials, workmanship, feeling, and association. The

author instead assigns an overall—and undefined—rating (low, moderate, or high), rather than evaluate each property in terms of the seven aspects of integrity.

With respect to the associated suburban resources, Seneca Park Golf Course was found to be eligible for the National Register, but on a curious basis. Although the author determines that the course has experienced physical changes and possesses “little degree of its original design integrity” (while not reviewing the original design plans of the Olmsted firm), the golf course is still recommended as National Register eligible under Criterion A through its origins as a Works Progress Administration (“WPA”) project. At the same time, the golf course was deemed by the author not to qualify under Criterion C (“Design/Construction,” which the report mislabels as “Design/Architecture”) because of lack of integrity. Although Brockington appears to understand elsewhere that to be eligible for the National Register of Historic Places, a property must both meet one of the four criteria of significance and retain integrity, they seemed to have slipped here. If the Seneca Golf Course lacks physical integrity, it cannot be eligible under Criterion A regardless of its significance. The appropriate approach to this property, as noted by Metro Louisville Parks, the Olmsted Parks Conservancy, and PFTT is to evaluate Seneca Park in its entirety, including the golf course, and apply the correct standards to the evaluation.

Overall then, the evaluation of eligibility of the six suburban neighborhoods and associated suburban resources is inadequate as presented and fails to meet both national guidelines and SHPO specifications. The SHPO specifications relating to conducting intensive cultural resource surveys within an APE require that the researcher “evaluate those resources against the criterion for inclusion in the National Register” (p. 3), and “evaluate integrity, according to the basis for significance established by historic contexts (pp. 37-38).

My Conclusions Regarding Eligibility of the Bowman Field Resources Within the Narrow APEs

The two overall suburban properties identified in Table 3 (Streetcar/Early Automotive and Post WWI/Early Freeway) each encompass a group of contiguous subdivisions, the significance of which is based upon design. This approach to boundary selection for the purpose of identification and evaluation is specifically identified in the *National Register Bulletin, Historic Residential Suburbs* (p 107). My conclusion is that these two properties *are* eligible under Criteria A and C. With respect to the RW 6 Garden Suburbs Suburban Property,

we can see the evolution of Garden Suburbs from 1924 to 1926 (the Streetcar Period) through successive phases of transportation-based chronological periods. The development process of suburban landscapes is exemplified throughout, including shared best practices of Garden Suburbs design by developers, creating a unified Garden Suburban landscape, including the later infill of McCoy Manor. Rather than existing as the isolated subdivisions presented in the draft CRE, each of the developments reinforce each other. Based upon my review, the RW 6 Garden Suburbs Suburban Property retains, at minimum, integrity of location, design, setting, feeling, and association.

Within the RW 33 Post WWII and Early Freeway Suburban Property, Seneca Village No. 2 is very strong in development design while Seneca Village is less so. At the same time, Seneca Village's landscape is strong, particularly the canopy trees, while that of Seneca Village No. 2 is less so. Together, the RW 33 Post WWII and Early Freeway Suburban Property is also eligible under Criteria A and C and retains integrity of location, design, setting, and feeling, at minimum.

It should be noted that a complete National Register nomination (as opposed to a survey conducted for the purpose of a determination of eligibility in a Section 106 undertaking) would more extensively explore these areas, including other themes of historical significance (e.g., the Jewish community in PFTT's comments).

The remainder of this letter report more specifically addresses the vegetation element of the suburban context for the Bowman Fields environs. The vegetation, particularly the trees, is the common character-defining element of the two Suburban Properties and of the larger area within the full APE.

The Role of Vegetation in Historic Residential Subdivisions and Associated Suburban Resources

The role of vegetation was well established in the design and layout of subdivisions by the 1930s, and was considered important for maintaining long-term real estate value. In 1936, in *Principles of Planning Small Houses*, the Federal Housing Administration ("FHA") advised developers that "trees and shrubbery may be used to enhance the architectural character . . . and add to the living quality of a property."¹ Vegetation would not typically be shown on

¹FHA, *Principles of Planning Small Houses*, Technical Bulletin No. 4, 1936, revised July 1, 1940, p. 44.

subdivision plats, but would be planted according to "best practice" as reflected in, for example, the Urban Land Institute's *Community Builders Handbook*. Founded in 1936, the Urban Land Institute (ULI) is an association of builders and developer whose goal is to promote best practices in land development.

ULI first codified these landscape practices in 1947 in the *Community Builders Handbook*, which has been updated over the years.² With a primary focus on suburban residential development, the handbook devoted a section to "Landscape Plantings." The introduction to this section states that "A planting scheme should contribute to the beauty of the development and should serve a useful purpose as well." (p. 73) The text then describes the desired landscape elements starting with (a) the need "to preserve existing trees whenever possible as a good tree may add greatly to the value of the lot." The features recommended for planting included (b) street trees, (c) other tree plantings to break vistas and provide shade, and (d) shrubs and evergreens to be planted when required to prevent erosion, provide ground cover, or act as a screen. In addition, the handbook recognized that (d) trees and shrubbery can screen objectionable views and absorb and deflect noise, (f) hedges can be used strategically as accents and in play area, and, finally, (g) vines can enliven blank masonry walls.

The *National Register Bulletin, Historic Residential Suburbs* specifically includes vegetation as a landscape characteristic of subdivisions and recognizes that the vegetation element often reflects actions of the original developer, the neighborhood association (where present), and/or individual owners (p. 13):

Trees, shrubs, and other plantings in the form of lawns, shade trees, hedges foundation plantings and gardens often contribute to the historic setting and significance of historic neighborhoods. Planting were often the results of conscious efforts to create an attractive neighborhood as well as a cohesive, semi-rural setting. Pre-existing trees—often native to the area—may have been retained. Street trees planted for shade or ornamental purposes may reflect a conscious program of civic improvements by the subdivider . . . In addition, the

²Urban Land Institute, *Community Builders Handbook* (Washington, D.C.: The Urban Land Institute, 1947).

grounds of individual residences may be notable examples of domestic landscape design.

Thus, the vegetative element may be the result of an overall planting plan by the developer, such as street trees, and set of planting on lots, and/or by individual owners on their lots.

National Register Bulletin 18: How to Evaluate and Nominate Designed Landscape identifies several layers of properties that may feature landscapes that contribute to historic significance or may even attain such significance in their own right, including:

- city planning or civic design subdivisions and planned communities/resorts
- small residential grounds
- estate or plantation grounds arboreta, botanical, and display gardens
- parks (local, State, and national) and camp grounds
- grounds designed or developed for outdoor recreation and/or sports activities such as country clubs, golf courses, tennis courts, bowling greens, bridge trails, stadiums, ball parks, and race tracks that are not part of a unit listed above
- parkways, drives, and trails

At the level of individual house lots, the yard is the primary character defining vegetative feature of the subdivision. Since the mid-nineteenth century, the yard has been seen as a feature of natural beauty to complement the house. Writing in 1870 on the art of beautifying home grounds, Frank J. Scott, stated that "... a freshly mown meadow is always beautiful and well kept lawn alone produced beauty [but] large trees are necessary to enliven their beauty."³ By 1912, the U.S. Department of Agriculture responded to the "widespread movement of civic art to improve and beautify cities and towns by park and art commissions, civic associations, and individuals" seeking technical advice on landscape design, and particularly lawns:

The greensward is the canvas upon which all architectural and landscape effects are produced ... Suburban railways, the extension of electric lines into the

³Frank J. Scott. 1870. "The Lawn."

country, and the return of man to natural ways of living are all factors contributing to the growing interest in matters pertaining to lawn making. . . . Lawns should be beautiful and useful.⁴

The detached house on its own lot with yard epitomizes the goals of home ownership in a semi-rural environment. The size of the yard in relation to the footprint of the house (floor-area ratio (FAR)) also establishes the lower density of the subdivision. While the plantings of individual yards typically reflect the tastes of homeowners, they may also reflect the influence of "authorities," such as FHA's recommendations for tree plantings to frame the house and unify the composition. Slow-growing trees were recommended so as not to obscure the view of the house. As noted at p. 13 of the *Historic Residential Suburbs Bulletin*, private yards may also reflect once-popular trends in domestic landscape design or include vegetation left from previous land uses. Neighborhood-wide, plantings are frequently dominated by grassy lawns, occasional specimen trees, shade trees, and shrubbery. Plants may also have strong thematic appeal for their seasonal display.

Thus, whether included as part of the initial plan for a development, or added incrementally over time, vegetation is a character-defining feature of a suburban development.

Significant Vegetative Character-Defining Features within the APEs

In my opinion, the RW 6 Garden Suburbs Suburban Property and the RW 33 Post WWII and Early Freeway Suburban Property within the narrow Bowman Field APEs qualify as historic landscapes both as designed historic landscapes, as defined in the *National Register Bulletin, Designed Historic Landscapes*, and as historic suburban landscapes under the *National Register Bulletin, Historic Residential Suburbs*.

In terms of the larger vegetative context, these properties are part of a larger cultural corridor identified above that extends in an easterly direction from Cave Hill Cemetery, adjacent to downtown Louisville, through Cherokee Park and Seneca Park, and terminating at

⁴U.S. Department of Agriculture. June 10, 1912. "Lawn Soils and Lawns." Farmers' Bulletin No. 494, prepared by Oswald Schreiner, L.C. Corbett, and F.L. Mulford, p. 28.

Bowman Field. On the south, the corridor is bounded by Bardstown/Taylorville Roads and on the north most immediately by I-64, but more generally by Frankfort Avenue.

The dominant natural features of this cultural corridor is hilly topography covered with a climax vegetation of Kentucky hardwoods consisting principally of oaks and maples. It was this natural character that attracted Cave Hill as one of the first garden cemeteries in the United States in 1845, followed by the Olmsted Cherokee Park in 1891, and Olmsted Seneca Park and Bowman Field in 1928-29. From the mid-nineteenth century, this area also attracted suburban development, first, as railroad-oriented country estates of the well-to-do. Subsequently, with the arrival of the streetcar in 1903, the area provided an ideal landscape for Garden Suburbs that arose from the American City Beautiful and English Garden City Movements in the 1890s. According to the *National Register Bulletin, Historic Residential Suburbs* (p. 41):

In the years preceding and following World War I, American landscape traditions fused with English Garden City influences to form distinctive American garden suburbs with gently curving, tree lined streets; open landscaped lawns and gardens; and attractive homes in a panoply of styles. While American designers looked to the historic precedents offered by the European continent for inspiration, the residential communities they fashioned were unequivocally American in the treatment of open space, accommodation of the automobile, the entrepreneurship of real estate developers, and reliance on American industry to make housing functional yet aesthetically appealing.

As explained above under the suburban context for the full APE, the character of this broader cultural corridor is itself defined by hilly landscapes with vegetative features down to the scale of yards in the subdivisions. The Bowman Field environs is a part of this designed and cultural landscape, as described below (the "second level" of review).

The second level of my review addresses the historic significance of the vegetative elements of the specific properties within the narrow APEs: RW 6 Garden Suburbs Suburban

Property, RW 33 Post WWII and Early Freeway Suburban Property, and RW 15 and RW 24 (Seneca Park and Big Spring Country Club, respectively, associated suburban resources).⁵

The mature hardwoods throughout the APEs are their most distinctive and striking vegetative feature. Although the composition of vegetation remains the same overall, it assumes different design characteristics in the different types of properties, which are subdivisions, golf courses, and parks. The vegetative cover of the subdivisions as a mature canopied hardwood climax lends these residential areas their park-like character. The tree canopy consists of the merged crowns of tall canopy trees. Ecologically, the shade of the canopy inhibits growth on the forest floor creating an open park-like landscape. There are four horizontal vegetative levels within a canopied forest and within these canopied subdivisions. There is the ground-cover level, yards; there is the shrub level, one that extends to 20 feet above ground level, and then there is the understory level of the canopy, consisting of intermediate-sized canopy trees that extend to 50 feet above ground level.

Finally, the upper over-story canopy tops 100 feet or more. The largest canopy trees are oaks and maples, with a few ash and elm. To counteract the loss of the ash and elm from disease, I understand from Michael Hayman that a purposeful planting effort has been conducted for years in Seneca Gardens, Seneca Vista, Kingsley, and Seneca Park to provide more diversity of canopy species, including blight-resistant American chestnut. Individually, canopy trees function as shade trees. This vegetation is found throughout the six subdivisions and Seneca Park.

Canopy trees are significant as design features both in groups of trees and as individually sited. In the six subdivisions, the primary group character-defining features are street trees forming canopies over streets. These are particularly mature in the RW 6 Garden Suburbs Suburban Property.

Understanding the ecology of the canopied tree cover is an essential part of understanding the significance and irreplaceability of this natural and historic feature and, therefore, the adverse effects that result from its destruction. A mature climax vegetation of hardwoods is a very intricate ecological system and takes 60 or 70 years to mature. In

⁵I did not focus upon Big Spring in this letter report because of its private setting and the lesser amount of historical documentation available. That is not to say that additional research and evaluation is not warranted; it is, especially given the insufficiencies in the draft CRE.

simplest terms, there are shade-tolerant and shade-intolerant plants. Deciduous trees are shade tolerant, while coniferous trees are shade-intolerant and cannot survive in a shady environment. As oaks, maples, and other canopy deciduous trees grow, they create shaded environments in which intermediate canopy trees can grow. The open effect in the canopied forest is created because the shade reduces the light and energy available, resulting in smaller plants at the ground level. The planning of Garden Suburbs heightens that effect through the planting of canopy trees and creation of the open space of yards.

The road circulation system is also a character-defining feature of subdivisions. The circulation system is usually self-contained and the streets are often curving. When flanked with canopy street trees, the combination creates one of the most distinctive vegetative character-defining features of the Garden Suburb – the canopied street. The street system in the RW 6 Garden Suburbs Suburban Property consists of curved grids, with the exception of McCoy Manor. Canopied streets are found throughout. The circulation system is also self-contained and intact in the RW 33 Post WWII and Early Freeway Suburban Property. Overall, street tree features range from very mature ones in the RW 6 Garden Suburbs Suburban Property (dating from the 1920s and the 1930s in some locations) to newer ones, such as the street tree features in Seneca Village No. 2.

Another character-defining feature is the individual canopy trees serving both as shade and ornamental trees. In examining the distribution of isolated shade trees within all of the neighborhoods, I observed two patterns. Where street trees are not present, there is an intermediate shade tree in almost every front yard. Backyards are the most common location for shade trees and many of these are high-canopy trees. Cutting or trimming these individual trees would also constitute an adverse effect.

Review of the Draft CRE's Evaluation of Vegetation

With regard to the historical signification of the vegetative element of the surveyed properties, Brockington concluded, in the Executive Summary, that "archival research, including a review of historic aerial photographs, did not reveal any particular vegetative plantings or features such as trees that would be considered character defining features. In addition, the inventory of trees around Bowman Field . . . suggests that the majority of plantings are of the low canopy and ornamental variety typically planted by property owners. A lesser

percentage of plantings appear to have developed organically (e.g. along fence rows) and represent the taller growing variety. " Therefore, overall, the draft report concludes that vegetation associated with the properties in the APEs is not a character-defining feature, nor historically significant.

Thus, while Brockington recommended all six subdivisions within the narrow APEs as eligible for the National Register, they did not consider the vegetative element to be a contributing factor to their historical significance and eligibility. In fact, the consultants only "evaluated" vegetation in the four subdivisions that might lose trees, and not in the two that will not (Kingsley, McCoy Manor). For the directly impacted subdivisions, unsupported by any evaluation, Brockington used exactly the same boilerplate language for each subdivision to conclude that vegetation was not historically significant and therefore not a contributing element: "The neighborhood does not appear to be developed with design specific to vegetation. Landscape design elements of the original platting and build out included setbacks, uniform spacing between houses and general roadway circulation. Planting appears to have been developed organically or by individual property owners over time. Neither the type nor overall height of the tree is considered to be a contributing element of the neighborhood."

The key phrases used to disqualify vegetation as being historically significant in the draft recommendations are:

1. "did not appear to be developed with design specific to vegetation,"
2. "developed organically," and
3. "by individual property owners."
4. Trees themselves were disqualified when they were not of the proper height or of the right type.

As typifies the report throughout, no definitions of terms are provided and, as noted by PFTT, the draft CRE omits "any explanation of standards used to identify and evaluate the landscape components." In addition, PFTT cites other important sources that, although referenced by Brockington in the Reference section, were not incorporated into their analysis. These include *National Register Bulletin on Designed Historic Landscapes* and *Preservation Brief 36, Protecting Cultural Landscapes: Planning Treatment*.

I will assume that, in terms of vegetation, Brockington's four stock phrases identified above mean the following: 1. vegetation has to be part of the original design intent of the subdivision for it to be a contributing element; 2. "organically" means occurring naturally or unplanned by humans; and 3., plantings by owners on their own lots cannot be historically significant or contributing. In terms of 4. (trees as contributing elements), I assume the report text means what it says, but have no idea what that is – how tall is "tall" and what is the "right" type of tree to be deemed worthy?

Question of original intent. Brockington holds the position that vegetation cannot be considered a character-defining feature unless it can be shown to be a part of the original intent of a subdivision or property. This position is wrong on two counts; first, every feature in an historic property that developed during its period of significance must be described and evaluated for its significance. Secondly, there is evidence that the character of the vegetation in the Bowman subdivisions does, in fact, reflect original intent. While being part of the original design may lend greater significance to a feature, it is not a prerequisite for consideration. Indeed, the *National Register Bulletin on Designed Historic Landscapes* states that "Some later vegetation, especially specimen varieties, may also possess significance in its own right regardless of its relationship to the original design or implementation." (p.7) All planting and vegetation that is more than 50 years old should be evaluated in the Bowman Field subdivisions.

More fundamentally, however, the National Register guidelines recognize that properties evolve over time and each stage can be significant. This view is embodied in the *Secretary of the Interior's Standards for the Treatment of Historic Properties*, which define the method of preservation by "treatment" as focusing upon "the maintenance and repair of existing historic materials and retention of a property's form as it has evolved over time." Also, significant trees and wooded areas that predate planned subdivisions are not necessarily non-contributing but, as mentioned earlier, may be part of the very factors that attracted development.

The evidence that there was original intent to create a suburban park-like landscape is seen in the subdivision plans for each of the Suburban Property Types (Garden, Post WWII and Early Freeway). Curiously, Brockington, notes that "Landscape design elements of the original platting and build out included setbacks, uniform spacing between houses and general

roadway circulation," but chose not see that evidence as constituting original design intent for vegetation. Intention for yards and planting space is demonstrated in both the RW 6 and RW 33 properties by subdividing the area into individual lots with detached houses equally spaced with deep setbacks from the street. In addition, in the plats, the streets have 60-foot right of ways which include 20-foot planting strips for trees flanking the 20-foot wide streets. Further, utilities ran through backyards to leave streets open for planting. Finally, the evidence of original intent to create street canopies is seen in the actual planting of trees with appropriate canopies lining the street. That these mature trees are old enough to date to development of the subdivision is further evidence of original design intent.

Therefore, under National Register guidelines and requirements, Brockington has no basis for excluding consideration of vegetation under the rationale that it was not part of the original design, while ironically supplying evidence that it was.

Lastly, by definition, the private yard with trees and shrubbery is the primary vegetative element of the subdivision. The vegetation of yards is a very important character-defining feature both individually and together as they form a flat vegetative floor of the subdivisions with open lines of site. In addition to grass, most of the yards I observed in the narrow (and full) APEs contain a variety of vegetation in the form of shrubs, flowers, and ground cover. The architecture survey apparently did not evaluate yards in any detail. The reason for this substantial omission may reflect the draft report's erroneous premise that only vegetation that reflect "original design intent" of the developer/subdivision qualifies a landscape for historic significance, thereby excluding vegetation that is later propagated by homeowners from consideration as contributing. This approach to evaluation is completely wrong and contrary to applicable National Register guidelines.

Finally, and importantly, it should be noted that Brockington's omission of landscape elements may well have begun with the survey. PFTT observed that Sections 1.2.1 and 1.2.2 ("Project Overview and Sponsorship" and "Methods and Investigation") omit any reference to or discussion of the archival work or fieldwork that was conducted to evaluate the affected landscapes (their emphasis), particularly vegetation. However, since copies of the survey forms were not included in the draft CRE, it is not possible to know exactly what was surveyed. The "Guidelines for Surveying Historic Suburbs" in the *National Register Bulletin on Historic Residential Suburbs* requires that distinctive aspects of landscape design be surveyed, including

"identify[ing] principal types of vegetation, noting distinctive patterns such as the use of ornamental or shade trees, shrubbery, and specimen trees." The guidelines also require "describing the general sizes of lot and the placement of houses, including the arrangement of corner lots." (p. 87) There is no mention of types or distinctive patterns of vegetation, nor even of lot size that I can find anywhere in the draft CRE.

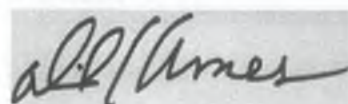
Conclusions

As a general observation, I agree with the July 10, 2015 comments of PFTT that "[Brockington's] approach to the vegetation analysis turns an aphorism on its head: the report fails to see the trees for the forest." (p.3) The draft CRE fails in presenting and understanding how landscapes are identified and evaluated for historic significance and, thus, the ineligibility determinations are unsupported. The report more broadly fails in the absence of an historic context and the significant failure to apply guidance on the identification and evaluation of the specific types of properties in this undertaking's APEs.

PFTT's comments and this letter report demonstrate that vegetation is recognized by the National Register of Historic Places as a character-defining feature of the different periods of suburban development in the National Park Service's bulletins on Historic Designed Landscapes and Historic Residential Suburbs. Based upon my knowledge of the area and my most recent site visit, I have also described in this letter report the specific vegetative character-defining features of the historic suburban landscapes of the Bowman Field APEs (full and narrow).

What needs to be recognized is that the prior vegetation of hardwood forest and hilly picturesque natural landscape was the feature that attracted the parks, golf courses, and subdivisions to the area. Although each of these land uses, in turn, resulted in modifications of the vegetation and trees to meet the needs of these different uses, the mature climax hardwood forest remained essentially the same. The proposed airspace "mitigation" would destroy this important ecological and cultural feature and constitute an adverse effect under Section 106.

Sincerely,



David L. Ames
Louisville, KY

RESUME
Covering the Period from 2002-2015

DAVID L. AMES, Ph.D.

Professor of Urban Affairs & Public Policy, Geography and American Material Culture Studies

V: (302) 831-1050, Fax: (302) 831-4548

Email: davames@udel.edu

Web Site: <http://www.udel.edu/CHAD/AmesBio.html>

ACADEMIC POSITIONS:

Professor of Urban Affairs & Public Policy and Geography and Material Culture Studies, University of Delaware, 1979 to date. Affiliated faculty - Center for Material Culture Studies, University Transportation Center, Delaware Design Institute.

Professor of American Material Culture Studies in the Center for American Material Culture Studies, 2001 to date.

Associate Professor of Urban Studies and Planning, Virginia Commonwealth University, Richmond Virginia, 1971 to 1979.

Assistant Professor of Geography and Planning, University of Cincinnati, 1967 to 1969.

ADMINISTRATIVE POSITIONS:

Director, Center for Historic Architecture and Design, University of Delaware, 1984 to 2014

Co-director of the Master's Program in Historic Preservation, University of Delaware, 2010 -2013

Dean, College of Urban Affairs and Public Policy, University of Delaware, 1979 to 1991

Acting Dean, School of Community Services, Virginia Commonwealth University, 1978-1979

Associate Dean, School of Community Services, Virginia Commonwealth University, 1974-1978

Chair, Department of Urban Studies and Planning, Virginia Commonwealth University, 1971-1974

PLANNING POSITIONS:

Director of Long Range Planning and Research, Ohio-Kentucky-Indiana Regional Planning Authority, 1969 to 1971

EDUCATION:

George Washington University, A.B., 1961, Geography

George Washington University, A.M., 1965, Geography and Regional Science

Clark University, Ph.D., 1969, Urban Geography

RECENT PUBLICATIONS/PAPERS/REPORTS (2002 to present):

Books

- Co-edited with Richard Wagner Goucher College), *Challenges in Compatibility: Design in Historic Preservation: The Challenge of Compatibility* (Newark: University of Delaware Press, 2009).
- David L. Ames and Linda Flint McClelland, *Historic Residential Suburbs: Guidelines for Evaluation and Documentation for the National Register of Historic Places*, Washington, DC: US Government Printing Office, 2002),
<http://www.nps.gov/history/nr/publications/bulletins/suburbs/suburbs-start.htm>.

Articles/Chapters

- David L. Ames, "Reading the Read House: A Reinterpretation," *New Stories from Old Things* (Newark, DE: University of Delaware Press, 2016), forthcoming.
- David L. Ames, "Shopping Malls: Machines for Selling," Deborah Andrews, ed., *Shopping: A Material Culture Perspective*, (Newark: University of Delaware Press, 2014).
- David L. Ames, Michelle Oswald M, Sue McNeil and Rebekah Gayley, "Identifying Resiliency Performance Measures for Megaregional Planning: A Case Study of the BOSWASH Transportation Corridor," *Transportation Research Record*, Winter 2013.
- Oswald, M., McNeil, S., Ames, D., Mao, W. (2012) Transportation Planning In Response to Climate Change: Methods And Tools For Adaptation In Delaware. *Transportation Research Board 91st Annual Meeting Conference Proceedings*. Winter, 2012.
- Oswald, M., McNeil, S., Ames, D., Mao, W. (2012) Transportation Planning In Response to Climate Change: Methods And Tools For Adaptation In Delaware. *Transportation Research Board 91st Annual Meeting Conference Proceedings*. 2012
- David L. Ames and Leila Hamrout, "Principles of Architectural Preservation," *Companion to Cultural Resource Management*, Thomas F. King, editor, Wiley-Blackwell Publishers, 2011.
- With Michelle Oswald, Sue McNeil, and Rebekah Gale, "Indicators of Resiliency for Transportation Corridors," *ASCE Journal of Urban Planning and Development*. 2011.
- David L. Ames, "Introduction: Design in Preservation as Problem Solving," *Challenges in Compatibility: Design in Historic Preservation*, David Ames and Richard Wagner co-editors (Newark, DE: University of Delaware Press, 2010).
- David Ames, et. al. "The Challenge of Nominating the Underground Railroad in Delaware as an Historic Highway," *Preservation Education and Research*, Vol. Two, 2009 pp. 41-53.
- Oswald, Michelle, McNeil, Sue, and Ames, David. (2009). *Evaluating the Current State of the BosWash Megalopolis Corridor and Indicators of Resiliency*. 5th AISIM Conference Proceedings. University of Iowa: Iowa City.
- David L. Ames, Sarah Beetham, Lael Ensor, Ann Fangmann, Erin Ferriter, Robin Krawitz, and Debra Martin, "The Challenge of Nominating the Underground Railroad in Delaware as a Historic Byway," *Preservation Education and Research*, Volume 2, 2009.

David L. Ames, "Introduction," Co-edited with Richard Wagner, *Challenges in Compatibility: Design in Historic: The Challenge of Compatibility* (Newark: University of Delaware Press, 2009).

Newsletter Articles

- David L. Ames, "Why Public Administrators and Planners Should Love Historic Preservationists," *DAPA Public Service Reader*, Dec. 2010.
- David L. Ames, Rebecca Sheppard and Chandra Reedy, "Preservation Comes of Age," *Connect*, School of Public Affairs and Administration UD, 2011, pp. 14-15.
- David L. Ames, "Trees and Water: Two Keys to Sustainable Neighborhoods," *Connect*, School of Public Affairs and Administration UD, 2011, pp. 11-12.
- With Caroline Barry and Allison Calkins, "Research Pays Off: the Byways Program Showcasing Delaware," *Transearch*, Spring 2011, pp. 9-11 (Delaware Center for Transportation).

Conference Papers

- With Michele Anstine, "The 1804 Read House of New Castle, Delaware in the Context of American Renaissance-inspired Houses," "Second Annual Palladian Symposium: Charleston and the Development of American Architecture," Charleston, South Carolina April 2013,
- With Rebecca Sheppard, Angela Gladwell and Laura Kelley, "Learning by Doing: Exploring the Role of Fieldwork in Historic Preservation and Historic Environment Curricula," *Preservation Education: Sharing Best Practices and Finding Common Ground*, Roger Williams University, Providence, Rhode Island, 8-9, 2012.
- "Keynote: The Recent Past in Virginia: An Oxymoron?" Virginia Annual State Historic Preservation Conference, Hampton, Virginia, Sept. 8, 2010.
- "The Threat of Sprawl to Byways," National Preserving Historic Roads Conference, Washington, D.C. September 17, 2010.
- with Sue McNeil and Michelle Oswald, "Radical Roads: The Revolutionary Influence of the Interstate Highways System on the Pattern of Urbanization in the United States," Annual Meetings of the Urban Affairs Association, Baltimore Maryland, March, 2009.
- "Discovering Suburbs Through the National Register of Historic Places: An Analysis of the Application of the National Register Bulletin, *Historic Residential Suburbs*" Biennial Meeting of the Society for American City and Regional Planning History, Oakland, California, October, 2009.
- "The Challenge of the Underground Railroad as a Historic Byway," Sixth Biennial Conference on Historic Roads - Preserving the Historic Road 1998-2008, September 11, 2008, Albuquerque, NM.
- "Diversity in Detail: The Evolution of Workers' Rowhouses in Wilmington DE: 1850 to 1930" Biennial Meeting of the Society for American City and Regional Planning History, Seattle, Washington, October, 2007.
- "Linear Urban History: The Challenges of Urban Roads as Scenic and Historic Highways," Presented at the 37th Annual Meeting of Urban Affairs Association, Seattle Washington, April 26, 2007.
- With Erin Ferriter, and Jonathan Justice, "New Urbanism in Old New Castle,

- Delaware," Presented to the 36th Annual Meeting of the Urban Affairs Association. Montreal, Canada April 20, 2006.
- With Eric Gollanek, "Changing Lanes on the Vernacular Strip: A Taxonomy of Commercial Properties along the American Highway" Presented to the Annual Meeting of the Vernacular Architectural Form, Tuscon, Arizona, April, 2005.
- With Eric Gollanek, "Truckin' Along: The Influence of the Truck on Early Urban Highway Design: The Case of Philadelphia Pike Delaware" A Paper Presented at the Semi-Annual Conference of the Society of American City and Regional Planning History, Coral Gables, Florida, October 22, 2005 also presented to the SUAPP faculty research forum February, 2005.

Monographs/Technical Reports

- David L. Ames *et. al*, Feasibility Study of the Proposed Extension of the Coastal Heritage Scenic Byway from Route 9 to Lewes, (Center for Historic Architecture and Design, University of Delaware, Feb. 2013).
- David L. Ames and Candice Myruski, *Historic Photographs of Delaware's Transportation From the Hammond Glass Plate Collection: 1922 - 1938* (Center for Historic Architecture and Design, University of Delaware, Feb. 2013).
- David L. Ames, Tim Pouch, Allison Rice and Laura Proctor, *Delaware Virtual Byway Project: Final Report* (Center for Historic Architecture and Design, University of Delaware, 2013).
- David L. Ames, Candice Myruski, *et.al*, *Historic Photographs of Delaware's Coast: From the Hammond Glass Plate Collection 1922-1938*, (Center for Historic Architecture and Design, University of Delaware, 2013).
- David L. Ames, Editor, *A Critical Look at Sustainability and Historic Preservation*, Proceedings of the Sixth National Forum on Historic Preservation Practice, (Baltimore: Goucher College, March 19-21, 2009).
- David L. Ames, *et. al*. with the Delaware Underground Railroad Coalition, *Nomination of Harriet Tubman Underground Railroad Historic Byway to the Delaware Scenic and Historic Highway Program*, (Center for Historic Architecture and Design, University of Delaware, 2009) funded by DelDOT.
- David L. Ames, *et.al*. *Nomination of Proposed Western Sussex Scenic and Historic Highway to the Delaware Scenic and Historic Highway Program*, (Center for Historic Architecture and Design, 2009) funded by DelDOT.
- With Tori Walker, *Field Guide to Delaware City Architecture*, Center for Historic Architecture and Design, University of Delaware 2008.
- David L. Ames, Andrew Homsey, Xuan Jiang and Rebecca Galey, *Exploring Sussex: Toward Heritage Tourism in Sussex County, Delaware* (Center for Historic Architecture and Design and Institute for Public Administration, UD 2008).
- David L. Ames, Eric Gollanek and Sarah Rector, *A Manual for Nominating Roads to the Delaware Scenic and Historic Highway Program*, (Center for Historic Architecture and Design, University of Delaware, 2006), Funded by DelDot.
- David L. Ames, David Amott, and Eric Gollanek, *A History of Delaware Roads and a Guide to Researching Them*, (Center for Historic Architecture, 2006).
- David L. Ames and Eric Gollanek, *Nomination of Philadelphia Pike to the Delaware Scenic and Historic Highway Program* (2005).

Co-edited with Richard Wagner, *A Critical Look at Cultural Landscapes and Historic Preservation: Pre-conference Proceedings of the Fourth National Forum on Historic Preservation Practice* (Goucher College, Baltimore, March 18-20, 2004).

David L. Ames and Janet Sheridan, Delaware Historic Bridges Project. A series of discussion/policy papers were written under a grant from DelDOT (NCHRP Project 25-25, Task 15 2007) to explore issues about historic bridges in Delaware.

RESEARCH:

2014-2015

DELDOT Byways Research Program, \$130,000 – support stipends of three graduate students

2013-2014

DELDOT Byways Research Program, \$130,000 – support stipends of three graduate students

2012-2013

DELDOT Byways Research Program, \$130,000

UDUTC Update Megalopolitan Literature Review by graduate student, \$3,000

National Landmarks Nomination for the Read House in New Castle, with Michele Anstine. I was asked by the DHS and the National Parks Service to assist in the preparation of a National Landmarks Nomination for the Read House. I have been doing this as faculty research and public service.

2011-2012

DELDOT Byways Research Program, \$130,000

National Landmarks Nomination for the Read House in New Castle, with Michele Anstine

2010-2011

DELDOT Byways Research Program, \$130,000

National Landmarks Nomination for the Read House in New Castle, with Michele Anstine

UD Chrysler Community Legacy Project, \$1,000

Global Studies China/Tibet Grant with Reedy and Sheppard, \$50,000

2009-2010

DELDOT Byways Research Program, \$125,000

UDUTC – Impact of Climate Change in I-95 with Sue McNeil, \$58,120

UD Grant from Professional Studies to Convert Historic Preservation Certificate Program to On-line Delivery, \$28,000 (with Sheppard and Reedy)

2008-2009

DELDOT Byways Research Program, \$125,000

2004-2008

Annual DELDOT Byways Research Program, approx. \$100,000 per year
Delaware Transportation Center – Defining Historic Bridges, 2006, \$50,000
Preparation of Scenic and Historic Highway Application to DELDOT, New Castle County
Planning Department, 2006-2007, \$50,000
History and Photographic Documentation of Rockwood, New Castle County
Planning Department, 2005-2007, \$40,000
Odessa Design Guidelines Project, Town of Odessa, 2005, \$4,000

Graduate Research Assistants Supported – these contracts have provided stipends for five to six graduate research students a year averaging about \$15,000 per stipend. SPAA has matched with tuition at 100% until 2011-2012 and then at 90%

TEACHING/CURRICULUM DEVELOPMENT:

Teaching and Courses Taught 2008-2013. With a faculty appointment in the School of Public Policy and Administration, I am a member of the program faculties in Historic Preservation and Urban Affairs and Public Policy and teach in both programs. I have also been invited over the years to give guest lectures in a number of graduate and undergraduate classes in other programs and departments.

Courses Taught**2014-2015**

None – on sabbatical

2013-2014

UAPP 420/720 Introduction to Architectural Photography
UAPP/MSST 629 HIST 652 Theory and Practice of Historic Preservation (with Reedy)
UAPP 964 Pre-candidacy Study
MAUAPP/MAHP Adviser - 3
Analytic Paper - 1
Ph.D. Guidance/Dissertation Committee -
Urban Affairs - 3
Preservation Studies - 2

2012-2013

On sabbatical spring 2013
UAPP 420/720 Introduction to Architectural Photography
UAPP/MSST 629 HIST 652 Theory and Practice of Historic Preservation (with Reedy)
UAPP 964 Pre-candidacy Study
MAUAPP/MAHP Adviser - 3
Analytic Paper - 1
Ph.D. Guidance/Dissertation Committee -
Urban Affairs - 3
Engineering - 4
Preservation Studies - 1

2011-2012

GEOG/UAPP 434/634 Planning Sustainable Communities and Regions
UAPP 420/720 Introduction to Architectural Photography
UAPP/MSST 629 HIST 652 Theory and Practice of Historic Preservation (with Reedy)
UAPP 862 Teaching Practicum for Doctoral Student (TA)
UAPP 870 Directed Readings
MAUAPP/MHP Advisees - 4
Analytic Papers - 3
Ph.D. Guidance/Dissertation Committee -
 Urban Affairs - 2
 Engineering - 3
 Preservation Studies -1

2010-2011

GEOG/UAPP 434/634 Planning Sustainable Communities and Regions
UAPP 420/720 Introduction to Architectural Photography (Converted to on-line format with Office of Professional Studies support)
UAPP/MSST 629 HIST 652 Theory and Practice of Historic Preservation (with Reedy) (Converted to on-line format with Office of Professional Studies support)
MAUAPP Advisees - 4
Analytic Papers - 2
Thesis chair or committee - 5
Dissertation -
 Engineering - 2
 Preservation Studies - 2

2009-2010

GEOG/UAPP 434/634 Planning Sustainable Communities and Regions
UAPP 420/720 Introduction to Architectural Photography
UAPP 870 Directed Readings
UAPP/MSST 629 HIST 652 Theory and Practice of Historic Preservation (with Reedy)
MAUAPP Advisees - 5
Analytic Papers- 5
Thesis chair or committee - 4
Dissertation -
 Engineering - 1
 Preservation Studies - 3

2008-2009

GEOG/UAPP 629 Issues in Land Use and Environmental Planning
UAPP 420/720 Introduction to Architectural Photography
UAPP/MSST 629 HIST 652 Theory and Practice of Historic Preservation (with Reedy)
UAPP 667 New Urbanism w/ Middlebrooks and Bruck
MAUAPP Advisees - 5
Analytic Papers - 5
Thesis chair or committee - 5
Dissertation -

Engineering - 1
Preservation Studies - 3

Curriculum Development

Urban Affairs and Public Policy. I have been active in curriculum development in the Masters in Urban Affairs and Public Policy program of study and in particular the Concentrations in Urban and Regional Planning and Historic Preservation until they were deleted in 2010. I have taught a required core course in planning GEOG/UAPP 434/634, "Planning Sustainable Communities and Regions." I have advised students interested in planning and directed analytic papers and dissertations.

Historic Preservation. My primary effort in curriculum development during this period, along with Dr. Rebecca Sheppard, CHAD's Associate Director and co-director of the concentration in historic preservation and Dr. Chandra Reedy, was the development and approval by the SPPA faculty and the University of a Masters and Certificate Program in Historic Preservation.

On-line Education. In 2010, with a grant from the UD Office of Professional Studies, Ames and Reedy developed an online version of UAPP 629, "Theory and Practice of Historic Preservation Planning" and in spring 2010, Ames converted UAPP 720, "Introduction to Architectural Photography," to an online format. To date, they have been offered as hybrid courses in conjunction with classroom courses.

Digital Instruction. In the fall of 2011, with colleagues Lance Winn from Art, Ritchie Garrison with Winterthur Program, and Sheppard and Reedy, we received a grant from the Office of Information Services to apply I-Book and I Pads to instruction needs in Historic Preservation. We have also been participating in the Digital Humanities Forum in CAS and were invited to present a paper on "Rephotography" to one of their forums last spring. "Introduction to Architectural Photography" is digitally based and involved in community outreach as described in the UDaily story, <http://www.udel.edu/udaily/2014/nov/main-street-preservation-111113.html>.

SERVICE AND PUBLIC ENGAGEMENT:

Service to School of Public Policy and Administration

Convener, Center Directors Group, 2013
Member of SUAPP Steering Committee, 2009-2010
Convener, Faculty Affinity Group in Planning, 2011 to present
Director, Center for Historic Architecture and Design
Faculty Coordinator with Pequet of Concentration in Urban and Regional Planning, to 2010
Faculty Coordinator with Sheppard, Concentration in Historic Preservation in MA in Urban Affairs, to 2010
Co-director, Master's Program in Historic Preservation, 2009-2013
Member, Committee to Develop Masters in Historic Preservation, 2009-2010

Member Committee to Examine Feasibility of Planning Program, 2008-2009
Convener, Faculty Planning Affinity Group, 2010 and 2013

Service to College of Arts and Science

Member of the Executive Committee of the Winterthur Program in American
Material Culture
Member of the Admissions Committee for the Preservation Studies Doctoral
Program
Affiliated faculty of the Center for Material Culture Studies
Member, Steering Committee for Delaware Design Institute
Member, Selection Committee for Material Culture Fellows Committee
Member faculty vetting committee for 2014 Emerging Scholars in Material
Culture Symposium
Member, Search Committee for GIS faculty in Geography Department

University Service

Member of the Visiting Committee on Architecture of the UD Board of
Trustees
Conduct tours of University of Delaware Historic Architecture for Alumni
Weekend in June, 2009, 2010, 2011, 2012
Advice on the Campus's Historic Buildings and Landscape Solicited by
Facilities Planning staff
Developed Concept and Plans with Material Culture colleagues for
Interpretive Brick Wall on Opera House in Bookstore Court, 2012

Public Engagement with the Larger Community

Since nearly all on my research has an applied aspect, it involves community and working with local agencies and organization wherever the project is located. This is especially true of the Byway project in Delaware, which is a grass roots effort with each Byway having a sponsor consisting of representatives from state agencies, local governments, non-profit organizations, and individuals. We provide assistance directly to these groups in the form of research and technical assistance. We have active involvement throughout the state from Northern Delaware with the Philadelphia Pike Nomination, in central Delaware with the Harriet Tubman nomination and corridor management plan process, and in southwestern Delaware in Sussex County with the Nanticoke Heritage Byway.

Community Service

Member, State of Delaware Historic Preservation Historic Review Board
Board Member, Quaker Hill Historic Preservation Foundation
Member of Board of Preservation Delaware, Inc., 2010 to 2013
Completed Audio Tour of Historic Architecture on Wilmington's Market Street in
conjunction with Delaware Historical Society and Delaware Humanities Forum

External Public Service

Member Sub-committee of DENREC Sea-Level-Rise Advisory Committee, 2010-2013

Member DELDOT Coastal Heritage Byways Advisory Committee (now Bayshore Byway), 2012 to present

Member DELDOT Harriett Tubman Underground Railroad Byway Advisory Committee, 2010 to present

PROFESSIONAL MEMBERSHIPS:

Vernacular Architectural Forum

Society of Architectural Historians

Society for American City and Regional Planning History

National Trust for Historic Preservation

National Preservation Policy Forum

Urban Affairs Association

Delaware Association for Public Administration

**APPENDIX C -
AGENCY
COORDINATION**



U.S. Department
of Transportation
Federal Aviation
Administration

Memphis Airports District Office
2862 Business Park Dr, Bldg G
Memphis, TN 38118-1555
Phone: 901-322-8180

March 21, 2012

Mrs. Karen Scott
Deputy Executive Director, Planning & Engineering
Louisville Regional Airport Authority
P.O. Box 9129
Louisville, KY 40209

Dear Mrs. Scott:

Re: Bowman Field (LOU)
Louisville, KY
Conditional Airport Layout Plan Approval

The Federal Aviation Administration (FAA) conditionally approves your Airport Layout Plan (ALP) for Bowman Field Airport, dated December 18, 2008 and signed February 27, 2012. This approval is subject to the condition that the proposed airport development listed below requires environmental processing and may not be undertaken without the FAA's prior written environmental approval.

- Future Northeast, Northwest and Southeast Airport Development
- Taxiway "A" Removal
- Taxiway "B" Removal

The ALP depicts Runway 6-24 with a length of 4,357 ft. while the Airport Master Record indicates a length of 4,326 ft. Upon completion of the proposed Aeronautical Survey the sponsor should submit a revised ALP to this office.

FAA approval of your ALP means that the proposed airport development shown on the plan and noted above, was reviewed on the basis of safety, utility and efficiency.

However, our approval does not represent a commitment to provide federal financial assistance to implement any development or air navigation facilities shown on the plan, nor does it mean that we find funding of the proposed airport development justified.

The proposed airport development shown below and on the ALP is not adequately justified for planning purposes based on the FAA's most recent Terminal Area Forecast (TAF).

- Future Dual Parallel Taxiway
- Future Taxiway "K"

We do not concur with the area designated as Future Non-Aviation Development. Any proposal for Non-Aviation land uses should be reviewed and approved by this office.

2

Please be aware that you are required to notify this office at least 60 days prior to the start of any construction on the airport. You must submit proper notification to our office and receive FAA airspace approval. Furthermore, the design and location of any storm water retention/detention facilities on or near the airport must comply with FAA Advisory Circular 150/5200-33 "Hazardous Wildlife Attractants on or Near Airports", and must be approved on the ALP prior to construction.

We look forward to working with you in the continued development of your airport.

Sincerely,

Stephen Wilson
Community Planner

Enclosure

cc:

AJW-E22; Stephanie Gadson
AJW-E15C; Shafat Ahmad
AJV-E24; Joe Burkhardt
SDF-ATCT; David Senechal

Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

FEDERAL AVIATION
ADMINISTRATION -
CONDITIONAL
ALP APPROVAL
CORRESPONDANCE

EXHIBIT 1



ENERGY AND ENVIRONMENT CABINET

Steven L. Beshear
Governor

DEPARTMENT FOR ENVIRONMENTAL PROTECTION
300 FAIR OAKS LANE
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-2150
FAX (502) 564-4245
www.dep.ky.gov

Leonard K. Peters
Secretary

R. Bruce Scott
Commissioner

December 9, 2014

Melissa A. Jenkins, PE
Project Engineer
Hanson Professional Services Inc.
2700 Moran Avenue, Suite B
Louisville, KY 40205

Re: SERO 2014 - 33
Early Coordination Associated with
Environmental Review for Easement
Acquisition and Tree Removal /Trimming
at Bowman Field Airport, Louisville, KY

Ms. Jenkins,

The Energy and Environment Cabinet serves as the state clearinghouse for review of environmental documents generated pursuant to the National Environmental Policy Act (NEPA). Within the Cabinet, the Commissioner's Office in the Department for Environmental Protection coordinates the review for Kentucky state agencies.

We received your letter dated December 4, 2014 requesting the departments input on potential environmental impacts related to the easement acquisition and tree removal /trimming at Bowman Field Airport, Louisville, KY. As you develop your draft environmental assessment, the following comments provided by the cabinet should be considered.

- Kentucky Division for Air Quality Regulation **401 KAR 63:010** Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne.

KentuckyUnbridledSpirit.com
Employer M/F/D



An Equal Opportunity

Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at <http://air.ky.gov/Pages/OpenBurning.aspx>.

- Kentucky Division for Air Quality Regulation **401 KAR 63:005** states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Brochure located at <http://air.ky.gov/Pages/OpenBurning.aspx>.
- The Division would like to offer the following suggestions on how this project can help us stay in compliance with the NAAQS. More importantly, these strategies are beneficial to the health of citizens of Kentucky.

§ Utilize alternatively fueled equipment.

§ Utilize other emission controls that are applicable to your equipment.

§ Reduce idling time on equipment.

- All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered they must be properly addressed. If asbestos, lead paint, and/or other contaminants are encountered during this project, they must be properly addressed.
- The Division of Water recommends that in the implementation of the project Best Management Practices (BMPs) be utilized to prevent nonpoint-sources of water pollution and, thereby, control stormwater runoff and sediment damage to water quality and aquatic habitat. For technical assistance on the kinds of BMPs most appropriate for this type of construction, please contact the local Soil and Water Conservation District or the Division of Conservation of the Environmental and Public Protection Cabinet. The Division of Water, also, has available BMP construction manuals.
- If the project is in a karst area, BMPs should be used to mitigate any potential impacts to groundwater, especially from excess sediment. The appropriate Groundwater Protection Plan should also be followed and should include spill protection for any on-site fuel storage. Appropriate

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
DEPARTMENT
OF ENVIRONMENTAL
PROTECTION
COORDINATION

EXHIBIT 2A

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
DEPARTMENT
OF ENVIRONMENTAL
PRTECTION
COORDINATION

measures need to be followed to ensure that any wells or springs are not impacted, especially those that may be used for domestic water supplies.

- If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) stormwater discharge permit from Division of Water.
- The Kentucky Airport Zoning Commission has jurisdiction for issuing permit on and around all public use airports. Information on airport zoning laws and regulations may be found at:
<http://transportation.ky.gov/Aviation/zoning.htm>.

The response provided is based upon the information that was provided by the applicant; an does not satisfy, or imply, the acceptance or issuance of any permits, certifications or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations.

If you should have any questions, please contact me at (502) 564-2150, ext. 3125.

Sincerely,

Ronald T Price

Ronald T. Price
Kentucky Department for Environmental Protection



United States Department of the Interior

FISH AND WILDLIFE SERVICE
Kentucky Ecological Services Field Office
330 West Broadway, Suite 265
Frankfort, Kentucky 40601
(502) 695-0468

December 3, 2014

Mr. Timothy Haskell
Senior Aviation Planner
Hanson Professional Services, Inc.
53 Century Blvd., Suite 160
Nashville, Tennessee 37214

Re: FWS 2015-B-0058; Federal Aviation Administration (FAA), Louisville Regional Airport Authority Obstruction Removal for Runway Approaches 6, 15 and 33 Project at Bowman Field Airport, Jefferson County, Kentucky

Dear Mr. Haskell:

The U.S. Fish and Wildlife Service (Service) has reviewed your October 31, 2014 request for the above-referenced project. The request has been prepared on behalf of the Louisville Regional Airport Authority (LRAA). The Service offers the following comments in accordance with the Endangered Species Act (ESA) of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*).

Indiana bat

The Indiana bat (*Myotis sodalis*) is the only federally listed species that the Service believes has the potential to occur within the proposed action area. The proposed project area is located within potential Indiana bat habitat. We believe that forested areas in the vicinity of and on the project area may provide potentially suitable summer roosting and foraging habitat for the Indiana bat. Our belief that potentially suitable habitat may be present is based on the information provided in your correspondence, the fact that much of the proposed project area and/or surrounding areas contain forested habitats that are within the natural range of this species, and our knowledge of the life history characteristics of the species.

From approximately mid-March through mid-October, Indiana bats utilize a wide array of forested habitats, including riparian forests, bottomlands, and uplands for both summer foraging and roosting habitat. During this time of year, Indiana bats typically roost under exfoliating bark, in cavities of dead and live trees, and in snags (*i.e.*, dead trees or dead portions of live trees). Trees in excess of 16 inches diameter at breast height (DBH) are considered optimal for maternity colony roosts, but trees in excess of 9 inches DBH appear to provide suitable maternity roosting habitat. Male Indiana bats have been observed roosting in trees as small as 5 inches DBH. By definition a "potential Indiana bat roost tree" is a tree that is greater than 5-inches

DBH and exhibits one or more of the following characteristics: exfoliating bark, cracks, crevices, dead portions, and cavities. Projects involving the removal of forested areas (trees) within potential Indiana bat habitat could result in direct, indirect and/or cumulative effects to Indiana bats through changes to the landscape and the removal of potential foraging and roosting habitat.

Direct effects

According to your correspondence, the proposed project would result in the loss or trimming of approximately 300 individual trees. The proposed project area is situated entirely within an urban environment. Based on the field assessment and photos of the project area, some of the trees that would be removed and trimmed are likely "potential Indiana bat roost trees" as previously defined. LRAA would schedule all project-associated tree removal and tree trimming to occur between the dates of October 15th and March 31st, the time of year when Indiana bats are not likely to be present. The Service believes that this approach would avoid direct effects to Indiana bats that may be utilizing habitat within the project area during the time-frame when the species is anticipated to be present.

Indirect effects

The Analysis indicates that the approximately 300 individual trees that would be removed or trimmed comprise 8% of the available Indiana bat potential summer habitat within the surrounding area. Additionally, the Service believes that the project would not result in significant fragmentation of potential Indiana bat habitat because of the urban setting of the project area. Based on this information, the Service believes that the project's indirect effects to the Indiana bat would be insignificant and/or discountable.

Cumulative effects

The purpose of the project is to maintain the existing aircraft flight operating conditions and to comply with FAA safety criteria. The project is not intended to result in an increase in development or lower approach surface elevations. Considering the project's purpose, the Service believes that it is unlikely that the project would result in cumulative effects to Indiana bats.

Northern long-eared bat

The northern long-eared bat (*Myotis septentrionalis*) is currently proposed for federal listing under the ESA. Although species proposed for listing are not afforded protection under section 9 of the ESA, when a species is listed, the prohibitions against jeopardizing its continued existence and unauthorized take are effective 30 days after publication of the final rule, **regardless of an action's stage of completion**. Federal action agency(s) are required to confer with the Service on an agency action that is likely to jeopardize the continued existence of proposed species or result in the destruction or adverse modification of critical habitat proposed to be designated (Section 7 (a)(4) of the ESA). You and/or the lead federal action agency may also voluntarily confer with the Service if the proposed action may affect the northern long-eared bat. At this time, no designated critical habitat has been proposed for the northern long-eared bat.



Offices Nationwide
www.hanson-inc.com
Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772
Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA
SHEET TITLE

U.S. FISH AND
WILDLIFE
SERVICE
COORDINATION

FRIDAY, DECEMBER 19, 2014 11:31:47 AM GIBBS01521
I:\12\05\12A001\4\CAD\GIS\ENVIRONMENTAL ASSESSMENT\APPENDIX C\EX3B.MXD

The proposed action area is considered potential habitat for the northern long-eared bat. During the summer, northern long-eared bats typically roost singly or in colonies in a wide-variety of forested habitats, where they seek shelter during daylight hours underneath bark or in cavities/crevices of both live trees and snags, including relatively small trees and snags that are less than 5 inches in diameter at breast height (DBH). Northern long-eared bats have also been documented roosting in man-made structures (i.e., buildings, barns, etc.) during the summer. According to current winter occurrence data, northern long-eared bats predominately winter in hibernacula that include caves, tunnels, and underground mine passages.

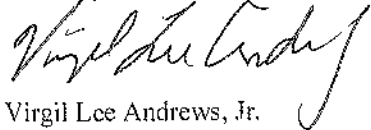
The proposed project would result in the removal and trimming of approximately 300 individual trees which comprise about 8% of available northern long-eared bat potential summer habitat within the surrounding area. Due to the seasonal tree clearing measure, as described for the Indiana bat, we believe that the project would not likely have direct effects to potential northern long-eared bat summer habitat. Additionally, the project would not likely significantly affect northern long-eared bat potential hibernacula habitat. Therefore, the Service believes that the proposed project would not likely jeopardize the continued existence of the northern long-eared bat.

Please note that the final rule to list the northern long bat or not is expected to be published by April 2, 2015. If the project-associated construction activities continue after April, 2015, and the northern long eared bat is listed as threatened or endangered, the federal action agency (FAA) is required to consult with the Service if it is determined that the proposed project may affect the northern long-eared bat. The Service may recommend additional minimization and mitigation measures to ensure that the proposed project is in full compliance with the ESA relative to the northern long-eared bat.

In summary of these findings, the Service concurs that the proposed project would not likely adversely affect the Indiana bat. The Service believes that the requirements of section 7 of the Endangered Species Act have been fulfilled for this project. The obligations under section 7 must be reconsidered; however, if: (1) the seasonal tree clearing measure is not adhered to., (2) new information reveals that the proposed action may affect listed species in a manner or to an extent not previously considered., (3) the proposed action is subsequently modified to include activities which were not considered during this consultation, or (4) new species are listed or critical habitat designated.

Thank you again for your request. Your concern for the protection of endangered and threatened species is greatly appreciated. If you have any questions regarding the information that we have provided, please contact James Gruhala at (502) 695-0468 extension 116.

Sincerely,



Virgil Lee Andrews, Jr.
Field Supervisor

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

U.S. FISH AND
WILDLIFE
SERVICE
COORDINATION



STEVEN L. BESHEAR
GOVERNOR

DEPARTMENT FOR LOCAL GOVERNMENT
OFFICE OF THE GOVERNOR
1024 CAPITAL CENTER DRIVE, SUITE 340
FRANKFORT, KENTUCKY 40601-8204
PHONE (502) 573-2382 FAX (502) 573-2939
TOLL FREE (800) 346-5606
WWW.DLG.KY.GOV

TONY WILDER
COMMISSIONER

December 16, 2014

Ms. Melissa Jenkins
Hanson Professional Services
2700 Moran Ave., Suite B
Louisville, KY 40205

RE: Bowman Field Airport Area Safety Program
SAI# KY20141113-1134
CFDA# 20.106

Dear Ms. Jenkins:

The Kentucky State Clearinghouse, which has been officially designated as the Commonwealth's Single Point of Contact (SPOC) pursuant to Presidential Executive Order 12372, has completed its evaluation of your proposal. The clearinghouse review of this proposal indicates there are no identifiable conflicts with any state or local plan, goal, or objective. Therefore, the State Clearinghouse recommends this project be approved for assistance by the cognizant federal agency.

Although the primary function of the State Single Point of Contact is to coordinate the state and local evaluation of your proposal, the Kentucky State Clearinghouse also utilizes this process to apprise the applicant of statutory and regulatory requirements or other types of information which could prove to be useful in the event the project is approved for assistance. Information of this nature, if any, concerning this particular proposal will be attached to this correspondence.

You should now continue with the application process prescribed by the appropriate funding agency. This process may include a detailed review by state agencies that have authority over specific types of projects.

This letter signifies only that the project has been processed through the State Single Point of Contact. It is neither a commitment of funds from this agency or any other state of federal agency.

An Equal Opportunity Employer M/F/D

The results of this review are valid for one year from the date of this letter.
Continuation or renewal applications must be submitted to the State Clearinghouse annually. An application not submitted to the funding agency, or not approved within one year after completion of this review, must be re-submitted to receive a valid intergovernmental review.

If you have any questions regarding this letter, please feel free to contact my office at 502-573-2382.

Sincerely,

Lee Nalley
Kentucky State Clearinghouse

Attachments

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
CLEARINGHOUSE;
DEPARTMENT FOR
LOCAL
GOVERNMENT
COORDINATION

EXHIBIT 4A

FRIDAY, DECEMBER 19, 2014 11:33:20 AM GIBBS01521
\\12\JBS\12A00134\CAD\GIS\ENVIRONMENTAL\ASSESSMENT\APPENDIX C\EXB4B.MXD

The Housing, Building, Construction has made the following advisory comment pertaining to State Application Identifier Number KY201411131134
no comments

The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number KY201411131134

STATE PW RATES MAY APPLY TO PROJECTS EXCEEDING \$250,000.00. CONTACT KY LABOR CABINET AT 502 564 3534

The Natural Resources has made the following advisory comment pertaining to State Application Identifier Number KY201411131134

This review was based upon the information that was provided by the applicant through the Clearinghouse for this project. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications, or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet located at http://www.air.ky.gov/homepage_repository/Clearinghouse.htm.

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Fact Sheet located at http://www.air.ky.gov/homepage_repository/Clearinghouse.htm.

The Division suggests an investigation into compliance with applicable local government regulations.

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered they must be properly addressed. If asbestos, lead paint, and/or other contaminants are encountered during this project, they must be properly addressed.

The Division of Water recommends that in the construction of the project Best Management Practices (BMPs) be utilized to prevent nonpoint-sources of water pollution and, thereby, control stormwater runoff and sediment damage to water quality and aquatic habitat. For technical assistance on the kinds of BMPs most appropriate for this type of construction, please contact the local Soil and Water Conservation District or the Division of Conservation of the Environmental and Public Protection Cabinet. The Division of Water, also, has available BMP construction manuals.

If the project is in a karst area, BMPs during construction and operation of the facility should be followed to mitigate any potential impacts to groundwater, especially from excess sediment. The appropriate Groundwater Protection Plan should also be followed and should include spill protection for any on-site fuel storage. Appropriate measures need to be followed to ensure that any wells or springs are not impacted, especially those that may be used for domestic water supplies.

If the proposed project site is in a designated flood hazard area, application must be made to the Division of Water for a floodplain construction permit. Permission, or exemption, depends upon design and the exact site.

If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) stormwater discharge permit from Division of Water.

Utility line projects that cross a stream will require a Section 404 permit from the US Army Corps of Engineers and a 401 Water Quality Certification from DOW.

A groundwater survey of the site and vicinity should be conducted prior to construction, and any wells or springs located should be inspected and mapped and records filed with the Groundwater Branch, Division of Water. If any water wells on-site need to be abandoned, state regulations require that they be properly plugged by a Kentucky certified water well driller.

Transportation Cabinet Kentucky Airport Zoning Commission
The Kentucky Airport Zoning Commission has jurisdiction for issuing permit on and around all public use airports. Information on airport zoning laws and regulations may be

The KIPDA has made the following advisory comment pertaining to State Application Identifier Number KY201411131134
no comments

The Heritage Council has made the following advisory comment pertaining to State Application Identifier Number KY201411131134

The applicant must ensure compliance with the Advisory Council on Historic Preservation's Rules and Regulations for the Protection of Historic and Cultural Properties (36CFR, Part 800) pursuant to the National Historic Preservation Act of 1966, the National Environmental Policy Act of 1969, and Executive Order 11593.

Please note, these comments should not be construed as consultation under Section 106 of the National Historic Preservation Act of 1966 (as amended). It is our understanding the FAA is not conducting Section 106 and NEPA concurrently for this project. The FAA has not initiated Section 106 consultation with our office at this time. Therefore, our agency, as the State Historic Preservation Office for the Commonwealth of Kentucky, reserves the right to issue formal comments in the role prescribed for us in the Section 106 process under 36 CFR Part 800 when that process is underway. This review is solely intended to serve the purpose outlined in the project description, which is to provide preliminary comments for environmental documentation related to development of an EA under NEPA.

SAI # KY201411131134 describes the project as including avigation easement acquisition to accommodate obstruction removal. The following comments presume the acquisition of easements is not by itself the proposed action; rather the action includes obstruction removal and easements. If our understanding is incorrect, please contact our office, as these comments under NEPA for the EA may need to be revised.

EA documents typically address the affected human environment in some way. Historic, archaeological and cultural resources can be components of the human environment. One of the Kentucky Heritage Council's duties and functions under KRS 171.381 (apart from the duties of the State Historic Preservation Officer) is to "maintain an inventory or survey of Kentucky's resource of historic buildings, sites, structures, and other landmarks..." Without information on a project area, we cannot speak specifically to the presence/absence of historic, archaeological and cultural resources, but our current records indicate there has been almost no systematic study of the area immediately surrounding Bowman Field. Many resources in this area are of an age that they could be considered "historic," and thus be culturally valued aspects of the human environment.

The proposed action has the potential for direct, indirect and cumulative impacts to these types of resources. To ensure adequate/appropriate scoping for these resources in the preparation of an EA or related NEPA documents, we encourage coordination with individuals, organizations and agencies that have knowledge of the history and development of the area, including but not limited to the Louisville Metro Historic Preservation Officer, Preservation Louisville, long-time local residents, etc., to supplement any archival research which may also be conducted.

If you have questions regarding these comments, please contact Jill Howe at 502-564-7005, ext. 121.

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM

ENVIRONMENTAL
ASSESSMENT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
CLEARINGHOUSE;
DEPARTMENT FOR
LOCAL
GOVERNMENT
COORDINATION

EXHIBIT 4B

FRIDAY, DECEMBER 19, 2014 11:34:17 AM GIBBS01521
\\12\OBS\12A00134\CAD\GIS\ENVIRONMENTAL ASSESSMENT\APPENDIX C\EXB4C.MXD

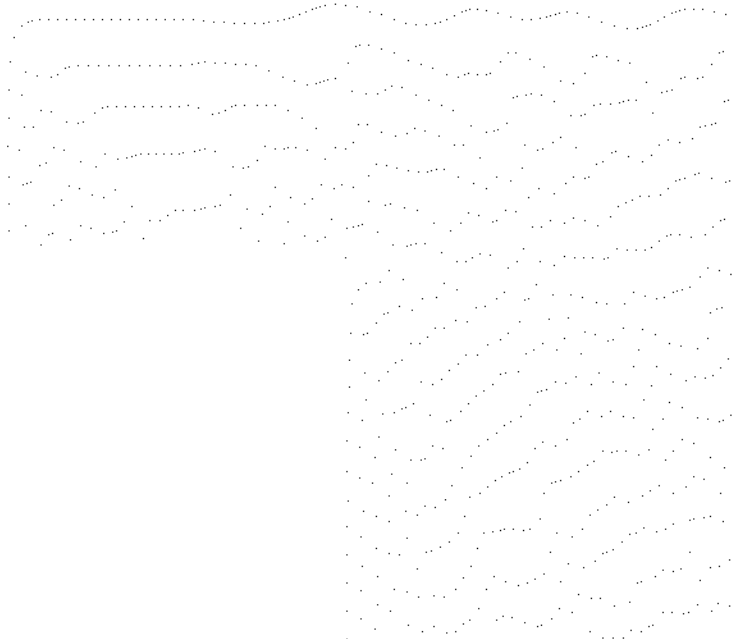
The KY State Fish & Wildlife has made the following advisory comment pertaining to State Application Identifier Number KY20t411131134

We request that you coordinate the proposed project with the U. S. Fish & Wildlife Service Kentucky Field Office at 502-695-0468 to address potential impacts to Federally Listed Threatened/Endangered Species. The U. S. Fish & Wildlife Service will be able to help in the development of a plan to minimize impacts to federally listed species during construction of the proposed project. To reduce impacts to tree-roosting bat species, a seasonal tree-cutting restriction (November 15th March 31st) will likely be requested.

To minimize impacts to the aquatic environment the Kentucky Dept. of Fish & Wildlife Resources recommends that erosion control measures be developed and implemented prior to construction to reduce siltation into waterways located within the project area. Such erosion control measures may include, but are not limited to silt fences, staked straw bales, brush barriers, sediment basins, and diversion ditches. Erosion control measures will need to be installed prior to construction and should be inspected and repaired regularly as needed. Please contact Dan Stoelb @ 502-564-7109 ex. 4453 or Daniel.Stoelb@ky.gov if you have further questions or require additional information.

The KY Dept. of Transportation has made the following advisory comment pertaining to State Application Identifier Number KY201411131134

Hickerson (D5), Judi: Any firm, individual, or government agency, that wants access to a road on the state highway system or wants to conduct any type of work on the right of way, must obtain a permit from the Department of Highways. For further information, contact Mohamad Abdol, Encroachment Permits, Traffic Operations, KYTC District 5 at (502) 210-5456.



BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
CLEARINGHOUSE;
DEPARTMENT FOR
LOCAL
GOVERNMENT
COORDINATION

EXHIBIT 4C

**APPENDIX D -
APPLICABLE
REGULATORY
STATUTES**

D.1 Applicable Regulatory Statutes

D.1.1 – The Airport and Airway Safety and Capacity Expansion Act of 1987 (P.L. 100-223)

The Airport and Airway Improvement Act of 1982, as amended by the Airport and Airway Safety Capacity Expansion Act of 1987, established the Airport Development Assistance Program. This Act states that a project may not be approved unless the Secretary of the Department of Transportation is satisfied that the project is reasonably consistent with objectives (existing at the time of approval of the project) of planning agencies for the development of the area in which the Airport is located. Each Airport development project must also “provide for the protection and enhancement of the natural resources and the quality of the environment of the Nation.”

D.1.2 – Federal Aviation Act of 1958, (P.L. 85-726) now recodified as Subtitle VII, Title 49 U.S. Code – “Aviation Programs,” (Section 40101 et. Seq.)

The Federal Aviation Act of 1958 replaced Civil Aeronautics Administration and established the FAA. In addition, the Act transferred the authority to set aviation regulations from the Civil Aeronautics Board to the FAA. This Act grants the FAA sole responsibility for the nation's civil-military system of air navigation and air traffic control. Today, the aviation regulations are known as the Federal Aviation Regulations (FAR PART 77s). The CFR Title 14 – “*Aeronautics and Space*”, Chapter, Parts 77, 91, 157, 151 and 152 provides a codification of the general and permanent rules published in the Federal Register by the FAA. The following parts establish regulations affecting the Airport, particularly airspace and navigation aids:

- Part 77 - Objects Affecting Navigable Airspace;
- Part 91 - General Operating and Flight Rules; and
- Part 157 - Notice of Construction, Alteration, Activation and Deactivation of Airports.

Additionally, the following parts establish regulations affecting the Airport, with regard to funding airport development:

- Part 151 - Federal Aid to Airports; and
- Part 152 - Airport Aid Program.

D.1.3. The National Environmental Policy Act 1969 (NEPA)

Public Law 91-190, U.S.C 4321, et seq., established a broad national policy to improve the relationship between humans and the environment, and established policies and goals to insure that environmental considerations are given careful attention and appropriate weight in all decisions of the Federal Government.

D.1.4 – Department of Transportation Act of 1996, Section 4 (f), Recodifies 49 U.S.C. 303c

Section 303c of the DOT Act provides that the secretary shall not approve any program or project which requires the use of any public owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land of an historic site of national, state, or local significance as determined by the officials having jurisdiction thereof unless there is no feasible and prudent alternative to the use of such land and such program or project includes all possible planning to minimize harm resulting from the use.

D.1.5 – The Farmland Protection Policy Act of 1981, 7 U.S.C. 4201, et seq.

The Federal farmland Protection Policy Act in part directs Federal agencies to take into account the adverse effects of proposed actions on the preservation of farmland, and to consider appropriate alternatives that could lessen adverse effects.

D.1.6 – Clean Water Act of 1972, 33 U.S.C 1251, et seq.

The CWA sets the basic structure for regulating discharges of pollutants to waters of the United States. The law gave the EPA the authority to set effluent standards on an industry basis (technology-based) and continued the requirements to set water quality standards for all contaminants in surface waters. The CWA makes it unlawful for any person to discharge any pollutant from a point source into navigable waters unless an NPDES Permit is obtained under the Act. The CWA also focuses on toxic substances, contains citizen suit provisions, and funds sewage treatment plants under the Construction Grants Program. The CWA provides for the delegation by EPA of many permitting, administrative and enforcement aspects of the law to state governments. In states with the authority to implement CWA programs, EPA still retains oversight responsibilities. Section 404 of the CWA also prohibits the discharge of dredged or fill material into waters of the United States without a permit from the U.S. Army Corps of Engineers (USACOE). As defined by the CWA, waters of the U.S. include all waters and wetlands that could be important for interstate commerce purposes. Section 404 also has provisions that exempt certain activities from the permitting process. These activities include normal farming, ranching, and silviculture activities; maintenance and emergency reconstruction of damaged structures; construction of stock ponds, irrigation ditches, or temporary sedimentation basins; and construction of farm, forest, or temporary roads. Efforts that may be regulated under the Section 404 provision include land clearing efforts, stream channelization, bridge piling operations, and discharges subject to other authorities. The USACOE administers the Section 404 permit program.

D.1.6 – The Clean Air Act of 1970, 42 U.S.C 4701, et seq.

The Clean Air Act (CAA) is the comprehensive Federal law that regulates air emissions from area stationary and mobile sources. This law authorizes that U.S. Environmental Protection Agency (USEPA) to establish National Ambient Air Quality Standards (NAAQS) to protect public health and the environment. The goal of the Act was to set and achieve NAAQS in every state by 1975. The setting of maximum pollutant standards was coupled with directing the states to develop State Implementations Plans applicable to appropriate industrial sources in the state. The Act was amended in 1977, primarily to set new goals (dates) for achieving attainment of NAAQS since many areas of the County had failed to meet the deadlines. The 1989 Amendments to the CAA, in large part, were intended to meet unaddressed or insufficiently-addressed problems such as acid rain, ground-level ozone, stratospheric ozone depletion, and air toxics.

D.1.7 – The Endangered Species Act 1973, 16 U.S.C 1531, et seq.

The Endangered Species Act provides a program for the conservation of threatened and endangered plants and animals and the habitats in which they are found. The U.S. Fish and Wildlife Service (USFWS) of the Department of the Interior (DOI) maintain the list of endangered and threatened species. Species include birds, insects, fish, amphibians, reptiles, mammals, crustaceans, flowers, grasses, and trees. Anyone can petition USFWS to include a species on this list. The law prohibits any action, administrative or real, that results in a “taking” of a listed species or adversely affects habitat. Likewise, import, export, interstate, and foreign commerce of listed species are all prohibited.

D.1.8 – The Airport Noise and Capacity Act of 1990 (P.L. 101-508)

The Airport Noise and Capacity Act of 1990 (ANCA) was enacted on November 5, 1990. The ANCA requires a phased elimination of operations of Stage 2 airplanes over 75,000 lbs. by December 31, 1999 in the contiguous United States and the District of Columbia. It also contains provisions regarding noise and access restrictions by local Airports, including those in United States-controlled areas outside the contiguous United States and the District of Columbia. The ANCA also contained specific requirements for notice and approval of Airport noise and access restrictions for aircraft, regardless of weight. The procedures and limitations are designed to ensure that proposed restrictions receive adequate notice, opportunity for comment, and sufficient time for planning and implementation.

D.1.9 - Coastal Zone Management Act of 1972, 16 USC 1451, et. seq.

The Coastal Zone Management Act establishes a voluntary National program within the Department of Commerce (DOC) to encourage coastal States to develop and implement Coastal Zone Management Plans. Funds were authorized for cost-sharing grants to States to develop their programs. Subsequent to Federal approval of their Plans, grants would be awarded for implementation purposes. In order to be eligible for Federal approval, each State's Plan was required to define boundaries of the coastal zone, to identify uses of the area to be regulated by the State, the mechanism (criteria, standards, or regulations) for controlling such uses, and broad guidelines for priorities of uses within the coastal zone. In addition, the 1972 law established a system of criteria and standards for requiring that Federal actions be conducted in a manner consistent with the Federally-approved plan. The standard for determining consistency varied depending on whether the Federal action involved a permit, license, financial assistance, or a Federally-authorized activity. A National system of estuarine sanctuaries was also authorized to establish National field laboratories with 50/50 cost-sharing grants for coastal states.

D.1.10 – National Historic Preservation Act of 1966, 16 S.U.C 470, et seq.

The National Historic Preservation Act of 1966 provides for preservation of significant historical features (buildings, objects, and sites) through a grant-in-aid program to that states. It establishes a National Register of Historic Places and a program of matching grants under the existing National Trust for Historic Preservation. The Act established an Advisory Council on Historic Preservation, which was made a permanent independent agency in Public Law. That Act also created the Historic Preservation Fund. Federal agencies are directed to take into account the effects of their actions on items or sites listed or eligible for listing in the National Register.

D.1.11 – Wild and Scenic Rivers Act of 1968, 16 U.S.C 1271, et seq.

The Wild and Scenic Rivers Act established a National wild and Scenic River System, and prescribes the methods and standards through which additional rivers may be identified and added to the system. The Act authorizes the Secretary of the Interior and the Secretary of Agriculture to study areas and submit proposals to the President and Congress for addition to the system. It describes procedures and limitations for control of lands in Federally-administered components of the system, and for dealing with disposition of lands and minerals under Federal ownership. Rivers are classified as wild, scenic, or recreational, and hunting and fishing are permitted in components of the system under applicable Federal and State laws.

D.1.12 – Land and Water Conservation Fund Act of 1965, 16 U.S.C 4600-5, et seq.

Section 6(f) of the Land and Water Conservation Fund Act (LAWCON) of 1965, or Public Law 88-578, defines these special lands as property that has been purchased or developed with assistance from this fund. Properties acquired or developed with assistance under this section shall NOT, without approval from the Secretary of the Interior, be converted to other than public outdoor recreation uses. The Secretary of the Interior shall approve such conversion only if it is found to be in accordance with the then existing Statewide Comprehensive Outdoor Recreation Plan, and only upon such conditions as deemed necessary to assure the

substitution of other recreation properties of at least equal fair market value and of reasonable equivalent usefulness and location. The authority to approve Section 6(f) land conversions has been delegated to the Regional Directors of the National Park Services.

D.1.13 – Costal Barrier Resources Act, 16 U.S.C. §3501 et seq.

The Costal Barrier Resources Act designated various undeveloped coastal barrier island, as depicted by specific maps, for inclusion in the Coastal Barrier Resources System (System). Areas so designated were made ineligible for direct and indirect Federal financial assistance that might support development, except for life saving activities. In 1990, the Coastal Barrier Improvement Act included in the System areas along the Great Lakes.

D.1.14 -- National Flood Insurance Act of 1968, 42 U.S.C § 4001 et seq.

The National Flood Insurance Act of 1968 identified the need for a nationwide flood insurance program to be administered by the Federal government with assistance of the private insurance industry. The Act also identified the need for the program to provide the public protection against future flood losses and encourage sound land use in flood prone areas. Specifically, the Act encourages state and local governments to make appropriate land use adjustments to constrict the development of land which is exposed to flood damage and authorize continuing studies of flood hazards in order to provide for constant reappraisal of the flood insurance program and its effect on land use requirements.

D.1.15 – Flood Disaster Protection Act of 1973, 42 U.S.C §4002, et seq.

The purpose of the Flood Disaster Protection Act of 1973 is to substantially increase the limits of coverage authorized under the national flood insurance program. The Act also provides for the expeditious identification of, and the dissemination of information concerning, flood-prone areas. The Act requires state and local communities, as a condition of future Federal financial assistance, to participate in the flood insurance program and to adopt adequate flood plan ordinances with effective enforcement provisions consistent with Federal standards to reduce or avoid future flood losses; and requires the purchase of flood insurance by property owners who are being assisted by Federal programs or by Federally supervised, regulated, or insured agencies or institutions in the acquisition or improvement of land or facilities located or to be located in identifies areas having special flood hazards.

D.1.16 – Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC Section 4601, *et. seq.*)

The purpose of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 is to protect property owners. This act ensures that owners of real property to be acquired for Federal and federally-assisted projects are treated fairly and consistently, to encourage and expedite acquisition by agreements with such owners, to minimize litigation and relieve congestion in the courts, and to promote public confidence in Federal and federally-assisted land acquisition programs. It also ensures that persons displaced as a direct result of Federal or federally-assisted projects are treated fairly, consistently, and equitably so that such displaced persons will not suffer disproportionate injuries as a result of projects designed for the benefit of the public as a whole. Finally, the act allows that FAA to implement these regulations in a manner that is efficient and cost effective.

D.1.17 Executive Order 11988 (Floodplain Management), as strengthened in 2015 by Executive Order 13690

Order 11988 states that the Federal Government must avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative. This order is a flexible framework to increase resilience against flooding and help preserve the natural values of floodplains. Incorporating this Standard will ensure that agencies expand management from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended. Order 13690 does not change Order 11988, but rather gives agencies the flexibility to select from three approaches for establishing the flood elevation and hazard area they use through a projects lifespan.

D.1.18 Executive Order 11990 Protection of Wetlands

Order 11990 states that agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands, includes acquiring, managing, and disposing of Federal lands and facilities. Federal agencies should also consider wetland protection during federally undertaken, financed, or assisted construction and improvements. Finally, these considerations should be taken when conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.

**APPENDIX E -
DRAFT
ENVIRONMENTAL
ASSESSMENT AGENCY
COORDINATION**

FRIDAY, DECEMBER 19, 2014 11:53:20 AM GIBBS01521
\\12JOBS\120013\CAD\GISEN\ENVIRONMENTAL ASSESSMENT\APPENDIX E\EXB1A.MXD

From: Gissentanna, Larry [mailto:Gissentanna.Larry@epa.gov]
Sent: Tuesday, June 14, 2016 1:23 PM
To: Braswell, Aaron (FAA)
Cc: Militscher, Chris; Buskey, Traci P.
Subject: Draft Environmental Assessment Bowman Field Airport Safety Program

FAA Airport District Office
Attn: Mr. Aaron Braswell, Environmental Protection Specialist
Email: aaron.braswell@faa.gov
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118

RE: Draft Environmental Assessment (EA) for Easement Acquisition and Tree Removal/ Trimming at Bowman Field Airport, Louisville Kentucky.

Dear Mr. Aaron Braswell:

Consistent with Section 102(2)(c) of the National Environmental Policy Act (NEPA) and section 309 of the Clean Air Act, the U.S. Environmental appreciates the opportunity to review the Environmental Assessment addressing the proposed action to upgrade Bowman Field Airport Area Safety Program to comply with the current Federal Aviation Administration (FAA)-required object clearing standards. This Safety Program EA will examine and compare various mitigation alternatives, including the purchase of avigation easements on select properties, for the removal and replacement, trimming or the lighting of trees that penetrate the Terminal Instrument Procedure (TERPS) approach surfaces to Bowman Field.

EPA understands that Bowman Field Airport (Bowman Field and Airport) is located five miles southeast of downtown Louisville, Jefferson County, Kentucky and is owned and operated by the Louisville Regional Airport Authority (LRAA and Sponsor). The Airport both historically and currently provides a broad cross section of general aviation air services and serves as a designated reliever airport to Louisville International Airport–Standiford Field (SDF), the third busiest cargo airport in North America. The Sponsor intends to accommodate existing demands with a continuation of proposed safety improvements at the Airport. These proposed actions include avigation easement acquisition and obstruction mitigation in areas where trees and the potential for trees or other objects could interfere with aircraft operations.

Background: Bowman Field provides vital general aviation access to Jefferson and the surrounding Counties. The 325 based aircraft and numerous itinerant aircraft generate an estimated 80,000 annual aircraft operations. The operations include military, Fortune 500 companies and all other categories of general aviation. Support of these operations includes two FBO (Fixed Based Operators) and multiple on airport businesses. Bowman Field, the birthplace of aviation

in Louisville, serves as a reliever airport for Louisville International. The purpose of this project is to provide a safe, efficient, viable and usable airfield at Bowman Field while serving their current fleet mix and complying with FAA FAR Part 77 and TERPS regulations and standards. The need for this project is to ensure the runways are in compliance with FAR Part 77 and TERPS design standards and to maintain current runway lengths to serve existing aviation users and to retain capacity. Maintaining a 4,357 ft. primary runway and a 3,579 ft. crosswind runway, as well as preservation of the existing airfield geometry, comprises the need to support the review of the proposed actions.

Based on the purpose and need, we further understand that the LRAA has potentially selected Preferred Alternative 2. This alternative proposes acquiring easements and installing a lighted pole adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. This alternative would impact Seneca Golf Course by installing lighted poles adjacent to trees that are obstructions. The lighted poles could detract from its recreational value by altering it overall Viewshed. We agree that Alternative 2 may create further impacts and could require additional mitigation. If this alternative is selected as the Airport’s preferred alternative. EPA recommends seeking additional input from stakeholders to assess the proper amount of mitigation required.

Based on the information you provided in the Draft Environmental Assessment (EA), we believe the proposed action to remove and manage obstructions surrounding LRAA do not appear to represent a significant impact to human health and the environment, however additional comments may be necessary after reviewing the Final Environmental Assessment.

Thank you for the opportunity to review this EA, upon completion of the Final EA /FONSI, please forward an electronic and a hard copy to this office. If you have any questions, you may contact me at the information below.

Larry O. Gissentanna
DoD and Federal Facilities, Project Manager

U.S. Environmental Protection Agency/ Region 4
Resource Conservation and Restoration Division
National Environmental Policy Act (NEPA) Program Office
61 Forsyth Street, SW
Atlanta, GA 30303-8960
Office: 404-562-8248
gissentanna.larry@epa.gov

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

U.S. ENVIRONMENTAL
PROTECTION AGENCY
REGION 4



MATTHEW G. BEVIN
GOVERNOR

DEPARTMENT FOR LOCAL GOVERNMENT
OFFICE OF THE GOVERNOR
1024 CAPITAL CENTER DRIVE, SUITE 340
FRANKFORT, KENTUCKY 40601-8204
PHONE (502) 573-2382 FAX (502) 573-2939
TOLL FREE (800) 346-5606/ TDD:711
WWW.kydlgweb.ky.gov

SANDRA K. DUNAHOO
COMMISSIONER

June 17, 2016

Mr. C.T. Miller
Louisville Regional Airpoty Authority
P.O. box 9128
Louisville, KY 40209

RE: Airport Improvement Program
SAI# KY20160526-0592
CFDA# 20.106

Dear Mr. Miller:

The Kentucky State e-Clearinghouse is the official designated Single Point of Contact (SPOC) for the Commonwealth pursuant to Presidential Executive Order 12372, and supported by Kentucky Statutes KRS 45.03. The primary function of the SPOC is to streamline the review aforementioned process for the applicant and the funding agency. This process helps in vocalizing the statutory and regulatory requirements. Information in the form of comments, if any, will be attached to this correspondence.

This proposal has been reviewed by the appropriate state agencies in the e-Clearinghouse for conflicts with state or local plans, goals and objectives. After receiving this letter you should make it available to the funding agency and continue with the funding agencies application process. This e-clearinghouse SPOC letter signifies only that the project has followed the state reviewing requirements, and is neither a commitment of funds from this agency or any other state or federal agency. Please remember if any federal reviews are required the applicant must follow through with those federal agencies.

The results of this review are valid for one year from the date of this letter. If the project is not submitted to the funding agency or not approved within one year after the completion of this review, the applicant can request an extension by email to Lee.Nalley@ky.gov. If the project changes in any way after the review, the applicant must reapply through the eclearinghouse for a new review. There are no exceptions.

If you have any questions regarding this letter or the review process please contact the e-Clearinghouse office at 502-573-2382, ext. 274.

Sincerely,

Lee Nalley, SPOC
Kentucky State Clearinghouse

Attachment

An Equal Opportunity Employer M/F/D

KY Heritage Council/State Historical Preservation Office (SHPO)

To receive a review from the KY Heritage Council/State Historical Preservation Office (SHPO) you must follow the instructions located on their website at <http://www.heritage.ky.gov/siteprotect/>. There you will find the required documents for the Section 106 Review and Compliance for 36 CFR Part 800. This Section 106 submission process to SHPO will assist applicants and agencies in providing the appropriate level of information to receive comments from SHPO.

If you have any questions please contact Yvonne Sherrick, Administrative Specialist III, (502) 564-7005, Ext. 113, yvonne.sherrick@ky.gov

The Housing, Building, Construction has made the following advisory comment pertaining to State Application Identifier Number KY201605260592

The KY Dept. of Transportation has made the following advisory comment pertaining to State Application Identifier Number KY201605260592

Hickerson (D5), Judi: Any firm, individual, or government agency, that wants access to a road on the state highway system or wants to conduct any type of work on the right of way, must obtain a permit from the Department of Highways. For further information, contact Mohamad Abdol, Encroachment Permits, Traffic Operations, KYTC District 5 at (502) 210-5456.

The Natural Resources has made the following advisory comment pertaining to State Application Identifier Number KY201605260592

This review is based upon the information that was provided by the applicant through the Clearinghouse for this project. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications, or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

Kentucky Division for Air Quality Regulation 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the Fugitive Emissions Fact Sheet.

Kentucky Division for Air Quality Regulation 401 KAR 63:005 states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the Open Burning Brochure.

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered, they must be properly addressed. If asbestos, lead paint, and/or other contaminants are encountered during this project, they must be properly addressed.

If the construction area disturbed is equal to or greater than 1 acre, the applicant will need to apply for a Kentucky Pollutant Discharge Elimination System (KPDES) stormwater discharge permit from the Division of Water.

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD AIRPORT AREA SAFETY PROGRAM

ENVIRONMENTAL ASSESSMENT

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
CLEARINGHOUSE;
DEPARTMENT FOR
LOCAL GOVERNMENT

TUESDAY, DECEMBER 06, 2016 11:49:51 AM GIBBS01521
I:\2\OBS\12A00134\CAD\GISEN\ENVIRONMENTAL ASSESSMENT\APPENDIX E\EX2B.MXD

Best Management Practices (BMPs) should be utilized to control storm water runoff and sediment damage to water quality and aquatic habitat. For technical assistance on the kinds of BMPs most appropriate for housing and related construction, please contact the local Soil and Water Conservation District or the Division of Conservation.

The KY State Fish & Wildlife has made the following advisory comment pertaining to State Application Identifier Number KY201605260592

Based on the information provided, the Kentucky Department of Fish & Wildlife Resources has no comments concerning the proposed project. Please contact Dan Stoelb @ 502-564-7109 ex. 4453 or Daniel.Stoelb@ky.gov if you have further questions or require additional information.

The Labor Cabinet has made the following advisory comment pertaining to State Application Identifier Number KY201605260592

STATE PW RATES MAY APPLY TO PROJECTS EXCEEDING \$250,000.00. CONTACT KY LABOR CABINET AT 502 564 3534

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
CLEARINGHOUSE;
DEPARTMENT FOR
LOCAL GOVERNMENT

TUESDAY, DECEMBER 06, 2016 11:49:04 AM GIBBS01521
I:\2\OBS\12A00134\CAD\GISEN\ENVIRONMENTAL ASSESSMENT\APPENDIX E\EXB3.MXD

United States Department of Agriculture



Natural Resources Conservation Service
771 Corporate Drive, Suite 300
Lexington, KY 40503

June 13, 2016

Aaron Braswell
Environmental Protection Specialist
FAA Airport District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118

RE: Draft Environmental Assessment Review for Easement Acquisition and Tree
Removal/Trimming at Bowman Field Airport, Louisville, KY

Dear Mr. Braswell:

In regards to the subject review, the USDA-Natural Resources Conservation Service (NRCS) is concerned with potential impacts that projects might have upon prime farmland soils, farmlands of statewide importance, PL-566 watershed structures, wetlands, Wetland Reserve Program (WRP) easements, and Grassland Reserve Program (GRP) easements. Based upon the information provided, Kentucky NRCS does not anticipate the proposed actions will negatively affect WRP easements, GRP easements, prime farmland soils and soils of statewide importance or PL-566 watershed structures.

Based on this information, NRCS Kentucky has no comments regarding the proposed actions.

Sincerely,

Casey D. Shrader
NRCS KY State Biologist

cc: Mark Ferguson, State Resource Conservationist, Lexington, KY
Randy Smallwood, State Agronomist, Lexington, KY

Helping People Help the Land

An Equal Opportunity Provider and Employer



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM

ENVIRONMENTAL
ASSESSMENT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

U.S. DEPARTMENT OF
AGRICULTURE
NATURAL RESOURCES
CONSERVATION
SERVICE

TUESDAY, DECEMBER 06, 2016 11:53:04 AM GIBBS01521
\\12JOBS\\12A0013\\CAD\\ENVIRONMENTAL ASSESSMENT\\APPENDIX E\\EXB4.MXD



DEPARTMENT OF METRO PARKS AND RECREATION
LOUISVILLE, KENTUCKY

GREG TYSCHER
MAYOR

SEVE GHOSE, CPA
DIRECTOR

23 November 2016.

Aaron Braswell
Federal Aviation Administration
2600 Thousand Oaks Boulevard
Memphis, TN 38118.

Mr. Braswell,

Thank you for the communication and inclusion in the discussion on the Bowman Field air safety project.

The project of strategic tree removal in Seneca Park and the surrounding communities is part of a larger picture community growth and enhancement vision that improves the safety and greater use of the airfield.

As the landowner, I have received and evaluated countless pages of information on the site and its properties from local groups, the Louisville Regional Airport Authority (LRAA) consultants, and from you. Having carefully studied these documents I am of the conclusion that the strategic tree removal plan has no adverse effect on the activities, features, and attributes that makes the park eligible for designation under Section 4 (f) of the Code of Federal Regulations specifically related to Parks, Recreation Areas, Wildlife and Waterfowl Refuges, and Historic Sites. The mitigation agreement will address all the concerns we originally had and thus this project is considered to have a *de minimis* impact on the property as defined under Section 774.17 of the code.

If there is further clarification required of our department as the property owner, please contact me at your earliest. We look forward to the next steps in the mitigation agreement being worked through.

Kind Regards,


Seve Ghose



A NATIONALLY ACCREDITED PARKS AND RECREATION AGENCY

WWW.LOUISVILLEKY.GOV

P.O. BOX 17280 LOUISVILLE, KENTUCKY 40211-7280 PHONE: 502.456.8100 FAX: 502.456.1267 TDD: 502.456.8183

WEB: METRO-PARKS.COM WEB: BESTPARKSEVER.COM EMAIL: PARKS@LOUISVILLEKY.GOV



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA
SHEET TITLE

DEPARTMENT OF
METRO PARKS
AND RECREATION
LOUISVILLE, KENTUCKY

TUESDAY, DECEMBER 06, 2016 12:19:41 PM GIBBS01521
\\12JOBS\1200\13\CAD\ENVIRONMENTAL\ASSESSMENT\APPENDIX E\EXB5A.MXD



**TOURISM, ARTS AND HERITAGE CABINET
KENTUCKY HERITAGE COUNCIL**

MATTHEW G. BEVIN
GOVERNOR

DON PARKINSON
SECRETARY

THE STATE HISTORIC PRESERVATION OFFICE
300 WASHINGTON STREET
FRANKFORT, KENTUCKY 40601
PHONE (502) 564-7005
FAX (502) 564-5820
www.heritage.ky.gov

REGINA STIVERS
DEPUTY SECRETARY

CRAIG A. POTTS
EXECUTIVE DIRECTOR
& STATE HISTORIC
PRESERVATION OFFICER

June 27, 2016

Phillip J. Braden
Manager
Memphis Airports District Office
Federal Aviation Administration
2862 Business Park Drive, Bldg G
Memphis, TN 38118-1555

RE: Determination of Effects; Bowman Field Airport Area Safety Program, Louisville KY

Dear Mr. Braden:

The Kentucky Heritage Council, State Historic Preservation Office has received for review and comment, the above referenced Determination of Effects evaluation for the Bowman Field Area Safety Program in Louisville, Kentucky. The purpose of this undertaking is to reduce tree heights so that nighttime instrument approach capabilities would be restored to the Bowman Field Airport. More than 100 mature trees in neighborhoods/areas adjacent to Bowman Field will be trimmed or removed entirely as part of this undertaking, in order to comply with safety requirements.

In accordance with 36 CFR §800, the FAA identified this project as an "undertaking" due to its potential to affect historic properties. Participants in the process were defined as the lead federal agency (FAA), the applicant (Louisville Regional Airport Authority (LRAA)), the Kentucky State Historic Preservation Officer (KYSHPO), Louisville Metro Government, and invited consulting parties (§800.3). A listing of those consulting parties is attached with this letter.

Through consultation under 36 CFR §800.4, the undertaking's Area of Potential Effect (APE) was defined, refined, and concurred upon, and the applicants' consultants (Brockington Cultural Resources Consultants and Hansen Professional Services, Inc.) submitted a Historic Architectural Survey, a Cultural Resource Evaluation report (CRE), and a supplemental CRE report. Due to certain inadequacies contained within the various reports (such as boundary demarcations for eligible historic properties and districts), KYSHPO and the consulting parties did not concur with the final determination of eligibility. While general agreement on the nature and location of eligible and listed historic properties was reached, a finalized CRE document containing all historic properties, with defined boundaries located within (or partially within) the APE, has yet to be received.

KentuckyUnbridledSpirit.com



An Equal Opportunity Employer M/F/D

In accordance with 36 CFR §800.5 (Assessment of adverse effects), The FAA provided a Determination of Effects letter that was received on May 27, 2016. In that letter, the FAA determined that the following sites are eligible for or listed on the National Register of Historic Places:

- Bowman Field Historic District;
- Seneca Park;
- Seneca Vista Historic District;
- Seneca Manor Historic District;
- McCoy Manor Historic District;
- Kingsley Historic District;
- Seneca Village Historic District; and
- Seneca Village No. 2 Historic District.

The FAA recommended that the removal of mature trees from within the undefined boundaries of certain historic districts mentioned above would have no adverse effect because, "...the vegetative plantings are not a contributing element to eligibility of any of the resources."

In the regulations found at 36CFR§800.5 (a)(1), it is stated that, "An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics of a historic property that qualify the property for inclusion in the National Register in a manner that would diminish the integrity of the property's location, design, *setting* [emphasis added], materials, workmanship, feeling or association. Consideration shall be given to all qualifying characteristics of a historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative." It is further stated in 36 CFR §800.5(a)(2)(iv) that, "Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance" is an example of an adverse effect.

The removal or alteration of more than 100 mature trees within historic districts such as the Olmstead designed Seneca Park has a particularly clear impact on integrity of setting. That said, it seems clear that certain safety program enhancements already proposed by the applicant could significantly reduce the overall impact. After reviewing the consulting party comments that were received in reply to the FAA's "Determination of Effects" letter, it appears that incorporation of the following conditions into the project will streamline the process and resolve disagreement between parties included through 36 CFR §800.3. Those conditions are as follows:

1. The applicant (LRAA) will compel its cultural resource management consultants to complete the CRE document as requested by the KYSHPO and consulting parties by September 30, 2016. This includes compiling all of the various elements of historic property evaluation into one comprehensive document and providing defensible boundaries for all eligible historic districts and a full evaluation of the Olmstead designed Seneca Park;
2. Trees will be assessed by a professional arborist as to whether they can be trimmed or should be removed;

KentuckyUnbridledSpirit.com



An Equal Opportunity Employer M/F/D

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
STATE HISTORIC
PRESERVATION
OFFICE

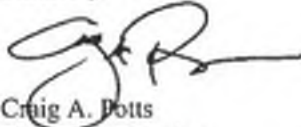
TUESDAY, DECEMBER 06, 2016 12:21:44 PM GIBBS01521
\\12\JOBS\1200\13\CAD\GISEN\ENVIRONMENTAL\ASSESSMENT\APPENDIX E\EX5B.MXD

3. All trees that are removed will be replaced with an appropriately diverse selection of low canopy trees at a ratio of two to one (2:1) within the above referenced historic districts. Homeowners may select less than two trees for each existing tree that is removed from their property, but the overall replanting ratio of two to one (2:1) will be maintained project-wide, regardless of homeowner preferences;
4. If a tree is removed in a landscaped area of the yard, the homeowner will be eligible for a re-landscaping allowance up to \$2,500.00. The landscaping allowance will be over and above the cost of replacement trees;
5. The LRAA will pay for all tree trimming and/or removal, stump removal and yard restoration directly related to this project;
6. All new landscape planting, including shrubs, perennials, ornamental grasses, and ground covers, will carry a one (1) year warranty; replacement trees will carry a two (2) year warranty by the LRAA; and
7. The aforementioned conditions, provisions numbered one (1) through six (6) above, will be added to the project's Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) as planned components of the project/undertaking.

So long as the referenced measures, provisions one (1) through seven (7) above, are adopted, implemented, and carried out, it is the determination of this office that the undertaking would avoid adverse effects. This undertaking is therefore provided a **conditional No Adverse Effect finding**. Please respond with your decision regarding the adoption of provisions one (1) through seven (7) above into the project design.

Should you have any questions, please contact me at 502-564-7005 x 111.

Sincerely,



Craig A. Potts
Executive Director
Kentucky Heritage Council and
State Historic Preservation Officer

Attachments: Invited consulting parties list, pursuant to 36 CFR §800.3

CC: Don Parkinson, Secretary, Tourism, Arts, and Heritage Cabinet
Leigh Powers, General Counsel, Tourism, Arts, and Heritage Cabinet
Skip Miller, Executive Director, Louisville Regional Airport Authority
Invited consulting parties

KentuckyUnbridledSpirit.com



An Equal Opportunity Employer M/F/D

Invitation List – Bowman Field Safety Program

1. Skip Miller, Executive Director, LRAA
2. Craig Potts, Executive Director, Kentucky SHPO

Government representatives:

3. Mayor Greg Fischer
Louisville/Jefferson County Metro Government
Metro Hall / 4th Floor
527 W. Jefferson St.
Louisville, KY 40202
4. Louisville/Jefferson County Metro Government
Historic Preservation Officer
Planning & Design Services
444 S. 5th St.
Louisville, KY 40202
(502) 574-5210
5. Louisville/Jefferson County Metro Government
Michael J. Heitz, AIA, Director of Parks
Administration Building
1297 Trevilian Way
Louisville, KY 40213
(502) 456-8100
michael.heitz@louisvilleky.gov
6. City of Seneca Gardens
David Brown, Mayor
2547 Dell Road
Louisville, KY 40205-2309
david.brown@bbandt.com
7. City of Kingsley
Rebecca Beld, Mayor
P.O. Box 5515
Louisville, KY 40255-0515
Mayor: (502) 452-6478
City Clerk: Marilyn Whistler, info@cityofkingsley.org; (502) 458-7398

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
STATE HISTORIC
PRESERVATION
OFFICE

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

KENTUCKY
STATE HISTORIC
PRESERVATION
OFFICE

Affected Metro Louisville Council Members:

Mailing address: City Hall, 3rd floor, 601 W. Jefferson St., Louisville, KY 40202-2741

8. Tom Owen, 8th District
(502) 574-3455
Tom.owen@louisvilleky.gov
Legislative aide: Terra Long, terra.long@louisvilleky.gov
9. Bill Hollander, 9th District
(502) 574-1109
Bill.hollander@louisvilleky.gov
Legislative aide: Ms. Kyle Ethridge, kyle.ethridge@louisvilleky.gov
10. Brent Ackerson, 26th District
(502) 574-1126
Brent.ackerson@louisvilleky.gov
Legislative aide: Jeff Noble, jeff.noble@louisvilleky.gov

Organizations:

11. Big Spring Country Club
Mr. Kelly Maxwell, General Manager
5901 Dutchmans Lane
Louisville, Kentucky 40205-3275
(502) 459-2622 Work
(502) 693-3837 Cell
(502) 451-2988 Fax
kmaxwell@bigspringcc.com
www.bigspringcc.com
12. Olmsted Conservancy
Mimi Zinniel, Executive Director
1299 Trevilian Way
Louisville, KY 40213
(502) 456-8125 Work
Mimi.Zinniel@olmstedparks.org
13. Plea for The Trees
c/o Leslie Barras
2337 Frankfort Avenue, #350
Louisville, KY 40206
(502) 298-1505
leharras@gmail.com
14. Kentucky Resources Council
Tom Fitzgerald, Director
PO Box 1070
Frankfort, KY 40602
fitzkrc@aol.com

Individuals (Submitted written requests)

15. Phyllis Hawkins (Close Proximity to APE)
2611 Kings Hwy.
Louisville, KY 40205
16. J. Chris McCoy (In APE)
2540 Kings Hwy.
Louisville, KY 40205
17. Angela Burton (In APE)
2629 Drayton Dr.
Louisville, KY 40205

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA

SHEET TITLE

OFFICE OF
SUSTAINABILITY
DEVELOPMENT
OF LOUISVILLE



OFFICE OF SUSTAINABILITY
DEVELOP LOUISVILLE
LOUISVILLE, KENTUCKY

GREG FISCHER
MAYOR

MARIA KOETTER
DIRECTOR

June 28, 2016

FAA ADO
2600 Thousand Oaks Blvd, Suite 2250
Memphis, TN 38118

Re: Bowman Field Airport Area Safety Program Draft Environmental Assessment (May 2016)

Dear Mr. Braswell:

Maintaining and improving the safety of the Bowman Field Airport and meeting recently updated safety requirements of the Federal Aviation Administration is important to the community. That said, Louisville's Urban Tree Canopy Assessment shows that the areas of proposed tree removal experienced a three to eight percent decrease in canopy cover from 2004 to 2012, resulting in a 25% canopy, which is significantly below the city's 45% canopy goal.

To help mitigate the loss of additional tree canopy, the Louisville Metro Division of Community Forestry recommends tree replacement on a greater than 1:1 basis. We further support the position of Louisville Metro Parks and believe that any mitigation for right-of-way trees should mirror that provided for Parks. Finally, we urge you to engage the community in a broad and meaningful way as you continue through this process.

We look forward to working with Bowman Field and Louisville Regional Airport Authority on the proposed mitigation strategies for this project.

Sincerely,



Maria Koetter
Director of Sustainability
Louisville Metro Government

LOUISVILLE FORWARD
www.louisvilleky.gov

METRO HALL 527 W. JEFFERSON, STE 606, LOUISVILLE, KENTUCKY 40202 502.574.4148 FAX 502.574.1584

TUESDAY, DECEMBER 06, 2016 12:33:34 PM GIBBS01521
\\12JOBS\12A00134\CAD\GISEN\ENVIRONMENTAL ASSESSMENT\APPENDIX E\EXB7.MXD

From: Price, Ronald (EEC) [<mailto:Ronald.Price@ky.gov>]
Sent: Wednesday, June 29, 2016 9:22 AM
To: Braswell, Aaron (FAA)
Cc: Price, Ronald (EEC)
Subject: DEP Response: Bowman Field Airport, Louisville, Kentucky - Draft Environmental Assessment

Mr. Braswell,

Attached are the comments the Kentucky Department for Environmental Protection received regarding the Bowman Field Airport, Louisville, Kentucky - Draft Environmental Assessment.

Also, included are three attachments from the Kentucky Division of Forestry that are relative to the tree-cutting portion of the project.

Please let me know if you require anything further.

Ronald T. Price
Staff Assistant
Office of the Commissioner
Kentucky Department for Environmental Protection
300 Fair Oaks Lane
Frankfort, KY 40604
(502) 564-2150 x.3125
(502) 564-4245 (fax)



Offices Nationwide
www.hanson-inc.com
Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772
Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

**BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM**

**ENVIRONMENTAL
ASSESSMENT**

NO.	DATE	DESCRIPTION		
		LAY	DWN	REV

ISSUE: MONTH DAY YEAR
12A00134
CAD FILE:
LAYOUT BY:
DRAWN BY: SKG
REVIEWED BY: RHA
SHEET TITLE

KENTUCKY
DEPARTMENT OF
ENVIRONMENTAL
PROTECTION
[Followed by the
attachments]



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Supplied by Louisville Metro Tree Advisory Commission - 2015

Family	Genus	Specific Epithet	Cultivar	Common Name	Size Class*	Plant Shape	Comments	Street & Parking Lot Trees	Narrow Space
Pinaceae	Abies	cilicica		cilician fir	A	conical			
Pinaceae	Abies	concolor		white fir	A	conical	silver/blue foliage		
Pinaceae	Abies	firma		Momi fir	A	conical			
Pinaceae	Abies	fraseri		fraser fir	A	conical			
Pinaceae	Abies	homolepis		niko fir	A	conical			
Pinaceae	Abies	koreana		Korean fir	A	conical			
Pinaceae	Abies	nordmanniana		Nordmann fir	A	conical	darkest green foliage		
Pinaceae	Abies	veitchii		Veitch fir	A	conical			
Aceraceae	Acer	buergerianum		trident maple	B	oval upright		X	
Aceraceae	Acer	campestre		hedge maple	B	broad rounded			
Aceraceae	Acer	carpinifolium		hornbeam maple	B	oval upright			
Aceraceae	Acer	circinatum		Oregon vine maple	C	oval upright			
Aceraceae	Acer	xfreemanii		Freeman maple	A	oval upright	many quality hybrids available	X	
		xfreemanii	Armstrong		A	broad columnar		X	X
		xfreemanii	Bowhall		A	columnar		X	X
Aceraceae	Acer	ginnala		Amur mample	C	broad rounded	*** potential invasive problem		
Aceraceae	Acer	glabrum		Rocky Mountain maple	A	oval upright			
Aceraceae	Acer	griseum		paperbark maple	C	oval upright	and A. griseum hybrids		
Aceraceae	Acer	henryi		Henry maple	B	oval upright			
Aceraceae	Acer	leucoderme		chalk-bark maple	A	oval upright		X	
Aceraceae	Acer	mandschuricum		Manchurian maple	B	oval upright			
Aceraceae	Acer	maximowiczianu m		Nikko maple	B	oval upright			
Aceraceae	Acer	miyabei		Miyabe maple	A	oval upright		X	
Aceraceae	Acer	nigrum		black maple	A	oval upright		X	
Aceraceae	Acer	palmatum		Japanese maple	C	broad rounded			
Aceraceae	Acer	pensylvanicum		Moosewood	C	oval upright			
	Acer	rubrum			A	oval upright		X	
		rubrum	Columnaris		A	columnar		X	X
Aceraceae	Acer	saccharinum		silver maple	A	oval upright	for naturalizing only - weak wooded		
Aceraceae	Acer	saccharum		sugar maple	A	oval upright		X	



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Aceraceae	Acer	tataricum		tatarian maple	C	upright arching			
Aceraceae	Acer	tegmentosum		Manchustriped maple	B	oval upright			
Aceraceae	Acer	triflorum		three-flower maple	B	oval upright			
Aceraceae	Acer	truncatum		purpleblow maple	B	round		X	
Hippocastanaceae	Aesculus	chinensis		Chinese buckeye	A	oval upright		X	
Hippocastanaceae	Aesculus	glabra		Ohio buckeye	B	oval upright		X	
Hippocastanaceae	Aesculus	flava		yellow buckeye	A	oval upright		X	
Hippocastanaceae	Aesculus	hippocastanum		horsechestnut	A	oval upright		X	
Hippocastanaceae	Aesculus	parviflora		bottlebrush buckeye	C	broad spreading			
Hippocastanaceae	Aesculus	turbinata		Japanese horsechestnut	B	oval upright		X	
Hippocastanaceae	Aesculus	xcarnea		red horsechestnut	B	oval upright		X	
Hippocastanaceae	Aesculus	pavia		red buckeye	C	oval upright			
Betulaceae	Alnus	glutinosa		European alder	B	oval upright		X	
Betulaceae	Alnus	cordata		Italian alder	B	oval upright		X	
Betulaceae	Alnus	incana		gray alder	B	oval upright			
Rosaceae	Amelanchier	arborea		downy serviceberry	C	oval upright		X	
Rosaceae	Amelanchier	laevis		Alleghaney serviceberry	C	oval upright		X	
Rosaceae	Amelanchier	canadensis		shadblow serviceberry	C	oval upright			
Rosaceae	Amelanchier	xgrandiflora		apple serviceberry	C	oval upright		X	
Betulaceae	Betula	lenta		sweet birch	A	oval upright	ssp. <i>uber</i> superior form in KY		
Betulaceae	Betula	nigra		river birch	A	upright arching			
Betulaceae	Betula	populifolia		gray birch	B	oval upright			
Cupressaceae	Calocedrus	decurrens		California incensecedar	B	columnar			
Betulaceae	Carpinus	betulus		European hornbeam	B	broad rounded	including columnar forms	X	
Betulaceae	Carpinus	caroliniana		American hornbeam	B	broad rounded		X	
Betulaceae	Carpinus	cordata		heartleaf hornbeam	B	broad rounded		X	
Betulaceae	Carpinus	japonica		Japanese hornbeam	B	broad rounded		X	
Juglandaceae	Carya	cordiformis		bitternut hickory	A	oval upright		X	
Juglandaceae	Carya	glabra		pignut hickory	A	oval upright			
Juglandaceae	Carya	illinoensis		pecan	A	broad rounded			
Juglandaceae	Carya	ovata		shagbark hickory	A	oval upright			
Juglandaceae	Carya	tomentosa		mockernut hickory	A	round			
Fagaceae	Castanea	mollissima		Chinese chestnut	B	broad rounded			
Fagaceae	Castanea	dentata hybrids		hybrid chestnut	A	oval upright	American Chestnut Foundation and Dunstan		



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Bignoniaceae	Catalpa	speciosa		northern catalpa	A	oval upright	X		
Bignoniaceae	Catalpa	bignonioides		southern catalpa	B	broad rounded	X		
Pinaceae	Cedrus	atlantica		Atlas cedar	A	conical			
Pinaceae	Cedrus	libani var. stenocoma		cedar of Lebanon	A	conical			
Ulmaceae	Celtis	occidentalis		common hackberry	A	oval upright	X		
Ulmaceae	Celtis	laevigata		sugar hackberry	A	oval upright	X		
Cercidiphyllaceae	Cercidiphyllum	japonicum		katsuratree	B	round			
Fabaceae	Cercis	canadensis		Eastern redbud	C	round	X		
Cupressaceae	Chamaecyparis	obtusa		hinoki falsecypress	C	conical			
Cupressaceae	Chamaecyparis	pisifera		Japanese falsecypress	B	conical			
Cupressaceae	Chamaecyparis	thyoides		Atlantic whitecedar	A	columnar			
Cupressaceae	Chamaecyparis	nootkatensis		Alaska cedar	A	oval upright			
Oleaceae	Chionanthus	virginicus		fringetree	C	round			
Oleaceae	Chionanthus	retusus		Chinese fringetree	C	broad rounded			
Fabaceae	Cladrastis	kentukea		American yellowwood	B	broad rounded	X		
Cornaceae	Cornus	alternifolia		pagoda dogwood	C	round			
Cornaceae	Cornus	florida		flowering dogwood	C	broad spreading			
Cornaceae	Cornus	kousa		kousa dogwood	C	broad rounded			
Cornaceae	Cornus	mas		corneliancherry dogwood	C	broad rounded			
Cornaceae	Cornus	officinalis		Japanese cornel dogwood	C	oval upright			
Cornaceae	Cornus	xrutgersensis		Rutgers hybrid dogwood	C	broad rounded			
Cornaceae	Cornus	x		hybrid dogwood	C	broad rounded	various hybrids such as Venus®		
Betulaceae	Corylus	colurna		Turkish filbert	A	conical	X		
Betulaceae	Corylus	fargesii		Farge's filbert	A	oval upright	X		
Anacardiaceae	Cotinus	coggygria		smokebush	C	oval upright			
Anacardiaceae	Cotinus	obovatus		American smoketree	C	oval upright			
Rosaceae	Crataegus	crusgalli		cockspur hawthorne	C	broad spreading			
Rosaceae	Crataegus	laevigata		English hawthorne	C	broad rounded			
Rosaceae	Crataegus	mollis		downy hawthorne	C	broad rounded		X	
Rosaceae	Crataegus	phaenopyrum		Washington hawthorne	C	oval upright		X	
Rosaceae	Crataegus	viridis		green hawthorne	C	broad rounded		X	
Taxodiaceae	Cryptomeria	japonica		Japanese cryptomeria	A	conical			
Taxodiaceae	Cunninghamia	lanceolata		Chinafir	A	conical			
Ebenaceae	Diospyros	virginiana		common persimon	B	oval upright			



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Eucommiaceae	Eucommia	ulmoides		hardy rubber tree	B	oval upright		X	
Fagaceae	Fagus	grandifolia		American beech	A	broad rounded			
Fagaceae	Fagus	sylvatica		European beech	A	oval upright			
Theaceae	Franklinia	alamatama		Franklin tree	C	broad rounded	limited cold tolerance		
Ginkgoaceae	Ginkgo	biloba		maidenhair tree	A	round	specify males to avoid seed	X	
Fabaceae	Gleditsia	triacanthos	var. inermis	thornless common honeylocust	A	round	thronless forms only recommended	X	
Fabaceae	Gymnocladus	dioicus		Kentucky coffeetree	A	oval upright	use male forms	X	
Fabaceae	Gymnocladus	dioicus		female	A	oval upright			
Styracaceae	Halesia	tetraptera		Carolina silverbell	B	oval upright			
Styracaceae	Halesia	diptera		two-winged silverbell	B	oval upright			
Styracaceae	Halesia	monticola		mountain silverbell	B	oval upright			
Hamamelidaceae	Hamamelis	japonica		Japanese witchhazel	C	oval upright			
Hamamelidaceae	Hamamelis	mollis		Chinese witchhazel	C	oval upright			
Hamamelidaceae	Hamamelis	virginiana		common witchhazel	C	round			
Hamamelidaceae	Hamamelis	xintermedia		hybrid witchhazel	C	oval upright			
Rhamnaceae	Hovenia	dulcis		Japanese raisintree	B	oval upright			
Aquifoliaceae	Ilex	decidua		possumhaw	C	round			
Aquifoliaceae	Ilex	opaca		American holly	B	conical			
Aquifoliaceae	Ilex	xattenuata	Fosteri	Foster holly	C				
Juglandaceae	Juglans	cinerea		butternut	A	oval upright			
Juglandaceae	Juglans	nigra		black walnut	A	round			
Juglandaceae	Juglans	regia		English walnut	A	round			
Cupressaceae	Juniperus	chinensis		Chinese juniper	A	conical			
Cupressaceae	Juniperus	virginiana		eastern redcedar	B	oval upright			
Araliaceae	Kalopanax	septemlobus		castor aralia	A	oval upright		X	
Sapindaceae	Koelreuteria	paniculata		goldenraintree	B	round	potential invasiveness problem	X	
Lythraceae	Lagerstroemia	indica		common crepemyrtle	C	upright arching			
Lythraceae	Lagerstroemia	faurei		crepemyrtle	C	upright arching			
Pinaceae	Larix	decidua		European larch	A	conical			
Pinaceae	Larix	kaempferi		Japanese larach	A	conical			
Hamamelidaceae	Liquidambar	styraciflua		sweetgum	A	oval upright		X	
		styraciflua	Slender Silhouette		A	columnar		X	X
Magnoliaceae	Liriodendron	tulipifera		tuliptree	A	oval upright		X	
Fabaceae	Maackia	amurensis		Amur maackia	B	round		X	



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Moraceae	Maclura	pomifera		thornless osage orange	B	round	thornless forms only for cultivated areas	X	
Magnoliaceae	Magnolia	acuminata		cucumber magnolia	A	oval upright		X	
Magnoliaceae	Magnolia	denudata		Yulan magnolia	B	pyramidal			
Magnoliaceae	Magnolia	grandiflora		southern magnolia	A	oval upright			
Magnoliaceae	Magnolia	hybrids		hybrid magnolia		various			
Magnoliaceae	Magnolia	kobus		kobus magnolia	C	oval upright			
Magnoliaceae	Magnolia	liliflora		lily magnolia	C	round			
Magnoliaceae	Magnolia	xloebneri		Loebner magnolia	C	oval upright			
Magnoliaceae	Magnolia	macrophylla		bigleaf magnolia	B	round			
Magnoliaceae	Magnolia	xsoulangeana		saucer magnolia	B	round			
Magnoliaceae	Magnolia	sieboldii		oyama magnolia	C	oval upright			
Magnoliaceae	Magnolia	stellata		star magnolia	C	oval upright			
Magnoliaceae	Magnolia	tripetala		umbrella magnolia	B	round			
Magnoliaceae	Magnolia	virginiana		sweetbay magnolia	B	oval upright			
Rosaceae	Malus			crabapple	C		look for most diseasea- resistant cultivars	X	
				crabapple	C		fruitless/upright cultivars	X	X
Taxodiaceae	Metasequoia	glyptostroboides		dawn redwood	A	conical		X	
Nyssaceae	Nyssa	aquatica		water tupelo	A	oval upright			
Nyssaceae	Nyssa	sylvatica		black tupelo	A	oval upright		X	
Betulaceae	Ostrya	japonica		Japanese hophornbeam	B	broad spreading		X	
Betulaceae	Ostrya	virginiana		American hophornbeam	B	round		X	
Ericaceae	Oxydendrum	arboreum		sourwood	B	oval upright			
Hamamelidaceae	Parrotia	persica		Persian parrotia	B	oval upright		X	
		persica	Vanessa		B	broad columnar		X	X
Hamamelidaceae	Parrotia	subaequalis		Chinese parrotia	B	round			
Rutaceae	Phellodendron	amurense		Amur corktree	B	broad spreading			X
Pinaceae	Picea	abies		Norway spruce	A	conical			
Pinaceae	Picea	glauca		white spruce	A	conical			
Pinaceae	Picea	omorika		Serbian spruce	A	conical			
Pinaceae	Picea	orientalis		Oriental spruce	A	conical			
Pinaceae	Picea	pungens		Colorado spruce	A	conical			
Pinaceae	Pinus	bungeana		lacebark pine	B	oval upright			
Pinaceae	Pinus	densiflora		Japanese red pine	A	broad rounded			
Pinaceae	Pinus	flexilis		limber pine	A	broad rounded			



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Pinaceae	Pinus	koraiensis		Korean pine	A	conical			
Pinaceae	Pinus	nigra		Austiran pine	A	oval upright			
Pinaceae	Pinus	parviflora		Japanese white pine	A	broad spreading			
Pinaceae	Pinus	rigida		pitch pine	B	irregular			
Pinaceae	Pinus	strobiformis		Mexican white pine	A	conical			
Pinaceae	Pinus	strobus		white pine	A	oval upright			
Pinaceae	Pinus	sylverstris		Scotch pine	B	oval upright			
Pinaceae	Pinus	thunbergii		Japanese black pine	B	irregular			
Pinaceae	Pinus	virginiana		Virginia pine	A	oval upright			
Pinaceae	Pinus	wallichiana		Himalayan pine	A	broad rounded			
Pinaceae	Pinus	xacayahuite		hybrid pine	A	oval upright			
Anacardiaceae	Pistacia	chinensis		Chinese pistache	B	round		X	
Platanaceae	Platanus	xacerifolia		London planetree	A	round		X	
Platanaceae	Platanus	occidentalis		sycamore	A	round	for naturalizing, anthracnose susceptible	X	
Flacourtiaceae	Poliothyrsis	sinensis		poliothyrsis	B	oval upright			
Salicaceae	Populus	deltoides		eastern cottonwood	A	oval upright		X	
Rosaceae	Prunus	cerasifera	Atropurpurea	purple leaf plum	C	oval upright		X	
Rosaceae	Prunus	padus		European birdcherry	B	round		X	
Rosaceae	Prunus	sargentii		Sargent cherry	B	round		X	
		sargentii	Columnaris		B	columnar		X	X
Rosaceae	Prunus	serrulata		Japanese flowering cherry	C	broad rounded		X	
		serrulata	Kwanzan		C	broad rounded		X	
Rosaceae	Prunus	subhirtella	Pendula	Weeping Higan cherry	B	round	many cultivars available		
Rosaceae	Prunus	xyedoensis		Yoshino cherry	B	broad rounded		X	
Rosaceae	Prunus			hybrid cherries	C	various	avoid most disease susceptible selections		
Pinaceae	Pseudolarix	amabilis		golden larch	B	conical			
Pinaceae	Pseudotsuga	menziesii		douglasfir	A	conical			
Fagaceae	Quercus	acutissima		sawtooth oak	A	broad rounded		X	
Fagaceae	Quercus	alba		white oak	A	broad rounded		X	
Fagaceae	Quercus	bicolor		swamp white oak	A	oval upright		X	
Fagaceae	Quercus	coccinea		scarlet oak	A	oval upright		X	
Fagaceae	Quercus	dentata		Daimyo oak	A	oval upright		X	
Fagaceae	Quercus	ellipsoidalis		northern pin oak	A	oval upright		X	
Fagaceae	Quercus	falcata		southern red oak	A	round		X	



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Fagaceae	Quercus	hybrids					many quality hybrids available	X	
			Crimson Spire		A		Columnar	X	X
			Regal Prince		A		Columnar	X	X
			Bonnie & Mike		A		Columnar	X	X
Fagaceae	Quercus	imbricaria		shingle oak	A	pyramidal		X	
Fagaceae	Quercus	lyrata		overcup oak	A	oval upright		X	
Fagaceae	Quercus	macrocarpa		bur oak	A	oval upright		X	
Fagaceae	Quercus	marilandica		blackjack oak	C	oval upright		X	
Fagaceae	Quercus	muehlenbergii		chinkapin oak	A	oval upright		X	
Fagaceae	Quercus	nigra		water oak	A	oval upright		X	
Fagaceae	Quercus	nuttallii		Nuttall oak	A	oval upright		X	
Fagaceae	Quercus	palustris		pin oak	A	oval upright		X	
		palustris	Pringreen (Green Pillar™)		A	columnar		X	X
Fagaceae	Quercus	phellos		willow oak	A	oval upright		X	
Fagaceae	Quercus	prinus/montana		chestnut oak	A	oval upright		X	
Fagaceae	Quercus	robur		English oak	A	broad rounded		X	
		robur	Fastigiata		A	columnar		X	X
Fagaceae	Quercus	rubra		red oak	A	round		X	
Fagaceae	Quercus	shurmardii		Shumard oak	A	oval upright		X	
Fagaceae	Quercus	stellata		post oak	B	oval upright		X	
Rhamnaceae	Rhamnus	caroliniana		Carolina buckthorn	C	round			
Fabaceae	Robinia	pseudoacacia		black locust	A	oval upright			
Lauraceae	Sassafras	albidum		common sassafras	B	oval upright		X	
Pinaceae	Sciadopitys	verticillata		umbrella pine	B	conical			
Rosaceae	Sorbus	alnifolia		Korean moutnainash	B	oval upright			
Theaceae	Stewartia	koreana		Korean stewartia	C	oval upright			
Theaceae	Stewartia	malacodendron		silky stewartia	C	oval upright			
Theaceae	Stewartia	monadelpha		tall stewartia	C	pyramidal			
Theaceae	Stewartia	rostrata			C	oval upright			
Theaceae	Stewartia	ovata		mountain stewartia	C	oval upright			
Theaceae	Stewartia	pseudocamellia		Japanese stewartia	C	oval upright			
Fabaceae	Styphnolobium	japonicum		scholartree	B	round		X	
Styracaceae	Styrax	japonicus		Japanese snowbell	C	broad rounded			
Styracaceae	Styrax	obassia		fragrant snowbell	C	oval upright			



Master Tree List

for
Louisville, KY

2015

Size Type:
A = 50 feet +
B = 25-50 feet
C = 0-25 feet

Oleaceae	Syringa	pekinensis		Pekin lilac	C	oval upright		X	
Oleaceae	Syringa	reticulata		Japanese tree lilac	C	oval upright		X	
Taxodiaceae	Taxodium	ascendens		pondcypress	A	conical		X	
Taxodiaceae	Taxodium	distichum		common baldcypress	A	conical		X	
Taxaceae	Taxus	baccata		English yew	C	round			
Taxaceae	Taxus	cuspidata		Japanese yew	C	variable			
Taxaceae	Taxus	xmedia		Anglojap yew	C	variable			
Cupressaceae	Thuja	occidentalis		Eastern arborvitae	B	columnar			
Cupressaceae	Thuja	plicata		giant arborvitae	A	conical			
Tiliaceae	Tilia	americana		basswood	A	oval upright		X	
Tiliaceae	Tilia	cordata		littleleaf linden	A	oval upright		X	
Tiliaceae	Tilia	petiolaris		pendant silver linden	A	oval upright		X	
Tiliaceae	Tilia	xeuchlora		Crimean linden	A	oval upright		X	
Tiliaceae	Tilia	xeuropa		European linden	A	oval upright		X	
Tiliaceae	Tilia	tomentosa		silver linden	A	oval upright		X	
Pinaceae	Tsuga	canadensis		Canadian hemlock	A	conical			
Pinaceae	Tsuga	chinensis		Chinese hemlock	A	conical			
Pinaceae	Tsuga	diversifolia		northern Japanese hemlock	A	conical			
Pinaceae	Tsuga	heterophylla		western hemlock	A	conical			
Pinaceae	Tsuga	mertensiana		mountain hemlock	A	conical			
Pinaceae	Tsuga	caroliniana		Carolina hemlock	A	conical			
Ulmaceae	Ulmus	alata		winged elm	B	round		X	
Ulmaceae	Ulmus	americana		American elm	A	upright arching	only disease resistant selections such as	X	
Ulmaceae	Ulmus	crassifolia		cedar elm	A	round		X	
Ulmaceae	Ulmus	propinqua			A	oval upright		X	
		propinqua	Emerald Sunshine		A			X	
Ulmaceae	Ulmus	hybrids		hybrid elm	A	oval upright	disease-resistant hybrids	X	
			Jefferson		A	upright arching		X	
			Patriot		A	upright arching		X	
			Triumph		A	upright arching		X	
Ulmaceae	Zelkova	serrata		Japanese zelkova	A	oval upright		X	
		serrata	Musashino		A	columnar		X	X
Ulmaceae	Zelkova	carpinifolia		elm zelkova	A	oval upright		X	
Ulmaceae	Zelkova	sinica		Chinese zelkova	A	oval upright		X	
Ulmaceae	Ziziphus	jujuba		Chinese date	B	oval upright			

Master Tree List

for

Louisville, KY

2015

Size Type:

A = 50 feet +

B = 25-50 feet

C = 0-25 feet

Prohibited Tree List

Aceraceae	Acer	platanoides		Norway maple	A	round	invasive		
Simaroubaceae	Ailanthus	altissima		tree of heaven	A	oval upright	invasive		
Fabaceae	Albizia	julibrissin		mimosa	C	round	invasive		
Elaeagnaceae	Elaeagnus	angustifolia		Russian olive	C	oval upright	invasive		
Elaeagnaceae	Elaeagnus	umbellata		autumn olive	C	round	invasive		
Oleaceae	Fraxinus	species		ash	A		emerald ash borer susceptible		
Moraceae	Morus	alba		white mulberry	C	round	invasive		
Scrophulariaceae	Paulownia	tomentosa		royal paulonia	A	oval upright	invasive		
Rosaceae	Pyrus	calleryana		callery pear	C	oval upright	invasive; including 'Bradford' and other		
Rhamnaceae	Rhamnus	cathartica		common buckthorn	C	oval upright	invasive		
Rhamnaceae	Rhamnus	frangula		tall buckthorn	C	oval upright	invasive		
Euphorbiaceae	Triadica	sebifera		Chinese tallow tree	B	upright oval	invasive		
Ulmaceae	Ulmus	pumila		Chinese elm	B	upright oval	invasive		

A Guide to Assessing Urban Forests



INTRODUCTION

Urban forests provide numerous ecosystem services. To quantify these services and guide management to sustain these services for future generations, the structure or composition of the forest must be assessed. There are two basic ways of assessing the structure or composition of the urban forest:

Bottom-up approach. Field-based assessments to measure the physical structure of the forest (e.g., species composition, number of trees)—typically used for strategic resource management or advocacy by connecting forest structure, functions and values with management costs, risks, and needs.

Top-down approach. Assessments of canopy cover using aerial or satellite images—used to determine amount and distribution of tree cover, potential planting space and other cover types.

These two approaches provide different types of urban forest information. The purpose of this guide is to outline the advantages, disadvantages and costs associated with various common assessment alternatives under these two approaches.



THE BOTTOM-UP APPROACH: FIELD-BASED ASSESSMENTS

The bottom-up approach involves collecting field data on vegetation. It provides the most detailed information needed for urban forest management and to assess urban forest structure and its associated ecosystem services and values (Table 1). To aid in sampling or inventorying urban trees and forests, and for calculating their ecosystem services and values, the free i-Tree Eco and Streets models were developed (www.itreetools.org).



Advantages:

- ◆ Provides good estimates of basic forest information needed for management (e.g., number of trees and locations, species composition, tree sizes, tree health, risks)
- ◆ Provides estimates of numerous ecosystem services and their values
- ◆ Can be used for monitoring changes in forest composition and values

Disadvantages:

- ◆ Must collect accurate field data using technical metrics
- ◆ Cost of data collection

Cost:

Varies with size and scope of project. Volunteers, in-house crews and hired consultants have all been employed for collecting data. Hiring a consultant to carry out a typical i-Tree Eco sample of 200 plots could cost \$40,000 at a contracted rate of \$200 per plot. Costs would decrease with volunteers or student labor (e.g., \$20,000 with students; even less with volunteers). Sampling intensity is determined by the user based on accuracy desired and resources available.

Accuracy:

Varies with sample size and accuracy of data collection; 200 one-tenth acre plots typically produces a relative standard error less than 15 percent for the total population estimate.

THE TOP-DOWN APPROACH: URBAN TREE CANOPY COVER ASSESSMENTS

There are three common top-down approaches for assessing urban tree canopy cover and all three methods will produce estimates of tree and other cover types in an area, but with differing resolution, costs, and accuracy. The three methods are:

- ◆ NLCD analyses
- ◆ High-resolution image analyses
- ◆ Aerial photo interpretation

NLCD analyses

The National Land Cover Database (NLCD) has tree and impervious cover maps (30-m resolution) for the entire contiguous 48 states with percentage tree and percentage impervious cover estimated for each pixel. These maps and data are available for free and can be loaded into the free i-Tree Vue program to estimate tree cover and general ecosystem services.

Advantages

- ◆ Free
- ◆ Wall-to-wall coverage of lower 48 states
- ◆ Maps ecosystem services in addition to tree cover distribution

Disadvantages

- ◆ Relatively coarse resolution (cannot see trees)
- ◆ Better suited for state or regional analyses rather than city scale or below
- ◆ Typically underestimates tree cover, on average, by about 10 percent. That is, if tree cover is 30 percent, NLCD tends to estimate 20 percent
- ◆ Data from circa 2001 (updated maps are being developed)

Cost:

Free

Accuracy:

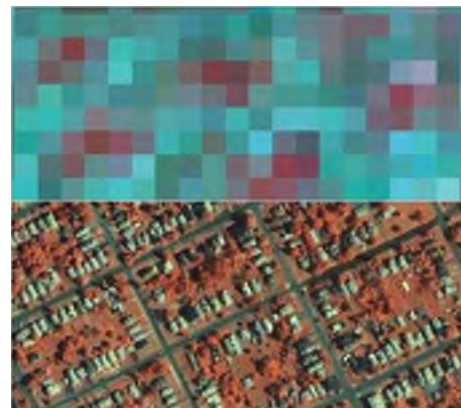
Varies with mapping zone, but tends to underestimate tree cover by about 10 percent on average; user can adjust canopy cover percentage in individual pixels in i-Tree Vue to improve accuracy.

High-resolution land cover

With this approach, land cover features are extracted from high-resolution aerial or satellite imagery using automated techniques. This process yields a detailed map of tree and other cover types for a given area. This approach is used for Urban Tree Canopy (UTC) Assessments. For more information go to: <http://www.nrs.fs.fed.us/urban/utc/>

Advantages

- ◆ Produces accurate, high-resolution cover map
- ◆ Complete census of tree canopy locations
- ◆ Integrates well with GIS



High resolution (below) vs. 30-m imagery.



Example of high-resolution land cover map.

- ◆ Allows the data to be summarized at a broad range of scales (e.g., parcel to watershed), enabling tree canopy to be related to a host of demographic, planning, and biophysical data
- ◆ Locates potentially available spaces to plant trees
- ◆ Can be used to monitor locations of cover change
- ◆ The source imagery needed for the mapping is available for the entire United States free of charge from the USDA

Disadvantages

- ◆ Can be costly if the data are low quality or incomplete
- ◆ Requires highly trained personnel along with specialized software
- ◆ Significant effort and time needed to produce quality maps
- ◆ Change analyses can locate false changes due to map inaccuracies
- Does not include ecosystem services reporting

Cost:

Variable depending upon available data. Development of city cover maps are on the order of \$5,000 to 40,000+ depending upon size of city and availability of source data.

Accuracy:

Depends on the processor and available data, but is typically 90 percent accurate for tree cover. The incorporation of additional data, such as LiDAR, and/or the implementation of manual corrections can increase the accuracy to over 95 percent. Error matrix of map can detail actual accuracy of the map.

Photo-interpretation

Uses digital aerial images and a series of random points that are interpreted to determine the cover type at each point center. This process produces statistical estimates of cover with a known error of estimation. A free tool (i-Tree Canopy)

can be used to photo-interpret cover across the globe using Google Maps™. Photo interpretation has been used for accuracy assessments of the other top-down methods.

Advantages

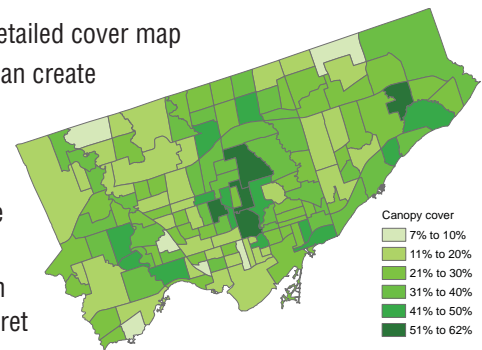
- ◆ Low cost – most images can be acquired freely (e.g., Google Earth or from cities or counties)
- ◆ Cover assessment can be done quickly (e.g., available planting space, tree, impervious)
- ◆ Accuracy can be increased by adding more points and can be calculated quickly
- ◆ Can produce sub-area analyses and maps (e.g., tree cover by neighborhood)
- ◆ Multi-date paired imagery can be used to assess change



Photo-interpretation involves classifying randomly located points within preselected cover classes (e.g., tree, impervious, water).

Disadvantages

- ◆ Does not produce detailed cover map
- ◆ Photo-interpreters can create errors though misclassifications (training and quality checking are recommended)
- ◆ Leaf-off imagery can be difficult to interpret
- ◆ i-Tree Canopy interpretation limited to high quality Google images
- ◆ Poor image quality in some areas
- ◆ Resulting data cannot be summarized at multiple, user-defined scales



Neighborhood tree cover in Toronto, Canada, determined through photo-interpretation.

Cost:

At \$10 per hour, cost is about 10 cents per point (e.g., 1,000 points = \$100). Costs involve set up and interpretation time.

Accuracy:

A sample of 100 points will produce an estimate with a standard error of about 4.6 percent (assuming 30 percent canopy cover) and can be interpreted in about 1 hour. A sample of 1,000 points will produce an estimate with a standard error of about 1.4 percent (assuming 30 percent canopy cover).

Table 1.—Summary of features of four types of urban forest analyses

Urban Forest Attribute	i-Tree Eco ^a	i-Tree Vue ^b	i-Tree Canopy ^c	Cover Map (UTC) ^d
Cover				
Amount or percent tree cover	✓	✓	✓✓	✓
Specific locations and distribution of tree cover		✓		✓✓
Amount or percent potential planting space	✓	✓	✓✓	✓
Specific locations and distribution of plantable space		✓		✓✓
Maps of tree cover and plantable space		✓	✓	✓✓
Urban Forest Composition and Management				
Total number of trees / tree density	✓✓			
Species composition	✓✓			
Diameter / size distribution	✓✓			
Species diversity	✓✓			
Species importance values	✓✓			
Leaf area and biomass	✓✓			
Tree health	✓✓			
Native vs. exotic composition	✓✓			
Invasive trees	✓✓			
Risk to insects and diseases	✓✓			
Ground cover attributes	✓✓		✓	✓
Ecosystem Services and Values				
Air pollution removal / human health	✓✓	✓	✓*	✓*
Carbon storage and annual sequestration	✓✓	✓	✓*	✓*
Effects on building energy use	✓✓			
Rainfall interception	✓✓			
Structural value	✓✓			
Mapping of ecosystem services		✓✓	✓*	✓*
Monitoring				
Change in tree cover	✓		✓✓	✓
Locations of tree cover change				✓✓
Change in species composition, services and values	✓✓			

✓ - procedure calculates attribute

✓✓ - recommended procedure based on resolution, accuracy, and cost

✓* - broad estimates of services could be calculated based on procedures in i-Tree Vue

^ai-Tree Eco – free program to assess ecosystem services and values from field data^bi-Tree Vue – free program that uses NLCD cover data to map cover and estimate ecosystem services^ci-Tree Canopy – free photo-interpretation tool to assess canopy cover and monitor change^dCover map - high-resolution cover maps generated as part of a UTC assessment

For more information contact:

David J. Nowak

U.S. Forest Service

Northern Research Station

Syracuse, NY

315-448-3212, dnowak@fs.fed.us

www.itreetools.org





MATTHEW G. BEVIN
GOVERNOR

CHARLES G. SNAVELY
SECRETARY

**ENERGY AND ENVIRONMENT CABINET
DEPARTMENT FOR ENVIRONMENTAL PROTECTION**

AARON KEATLEY
COMMISSIONER

300 SOWER BOULEVARD
FRANKFORT, KENTUCKY 40601
June 29, 2016

Aaron Braswell
Environmental Protection Specialist
FAA Airport District Office
2600 Thousand Oaks Blvd., Suite 2250
Memphis, TN 38118

Re: SERO 2016-08
Bowman Field Airport, Louisville, Kentucky
Draft Environmental Assessment

Mr. Braswell,

The Energy and Environment Cabinet serves as the state clearinghouse for review of environmental documents generated pursuant to the National Environmental Policy Act (NEPA). Within the Cabinet, the Commissioner's Office in the Department for Environmental Protection coordinates the review for Kentucky state agencies.

We received a correspondence from Hanson Professional Engineers dated May 31, 2016. Their letter requested a NEPA review of the Bowman Field Airport, Louisville, Kentucky - Draft Environmental Assessment. The following comments are submitted in reference to this project.

Comments from the Kentucky Division of Water:

The proposed project is not located within a wild river, Outstanding State Resource Water or known Exceptional Water watershed. Best management practices shall be utilized to reduce the movement of tree material into stormwater.

Pursuant to KRS 151.250, an "Application to Construct Across or Along a Stream" will need to be submitted to the DOW for further review of this project, in the event that this proposed project pursues "Alternative 2" for tree trimming/elimination and the installation of lighting poles in the floodplain of the Middle Fork of Beargrass Creek. No formal approval is required for Water Withdrawal Permitting or Water Management Planning.

The Groundwater Section of the Watershed Management Branch endorses the proposed work. However, the proposed work is located in an area with a high potential for karst development where the groundwater is susceptible to direct contamination from surface activities. It is also our recommendation that site be made aware of the requirements of 401 KAR 5:037 and the need to develop a Groundwater Protection Plan (GPP) for the protection of groundwater resources within that area depending on if an alternative plan is chosen.

Comments from the Kentucky Division of Waste Management:

All solid waste generated by this project must be disposed at a permitted facility. If underground storage tanks are encountered, they must be properly addressed. If asbestos, lead paint, and/or other contaminants are encountered during this project, they must be properly addressed.

Comments from the Kentucky Division of Air Quality:

Kentucky Division for Air Quality Regulation **401 KAR 63:010** Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precaution to prevent particulate matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. Please note the [Fugitive Emissions Fact Sheet](#).

Kentucky Division for Air Quality Regulation **401 KAR 63:005** states that open burning is prohibited. Open Burning is defined as the burning of any matter in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purposes listed on the [Open Burning Brochure](#).

The Division would like to offer the following suggestions on how this project can help us stay in compliance with the NAAQS. More importantly, these strategies are beneficial to the health of citizens of Kentucky.

- § Utilize alternatively fueled equipment.
- § Utilize other emission controls that are applicable to your equipment.
- § Reduce idling time on equipment.

Comments from the Kentucky Heritage Council:

The agency must ensure compliance with relevant state and federal regulations regarding cultural resources. These may include any or all of the following: the Advisory Council on Historic Preservation's Rules and Regulations for the Protection of Historic and Cultural Properties(36CFR, Part 800) pursuant to the National Historic Preservation Act of 1966; the National Environmental Policy Act of 1969 Executive Order 11593; Kentucky Antiquities Act; Kentucky Cave Protection Act; and graves protection legislation.

Comments from the Kentucky Division of Forestry:

4.2 Noise – Certainly, the reduction and removal of trees will increase the noise level to the surrounding neighborhoods. However, according to 4.2.4 and 4.2.4, the noise level would return to the level experienced immediately before February 2012. We are unsure if the trees are being pruned back to where they were in 2012, or if more trees would be removed than were in existence in 2012. If more trees are being removed, we do not see how the noise level would remain the same.

5.4.2 “If a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees.” – Is this for each tree or all of the trees removed on the property? Tree values vary greatly – a 26” Bur Oak is not worth the same as a 10” Callery Pear.

The overall issue with this EA is that there is not a standard of professionalism in regards to the tree pruning, tree removal, and construction around trees and for tree planting. The term “tree trimming” is used throughout the document and this is not a term that professional arborists use. We would suggest that they familiarize themselves with the International Society of Arboriculture (ISA) <http://www.isa-arbor.com/> . Along those lines, they should:

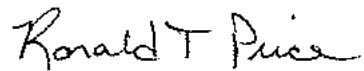
- Not use the term tree trimming
- State that any tree pruning and removal work would be done utilizing the services of an ISA Certified Arborist.
- Any tree work (pruning, removal, planting) should follow ANSI A300 Standards. These standards are the generally accepted industry standards for tree care practices.
- Any tree work should follow the ANSI Z133 Safety Standard, which provides the most current criteria for arborists and other workers engaged in arboriculture operations.
- A fully licensed and insured arboriculture company must only complete any tree work.
- Any new tree planting should meet the ANSI Z60.1-2014 American Standard for Nursery Stock.

- If Alternative 2 is chosen and light poles are installed, the work should be completed using ANSI A300 Construction Management Standard – Part 5. In particular, because this standard covers excavation, trenching, tree protection and implementation of tree conservation recommendations.
- Both Alternatives should utilize ISA's various Best Management Practices (BMPs) which serve the purpose of interpreting tree care standards and providing guidelines of the practice of arboriculture, tree workers and the people who employ their services. Please note that all of these publications and the above listed ANSI standards may be purchased on-line through ISA. In particular, we would suggest:
 - o ISA's BMP guide for Tree Risk Assessment
 - o ISA's BMP guide for Tree Pruning
 - o ISA's BMP guide for Utility Pruning of Trees
 - o ISA's BMP guide for Tree Planting
 - o ISA's BMP guide for Integrated Vegetation Management (This BMP is for the selection and application of methods and techniques for vegetation control for electric rights-of-way projects)
- An ISA Certified Arborist should be employed to assess the condition and value of trees. One of the tools to consider using would be one of the iTree tools (<http://www.itreetools.org/>). iTree is a suite of software with different purposes for each application. I have attached a guide for the different applications, but in short, tools that the BFA might be interested include measuring for ecosystem services (including air pollution, carbon storage, and stormwater interception), change in tree cover, change in services and values.
- Trees planted back should be a diverse mix of species, with no more than 10% being of one species.
- Trees planted should meet Louisville Metro's Division of Community Forestry master tree list (attached).
- Trees planted should meet Louisville Metro's Division of Community Forestry's Standards for Right of Way Trees (attached), if applicable.
- Trees planted should be of a height as to not need future pruning in relation to BFA.
- Before any trees are planted, a call to Kentucky 811 should be made.
- Louisville Metro requires a permit from the city to plant on private property (call 311).
- Further information about planting within Louisville Metro should be obtained by contacting the Erin Thompson at the Division of Community Forestry, 502-574-4030.

This review is based upon the information that was provided by the applicant. An endorsement of this project does not satisfy, or imply, the acceptance or issuance of any permits, certifications or approvals that may be required from this agency under Kentucky Revised Statutes or Kentucky Administrative Regulations. Such endorsement means this agency has found no major concerns from the review of the proposed project as presented other than those stated as conditions or comments.

If you should have any questions, please contact me at (502) 782-6739.

Sincerely,

A handwritten signature in black ink that reads "Ronald T. Price". The signature is written in a cursive, slightly slanted style.

Ronald T. Price
State Environmental Review Officer
Kentucky Department for Environmental Protection

Standards for Right of Way Trees

The following standards regarding trees in the public right of way are set forth and maintained by Louisville Metro Division of Community Forestry (DCF), the governing body of public space trees excluding parks and parkways. No tree may be planted, pruned, or removed/replaced in a public space, including the green verge* of the public right of way, without a permit issued by the DCF. Permits for the planting of new trees will not be allowed if the width of green verge is less than 3 feet. The DCF maintains a “Permitted and Prohibited Trees for Public Area Planting” list that is updated annually. The DCF has the right to grant permit to plant species not on the list. The DCF has the right to waive a standard. The following Tree Size Types are recognized by the DCF and are outlined on the list:

Tree Size Types (based on height at maturity):

A: 50' + B: 25' - 50' C: 0 - 25'

Green Verge:

Allowable size types for Green Verge:

Green Verge Width	Tree Size Type
3-8’**	B, C
8' +	A, B, C

**Green verge is the pervious surface strip of land in the right of way; usually between the street curb and sidewalk.*

***Recommended to use root barrier adjacent to sidewalk in green verges less than 8’.*

Tree Wells:

Allowable size types for Tree Wells: All Tree Size Types are allowed that comply with planting standards on page 3.

Need a Permit? Request a permit via Metro Call 311. Be sure to leave appropriate contact information for the DCF staff to communicate effectively with you at.

Spacing of Trees:

In accordance with the three tree size types, the following spacing will be observed:

A. New and Existing Trees:

1. The minimum spacing between two newly planted trees of the same size type is as follows:

Tree Size Type	Minimum Spacing
A	40 feet
B	20 feet
C	10 feet

2. The minimum spacing between existing trees and a new tree will be the distance of one-half of the new tree's mature spread as set out in the most recent edition of "The Manual of Woody Landscape Plants" authored by Dr. Michael A Dirr.
 3. Prohibited Species: Tree species listed on the DCF list of "Permitted and Prohibited for Public Area Planting" Prohibited list will not be planted. If a prohibited species is planted, the DCF can require the abutting property owner to remove the tree at their expense.
- B. Street Corners: No tree, whether on public or private property within the City, shall be planted closer than twenty (20) feet from any street corner intersection, measured from the point of the nearest intersection's curbs or curb lines.
- C. Driveways and Alleys: No tree, whether on public or private property within the City, shall be planted closer than ten (10) feet from any driveway or alley in the public right -of-way intersecting with any city street measured from the point of the nearest curb or curb line of that driveway or alley.
- D. Traffic Control Signals and Signs: No tree, whether on public or private property within the City, shall be planted in such a manner that it blocks a traffic control signal or sign.
- E. Planting Distance from Curb or Sidewalk: a newly planted tree will be planted at the halfway point between the street curb and a sidewalk in green verges with widths greater than 3 feet unless the DCF determines that another location is suitable. The distance from impervious surface to tree will be calculated based on the tree trunk centerline.
- F. Overhead utility: The following tree size types will be considered when planting in specified distances from overhead utilities:

Distance from Overhead Utility	Tree Size Type
0 - 15 feet	C
15 - 45 feet	B
45 + feet	A

- G. Underground Utility: No trees may be planted closer to any buried or underground water, sewer or natural gas utility line than 18 lateral inches on either side of the buried or underground utility line with such distance measured from the main stem of the tree to the outermost width of either side of the utility line.

- H. Fire Hydrants, Utility Poles and Electric Transformer Boxes: No tree shall be planted inside a five (5) feet radius from any fireplug or fire hydrant, utility pole, side of an electric transformer box, or similar utility structures; and in the case of electric transformer boxes, no tree shall be planted within ten (10) feet of the access door of such boxes.
-

Tree Planting Standards

DCF permit to plant in public right of way or public space is required prior to planting a tree in the public right of way. Conditions of permit are required to be adhered to. DCF has the right to waive these standards.

Permits for the planting of new trees will not be allowed if the width of green verge is less than 3 feet.

All trees need to be at least a 2.0" caliper size and branched up to 4.5' above ground, unless DCF authorization allows for smaller size.

All newly planted trees in the public right of way will have a single trunk.

At time of planting, all trees will be healthy with normal-well developed branching and a fibrous root system. Trees will be free of defects and insect infestations that will hinder growth.

All newly planted public right of way trees will adhere to spacing standards.

All trees are required to be watered at time of planting and continue to be water per DCF Watering Maintenance Plan for three years.

At the time of planting, the branching of the tree will be orientated in a manner to discourage obstruction to vehicular and pedestrian pathways.

All trees are required to be mulched at the time of planting and are continually mulched yearly.

The act of planting the tree is in accordance with the American National Standard (ANSI) A300 Planting and Transplanting Practices (instructions and diagram provided):

- Digging: Depth of the hole will be equal to the depth of the root ball measured from the root collar to the bottom of the root ball. The width of the hole will be a minimum of 1.5X the root ball diameter. The sides of the hole need to be sloped and loose (scarify to deter compaction).
- Supporting materials: If the tree is in a container, remove the entire container at time of planting. If the tree is a ball and burlap stock, remove all the wire and a minimum of 2/3 of the burlap, leaving only the bottom third (recommended to remove burlap all if possible).
- Root system: install the tree in a manner that allows for the root system to be evenly distributed. Prune any girdling or circling roots.
- Backfill: Backfill the hole with soil in layers to prevent air pockets. Do not compact backfill. Remove any foreign material in soil. Backfill until reaching the surrounding soil grade, do not exceed root collar.
- Berm: Create a soil berm that is 4-5' in width at the perimeter of the hole. Cover with a thin layer of mulch.
- Water: Slowly add 20 gallons of water.
- Mulch: Apply mulch at a depth of 2-4 inches that is equal to the diameter of the hole or drip line of larger. Do not apply mulch to the base of trunk—leave ½" space at base of trunk.
- Staking: Only stake if needed to support the tree. If staking is necessary use 3 poles that are oriented in a triangle formation around the tree. Use Tree Tie Webbing. Do not use metal.

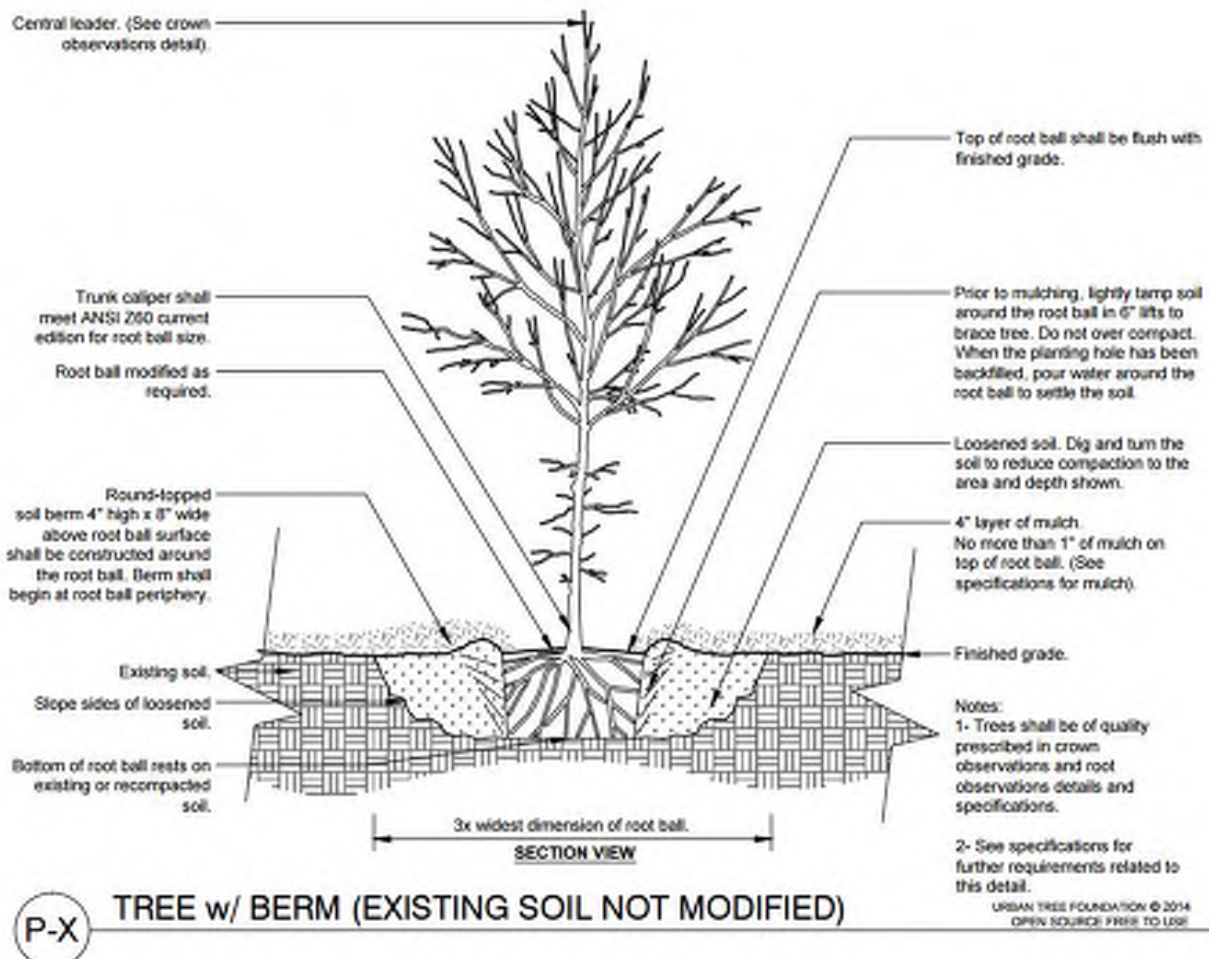


Figure 1: ANSI A300 Planting Diagram

Tree Pruning Standards

DCF permit is required to prune trees in the public right of way or public spacing.

Equipment: All equipment that is used to perform pruning will be clean of containments to prevent spread of disease. Climbing spurs or prohibited to be used when pruning.

Limb Removal: Using the 3-cut method (starting with A and ending with C), remove a limb without cutting into the branch collar. Do not use wound treatments to cover pruning cuts.

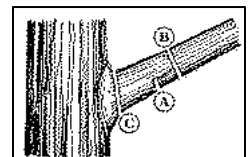


Figure 2: 3-Cut Method

Limb Reduction: Cut will be made at a lateral branch or node/bud (see Figure 3: Limb Reduction, specifically A and B).

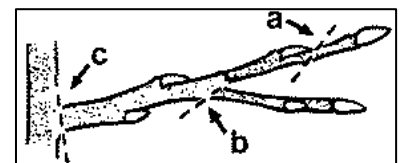


Figure 3: Limb Reduction

Crown Reduction: The selective pruning of limbs to decrease height and/or spread. No more than 25% of a crown may be removed annually unless permitted by DCF.

Thinning: The selective pruning of branches to reduce density of live branches. No more than 25% of a crown may be removed annually unless permitted by DCF.

Tree Protection

Critical Root Zone: The minimum area surrounding a tree considered essential to support its viability. The dimensional measurement of the critical root zone is equal to a radius of one foot per one inch of trunk diameter (DBH). Thus, in the instance of a twenty (20) inch diameter-at-breast-height tree, the tree's critical root zone would consist of a twenty (20) foot radius projecting in all directions from the tree as measured from the center of its trunk; or in terms of full diameter, a critical root zone of a forty (40) foot diameter spread across the full root system of the tree (See Figure 4: Critical Root zone).

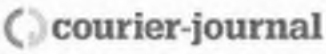


Figure 4: Critical Root Zone

Critical Root Zones will be protected with fencing.

- No clearing, grading, construction, or other land disturbance will occur in the critical root zone fencing.
- No structure may be placed within 15 feet of the critical root zone fencing
- No vehicle or equipment may be placed within 10 feet of the critical root zone fencing.
- No retaining walls may be placed with 10 feet of the critical root zone fencing.

**APPENDIX F -
PUBLIC
COORDINATION**



AFFIDAVIT OF PUBLICATION

State of Kentucky

County of Jefferson

Circulation printed and published at 525 West Broadway, Louisville, Kentucky, do solemnly swear that from my own personal knowledge, and reference to the files of said publication, the advertisement of:

Title: Public Notice
Start Date: 5/27/2016 NEWSPAPER PRINT
Run Date(s): 5/27 - 6/2/2016 ONLINE

Christine Manning, Inbound Special Services Representative

Signature of person making proof

Subscribed and sworn to before me this 31st day of May 2016

Janice C. Richardson, Notary Public



PUBLIC NOTICE
NOTICE OF PUBLIC COMMENT PERIOD
Bowman Field (LOU) Airport Area Safety Program
Jefferson County, Kentucky
City of Louisville

A Draft Environmental Assessment (DEA) for the Bowman Field Airport Area Safety Program has been prepared in cooperation with the Federal Aviation Administration (FAA) identified as the Bowman Field Airport Area Safety Program (Program), the purpose is to comply with current FAA required object clearing standards at the Airport to protect existing approaches to runways and to re-establish runway approaches that were in effect as of February 22, 2012. Specifically, this project would enable the Louisville Regional Airport Authority (LRAA) to re-establish nighttime instrument approach procedures which have been temporarily suspended due to natural obstructions (trees) within the FAA defined airspace surfaces. The LRAA intends to submit to the FAA a request for federal funds to maintain the approaches to the runways at Bowman Field Airport.

The FAA's primary mission is to ensure the National Airport system is safe, efficient and environmentally responsible and meets the needs of the community. In doing so, the proposed Program DEA will examine and compare various mitigation alternatives, including the purchase of avigation easements on select properties, for the removal and replacement, trimming or the lighting of trees that penetrate the FAA Terminal Instrument Procedure (TERPS) approach surfaces to Bowman Field.

The Program requires the acquisition of avigation easements over private residential properties, a private golf course, a public golf course and a portion of a public park. On these properties are obstructions (trees) that are currently penetrating or are within ten feet of penetrating the approach surface.

The DEA of the proposed approach maintenance program has been prepared and is available until June 29, 2016 for review and comment during normal business hours at the Louisville Public Library, 301 York Street; LRAA Administration Building Front Desk, 700 Administrative Drive, Louisville and on the LRAA website - www.flylo.uswa.com. The document will also be available for review at the Program Office in the Bowman Business Center, 2700 Moran Avenue, Suite B each Tuesday from Noon until 7:00PM and each Wednesday 8:00AM until Noon during the month of June, or by appointment. An appointment for review of the document may be made by calling Melissa Vasher, 502.451.0772.

A workshop style public hearing for the project has been scheduled for Tuesday June 28, 2016 from 5:30PM until 7:30PM, at the Breckinridge Inn, 2800 Breckinridge Lane, Louisville, KY 40220. The public workshop will provide citizens an opportunity to ask questions and to present written and/or verbal comments in favor of, or in opposition to the proposed action documented in the DEA.

Written comments will be received, until 4:00PM, June 29, 2016, by Aaron Bradwell, Environmental Protection Specialist, Federal Aviation Administration Airport District Office, 2600 Thousand Oaks Boulevard, Suite 2250, Memphis, TN 38118; telephone number: 901.322.8192. Before including your address, telephone number, email address, or other personal identifying information in your comment, be advised that your entire comment including your personal identifying information - may be made publicly available at any time. While you can ask in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

Done by Order of the LRAA on this 27th day of May, 2016



Offices Nationwide
www.hanson-inc.com

Hanson Professional Services Inc.
2700 Moran Ave., Suite B
Louisville, KY 40205
phone: (502) 451-0772

Professional Service Corporation
#184-001084

BOWMAN FIELD

BOWMAN FIELD
2815 TAYLORSVILLE RD
LOUISVILLE, KY 40205

BOWMAN FIELD
AIRPORT AREA
SAFETY
PROGRAM

ENVIRONMENTAL
ASSESSMENT

NO.	DATE	DESCRIPTION			
		LAY	DWN	REV	

ISSUE: MONTH DAY YEAR

12A00134

CAD FILE:

LAYOUT BY:

DRAWN BY: SKG

REVIEWED BY: RHA

SHEET TITLE

COURIER-JOURNAL
AFFIDAVIT OF
PUBLICATION

Public Comments

The public's comments have been reviewed and placed into categories based on the nature of the comment. These comments include written comments from the meeting, the Plea for the Tree (PFTT) written and e-mail comments, comments e-mailed to FAA and verbal comments. Below are the categories the comments fell into. Following the list is our responses to those categories.

- 1. Comments beyond the scope of the project or general reflections
- 2. Aviation process, why is the project needed, nothing has occurred because of the trees, will this be safer
- 3. The Louisville Regional Airport Authority (LRAA) did not have a public hearing
- 4. Noise, air quality, heat island, biotic and water
- 5. Night flights, Jets, Increased air traffic and send the flights to other airports
- 6. Airport revenue, the Airport's process, the Airport's cost, and the LRAA is not showing the whole ALP
- 7. FAA did not attend the meeting
- 8. Municipal Question, were municipal agencies and officials aware of the project
- 9. Mitigation, land acquisition, completion plan
- 10. NEPA process was incorrect, not a defined project area, years used in the NEPA document and lighting alternative
- 11. Memorial Walkway Trees
- 12. Section 106 APE

Comments beyond the scope of the proposed project or general reflections

The Airport and the FAA appreciate all comments and thoughts submitted during the public comment period. At this time, response to comments will focus on those comments that directly pertain to the proposed project outlined in the Draft Environmental Assessment.

Aviation process, why is the project needed, nothing has occurred because of the trees will this be safer

The "Critical Approach Surfaces" identified for each of the runway ends at Bowman are from one of the following surfaces, or a combination of these surfaces, whichever is the most demanding over any portion of the ground: The 20:1 Visual Area Surface; the Obstruction Clearance Surface for Visual Approach Slope Indicator; and/or the Glidepath Qualification Surface. These surfaces are defined by the Federal Aviation Administration's (FAA) 8260.3C - United States Standard for Terminal Instrument Procedures (TERPS). This document defines FAA's various approaches and what conditions are needed to maintain them. The FAA Flight Technologies & Procedures Division; Flight Procedures Standards Branch is responsible for establishing approach procedure design and obstacle clearance standards, criteria and policy for the National Airspace System. This branch of the FAA has determined that these 104 trees represent a safety hazard and must be trimmed or lighted. The FAA has determined, through its analysis of the approach surfaces in use, in February of 2012, that these 104 trees are the only remaining objects penetrating the critical approach surfaces. The instrument approach procedures that were in effect on February 2012 applied to all aircraft utilizing Bowman Field. The return to February 2012 procedures will not singularly result in additional operations by any particular type of aircraft. Bowman Field has an obligation under their federal grant assurance process to maintain these surfaces based on FAA's regulations and request. At this time, no incidents have occurred as a result of the existing penetrations. However, these trees will continue to grow and become an increasing safety risk to incoming pilots.

The LRAA did not have a public hearing

FAA 1050.1F Chapter 2 Section 5.3. Public Meetings, Workshops, and Hearings

FAA Process:

- 1. Obtaining comments on the Draft Environmental Assessment (DEA).
 - a. The public hearing was held on June 28, 2016. Comment tables were available in all four corners of the hearing room. Comment forms and pens were available for any interested party to provide comments regarding the DEA and process.
- 2. The DEA should be available for public review for at least 30 days prior to the meeting.
 - a. The Draft EA was made available to the public on May 27, 2016 through the Louisville Regional Airport Authority (LRAA) website, the local Library, the LRAA office and the Bowman Field project office. The DEA was available for 33 days prior to the public hearing.
- 3. A public hearing is a formal process that has a designated public hearing officer who presides over the meeting and a court reporter present to compile a transcript of all oral comments.
 - a. Starting at 5:30, a public hearing officer officially opened the public hearing. She and her assistant were available to ensure the process was followed and everyone had an opportunity to ask questions and comment on the DEA/process. Two (2) court reporters were available for verbal testimony. People were given numbered tickets to ensure a fair opportunity to provide comments based on their arrival at the public hearing.
- 4. Notice of a public meeting or hearing (including a scoping meeting, see Paragraph 7-1.2.c) should be published (e.g., in local, general circulation newspapers) at least 30 days prior to the event. The notice should provide the following: (1) Date, time, place, and interval during which written comments will be accepted; (2) Description of the proposed action; (3) Location and availability of the NEPA document; and (4) Name and contact information of the responsible FAA official.

- a. The public hearing notice and public comment period were published in the Louisville Courier Journal on May 26, 2016. The notice provided all of the necessary information. An informational update on the availability of the DEA and the public hearing was mailed to 500+ residents around Bowman Field as well as elected officials on May 31st to be sure they were aware of the document, comment period and hearing. The published notice and the letter to residents was also available on the LRAA website throughout the 35 day comment period.
5. Notice of actions having national implications must be published in the Federal Register and mailed to national organizations having an interest in the matter.
 - a. Not applicable.
6. Accommodations. When holding a public meeting or hearing, accommodations must be made for the needs of the elderly, disabled, non-English speaking, minority, and low income populations in accordance with the Americans with Disabilities Act of 1990, 42 U.S.C. §§ 12101-12213, Executive Order 12898, and DOT Order 5610.2(a).
 - a. The public hearing was held at the Breckenridge Inn, which is located 8 minutes from the Airport and project areas. The hotel is ADA compliant and the location of the hearing room is accessible by anyone requiring special needs. There were chairs available at the comment tables for the public to rest if needed and water available. There is a bus stop right outside the entrance lane to the hotel for those unable to drive ([http://www.ridetarc.org/uploadedFiles/53\(1\).pdf](http://www.ridetarc.org/uploadedFiles/53(1).pdf)). The public hearing room has a capacity of 152 (76 per ballroom, 2 rooms for main area), with an additional capacity in the testimony room.

Based on the above information, the Bowman Field public hearing has met the criteria set in FAA 1050.1F Chapter 2 Section 5.3. Public Meetings, Workshops, and Hearings.

Noise, air quality, heat island, biotic and water

Heat Island

The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA's documents state that vegetation helps cool urban environments. They suggest that strategic plantings be used to maximize the benefits for vegetation and its ability to reduce urban heating. The Louisville Regional Airport Authority (LRAA) will provide home owners, whose trees are removed, with two new trees to be planted at their discretion. The home owners will be provided with documentation on the characteristics of the tree and will be able to place them where they believe is the most beneficial location. In addition, the U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4 stated, based on their review of the document, the proposed project will not represent a significant impact to human health and the environment. In addition, the Office of Sustainability commented on the project, stating the Louisville Metro Division of Community Forestry recommends a replacement ratio larger than 1:1. The LRAA, not through the Federal Process, is providing the opportunity for replacement trees at a 2:1 ratio.

Air Quality

The Federal Aviation Administration (FAA) states that “the FAA had the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts.” If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the proposed airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:

- a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecasted annually; and
- b. If it is a general aviation airport and had less than 180,000 operations forecasted annually.

The Airport is currently and will remain a general aviation airport. They do not have 180,000 operations forecasted annually and the proposed project will not exceed that threshold. **See Chapters 1 and 3 in the DEA.** In addition, the U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4, which regulates federal air quality standards, stated based on their review of the document, the proposed project will not represent a significant impact to human health and the environment.

Noise

The Federal Aviation Administration's Order 1050.1E, “Environmental Impacts and Procedures” Section 14.1-Analysis of Significant Impacts, Paragraph 14.4a states: “For proposed actions involving a single airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles, the initial analysis may be performed using the FAA's Area Equivalent Method (AEM) computer model. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. **See Chapters 1 and 3 in the DEA.**

Biotic

A site assessment of the area was completed in August 2014 and concluded that the presence of both the Indiana and the Northern Long Eared bat is likely. To avoid direct impacts to these species, seasonal tree clearing has been proposed thereby allowing the bats to be in their winter hibernacula during the trimming or removal/replacement. The trees impacted in this alternative are a small percentage of the total tree population in the area. Any potential populations of Indiana or Northern Long Eared bats have a large amount of adjacent comparable habitat. Based on a letter dated December 3, 2014 from the U.S. Fish and Wildlife Services (USFWS), they concurred that the proposed project is unlikely to have an adverse effect on the Indiana Bat in keeping with the following obligations.(1) seasonal clearing occurs (October 15 through March 31), (2) if new information is revealed during construction that would affect a species in a manner not already stated, additional coordination with the USFWS will be required, (3) if the construction plan is modified, additional coordination with the USFWS will be required, and (4) if new species are listed or designated during construction, additional coordination with the USFWS will be required. **See Chapter 3 of the DEA.**

Wetlands and Waters of the United States

The National Wetlands Inventory (NWI) map does not show any mapped wetlands within the proposed project area. The Middle Fork of Beargrass Creek is the only Waters of the United States within the project area. Trees will not be trimmed or removed/replaced in a manner that will discharge regulated ill material into the creek. Therefore, the project area will not impact any wetlands or Waters of the United States. **See Chapter 3 of the DEA.**

No night flights, no jets, no increased air traffic and send the flights to other airports

Bowman Field is currently open 24-hours a day and 365 days a year. Due to their operational hours, the Airport currently has nighttime landings on all runway ends, when weather permits. Currently, if instrument weather conditions require Instrument Flight Rules (IFR), the aircraft will land on Runway End 24. Nighttime operation begins 30 minutes after sunset, which changes seasonally. During the months of November, December and January for example, nighttime operations begin around 6 pm, a prime time for business travel. Only a small percentage of the Airport's operations occur after 10 pm. The current purposed project will restore the Airport to conditions present in 2012. These conditions consist of allowing nighttime landings at the Airport under IFR on all four Runway Ends (06, 33, 15 and 24). Based on records maintained by the National Weather Service Instrument weather conditions requiring flight under instrument flight rules occur approximately 13 percent of the time in a given year.

The project will not change the Airport's critical aircraft nor will it change the type of aircraft currently utilizing the airfield. Currently jet type aircraft (fixed wing aircraft propelled by a jet engine) utilize the Airport and their operational numbers are based on the economic and business environments of the City of Louisville, not by the current Airport's operational abilities. This project does not include the reconfiguration or alteration of the airfield pavements to allow use by any other group or classification of airplane. Utilizing other airports would not be advantageous for the economic environment of Louisville. Louisville International Airport - Standiford Field (SDF) is the third busiest cargo airport in North America. With the large number of cargo operations at SDF, small corporate aircraft are unable to effectively utilize the airport. Allowing for the separation of general aviation and cargo/passenger aviation provides for a more effective and seamless overall aircraft system in a city.

Airport revenue, the Airport's process, the Airport's cost, and the LRAA is not showing the whole ALP

The Louisville Regional Airport Authority (LRAA) does not receive local or state funding for the routine operations of either Bowman Field (LOU) or Louisville International Standiford-Field (SDF). The predecessor of the LRAA was established in 1928 by the Commonwealth of Kentucky's General Assembly and is believed to be the first airport to use the authority-type governance in the United States. LRAA is governed by an eleven member Board of Directors that sets policy, approves the budget and hires the executive director, who serves as the organization's chief executive officer and governs the LRAA. The Board is comprised of the Mayor of Louisville, seven mayoral appointees and three gubernatorial appointees, one of which is a member of the Airport Neighbors Alliance Executive Committee. The board members serve four-year staggered terms without compensation. Due to the large urban populations, citizens utilizing the labor opportunities within these areas have required the County to plan for a more livable, attractive, mobile, efficient and environmentally sensitive communities. Many of these labor forces and the local economy benefit from Bowman Field. Louisville's Airports generate a recurring economic impact of more than 64,135 local jobs, more than 7.2 billion dollars in economic activity from business expenditures and more than 320 million dollars in state and local taxes, from direct, indirect and induced activates.

LRAA does receive federal funding from the Federal Aviation Administration (FAA) through their Airport Improvement Program (AIP). By receiving Federal money and by being governed by the municipal board, the LRAA is responsible for complying with FAA safety regulation through their federal grant assurance. The proposed project was a result of the FAA identifying penetrations to the Airport's TERPS approach surfaces. To comply with their federal grant assurances, the Airport Board was required to begin addressing the penetrations. The current project will restore the Airport to 2012 conditions, which does not necessarily equate to additional profit for the Airport. Trees in the approach surface are one of many factors that affect air traffic. It is LRAA's responsibility to provide a safe 24 hour facility to north central Kentucky and comply with their Federal grant assurances.

The Airport is also required to have an Airport Layout Plan (ALP), which serves as a planning tool that depicts both existing and future development on and around the Airport. Federally obligated airports must accomplish improvements in accordance with the ALP. Although a development is depicted on the ALP; it is not required that it be built. Environmental documentation completed under the National Environmental Policy Act (NEPA), is to review projects that are depicted on the ALP and will be completed in the foreseeable future. Environmental documents cannot review all development depicted on the ALP. Once approved, Environmental Assessments are only valid for approximately 5-years.

FAA did not attend the meeting

The Federal Aviation Administration (FAA) is not obligated to attend a Public Hearing for an Environmental Assessment. The FAA participates in the environmental documentation process through the review and approval of the document. When a draft Environmental Assessment is prepared, it is the FAA's responsibility to review the document before public's review to ensure the document accurately presents FAA policy and concerns. Once the FAA has reviewed and accepted the document, the draft Environmental Assessment is made available for public review. At the public hearing, members of the public are allowed to voice their concerns. The FAA reviews the concerns and ensures they are adequately addressed based on FAA guidance in the Final Environmental Assessment.

Municipal Question, where municipal agency and officials aware of the project

As part of the Environmental Assessment process, Local, State and Federal agencies are notified of the project and given the opportunity to comment throughout various stages of the process. The Mayor of Louisville also sits on the board of Louisville Regional Airport Authority (LRAA). When the Draft Environmental Assessment was completed and approved by the Federal Aviation Administration (FAA), it was provided to the following local offices with a request for comments.

1. Honorable Greg Fisher, Mayor of Louisville
2. David Yates, President of Metro Council
3. Tom Owen, Metro Council District 8
4. Bill Hollander, Metro Council District 9

5. Brent Ackerson, Metro Council District 26
6. Honorable David Brown, Mayor of Seneca Gardens
7. Honorable Rebecca Beld, Mayor of Kingsley
8. Honorable Richard J. Tonini, Mayor of St. Matthews
9. Seve Ghose, Director of Louisville Metro Parks
10. James A. Parrott, Executive Director Louisville Metropolitan Sewer District
11. Kelly Maxwell, Golf Course Manager, Big Spring Country Club

Any comments from these individuals or offices will be addressed in the Final Environmental Assessment. This also applies to any comments received from State and Federal agencies.

Mitigation, land acquisition, completion plan

The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding to trim, remove or replace trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).

The easement acquisition process will include;

- An initial meeting with the homeowners to explain the program
- Appraisals to be completed.
- LRAA will review and approve the offer.
- Hanson Professional Services Inc. will personally present the approved offer to the Homeowner.
- Following the executed easement, compensation will be paid to the homeowner and the easement will be filed with Jefferson County Recorder of Deeds.
- If initial meetings with property owners do not result in acquisition of the easement, the property owner will be notified, via letter, that condemnation proceedings will be initiated.

If initial meetings with property owners do not result in acquisition of the easement, the property owner will be notified that condemnation proceedings will be initiated. The project will be completed once all of the easements have been acquired.

NEPA process was incorrect, not a defined project area, years used in the NEPA document and lighting alternative

The Federal Aviation Administration's (FAA) National Environmental Policy Act (NEPA) process was followed in accordance with Order 5050.4B. The FAA's Order 5050.4B guidance has been followed throughout Bowman Field's environmental process. It was determined by the FAA that an Environmental Assessment was the appropriate document to address the current project. The environmental assessment process began in 2012 when the FAA issued the letter identifying the penetrations to the approach surfaces. This letter was the basis for the beginning of the environmental process and it was subsequently used as the existing conditions year. Once the document type is confirmed, the Purpose and Need for the project is established. Following the approval of the Purpose and Need, Local, State and Federal agencies are notified of the project and their comments or concerns are requested for the documentation process. Once comments are received, the Draft Environmental Assessment Documentation process can begin. The project area is established and was determined by the FAA as an aggregate of TERP's approach surfaces, where penetrations to these surfaces have the potential to effect landing aircraft. These areas are defined and regulated by the FAA.

Once the Purpose and Need and project area defined, alternatives are developed to ensure all reasonable alternatives are reviewed. During the documentation process for the current project, many alternative were considered and two addressed the Airport's Purpose and Need and were evaluated throughout Chapter 4 Environmental Consequences. They include:

- a. Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33
- b. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33

These alternatives were assessed under all of the impact categories and it was determined that Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 created more impacts and therefore was not selected as the Sponsor's Proposed Action. See Table 8 –Summary of Impacts Matrix in the Draft Environmental Assessment."

Following the establishment of the Sponsor's Proposed Action and completion of the Draft Environmental Assessment, the FAA reviews and approves the document for public review, ensuring it accurately represents FAA policy and concerns. A 30 day notice of a public hearing begins and the Draft Environmental Assessment is made available for public viewing at locations in or near the project area. Once the 30 day period is completed, a public hearing is held and the public has the opportunity to ask questions and provide comments on the project. The FAA reviews the concerns and ensures they are adequately addressed based on FAA guidance in the Final Environmental Assessment.

Memorial Walkway Trees

There are no Memorial Trees in the Federal Action. There are 6 trees in Seneca Park along Pee Wee Reese, none are designated Memorial Trees.

Section 106

The APE was expanded after extensive consulting party comments. All resources within the APE were evaluated for eligibility to the National Register. Neighborhoods (and outparcels) where no avigation easements are to be required are not in the APE and therefore the resources were not evaluated. This is consistent with both 36 CFR part 800 and 36 CFR part 63.

It is our opinion that periods of significance were properly addressed. Commenters should specify why, using NR guidance, any evaluation does not meet pertinent guidelines. Period of significance is defined by the NPS as “span of time in which the property attained significance for which it meets National Register criteria”. Level of significance need not be addressed in order to determine eligibility or determine effects.

Seneca Park was included in the CRE as “a previously recorded eligible district” for the National Register. Trees along Pee Wee Reese Road are modern and do not date from the period of significance of this historic resource. Previous actions, not a part of this federal action are not and should not be considered.

Plea for the Trees Comments

Page Numbers	The comment	Response	Original Document	Change to the document
Page 1	There is no discussion of "safety" (i.e., aviation accidents, causation, risks to the public).	The Airport is obligated through their grant assurance to maintain safe approaches. The FAA through TERPS guidance and policies implements safe operating, enforces safe departure and landing policies at the Airport. In this case the FAA has determined the three approach surfaces (20:1 Visual Area Surface; the Obstruction Clearance Surface for Visual Approach Slope Indicator; and/or the Glidepath Qualification Surface) make up Bowman Fields critical approach surface to Bowman Field. The proposed project and Draft Environmental Assessment identifies and addresses penetrations and safety concerns to these approach surfaces.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
	There is no discussion of the trees impacted by removal and trimming (type and height potential), or the impacts to human well-being, health, property values, and the environment from the loss of these trees and their canopies. Important recent studies and data commissioned by Metro Louisville relating to tree canopy and urban heat management are completely ignored.	The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA's documents state that vegetation helps cool urban environments. They suggest that strategic plantings be used to maximize the benefits for vegetation and its ability to reduce urban heating. In addition, The Louisville Urban Heat Management Study also promotes the use of strategic planting to ensure areas that are sparsely canopied receive shade. The Louisville Regional Airport Authority (LRAA) will provide home owners, whose trees are removed, with two new trees to be planted at their discretion. The home owners will be provided with documentation on the characteristics of the tree and will be able to place them, with the guidance of a landscape architect, where they believe is the most beneficial location. In addition, the U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4 stated, based on their review of the document, the proposed project will not represent a significant impact to human health and the environment. In addition, the Office of Sustainability commented on the project, stating the Louisville Metro Division of Community Forestry recommends a replacement ratio larger than 1:1. The LRAA, not through the Federal Process, is providing the opportunity for replacement trees at a 2:1 ratio.	<p>4.15 Energy Supply and Natural Resources Development, Section 4.15.1: This section evaluates the impact of the Sponsor's Proposed Action on the consumption of energy and natural resources. The proposed consumption is compared to the available resources in the region and the impacts of the proposed development are stated herein. The evaluation focuses on four separate areas:</p> <ul style="list-style-type: none">• Consumption of energy for stationary facilities such as buildings and lighting systems;• Consumption of fuel by aircraft;• Consumption of fuel by ground vehicles; and• Use of natural resources, which are in short supply.• <p>4.22 Climate Change/Greenhouse Gases, Section 4.22.1: Greenhouse Gases (GHG) are those gases that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made), GHGs include water vapor (H2O), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and ozone (O3). Research has shown a link between fuel combustion and greenhouse gas emissions. Sources that require fuel or power at an airport are the primary sources that generate greenhouse gases. Aircraft are often cited as air pollutant sources; however, they produce the same types of emissions as automobiles. For instance, aircraft jet engines, like many other vehicle</p>	<p>4.15 Energy Supply and Natural Resources Development, Section 4.15.1: This section evaluates the impact of the Sponsor's Proposed Action on the consumption of energy and natural resources. The proposed consumption is compared to the available resources in the region and the impacts of the proposed development are stated herein. The evaluation focuses on four separate areas:</p> <ul style="list-style-type: none">• Consumption of energy for stationary facilities such as buildings and lighting systems;• Consumption of fuel by aircraft;• Consumption of fuel by ground vehicles; and• Use of natural resources, which are in short supply. <p>The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA Region 4 stated, based on their review of the Draft Environmental Assessment the project will not represent a significant impact to human health and the environment. See U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.</p> <p>4.22 Climate Change/Greenhouse Gases, Section 4.22.1: Greenhouse Gases (GHG) are those gases that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made),</p>

			engines, produce carbon dioxide (CO2), water vapor (H2O), nitrogen oxides (NOX), carbon monoxide (CO), oxides of sulfur (SOX), unburned or partially combusted hydrocarbons (VOCs), particulates and other trace compounds.	<p>GHGs include water vapor (H2O), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and ozone (O3).</p> <p>Research has shown a link between fuel combustion and greenhouse gas emissions. Sources that require fuel or power at an airport are the primary sources that generate greenhouse gases. Aircraft are often cited as air pollutant sources; however, they produce the same types of emissions as automobiles. For instance, aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO2), water vapor (H2O), nitrogen oxides (NOX), carbon monoxide (CO), oxides of sulfur (SOX), unburned or partially combusted hydrocarbons (VOCs), particulates and other trace compounds.</p> <p>The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA Region 4 stated, based on their review of the Draft Environmental Assessment the project will not represent a significant impact to human health and the environment. See U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.</p>
Page 2	The Bowman Field Safety Program only addresses the FAA's Terminal Instrument Procedures guidance for approaching planes, not departing planes. The DEA must be revised to reflect this distinction since the departure profile in the 2012 Airport Layout Plan, which was the FAA's initial focus of the program, would affect substantially more homes and trees.	The Airport is obligated through their grant assurance to maintain safe approaches. The FAA through TERPS guidance and policies implements safe operating, enforces safe departure and landing policies at the Airport. In this case the FAA has determined the three approach surfaces (20:1 Visual Area Surface; the Obstruction Clearance Surface for Visual Approach Slope Indicator; and/or the Glidepath Qualification Surface) make up Bowman Fields critical approach surface to Bowman Field. The proposed project identifies and addresses penetrations and safety concerns to these approach surfaces.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 2	Alternatives, such as diversions of turbojets to the Clark Regional Airport, are omitted.	The LRAA's Purpose and Need states the project's goal is to provide a safe, efficient, viable and usable airfield at Bowman Field. Utilizing other airfields would not maintain the existing geometry or maintain existing facilities at Bowman Field.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 2	The "mitigation" commitments are grossly insufficient to respond to the community and environmental losses associated with the LRAA's tree removal alternative	The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA). Changes to the Draft Environmental Assessment have been made to reflect the LRAA mitigation plan.	<p>2.2.2.2 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33</p> <p>This alternative, depicted on Exhibit 4 – Alternative 1 in Appendix A proposes purchasing 41 easements over properties containing trees that have or will become obstructions to the four runway approaches. This alternative allows Bowman Field to maintain current runway lengths and regain nighttime operating capabilities to levels depicted on the approved ALP dated February 27, 2012, to serve existing aviation users. Bowman Field would maintain the 4,357 ft. Runway 06-24 (primary runway) and the 3,579 ft. Runway 15-33 (crosswind runway), as well as preserve the existing airfield geometry. Approximately 3,600 trees were identified within the project areas; of these, approximately 104¹ were determined to penetrate or be within ten feet of the approach surfaces and will need to be trimmed or removed/replaced.</p>	<p>2.2.2.2 Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 (Preferred Alternative)</p> <p>This alternative, depicted on Exhibit 4 – Alternative 1 in Appendix A proposes purchasing 41 easements over properties containing trees that have or will become obstructions to the four runway approaches. This alternative allows Bowman Field to maintain current runway lengths and regain nighttime operating capabilities to levels depicted on the approved ALP dated February 27, 2012, to serve existing aviation users. Bowman Field would maintain the 4,357 ft. Runway 06-24 (primary runway) and the 3,579 ft. Runway 15-33 (crosswind runway), as well as preserve the existing airfield geometry. Approximately 3,600 trees were identified within the project areas; of these, approximately 104² were determined to penetrate or be within ten feet of the FAR Part 77 and TERPS (20:1 Visual Area Surface; the Obstruction Clearance Surface for Visual Approach Slope Indicator; and/or the Glidepath Qualification Surface) approach surfaces and will need to be trimmed or removed/replaced. The LRAA has committed to</p>

¹ Due to the length of the proposed project and the dynamic nature of the project area (tree growth and individual property owner preferences) trees have come in and out of the program.

² Due to the length of the proposed project and the dynamic nature of the project area (tree growth and individual property owner preferences) trees have come in and out of the program.

				<p>mitigation actions through this alternative. The property owner will decide whether to trim or remove trees that are penetrating, or within ten feet of penetrating the critical approach surface for that runway. The property owner will also determine whether their tree is replaced. If the property owner decides to remove the tree, the mitigation actions include; replacement of the removed tree at a ratio of 2:1, if a tree is removed in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees. The LRAA will also pay for tree trimming or removal/replacement, stump removal and yard restoration through backfilling the hole and seeding. Finally, all new plants will carry a one-year warranty; replacement tree will carry a two-year warranty.</p> <p><u>[Added] 5.0 Mitigation Measures</u></p> <p>The FAA's approval of the proposed document considers the implementation of mitigation measures, which are established throughout the document and featured in the Finding of No Significant Impact (FONSI). The mitigation measures are presented to minimize impacts whether deemed significant or otherwise. Mitigation measures were developed by the LRAA through their Bowman Field Safety Program and are intended to address the concerns of project stakeholders. The LRAA and its board have committed to the following mitigation measures.</p> <ul style="list-style-type: none">• If a property owner elects to remove a tree(s) and elects to replace the tree(s), replacement of the removed tree will be at a ratio of 2:1, in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees.• The LRAA will pay for tree trimming or removal/replacement, stump removal and yard restoration.• If stump removal occurs the hole will be backfilled and seeded.• All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty. <p>These mitigation measures provided by the LRAA's Bowman Field Safety Program, to every property owner effected by the proposed program.</p> <p>In addition to LRAA's mitigation program, other mitigation measures were developed in accordance with applicable federal and state requirements. In accordance with the USFWS's Section 7 Endangered Species Act, the Airport will remove trees during the tree clearing restriction dates (October 15 through March 31). The remainder of the categories reviewed within this document to not require mitigation.</p>
Page 2	Terminal Instrument Procedures (TERPS) are addressed in FAA Order 8260.3C, which "prescribes standardized methods for designing and evaluating instrument flight procedures [IFP]," including procedures for identifying sloped imaginary surfaces for unobstructed	The application of this order is through the Airport's grant assurances with the FAA. By receiving money from the FAA, Bowman Field is required to adhere to certain obligations. "These obligations require the recipients to maintain and operate their facilities safely and efficiently and in accordance with specified conditions." (FAA Grant Assurances (Obligations) – http://www.faa.gov/airports/aip/grant_assurances/). To fulfill with their grant	No change to the Environmental Assessment.	No change to the Environmental Assessment.

	departures and landings. Please describe the specific legal basis for the proposed application of this order, which has not been adopted as a regulation pursuant to the federal Administrative Procedure Act (unlike the 14 CFR Part 77 regulations).	assurances they must comply with FAA's determination, through its analysis of the approach surfaces in use February 2012 that 104 ³ trees are penetrating the critical approach surfaces.		
Page 2	The tree removal program has been described by FAA as “loosely based on our regulations part 77 and TERPS, which really don’t have a lot of teeth.” ³ Since the Bowman Field Safety Program does not address existing human-made structures off airport property that are TERPS and/or Part 77 obstacles, the DEA should explain why only valuable trees on private lands and public park land were targeted for application of the TERPS guidance.	Based on surveys of the approach surfaces, no structures are penetrating these surfaces at this time.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 2	The definition and scope of the FAA's “action” and “undertaking” that have triggered review under NEPA and Section 106 of the National Historic Preservation Act, respectively, have been impermissibly segmented.	The FAA has determined, through its analysis of the approach surfaces in use February 2012, that these 104 ⁴ trees are the only remaining objects penetrating the critical approach surfaces. The Airport is obligated through their grant assurance to maintain safe approaches. The FAA through TERPS guidance and policies implements safe operating, enforces safe departure and landing policies at the Airport. In this case the FAA has determined the three approach surfaces (20:1 Visual Area Surface; the Obstruction Clearance Surface for Visual Approach Slope Indicator; and/or the Glidepath Qualification Surface) make up Bowman Fields critical approach surface to Bowman Field. The proposed project identifies and addresses penetrations and safety concerns to these approach surfaces.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 3	Because of the FAA's approval and funding involvement in the Airport Layout Plan and connected Bowman Field Safety Program, the plan must be addressed in the NEPA documentation.	The Airport is required to have an Airport Layout Plan (ALP), which serves as a planning tool that depicts both existing and future development on and around the Airport. Federally obligated airports must accomplish improvements in accordance with the ALP. Environmental documents completed under the National Environmental Policy Act (NEPA), review projects that are depicted on the ALP and have immediate utility. Environmental documents cannot review all developments depicted on the ALP. Since once approved, Environmental Assessments are only valid for approximately 5-years.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time. Projects within the current ALP and not reviewed in this document have independent utility and will be assessed when their implementation is needed. Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the lighted poles be assessed annually to ensure the adjacent trees have not grown beyond the poles height.
Page 3	Further, because the program involves both	LRAA acknowledges this comment and assumes since no question or	No change to the Environmental Assessment.	No change to the Environmental Assessment.

⁴ Due to the length of the proposed project and the dynamic nature of the project area (tree growth and individual property owner preferences) trees have come in and out of the program.

	federal approval and funding, the LRAA cannot legitimately “de-federalize” the Bowman Field Safety Program by using non-federal funds for the avigation easements and remaining tree removals and trimming in an attempt to short circuit required federal reviews and public involvement.	direction was requested that it be documented as such.		
Page 3	By omitting any discussion of the 2012 Airport Layout Plan (ALP) and its 10-year planning horizon, the LRAA attempts to confine the NEPA (and Section 106) review to “current” conditions	The Airport Layout Plan, approved by the LRAA Board in February 2012 has no projects identified that alter the existing runway geometry or capacity. Environmental Assessments are only valid for 5 years, they do not have the capacity to review and assess the “10-year planning horizon” of an ALP.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time. Projects within the current ALP and not reviewed in this document have independent utility and will be assessed when their implementation is needed. Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the lighted poles be assessed annually to ensure the adjacent trees have not grown beyond the poles height.
Page 3	Failing to include the ALP in the DEA omits impacts from full disclosure and public involvement associated with the following:	The Airport is required to have an Airport Layout Plan (ALP), which serves as a planning tool that depicts both existing and future development on and around the Airport. Federally obligated airports must accomplish improvements in accordance with the ALP. Environmental documents completed under the National Environmental Policy Act (NEPA), review projects that are depicted on the ALP and have immediate utility. Environmental documents cannot review all development depicted on the ALP. Since once approved, Environmental Assessments are only valid for approximately 5-years.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time. Projects within the current ALP and not reviewed in this document have independent utility and will be assessed when their implementation is needed. Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the lighted poles be assessed annually to ensure the adjacent trees have not grown beyond the poles height.
Page 3	Change in the Design Critical Aircraft for	Both the Beech King Air 200 (turboprop) and the Cessna Citation II are within	No change to the Environmental Assessment.	No change to the Environmental Assessment.

continued	Runway 6-24 from a Beech King Air 200 (turbojet) (12,500 lbs) to a Cessna Citation II (corporate jet) (15,100 lbs.), with the potential for more noise, air emissions, and other consequences. (Sheet 3.)	<p>the B-II Design Group. The airfield geometry requirements are the same for both aircraft.</p> <p>The project will not change the Airport's critical aircraft nor will it change the type and amount of aircraft currently utilizing the airfield. Currently jet type aircraft (fixed wing aircraft propelled by a turbifan engine) utilize the Airport and their operational numbers are based on the economic and business environments of the City of Louisville, not by the current Airport's operational abilities. This project does not include the reconfiguration or alteration of the airfield pavements to allow use by any other group or classification of airplane. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. As stated in the Purpose and Need, the project is to ensure the runways and approaches are in compliance with FAR and TERPS design standards and to maintain current runway lengths to serve existing aviation users and to retain existing capacity. This project will simply maintain the 4,357 foot primary runway and the 3,579 foot crosswind runway, thereby preserving the existing airfield geometry and approach procedures in effect in February 2012.</p>		
Page 3 continued	Change in the "Most Demanding Approach Category" for all runways from visual to non-precision instrument. (Sheet 3.) The Airport's 1999 Master Plan states that "it will be difficult to instrument any runway at Bowman because of the obstructions and proximity to Louisville International Airport. Instrument approach procedures for the two airports will impact each other."7 What are the current implications of instrument approaches to Bowman in light of this statement 18 years ago? What are the impacts?	The Draft Environmental Assessment addresses the maintenance of non-precision approaches to Runways 33 and 24 and visual approaches to Runways 6 and 15. The LRAA has not requested the FAA implement non-precision approaches to runway ends 6 and 15.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 3 continued	"Aviation development" planned in the northwest corner of the airport. Non-aviation development is identified along a substantial portion of Dutchman's Lane, as is a "Future Redevelopment Area" along Dutchman's Lane.	That project is not within the scope of the Draft Environmental Assessment. The two projects have independent utility.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 3 continued	A new full length parallel taxiway to Runway 15-33 (Sheet 3), and a future Taxiway "K." (Sheet 13.) What existing deficiencies exist that require these improvements?	That project is not within the scope of the Draft Environmental Assessment. The two projects have independent utility.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 4	Even if the FAA determines that the ALP and Bowman Field are not connected actions, implementation of the approved 2012 ALP must be addressed in a cumulative impacts analysis.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	<p>4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term "future actions", for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time.</p>	<p>4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term "future actions", for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire aviation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time. Projects within the current ALP and not reviewed in this document have independent utility and will be</p>

				<p>assessed when their implementation is needed.</p> <p>Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the lighted poles be assessed annually to ensure the adjacent trees have not grown beyond the poles height..</p>
Page 4	The proposed tree removal to implement the LRAA's Preferred Alternative 1 only addresses the TERPS approach surface (20:1 slope), not the TERPS departure surface (40:1 slope) or the Part 77 regulations.	Bowman Field's grant assurance require the maintenance of their approach surfaces, while their departure surfaces have independent utility and are not included. The FAA identified the critical approach surfaces as having the greatest need for penetration removal. FAA identified penetrations within these approach surfaces. The departure surfaces are not part of this project.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 4	The Bowman Field Safety Program Does Not Address TERPS Departure Guidance or the Part 77 Regulations	Bowman Field's grant assurance require the maintenance of their approach surfaces, while their departure surfaces have independent utility and are not included. The FAA identified the critical approach surfaces as having the greatest need for penetration removal. The FAA identified penetrations within these approach surfaces. The departure surfaces are not part of this project.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 4	What assurance does the community have that the FAA will not change its mind again and enforce the departure surface depicted in the 2012 ALP, which would substantially increase the area of affected neighborhoods, Seneca Park, and tree removals? At minimum, such expansion needs to be included in a cumulative impacts analysis in the DEA.	Bowman Field's grant assurance require the maintenance of their approach surfaces, while their departure surfaces have independent utility and are not included. The FAA identified the critical approach surfaces as having the greatest need for penetration removal. FAA identified penetrations within these approach surfaces. The departure surfaces are not part of this project.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 4	In order for the public to understand the alternatives to and consequences of the tree removal program (Alternative 1), there needs to be a clear presentation of what problems are caused by trees penetrating the approach airspace.	The FAA Flight Technologies & Procedures Division Flight Procedures Standards Branch is responsible for establishing approach procedure design and obstacle clearance standards, criteria and policy for the National Airspace System. This branch of the FAA has determined that these 104 ⁵ trees represent a safety hazard and must be trimmed or lighted. Once the Airport identifies objects as being penetrations the Airport is obligated through FAA's federal grant assurances to be address these penetrations.	<p>1.3 Background</p> <p>Bowman Field provides vital general aviation access to Jefferson and the surrounding Counties. The 325 based aircraft and numerous itinerant aircraft generate an estimated 80,000 annual aircraft operations. The operations include military, Fortune 500 companies and all other categories of general aviation. Support of these operations includes two FBO (Fixed Based Operators) and multiple on airport businesses. Bowman Field, the birthplace of aviation in Louisville, serves as a reliever airport for Louisville International. With smaller, lighter aircraft operating at Bowman Field, the larger, heavier aircraft may operate more aircraft per hour, and operate more efficiently at Louisville International Airport. As a general aviation airfield, Bowman Field offers services such as flight instruction; aircraft leases; charters and sales; aircraft cleaning and refueling; and aircraft repair and maintenance. Bowman Field is classified by the FAA as a <i>Regional Airport</i> in the General Aviation Airport Asset Report.</p>	<p>1.3 Background</p> <p>Bowman Field provides vital general aviation access to Jefferson and the surrounding Counties. The 325 based aircraft and numerous itinerant aircraft generate an estimated 80,000 annual aircraft operations. The operations include military, Fortune 500 companies and all other categories of general aviation. Support of these operations includes two FBO (Fixed Based Operators) and multiple on airport businesses. Bowman Field, the birthplace of aviation in Louisville, serves as a reliever airport for Louisville International. With smaller, lighter aircraft operating at Bowman Field, the larger, heavier aircraft may operate more aircraft per hour, and operate more efficiently at Louisville International Airport. As a general aviation airfield, Bowman Field offers services such as flight instruction; aircraft leases; charters and sales; aircraft cleaning and refueling; and aircraft repair and maintenance. Bowman Field is classified by the FAA as a <i>Regional Airport</i> in the General Aviation Airport Asset Report.</p> <p>The FAA has determined, through its analysis of the approach surfaces in use as of February 2012 that objects (trees) penetrate the critical approach surfaces. Since the identification of these penetrations in 2012, Bowman Field has experienced a reduction in operational capacity. Due to their operational hours, the Airport currently has nighttime landings on all runway ends, when weather permits.</p>

⁵ Due to the length of the proposed project and the dynamic nature of the project area (tree growth and individual property owner preferences) trees have come in and out of the program.

				Currently, if instrument weather conditions require Instrument Flight Rules (IFR), the aircraft will only land on Runway End 24. Nighttime IFR approaches, including circling to land approaches, to the other runways have been temporarily suspended by the FAA due to these penetrations. Nighttime operation begins 30 minutes after sunset, which changes seasonally. During the months of November, December and January for example, nighttime operations begin around 6 pm, a prime time for business travel. Only a small percentage of the Airport's operations occur after 10 pm. The proposed project will re-establish the nighttime Instrument Approach Procedures and therefore restore the Airport to conditions present in 2012.
Page 5	To say, as the DEA does, that a resource or utility/function will be "re-established" or "restored" but also "expanded" under the LRAA's Preferred Alternative 1 implies to a lay reader that there is a change from the current (2016) status quo. What exactly is the current "problem"?	The FAA has determined, through its analysis of the approach surfaces in use as of February 2012 that objects (trees) penetrate the critical approach surfaces. Since the identification of these penetrations in 2012, Bowman Field has experienced a reduction in operational capacity. Due to their operational hours, the Airport currently has nighttime landings on all runway ends, when weather permits. Currently, if instrument weather conditions require Instrument Flight Rules (IFR), the aircraft will only land on Runway End 24. Nighttime IFR approaches, including circling to land approaches, to the other runways have been temporarily suspended by the FAA due to these penetrations. Nighttime operation begins 30 minutes after sunset, which changes seasonally. During the months of November, December and January for example, nighttime operations begin around 6 pm, a prime time for business travel. Only a small percentage of the Airport's operations occur after 10 pm. The proposed project will re-establish the nighttime Instrument Approach Procedures and therefore restore the Airport to conditions present in 2012.	1.3 Background Bowman Field provides vital general aviation access to Jefferson and the surrounding Counties. The 325 based aircraft and numerous itinerant aircraft generate an estimated 80,000 annual aircraft operations. The operations include military, Fortune 500 companies and all other categories of general aviation. Support of these operations includes two FBO (Fixed Based Operators) and multiple on airport businesses. Bowman Field, the birthplace of aviation in Louisville, serves as a reliever airport for Louisville International. With smaller, lighter aircraft operating at Bowman Field, the larger, heavier aircraft may operate more aircraft per hour, and operate more efficiently at Louisville International Airport. As a general aviation airfield, Bowman Field offers services such as flight instruction; aircraft leases; charters and sales; aircraft cleaning and refueling; and aircraft repair and maintenance. Bowman Field is classified by the FAA as a <i>Regional Airport</i> in the General Aviation Airport Asset Report.	1.3 Background Bowman Field provides vital general aviation access to Jefferson and the surrounding Counties. The 325 based aircraft and numerous itinerant aircraft generate an estimated 80,000 annual aircraft operations. The operations include military, Fortune 500 companies and all other categories of general aviation. Support of these operations includes two FBO (Fixed Based Operators) and multiple on airport businesses. Bowman Field, the birthplace of aviation in Louisville, serves as a reliever airport for Louisville International. With smaller, lighter aircraft operating at Bowman Field, the larger, heavier aircraft may operate more aircraft per hour, and operate more efficiently at Louisville International Airport. As a general aviation airfield, Bowman Field offers services such as flight instruction; aircraft leases; charters and sales; aircraft cleaning and refueling; and aircraft repair and maintenance. Bowman Field is classified by the FAA as a <i>Regional Airport</i> in the General Aviation Airport Asset Report. <p>The FAA has determined, through its analysis of the approach surfaces in use as of February 2012 that objects (trees) penetrate the critical approach surfaces. Since the identification of these penetrations in 2012, Bowman Field has experienced a reduction in operational capacity. Due to their operational hours, the Airport currently has nighttime landings on all runway ends, when weather permits. Currently, if instrument weather conditions require Instrument Flight Rules (IFR), the aircraft will only land on Runway End 24. Nighttime IFR approaches, including circling to land approaches, to the other runways have been temporarily suspended by the FAA due to these penetrations. Nighttime operation begins 30 minutes after sunset, which changes seasonally. During the months of November, December and January for example, nighttime operations begin around 6 pm, a prime time for business travel. Only a small percentage of the Airport's operations occur after 10 pm. The proposed project will re-establish the nighttime Instrument Approach Procedures and therefore restore the Airport to conditions present in 2012.</p>
Page 5	Even if the only change to current airport operations from tree removals is to allow jets to fly in at night under IFR, this scenario would be an increase at night when compared to the past four years ("baseline" of 2012).	The trimming of the 104 ⁶ trees will enable the FAA to reinstate the Nighttime IFR Approach Procedures for Runways 6, 15 and 33 that were in effect in February 2012. These instrument approach procedures are not specific to turbojet aircraft, the procedures are available to ALL properly equipped aircraft and qualified pilots. Due to their operational hours, the Airport currently has nighttime landings on all runway ends, when weather permits. Currently, if instrument weather conditions require Instrument Flight Rules (IFR), the aircraft will land on Runway End 24. Nighttime operation begins 30 minutes	No change to the Environmental Assessment.	No change to the Environmental Assessment.

⁶ Due to the length of the proposed project and the dynamic nature of the project area (tree growth and individual property owner preferences) trees have come in and out of the program.

		after sunset, which changes seasonally. During the months of November, December and January for example, nighttime operations begin around 6 pm, a prime time for business travel. Only a small percentage of the Airport's operations occur after 10 pm. The current purposed project will restore the Airport to conditions present in 2012.		
Page 5	If the LRAA claims that restoring night operations, which are not quantified in the DEA, will not cause an overall increase in turbojet or turboprop use, does this mean that the absolute numbers will not increase (i.e., these aircraft have just shifted their use to the day over the past four years and the same flights will now shift to night)? If so, what evidence is there to support this claim?	Since the identification of these penetrations in 2012, Bowman Field's has had a reduction in operational capacity. The trimming of the 104 ⁷ trees will enable the FAA to reinstate the Nighttime IFR Approach Procedures for Runways 6, 15 and 33 that were in effect in February 2012. These instrument approach procedures are not specific to turbojet aircraft, the procedures are available to ALL properly equipped aircraft and qualified pilots. Due to their operational hours, the Airport currently has nighttime landings on all runway ends, when weather permits. Currently, if instrument weather conditions require Instrument Flight Rules (IFR), the aircraft will land on Runway End 24. Nighttime operation begins 30 minutes after sunset, which changes seasonally. During the months of November, December and January for example, nighttime operations begin around 6 pm, a prime time for business travel. Only a small percentage of the Airport's operations occur after 10 pm. The current purposed project will restore the Airport to conditions present in 2012.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 6	The other source of confusion in the DEA relates to the No Action Alternative (not cutting the trees), which would "eliminate" turboprops and turbojets at Bowman Field because the landing segments of Runways 6, 15, 24, and 33 would be "required" to be shortened. (p. 12.) Yet, these runways have operated for years with trees (and human-built structures) penetrating multiple airspace surfaces. If the "condition" of FAA's approval of the 2012 ALP is the loss of grandfathering because of the obstructed airspace under TERPS guidance, then clearly the Bowman Field Safety Program would not happen but for the FAA's approval, and both need to be addressed in the DEA.	Failure to address the existing penetrations of the critical approach surfaces will lead to the FAA compelling the airport to relocate the landing thresholds to achieve clear approaches, which would eliminate operations by the current critical aircraft group. Currently the Airport has the appropriate Runway length to accommodate the critical aircraft group. Relocation of the runway thresholds is not an alternative that is consistent with the Purpose and Need. The LRAA is obligated by its Grant Assurances to take appropriate action to ensure that terminal airspace, in this case approach surfaces, will be adequately cleared and protected. The LRAA has been trimming or removing trees from airport approaches for the safety of pilots and neighbors for many years. Most recently, for example, in 1987 (25); 1991 (63); 1997 (47); and, 2005 (36) trees were trimmed and or removed in the runway 6 approach surface.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 7	Since the LRAA's own document acknowledged the potential suitability of the other regional airport, why isn't this option evaluated in the DEA?	The LRAA's Purpose and Need states the project's goal is to provide a safe, efficient, viable and usable airfield at Bowman Field. Utilizing other airfields would not maintain the existing geometry or maintain existing facilities at Bowman Field.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 7	Implementation of the LRAA's Preferred Alternative 1 for Only Runway 6-24. "Avoidance" of this part of the proposed action would mitigate some of the adverse effects of the Bowman Field Safety Program.	LRAA acknowledges this comment and assumes since no question or direction was requested that it be documented as such.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 7	Chapter 2 fails to identify the option of enactment of an Airport Zoning Overlay District in lieu of the LRAA's piecemeal acquisition of aviation easements in order to influence airspace use and surrounding land uses. These zoning districts are authorized by state law, and are in place in Kentucky and jurisdictions throughout the U.S.	Based on the scope of the project the FAA, accepted and approved the current alternatives analysis as being adequate in the existing document.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 7	With respect to Alternative 2 (lighting), the DEA	A response has been provided to this comment. Text changes have been	2.2.2 Alternatives Identified, Section 2.2.2.3: This alternative,	2.2.2 Alternatives Identified, Section 2.2.2.3: This alternative,

⁷ Due to the length of the proposed project and the dynamic nature of the project area (tree growth and individual property owner preferences) trees have come in and out of the program.

	claims that 115 lights would be needed for obstructions in airspace for all four runways. (p. 13.) How could this be the case since the DEA claims that there are 104 trees that require removal? The study also states that trees can be grouped for lighting purposes within a 40-ft. light radius. How many lights would be needed for the 104 trees using this distance criterion since many of the trees or their canopies appear to be co-located?	made to the Draft Environmental Assessment.	depicted on Exhibit 5 – Alternative 2 in Appendix A proposes lighting trees that have become obstructions to Runways 06, 15, 24 and 33. This alternative would require trees that have been identified as penetrating or within ten feet of the approach surface have a lighted pole installed adjacent to the tree. Since these trees are located on non-airport property, both an avigation easement and permanent utility easement would be required to allow the FAA to install and maintain each light. The installation of the lights would require additional utility considerations including overhead power lines integrated into the existing power grid. The new overhead power lines would likely require tree trimming or removal/replacement to ensure branches do not interfere or cause damage to the new and existing power lines. As the obstructions (trees) grow, the lighted poles will need to be replaced or modified to ensure the pole height properly designates the current elevation of the obstruction. The lighted poles placed adjacent to these obstructions would belong to the FAA and they would be entirely responsible for their operations and maintenance. Based on FAA lighting regulations, obstructions within a 40-ft light radius may be clustered together to minimize the number of permanent lights that may be required. Using this methodology, approximately 115 lights, for all four runway ends, will be needed to properly light trees that have or will become obstructions. A survey of the obstructions would likely occur annually to ensure obstructions have not grown beyond the lighted standards. Since these poles are the property of the FAA they are subject to FAA's Advisory Circulars (AC), as well as national electrical and fire, installation and safety codes and standards. Below is a list of applicable ACs, codes, standards and references that may apply to design and construction of an obstruction lighting system.	depicted on Exhibit 5 – Alternative 2 in Appendix A proposes lighting trees that have become obstructions to Runways 06, 15, 24 and 33. This alternative would require trees that have been identified as penetrating or within ten feet of the approach surface have a lighted pole installed adjacent to the tree. Since these trees are located on non-airport property, both an avigation easement and permanent utility easement would be required to allow the FAA to install and maintain each light. The installation of the lights would require additional utility considerations including overhead power lines integrated into the existing power grid. The new overhead power lines would likely require tree trimming or removal/replacement to ensure branches do not interfere or cause damage to the new and existing power lines. As the obstructions (trees) grow, the lighted poles will need to be replaced or modified to ensure the pole height properly designates the current elevation of the obstruction. The lighted poles placed adjacent to these obstructions would belong to the FAA and they would be entirely responsible for their operations and maintenance. Based on FAA lighting regulations, obstructions within a 40-ft light radius may be clustered together to minimize the number of permanent lights that may be required. Using this methodology, approximately 81 lights required to meet FAA lighting standards , for all four runway ends, will be needed to properly light trees that have or will become obstructions. A survey of the obstructions would likely occur annually to ensure obstructions have not grown beyond the lighted standards. Since these poles are the property of the FAA they are subject to FAA's Advisory Circulars (AC), as well as national electrical and fire, installation and safety codes and standards. Below is a list of applicable ACs, codes, standards and references that may apply to design and construction of an obstruction lighting system.
Page 8	The geographical area of review regarding the existing environment is completely undefined - the full project area needs to be depicted	The geographical area in which the Airport is located is defined in Section 3.2 Airport and Project Location.	3.2 Airport and Project Location: Bowman Field is located within the city limits of Louisville within Jefferson County in the north central part of Kentucky. It is bordered on the northeast by the Ohio River and Oldham County, on the east by Shelby County, on the south and southeast by Spencer and Bullitt Counties, and on the west and northwest by the Ohio River. As of 2010, Jefferson County is approximately 380 square miles with approximately 1,948.1 people per square mile. The population of Louisville, which is also the county seat, is approximately 756,832 (2013). Louisville is located within the northern edge of the Bluegrass Region of Kentucky, where a large portion of the state's population is centered. The city of Louisville is situated along the southern edge of the Ohio River at the Falls of Ohio, which has had a historical benefit to Louisville as a port. Bowman Field is located in eastern Louisville and is surrounded by several golf courses and neighborhood communities that include; Big Spring Country Club, Seneca Golf Course, Seneca Gardens, Strathmoor Village, Kingsley, Wellington, Meadowview Estates and Broad Fields. Exhibit 3 Airport Vicinity Map	3.2 Airport and Project Location: Bowman Field is located within the city limits of Louisville within Jefferson County in the north central part of Kentucky. It is bordered on the northeast by the Ohio River and Oldham County, on the east by Shelby County, on the south and southeast by Spencer and Bullitt Counties, and on the west and northwest by the Ohio River. As of 2010, Jefferson County is approximately 380 square miles with approximately 1,948.1 people per square mile. The population of Louisville, which is also the county seat, is approximately 756,832 (2013). Louisville is located within the northern edge of the Bluegrass Region of Kentucky, where a large portion of the state's population is centered. The city of Louisville is situated along the southern edge of the Ohio River at the Falls of Ohio, which has had a historical benefit to Louisville as a port. Bowman Field is located in eastern Louisville and is surrounded by several golf courses and neighborhood communities that include; Big Spring Country Club, Seneca Golf Course, Seneca Vista, McCoy Manor, Seneca Manor, Kingsley, Hathaway, Seneca Village No. 2 and Seneca Village. Exhibit 3 – Airport Vicinity Map: will be updated to include the boundaries of golf courses and neighborhood communities identified.
Page 8	Chapters 3 and 4 Fail to Address "Safety" Even Though the Purpose and Need is Defined as Ensuring "Safe" Operations of Bowman Field - No information is presented whatsoever in the entire DEA regarding pilot and public safety	The Airport is obligated through their grant assurance to maintain safe approaches. The FAA through TERPS guidance and maintenance procedures implements safe operating enforces safe departure and landing policies at the Airport. In this case the FAA has determined the three approach surfaces (20:1 Visual Area Surface; the Obstruction Clearance Surface for Visual Approach Slope Indicator; and/or the Glidepath Qualification Surface) make up Bowman Fields critical approach surface to Bowman Field. The proposed	No change to the Environmental Assessment.	No change to the Environmental Assessment.

		project identifies and addresses penetrations and safety concerns to these approach surfaces.		
Page 9	The DEA should also address the public's safety, particularly the role that the canopy trees provide in sheltering families, businesses, churches, schools, and Seneca Park users from airport operations, and what effect the permanent removal of these trees will have on public safety.	<p>Air Quality: The Federal Aviation Administration (FAA) states that “the FAA had the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts.” If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the proposed airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:</p> <p>a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecasted annually; and</p> <p>b. If it is a general aviation airport and had less than 180,000 operations forecasted annually.</p> <p>The Airport is currently and will remain a general aviation airport. They do not have 180,000 operations forecasted annually and the proposed project will not exceed that threshold. See Chapters 1 and 3 in the DEA. In addition, the U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4, which regulates federal air quality standards, stated based on their review of the document, the proposed project will not represent a significant impact to human health and the environment.</p> <p>Noise: The Federal Aviation Administration's Order 1050.1E, “Environmental Impacts and Procedures” Section 14.1-Analysis of Significant Impacts, Paragraph 14.4a states: “For proposed actions involving a single airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles, the initial analysis may be performed using the FAA's Area Equivalent Method (AEM) computer model. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The project will not change the Airport's critical aircraft nor will it change the type and amount of aircraft currently utilizing the airfield. Currently jet type aircraft (fixed wing aircraft propelled by a jet engine) utilize the Airport and their operational numbers are based on the economic and business environments of the City of Louisville, not by the current Airport's operational abilities. This project does not include the reconfiguration or alteration of the airfield pavements to allow use by any other group or classification of airplane. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. As stated in the Purpose and Need, the project is to ensure the runways and approaches are in compliance with FAR and TERPS design standards and to maintain current runway lengths to serve existing aviation users and to retain existing capacity. This</p>	<p>4.6 Air Quality, Section 4.6.1: Air Quality Standards establish limits for various pollutants in the air. With passage of the Clean Air Act (CAA) in 1970 and amendments thereto, the Federal government began adopting standards for the entire country. Federal Air Quality Standards are divided into two categories. Primary standards were designed to protect against adverse health effects. See Table 4-1 National Air Quality Standards. Secondary standards were designed to protect against adverse welfare effects such as plant and material damage, odor, or reduction in visibility. On November 15, 1990, Congress passed amendments to the CAA to address the problem that many areas across the United States were in violation of the National Ambient Air Quality Standards (NAAQS) for ozone and/or carbon monoxide. These amendments, referred to as the Clean Air Act Amendments of 1990 (CAAA), were aimed at correcting weaknesses in the CAA provisions and tightening up the control requirements for states to develop new air quality designations, state implementation plans, and air quality strategies for those area not meeting the NAAQS. FAA's Order 5050.4B, “National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions” states that “The Federal Aviation Administration has the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts.” If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the projected airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:</p> <p>a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecast annually; and</p> <p>b. If it is a general aviation airport and has less than 180,000 operations forecasted annually.</p> <p>Finally, as stated in FAA's Order 1050.1E, Environmental Impacts: Policies and Procedures; The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors from Federal actions that meet that following criteria.</p> <p>a. Reasonable foreseeable; and</p> <p>b. Can practically be controlled and maintained by the Federal agency through continuing program responsibility.</p> <p>“A conformity determination is not required if the emission caused by the proposed Federal action”...“If the action is listed as exempt or presumed to conform; or if the action is below the emission threshold (de minimis) level.” If the project's emissions are below annual threshold levels (de minimis levels) and are not regionally significant, then the requirements of the general conformity regulation do not apply to the action or program.</p> <p>Kentucky Revised Statues (KRS), which is a set of laws that run in</p>	<p>4.6 Air Quality, Section 4.6.1: Air Quality Standards establish limits for various pollutants in the air. With passage of the Clean Air Act (CAA) in 1970 and amendments thereto, the Federal government began adopting standards for the entire country. Federal Air Quality Standards are divided into two categories. Primary standards were designed to protect against adverse health effects. See Table 4-1 National Air Quality Standards. Secondary standards were designed to protect against adverse welfare effects such as plant and material damage, odor, or reduction in visibility. On November 15, 1990, Congress passed amendments to the CAA to address the problem that many areas across the United States were in violation of the National Ambient Air Quality Standards (NAAQS) for ozone and/or carbon monoxide. These amendments, referred to as the Clean Air Act Amendments of 1990 (CAAA), were aimed at correcting weaknesses in the CAA provisions and tightening up the control requirements for states to develop new air quality designations, state implementation plans, and air quality strategies for those area not meeting the NAAQS. FAA's Order 5050.4B, “National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions” states that “The Federal Aviation Administration has the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts.” If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the projected airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:</p> <p>a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecast annually; and</p> <p>b. If it is a general aviation airport and has less than 180,000 operations forecasted annually.</p> <p>Finally, as stated in FAA's Order 1050.1E, Environmental Impacts: Policies and Procedures; The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors from Federal actions that meet that following criteria.</p> <p>a. Reasonable foreseeable; and</p> <p>b. Can practically be controlled and maintained by the Federal agency through continuing program responsibility.</p> <p>“A conformity determination is not required if the emission caused by the proposed Federal action”...“If the action is listed as exempt or presumed to conform; or if the action is below the emission threshold (de minimis) level.” If the project's emissions are below annual threshold levels (de minimis levels) and are not regionally significant, then the requirements of the general conformity regulation do not apply to the action or program.</p> <p>Kentucky Revised Statues (KRS), which is a set of laws that run in</p>

		<p>project will simply maintain the 4,357 foot primary runway and the 3,579 foot crosswind runway, as well as preserve the existing airfield geometry and approach procedures in effect in February 2012.</p>	<p>accordance with the Kentucky Constitution, details air quality regulations in Title IX - Counties, Cities, And Other Local Units; Chapter 77 Air Pollution Control (KRS Chapter 77). KRS Chapter 77 defines guidelines, law, regulations and enforcement procedures to ensure local and city regulations are in compliance with the State. KRS Chapter 77 also incorporates Federal Air Quality Standards into their regulations and standards. The Airport Pollution Control District of Louisville enforces these regulations and guidelines and works to ensure cleaner air for the residents of Louisville and Jefferson County. The following air quality information/actions will be considered during the construction of either alternative. See Exhibits 2A-2B - Kentucky Department of Environmental Protection Coordination in Appendix C.</p> <ul style="list-style-type: none"> The Kentucky Division for Air Quality Regulations 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precautions to prevent matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area, transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. The Kentucky for Air Quality Regulations 401 KAR 63:005 states that open burning is prohibited. Open burning is defined as the burning of any material in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purpose list in the Kentucky "Open Burning Brochure". The utilization of emission reduction strategies, were applicable. This includes; utilizing alternative fuel equipment, utilizing other emission controls that are applicable to specific equipment and reducing idling time on equipment. <p>Jefferson County is currently in attainment for most pollutants, including sulfur dioxide, carbon monoxide, ozone, lead, PM10 and nitrogen dioxide. However, the county is currently a non-attainment area for PM-2.5, thereby not achieving the national standard for air quality. In addition to PM-2.5, Louisville is listed as being in non-attainment for sulfur dioxide, as well. See Table 4-2 Jefferson County 2014 Air Quality Compliance.</p>	<p>accordance with the Kentucky Constitution, details air quality regulations in Title IX - Counties, Cities, And Other Local Units; Chapter 77 Air Pollution Control (KRS Chapter 77). KRS Chapter 77 defines guidelines, law, regulations and enforcement procedures to ensure local and city regulations are in compliance with the State. KRS Chapter 77 also incorporates Federal Air Quality Standards into their regulations and standards. The Airport Pollution Control District of Louisville enforces these regulations and guidelines and works to ensure cleaner air for the residents of Louisville and Jefferson County. The following air quality information/actions will be considered during the construction of either alternative. See Exhibits 2A-2B - Kentucky Department of Environmental Protection Coordination in Appendix C.</p> <ul style="list-style-type: none"> The Kentucky Division for Air Quality Regulations 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precautions to prevent matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area, transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway. The Kentucky for Air Quality Regulations 401 KAR 63:005 states that open burning is prohibited. Open burning is defined as the burning of any material in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purpose list in the Kentucky "Open Burning Brochure". The utilization of emission reduction strategies, were applicable. This includes; utilizing alternative fuel equipment, utilizing other emission controls that are applicable to specific equipment and reducing idling time on equipment. <p>Jefferson County is currently in attainment for most pollutants, including sulfur dioxide, carbon monoxide, ozone, lead, PM10 and nitrogen dioxide. However, the county is currently a non-attainment area for PM-2.5, thereby not achieving the national standard for air quality. In addition to PM-2.5, Louisville is listed as being in non-attainment for sulfur dioxide, as well. See Table 4-2 Jefferson County 2014 Air Quality Compliance.</p> <p>The U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4, which regulates federal air quality standards, stated based on their review of the document, the proposed project will not represent a significant impact to human health and the environment. See U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.</p>
Page 9	<p>The DEA should also address the human-built structures that have been erected or constructed in navigable airspace without prior permits from the Kentucky Airport Zoning Commission, prior authorization by the FAA under Part 77, or that otherwise penetrate federal or state imaginary surfaces. An explanation should be provided as to why valuable trees must be removed for the sake of "safety," but human-built obstructions that are hazards have not been managed for airspace</p>	<p>No buildings or other objects were found to penetrate the TERPS surfaces. The tree removal program was designed to clear the runway approaches to the conditions required reestablish Instrument Approach Procedures (IAP) to each runway end. IAP's are governed by the United States Standard for Terminal Instrument Procedures (TERPS), and are critical in allowing the safe landing of aircraft during poor weather and visibility conditions. The three-dimensional surfaces defined in TERPS protect those procedures, which become restricted any time an object penetrates those surfaces. When an obstacle is present, regardless of what it is, the Airport must mitigate the obstruction by either removing it, lowering it below the allowable height, or lighting it with red obstruction lights at the peak so it can be identified by</p>	<p>No change to the Environmental Assessment.</p>	<p>No change to the Environmental Assessment.</p>

	protection and protection of people on the ground.	pilots. Lighting of obstacles is a last resort, and generally only considered for buildings or other structures of a permanent nature which may be unfeasible to remove. The only trees that are targeted for mitigation are those which have been identified to penetrate the TERPS surfaces or threaten to in the near future.		
Page 9	<p>Chapters 3 and 4 Fail to Address Avigation Easements: The DEA does not identify the full extent of the rights that will be sought, or the process for acquiring them, including the potential for condemnation. Nor does the DEA describe the cumulative effects of the existing 51 easements held by the LRAA around Bowman Field.</p>	<p>A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.</p>	3.4 Scio-economic Overview	<p>3.4.3 Avigation Easement Acquisition</p> <p>The avigation easement acquisition process will follow guidelines provided by the FAA with appraisals and fair market value provided to land owners effected by the process. The easement acquisition process will include;</p> <ul style="list-style-type: none"> •An initial meeting with the homeowners to explain the program •Appraisals to be completed. •LRAA will review and approve the offer. •Offer, approved by the LRAA, will be personally delivered to the land-owner whenever possible. •Following the executed easement, compensation will be paid to the homeowner and the easement will be filed with Jefferson County Recorder of Deeds. <p>If initial meetings with property owners do not result in acquisition of the easement, the property owner will be notified that condemnation proceedings will be initiated. The project will be completed once all of the easements have been acquired.</p>
Page 9	<p>Even if the LRAA, as project sponsor, does not prefer the No Action Alternative, there are beneficial impacts from not acquiring airspace rights through purchase or condemnation of avigation easements, from not removing hundreds of canopy trees, and from reducing aircraft operations. These benefits must be identified and quantified for the public.</p>	<p>The 'No Action Scenario' is not a feasible option, as that option will result in impacts on the safety of public in the air and on the ground, and/or impacts on aviation grant assurances, resulting in fiscal impacts on the local government. In addition, the No Action Alternative does not address the Draft Environmental Assessments purpose and need.</p>	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 10	<p>The content of the five pages in the “affected” environment in Chapter 3 is cursory and unsupported by data.</p>	<p>A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.</p>	Chapter 3 has been updated	Chapter 3 has been updated
Page 10	<p>It should also be noted that the LRAA does not own the land that comprises the majority of Bowman Field Airport – Metro Government does. Our understanding is that the LRAA owns only the eastern and southeastern portions of the airport in fee.</p>	<p>Regardless of land ownership, impacts on airspace are governed by the FAA under the authority granted by 49 U.S. Code § 40103 (b).</p>	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 10	<p>This section of the DEA needs to address the regional nature of the project location, especially as it relates to the availability of other regional airports proximate to the urban core, such as Clark Regional Airport.</p>	<p>Changes have been made to the Draft Environmental Assessment</p>	<p>4.5 Induced Socio-economic Impacts</p> <p><u>4.5.1 General Discussion</u></p> <p>The implementation of improvement projects of all types may induce social or economic impacts on a community or region. Often times, induced socioeconomic impacts are part of a comprehensive program that begins a sequence of events, which will result in the implementation of a program. The development of a major economic development project may start with a public entity providing the essential public services as an incentive for subsequent private development projects, or the underwriting of land to encourage the development of a particular parcel or other development. For example, enterprise zones or similar tax</p>	<p><u>4.5.1 General Discussion</u></p> <p>The implementation of improvement projects of all types may induce social or economic impacts on a community or region. Often times, induced socioeconomic impacts are part of a comprehensive program that begins a sequence of events, which will result in the implementation of a program. The development of a major economic development project may start with a public entity providing the essential public services as an incentive for subsequent private development projects, or the underwriting of land to encourage the development of a particular</p>

			sheltered projects provide incentives to encourage certain actions or provide inducements for certain decisions, which are designed to strengthen the economic base of the community. Improvements at public sponsored general aviation airports may enable the community to recruit new businesses or retain and/or enlarge existing ones, as part of their efforts to generate new economic development.	parcel or other development. For example, enterprise zones or similar tax sheltered projects provide incentives to encourage certain actions or provide inducements for certain decisions, which are designed to strengthen the economic base of the community. Improvements at public sponsored general aviation airports may enable the community to recruit new businesses or retain and/or enlarge existing ones, as part of their efforts to generate new economic development. Bowman Field is part of the FAA's National Plan of Integrated Airport System (NPIAS). The NPIAS is a comprehensive program for the development of the Nation's airport system. In accordance with the NPIAS, airport facilities should be within 30 minutes (drive time) in all directions of their users. Candidate alternative Airport's should be contained within the Kentucky aviation system. Alternative general aviation airports within Kentucky are greater than 30 minute drive times from the Bowman Field and as such do not adequately serve the needs of the area surrounding the Airport.
Page 11	The DEA fails to evaluate the impact on current ambient noise levels from resumption of night flights by corporate jets and the loss of leafy canopy of hundreds of trees.	The Federal Aviation Administration's Order 1050.1E, "Environmental Impacts and Procedures" Section 14.1-Analysis of Significant Impacts, Paragraph 14.4a states: "For proposed actions involving a single airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles, the initial analysis may be performed using the FAA's Area Equivalent Method (AEM) computer model. The project will not change the Airport's critical aircraft nor will it change the type and amount of aircraft currently utilizing the airfield. Currently jet type aircraft (fixed wing aircraft propelled by a jet engine) utilize the Airport and their operational numbers are based on the economic and business environments of the City of Louisville, not by the current Airport's operational abilities. This project does not include the reconfiguration or alteration of the airfield pavements to allow use by any other group or classification of airplane. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. As stated in the Purpose and Need, the project is to ensure the runways and approaches are in compliance with FAR and TERPS design standards and to maintain current runway lengths to serve existing aviation users and to retain existing capacity. This project will simply maintain the 4,357 foot primary runway and the 3,579 foot crosswind runway, as well as preserve the existing airfield geometry and approach procedures in effect in February 2012.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 11	An explanation of land use should include a basic map that identifies existing land uses at and around the airport. The 2012 ALP has such a map—Sheet 13—that includes existing land uses and proposed changes in land use at the Airport. Why would the DEA omit a readily available map such as the one in the approved ALP?	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	3.3 Land Use and Zoning, Section 3.3.2: Kentucky has created a Land Development Code (LDC) which is a regulatory document that guides implementation of goals and objectives when creating a Comprehensive Land Use Plan. In Kentucky, first through fourth class cities have their own zoning authority. These cities are allowed to choose which versions or sections of the LDC that best serves their goals and objectives. Jefferson County has 12 cities that meet these criteria, including Louisville-Metro. Jefferson County used these guidelines to create the Cornerstone 2020 Comprehensive Plan for the 12 cities that qualify as first through fourth class in Jefferson County. Based on the guidelines presences in the	Zoning Map will be added to Appendix a 3.3 Land Use and Zoning, Section 3.3.2: Kentucky has utilized a Land Development Code (LDC), developed for the needs of Kentucky. "The LDC is a regulatory document that guides implementation of goals and objectives when creating a Comprehensive Land Use Plan." ⁸ In Kentucky, first through fourth class cities have their own zoning authority. These cities are allowed to choose which versions or sections of the LDC that best serves their goals and objectives. ⁹ Jefferson County has 12 cities that meet these criteria, including Louisville-Metro. Jefferson County used these guidelines to create the Cornerstone 2020

⁸ <https://louisvilleky.gov/government/planning-design/land-development-code>

⁹ <http://www.louisvilleky.gov/PlanningDesign/Ldc/>

			<p>Cornerstone 2020 Comprehensive Plan, parcels are categorized into “Zoning Districts” and further defined in “Form” districts. These two districts are used in conjunction with each other and used to ensure compatibility and uniform patterns of development within existing and emerging development. The largest zoning districts adjacent to the Airport are residential, business/office and commercial, which are within the Form Districts neighborhood and work.</p>	<p>Comprehensive Plan for the 12 cities that qualify as first through fourth class in Jefferson County. Cornerstone 2020 provides guidance on the specific zoning and land uses within each LDC type. Based on the guidelines presences in the Cornerstone 2020 Comprehensive Plan, parcels are categorized into “Zoning Districts” and further defined in “Form” districts. These two districts are used in conjunction with each other and used to ensure compatibility and uniform patterns of development within existing and emerging development. The largest zoning districts adjacent to the Airport are residential, business/office and commercial, which are within the Form Districts neighborhood and work. 10,11,12 The Airport and the property surrounding the Airport is designated as SW and N, respectively, which are within Suburban Form Districts. The SW designation of the Airport is further broken down into Suburban Workplace Form Districts (SWDF). The SWDF is defined in the LDC as “area designed to reserve land for large-scale industrial and employment uses in suburban locations. District standards are designed to ensure compatibility with adjacent form districts, to buffer heavy industrial uses from potentially incompatible uses, to ensure adequate access for employees, freight, and products, to provide services and amenities for employees, and to improve transit service. The SWDF standards do not address permitted land uses and density or intensity of development. These aspects of land use planning are more appropriately addressed through zoning district regulations or regulatory goals, and objectives and policies of the Comprehensive Plan”. The areas surrounding the Airport area designated as Neighborhood Form District (NFD). The NFD is defined in the LDC as “areas design standards are intended to promote development and redevelopment that is compatible with and enhances the unique site and community design elements of a neighborhood. NFD design standards are also intended to promote the establishment of activity centers at appropriate locations as established in Guidelines 1 and 2 of the Comprehensive Plan. Activity centers should effectively integrate a mix of retail, institutional, and other non-residential uses within neighborhoods in a manner that provides convenient service to residents while protecting the character of the neighborhood”. 13,14 The sponsor will ensure these designations and land use intents are considered throughout the document. See Exhibit 3 – Louisville Zoning Map in Appendix A.</p>
Page 12	<p>Response to “3.3.2 Zoning”: “Kentucky” has not “created a Land Development Code,” as this section states. Please revise this section to correctly explain the roles and functions of the Metro Louisville Land Development Code and the Metro Louisville comprehensive plan, titled Cornerstone 2020 Comprehensive Plan (hereafter “Cornerstone 2020”). A map should be provided depicting the current zoning designations in the project study area, and include all land and facilities that are in governmental ownership.</p>	<p>A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.</p>	<p>3.3 Land Use and Zoning, Section 3.3.2: Kentucky has created a Land Development Code (LDC) which is a regulatory document that guides implementation of goals and objectives when creating a Comprehensive Land Use Plan. In Kentucky, first through fourth class cities have their own zoning authority. These cities are allowed to choose which versions or sections of the LDC that best serves their goals and objectives. Jefferson County has 12 cities that meet these criteria, including Louisville-Metro. Jefferson County used these guidelines to create the Cornerstone 2020 Comprehensive Plan for the 12 cities that qualify as first through fourth class in Jefferson County. Based on the guidelines presences in the Cornerstone 2020 Comprehensive Plan, parcels are categorized into “Zoning Districts” and further defined in “Form” districts. These two districts</p>	<p>3.3 Land Use and Zoning, Section 3.3.2: Kentucky has created utilized a Land Development Code (LDC), developed for the needs of the municipalities within the state. “The LDC is a regulatory document that guides implementation of goals and objectives when creating a Comprehensive Land Use Plan.”¹⁵ In Kentucky, first through fourth class cities have their own zoning authority. These cities are allowed to choose which versions or sections of the LDC that best serves their goals and objectives.¹⁶ Jefferson County has 12 cities that meet these criteria, including Louisville-Metro. Jefferson County used these guidelines to create the Cornerstone 2020 Comprehensive Plan for the 12 cities that qualify as first through fourth class in Jefferson County. Cornerstone 2020 provides guidance on the specific zoning and land uses within each</p>

¹⁰ <http://louisvilleky.gov/government/planning-design/cornerstone-2020>

¹¹ <http://ags2.lojic.org/lojiconline/>

¹² http://louisvilleky.gov/sites/default/files/planning_design/general/hmlss_zoningbasicspresentations.pdf

¹³ <http://apps.lojic.org/lojiconline/>

¹⁴ https://louisvilleky.gov/sites/default/files/planning_design/land_development_code/ldc_final_2016-07-08.pdf

¹⁵ <https://louisvilleky.gov/government/planning-design/land-development-code>

¹⁶ <http://www.louisvilleky.gov/PlanningDesign/Ldc/>

			are used in conjunction with each other and used to ensure compatibility and uniform patterns of development within existing and emerging development. The largest zoning districts adjacent to the Airport are residential, business/office and commercial, which are within the Form Districts neighborhood and work.	LDC type. Based on the guidelines presences in the Cornerstone 2020 Comprehensive Plan, parcels are categorized into “Zoning Districts” and further defined in “Form” districts. These two districts are used in conjunction with each other and used to ensure compatibility and uniform patterns of development within existing and emerging development. The largest zoning districts adjacent to the Airport are residential, business/office and commercial, which are within the Form Districts neighborhood and work. 17,18,19 The Airport and the property surrounding the Airport is designated as SW and N, respectively, which are within Suburban Form Districts. The SW designation of the Airport is further broken down into Suburban Workplace Form Districts (SWDF). The SWFD is defined in the LDC as “area designed to reserve land for large-scale industrial and employment uses in suburban locations. District standards are designed to ensure compatibility with adjacent form districts, to buffer heavy industrial uses from potentially incompatible uses, to ensure adequate access for employees, freight, and products, to provide services and amenities for employees, and to improve transit service. The SWFD standards do not address permitted land uses and density or intensity of development. These aspects of land use planning are more appropriately addressed through zoning district regulations or regulatory goals, and objectives and policies of the Comprehensive Plan”. The areas surrounding the Airport are designated as Neighborhood Form District (NFD). The NFD is defined in the LDC as “areas design standards are intended to promote development and redevelopment that is compatible with and enhances the unique site and community design elements of a neighborhood. NFD design standards are also intended to promote the establishment of activity centers at appropriate locations as established in Guidelines 1 and 2 of the Comprehensive Plan. Activity centers should effectively integrate a mix of retail, institutional, and other non-residential uses within neighborhoods in a manner that provides convenient service to residents while protecting the character of the neighborhood”. 20,21 The sponsor will ensure these designations and land use intents are considered throughout the document. See Exhibit 3 – Louisville Zoning Map in Appendix A.
Page 12	There is no discussion about the current land-use zoning status of Bowman Field. What is the zoning designation and what requirements and limitations are associated with the zoning classification?	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	3.3 Land Use and Zoning, Section 3.3.2: Kentucky has created a Land Development Code (LDC) which is a regulatory document that guides implementation of goals and objectives when creating a Comprehensive Land Use Plan. In Kentucky, first through fourth class cities have their own zoning authority. These cities are allowed to choose which versions or sections of the LDC that best serves their goals and objectives. Jefferson County has 12 cities that meet these criteria, including Louisville-Metro. Jefferson County used these guidelines to create the Cornerstone 2020 Comprehensive Plan for the 12 cities that qualify as first through fourth class in Jefferson County. Based on the guidelines presences in the Cornerstone 2020 Comprehensive Plan, parcels are categorized into “Zoning Districts” and further defined in “Form” districts. These two districts are used in conjunction with each other and used to ensure compatibility and uniform patterns of development within existing and emerging development. The largest zoning districts adjacent to the Airport are	3.3 Land Use and Zoning, Section 3.3.2: Kentucky has created utilized a Land Development Code (LDC), developed for the needs of the municipalities within the state. “The LDC is a regulatory document that guides implementation of goals and objectives when creating a Comprehensive Land Use Plan.” ²² In Kentucky, first through fourth class cities have their own zoning authority. These cities are allowed to choose which versions or sections of the LDC that best serves their goals and objectives. ²³ Jefferson County has 12 cities that meet these criteria, including Louisville-Metro. Jefferson County used these guidelines to create the Cornerstone 2020 Comprehensive Plan for the 12 cities that qualify as first through fourth class in Jefferson County. Cornerstone 2020 provides guidance on the specific zoning and land uses within each LDC type. Based on the guidelines presences in the Cornerstone 2020 Comprehensive Plan, parcels are categorized into “Zoning Districts” and further defined in “Form” districts. These two districts are used in

¹⁷ <http://louisvilleky.gov/government/planning-design/cornerstone-2020>

¹⁸ <http://ags2.lojic.org/lojiconline/>

¹⁹ http://louisvilleky.gov/sites/default/files/planning_design/general/hmlss_zoningbasicspresentations.pdf

²⁰ <http://apps.lojic.org/lojiconline/>

²¹ https://louisvilleky.gov/sites/default/files/planning_design/land_development_code/ldc_final_2016-07-08.pdf

²² <https://louisvilleky.gov/government/planning-design/land-development-code>

²³ <http://www.louisvilleky.gov/PlanningDesign/Ldc/>

			residential, business/office and commercial, which are within the Form Districts neighborhood and work.	conjunction with each other and used to ensure compatibility and uniform patterns of development within existing and emerging development. The largest zoning districts adjacent to the Airport are residential, business/office and commercial, which are within the Form Districts neighborhood and work. 24,25,26 The Airport and the property surrounding the Airport is designated as SW and N, respectively, which are within Suburban Form Districts. The SW designation of the Airport is further broken down into Suburban Workplace Form Districts (SWDF). The SWFD is defined in the LDC as “area designed to reserve land for large-scale industrial and employment uses in suburban locations. District standards are designed to ensure compatibility with adjacent form districts, to buffer heavy industrial uses from potentially incompatible uses, to ensure adequate access for employees, freight, and products, to provide services and amenities for employees, and to improve transit service. The SWFD standards do not address permitted land uses and density or intensity of development. These aspects of land use planning are more appropriately addressed through zoning district regulations or regulatory goals, and objectives and policies of the Comprehensive Plan”. The areas surrounding the Airport are designated as Neighborhood Form District (NFD). The NFD is defined in the LDC as “areas design standards are intended to promote development and redevelopment that is compatible with and enhances the unique site and community design elements of a neighborhood. NFD design standards are also intended to promote the establishment of activity centers at appropriate locations as established in Guidelines 1 and 2 of the Comprehensive Plan. Activity centers should effectively integrate a mix of retail, institutional, and other non-residential uses within neighborhoods in a manner that provides convenient service to residents while protecting the character of the neighborhood”. 27,28 The sponsor will ensure these designations and land use intents are considered throughout the document. See Exhibit 3 – Louisville Zoning Map in Appendix A.
Page 12-13	The FAA did not conduct scoping with the community to inform preparation of the DEA. Based upon PFTT’s involvement in the community, there are substantial emotional losses felt by community members and homeowners regarding the trees that have been lost, those to be lost, the loss of Living Memorial Grove trees commemorating cancer survivors and those lost to cancer (including loss of setting from other trees being removed), uncertainties associated with what avigation easements mean with respect to individual properties, and night-time operations. If the FAA had attended the June 28, 2016 public hearing, your agency would have heard these losses expressed repeatedly.	<p>The Airport and the FAA appreciate all comments and thoughts submitted during the public comment period. The Airport and the LRAA are aware of their role in the community and understand some individual property owners and those that do not own property in the project area may have emotional ties to trees that will be trimmed or removed. However, for the majority of the property owners with trees that will be affected with the trimming and removal activities, LRAA and the board have committed to a mitigation plan. The LRAA mitigation plan is as follows:</p> <ul style="list-style-type: none"> •If a property owner elects to remove a tree(s) and elects to replace the tree(s), replacement of the removed tree will be at a ratio of 2:1, in a landscaped area the homeowner will be eligible for a re-landscaping allowance of up to \$2,500 over and above the cost of replacement trees. •The LRAA will pay for tree trimming or removal/replacement, stump removal and yard restoration. •If stump removal occurs, the hole will be backfilled and seeded. •All new plants will carry a one-year warranty; replacement trees will carry a two-year warranty. <p>At this time there are no Memorial Trees in the Federal Action. There are 6 trees in Seneca Park along Pee Wee Reese, none are designated Memorial</p>	No change to the Environmental Assessment.	No change to the Environmental Assessment.

²⁴ <http://louisvilleky.gov/government/planning-design/cornerstone-2020>

²⁵ <http://ags2.lojic.org/lojiconline/>

²⁶ http://louisvilleky.gov/sites/default/files/planning_design/general/hmlss_zoningbasicspresentations.pdf

²⁷ <http://apps.lojic.org/lojiconline/>

²⁸ https://louisvilleky.gov/sites/default/files/planning_design/land_development_code/ldc_final_2016-07-08.pdf

		Trees.		
Page 13	Response to “3.4.1 Community Growth”: The text simply regurgitates GLI’s website verbatim (and without even putting the lifted material in quotes). It provides no information, and then makes the non sequitur leap to the Bowman Field “neighborhood communities” without any connection to the proposed action. What is the point of this section?	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	3.4 Socio-Economic Overview, Section 3.4.1: The population of Jefferson County has increased 6.85% from 693,592 in 2000 to 741,096 in 2010. The Greater Louisville Inc., Metro Chamber of Commerce (GLI) is working to increase and support this growth by assisting initiatives that promote diversity, vibrancy and added possibilities to its communities. This includes a focus on education so they can pave the path for economic prosperity by creating a highly educated work force for a knowledge-based economy. This would likely include supporting community initiatives in the neighborhood communities surrounding the Airport.	3.4 Socio-Economic Overview, Section 3.4.1: The population of Jefferson County has increased 6.85% from 693,592 in 2000 to 741,096 in 2010. ²⁹ “The Greater Louisville Inc., Metro Chamber of Commerce (GLI) is working to increase and support this growth by assisting initiatives that promote diversity, vibrancy and added possibilities to its communities. This includes a focus on education so they can pave the path for economic prosperity by creating a highly educated work force for a knowledge-based economy.” ³⁰ The LRAA is a member of the GLI and works with other businesses in the community to promote a positive business and economic environment in Louisville-Jefferson County. Having airports like Bowman Field within Louisville helps the GLI when trying to attract businesses and economic growth to the community. As the population of the Louisville – Jefferson County grows, maintaining economic drivers like the Airport will be critical to successful community and economic growth.
Page 14	Response to “3.5 Inventory of Natural Environment”: There is no “inventory” presented of natural resources in the project study area, and the DEA completely fails to describe and quantify the most affected resources of all and the loss of those resources—the canopy trees, as well as the associated impacts to other natural resources such as understory trees and wildlife.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	3.5 Inventory of Natural Environment, Section 3.5.4: The Commonwealth of Kentucky has many natural resources that are not only vital to Kentucky’s economy but to the economy of the United States. These natural resources include; natural gas, coal, lumber, rock products, and tobacco. In addition to these economic resources, Jefferson County also has several nature preserves with the goal of protection and education about the county and state’s biological resources. The Biotic Resources adjacent to the Airport will be discussed further in Chapter Four, Section Ten – Biotic Communities.	3.5 Inventory of Natural Environment, Section 3.5.4: The Commonwealth of Kentucky has many natural resources that are not only vital to Kentucky’s economy but to the economy of the United States. These natural resources include; natural gas, coal, lumber, rock products, and tobacco. In addition to these economic resources, Jefferson County also has several nature preserves with the goal of protection and education about the county and state’s biological resources. ³¹ The area adjacent to the Airport is primarily an urban landscape, with both neighborhoods and parks. When the Airport was established in 1919 the area surrounding the Airport was an agriculture field, primarily used for potato cultivation. The current landscape was established when development occurred around the Airport and includes trees that have been planted by residents of the neighborhoods and by the park district/golf courses. The Middle Fork of Beargrass Creek runs through the Golf Courses northeast and northwest of the Airport and will not be impacted by the proposed project. It is likely that urban bird and rodent species utilize these trees. However, the number of trees within the project area represents a small percentage of the area’s overall inventory. The Biotic Resources adjacent to the Airport will be discussed in Chapter Four, Section Ten – Biotic Communities.
Page 15	No baseline is presented on existing water quality conditions and no justification is provided to support the assertion that Beargrass Creek will not be affected by the removal of hundreds of trees in this portion of the watershed. As noted above, these trees are located in area of sensitive karst soils, and some are located in the floodplain of the creek. The potential for increased erosion (and increased sediment loading from exacerbated run-off) from the actual removal as well as post- removal is not	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	3.5 Inventory of Natural Environment, Section 3.5.3: Residents and businesses of Jefferson County are supplied water by the Louisville Water Company (LWC). The LWC’s water source is the Ohio River, which runs along the northern edge of Jefferson County. The alluvium along the Ohio River is the best source of ground water in the County. Properly constructed wells can produce enough for a domestic supply at depths of 100 feet. Water from these wells are typically hard to very hard. Other sources of domestic water supplies can be larger creek valleys and on broad ridges within central Jefferson County. This water from central Jefferson County can usually be obtained at depths of 100 feet, but is susceptible to dry weather and dry quickly. The Middle Fork Beargrass	3.5 Inventory of Natural Environment, Section 3.5.3: Residents and businesses of Jefferson County are supplied water by the Louisville Water Company (LWC). The LWC’s water source is the Ohio River, which runs along the northern edge of Jefferson County. The alluvium along the Ohio River is the best source of ground water in the County. Properly constructed wells can produce enough for a domestic supply at depths of 100 feet. Water from these wells are typically hard to very hard. Other sources of domestic water supplies can be larger creek valleys and on broad ridges within central Jefferson County. This water from central Jefferson County can usually be obtained at depths of 100 feet, but is susceptible to dry weather and dry quickly. The Middle Fork

²⁹ <http://censusviewer.com/county/KY/Jefferson>

³⁰ http://www.greaterlouisville.com/Community_Development/

³¹ <http://naturepreserves.ky.gov/naturepreserves/Pages/default.aspx>

	addressed at all.		<p>Creek was the single Water of the United States identified within the project area. This creek receives water from the east and flows west to the Ohio River.</p> <p>3.5 Inventory of Natural Environment, Section 3.5.9: The 100-year floodplain has been documented in the project area, along The Middle Fork of the Beargrass Creek and its tributaries. See Chapter Four, Section Twelve – Floodplains for a discussion of potential environmental concerns. See Exhibit 9 – Floodplain in Appendix A.</p>	<p>Beargrass Creek was the single Water of the United States identified within the project area. This creek receives water from the east and flows west to the Ohio River. Beargrass Creek's watershed (HUC12: 051401010902) encompasses the northeastern and northwestern half of the Airport, which includes Runway End 6, 24, and 15. The trees being removed and/or trimmed within this watershed are only a small portion of the total number of trees within the watershed as a whole. None of the trees within the proposed project are adjacent to Beargrass Creek, which is considered an impaired waterway by the U.S. Environmental Protection Agencies. The cause of Beargrass Creeks impairment is elevated levels of Fecal Coliform, which can come from point and nonpoint sources.</p> <p>3.5 Inventory of Natural Environment, Section 3.5.9: The 100-year floodplain has been documented in the project area, along The Middle Fork of the Beargrass Creek and its tributaries. See Exhibit 9 – Floodplain in Appendix A. The proposed project does include the trimming and/or removal of tree, one is located within the Federal Emergency Management (FEMA) Flood Rate Insurance Map (FIRM) designated floodplain of Beargrass creek. If this tree is removed, efforts will be taken to ensure there is no net loss of floodplain storage. The remainder of the trees are not within a FEMA designated floodplain. Based on its geology, Kentucky prone to sinkholes. There are no identified sinkholes within the project area. There are several Li-DAR derived sinkholes in Big Spring Golf Course, but have not been varied and are not within the project area.³² See Chapter Four, Section Twelve – Floodplains for a discussion of potential environmental concerns.</p>
Page 15	In a study about the proposed permanent loss of hundreds of trees, one would expect the "biotic resource" section to address the affected ecosystem, i.e., the trees, and the wildlife that depend upon the species and habitat functions provided by the trees. The complete omission of any discussion of these resources is indefensible.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	<p>3.5 Inventory of Natural Environment, Section 3.5.4: The Commonwealth of Kentucky has many natural resources that are not only vital to Kentucky's economy but to the economy of the United States. These natural resources include; natural gas, coal, lumber, rock products, and tobacco. In addition to these economic resources, Jefferson County also has several nature preserves with the goal of protection and education about the county and state's biological resources. The Biotic Resources adjacent to the Airport will be discussed further in Chapter Four, Section Ten – Biotic Communities.</p>	<p>3.5 Inventory of Natural Environment, Section 3.5.4: The Commonwealth of Kentucky has many natural resources that are not only vital to Kentucky's economy but to the economy of the United States. These natural resources include; natural gas, coal, lumber, rock products, and tobacco. In addition to these economic resources, Jefferson County also has several nature preserves with the goal of protection and education about the county and state's biological resources.³³ The area adjacent to the Airport is primarily an urban landscape, with both neighborhoods and parks. When the Airport was established in 1919 the area surrounding the Airport was an agriculture field, primarily used for potato cultivation. The current landscape was established when development occurred around the Airport and includes trees that have been planted by residents of the neighborhoods and by the park district/golf courses. The Middle Fork of Beargrass Creek runs through the Golf Courses northeast and northwest of the Airport and will not be impacted by the proposed project. It is likely that urban bird and rodent species utilize these trees. However, the number of trees within the project area represents a small percentage of the area's overall inventory. The Biotic Resources adjacent to the Airport will be discussed in Chapter Four, Section Ten – Biotic Communities.</p>
Page 16	The authors provide no information that is useful to the public's understanding of the living things in the project study area or the Bowman Field Safety Program's consequences on the affected ecosystems and their living components.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	See previous Chapter 3 Changes.	See previous Chapter 3 Changes.

³²<http://kgs.uky.edu/kgsmmap/KGSGeoServer/viewer.asp?wkid=3089&gkarst=true&startLeft=6477996.079423964&startBottom=5025218.136977807&startRight=3336800.8349241316&startTop=2636200.257214725&QueryZoom=Yes>

³³ <http://naturepreserves.ky.gov/naturepreserves/Pages/default.aspx>

Page 17	<p>The DEA (pp. 21 and 38-40) fails to identify the following § 303(c) properties that require evaluation for all historically contributing characteristics, including landscapes: Seneca Park in its entirety, Seneca Vista Historic District, McCoy Manor Historic District, Seneca Manor Historic District (part of the unevaluated City of Seneca Gardens/historic Seneca Gardens), Kingsley Historic District, Seneca Village Historic District, and Seneca Village No. 2 Historic District. Bowman Field Historic District is itself a § 303(c) property. The rationale for identifying Big Spring Country Club as a § 303(c) resource needs to be explained, since it is not clear why the private country club is identified (p. 21).</p>	<p>A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.</p>	<p>3.5 Inventory of Natural Environment, Section 3.5.5: Several Section 4(f)/303(C) or Section 6(f) lands have been documented in the project area. These include Seneca Golf Course and Big Spring Country Club. See Chapter Four, Section Seven – Section 4(f)/303(C) for a discussion of potential environmental concerns.</p> <p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative requires the acquisition of easements to trim or remove/replace trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. Since Seneca Golf Course is publically owned it is subject to regulations under Section 4(f). Although there are trees within the golf course that would be trimmed or removed/replaced, they are a small percentage of the trees and will be replaced where possible. This alternative would not substantially change the existing form or function of the golf course, therefore is unlikely to have a negative impact on Section 4(f) properties. Preliminary correspondence with Louisville Metro Parks has occurred and through the Draft Environmental Assessment review a <i>de minimis</i> impact determination will be pursued. The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON), Pittman-Robertson and Dingell-Johnson Funding. There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.³⁴</p> <p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative proposes acquiring easements and installing a lighted pole adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. This area is a publically owned park and regulated under Section 4(f). Due to FAA regulations, these lights will need to be red and continuously running. , The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON), Pittman-Robertson and Dingell-Johnson Funding. There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.</p>	<p>3.5 Inventory of Natural Environment, Section 3.5.5: Several Section 4(f)/303(C) or Section 6(f) lands have been documented in the project area. These properties include Seneca Golf Course, Bowman Field Historic District and the seven (an additional neighborhood added as part of the Supplement efforts) individual neighborhoods identified within the project area. See Chapter Four, Section Seven – Section 4(f)/303(C) for a discussion of potential environmental concerns.</p> <p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative requires the acquisition of easements to trim or remove/replace trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. Since Seneca Golf Course is publically owned it is subject to regulations under Section 4(f). Although there are trees within the golf course that would be trimmed or removed/replaced, they are a small percentage of the trees and will be replaced where possible. This alternative would not substantially change the existing form or function of the golf course, therefore is unlikely to have a negative impact on Section 4(f) properties. Preliminary correspondence with Louisville Metro Parks has occurred and through the Draft Environmental Assessment review a <i>de minimis</i> impact determination will be pursued. None of the trees proposed for trimming and/or removal are located within the Bowman Field Historic District. The seven individual neighborhoods identified within the project area were recommended eligible and all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on FAA's determination using the National Historic Preservation Act - A Handbook for Integrating NEPA and Section 106³⁵, it does not appear that this alternative will affect key character-defining features that qualify these neighborhoods for listing. In addition, no cultural or historic resources will be impacted by the proposed project.</p> <p>The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON).³⁶ There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.³⁷</p> <p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative proposes acquiring easements and installing a lighted pole adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. This area is a publically owned park and regulated under Section 4(f). Due to FAA regulations, these lights will need to be red and continuously</p>
---------	---	---	---	---

³⁴ <http://parks.ky.gov/maps/default.aspx>
³⁵ http://www.achp.gov/docs/NEPA_NHPA_Section_106_Handbook_Mar2013.pdf
³⁶ https://www.doi.gov/sites/doi.gov/files/migrated/lwcf/upload/LWCF2016BudgetInBrief_031915.pdf
³⁷ <http://parks.ky.gov/maps/default.aspx>

				<p>running.^{38,39} None of the trees proposed for lighting are located within the Bowman Field Historic District. The seven individual neighborhoods identified within the project area were recommended eligible and all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on FAA's determination using the National Historic Preservation Act - A Handbook for Integrating NEPA and Section 106⁴⁰, it does not appear that this alternative will affect key character-defining features that qualify these neighborhoods for listing. In addition, no cultural or historic resources will be impacted by the proposed project.</p> <p>The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON).⁴¹ There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.⁴²</p>
Page 18	The FAA cannot rely upon the DEA as written to meet the substantive and procedural requirements of § 303 of the federal Transportation Act.	LRAA acknowledges this comment and assumes since no question or direction was requested that it be documented as such.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 18	The authors state at p. 38, without citation to the source, that there are no LAWCON- funded § 6(f) land in the project area and that the "closest listed area is Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport." Once the correct status of LAWCON-funded projects is identified, an analysis of § 6(f) can be made. The DEA does not provide FAA complete or accurate information upon which to base a determination.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	<p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative requires the acquisition of easements to trim or remove/replace trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. Since Seneca Golf Course is publically owned it is subject to regulations under Section 4(f). Although there are trees within the golf course that would be trimmed or removed/replaced, they are a small percentage of the trees and will be replaced where possible. This alternative would not substantially change the existing form or function of the golf course, therefore is unlikely to have a negative impact on Section 4(f) properties. Preliminary correspondence with Louisville Metro Parks has occurred and through the Draft Environmental Assessment review a <i>de minimis</i> impact determination will be pursued.</p> <p>The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON), Pittman-Robertson and Dingell-Johnson Funding. There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.⁴³</p> <p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative proposes acquiring easements and installing a lighted pole</p>	<p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative requires the acquisition of easements to trim or remove/replace trees that have become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. Since Seneca Golf Course is publically owned it is subject to regulations under Section 4(f). Although there are trees within the golf course that would be trimmed or removed/replaced, they are a small percentage of the trees and will be replaced where possible. This alternative would not substantially change the existing form or function of the golf course, therefore is unlikely to have a negative impact on Section 4(f) properties. Preliminary correspondence with Louisville Metro Parks has occurred and through the Draft Environmental Assessment review a <i>de minimis</i> impact determination will be pursued. None of the trees proposed for trimming and/or removal are located within the Bowman Field Historic District. The seven individual neighborhoods identified within the project area were recommended eligible and all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on FAA's determination using the National Historic Preservation Act - A Handbook for Integrating NEPA and Section 106, it does not appear that this alternative will affect key character-defining features that qualify these neighborhoods for listing. In addition, no cultural or historic resources will be impacted by the</p>

³⁸ FAA AC 70/7460-1K Part 52

³⁹ FAA AC 70/7460-1K Part 51

⁴⁰ http://www.achp.gov/docs/NEPA_NHPA_Section_106_Handbook_Mar2013.pdf

⁴¹ https://www.doi.gov/sites/doi.gov/files/migrated/lwcf/upload/LWCF2016BudgetInBrief_031915.pdf

⁴² <http://parks.ky.gov/maps/default.aspx>

⁴³ <http://parks.ky.gov/maps/default.aspx>

			<p>adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. This area is a publically owned park and regulated under Section 4(f). Due to FAA regulations, these lights will need to be red and continuously running. ,</p> <p>The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON), Pittman-Robertson and Dingell-Johnson Funding. There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.</p>	<p>proposed project.</p> <p>The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON), Pittman-Robertson. There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.</p> <p>4.8 Department of Transportation Act, Section 4(f) [Recodified at 49 U.S.C., Subtitle 1, §303(c)] and Related Lands Section 4.8.3: This alternative proposes acquiring easements and installing a lighted pole adjacent to trees that have become obstructions to Runways 06, 15, 24 and 33. The easements will be located within neighborhoods and recreational areas surrounding Bowman Field. One of the recreational areas, Seneca Golf Course, is publicly owned by Louisville Metro Parks. This area is a publically owned park and regulated under Section 4(f). Due to FAA regulations, these lights will need to be red and continuously running. None of the trees proposed for lighting are located within the Bowman Field Historic District. The seven individual neighborhoods identified within the project area were recommended eligible all qualify for listing under Criterion A for their historical associations with the suburban development of eastern Louisville and Criterion C as intact architectural representations of early to mid-twentieth century neighborhoods. Based on FAA's determination using the Nation Historic Preservation Act - A Handbook for Integrating NEPA and Section 106 , it does not appear that this alternative will affect key character-defining features that qualify these neighborhoods for listing. In addition, no cultural or historic resources will be impacted by the proposed project.</p> <p>The U.S. Department of Interior (USDOI) publishes a list of those areas that have received Land and Water Conservation Fund (LAWCON), Pittman-Robertson and. There are no such areas located within this alternative's project area. The closest listed area is a Kentucky State Park (E.P. "Tom" Sawyer State Park), approximately 9.5 miles away from the Airport.</p>
Page 19	Plea For The Trees wants to emphasize that the determinations of eligibility must clearly identify that the historical significance of the neighborhoods and Seneca Park is associated with the combination of the built environment and designed landscapes. We, and eight other non-SHPO consulting parties, agree on the need for specific clarity in the CRE in this regard.	At this time, the FAA Memphis ADO has made a determination and is coordinating with the IHPA.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 22	We note that Appendix A, Exhibit 8, an aerial photo with NWI features superimposed does appear to identify some type of "riverine" (blue dot) wetlands in the vicinity of the Trevilian Way spring/grotto area. What is that feature?	Unable to identify the feature in questions.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 22	The particular concern is that the LRAA's Preferred Alternative 1 (massive tree removal) will occur in a sensitive, karstic soil landscape, where increased sediment run-off from removal and post-removal could harm these water resources, both surface and subsurface. (Discussing a karst spring within the forested	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	4.13 Floodplains, Section 4.13.1: Floodplains perform many important functions included in flood desynchronization, wildlife habitat, food chain support, nutrient retention and removal and erosion control. Regulatory floodplains are those with a designated 100-year floodplain that are mapped on National Flood Insurance Rate Maps by the Federal Emergency Management Agency (FEMA). Longitudinal encroachment of transportation projects on designated floodplains requires a formal review	4.13 Floodplains, Section 4.13.1: Floodplains perform many important functions included in flood desynchronization, wildlife habitat, food chain support, nutrient retention and removal and erosion control. Regulatory floodplains are those with a designated 100-year floodplain that are mapped on National Flood Insurance Rate Maps by the Federal Emergency Management Agency (FEMA). Longitudinal encroachment of transportation projects on designated floodplains requires a formal review

	area of Seneca Park, as known by PFTT members - Shelby S.)		<p>under Executive Order 11988, Floodplain Management. Executive Order 11988 directs Federal agencies to “take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore and preserve the natural and beneficial value served by floodplains”. United States Department of Transportation Order 5650.2, Floodplain Management and Protection contains procedures for implementing the Executive Order and establishes a policy of avoiding actions within the 100-year floodplain. FEMA classifies and defines flood prone areas by zones based on the probably and potential intensity of flooding.</p> <p>4.14 Farmland, Section 4.14.1: Agricultural land in Kentucky is categorized as either prime farmland or important farmland. Prime farmland has the best combination of physical and chemical characteristics for use as cropland, pastureland and wooded land. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern agricultural methods. Important farmland is agricultural land that is nearly prime farmland, which can economically produce high yields of crops when treated and managed according to acceptable farming methods.</p> <p>The Federal Farmland Protection Policy Act, 7 U.S.C. § 4201 et seq. authorizes the United States Department of Agriculture, NRCS to identify the effects of the Federal program on the conversion of farmland to nonagricultural uses. Federal agencies must identify and take into account the adverse effects of Federal programs on the preservation of farmland. They must also consider appropriate alternative actions, which could lessen adverse effects and assure that such Federal programs, to the extent practical, are compatible with state and local government and private programs and policies to protect farmland.</p> <p>To protect existing agricultural resources in Kentucky, The Kentucky General Assembly established (1994) the Purchase of Agriculture Conservation Easement Corporation (PACE). PACE allows the Kentucky Department of Agriculture to preserve farmland by allowing the state to purchase agriculture conservation easements in order to ensure that lands currently in agricultural use will continue to remain available for agriculture and will not be converted to other uses.</p>	<p>under Executive Order 11988, Floodplain Management. Executive Order 11988 directs Federal agencies to “take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore and preserve the natural and beneficial value served by floodplains”. United States Department of Transportation Order 5650.2, Floodplain Management and Protection contains procedures for implementing the Executive Order and establishes a policy of avoiding actions within the 100-year floodplain. FEMA classifies and defines flood prone areas by zones based on the probably and potential intensity of flooding.</p> <p>The Natural Resources Conservation Service, stated based on their review of the Draft Environmental Assessment, they do not anticipate the proposed actions will negatively affect Wetland Reserve Program (WRP) easements, Grassland Reserve Program (GRP) easements, prime and important farmland soils and soils of statewide importance or PL-566 watershed structures. See Natural Resources Conservation Service Coordination in Appendix E.</p> <p>4.14 Farmland, Section 4.14.1: Agricultural land in Kentucky is categorized as either prime farmland or important farmland. Prime farmland has the best combination of physical and chemical characteristics for use as cropland, pastureland and wooded land. It has the soil quality, growing season and moisture supply needed to produce sustained high yields of crops economically when treated and managed according to modern agricultural methods. Important farmland is agricultural land that is nearly prime farmland, which can economically produce high yields of crops when treated and managed according to acceptable farming methods.</p> <p>The Federal Farmland Protection Policy Act, 7 U.S.C. § 4201 et seq. authorizes the United States Department of Agriculture, NRCS to identify the effects of the Federal program on the conversion of farmland to nonagricultural uses. Federal agencies must identify and take into account the adverse effects of Federal programs on the preservation of farmland. They must also consider appropriate alternative actions, which could lessen adverse effects and assure that such Federal programs, to the extent practical, are compatible with state and local government and private programs and policies to protect farmland.</p> <p>To protect existing agricultural resources in Kentucky, The Kentucky General Assembly established (1994) the Purchase of Agriculture Conservation Easement Corporation (PACE). PACE allows the Kentucky Department of Agriculture to preserve farmland by allowing the state to purchase agriculture conservation easements in order to ensure that lands currently in agricultural use will continue to remain available for agriculture and will not be converted to other uses.⁴⁴</p> <p>The Natural Resources Conservation Service, stated based on their review of the Draft Environmental Assessment, they do not anticipate the proposed actions will negatively affect Wetland Reserve Program (WRP) easements, Grassland Reserve Program (GRP) easements, prime and important farmland soils and soils of statewide importance or PL-566 watershed structures. See Natural Resources Conservation Service Coordination in Appendix E.</p>
--	--	--	---	--

⁴⁴ <http://www.kyagr.com/marketing/PACE.html>

Page 22	The DEA claims that there will be “no net loss of floodplain storage volume” by removing trees under the LRAA’s Preferred Alternative 1, (Section 4.13.3, p. 49), but no information is provided to support that assertion.	If a tree is removed within a floodplain, a commitment will be made that all efforts will be taken to ensure there is no net loss of floodplain volume through leaving the stump or ensuring that any volume removed by the stump is replaced within the same floodplain.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 23	Floodplains in the presidential directives include sinkhole water bodies. ⁴⁷ FEMA has developed a methodology for mapping the 100-year floodplains in sinkholes, first utilized in Kentucky. ⁴⁸ Since Bowman Field and its immediate environs are in a karst area, the DEA needs to address the locations of any sinkholes and any associated 100-year sinkhole floodplains.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	3.5 Inventory of Natural Environment, Section 3.5.9: The 100-year floodplain has been documented in the project area, along The Middle Fork of the Beargrass Creek and its tributaries. See Chapter Four, Section Twelve – Floodplains for a discussion of potential environmental concerns. See Exhibit 9 – Floodplain in Appendix A.	3.5 Inventory of Natural Environment, Section 3.5.9: The 100-year floodplain has been documented in the project area, along The Middle Fork of the Beargrass Creek and its tributaries. See Exhibit 9 – Floodplain in Appendix A. The proposed project does include the removal and/or trimming of trees, several trees are located within the Federal Emergency Management (FEMA) Flood Rate Insurance Map (FIRM) designated floodplain of Beargrass creek. If this tree is removed, efforts will be taken to ensure there is no net loss of floodplain storage. The remainder of the trees are not within a FEMA designated floodplain. Based on its geology, Kentucky prone to sinkholes. There are no identified sinkholes within the project area. There are several Li-DAR derived sinkholes in Big Spring Golf Course, but have not been varied and are not within the project area. ⁴⁵ See Chapter Four, Section Twelve – Floodplains for a discussion of potential environmental concerns.
Page 23	There is no quantitative support in the DEA for the assertion (p. 34) that the LRAA’s Preferred Alternative 1 (tree removal, corporate jet operations) will not result in “adverse effects on human and animal life, food, water supplies and plant life . . . as a result of either aircraft emissions or air contaminants [from cutting and trimming of trees].”	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	4.6 Air Quality, Section 4.6.1: Air Quality Standards establish limits for various pollutants in the air. With passage of the Clean Air Act (CAA) in 1970 and amendments thereto, the Federal government began adopting standards for the entire country. Federal Air Quality Standards are divided into two categories. Primary standards were designed to protect against adverse health effects. See Table 4-1 National Air Quality Standards. Secondary standards were designed to protect against adverse welfare effects such as plant and material damage, odor, or reduction in visibility. On November 15, 1990, Congress passed amendments to the CAA to address the problem that many areas across the United States were in violation of the National Ambient Air Quality Standards (NAAQS) for ozone and/or carbon monoxide. These amendments, referred to as the Clean Air Act Amendments of 1990 (CAAA), were aimed at correcting weaknesses in the CAA provisions and tightening up the control requirements for states to develop new air quality designations, state implementation plans, and air quality strategies for those area not meeting the NAAQS. FAA’s Order 5050.4B, “National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions” states that “The Federal Aviation Administration has the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts.” If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the projected airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below: a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecast annually; and b. If it is a general aviation airport and has less than 180,000	4.6 Air Quality, Section 4.6.1: Air Quality Standards establish limits for various pollutants in the air. With passage of the Clean Air Act (CAA) in 1970 and amendments thereto, the Federal government began adopting standards for the entire country. Federal Air Quality Standards are divided into two categories. Primary standards were designed to protect against adverse health effects. See Table 4-1 National Air Quality Standards. Secondary standards were designed to protect against adverse welfare effects such as plant and material damage, odor, or reduction in visibility. On November 15, 1990, Congress passed amendments to the CAA to address the problem that many areas across the United States were in violation of the National Ambient Air Quality Standards (NAAQS) for ozone and/or carbon monoxide. These amendments, referred to as the Clean Air Act Amendments of 1990 (CAAA), were aimed at correcting weaknesses in the CAA provisions and tightening up the control requirements for states to develop new air quality designations, state implementation plans, and air quality strategies for those area not meeting the NAAQS. FAA’s Order 5050.4B, “National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions” states that “The Federal Aviation Administration has the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts.” If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the projected airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below: a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecast annually; and b. If it is a general aviation airport and has less than 180,000

⁴⁵<http://kgs.uky.edu/kgsmap/KGSGeoServer/viewer.asp?wkid=3089&gkarst=true&startLeft=6477996.079423964&startBottom=5025218.136977807&startRight=3336800.8349241316&startTop=2636200.257214725&QueryZoom=Yes>

			<p>operations forecasted annually.</p> <p>Finally, as stated in FAA's Order 1050.1E, Environmental Impacts: Policies and Procedures; The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors from Federal actions that meet that following criteria.</p> <p>a. Reasonable foreseeable; and</p> <p>b. Can practically be controlled and maintained by the Federal agency through continuing program responsibility.</p> <p>"A conformity determination is not required if the emission caused by the proposed Federal action"... "If the action is listed as exempt or presumed to conform; or if the action is below the emission threshold (de minimis) level." If the project's emissions are below annual threshold levels (de minimis levels) and are not regionally significant, then the requirements of the general conformity regulation do not apply to the action or program.</p> <p>Kentucky Revised Statues (KRS), which is a set of laws that run in accordance with the Kentucky Constitution, details air quality regulations in Title IX – Counties, Cities, And Other Local Units; Chapter 77 Air Pollution Control (KRS Chapter 77). KRS Chapter 77 defines guidelines, law, regulations and enforcement procedures to ensure local and city regulations are in compliance with the State. KRS Chapter 77 also incorporates Federal Air Quality Standards into their regulations and standards. The Airport Pollution Control District of Louisville enforces these regulations and guidelines and works to ensure cleaner air for the residents of Louisville and Jefferson County.</p> <p>The following air quality information/actions will be considered during the construction of either alternative. See Exhibits 2A-2B – Kentucky Department of Environmental Protection Coordination in Appendix C.</p> <ul style="list-style-type: none">• The Kentucky Division for Air Quality Regulations 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precautions to prevent matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area, transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway.• The Kentucky for Air Quality Regulations 401 KAR 63:005 states that open burning is prohibited. Open burning is defined as the burning of any material in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purpose list in the Kentucky "Open Burning Brochure".• The utilization of emission reduction strategies, were applicable. This includes; utilizing alternative fuel equipment, utilizing other emission controls that are applicable to specific equipment and reducing idling time on equipment. <p>Jefferson County is currently in attainment for most pollutants, including sulfur dioxide, carbon monoxide, ozone, lead, PM10 and nitrogen dioxide. However, the county is currently a non-attainment area for PM-2.5, thereby not achieving the national standard for air quality. In addition to PM-2.5, Louisville is listed as being in non-attainment for sulfur dioxide, as well. See Table 4-2 Jefferson County 2014 Air Quality Compliance.</p>	<p>operations forecasted annually.</p> <p>Finally, as stated in FAA's Order 1050.1E, Environmental Impacts: Policies and Procedures; The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors from Federal actions that meet that following criteria.</p> <p>a. Reasonable foreseeable; and</p> <p>b. Can practically be controlled and maintained by the Federal agency through continuing program responsibility.</p> <p>"A conformity determination is not required if the emission caused by the proposed Federal action"... "If the action is listed as exempt or presumed to conform; or if the action is below the emission threshold (de minimis) level." If the project's emissions are below annual threshold levels (de minimis levels) and are not regionally significant, then the requirements of the general conformity regulation do not apply to the action or program.</p> <p>Kentucky Revised Statues (KRS), which is a set of laws that run in accordance with the Kentucky Constitution, details air quality regulations in Title IX – Counties, Cities, And Other Local Units; Chapter 77 Air Pollution Control (KRS Chapter 77). KRS Chapter 77 defines guidelines, law, regulations and enforcement procedures to ensure local and city regulations are in compliance with the State. KRS Chapter 77 also incorporates Federal Air Quality Standards into their regulations and standards. The Airport Pollution Control District of Louisville enforces these regulations and guidelines and works to ensure cleaner air for the residents of Louisville and Jefferson County.</p> <p>The following air quality information/actions will be considered during the construction of either alternative. See Exhibits 2A-2B – Kentucky Department of Environmental Protection Coordination in Appendix C.</p> <ul style="list-style-type: none">• The Kentucky Division for Air Quality Regulations 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precautions to prevent matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area, transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway.• The Kentucky for Air Quality Regulations 401 KAR 63:005 states that open burning is prohibited. Open burning is defined as the burning of any material in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purpose list in the Kentucky "Open Burning Brochure".• The utilization of emission reduction strategies, were applicable. This includes; utilizing alternative fuel equipment, utilizing other emission controls that are applicable to specific equipment and reducing idling time on equipment. <p>Jefferson County is currently in attainment for most pollutants, including sulfur dioxide, carbon monoxide, ozone, lead, PM10 and nitrogen dioxide. However, the county is currently a non-attainment area for PM-2.5, thereby not achieving the national standard for air quality. In addition to PM-2.5, Louisville is listed as being in non-attainment for sulfur dioxide, as well. See Table 4-2 Jefferson County 2014 Air Quality Compliance.</p> <p>The U.S. EPA was provided the Draft Environmental Assessment for</p>
--	--	--	--	--

				review and comment. The U.S. EPA Region 4, which regulates federal air quality standards, stated based on their review of the document, the proposed project will not represent a significant impact to human health and the environment. See U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.
Page 24	The role of trees in mitigating anthropogenic air emissions is not addressed. The Metro Louisville-sponsored studies on the air quality benefits of trees is completely ignored in the DEA. The DEA provides no information that would support a defensible FAA conclusion regarding air quality impacts associated with the Bowman Field Safety Program.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	See previous DEA revision.	See previous DEA revision.
Page 24	FAA Order 1050.1F, which appears to be unknown to the authors, indicates that both types of “visual impacts” should be addressed and not simply “light emissions.” The DEA does not provide sufficient information and analyses to comply with NEPA requirements regarding the visual environment.	The Draft Environmental Assessment process began before 1050.1F was adopted (7/26/15), therefore the FAA allowed the process to continue under 1050.1E. 4.16 Light Emissions in the Draft Environmental Assessments states “If the lights run continuously, cloudy days, twilight hours, and night time will have a noticeable red glow due to the concentration of lighting. The installation of the lighted poles adjacent to obstructions off all four runway ends will contribute to the light emissions radiating from airports as well as impact both the residential and recreational areas.”	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 24	Response to “4.19 Hazardous Waste” (No Equivalent Section in Chapter 3): This text reveals a basic misunderstanding of federal-state implementation of the Resource Conservation and Recovery Act (RCRA) since 1980 by asserting at p. 60 that “[t]he authority to implement hazardous waste laws has been delegated by the Commonwealth of Kentucky to the U.S. Environmental Protection Agency.” The reverse is true. Please correct this statement.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	4.19 Hazardous Waste, Section 4.19.1: Hazardous waste is an overall term that includes spills, dumping and releases of substances threatening to human and animal life. To identify these materials and protect the environment from harmful interaction of potential hazardous wastes, several Federal laws and regulation have been enacted including: the National Priorities List (Superfund Sites), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). As a method of protection for the citizens of the Commonwealth of Kentucky, the Division of Waste Management has a hazardous waste division, which oversees the handling of hazardous waste throughout its lifetime. The authority to implement hazardous waste laws has been delegated by the Commonwealth of Kentucky to the U.S. Environmental Protection Agency (USEPA).	4.19 Hazardous Waste, Section 4.19.1: Hazardous waste is an overall term that includes spills, dumping and releases of substances threatening to human and animal life. To identify these materials and protect the environment from harmful interaction of potential hazardous wastes, several Federal laws and regulation have been enacted including: the National Priorities List (Superfund Sites), the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA). As a method of protection for the citizens of the Commonwealth of Kentucky, the Division of Waste Management has a hazardous waste division, which oversees the handling of hazardous waste throughout its lifetime. The authority to implement hazardous waste laws has been delegated by the U.S. Environmental Protection Agency (USEPA) to the Commonwealth of Kentucky.⁴⁶
Page 26	Response to "4.22 Climate Change/Greenhouse Gases": This section states that “[a]ircraft are often cited as air pollutant sources; however, they produce the same types of emissions as automobiles.” (p. 65.) What inference is intended?	This information is cited from the FAA.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 27	Plea For The Trees’ estimate is that 300 or more trees have been cumulatively impacted from LRAA’s management of airspace around Bowman Field. The DEA should quantify the range of increases in atmospheric carbon dioxide from the permanent loss of these trees and the trimming, since trimming reduces a tree’s benefits to reducing atmospheric carbon dioxide.	Air Quality The Federal Aviation Administration (FAA) states that “the FAA had the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts.” If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the proposed airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:	No change to the Environmental Assessment.	No change to the Environmental Assessment.

⁴⁶ <http://waste.ky.gov/HWB/Pages/default.aspx>

		<p>a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecasted annually; and</p> <p>b. If it is a general aviation airport and had less than 180,000 operations forecasted annually.</p> <p>The Airport is currently and will remain a general aviation airport. They do not have 180,000 operations forecasted annually and the proposed project will not exceed that threshold. See Chapters 1 and 3 in the DEA. In addition, the U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4, which regulates federal air quality standards, stated based on their review of the document, the proposed project will not represent a significant impact to human health and the environment.</p>		
Page 27-28	Response to 4.23. Conclusion: The statement that the “No Action Alternative is not considered a viable alternative using criteria within this document” (bottom of p. 67) also begs explanation – what specific criteria in the DEA is meant? Where are these criteria in the document?	The No Action Alternative does not meet the LRAA’s Purpose and Need by not maintaining the Airport’s existing facilities and by not addressing the threshold constraints outlined in the Purpose and Need.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 28	The summary table claims that the No Action Alternative would induce “[s]ever [socioeconomic] impacts from loss of corporate jet fleet to Airport and surrounding communities.” (p. 67.) This is a completely unsubstantiated claim since there is no analytical information or data in the socioeconomic portion of Chapters 3 or 4 regarding Bowman Field’s socioeconomic impacts.	Failure to address the existing penetrations of the critical approach surfaces will lead to the FAA compelling the airport to relocate the landing thresholds to achieve clear approaches, which would eliminate operations by the current critical aircraft group. This aircraft group is primarily corporate pilots, which bring revenue through business and economic development as well as fuel sales. Without these aircraft utilizing the Airport it would be economically detrimental to the businesses surrounding Bowman Field and Louisville as a whole.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 28	Under the Alternative 1 column, several of the boxes state “Tree trimming or removal/replacement occurs every 5 years.” What does this statement mean in the context of the summary of “More” impacts for the relevant environmental consequence areas? We can find no reference anywhere else in the document that tree trimming or removal will occur every five years, which if this is the case, has not been addressed in the cumulative impacts section. This statement, which is repeated throughout Table 8, requires explanation.	Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the lighted poles be assessed annually to ensure the adjacent trees have not grown beyond the poles height..	<p>4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time.</p>	<p>Table 8 has been updated to clarify impacts.</p> <p>4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time. Projects within the current ALP and not reviewed in this document have in independent utility and will be assessed when their implementation is needed.</p> <p>Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the</p>

				lighted poles be assessed annually to ensure the adjacent trees have not grown beyond the poles height.
Page 28	Response to Ch. 5 Citizen Involvement and Agency Coordination: The authors state in the Introduction (p. 71) that “Preparation of this DEA has been coordinated with various city, county, township, state and Federal units of government.” Apart from the fact that there are no township units of local government in the entire Commonwealth of Kentucky, what specific local governmental entities were contacted? There are, for example, at least four cities separate from Metro Louisville proximate to Bowman Field (Seneca Gardens, Kingsley, Strathmoor Village, St. Matthews). What outreach and coordination were conducted with these cities?	<p>As part of the Environmental Assessment process, Local, State and Federal agencies are notified of the project and given the opportunity to comment throughout various stages of the process. The Mayor of Louisville also sits on the board of Louisville Regional Airport Authority (LRAA). When the Draft Environmental Assessment was completed and approved by the Federal Aviation Administration (FAA), it was provided to the following local offices with a request for comments.</p> <ol style="list-style-type: none"> 1. Honorable Greg Fisher, Mayor of Louisville 2. David Yates, President of Metro Council 3. Tom Owen, Metro Council District 8 4. Bill Hollander, Metro Council District 9 5. Brent Ackerson, Metro Council District 26 6. Honorable David Brown, Mayor of Seneca Gardens 7. Honorable Rebecca Beld, Mayor of Kingsley 8. Honorable Richard J. Tonini, Mayor of St. Matthews 9. Seve Ghose, Director of Louisville Metro Parks 10. James A. Parrott, Executive Director Louisville Metropolitan Sewer District 11. Kelly Maxwell, Golf Course Manager, Big Spring Country Club <p>Any comments from these individuals or offices will be addressed in the Final Environmental Assessment. This also applies to any comments received from State and Federal agencies.</p>	<p>5.1 Introduction: FAA’s Order 5050.4B states that:</p> <ul style="list-style-type: none"> • While requests for Federal airport actions originate with a public agency, the involvement of the community at large is a necessary element in the decision-making process. An effective opportunity to comment at appropriate stages in the decision-making process shall be provided to communities, citizen groups, and other individuals affected by airport proposals submitted to the FAA. They shall also be provided an opportunity to review and comment on draft and final statements. • In accordance with Section 509(b)(6) of the 1982 Airport Act, the opportunity for public hearings shall be offered on any action involving airport location, location of a new runway, or major extension of a runway. For other actions, a public hearing shall be considered in accordance with the guidelines contained in paragraph 49. FAA Advisory Circular 150/5050-4, Citizen Participation in Airport Planning, has additional specific guidance on community involvement. Standard procedures for Federal agency public involvement are stated in CEQ 1506.6. <p>The preparation of this Draft Environmental Assessment has been coordinated with various city, county, township, state and Federal units of government. Many of these agencies have assisted with the completion of this document through the review process. Receipt of all written review comments from those public agencies involved in the review process will be incorporated into the Final Environmental Assessment.</p>	<p>5.1 Introduction: FAA’s Order 5050.4B states that:</p> <ul style="list-style-type: none"> • While requests for Federal airport actions originate with a public agency, the involvement of the community at large is a necessary element in the decision-making process. An effective opportunity to comment at appropriate stages in the decision-making process shall be provided to communities, citizen groups, and other individuals affected by airport proposals submitted to the FAA. They shall also be provided an opportunity to review and comment on draft and final statements. • In accordance with Section 509(b)(6) of the 1982 Airport Act, the opportunity for public hearings shall be offered on any action involving airport location, location of a new runway, or major extension of a runway. For other actions, a public hearing shall be considered in accordance with the guidelines contained in paragraph 49. FAA Advisory Circular 150/5050-4, Citizen Participation in Airport Planning, has additional specific guidance on community involvement. Standard procedures for Federal agency public involvement are stated in CEQ 1506.6. <p>The preparation of this Draft Environmental Assessment has been coordinated with various city, county, state and Federal units of government. Many of these agencies have assisted with the completion of this document through the review process. Receipt of all written review comments from those public agencies involved in the review process will be incorporated into the Final Environmental Assessment.</p>
Page 28	The list of federal agencies in Section 5.2 (p. 71) does not include the Advisory Council on Historic Preservation (Advisory Council). What outreach and early coordination was sought from the Advisory Council?	The Kentucky State Historic Preservation Officer was made aware of the project through initiation of the Section 106 process and coordination of the APE. Coordination with state historic preservation officers is typical as they are given authority to by the Advisory Council to make local decisions regarding Section 106.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 28	Several of the coordination response letters in Appendix C are dated and no longer valid, e.g., US Fish and Wildlife Service, Kentucky Clearinghouse (the latter’s review comments expired Dec. 16, 2015, over six months ago), and require updated consultation or coordination.	The Draft Environmental Assessment was sent to the USFWS Kentucky Ecological Services Field Office in May 2016 and no additional comments were provided.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 28	The DEA does not address the need for a state floodplain permit.	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	<p>5.4 Permits and Commitments,</p> <p>Section 5.4.1:</p> <ul style="list-style-type: none"> •A Metropolitan Sewer District Site Disturbance Permit for erosion prevention and sediment control may be required. •Louisville Metro Parks may a require permit application for any projects occurring on their property. The applicant must submit a permit application, including any exhibits, to the Parks Director allowing two (2) weeks for review and approval. Bowman Field may be subject to the tree replacement policy set forth in this permit. •Bowman Field will be required to file an FAA Form 7460 for the temporary use of a crane. •Kentucky law requires that all structures built on or near an airport, as defined by KRS 183.861, must be approved and permitted by the Kentucky Airport Zoning Commission. Bowman Field may be required to apply for a TC 56-50 permit for the temporary use of a crane. 	<p>6.4.1 Permits</p> <ul style="list-style-type: none"> •A Metropolitan Sewer District Site Disturbance Permit for erosion prevention and sediment control may be required. •Louisville Metro Parks may a require permit application for any projects occurring on their property. The applicant must submit a permit application, including any exhibits, to the Parks Director allowing two (2) weeks for review and approval. Bowman Field may be subject to the tree replacement policy set forth in this permit. •Bowman Field will be required to file an FAA Form 7460 for the temporary use of a crane. •Kentucky law requires that all structures built on or near an airport, as defined by KRS 183.861, must be approved and permitted by the Kentucky Airport Zoning Commission. Bowman Field may be required to apply for a TC 56-50 permit for the temporary use of a crane. •Coordination with the Kentucky Division of Water will occur to obtain

				appropriate floodplain permits.
Page 29	Page 72 states that Metro Parks “may require” a permit prior to the removal of substantial trees on public land. What exactly is the mechanism for prior legal authorization of removal of public asset trees on Metro lands?	<p>If the trees are required to be trimmed or removed in order to protect navigable airspace, it can be accomplished under the provisions of any and all federal, state or local regulations established in order to address the requirements of 49 U.S. Code § 40103 - Sovereignty and use of airspace.</p> <p>In addition, coordination with Metro Parks office regarding the project has occurred. It was determined that the proposed project will have no adverse effect on the activities, features and attributes that make the park eligible for designation under Section 4(f). The proposed project is considered to have a de minimis impact on Seneca Golf Course</p>	Updated Metro Parks coordination within Draft Environmental Assessment.	Updated Metro Parks coordination within Draft Environmental Assessment.
Page 29	Why exactly is a crane required that would trigger the need for a Kentucky Airport Zoning Commission permit and FAA form 7460? (p. 72.)	Cranes are often required to safely dismantle a tree or tree trimmings without harming nearby trees or structures.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 30	The very last paragraph of the DEA (p. 608, Appendix D – Applicable Regulatory Statutes”) includes the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act (the “Uniform Act”). However, the Uniform Act is not included in this Introductory section (p. 10) of the DEA – why not?	A response has been provided to this comment. Text changes have been made to the Draft Environmental Assessment.	<p>1.7 Applicable Regulatory Statutes: The following statutes listed are applicable when evaluating the environmental impacts associated with the Sponsor’s Proposed Action. Each of the following is explained in greater detail in Appendix B.</p> <ul style="list-style-type: none"> • The Airport and Airway Safety and Capacity Expansion Act of 1987 (P.L. 100-223). • Federal Aviation Act of 1958, (P.L. 85-726) now recodified as Subtitle VII, Title 49 U.S. Code – Aviation Programs,” (§40101 et. Seq.). • The National Environmental Policy Act 1969 (NEPA). • Department of Transportation Act of 1966, Section 4(f), Recodified 49 U.S.C. §303c. • Clean Water Act of 1977 (CWA), 33 U.S.C. §1251, et seq. • The Clean Air Act of 1970 (CAA), 42 U.S.C. §4701, et seq. • The Endangered Species Act of 1973, 16 U.S.C. §1531, et seq. • The Airport Noise and Capacity Act of 1990, (P.L. 101-508). • Coastal Zone Management Act of 1972, 16 U.S.C. §1451, et seq. • National Historic Preservation Act of 1966, 16 U.S.C. §470, et seq. • Wild and Scenic Rivers Act of 1968, 16 U.S.C. §1271, et seq. • Land and Water Conservation Fund Act of 1965, 16 U.S.C. §4600-5, et seq. • Coastal Barrier Resources Act, 16 U.S.C. §3501 et seq. • National Flood Insurance Act of 1968, 42 U.S.C. §4001 et seq. • Flood Disaster Protection Act of 1973, 42 U.S.C. §4002, et seq. 	<p>1.7 Applicable Regulatory Statutes: The following statutes listed are applicable when evaluating the environmental impacts associated with the Sponsor’s Proposed Action. Each of the following is explained in greater detail in Appendix B.</p> <ul style="list-style-type: none"> • The Airport and Airway Safety and Capacity Expansion Act of 1987 (P.L. 100-223). • Federal Aviation Act of 1958, (P.L. 85-726) now recodified as Subtitle VII, Title 49 U.S. Code – Aviation Programs,” (§40101 et. Seq.). • The National Environmental Policy Act 1969 (NEPA). • Department of Transportation Act of 1966, Section 4(f), Recodified 49 U.S.C. §303c. • Clean Water Act of 1977 (CWA), 33 U.S.C. §1251, et seq. • The Clean Air Act of 1970 (CAA), 42 U.S.C. §4701, et seq. • The Endangered Species Act of 1973, 16 U.S.C. §1531, et seq. • The Airport Noise and Capacity Act of 1990, (P.L. 101-508). • Coastal Zone Management Act of 1972, 16 U.S.C. §1451, et seq. • National Historic Preservation Act of 1966, 16 U.S.C. §470, et seq. • Wild and Scenic Rivers Act of 1968, 16 U.S.C. §1271, et seq. • Land and Water Conservation Fund Act of 1965, 16 U.S.C. §4600-5, et seq. • Coastal Barrier Resources Act, 16 U.S.C. §3501 et seq. • National Flood Insurance Act of 1968, 42 U.S.C. §4001 et seq. • Flood Disaster Protection Act of 1973, 42 U.S.C. §4002, et seq. • Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 USC Section 4601, et. seq.)
Page 30-31	Response to "Appendix D Applicable Regulatory Statutes" and "1.7 Applicable Regulatory Statutes": Relevant presidential executive orders are also omitted from this introductory section and are important to this project, i.e., Executive Order 11988 (Floodplain	Those have been added to the Applicable Regulatory Statutes.		D.1.17 Executive Order 11988 (Floodplain Management), as strengthened in 2015 by Executive Order 13690. Order 11988 states that the Federal Government must avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a

	<p>Management), as strengthened in 2015 by Executive Order 13690 (Establishing a Federal Flood Risk Management Standard and a Process for Further Soliciting and Considering Stakeholder Input) and Executive Order 11990 (Protection of Wetlands). Each of these directives have “distinct statutory foundations” and are, therefore, “accorded the force and effect of a statute.” These non- discretionary directives should be added to this section. The - * also needs to be included (see also, PFTT’s response above to the DEA’s zoning section).</p>			<p>practicable alternative. This order is a flexible framework to increase resilience against flooding and help preserve the natural values of floodplains. Incorporating this Standard will ensure that agencies expand management from the current base flood level to a higher vertical elevation and corresponding horizontal floodplain to address current and future flood risk and ensure that projects funded with taxpayer dollars last as long as intended. Order 13690 does not change Order 11988, but rather gives agencies the flexibility to select from three approaches for establishing the flood elevation and hazard area they use through a projects lifespan.</p> <p>D.1.18 Executive Order 11990 Protection of Wetlands Order 11990 states that agency shall provide leadership and shall take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands, includes acquiring, managing, and disposing of Federal lands and facilities. Federal agencies should also consider wetland protection during federally undertaken, financed, or assisted construction and improvements. Finally, these considerations should be taken when conducting Federal activities and programs affecting land use, including but not limited to water and related land resources planning, regulating, and licensing activities.</p>
Page 31	<p>A number of statements throughout the DEA provide a Uniform Resource Locator (URL) citation to an Internet-based reference. However, none of these URL citations identify the last date that the authors accessed the site, and no check was apparently conducted to determine if these links were still active. Many are not, based upon our attempt to access them during the week of June 20 through 29, 2016 while preparing our comments.</p>	<p>Portable Document Format (PDF) files were made of each URL when referenced. URLs will be updated in Final Environmental Assessments.</p>	<p>No change to the Environmental Assessment.</p>	<p>No change to the Environmental Assessment.</p>
Page 31	<p>In addition, FAA Order 1050.1E is cited in the social impacts section (p. 27) but it is no longer in effect.</p>	<p>The Draft Environmental Assessment process began before 1050.1F was adopted (7/26/15), therefore the FAA allowed the process to continue under 1050.1E.</p>	<p>No change to the Environmental Assessment.</p>	<p>No change to the Environmental Assessment.</p>
Page 31	<p>In closing, Plea For The Trees believes that the Draft Environmental Assessment prepared by the LRAA is insufficient for FAA’s decision making under law. We believe that your agency’s approval of the 2012 Airport Layout Plan and the associated Bowman Field Safety Program should be evaluated under the regulations of the Council on Environmental Quality for preparation of an Environmental Impact Statement or a significantly revised Draft Environmental Assessment.</p>	<p>LRAA acknowledges this comment and assumes since no question or direction was requested that it be documented as such.</p>	<p>No change to the Environmental Assessment.</p>	<p>No change to the Environmental Assessment.</p>

Kentucky Resource Council Comments

Page Numbers	The comment	Response	Original Document	Change to the document
Page 2	KRC is concerned that the scope of the Environmental Assessment fails to fully address and analyze the effects of LRAA plans to expand the footprint of the Bowman Field Airport, and the corresponding impacts of such plans on the integrity of surrounding neighborhoods.	The Airport Layout Plan, approved by the LRAA Board in February 2012 has no projects identified that alter the existing runway geometry or capacity. Environmental Assessments are only valid for 5 years, they do not have the capacity to review and assess the “10-year planning horizon” of an ALP. The Airport is required to have an Airport Layout Plan (ALP), which serves as a planning tool that depicts both existing and future development on and around the Airport. Federally obligated airports must accomplish improvements in accordance with the ALP. Environmental documents completed under the National Environmental Policy Act (NEPA), review projects that are depicted on the ALP and have immediate utility. Environmental documents cannot review all development depicted on the ALP. Since once approved, Environmental Assessments are only valid for approximately 5-years.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 2	While the LRAA website indicates that “there are NO current or future plans to add a runway or to extend the two existing runways at Bowman Field,” (emphasis original) the Bowman Field Airport Layout Plan dated December 18, 2008 and signed on February 27, 2012, and conditionally approved by the FAA on March 21, 2012, indicates an intent to further develop the northeast, northwest, and southeast of the property, to remove Taxiway A and B, and to construct a dual parallel taxiway and future taxiway identified as taxiway “K.”	The Airport Layout Plan, approved by the LRAA Board in February 2012 has no projects identified that alter the existing runway geometry or capacity. Environmental Assessments are only valid for 5 years, they do not have the capacity to review and assess the “10-year planning horizon” of an ALP. The Airport is required to have an Airport Layout Plan (ALP), which serves as a planning tool that depicts both existing and future development on and around the Airport. Federally obligated airports must accomplish improvements in accordance with the ALP. Environmental documents completed under the National Environmental Policy Act (NEPA), review projects that are depicted on the ALP and have immediate utility. Environmental documents cannot review all development depicted on the ALP. Since once approved, Environmental Assessments are only valid for approximately 5-years.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 2	If the LRAA website is correct in stating that there are no current or future plans of the LRAA to add a runway or extend the two existing runways at Bowman Field, then the LRAA should withdraw the 2012 Plan and issue a revised ALP that deletes the planned new development and runways. If the LRAA does not withdraw the 2012 plan, then the Draft Environmental Assessment must be substantially revised in order to address what is certainly an “action” that is related and connected, and which will have cumulative impacts that must be concurrently analyzed for purposes of environmental review under the National Environmental Policy Act. To do less would be to sanction the segmentation of what appears to be one step in an expansion plan reflected in the 2012 Bowman Field ALP.	LRAA acknowledges this comment and assumes since no question or direction was requested that it be documented as such.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time.	4.20 Cumulative Impacts, Section 4.20.4 Reasonably Foreseeable Future Airport Actions: In defining the reasonably foreseeable future Airport actions, the term “future actions”, for purposes of this discussion, are those improvements depicted on the approved ALP but not contained within Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33 of this environmental assessment. NEPA approval for those projects will be completed at the appropriate time. Projects within the current ALP and not reviewed in this document have independent utility and will be assessed when their implementation is needed. Alternative 1 – Acquire avigation easements for the trimming or removal/replacement of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33 and the reinstatement of night time approach procedures that were in effect in February 2012, will require that properties with easements be assessed every five years to ensure trees have not grown into the TERPS surface. Alternative 2 – Acquire easements for lighting obstructions to Runways 06, 15, 24 and 33, will require that the lighted poles be assessed annually to ensure the adjacent trees have

Page 3	<p>With respect to the alternatives considered in the Draft Environmental Assessment, there is an alternative that does not appear to have been considered, yet which could substantially meet the purpose and need of the Area Safety Program with potentially less negative impact to the surrounding communities. The Draft Environmental Assessment indicates that the need for the proposed tree removal is driven primarily by those circumstances in which Instrument Flight Rule conditions exist, which according to the document is approximately 9% percent of the time, or roughly 775-800 hours per year, affecting primarily night-time operations of turboprops and turbojets (approximately 5% of airport operations). During such conditions, the alternative of routing the affected aircraft to the Clark Regional Airport, which serves Clark County and Metro Louisville, offers two runways at 3899 and 5500 feet in length, and is located just 7 miles from Louisville, should be considered. The diversion of aircraft during night-time conditions requiring instrument-assisted landings could significantly reduce the impacts of the proposed safety program while substantially the purpose of maintaining the functionality and safety of the airport, and should be evaluated as a reasonable alternative in the final Environmental Assessment.</p>	<p>Based on the scope of the project the FAA, accepted and approved the current alternatives analysis as being adequate in the existing document. Utilizing other airports would not be advantageous for the economic environment of Louisville. Louisville International Airport - Standiford Field (SDF) is the third busiest cargo airport in North America. With the large number of cargo operations at SDF, small corporate aircraft are unable to effectively utilize the airport. Allowing for the separation of general aviation and cargo/passenger aviation provides for a more effective and seamless overall aircraft system in a city. Encouraging Louisville's general aviation air traffic to leave the state and utilize other airports such as Clark County Airport, would be economically detrimental to the businesses surrounding Bowman Field and Louisville as a whole and does not meet the states purpose and need. Louisville's Airports generate a recurring economic impact of more than 64,135 local jobs, more than 7.2 billion dollars in economic activity and more than 320 million dollars in state and local taxes.</p>	<p>No change to the Environmental Assessment.</p>	<p>not grown beyond the poles height.</p> <p>No change to the Environmental Assessment.</p>
Page 3	<p>The Draft Environmental Assessment is remarkable in appearing to sequentially consider all environmental consequences of the preferred and other alternatives, yet almost completely failing to discuss and analyze the adverse effects of removal of 104 mature trees on the surrounding properties, neighborhoods, and communities. One can search in vain for a discussion of the impacts of removal of tree canopy on Louisville's already substantial heat island problems, on the use and enjoyment of the affected properties and those within the viewshed of the properties where the tree removal will occur, and on the aesthetic and economic values of the affected properties. No discussion is provided concerning the loss of the mature tree canopy on homeowners in terms of heating and cooling, in terms of resale value of properties, and in terms of the aesthetic impacts of loss of a landscape that is an integral part of what defines these communities.</p>	<p>The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA's documents state that vegetation helps cool urban environments. They suggest that strategic plantings be used to maximize the benefits for vegetation and its ability to reduce urban heating. In addition, The Louisville Urban Heat Management Study also promotes the use of strategic planting to ensure areas that are sparsely canopied receive shade. The Louisville Regional Airport Authority (LRAA) will provide home owners, whose trees are removed, with two new trees to be planted at their discretion. The home owners will be provided with documentation on the characteristics of the tree and will be able to place them, with the guidance of a landscape architect, where they believe is the most beneficial location. In addition, the U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4 stated, based on their review of the document, the proposed project will not represent a significant impact to human health and the environment. In addition, the Office of Sustainability commented on the project, stating the Louisville Metro Division of Community Forestry recommends a replacement ratio larger than 1:1. The LRAA, not through the Federal Process, is providing the opportunity for replacement trees at a 2:1 ratio.</p> <p>The Cultural Resources Evaluation and Supplement both discuss the viewshed and the property values. There are currently more than 70 easements held by the LRAA in the potentially affected area and new easements will be based on market value appraisals conducted by certified property appraisers following federal guidelines. Therefore, the FAA</p>	<p>4.15 Energy Supply and Natural Resources Development, Section 4.15.1: This section evaluates the impact of the Sponsor's Proposed Action on the consumption of energy and natural resources. The proposed consumption is compared to the available resources in the region and the impacts of the proposed development are stated herein. The evaluation focuses on four separate areas:</p> <ul style="list-style-type: none"> • Consumption of energy for stationary facilities such as buildings and lighting systems; • Consumption of fuel by aircraft; • Consumption of fuel by ground vehicles; and • Use of natural resources, which are in short supply. <p>4.22 Climate Change/Greenhouse Gases, Section 4.22.1: Greenhouse Gases (GHG) are those gases that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made), GHGs include water vapor (H2O), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and ozone (O3). Research has shown a link between fuel combustion and greenhouse gas emissions. Sources that require fuel or power at an airport are the primary sources that generate greenhouse gases. Aircraft are often cited as air pollutant sources; however, they produce the same types of emissions as automobiles. For instance, aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO2), water vapor (H2O), nitrogen</p>	<p>4.15 Energy Supply and Natural Resources Development, Section 4.15.1: This section evaluates the impact of the Sponsor's Proposed Action on the consumption of energy and natural resources. The proposed consumption is compared to the available resources in the region and the impacts of the proposed development are stated herein. The evaluation focuses on four separate areas:</p> <ul style="list-style-type: none"> • Consumption of energy for stationary facilities such as buildings and lighting systems; • Consumption of fuel by aircraft; • Consumption of fuel by ground vehicles; and • Use of natural resources, which are in short supply. <p>The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA Region 4 stated, based on their review of the Draft Environmental Assessment the project will not represent a significant impact to human health and the environment. See U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.</p> <p>4.22 Climate Change/Greenhouse Gases, Section 4.22.1: Greenhouse Gases (GHG) are those gases that trap heat in the earth's atmosphere. Both naturally occurring and anthropogenic (man-made), GHGs include water vapor (H2O), carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O) and ozone (O3).</p>

		determined that property devaluation did not constitute an indirect effect. The FAA adjusted the APE to account for potential indirect effects, including loss of canopy or shade of adjacent properties and viewshed. The FAA determined that based on the small percentage of trees being removed within the APE the removal will not constitute an effect.	oxides (NOX), carbon monoxide (CO), oxides of sulfur (SOX), unburned or partially combusted hydrocarbons (VOCs), particulates and other trace compounds.	<p>Research has shown a link between fuel combustion and greenhouse gas emissions. Sources that require fuel or power at an airport are the primary sources that generate greenhouse gases. Aircraft are often cited as air pollutant sources; however, they produce the same types of emissions as automobiles. For instance, aircraft jet engines, like many other vehicle engines, produce carbon dioxide (CO2), water vapor (H2O), nitrogen oxides (NOX), carbon monoxide (CO), oxides of sulfur (SOX), unburned or partially combusted hydrocarbons (VOCs), particulates and other trace compounds.</p> <p>The Heat Island effect is defined and monitored by the U.S. Environmental Protection Agency (U.S. EPA). The U.S. EPA Region 4 stated, based on their review of the Draft Environmental Assessment the project will not represent a significant impact to human health and the environment. See U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.</p>
Page 3	The Draft Environmental Assessment breezes over these impacts by stating that “replacement trees will be made available, to ensure homes within the affected neighborhood retain value and character[,]” reflecting on the one hand a tacit recognition that tree loss does affect neighborhood character and property value, and one the other, a remarkable lack of sensitivity to the impacts of the loss of mature trees and the lack of comparability of economic and aesthetic values of mature trees as compared to replacement saplings.	<p>The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).</p> <p>The Cultural Resources Evaluation and Supplement both discuss the viewshed and the property values. There are currently more than 70 easements held by the LRAA in the potentially affected area and new easements will be based on market value appraisals conducted by certified property appraisers following federal guidelines. Therefore, the FAA determined that property devaluation did not constitute an indirect effect.</p>	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 3	Among the benefits identified by MSD, all of which should be evaluated in the Draft Environmental Assessment in order to properly evaluate the losses associated with removal of 104 mature trees and replacement with saplings, are these: * Absorb stormwater before it enters the sewer system; * Reduce erosion; *Reduce flooding by soaking up rainwater; *Provide shade and moderate temperatures; * Remove carbon dioxide from our air and add oxygen; *Reduce noise levels; *Provide wildlife habitat.	<p>The Airport and the LRAA will take this comment into consideration as they continue with the project.</p> <p>The Metro Sanitary District was provided a copy of the Environmental Assessment, requesting that they submit any questions, comments or concerns If comments are received from their office they will be addressed in the Final Environmental Assessment.</p> <p>Noise: The Federal Aviation Administration’s Order 1050.1E, “Environmental Impacts and Procedures” Section 14.1-Analysis of Significant Impacts, Paragraph 14.4a states: “For proposed actions involving a single airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles, the initial analysis may be performed using the FAA’s Area Equivalent Method (AEM) computer model. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The project will not change the Airport’s critical aircraft nor will it change the type and amount of aircraft currently utilizing the airfield. Currently jet type aircraft (fixed wing aircraft propelled by a jet engine) utilize the Airport and their operational numbers are based on the economic and business environments of the City of Louisville, not by the current Airport’s operational abilities. This project does not include the reconfiguration or alteration of the</p>	<p>4.13 Floodplains, Section 4.13.1: Floodplains perform many important functions included in flood desynchronization, wildlife habitat, food chain support, nutrient retention and removal and erosion control. Regulatory floodplains are those with a designated 100-year floodplain that are mapped on National Flood Insurance Rate Maps by the Federal Emergency Management Agency (FEMA). Longitudinal encroachment of transportation projects on designated floodplains requires a formal review under Executive Order 11988, Floodplain Management. Executive Order 11988 directs Federal agencies to “take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore and preserve the natural and beneficial value served by floodplains”. United States Department of Transportation Order 5650.2, Floodplain Management and Protection contains procedures for implementing the Executive Order and establishes a policy of avoiding actions within the 100-year floodplain. FEMA classifies and defines flood prone areas by zones based on the probably and potential intensity of flooding.</p> <p>4.6 Air Quality, Section 4.6.1: Air Quality Standards establish limits for various pollutants in the air. With passage of the Clean Air Act (CAA) in 1970 and amendments thereto, the Federal government began adopting standards for the entire country. Federal Air Quality Standards are</p>	<p>4.13 Floodplains, Section 4.13.1: Floodplains perform many important functions included in flood desynchronization, wildlife habitat, food chain support, nutrient retention and removal and erosion control. Regulatory floodplains are those with a designated 100-year floodplain that are mapped on National Flood Insurance Rate Maps by the Federal Emergency Management Agency (FEMA). Longitudinal encroachment of transportation projects on designated floodplains requires a formal review under Executive Order 11988, Floodplain Management. Executive Order 11988 directs Federal agencies to “take actions to reduce the risk of flood loss, minimize the impact of floods on human safety, health and welfare and restore and preserve the natural and beneficial value served by floodplains”. United States Department of Transportation Order 5650.2, Floodplain Management and Protection contains procedures for implementing the Executive Order and establishes a policy of avoiding actions within the 100-year floodplain. FEMA classifies and defines flood prone areas by zones based on the probably and potential intensity of flooding.</p> <p>The Natural Resources Conservation Service, stated based on their review of the Draft Environmental Assessment, they do not anticipate the proposed actions will negatively affect Wetland Reserve Program (WRP) easements, Grassland Reserve Program (GRP) easements, prime and important farmland soils and soils of statewide importance or PL-566</p>

		<p>airfield pavements to allow use by any other group or classification of airplane. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. As stated in the Purpose and Need the project is to ensure the runways and approaches are in compliance with FAR and TERPS design standards and to maintain current runway lengths to serve existing aviation users and to retain existing capacity. This project will simply maintain the 4,357 foot primary runway and the 3,579 foot crosswind runway, as well as preserve the existing airfield geometry and approach procedures in effect in February 2012.</p>	<p>divided into two categories. Primary standards were designed to protect against adverse health effects. See Table 4-1 National Air Quality Standards. Secondary standards were designed to protect against adverse welfare effects such as plant and material damage, odor, or reduction in visibility. On November 15, 1990, Congress passed amendments to the CAA to address the problem that many areas across the United States were in violation of the National Ambient Air Quality Standards (NAAQS) for ozone and/or carbon monoxide. These amendments, referred to as the Clean Air Act Amendments of 1990 (CAAA), were aimed at correcting weaknesses in the CAA provisions and tightening up the control requirements for states to develop new air quality designations, state implementation plans, and air quality strategies for those area not meeting the NAAQS. FAA's Order 5050.4B, "National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions" states that "The Federal Aviation Administration has the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts." If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the projected airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:</p> <p>a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecast annually; and</p> <p>b. If it is a general aviation airport and has less than 180,000 operations forecasted annually.</p> <p>Finally, as stated in FAA's Order 1050.1E, Environmental Impacts: Policies and Procedures; The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors from Federal actions that meet that following criteria.</p> <p>a. Reasonable foreseeable; and</p> <p>b. Can practically be controlled and maintained by the Federal agency through continuing program responsibility.</p> <p>"A conformity determination is not required if the emission caused by the proposed Federal action"... "If the action is listed as exempt or presumed to conform; or if the action is below the emission threshold (de minimis) level." If the project's emissions are below annual threshold levels (de minimis levels) and are not regionally significant, then the requirements of the general conformity regulation do not apply to the action or program.</p> <p>Kentucky Revised Statues (KRS), which is a set of laws that run in accordance with the Kentucky Constitution, details air quality regulations in Title IX – Counties, Cities, And Other Local Units; Chapter 77 Air Pollution Control (KRS Chapter 77). KRS Chapter 77 defines guidelines, law, regulations and enforcement procedures to ensure local and city regulations are in compliance with the State. KRS Chapter 77 also incorporates Federal Air Quality Standards into their regulations and standards. The Airport Pollution Control District of Louisville enforces these regulations and guidelines and works to ensure cleaner air for the residents of Louisville and Jefferson County.</p>	<p>watershed structures. See Natural Resources Conservation Service Coordination in Appendix E.</p> <p>4.6 Air Quality, Section 4.6.1: Air Quality Standards establish limits for various pollutants in the air. With passage of the Clean Air Act (CAA) in 1970 and amendments thereto, the Federal government began adopting standards for the entire country. Federal Air Quality Standards are divided into two categories. Primary standards were designed to protect against adverse health effects. See Table 4-1 National Air Quality Standards. Secondary standards were designed to protect against adverse welfare effects such as plant and material damage, odor, or reduction in visibility. On November 15, 1990, Congress passed amendments to the CAA to address the problem that many areas across the United States were in violation of the National Ambient Air Quality Standards (NAAQS) for ozone and/or carbon monoxide. These amendments, referred to as the Clean Air Act Amendments of 1990 (CAAA), were aimed at correcting weaknesses in the CAA provisions and tightening up the control requirements for states to develop new air quality designations, state implementation plans, and air quality strategies for those area not meeting the NAAQS. FAA's Order 5050.4B, "National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions" states that "The Federal Aviation Administration has the responsibility to assure that Federal airport actions conform to State Plans for controlling area wide air pollution impacts." If the proposed Federal action involves airport location, runway development or other physical airside and/or landside improvements which increase airport capacity, paragraph c (in FAA Order 5050.4B) shall be reviewed to determine if an air quality analysis needs to be done for the Environmental Assessment. If the proposed Federal action is in a state which does not have applicable Indirect Source Review (ISR) requirements, then the projected airport activity levels are examined. No air quality analysis is needed if the levels of activity forecast in the time frame of the proposed action are below those in either a or b below:</p> <p>a. If it is a commercial service airport and has less than 1.3 million passengers and less than 180,000 general aviation operations forecast annually; and</p> <p>b. If it is a general aviation airport and has less than 180,000 operations forecasted annually.</p> <p>Finally, as stated in FAA's Order 1050.1E, Environmental Impacts: Policies and Procedures; The General Conformity Rule covers direct and indirect emissions of criteria pollutants or their precursors from Federal actions that meet that following criteria.</p> <p>a. Reasonable foreseeable; and</p> <p>b. Can practically be controlled and maintained by the Federal agency through continuing program responsibility.</p> <p>"A conformity determination is not required if the emission caused by the proposed Federal action"... "If the action is listed as exempt or presumed to conform; or if the action is below the emission threshold (de minimis) level." If the project's emissions are below annual threshold levels (de minimis levels) and are not regionally significant, then the requirements of the general conformity regulation do not apply to the action or program.</p> <p>Kentucky Revised Statues (KRS), which is a set of laws that run in accordance with the Kentucky Constitution, details air quality regulations in Title IX – Counties, Cities, And Other Local Units;</p>
--	--	--	---	--

			<p>The following air quality information/actions will be considered during the construction of either alternative. See Exhibits 2A-2B – Kentucky Department of Environmental Protection Coordination in Appendix C.</p> <ul style="list-style-type: none">• The Kentucky Division for Air Quality Regulations 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precautions to prevent matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area, transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway.• The Kentucky for Air Quality Regulations 401 KAR 63:005 states that open burning is prohibited. Open burning is defined as the burning of any material in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purpose list in the Kentucky “Open Burning Brochure”.• The utilization of emission reduction strategies, were applicable. This includes; utilizing alternative fuel equipment, utilizing other emission controls that are applicable to specific equipment and reducing idling time on equipment. <p>Jefferson County is currently in attainment for most pollutants, including sulfur dioxide, carbon monoxide, ozone, lead, PM10 and nitrogen dioxide. However, the county is currently a non-attainment area for PM-2.5, thereby not achieving the national standard for air quality. In addition to PM-2.5, Louisville is listed as being in non-attainment for sulfur dioxide, as well. See Table 4-2 Jefferson County 2014 Air Quality Compliance.</p> <p>3.5 Inventory of Natural Environment, Section 3.5.4: The Commonwealth of Kentucky has many natural resources that are not only vital to Kentucky’s economy but to the economy of the United States. These natural resources include; natural gas, coal, lumber, rock products, and tobacco. In addition to these economic resources, Jefferson County also has several nature preserves with the goal of protection and education about the county and state’s biological resources. The Biotic Resources adjacent to the Airport will be discussed further in Chapter Four, Section Ten – Biotic Communities.</p>	<p>Chapter 77 Air Pollution Control (KRS Chapter 77). KRS Chapter 77 defines guidelines, law, regulations and enforcement procedures to ensure local and city regulations are in compliance with the State. KRS Chapter 77 also incorporates Federal Air Quality Standards into their regulations and standards. The Airport Pollution Control District of Louisville enforces these regulations and guidelines and works to ensure cleaner air for the residents of Louisville and Jefferson County. The following air quality information/actions will be considered during the construction of either alternative. See Exhibits 2A-2B – Kentucky Department of Environmental Protection Coordination in Appendix C.</p> <ul style="list-style-type: none">• The Kentucky Division for Air Quality Regulations 401 KAR 63:010 Fugitive Emissions states that no person shall cause, suffer, or allow any material to be handled, processed, transported, or stored without taking reasonable precautions to prevent matter from becoming airborne. Additional requirements include the covering of open bodied trucks, operating outside the work area, transporting materials likely to become airborne, and that no one shall allow earth or other material being transported by truck or earth moving equipment to be deposited onto a paved street or roadway.• The Kentucky for Air Quality Regulations 401 KAR 63:005 states that open burning is prohibited. Open burning is defined as the burning of any material in such a manner that the products of combustion resulting from the burning are emitted directly into the outdoor atmosphere without passing through a stack or chimney. However, open burning may be utilized for the expressed purpose list in the Kentucky “Open Burning Brochure”.• The utilization of emission reduction strategies, were applicable. This includes; utilizing alternative fuel equipment, utilizing other emission controls that are applicable to specific equipment and reducing idling time on equipment. <p>Jefferson County is currently in attainment for most pollutants, including sulfur dioxide, carbon monoxide, ozone, lead, PM10 and nitrogen dioxide. However, the county is currently a non-attainment area for PM-2.5, thereby not achieving the national standard for air quality. In addition to PM-2.5, Louisville is listed as being in non-attainment for sulfur dioxide, as well. See Table 4-2 Jefferson County 2014 Air Quality Compliance.</p> <p>The U.S. EPA was provided the Draft Environmental Assessment for review and comment. The U.S. EPA Region 4, which regulates federal air quality standards, stated based on their review of the document, the proposed project will not represent a significant impact to human health and the environment. See U.S. Environmental Protection Agency Region 4 Coordination in Appendix E.</p> <p>3.5 Inventory of Natural Environment, Section 3.5.4: The Commonwealth of Kentucky has many natural resources that are not only vital to Kentucky’s economy but to the economy of the United States. These natural resources include; natural gas, coal, lumber, rock products, and tobacco. In addition to these economic resources, Jefferson County also has several nature preserves with the goal of protection and education about the county and state’s biological resources.⁴⁷ The area adjacent to the Airport is primarily an urban landscape, with both neighborhoods and parks. When the Airport was established in 1919 the area surrounding the Airport was an agriculture</p>
--	--	--	--	---

⁴⁷ <http://naturepreserves.ky.gov/naturepreserves/Pages/default.aspx>

				field, primarily used for potato cultivation. The current landscape was established when development occurred around the Airport and includes trees that have been planted by residents of the neighborhoods and by the park district/golf courses. The Middle Fork of Beargrass Creek runs through the Golf Courses northeast and northwest of the Airport and will not be impacted by the proposed project. It is likely that urban bird and rodent species utilize these trees. However, the number of trees within the project area represents a small percentage of the area's overall inventory. The Biotic Resources adjacent to the Airport will be discussed in Chapter Four, Section Ten – Biotic Communities.
Page 4	"The MSD handout also provided a straightforward way to "value" trees, and KRC respectfully suggests that a proper Environmental Assessment would undertake such a valuation process in order to determine first, what value is being lost under the preferred alternative, and second, the appropriate level of mitigation, which is likely to be far above the meager 2:1 replacement that has been offered. The valuation process is stepwise: 1. Identify the tree species. In this instance, what are being lost are 250-300 trees, over 80% of which are native hardwoods and evergreens that are over 90 feet tall or higher, or would have grown to those heights. According to Seneca Garden arborist Michael Hayman, "the oaks, maples, elms, ash, and spruce that have shaded homes and Seneca park for decades won't be seen again in most of our or our children's lifetimes after the LRAA action." 2. Measure tree circumference at 4-5 feet from the ground. 3. Convert to diameter using formula diameter = circumference/3.14 4. Use tree benefits calculator at www.treebenefits.com/calculator to determine the benefits the trees provide."	<p>The Metro Sanitary District was provided a copy of the Environmental Assessment, requesting that they submit any questions, comments or concerns. If comments are received from their office they will be addressed in the Final Environmental Assessment.</p> <p>The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).</p>	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 4	The LRAA should be required to undertake such an analysis for each of the 104 trees, and for the replacement trees, and quantify the difference in terms of functions and values, which should form the basis for mitigation of environmental and health impacts.	The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 4	"Additionally, and notwithstanding the failure of the NHPA assessment to acknowledge that the trees are an integral part of the historic landscapes in these neighborhoods, the impact of the removal of these trees on the integrity of the historic neighborhoods must be discussed in the NEPA review. The Draft Environmental Assessment is so	The Airport and the LRAA will take this comment into consideration as they continue with the project.	No change to the Environmental Assessment.	No change to the Environmental Assessment.

	lacking in exploration and analysis of these adverse effects of the removal of the 104 additional trees (beyond the many already removed) that a new Draft should be issued once that analysis is completed."			
Page 4	The discussion of noise associated with the proposed removal of 104 mature trees is inadequate, and must be revised. While acknowledging that as a general matter, "urban and suburban areas are sensitive to the noise emissions resulting from aircraft operations at general aviation airports" (DEA at p. 23) such as Bowman Field, and acknowledging additionally that the implementation of Alternative 1 would "re-establish night time approaches for air traffic" and would "re-establish full use of airfield characteristics" to pre-February 2012 levels, the DEA nevertheless concludes that the tree removal and reinstatement of night-time aircraft landings would "not substantially" change the noise emissions within the adjacent neighborhoods.	The Federal Aviation Administration's Order 1050.1E, "Environmental Impacts and Procedures" Section 14.1-Analysis of Significant Impacts, Paragraph 14.4a states: "For proposed actions involving a single airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles, the initial analysis may be performed using the FAA's Area Equivalent Method (AEM) computer model. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. See Chapters 1 and 3 in the DEA.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 5	The analysis of impacts from a proposed action under NEPA must begin with the current conditions, not with a set of conditions that have not been present for over four years. A qualitative and quantitative assessment of the impact of additional noise emissions that would be associated with reinstatement of nighttime instrument landings over and above that associated with current airport use, and of the increase in the effect of airport noise associated with the removal of tree canopy, must be addressed in detail, including a discussion of actions that could be undertaken to mitigate those impacts.	The Federal Aviation Administration's Order 1050.1E, "Environmental Impacts and Procedures" Section 14.1-Analysis of Significant Impacts, Paragraph 14.4a states: "For proposed actions involving a single airport which result in a general overall increase in daily aircraft operations or the use of larger/noisier aircraft, as long as there are no changes in ground tracks or flight profiles, the initial analysis may be performed using the FAA's Area Equivalent Method (AEM) computer model. Neither of the reasonable alternatives contemplates or would include adding new facilities or runways or any other action that could lead in any manner to an increase in traffic at the Airport. The LRAA plans to acquire easements to control obstructions (trees) beyond Runways 06, 15, 24 and 33. The Airport is expected to maintain normal growth, suggesting that the current noise levels as of February 2012 will be present. See Chapters 1 and 3 in the DEA.	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 5	Finally, with respect to mitigation, the proposed commitments fail to adequately address the loss of tree canopy on the community, above those impacts on individual properties.	The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 5	As the LRAA is aware, the loss of tree canopy in the Metro Louisville area is both an environmental and public health concern. Mitigation for any tree loss as part of this project should include complete canopy replacement, which means the replacement of the functions and values of the mature trees, rather than simply replanting new sapling trees on a numerical basis of 2:1 for loss of mature trees. Those trees that cannot be replaced on the	The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).	No change to the Environmental Assessment.	No change to the Environmental Assessment.

	originating property should be planted nearby, with a goal of no net loss of canopy, functions, or values.			
Page 5	Further, the scope of mitigation, should mitigation be necessary, is not simply one-on-one interaction with individual property owners, but interaction with and involvement by the community for the loss of trees in public areas, e.g., Seneca Park, public places in the affected small cities. New trees must be maintained with scheduled watering and pruning and protected from mowers. A certified arborist should not just be on site, but making the pruning cuts.	The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 6	In addition, trees that may require removal after all other forms of mitigation have been exhausted will require appraisals that reflect the full aesthetic, economic, and environmental values that they provide. The trees should be evaluated according to the formula used by the International Society of Arboriculture, a formula which has been accepted widely by courts and by insurance companies. Valuation should be determined by a Registered Consulting Arborist from the American Society of Consulting Arborists.	The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).	No change to the Environmental Assessment.	No change to the Environmental Assessment.
Page 6	Finally, in determining compensatory mitigation for loss of trees taken, the values of the trees to individual homeowners and to the larger community must be assessed and those losses offset by compensation to the landowner. Replacement plantings are a component of mitigation, rather than an endpoint for compensatory mitigation for tree loss and easement acquisition.	The Federal Aviation Administration (FAA) provides funding for the acquisition of avigation easements and the trimming or removal of individual trees that have or may become an obstruction to the TERPS Approach Surfaces to Runways 06, 15, 24 and 33. In this case, those penetrations only include trees. The FAA does not provide funding for trees that may in the future become an obstruction to the TERPS Approach Surfaces. Therefore, without the federal funding, the tree replacement program is not part of the National Environmental Protection Act (NEPA) documentation. The tree replacement program is being fully funded and executed by the Louisville Regional Airport Authority (LRAA).	No change to the Environmental Assessment.	No change to the Environmental Assessment.