

---

## Section 4.0 Environmental Consequences

---

### 4.1 Introduction

This section of the Environmental Assessment (EA) presents an analysis of the impacts of the Preferred Alternative and the No-Build Alternative on the social, environmental and economic (SEE) environments of the surrounding area. In this section, the impacts of the No-Build Alternative are compared with those of the Preferred Alternative and used as a baseline for analysis. For a detailed discussion of the Preferred Alternative, see **Section 2.0 Alternatives Considered**.

As previously noted in **Section 2.15 Overview of Impacts**, once Alternative 23 was selected as the Preferred Alternative, it underwent a refinement process that included multiple revisions of the preliminary engineering plans created by CHA Corporation (**Appendix C Preliminary Engineering**) that attempted to first avoid, then minimize and then finally mitigate potential impacts. Revisions included items such as modifying proposed construction limits to avoid streams and wetland areas. Potential impacts have, in most cases, been greatly reduced from the initial calculations described in **Table 2.2 Environmental Impact Evaluation** found in **Section 2.0 Alternatives Considered**. This demonstrates a commitment by the Cuyahoga County Airport (Airport or CGF) to minimize environmental impacts. Revised impacts of Preferred Alternative 23 are provided in **Table 4-2 Environmental Summary of Preferred Alternative 23**, located at the end of this section.

Each subsection in this chapter includes first a brief summary of the regulatory issues and then an analysis of the topic relative to Alternative 23 and the No-Build Alternative, as well as any suggested mitigation plans.

### 4.2 Air Quality

National Ambient Air Quality Standards (NAAQS) have been established for air pollutants that have been identified by the US Environmental Protection Agency (USEPA) as being of concern nationwide. The Clean Air Act (CAA), its amendments and the Final Conformity Rule (40 Code of Federal Regulations [CFR] Parts 51 and 93) direct the USEPA to implement environmental policies and regulations that will ensure acceptable levels of air quality. The CAA and the Final Conformity Rule apply to Preferred Alternative 23.

Analysis and Mitigation of Air Quality Impacts: The CAA requires that a State Implementation Plan (SIP) be prepared for each nonattainment area, and a maintenance plan be prepared for each former nonattainment area that subsequently demonstrates compliance with the standards (and is now known as a maintenance area). The SIP is a state's plan on how it will comply with the NAAQS under the deadlines established by the CAA. USEPA's Conformity Rule requires SIP conformity determinations on plans, programs and projects before they are approved or adopted.

While Cuyahoga County is designated as an attainment area for many of the criteria pollutants, it is designated as a nonattainment area for 8-hour ozone, carbon monoxide (CO), particulate matter (PM<sub>10</sub> PM<sub>2.5</sub>) and sulfur dioxide (SO<sub>2</sub>). As such, the USEPA's General Conformity (GC) Rule (40 CFR Part 93) applies for these pollutants.

The project is not expected to cause long-term air quality impacts since an increase in the number of operations or use by larger aircraft is unlikely beyond normal projected growth. The implementation of Preferred Alternative 23 is not an airport capacity enhancement project, rather the project is intended to meet Federal Aviation Administration (FAA) safety area deficiencies and provide adequate runway length for existing Airport users. Emissions / dust generated during construction could affect local air quality levels temporarily, as there are sensitive land uses near the Airport boundary.

For this reason, the air quality analysis conducted for Preferred Alternative 23 provided limited analysis of the Proposed Action's impact on operational emissions, and instead focused on the construction phase impacts. The complete *Air Quality Technical Memorandum* is included in **Appendix D Air Quality**.

The following is a summary of the results of the air quality analysis:

- Because Preferred Alternative 23 is not expected to increase or alter operations at the Airport, operational phase emissions are not predicted to exceed the GC Rules de minimis emission thresholds. As such, air quality impacts from operations of the Proposed Action would not be subject to a conformity determination;
- Construction phase emissions are not predicted to exceed the GC Rules de minimis emission thresholds. As such, air quality impacts from construction of the Preferred Alternative 23 would not be subject to a conformity determination;
- Construction phase impacts are not predicted to exceed a NAAQS at applicable sensitive land uses adjacent to the Proposed Action; and
- Construction phase of the Proposed Action has no potential for Mobile Source Air Toxics (MSAT) effects.

Climate change and greenhouse gases are also a growing concern for the aviation industry. Based on FAA data, operations activity at the Airport relative to aviation throughout the United States represents less than 1% of US aviation activity. Therefore, assuming that greenhouse gases occur in proportion to the level of activity, greenhouse gas emissions associated with existing and future aviation activity would be expected to represent less than 0.03% of US-based greenhouse gases.

Air quality impacts and greenhouse emissions are not expected to be significant from the construction of Preferred Alternative 23 or the No-Build Alternative. A review of potential air quality impacts determined that neither operational phase emissions nor construction phase emissions are predicted to exceed regulatory standards. As a result, air quality impacts are not expected from the Preferred Alternative or the No-Build Alternative.

### 4.3 Biotic Resources and Migratory Birds

This section describes the biological characteristics of the flora and fauna located within the vicinity of the Airport that may be impacted by Preferred Alternative 23. A biotic community is an assemblage of living things residing together, including both plants and animals.

The *Migratory Bird Treaty Act of 1918* (MBTA) and its amendments are the main driver for the protection of migratory birds in the United States. Under the provisions of the MBTA, it is unlawful to “pursue, hunt, take, capture [or] kill any migratory birds except as permitted by regulations issued by the U. S. Fish and Wildlife Service”. The term “take” is not defined in the MBTA, but USFWS has defined it by regulation to mean to “pursue, hunt, shoot, wound, kill, trap, capture or collect” any migratory bird or any part, nest or egg of any migratory bird covered by the conventions, or to attempt those activities”.

In a biological sense, a migratory bird is a bird that has a seasonal and somewhat predictable pattern of movement. Generally, migratory birds are defined as all native birds in the United States, except those non-migratory species such as quail and turkey that are managed by individual states.

Streams, wetlands, floodplains, and wildlife habitat are found throughout the vicinity of the Airport. The East Branch of Euclid Creek is located approximately 3,000 feet to the northwest with tributaries and associated wetlands and floodplains surrounding the Airport (**Figure 4-1 Environmental Overview Map**).

The East Branch of Euclid Creek drains 23 square miles, consists of over 43 miles of stream segments and flows directly into Lake Erie. The water quality of Euclid Creek is not in attainment with Ohio Environmental Protection Agency’s (OEPA) water quality standards.<sup>1</sup> Major issues affecting the water quality of Euclid Creek include:

- Uncontrolled runoff of phosphorous and other nutrients from urban development and poor land management practices
- Loss of habitat resulting in low fish populations
- Flash flood events that erode stream banks
- Illegal discharges of septic systems and combined sewer overflow outlets

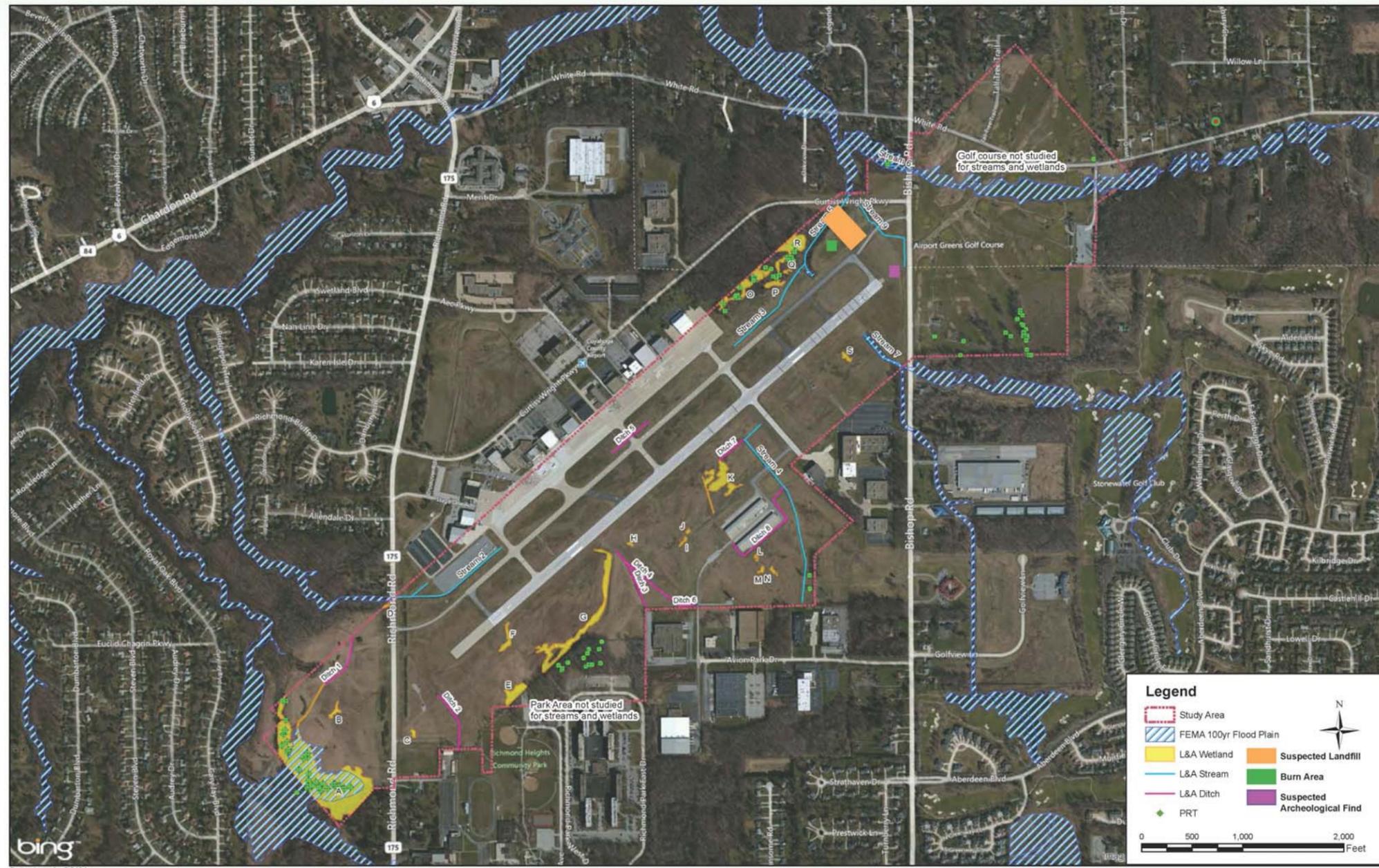
---

<sup>1</sup> Euclid Creek Watershed Council Community Specific Watershed Fact Sheet, 2011

Figure 4-1 Environmental Overview Map

# Cuyahoga County Airport (CGF) Environmental Assessment

## Environmental Overview



Analysis and Mitigation of Biotic Communities and Migratory Bird Impacts: Although various natural resources are found in the vicinity of the Airport, limited habitat is found within the area of expected disturbance of Preferred Alternative 23. The Airport property is mostly mowed turf grasses and provides very little quality habitat. The project should have minimal overall impacts to biotic resources. The impact area for Alternative 23 is expected to be contained within existing Airport property with the exception of some tree removals off of each runway end that represent obstructions in the runway approaches.

Early coordination with the U.S. Fish and Wildlife Service (USFWS) indicates that there are no federal wilderness areas, wildlife refuges, or designated critical habitat within the study area. However, coordination with other resource agencies resulted in a “mixed” determination of the potential presence of biotic communities. A review by the Ohio Department of Natural Resources (ODNR) found no rare or endangered species within a one mile radius of the Airport. However, coordination with the USFWS and the ODNR Division of Wildlife confirmed that the Airport is located within the range of a variety of federally or state threatened or endangered species including:

- Indiana Bat
- Northern Long-Eared Bat
- Snuffbox Mussel
- Piping Plover
- Kirtland’s Warbler
- Canada Darner
- Black Bear
- King Rail



**Typical Airport Habitat**

See **Appendix E Agency Coordination** for agency correspondence relating to biotic communities.

To verify the presence of ecological resources and to determine potential impacts within the study area, an ecological survey to delineate wetlands and water resources, and to evaluate potential habitat was conducted by qualified biologists in the spring of 2013 and 2014. See **Appendix F Ecological Report** for the results of the ecological survey of the project area. (**Appendix F** contains an abbreviated version of the ecological report; the full version is enclosed as a separate technical document.)

Biologists confirmed the existence of potential roosting trees for the Indiana Bat and Northern Long-Eared Bat in and around the Airport, but determined habitat for the other species listed by the various regulatory agencies was not present and impacts are not expected. To mitigate possible impacts to bat habitat, any tree removals will not be allowed from March 31<sup>st</sup> to October 1<sup>st</sup> per USFWS direction. See **Section 4.8 Endangered and Threatened Species** for additional information.

As previously mentioned, tree impacts are expected as a part of Preferred Alternative 23. During the analysis of potential obstructions off the end of each runway, many trees were identified that may have to be removed or pruned due to their existing height. Per FAA guidance, obstructions should not penetrate or enter into the approach surfaces of arriving or departing aircraft. Anticipated mitigation for tree impacts would likely be associated with the purchase of avigation easements or in unusual situations, a one-time replacement with a low-growing species to help mitigate impacts. Specific mitigation will be determined during final design in coordination with the property owner, the FAA, and the Airport.

Nine regulated streams were identified within the limits of Airport property. It was determined that eight are hydrologically connected to the East Branch of Euclid Creek or its tributaries and are regulated under the Clean Water Act. To avoid impacts to regulated streams, the design of Preferred Alternative 23 was refined to avoid stream impacts altogether. As a result, no stream impacts are expected. For a discussion on impacts to the East Branch of Euclid Creek and other water resources in the project area, see **Section 4.20 Water Quality**.

Nineteen wetland complexes were delineated within the boundaries of the Airport; however only 11 wetland complexes (3.918 acres) are expected to be impacted by Preferred Alternative 23. Proposed mitigation consists of an in-lieu fee option as described in the February 9, 2015, United States Army Corps of Engineers (USACE) letter found in **Appendix N Comments on the Draft EA**. See **Section 4.21 Wetlands** for additional information about the wetland resources in the project area and proposed mitigation.

Although regulatory agencies did not direct the project team to investigate eagles, two large nests were observed during the ecological surveys adjacent to the study area in the vicinity of the golf course northeast of the Airport. According to golf course staff, these nests were likely used by Bald Eagles in the past, but are now likely occupied by Osprey.

To further investigate the nests, coordination with the ODNR indicated no record of nesting sites for Eagles or Osprey within the vicinity of the Airport. In addition, during field investigations, biologists saw no activity at the nests and it is suspected that the nests are abandoned. Although no longer federally listed as threatened or endangered by the USFWS, bald eagles are protected under the Federal Bald and Golden Eagle Protection Act of 1972 as well as the MBTA. If the nests become active again at a later time, a permit may be required for the removal or relocation of these nests.

Field investigations found that the study area contained marginal potential nesting and foraging areas for migratory birds. The potential nesting and foraging areas were not considered "rare" or "high quality" by the ODNR Natural Heritage Program. Impacts to migratory birds as a result of Preferred Alternative 23 are unlikely due to the characteristics of the proposed area of ground disturbance within existing maintained Airport property. Because a majority of the area is constantly mowed, the resulting vegetation is considered "poor" in its ability to provide shelter or roosting habitat for migratory birds. However, to avoid potential impacts to migratory birds, any vegetation clearing beyond turf grasses will be restricted from March 31<sup>st</sup> to September 1<sup>st</sup>.

No adverse impacts to biotic communities or migratory birds are expected with the construction of Preferred Alternative 23 or the No-Build Alternative.

#### **4.4 Coastal Barriers**

The *Coastal Barrier Resources Act of 1982* requires that no new Federal expenditures or financial assistance may be made available for construction projects within the boundaries of the Coastal Barriers Resource System.

Analysis and Mitigation of Coastal Barriers Impacts: There are no coastal barriers or any areas subject to the *Coastal Barrier Resources Act of 1982* or the *Coastal Barrier Improvement Act of 1990* in the project area. Therefore, Preferred Alternative 23 and the No-Build Alternative will have no adverse coastal barrier impacts, as defined by the *Coastal Barrier Act of 1982* (P.L. 97-348).

#### **4.5 Coastal Zone Management**

The *Coastal Zone Management Act of 1972* established the Federal Coastal Zone Management Program to encourage and assist states in preparing and implementing management programs to “preserve, protect, develop, and where possible, to restore or enhance the resources of the nation’s coastal zone”.

Analysis and Mitigation of Coastal Zone Management Impacts: The project is not located within a Federal Coastal Zone Management Boundary, as defined by the *Coastal Zone Management Act of 1972*. Therefore, Preferred Alternative 23 or the No-Build Alternative would have no adverse coastal zone impacts.

#### **4.6 Compatible Land Use**

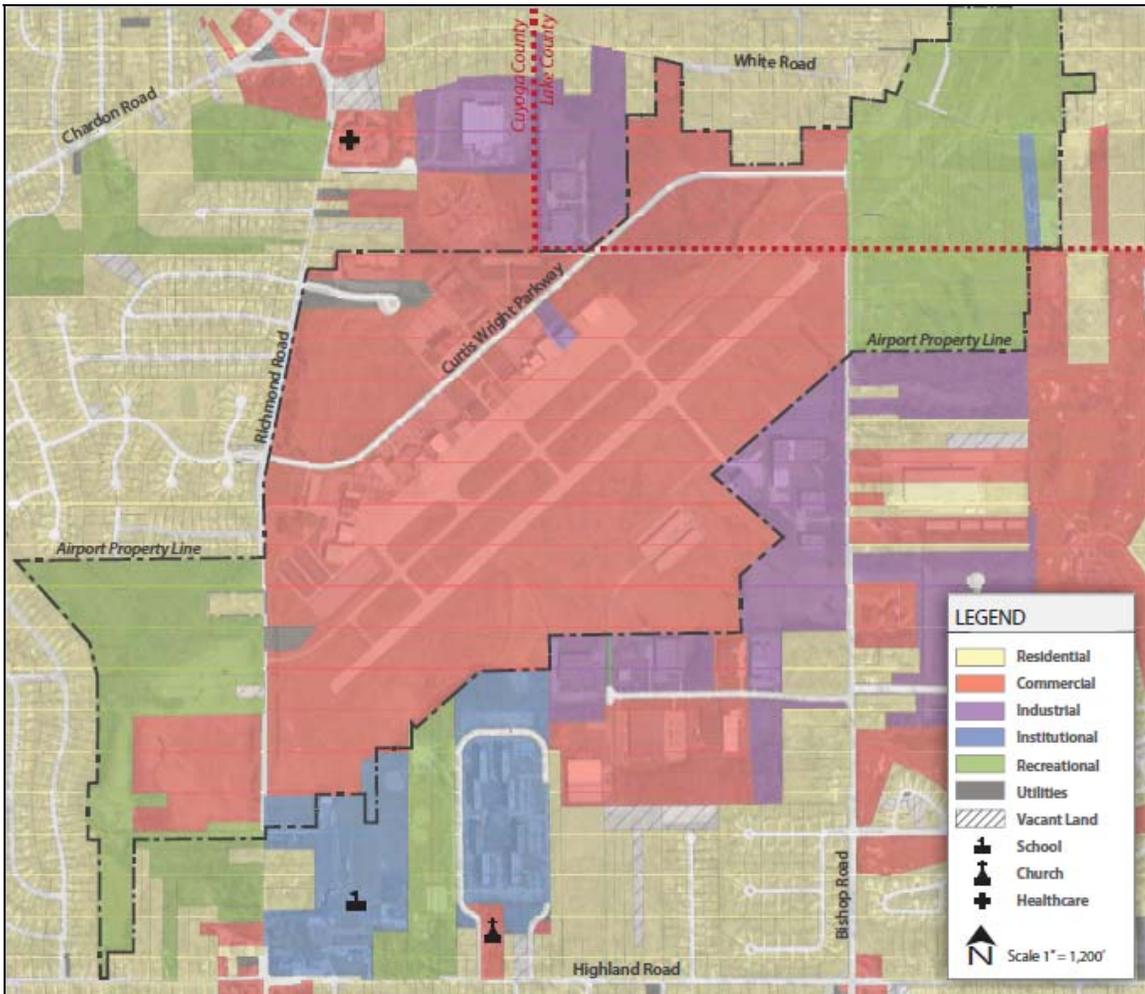
Compatible land use is described in FAA Order 5050.4B, - *NEPA Instructions for Implementing Airport Actions*, as “the compatibility of existing and planned land uses in the vicinity of an airport is usually associated with the extent of the noise impacts related to that airport.” The degree of annoyance which people suffer from aircraft noise varies depending upon their activities at any given time. The concept of “land use compatibility” has arisen from the variation in human tolerance of aircraft noise.

In addition, according to FAA Advisory Circular (AC) 150/5200-33B, *Hazardous Wildlife Attractants on or near Airports*, the FAA requires that consideration be given to the potential increases in wildlife attractants that a project may create and that an assessment be taken of potential incompatible land uses near airports such as solid waste landfills, waste water treatment facilities, and wetlands that may act as wildlife attractants.

Analysis and Mitigation of Compatible Land Use Impacts: Overall, land use in Richmond Heights, Highland Heights and Willoughby Hills is primarily residential. However, there is a cluster of commercial, industrial and recreational uses around the Airport that generally provide a buffer between Airport operations and residential development (**Figure 4-2 Land Use Map**). The area zoning map defines the Airport as industrial so the Airport is a permitted use in the current zoning

district. These uses are compatible with Airport operations. **Section 3.0 Affected Environment** provides a detailed inventory of land uses and zoning around the Airport.

**Figure 4-2 Land Use Map**



A noise analysis was completed as part of this project to define expected noise impacts with Preferred Alternative 23 and the No-Build Alternative. Using the FAA Integrated Noise Model (INM) Version 7.0b, potential noise impacts were analyzed out to the year 2022 with Preferred Alternative 23 and the No-Build Alternative. The modeling illustrated that the 65 Day-Night Level (DNL) noise contour does not fall outside of Airport property for existing and future operations and does not exceed the threshold of significance. Noise impacts are not expected with either Preferred Alternative 23 or the No-Build Alternative. See **Section 4.16 Noise** for details on the noise analysis.

No significant land changes would occur with Preferred Alternative 23. All development will take place on existing Airport property and existing land use patterns will remain unchanged.

Analysis and Mitigation of Hazardous Wildlife Attractants: Preferred Alternative 23 will not create or increase hazardous wildlife attractants on or near the Airport. There are no land use elements

of the project that are considered hazardous wildlife attractants. The design of Preferred Alternative 23 will not introduce or expand any natural features associated with wildlife attractants such as water or food sources.

There are existing wildlife attractants around the Airport such as wetlands and water resources (Euclid Creek). These are existing resources and subject to regulatory protection. There are no landfills or wastewater treatment facilities in the vicinity of the Airport.

An analysis of the Runway Protection Zone (RPZ) associated with Preferred Alternative 23 identified 12 parcels that were located within the new RPZ. These parcels must be addressed through acquisitions or easements to provide for compatible land uses. Any relocation will comply with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Airports are encouraged by the FAA to control land uses within the RPZ for the protection of Airport users and the adjacent local community.

No significant land use changes are expected with either Preferred Alternative 23 or the No-Build Alternative. Development will take place on existing Airport property and existing land use patterns around the Airport are expected to remain relatively unchanged since there are limited opportunities for new development. Furthermore, as noted in **Section 4.8**, the noise analysis concluded that Preferred Alternative 23 will not cause the 65 DNL noise contour to leave Airport property. Based on this information, it is concluded that Preferred Alternative 23 and the No-Build Alternative are compatible with existing land uses.

## 4.7 Construction

In accordance with the *FAA Environmental Desk Reference for Airport Actions*, the impacts to the environment due to construction activities must be assessed when preparing an EA. Construction impacts are commonly short-term and temporary in nature. Typical impacts resulting from airport construction include air, water, and noise pollution. In addition, surface transportation traffic patterns may be altered during construction. Typical impacts include:

- Noise from construction equipment and related activities at the site
- Noise and dust from delivery of materials through residential areas
- Air pollution from burning debris
- Use and mitigation of borrow and waste sites
- Excessive dust

Analysis and Mitigation of Construction Impacts: Aircraft operations at the Airport will be affected during the construction of Preferred Alternative 23. A phased construction approach is proposed with up to five phases over five years. The final construction schedule will be determined based on FAA funding availability. During construction, various portions of the Airport will be reconfigured to allow the Airport to remain open and functional albeit at a reduced level of service. A critical part of the construction is the use of the parallel taxiway (Taxiway A) as a temporary runway during several phases of construction. At the beginning and end of specific phases, the taxiway will be marked and remarked, respectively, to turn it into a runway and back into a taxiway at the conclusion of construction phases. A summary of the various phases is

provided below and graphically illustrated in **Appendix C Preliminary Engineering**. Construction phases include:

- Phase I: Taxiway A would be converted from a parallel taxiway to a temporary runway meeting design standards for B-II aircraft which represent only a small portion of the Airport fleet mix. This temporary runway could provide as much as 5,000 feet of runway length, with visual approaches to each end. Runway 6/24 would remain open during this phase.
- Phase II: Construction on Runway 6/24 would begin with the south (Runway 6) end. Runway 6/24 would be closed during this phase and the temporary runway (Taxiway A) would be utilized.
- Phase III: Construction on Runway 6/24 would shift to the north (Runway 24) end during this phase and Runway 6/24 would be closed during the construction season. Taxiway A would be converted into a temporary runway.
- Phase IV: Construction on Runway 24 would conclude in this phase with the reconstruction of the primary runway pavements. During this phase, Taxiway A would be used as temporary runway again.
- Phase V: The final phase would be the installation of the EMAS at both runway ends. Runway 6/24 would experience temporary closure during construction, however, Taxiway A would not be used as a temporary runway during this final phase of construction.

Construction activities will cause aircraft disruptions, but disruptions are temporary in nature. Once construction of Preferred Alternative 23 is complete, Airport operations will return to normal. To help minimize and mitigate construction impacts, FAA Advisory Circular 150/5370-10, *Standards for Specifying Construction of Airports*, Item P-156, Temporary Air and Water Pollution, Soil Erosion and Siltation Control will be incorporated in the construction design of Preferred Alternative 23.

Soil erosion is a major source of concern as a possible adverse impact of construction projects. Since the Airport site is generally flat, there is not expected to be a high risk for soil erosion during the excavation and site preparation process. Erosion control measures such as sediment traps, silt fences, and temporary grassing will be employed, as appropriate, during the construction phases. Vegetation cover will be replaced as soon as possible. Soil erosion will be minimized through the implementation of an erosion control plan prepared under the provisions of FAA AC 150/5370-10, *Standards for Specifying Construction of Airports*.

The USEPA was contacted to evaluate the proposed construction at the Airport. Their response included the following short-term recommendations for the construction of Preferred Alternative 23. These recommendations will be considered and incorporated during construction where appropriate:

- Use ultra-low sulfur fuel (less than 15 parts per million) in all diesel engines
- Use add-on controls such as catalysts and particulate traps where suitable
- Minimize engine idling (e.g. 5-10 minutes/hour)
- Use equipment that runs on clean, alternative fuels as much as possible

- Use updated construction equipment that was either manufactured after 1996 or retrofit to meet the 1996 emissions standards
- Use equipment at 75 percent power
- Prohibit engine tampering and require continuing adherence to manufacturer's recommendations
- Maintain engines in top running condition tuned to manufacturer's specifications and turn off when not in use
- Phase project construction to minimize exposed surface areas
- Reduce speeds to 10 and 15 miles per hour (mph) in construction zones
- Conduct unannounced site inspections to ensure compliance
- Locate haul routes and staging areas away from sensitive population centers, if possible

Adverse impacts on water quality due to erosion and subsequent sedimentation are also prime considerations during construction. Per OEPA direction, since over one acre of land is expected to be impacted, a Division of Surface Water (DSW) General National Pollutant Discharge Elimination System (NPDES) permit for construction activities is required. In addition, the Airport currently has an industrial storm water permit in place, however, an updated Storm Water Pollution Prevention Plan (SWP3) is required upon completion of construction.

Mitigation measures prepared under an erosion control plan in accordance with FAA AC 150/5370-10, *Standards for Specifying Construction of Airports*, will help minimize long-term impacts to area water quality and to the existing drainage system. In addition, the specification in FAA AC 150/5320-5C, *Surface Drainage Design*, will be used to draft contract specifications.

There will be no substantial long-term construction impacts associated with Preferred Alternative 23 or the No-Build Alternative. All anticipated construction-related impacts are considered routine and can be easily mitigated through the regulatory permitting process and the use of Best Management Practices (BMPs). See **Appendix E Agency Coordination** for a copy of the USEPA early coordination letter.

#### **4.8 Endangered and Threatened Species**

As noted in **Section 4.3 Biotic Resource and Migratory Birds**, there are species that need to be considered. This section focuses on the potential impacts of the Proposed Action on species listed as endangered, threatened, or of special concern by the federal and state government. Endangered and threatened species are protected from harm pursuant to federal and state law. Species of special concern are not formally afforded regulatory protection; however, any reduction in their number or habitat is a concern from a state, regional and national perspective.

*The Endangered Species Act of 1973 (ESA)*, [16 U.S.C. §§ 1531-1544] [PL 93-205] as amended, applies to federal agency actions that may affect an endangered or threatened species and provides for the protection of certain plants and animals, and the habitats in which they are found. In compliance with the ESA, agencies overseeing federally-funded projects are required to obtain information concerning any species listed, or proposed to be listed, which may be present in the area of the proposed project, from the USFWS as well as applicable state agencies with local jurisdiction.

Analysis and Mitigation of Endangered and Threatened Species Impacts: Multiple agencies provided comments on this topic as outlined below. Early coordination with the USFWS indicated that there are no federal wilderness areas, wildlife refuges or designated critical habitat within the proposed project area. Due to the project type, size and location, no adverse effects to any federally-endangered, threatened, proposed or candidate species are anticipated with the exception of the Indiana Bat and Northern Long-Eared Bat. In addition, a review of the Ohio National Heritage Database by the ODNR found no record of rare or endangered species within a one-mile radius of the Airport. See **Appendix E Agency Coordination** for correspondence from regulatory agencies referenced in this section.

According to the USFWS, the proposed project site is within the range of the Indiana Bat, a federally endangered species, and the Northern Long-Eared Bat which is currently a federally proposed endangered species. The Northern Long-Eared Bat was not originally included in the USFWS early coordination, but was added to the target species list through verbal communications as part of an online resource agency meeting held October 17, 2013.

Coordination with ODNR Division of Wildlife also confirmed that the project is within the range of the Indiana Bat and includes five other federally and/or state endangered species:

- Piping Plover
- Kirtland's Warbler
- Canada Darner
- Black Bear
- King Rail

According to the ODNR Division of Wildlife, impacts to the Piping Plover and Kirtland's Warbler are not likely due to their use of the area only as "stopover habitat" during migration and impacts to the Black Bear are unlikely due to the mobility of this species. Impacts to the Canada Darner and King Rail are dependent on impacts to wetlands and marsh vegetation respectively.

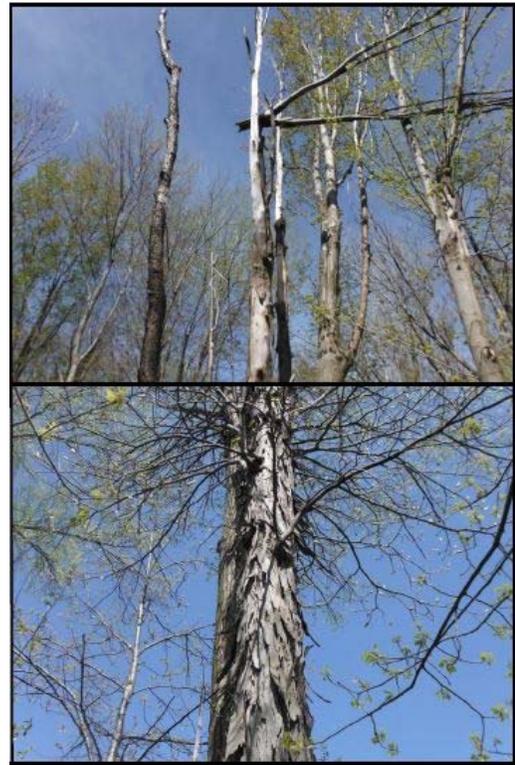
In order to move forward with the proposed project, an analysis of the study area and field habitat investigations were performed by qualified biologists in the spring of 2013 and 2014. The field investigations examined the area for potential endangered species and migratory bird habitat. They also identified potential impacts and defined appropriate mitigation. The study area for the analysis included the fenced property of the Airport and adjoining properties. See **Appendix F Ecological Report** for details of the field investigations and habitat surveys, including methods, photographs and maps. (**Appendix F** contains an abbreviated version of the ecological report; the full version is enclosed as a separate document.)

Results of the initial field investigations and subsequent activities are summarized below for each target species.

Indiana Bat and Northern Long-Eared Bat: During the primary field investigations, multiple potential roost trees for the Indiana Bat and the Northern Long-Ear Bat were observed. Field surveys found three types of potential bat habitat: (1) marginal potential bat habitat (few to no potential habitat observed), (2) assumed concentrated potential bat habitat (potential habitat observed on private property with no permission to enter), (3) confirmed concentrated potential bat habitat (direct observation of potential bat habitat).

Additional coordination was conducted with the USFWS in April 2014, regarding the results of the habitat surveys and tree clearing restrictions as proposed mitigation. The USFWS indicated the coordination in April 2014 was sufficient to serve as determination of effects for their review and concurrence.

To protect habitat for the Indiana Bat and the Northern Long-Ear Bat, the USFSW recommends saving potential roosting trees and surrounding trees where possible. Where cutting or removal of these trees cannot be avoided, the USFSW restricts such activities from March 31<sup>st</sup> through October 1<sup>st</sup>. Because the proposed project may not be able to avoid impacts to potential roosting trees and surrounding trees, cutting or removals will comply with these date restrictions to mitigate impacts to the Indiana Bat as well as the Northern Long-Eared Bat.



Dead Potential Roost Tree (top),

Living Potential Roost Tree (bottom).

Piping Plover and Kirtland's Warbler: According to the primary field investigations, the study area does not contain potential habitat for the Piping Plover due to the Airport's maintenance program and its use as an active airport and contains very limited habitat (young Jack Pine trees) for Kirtland's Warbler. The study area is mostly maintained, grassy areas and does not provide the kind of habitat that these two species prefer. Proposed construction at the Airport is unlikely to result in displacement or disturbance of these protected species.

Canada Darner, Black Bear and King Rail: During the primary field investigations, no Canada Darner, Black Bear or King Rail were observed. The project site contains wetlands of low quality which are unlikely to provide habitat for Canada Darner. The Black Bear is a mobile species and able to vacate the area, and the project site does not contain marsh vegetation required by the King Rail. Therefore, proposed construction at the Airport is unlikely to result in displacement or disturbance of these protected species.

Snuffbox Mussel: While the primary investigation did not determine the presence or absence of the Snuffbox Mussel, the biologist found very limited potential habitat for this species due to the nature of the substrate of the streams within the study area. In addition, as explained in **Section**

**4.20 Water Quality**, no streams are anticipated to be impacted by the construction of Preferred Alternative 23. Impacts to aquatic resources within the study area are unlikely to result in displacement or disturbance of these protect species.

The FAA made the following findings for the species discussed above:

- Snuffbox mussel, Kirtland's warbler, and Piping plover – no effect
- Indiana bat – may affect but is not likely to adversely affect

The USFWS concurred with the FAA's determination on March 3, 2015. The correspondence letter is located in **Appendix N Comments on the Draft EA**. Field investigations and subsequent findings indicate that any adverse impacts from Preferred Alternative 23 or the No-Build Alternative to federal or state-listed endangered, threatened, candidate, or special concern species can be adequately mitigated and no long-term impacts are expected.

## **4.9 Energy Supplies, Natural Resources, and Sustainable Design**

This section examines the potential changes in the demand for energy or natural resources that would have a significant measurable effect on local supplies due to the implementation of the Proposed Action. Energy requirements associated with an airport usually fall into two categories: those which relate to changed demands for stationary facilities and those which involve the movement of air and ground vehicles. Examples of these include airfield lighting, terminal building heating and cooling systems, and aircraft and passenger vehicles.

FAA guidance typically states that airport improvement projects do not generally increase the consumption of energy or natural resources to the point that significant impacts would occur unless it is found that implementation of a proposed project would cause demand to exceed supply.

Analysis and Mitigation of Energy Supply and Natural Resources Impacts: Electrical or gas use required to operate Airport facilities is not expected to noticeably increase as a result of the proposed project. A small amount of increased energy consumption may result from additional runway lighting; however, the amount is expected to be negligible. Where possible, LED lights will be used to further reduce energy consumption.

The nature of the project does not lend itself to increased energy or natural resources use beyond temporary energy consumption associated with construction of the Preferred Alternative. Therefore, the Preferred Alternative or the No-Build Alternative would have no adverse energy supply and natural resources impacts.

## **4.10 Farmlands**

The *Farmland Protection Policy Act of 1981* (FPPA) was enacted to minimize the extent to which federal actions and programs contribute to the unnecessary and irreversible conversion of farmland to non-agricultural uses.

Pursuant to the FPPA, farmland can be classified as “prime farmland”, “unique farmland”, or “farmland that is of statewide or local importance.” Prime farmland has the best combination of

physical and chemical characteristics for producing food, forage, fiber and oilseed crops. Unique farmland is defined as land other than prime farmland that is used for the production of specific high-value food and fiber crops such as citrus, tree nuts, olives, cranberries, fruits and vegetables. Any federal action which may result in conversion of farmland to a non-agricultural use requires coordination with the Natural Resource Conservation Services (NRCS).

Analysis and Mitigation of Farmland Impacts: Most of the land inside of Airport boundary is considered prime farmland - if drained. However, soils found off the end of Runway 24 are not classified as prime; this is where the majority of the construction is proposed. There are no active farms in the project area and no farmland will be taken out of production. No prime soils will be drained and any proposed construction in areas with prime soils will be reconstruction of existing pavement.

In addition, agency coordination was initiated with the NRCS at the start of the project. It was determined by the NRCS that the project area has been committed to urban development and is not subject to FPPA. As a result, no farmland impacts from the Preferred Alternative or the No-Build Alternative are expected. See **Appendix G Farmlands** for NRCS correspondence and soil maps of the area.

#### 4.11 Floodplains

A floodplain is generally a flat, low-lying area adjacent to a stream or river that is subjected to inundation during high flows. The relative elevation of different floodplains determines their frequency of flooding, ranging from rare, and severe storm events to flows experienced several times a year. For example, a 100-year floodplain would include the area of inundation that has a one percentage chance of flooding in any given year. Construction projects within a 100-year floodplain are discouraged.

Analysis and Mitigation of Floodplain Impacts: Federal Emergency Management Agency (FEMA) geographic information system (GIS) flood data maps were obtained and incorporated to aid in floodplain avoidance during the preliminary design of Preferred Alternative 23 (**Figure 4-1 Environmental Overview Map**). Correspondence from FEMA and the City of Willoughby Hills also confirmed the presence of a Special Flood Hazard Area (SFHA) located east of Bishop Road.

Various floodplains were found in the vicinity of the Airport, mostly adjacent to the East Branch of Euclid Creek and its tributaries. Through a careful refinement of Preferred Alternative 23, no construction activities are anticipated to impact any floodplains, water bodies or tributaries of Euclid Creek within the study area.

Therefore, it is expected that the Preferred Alternative and the No-Build Alternative will have no adverse floodplain impacts. If however, during final design, work is proposed in an area designated as floodplain, a permit would be required. See **Appendix E Agency Correspondence** for correspondence pertaining to area floodplains.

## 4.12 Hazardous Materials

A Phase I Environmental Site Assessment (ESA) was completed in conformance with the scope and limitations of American Society for Testing and Materials (ASTM) Designation: *E 1527-05,b Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process and the FAA Environmental Due Diligence Audit Advisory Circular 1050.19*.

Analysis and Mitigation of Hazardous Materials Impacts: The Phase I ESA was conducted for potential hazardous material sites in and around the Airport and areas outside of the potential limits of construction of Preferred Alternative 23. Field investigations identified a variety of aboveground storage tanks (ASTs), underground storage tanks (USTs), sites listed on the Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) List; Emergency Response Notification System (ERNS); and the Ohio Spill Database. Several sites adjacent to the Airport are also listed as Resource Conservation and Recovery Act generators of hazardous waste. An excerpt from the Phase I Technical Report is found in **Appendix H Hazardous Materials Report**. The 500-page Phase I ESA Report is available under separate cover.

According to Mr. Dave Frank of the Cuyahoga County Airport and Chief Turner of the Highland Heights Fire Department, controlled burn-offs of fuels were previously conducted in the grassy area northeast of Taxiway A. Mr. Frank also noted that a historic landfill may be located in this area. Research and interviews with other Airport officials could not collaborate or confirm the existence of a historic landfill. In addition, the OEPA indicated that they have no information on file of the landfill and no additional evidence has been found to substantiate its existence.

In several cases, the Phase I ESA recommended additional investigations. However, at the time of the Phase I ESA study, the limits of construction of Preferred Alternative 23 were not known and thus the potential impact area was much larger than its current limits. As the preliminary design of Preferred Alternative 23 became more refined, any site identified in the Phase I ESA as recommended for additional investigations will be avoided and no disturbance of those sites are expected. Construction of Preferred Alternative 23 is proposed to be on the same alignment and on existing paved areas with the exception of the proposed EMAS beds on which no contaminated sites were found.

Coordination with the OEPA indicates that any potential hazardous waste encountered or generated during the construction efforts must be properly handled or disposed of in compliance with Ohio Administrative Code (OAC) 3745-52-11 and subsequent regulations. See OEPA's letter found in **Appendix N Comments on the Draft EA** for additional information.

The Preferred Alternative and the No-Build Alternative are not expected to have impacts to hazardous materials.

## 4.13 Historic and Archaeological

According to FAA Order 5050.4B, National Environmental Policy Act (NEPA) *Implementing Instructions for Airport Projects*, two basic laws apply to this impact category. The first law, the *National Historic Preservation Act of 1966*, as amended, "[r]ecommends measures to coordinate

*Federal historic preservation matters, to recommend measures to coordinate Federal historic preservation activities and to comment on Federal actions affecting historic properties included in or eligible for inclusion in the National Register of Historic Places.”*

The second law, the *Archaeological and Historic Preservation Act of 1974*: “[p]rovides the survey, recovery, and preservation of significant scientific, prehistorical, historical, archeological, or paleontological data when such data may be destroyed or irreparably lost due to a Federal, Federally licensed, or Federally funded project.”

Historical, Architectural, and Cultural Resources Impacts: Section 106 of the National Historic Preservation Act (NHPA) requires federal agencies to consider the effects of their actions on historic properties as defined in 36 CFR Part 800. An analysis was conducted to ascertain whether there are any historical, architectural or cultural resources within the area of potential effect (APE). The results of the investigation are summarized in the following sections.

Analysis and Mitigation of Historical, Architectural and Cultural Resources: The APE for architectural and historical resources was determined in consultation with the FAA and the Ohio Historic Preservation Office (OHPO). It was defined as an irregular polygon that roughly follows the existing southwest/northeast orientation of the runway, encompassing 660 acres of existing Airport property, as well as properties where obstruction mitigation and approach clearing outside of Airport property is expected to occur. Properties within the 65 DNL noise contour for Preferred Alternative 23 were also assessed.

Within the APE, architectural historians looked for buildings, structures, and objects that were at least 50 years old that had retained sufficient historic integrity, and appeared to be potentially eligible for the National Register of Historic Places (National Register) based on architectural and/or historical significance. The National Cooperative Highway Research Program (NCHRP) Report 723 “*A Model for Identifying and Evaluating the Historic Significance of Post-World War II Housing*” was used to survey and evaluate resources within the APE survey area because it was largely comprised of postwar housing and development. A literature review of a 1.24-mile (2-kilometer) radius from the proposed project area was also completed in 2013.

The literature review found that the only previously surveyed resource located in the APE is the Curtiss-Wright Hangar found on Airport property. No new properties located within the APE met the survey criteria. The proposed project activities are not expected to effect the architectural or historical significance of the Curtiss-Wright Hangar. Therefore, no further architecture/history work is recommended.

Archaeological Impacts: A Phase I Archaeological Survey was completed for areas within the APE that have not been previously disturbed. The goals of this survey were to determine whether archaeological resources exist within the study area, and to determine whether any identified resources meet the NRHP Criteria for Evaluation. The archaeological investigations for this project were conducted in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1992, U.S.C. 470f and standard archaeological field techniques based upon 1994 guidelines from the OHPO were employed.

Analysis and Mitigation of Archaeological Impacts: Before fieldwork began, a standard records and literature search was conducted to identify previously recorded archaeological sites and/or historic properties in or near the present project area (within 2 km). Following the records search, three methods of investigation were utilized during this Phase I archaeological survey: visual inspection, soil probing, and systematic shovel testing. The fieldwork consisted of visual inspection of the entire surveyed area which is made up of two areas, known as the EMAS areas, located at each end of the runway. The entire surveyed area was visually inspected to identify readily apparent archaeological resources such as mounds, earthworks, and building or structural remnants, and to document areas of disturbance and/or steep slopes. Then shovel test units were excavated within both EMAS surveyed areas. One potentially historic archaeological site was found (33CU0530) in the northeast EMAS area.

The one previously undocumented site was a small piece of glass, most likely from the Fairmont Glass Works Company and likely deposited during Airport construction activities in the 1970s. Based on the lack of evidence of intact subsurface deposits or cultural features at this site, it is not recommended eligible for inclusion in the National Register and no further testing is recommended.

During construction of Preferred Alternative 23, acquisition of property and/or easements for obstruction and RPZ mitigation may be required. Once the Airport determines which parcels require tree removals, additional archaeological investigations may be needed to determine effect. The Airport proposes to coordinate with OHPO to identify previously undisturbed areas prior to any ground disturbing activities and determine appropriate mitigation. Possible mitigation includes having a qualified archaeologist present during stump removal or grubbing activities to observe and document any historical or archaeological finds. It is expected that most areas are previously disturbed and minimal additional archaeological work will be necessary.

No Native American coordination was conducted as there are no federally recognized tribes in the State of Ohio.

The FAA made a finding of “no historic properties affected.” The OHPO concurred with this federal determination on September 25, 2014. The Preferred Alternative and the No-Build Alternative are not expected to have impacts on historic or archaeological resources. This concludes the Section 106 Consultation Process.

For details of the historic and archaeological investigations and OHPO concurrence, see **Appendix I Section 106 Report**.

#### **4.14 Induced Socioeconomic**

Induced or secondary socioeconomic impacts are changes in regional growth and development patterns such as shifts in residential and related population distribution and growth, public service demands, and business and economic activity brought about by development of a facility. Induced socioeconomic impacts are further compounded by any substantial adverse impact in the noise, land use and social categories.

Analysis and Mitigation of Induced Socioeconomic Impacts: Because the Airport is currently operational and all proposed improvements will take place on Airport property, neither the pattern of population movement near the project area nor the demand for public services is expected to be altered at the regional level due to the implementation of the Preferred Alternative or the No-Build Alternative.

An economic impact study of the Airport was conducted as part of the EA to calculate the ongoing impacts of the Airport to the economies of Cuyahoga and Lake Counties. The report found that on-airport aviation activity impacts alone, which include the direct effects of both the Airport administration and operations and Airport tenants, directly support 93 jobs and \$17.3 million in annual sales, and support an additional 78 jobs in the wider regional economy. The report also looked at multiplier impacts on the wider economy. The report found that nearly 90% of the economic impacts and 90% of the employment supported by the Airport are associated with businesses that are located off-airport in the regional economy. The report concluded that in total, the Airport contributes more than \$200 million annually and supports almost 1,000 jobs in the two counties. The economic impact study is included in **Appendix J Economic Study**.

In the short-term, construction activities may directly benefit the regional economy through the creation of temporary, construction-related jobs. Equipment and materials necessary for the construction project will be purchased in the local area, provided they are readily available. In the long-term, Preferred Alternative 23 may support the expansion of existing businesses or attraction of new businesses to the Airport or to the region. Conversely, it is anticipated that under the No-Build Alternative, aviation capabilities and the utility of the Airport could decline if pavement conditions worsen over time. This could have a negative impact on the regional economy.

It is anticipated that the Preferred Alternative will improve the aviation capabilities and utility of the Airport and thus enhance the socioeconomic character of the surrounding area. It is concluded that the Preferred Alternative would have no adverse induced socioeconomic impacts, but under the No-Build Alternative, significant negative socioeconomic impacts are likely.

#### **4.15 Light Emissions and Visual Effects**

Aviation lighting required for security, obstruction identification, and navigation are the chief contributors to light emissions radiating from airports. An analysis is necessary when projects include the introduction of new or the relocation of existing airport lighting facilities that may affect residential or other light-sensitive areas in proximity to an airport. FAA guidance states that only in unusual circumstances would the impact of light emissions be considered sufficient to warrant a special study and a more detailed examination of alternatives, such as high-intensity strobe lights shining directly into residences or overhead apron, parking, or streetlights creating a glare that affects pilots and air traffic controllers.

Analysis and Mitigation of Light Emissions Impacts: Preferred Alternative 23 will require the relocation of approach lighting and some additional runway and taxiway lighting fixtures. The addition of new lighting structures will be minimal and any new lighting structures will be in locations similar to existing lighting fixtures. Most land uses immediately surrounding the Airport

are commercial or recreational and are not susceptible to lighting impacts. As a result, the Preferred Alternative and the No-Build Alternative are not expected to have any light related impacts.

#### 4.16 Noise

As per FAA Order 5050.4B, National Environmental Policy Act (NEPA) *Implementing Instructions for Airport Actions*, any project that proposes an airport, runway location, runway strengthening or a major runway expansion requires a noise analysis. A noise analysis was required for Preferred Alternative 23 under these provisions.

The noise modeling and noise exposure maps were computed using 2012 calendar year operations and the FAA's Integrated Noise Model (INM) Version 7.0b. The INM is an accepted industry tool for evaluating aircraft noise impacts in the greater vicinity of airports. The INM describes aircraft noise in Yearly Day-Night Average Sound Level (DNL). DNL accounts for the increased sensitivity to noise at night (10:00 pm to 7:00 am). The INM has many analytical uses, such as assessing changes in noise impacts resulting from new or extended runways or runway configurations, assessing new traffic demand and fleet mix, assessing alternative flight profiles and assessing modifications to operational procedures. **Appendix K Noise** provides a complete description of the methodology used and the results of the noise analysis.

The FAA's threshold of significance is a 1.5 DNL increase in noise over any noise-sensitive area located within the 65 DNL contour. If an action results in an increase within the 65 DNL contour of 1.5 DNL or greater on any noise-sensitive area, it becomes necessary to do further analysis and quantify in more detail the impact on the specific area and determine possible mitigation measures.

Analysis and Mitigation of Noise Impacts: To accurately understand noise exposure at the Airport, aircraft operational data was obtained from Airport management and the Air Traffic Control Tower (ATCT) staff and was combined with FAA approved aviation forecasts (see **Appendix A Forecast of Operations**). The specific data required for input into the INM includes:

- Aircraft fleet mix and the number of operations in a selected time period
- the time of day each aircraft type uses the Airport
- runway utilization for each aircraft
- flight tracks the aircraft use when approaching or departing a particular runway

Noise contours represent noise exposure over a 24-hour period based on average annual day conditions at the Airport. The weighted DNL metric is used to statistically predict the amount of annoyance that cumulative noise exposure would have on a typical population.

Five scenarios of runway alternative noise contours were developed for the EA:

- Scenario 1 – Existing 2012 operations without Proposed Action (baseline)
- Scenario 2 – Future 2017 operations without Proposed Action
- Scenario 3 – Future 2017 operations with Proposed Action
- Scenario 4 – Future 2022 operations without Proposed Action

- Scenario 5 – Future 2022 operations with Proposed Action

In all five scenarios, the 65 DNL contours remain on Airport property. The proposed 400-foot extension to Runway 6/24, coupled with the future operations, would not cause the 65 DNL contour to fall on other land uses outside the Airport boundary. Since the 65 dB DNL contour does not fall outside Airport property, it can be determined there are no noise impacts associated with Preferred Alternative 23. Similarly, there are no noise impacts associated with the No-Build Alternative.

As noted in **Section 4.7 Construction**, construction of Preferred Alternative 23 is expected to be completed in five phases over the course of five years. During the beginning phases of construction, the short-term use of the parallel taxiway as a temporary runway is proposed. Due to aircraft using the taxiway as a runway, a noise analysis was also completed for the taxiway. The forecasted noise impacts of using the taxiway as a temporary runway were compared to the 2017 No-Build Alternative (2017 is the expected year of first use of the taxiway as a temporary runway). This noise analysis was also conducted using the Day/Night Noise Level (DNL) noise metric.

In the 2017 No-Build Alternative the 65 DNL contours remain on Airport property. In the 2017 Taxiway Alternative the 65 DNL contours intersects with three parcels off Airport property. Two of these parcels were determined to be vacant with the third parcel considered a residential property. Although the 65 DNL does intersect the residential property, it is considered a temporary impact as the taxiway will only be used for a brief amount of time during the construction of the runway. It is determined that the proposed temporary use of the taxiway as an alternative landing surface during construction on Runway 6/24 will not cause significant noise impacts.

It should be noted that the Airport has a noise complaint procedure in place whereby local residents have the ability to register noise complaints to be officially recognized by the Airport.

Preferred Alternative 23 and the No-Build Alternative are not expected to have any long-term noise related impacts.

#### **4.17 Section 4(f)**

Section 4(f) of the Department of Transportation Act states that the Secretary of Transportation will not approve any program or project that requires the use of any publicly owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance or land from a 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, and the project includes all possible planning to minimize harm resulting from the use.

Analysis and Mitigation of Section 4(f) Impacts: A public golf course (Airport Greens), is located on the northeastern side of the Airport within Airport property boundaries. Although the golf course is owned by the Airport, it is still considered a public resource. As a result of the proposed action, some existing approach lights may need to be relocated along an existing gravel road on

the golf course property and some trees will need to be pruned or removed as they represent obstructions to the approach surface; however there will be no impacts to the golf course itself. A lease is currently in place between Cuyahoga County and the golf course that grants the Airport the right to modify navigational aids or perform work that is in accordance with latest Airport Master Plan.

Other Section 4(f) resources located near the Airport that are shown on **Figure 4-2 Land Use Map**. These include the Richmond Heights Community Park on the south side of the Airport and the Richmond Heights Schools property located immediately west of the city park which includes the Elementary School (grades K-6) and the Secondary School (grades 7-12). The school property has recreation facilities including a track and a playground. However, there will be no impacts to either of these properties as a result of construction activities, noise or air quality impacts. Therefore, no Section 4(f) impacts are expected with the Preferred Alternative or No-Build alternative.

#### **4.18 Socioeconomic Impacts, Environmental Justice and Children's Environmental Health and Safety Risks**

Socioeconomic Impacts: Major airport development projects can impact the socioeconomic conditions of surrounding communities. For this project, social impacts were assessed to determine the effects of Preferred Alternative 23 on the social fabric of the surrounding communities. The types of social impacts that usually arise from airport developments include:

- Relocation of residences, businesses, or farms
- Alteration of surface transportation patterns that may temporarily restrict community access
- Disruption of established communities
- Disruption of orderly, planned development
- Creation of appreciable changes in employment

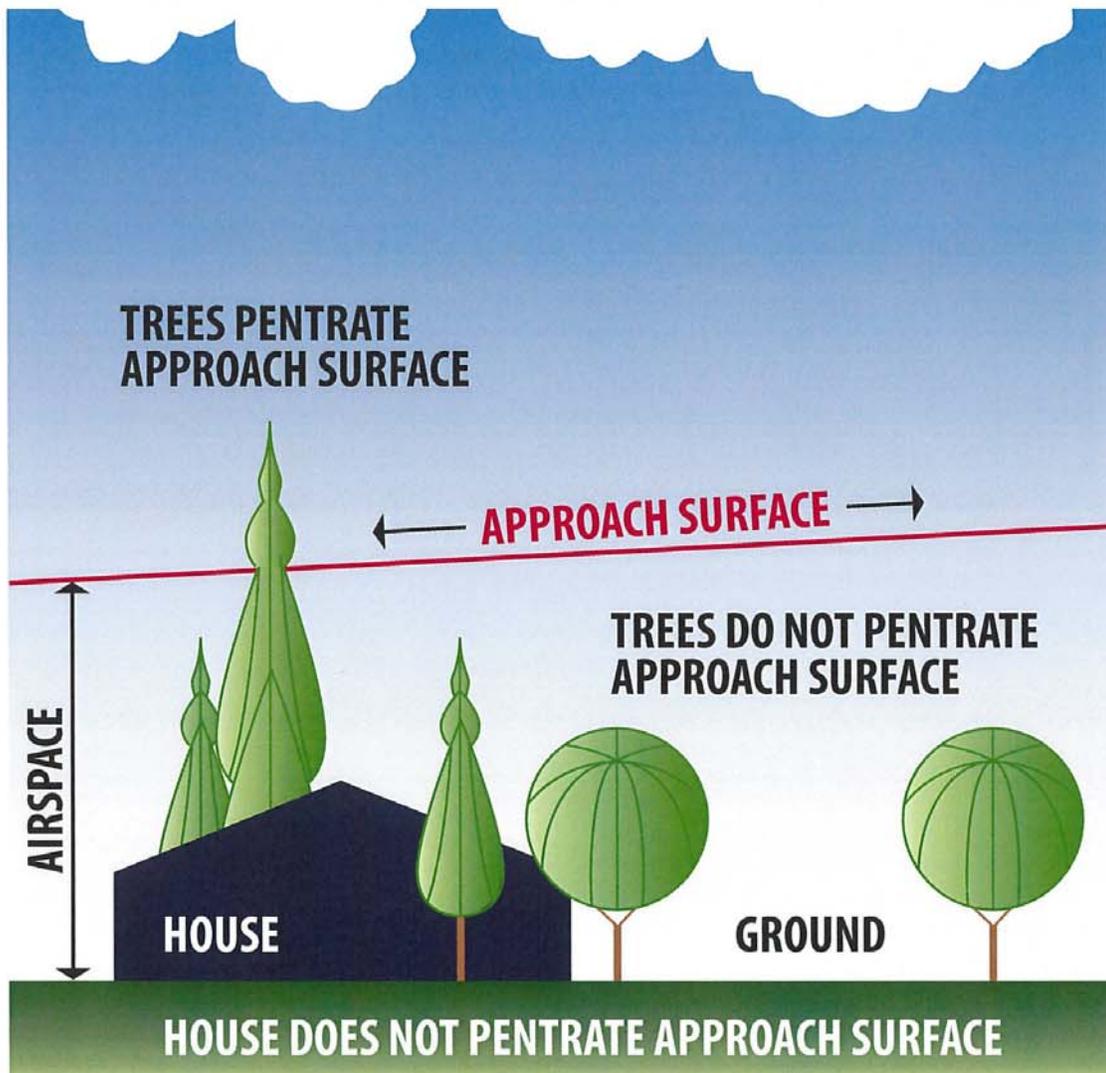
Analysis and Mitigation of Social Impacts: All proposed construction will take place on existing Airport property. No business or farm relocations will be required as part of this project. However, impacts to residential properties are anticipated as part of Preferred Alternative 23. These impacts include clearing obstructions in the runway and taxiway approaches and potential property acquisition or easements for parcels in the RPZ. Any relocations will comply with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. See **Appendix L Property Impacts** for details and maps of potential property impacts. See **Figure 4-3 Obstructions** for a graphic explanation of an obstruction.

During the analysis of potential obstructions off the end of each runway, it was discovered that various obstructions (mostly trees) at many locations were penetrations of the approach surfaces. Per FAA guidance, obstructions are not permitted to penetrate or enter into these surfaces. Common obstructions include items such as trees, buildings, poles and towers.

Figure 4-3 Obstructions

## Defining Obstructions

Federal Aviation Regulation (FAR) Part 77 establishes standards for the creation of five surfaces that provide for clear airspace in the vicinity of an airport. The FAR Part 77 surface most critical to this project include the Runway Protection Zones (RPZ) and the Approach Surface. FAR Part 77 also provides criteria for determining and defining objects that may pose potential obstructions to air navigation. As the name implies, obstructions are not permitted to penetrate or enter into the required clear surfaces. These can include items such as trees, buildings, poles, and towers. Obstructions are identified based upon the specific requirements of the FAR Part 77 surfaces associated with each individual runway end.



After the new runway end points were calculated for Preferred Alternative 23, the new RPZ off each runway end was analyzed to determine if incompatible land uses were found. It was determined that a portion of 12 parcels fell within the limits of the new RPZ. Airports are encouraged by the FAA to control land uses within the RPZ through either acquisition or easements for the protection of the Airport users and the local community.

Once obstructions and RPZ incompatibilities are identified and their location confirmed relative to specific parcels, a determination is made whether the parcel should be purchased in fee or if an avigation easement is appropriate. Historically, there have been a blend of properties within the RPZ being purchased in fee as well as avigation easements. Avigation easements purchase the right to control the height of objects on the property and the right to remove objects that penetrate various approach surfaces and can limit certain incompatible land uses.

Fee acquisitions usually require that all objects on the property be removed and the site be returned to a clear parcel. Avigation easements usually require that only the objects that are identified as obstructions be removed to reduce their impact to the approach surface. In the example of a tree, it is usually most desirable to remove the tree to ground level to avoid any future growth. However, pruning may be an option depending upon issues such as the health of the tree, the amount of pruning necessary and the proximity to the RPZ and the approach surface.

As shown in **Appendix L Property Impacts**, obstruction removal (mostly tree clearing/pruning) on both runway ends (6 and 24) will be required as part of Preferred Alternative 23 and some obstruction clearing will also be required on both taxiway ends. As noted in **Section 4.7 Construction**, taxiway tree clearing is required because the taxiway will be used as a temporary runway during various phases of construction. Currently, obstructions (trees) in the runway approaches are classified as either a penetration of the approach surface today or a potential obstruction in the future. Future obstructions are trees that are less than 10 feet below the approach surface elevation, but will most likely grow and become a penetration before construction is complete. The Airport continues to coordinate with the FAA to reduce the amount of tree removal/pruning that will be necessary, however, the maps in **Appendix L Property Impacts** represent the most conservative assessment of the impacts to date base on FAR Part 77 Surfaces. The Airport decided this was the most prudent way to analyze obstructions in order to fully disclose all of the potential impacts.

Avigation easements are not currently in place and will be needed prior to tree clearing/pruning for the approach surface obstructions. Mitigation for tree impacts may include either a one-time monetary compensation associated with the purchase of an avigation easement or in unusual situations, a one-time replacement with a low-growing species (preferably a tree or shrub species not supportive of bird habitat nor known to create a wildlife attractant). Specific mitigation will be determined during final design in coordination with the property owners, the FAA, and the Airport. Removal of the existing trees and the one-time vegetation replacement is included in the project costs. Continued maintenance of the low-growing vegetation is not proposed beyond the initial cost of the plantings in the RPZ. For additional discussion of tree clearing impacts see **Section 4.3 Biotic Communities**.

Preliminary design of the Preferred Alternative suggests that 12 properties may be impacted; three are on the Runway 6 end and 9 are on the Runway 24 end. Of the 12 parcels impacted, three are owned by Cuyahoga County or the City of Richmond Heights. Although full acquisition is preferred for properties within the RPZ, partial acquisition or an avigation easement is also an option for parcels with a small amount of land within the RPZ. Cuyahoga County has begun contacting and coordinating with potentially impacted property owners and if property is purchased, residents will be relocated in compliance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Resources will be made available without discrimination.

Beyond obstruction and RPZ impacts, no other community disruptions are expected to surface transportation, established communities or appreciable changes in employment. It is concluded that although minor impacts are expected with Preferred Alternative 23, they can be mitigated. As a result, no long-term impacts are expected. The No-Build Alternative will have no adverse social impacts, however, the identified obstructions (trees) would remain and continue to grow and would have to be cleared at some point in the near future.

Environmental Justice and Children's Safety Impacts: The purpose of Executive Order 12898 - *Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations*, is to identify, address, and avoid disproportionately high and adverse human or environmental effects on minority and low-income populations. Environmental Justice is defined as the right to a safe, healthy, productive, and sustainable environment for all, where "environment" is considered in its totality to include the ecological, physical, social, political, aesthetic and economic environments. In compliance with Executive Order 12898, the US Census data presented in **Section 3.0 Affected Environment** was reviewed to determine the characteristics of people living in proximity to the Airport. All three cities surrounding the Airport are affluent communities with median household incomes and housing values that are higher than Cuyahoga County as a whole.

Similarly, FAA Order 1050.1E requires the identification of any potential environmental health risks to children as stated: *"Environmental health risks and safety risks include risks to health and safety that are attributable to products or substances that a child is likely to come in contact with or ingest, such as air, food, drinking water, recreational waters, soil, or products they might use or be exposed to."*

Analysis and Mitigation of Environmental Justice and Children's Safety Impacts: All safety improvements and runway reconstruction work will take place on the current Airport property. Some minor impacts to residential property to address obstructions and RPZ land use compliance are anticipated, but it is expected that these can be mitigated. Obstruction and property impacts are divided equally between Richmond Heights and Willoughby Hills because they are defined by the safety areas off of each runway end. No other environmental health risks are identified with Preferred Alternative 23 and no minority or low-income group would be disproportionately affected by implementation of the project.

In addition, a noise analysis was completed that looked at current and future operations, with and without the project. The analysis determined that the 65 DNL contour (threshold for noise

impacts) did not fall outside Airport property and environmental justice impacts are not expected. See **Section 4.16 Noise** for additional noise discussions.

It is unlikely that the development of either Preferred Alternative 23 or the No-Build Alternative will result in adverse environmental justice impacts or create any environmental health or safety risks that could disproportionately affect children as stated in FAA Order 1050.1E.

#### **4.19 Solid Waste**

In accordance with FAA Advisory Circular (AC) 150/5200-33B, *Hazardous Wildlife Attractants on or near Airports*, the FAA recommends that solid waste landfills (along with other wildlife attractant uses) be located at least 10,000 feet from an airport serving turbine-powered aircraft.

Analysis and Mitigation of Solid Waste Impacts: The Preferred Alternative is not anticipated to substantially increase the quantity of solid waste generated at the Airport since there are no new large generators of waste being added to the existing Airport facilities. The proposed improvements would, however, generate a small amount of construction debris. Existing solid waste facilities are capable of accommodating the disposal of solid waste and construction-related debris. The USEPA recommends project plans include all waste material or construction debris be recycled and reused on-site where possible.

The closest solid waste facility (ArcelorMittal Cleveland LLC) is approximately 19 miles west of the Airport located in the City of Cleveland. Given that this facility is located well over 10,000 feet away from the Airport, an evaluation for a potential wildlife attractant is not needed nor does a potential hazard from a solid waste facility exist.

Preferred Alternative 23 and the No-Build Alternative are not expected to have any adverse solid waste impacts.

#### **4.20 Water Quality**

FAA Order 1050.1E references the Clean Water Act, which provides the federal government with the authority to regulate activities related to water quality, including controlling discharges, preventing or minimizing loss of wetlands, and protecting local aquifers or sensitive ecological areas. In essence, the quality of ground and surface water must not be degraded by the planned construction or operations associated with the proposed development.

The water resources of the area are fairly abundant and include ditches, wetlands and streams. Specifically, the East Branch of Euclid Creek and its tributaries are located near the Airport property. The Airport property is relatively flat, with runoff draining to the north and northwest. Surface runoff from the property discharges into several unnamed tributaries to Euclid Creek. The Airport is located within the Cuyahoga River Watershed.

To evaluate potential water quality impacts, a USACE and OEPA compliant stream delineation was conducted by a qualified biologist in the study area of the Airport. The survey was intended to determine the locations and limits of streams and drainage features, appraise their types and functions, assess their regulatory status and evaluate potential impacts from the proposed project (see **Figure 4-4 Environmental Field Work – East** and **Figure 4-5 Environmental Field Work**

– **West**). Final jurisdictional status of onsite water features falls under the authority of the USACE and OEPA. References to jurisdictional status is the opinion of the project team and no USACE jurisdictional determinations have been completed. A jurisdictional determination must be completed prior to the start of construction. See **Appendix F Ecological Report** for additional details of the stream delineation including information about hydrology inventory analyses and the results of field investigations. (**Appendix F Ecological Report** contains an abbreviated version of the ecological report; the full version is enclosed as a separate technical document.)

Streams: The field investigation identified nine streams within the study area. Eight of these appear to be hydrologically connected to the East Branch of Euclid Creek and are regulated under the Clean Water Act.

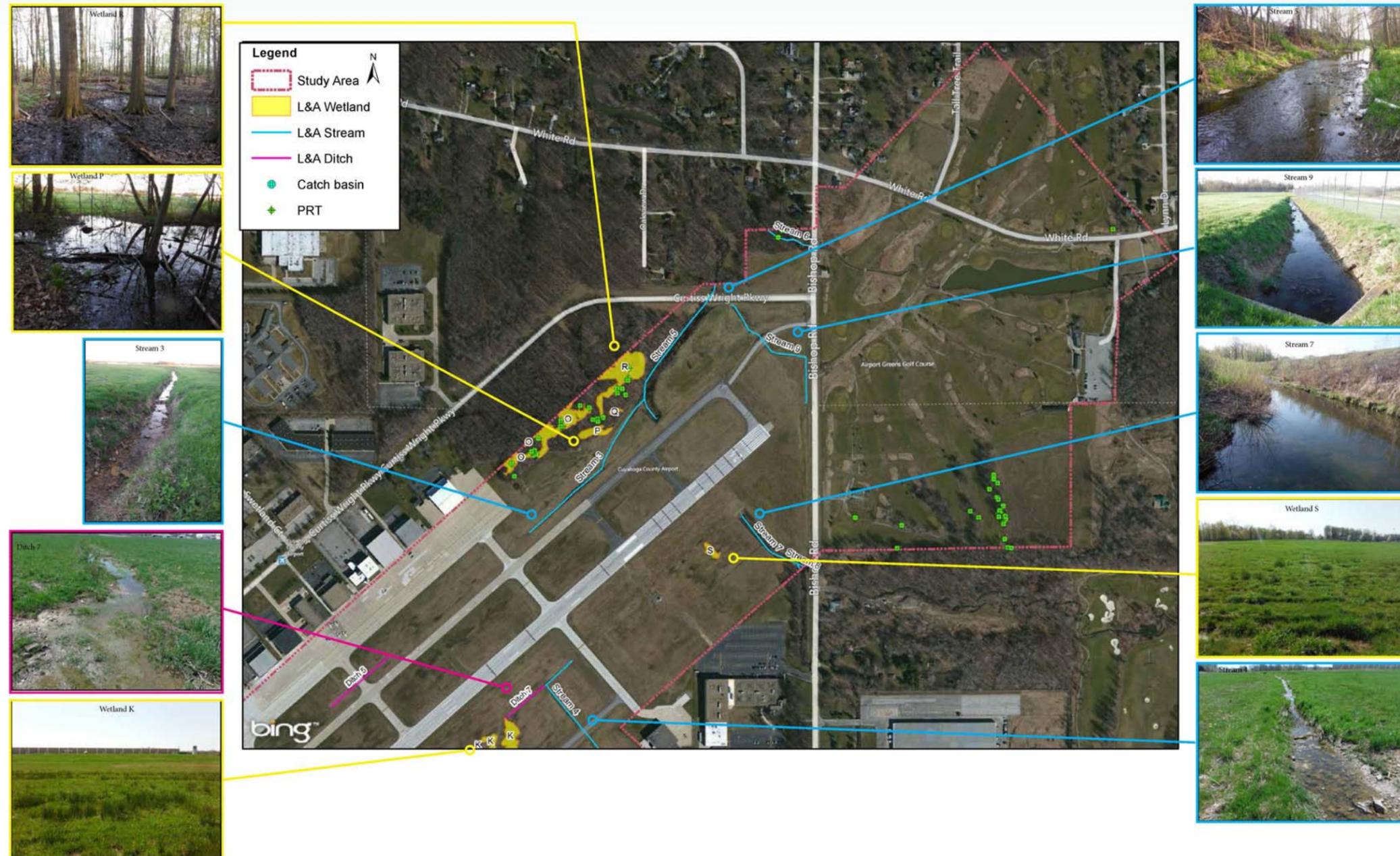
Drainage Features (Ditches): The field delineation identified eight drainage features or channelized ditches within the study area. Four of these appear to be hydrologically connected to East Branch Euclid Creek and are jurisdictional and regulated under the Clean Water Act. Ditches are maintained by Cuyahoga County.

Airport Deicing Operations: Deicing activities at the Airport are handled in a variety of ways. For operations inside of hangars prior to aircraft departure, deicing agents are applied and drain into the sanitary sewer system for final treatment. For outside ramp and runway deicing operations, deicing agents are applied and excess fluid flows into existing pavement drains and is treated as storm water runoff. The handling of deicing agents is in compliance with the existing industrial storm water permit.

Other Waters: As the Airport uses city water and sewer services, field investigation located two storm water catch basins within the study area. The first receives surface and storm water runoff from the parking areas while the second receives surface runoff from the runway. These basins are not considered regulated natural resources due to the maintenance required to preserve their function.

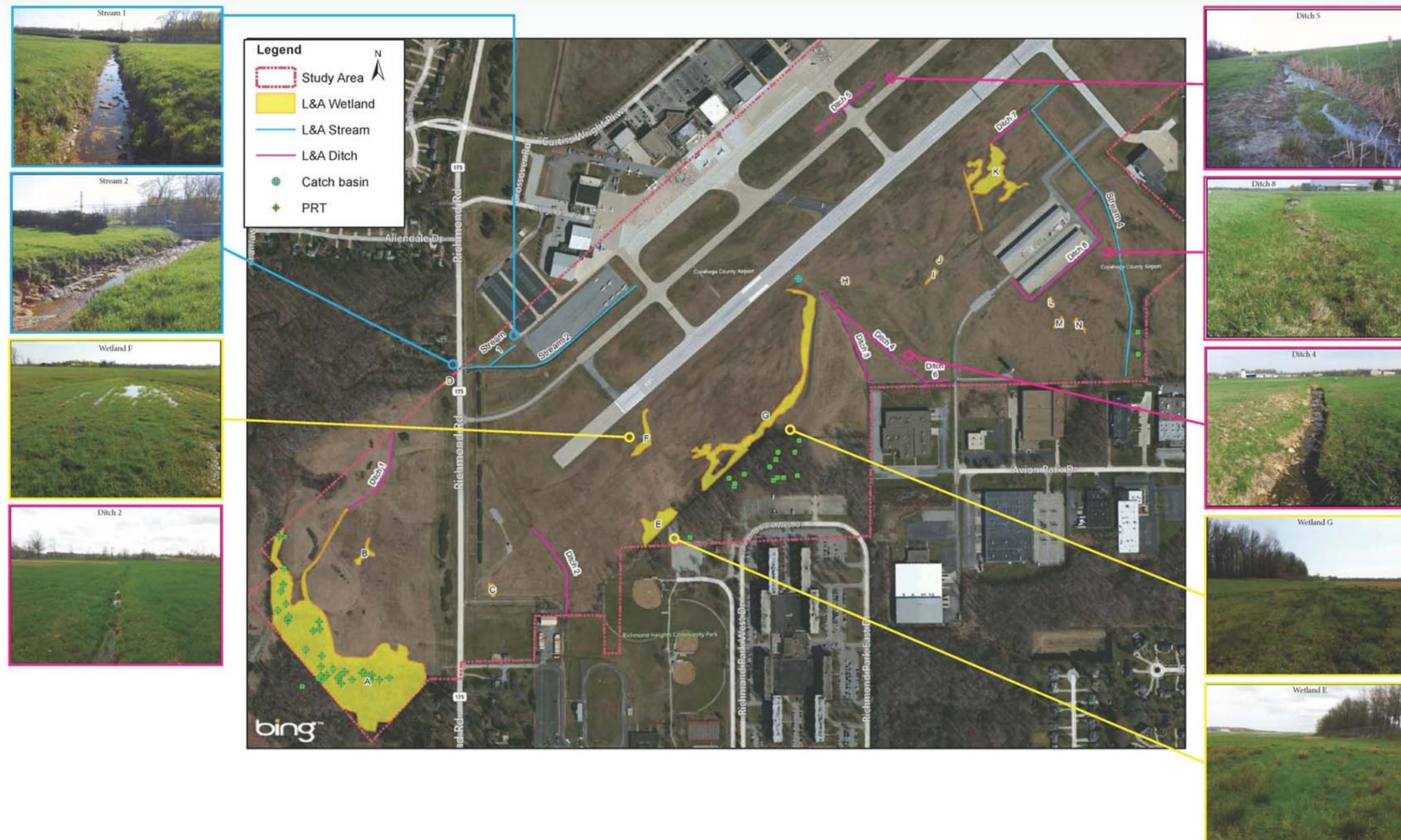
# Cuyahoga County Airport (CGF) Environmental Assessment

## Environmental Field Work - East



# Cuyahoga County Airport (CGF) Environmental Assessment

## Environmental Field Work - West



Analysis and Mitigation of Water Quality Impacts: All proposed construction activities of Preferred Alternative 23 will take place on existing Airport property, which will minimize impacts to surface water resources. Based on the grading limits of Preferred Alternative 23, no impacts are expected to streams, floodplains, or other natural waters within the study area. Construction of the proposed project will result in approximately 1,937 total linear feet of impact to five ditches on Airport property (four jurisdictional, one non-jurisdictional).

The proposed construction of Preferred Alternative 23 will increase impervious surface areas and most likely increase storm water runoff. New impervious surfaces are estimated to be 3.44 acres. The expected runoff will generally sheet flow into existing storm water structures and existing channelized ditches and streams. Storm water BMPs will be implemented and green infrastructure techniques will be implemented to promote natural water remediation and reduce erosion and runoff potential. It should be noted that the majority of construction of Preferred Alternative 23 is resurfacing existing pavement. Specific details of the required storm water system will be determined during final design of Preferred Alternative 23.

Impacts to jurisdictional ditches (as determined by the USACE) due to construction of the Preferred Alternative 23 will require permits from the USACE and OEPA (Federal 404 and State 401 Permits) and may be subject to OEPA Antidegradation Rules as well. Ditches impacted by the construction of Preferred Alternative 23 will be relocated and recreated with similar function and value using natural vegetation for stabilization in accordance with guidance and consultation with the regulatory agencies. A ratio of 1:1 is expected for ditch mitigation (one linear foot relocated and recreated for every one linear foot of impact) is expected based on similar past projects. Any pre-permit application coordination will be done during the permitting phase of the project.

The relocated ditches may be enclosed where appropriate instead of open standing water which could become a wildlife attractant. If an enclosed culvert storm water management system is chosen, open-bottom culverts should be incorporated where possible to promote natural habitat formation.

Proposed mitigation consists of an in-lieu fee option as described in the February 9, 2015, USACE letter (found in **Appendix N Comments on the Draft EA**) due to no certified mitigation banks being available in the watershed. Also see **Appendix F Ecological Report** for USACE contact information regarding in-lieu fee mitigation. In addition, the Cuyahoga Soil & Water Conservation District has requested an advisory role in any proposed mitigation.

Mitigation will be finalized during the permitting process. Although in-lieu fee mitigation has been directed by the USACE, **Appendix F Ecological Report** provides a listing of potential mitigation banks offering stream credits in the local watershed. (**Appendix F Ecological Report** contains an abbreviated version of the ecological report; the full version is enclosed as a separate technical document.)

All delineated streams, drainage features (ditches) and other waters will be shown on construction plans to protect them from any possible direct or indirect impacts and construction documents will require avoidance and erosion control measures as described in **Section 4.7 Construction Impacts**.

According to OEPA Division of Drinking Water and Ground Waters, there are no public wells in the vicinity of the Airport and no Source Water Assessment and Protection Program (SWAP) impacts are

expected. See **Appendix E Agency Coordination** for more information on water resources in the project area.

An increase in post construction pollutants is not expected. Construction runoff from exposed soils have the potential to occur, but will be addressed with use of construction BMPs.

Preferred Alternative 23 and the No-Build Alternative are not expected to have any adverse water quality impacts that cannot be easily mitigated.

#### 4.21 Wetlands

The USEPA's Clean Water Act defines wetlands as: *"[t]hose areas that are inundated or saturated by surface or groundwater 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. Wetlands generally include swamps, marshes, bogs, and similar areas."* The objective of the Clean Water Act is to maintain and restore chemical, physical and biological integrity of Waters of the United States, including wetlands.

Presidential Executive Order 11990, commonly known as the "No Net Loss" Executive Order, directs any project that uses federal funds or is federally approved, to mitigate for all wetland impacts that it causes regardless of size or regulatory status. Therefore, any wetland impacts as a result of the build alternative will require mitigation.

Analysis and Mitigation of Wetland Impacts: To evaluate the wetland impacts of Preferred Alternative 23, a USACE and OEPA compliant wetland delineation was conducted by a qualified biologist within the study area at the Airport. The survey was intended to determine the locations and limits of area wetlands, appraise their types and functions, assess their regulatory status and evaluate potential impacts from the proposed project. Final determination of the limits and jurisdictional status falls under the authority of the USACE and OEPA and will be determined during the permitting phase of final design. Any references to jurisdictional status is the opinion of the project team at this time. See **Appendix F Ecological Report** for additional information on the study area and details of the wetland delineation, including information about wetland inventory analyses including maps and data sheets for each wetland found. (**Appendix F** contains an abbreviated version of the ecological report; the full version is enclosed as a separate document.) See **Appendix E Agency Coordination** and **Appendix F Comments on the Draft EA** for more information on wetland resources in the project area.

During a field investigation in late April 2013 through early May 2013, the site was inspected and evaluated for vegetation, soils and hydrology. Nineteen potential wetland areas were delineated. Thirteen of the wetlands were classified as Palustrine Emergent, four as Palustrine Forested and two as Palustrine Forested/Palustrine Scrub Shrub. Seven of the identified wetlands were observed to be hydrologically connected to the East Branch of Euclid Creek. Seven of these wetlands are regulated by USACE while the others are protected by Presidential Executive Order 11990. See **Figure 4-4 Environmental Field Work – East** and **Figure 4-5 Environmental Field Work – West** for pictures and locations of delineated wetlands.

Of the 19 wetland areas delineated, 11 complexes are within the proposed grading limits of Preferred Alternative 23 as listed in **Table 4-1 Wetland Impacts** and shown on **Figure 4-6 Wetland Impacts**.

The construction of Preferred Alternative 23 would contribute to cumulative wetland losses by adding 3.918 acres of wetland impacts to all of the past, present and future wetland impacts in the area. All of these wetlands are impacted in whole and are considered total takes with the exception of Wetland R which will have minor partial impacts, but is expected to remain a functional and viable wetland complex. Seven of the impacted wetlands are classified as isolated from the area's hydrologic system (2.709 acres) while the remaining four are connected to other wetlands and water features (1.209 acres).

Impacts to wetlands due to the construction of Preferred Alternative 23 will require permits from the USACE and OEPA (Federal 404 and State 401 Permits) and mitigation for 3.918 acres of wetland impacts. As with water quality impacts, proposed mitigation consists of an in-lieu fee option as described in the February 9, 2015, USACE letter (found in **Appendix N Comments on the Draft EA**). This is due to no certified mitigation banks being available in the watershed. Also see **Appendix F Ecological Report** for USACE contact information regarding in-lieu fee mitigation. In addition, the Cuyahoga Soil & Water Conservation District has requested an advisory role in any proposed mitigation.

All delineated wetlands will be shown on construction plans to protect them from any possible direct or indirect impacts and construction documents will require avoidance and erosion control measures as described in Section 4.7 Construction Impacts.

Preferred Alternative 23 and the No-Build Alternative are not expected to have any adverse wetland impacts that cannot be easily mitigated.

#### **4.22 Wild and Scenic Rivers**

The *Wild and Scenic Rivers Act of 1968* provides protection for certain free-flowing rivers, which have "outstanding or remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural, or other similar values".

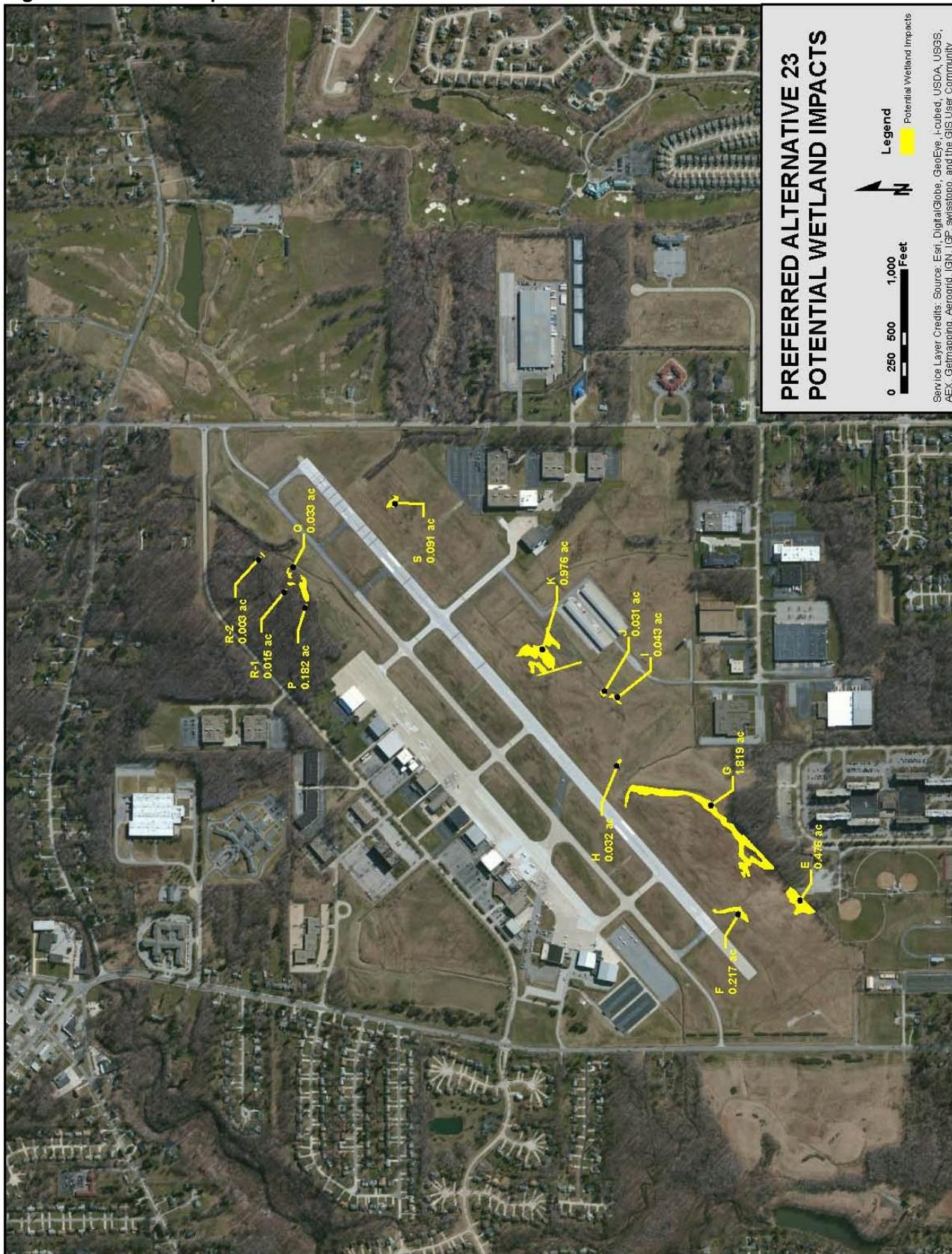
Analysis and Mitigation of Wild and Scenic Rivers Impacts: The Chagrin River is the only Scenic River identified within five miles of the study area. The closest headwater to the Chagrin River is approximately 2.21 miles southeast of the Airport and the closest segment of the mainstream channel of the Chagrin River is approximately 2.73 miles east of the study area. Since the nearest Scenic River is greater than 1,000 feet from the Airport, there will be no impacts to this resource as a result of the proposed project and further agency coordination is not expected to be required. Neither Preferred Alternative 23 nor the No-Build Alternative will have adverse wild or scenic river or Natural River impacts.

**Table 4-1  
Wetland Impacts**

<b>Wetland ID</b>	<b>Size (acres)</b>	<b>Hydrologic Connection</b>	<b>Impact (acres)</b>	<b>Mitigation Ratio</b>	<b>Mitigation (acres)</b>
E	0.476	Isolated	0.476	2:1	0.952
F	0.217	Isolated	0.217	2:1	0.434
G	1.819	Isolated	1.819	2:1	3.638
H	0.032	Isolated	0.032	2:1	0.064
I	0.043	Isolated	0.043	2:1	0.086
J	0.031	Isolated	0.031	2:1	0.062
K	0.976	Connected (Category 1)	0.976	1.5:1	1.464
P	0.182	Connected	0.182	2.5:1	0.455
Q	0.033	Connected	0.033	2.5:1	0.083
R	0.889	Connected	0.018	2.5:1	0.045
S	0.091	Isolated	0.091	2:1	0.182
		<b>Total Impact</b>	<b>3.918</b>	<b>Total Mitigation</b>	<b>7.465</b>

Source: 2013 Field Delineation by Lawhon and Associates

Figure 4-6 Wetland Impacts



#### 4.23 Environmental Consequences – Other Considerations

This section discusses other items that, while not specifically covered in previous sections, are important to the understanding of the project's potential impacts on the social, environmental, and economic surroundings.

Conformance with Plans, Policies, and Controls: An Airport development project plays an important role in the local and regional economy. Often times, a project influences the type and location of specific land uses, the ground transportation network, and the general direction of community growth. When evaluating an action's conformance with plans and polices, there are usually two levels of planning involved. The first level addresses policy plans, which are goals and objectives for the area or jurisdiction. The second addresses specific physical plans that direct development of the physical infrastructure. An analysis of Preferred Alternative 23 does not indicate any conflict with local, county, or regional planning efforts.

Conformance with Laws and Administrative Rules: In preparing this EA, various federal, state, regional, and local agencies were contacted to solicit their comments on the proposed project as it related to their specific area of expertise or regulatory jurisdiction including permitting and mitigation requirements. Based on this coordination, inconsistency with known federal, state, or local laws or administrative rules is not expected. All phases of the proposed action will adhere to appropriate regulations and permitting requirements including any necessary mitigation measures. A summary of approvals, permits, and mitigation required to implement the Preferred Alternative is included in **Table 4.2 Environmental Summary of Preferred Alternative 23**.

Public and Agency Involvement: For details on public involvement efforts including public meetings, the Public Hearing, and public comments received to date, see **Appendix B Public Involvement Prior to the Draft EA** and **Appendix N Comments on the Draft EA**.

Table 4-2 Environmental Summary of Preferred Alternative 23		
Environmental Factor	Impact?	Mitigation Requirements/Permits
Air Quality	No	None Required
Biotic Resources & Migratory Birds	No	<ul style="list-style-type: none"> <li>Vegetation clearing beyond turf grass is not allowed during the nesting season (March 31<sup>st</sup> – September 1<sup>st</sup>).</li> <li>A permit from the USFWS may be required if abandoned nests become inhabited by eagles.</li> </ul>
Coastal Barriers	No	None Required
Coastal Zone Management	No	None Required
Compatible Land Use	No	Comply with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended for any property acquisitions.
Construction	Short-term	<ul style="list-style-type: none"> <li>Comply with <i>FAA Advisory Circular 150/5370-10, Standards for Specifying Construction of Airports</i> and <i>FAA AC 150/5320-5C Surface Drainage Design NOI</i></li> <li>Consider USEPA short-term mitigation measures during construction as described in Section 4.7.</li> <li>A General National Pollutant Discharge Elimination System (NPDES) permit for construction activities is required.</li> <li>Update Storm Water Pollution Prevention Plan (SWP3) is required upon completion of construction.</li> </ul>
Endangered and Threatened Species	No	Tree removals are not allowed from March 31 <sup>st</sup> to October 1 <sup>st</sup>
Energy Supplies, Natural Resources, and Sustainable Design	No	None Required
Environmental Justice	No	None Required
Farmlands	No	None Required
Floodplains	No	None Required
Hazardous Materials	No	<ul style="list-style-type: none"> <li>Waste encountered or generated must be properly handled or disposed of in compliance with Ohio Administrative Code (OAC) 3745-52-11 and subsequent regulations.</li> <li>Contact the National Response Center at 1-800-424-8802.</li> </ul>
Historic and Archaeological	No	<ul style="list-style-type: none"> <li>Coordinate with OHPO to identify previously undisturbed areas associated with obstruction removals prior to any ground disturbing activities and determine</li> </ul>

<b>Table 4-2 Environmental Summary of Preferred Alternative 23</b>		
<b>Environmental Factor</b>	<b>Impact?</b>	<b>Mitigation Requirements/Permits</b>
		appropriate mitigation.
Induced Socioeconomic	No	None Required
Light Emissions and Visual Effects	No	None Required
Noise	Short-term	None Required
Section 4(f)	No	None Required
Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks	No	<ul style="list-style-type: none"> <li>• Possible avigation easement / compensation or a one-time vegetation replacement for obstruction removals.</li> <li>• Comply with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended for any property acquisitions.</li> </ul>
Solid Waste	No	<ul style="list-style-type: none"> <li>• Include in project plans that all waste material or construction debris be recycled and reused on-site where possible.</li> </ul>
Water Quality	No	<ul style="list-style-type: none"> <li>• Federal 404 and State 401 permits prior to construction.</li> <li>• Comply with OPEA Antidegradation Rules</li> <li>• Use open bottom ditches when possible.</li> <li>• Purchase of ditch mitigation credits as described in Section 4.20 Water Quality.</li> </ul>
Wetlands	No	<ul style="list-style-type: none"> <li>• In-lieu fee option for 7.465 acres of mitigation for 3.918 acres of wetland impacts.</li> <li>• Include the Cuyahoga Soil &amp; Water Conservation District during the permitting process.</li> <li>• Obtain Federal 404 and State 401 permits.</li> </ul>
Wild and Scenic Rivers	No	None Required
Cumulative Impacts	No	None Required