

**RECORD OF DECISION
FOR
PROPOSED REPLACEMENT RUNWAY, RUNWAY EXTENSION
AND ASSOCIATED DEVELOPMENT**

**AT
CLEVELAND HOPKINS INTERNATIONAL AIRPORT
CLEVELAND, OHIO**

Date: November, 2000



**DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
GREAT LAKES REGION
CHICAGO, ILLINOIS**

**NATIONAL AERONAUTIC AND SPACE ADMINISTRATION
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1. FEDERAL AGENCIES DECISIONS

This Record of Decision (ROD) provides final agency determinations and approvals for those Federal actions by the Federal Aviation Administration (FAA), and related actions by the National Aeronautics and Space Administration (NASA), and Federal Highway Administration (FHWA). These actions are necessary to allow for the enhancements to safety, the reduction of aircraft delays, the increase in peak period capacity, and the enhancement of the human environment. The proposed development includes construction and operation of a replacement Runway 5L/23R¹; construction of a 3,210-foot extension to Runway 5R/23L; development of associated ancillary facilities; and implementation of the air traffic actions for the proposed development as well as air traffic actions and land use mitigation actions recommended in the 2000 Final Part 150 Study Update at Cleveland Hopkins International Airport (CLE). This action will also allow for the transfer of land between NASA and the City of Cleveland for the construction of replacement Runway 5L/23R and allow the FHWA to relocate Brookpark Road to allow aircraft approaches in low visibility to replacement Runway 23R.

This ROD approves the development of air traffic control and airspace management procedures designed to affect the safe and efficient movement of air traffic to and from the proposed replacement runway and the Runway 5R extension. Such actions would include, but not be limited to, the establishment or modification of flight procedures and the installation and/or relocation of navigational aids associated with both the replacement runway and the extended runway.

The Federal actions, including air traffic actions, and associated airport development are described in detail in the Final Environmental Impact Statement (FEIS), Cleveland Hopkins International Airport, dated June 2000. The agencies' decisions are based on the information contained in the FEIS and all other applicable documents available to the agencies and considered by them, which constitute the administrative record.

This ROD is issued in accordance with the requirements of the Council on Environmental Quality (CEQ), 40 CFR 1505.2. The principal features include:

- A statement of the agencies' decisions;
- An identification of all alternatives considered by the FAA in reaching its decision, with a specification of the alternative or alternatives that are considered to be environmentally preferable; and

¹ Runways 5L/23R and 5R/23L will be renumbered to Runways 6L/24R and 6R/24L, respectively. This change will not alter runway alignment, airfield configuration, or operation characteristics in any way. This change will be implemented to reflect the gradual shift in magnetic compass bearings resulting from changes in the earth's magnetic field. For ease in reference, the current designations are used throughout the document.

- The means adopted (mitigation measures) to avoid or minimize environmental harm from the alternative selected.

FAA DETERMINATION

Based on a review of the FEIS approved on June 23, 2000 and all applicable information, it is the FAA's final determination that the revised Airport Layout Plan (ALP), dated March 1999 and included herein, for proposed improvements to Cleveland Hopkins International Airport (CLE) is approved. This development is specifically described in Chapters 2, 4, and 5 of this ROD, and was identified in the FEIS as Alternative 6. In addition, this development is environmentally approved as being eligible for Federal financial assistance.

These approvals of the ALP and eligibility for Federal funding constitute final approval. The FAA notes that the airport sponsor, the City of Cleveland, Department of Port Control, has agreed to the various conditions of this approval, in particular, the conditions requiring mitigation measures.

In reaching this determination, consideration has been given to 49 U.S.C. 47101 (a)(7), which states that it is the policy of the United States "that airport construction and improvement projects that increase the capacity of facilities to accommodate passenger and cargo traffic be undertaken to the maximum feasible extent so that safety and efficiency increase and delays decrease." Furthermore, the FAA has given careful consideration to: (a) the aviation safety and operational objectives of the project in light of the various aeronautical factors and judgments presented; (b) the needs of Cleveland Hopkins International Airport as part of the national air transportation system and the airport delay reduction/capacity enhancement needs through the year 2016; and (c) the anticipated environmental impacts of the project.

The FAA has carefully considered all reasonable alternatives to the Proposed Action. Although Alternative 1, the "No-Build/No-Action Alternative" had fewer developmental and environmental impacts (streams, wetlands, and a National Historic Landmark) than the preferred alternative and is the "environmentally preferred alternative," it failed to achieve the purposes and needs for this project. However, the Proposed Action will provide greater noise relief than the No-Build/No-Action Alternative over the Olmsted Falls Historic District. Alternatives 2 through 5 were examined in detail by the FAA and found to provide comparable levels of safety enhancement, delay reduction, and capacity benefits as compared to Alternative 6, at similar costs and with similar environmental impacts. However, only Alternatives 5 and 6 fully achieve the purposes and needs to provide sufficient runway length to accommodate current and reasonably anticipated air transportation demand. Of these two alternatives, Alternative 6 provides a greater reduction in noise impacts than Alternative 5. Alternative 6 also removes three additional historic homes from the 65 DNL noise contour. All other environmental impacts are the same for Alternatives 5 and 6. For the reasons summarized in this ROD and supported by detailed discussion in the FEIS, the FAA has determined that there is no possible, prudent, feasible, and practicable alternative to Alternative 6, which is the agency's preferred alternative.

This ROD completes the approving agencies' thorough and careful environmental review and decision-making process and is prepared and issued by the Federal agencies to announce and document certain Federal actions and decisions in compliance with the National Environmental Policy Act of 1969 (NEPA) [42 U.S.C. Section 4321, *et seq.*], the implementing regulations of the Council on Environmental Quality (CEQ) [40 CFR Parts 1500-1508] and FAA directives [Order 1050.1D and Order 5050.4A]. A ROD is also used by the FAA to demonstrate and document its compliance with the several procedural and substantive requirements of aeronautical, environmental, programmatic, and related statutes and regulations that apply to FAA decisions and actions on proposed projects.

This ROD provides the final Federal determinations and approvals based on environmental analysis and findings in the FEIS. A discussion of the leading factors considered by the FAA in reaching this decision follows.

NASA DETERMINATION

The FEIS includes analysis of the potential environmental and socioeconomic impacts associated with the relocation and/or demolition of NASA facilities and the transfer of NASA land to the City of Cleveland.

Based on a review of the FEIS, the FAA's response to NASA GRC's comments on the FEIS (Appendix A) and all applicable information, and subject to the following conditions, it is NASA's final determination that the land release and associated NASA facility and equipment relocation required for the proposed airport development as depicted on the revised Airport Layout Plan (ALP) are environmentally approved in accordance with the National Environmental Policy Act (NEPA).

NASA has conditioned its NEPA approval upon the following, which will also be included in NASA's deed of release for the property as appropriate.

- 1 The NASA decision is based on the Environmental Impact Statement and FAA's response to NASA GRC's comments on the Final Environmental Impact Statement (FEIS).
- 2 Receipt by the NASA Administrator of a request made pursuant to 49 U.S.C. §47125 by the Secretary of Transportation for the transfer of property described by the coordinates attached in Appendix G. Such proposed transfer shall therefore be subject to the requirements set forth in 49 U.S.C. §47125. The statute provides that the NASA Administrator can transfer the property to the City for airport purposes if he determines that such transfer is consistent with NASA's needs. The following conditions for relocation must be satisfied in order for the transfer to be consistent with NASA's needs:
 - a. NASA will vacate the portion of the South 40 property to be transferred prior to property transfer. However, NASA vacation of the facilities shall not occur until NASA facilities are relocated by the City in accordance

with NASA's Site Selection Decision documented in the November 2, 1999, letter to Mayor Michael R. White (with the exception that the Proof Pressure Test Cell will be relocated to Plum Brook Station instead of Lewis Field).

- b. NASA requires that the relocated facilities for the Central Chemical Storage Facility, Day Care Center, Fitness Center, Picnic Grounds and other active support facilities will be ready for occupancy prior to NASA vacating the existing facilities; that the SMIRF, CCL-7, Hydrogen Transfer, Fuel Densification and other active research facilities will not be shut down for more than a three-month period of time to accommodate the relocation; and that the relocation of B-Stand and CCL 1 & 2 facilities will be scheduled so that they can be activated within six (6) months of facility closure.
- 3 NASA shall vacate that portion of the South 40 property to be transferred prior to property transfer. NASA anticipates early access by the City of Cleveland prior to the transfer, by subsequent agreement.
- 4 Approval for the transfer shall be obtained by NASA from OEPA and meet all requirements under CERCLA, the Federal Facilities Compliance Act, 42 U.S.C. 9620(h) and the Findings and Orders for Remediation of the Glenn Research Center. NASA will make best efforts to meet the time constraints outlined in the FEIS.
- 5 The City, NASA, and FAA shall comply with the Memorandum of Agreement entered into by the Ohio State Historic Preservation Office, NASA, FAA, Advisory Council on Historic Preservation, and the City of Cleveland pursuant to the provisions of 36 CFR §800, Protection of Historic Properties.
- 6 NASA requires that the detention basin shall be designed and constructed such that the proposed projects will not cause elevation of 100-year flood plain levels in the Abram Creek Valley area during and after construction.
- 7 NASA requires that the new airport storm sewer system shall be designed and constructed such that there would not be a net increase of the storm water flow into or a hydraulic surcharge of the existing NASA storm sewer system, or direct additional deicing agent contamination into the existing NASA system, as a result of the proposed projects evaluated in the FEIS.
- 8 NASA requires that the sanitary sewers for the new airport facilities approved in this ROD and proposed to be developed along West Hangar Road shall not be connected to the existing sanitary sewer system on NASA property.
- 9 NASA requires that the Central Chemical Storage Facility shall be designed and constructed so that the personnel at the new facility do not experience noise levels greater than noise levels experienced at the existing facility.

- 10 The EIS studied and the ROD approves a two-stage construction of a replacement Runway 5L/23R for a total length of 9,000 feet. The EIS/ROD is based upon initiation and completion of construction of the second stage in a timely fashion. Failure to proceed with the second stage of the runway construction will require supplementation of the EIS.
- 11 The City will characterize and monitor fill material as required by the OEPA or other applicable regulations. The City will provide notice to NASA so that NASA may participate in OEPA's public process to provide comments.
- 12 NASA requires that the City provide NASA copies of NPDES permit applications made to the OEPA.
- 13 NASA requires that for each storm sewer that remains active (outfalls 007 and 008), appropriate monitoring equipment will be installed by the City at the property line so that NASA, the City of Cleveland, or the OEPA can monitor the flow and sample for contamination.

FHWA DETERMINATION

Based on a review of the FEIS approved on June 23, 2000, and all applicable information, it is FHWA'S final determination that the relocation of Brookpark Road and the modification of the access to I-480, as depicted on the revised Airport Layout Plan (ALP) is environmentally approved.

2. BACKGROUND

Cleveland Hopkins International Airport (CLE) is owned by the City of Cleveland and operated by the City of Cleveland's Department of Port Control. Cleveland Hopkins, located in Cuyahoga County, Ohio, provides commercial air service for the Cleveland region. To address the changing aviation needs at the airport, the City of Cleveland prepared an update to the airport master plan. This master plan, a City of Cleveland planning document, recommends airport development that is proposed to occur on City of Cleveland-owned and Federally-owned property within Cleveland's city limits, which is anticipated to accommodate aviation demand over approximately the next 15 years. Longer range planning for the airport, which may include property outside Cleveland's city limits or involving property not owned by the City of Cleveland or the U.S. Federal Government, is not reasonably foreseeable at this time. Additional planning and environmental studies would be done in the future if conditions warrant.

The character of Cleveland Hopkins has changed as Continental Airlines has become the predominate carrier at the airport and their hub has matured. The activity levels have continued to show growth. The City of Cleveland Master Plan forecasts and the FAA Terminal Area Forecasts (TAF) both project this growth to continue. The FAA uses the TAF to develop its programs and budget plans for air transportation services across the nation. FAA staffing standards and other resource models also use the TAF to forecast requirements for operating the airspace system. Additionally, the TAF is used for airport development planning and for accommodating future aviation needs.² It is important to note that growth can represent more than a simple acceleration of the timing of facilities required to accommodate potential activity if passenger characteristics also change. The percentage of passenger connecting activity, for example, affects the space requirements of various airport functions. Connecting passengers do not normally use ticket counters, bag claim, or auto parking; on the other hand, high connecting activity places a greater demand on functions in the passenger terminal concourses such as hold rooms, concessions, and restrooms.

Similarly, the changing character of an airport can vary the requirements placed on airfield facilities. The peaking characteristics of a hub operation place heavy demands on the airfield system and push its ability to process a large number of aircraft in a relatively short period of time. Airfield capacity is critical to airline hub airports because demand occurs in sharp peak periods, or "banks" which allow maximum passenger connecting between airline flights. When the capacity of the runway system is exceeded and the airport cannot process demand within the passenger connecting time window, the connecting system fails. While the connecting window can be expected to be missed occasionally, the airport's runway system must consistently be available for

² Actual operations for the year 1999 at Cleveland Hopkins are within 1.2 percent of the TAF. Actual operations for the first seven months of the year 2000 are within 0.7 percent of the value for the TAF calculated for the same time period. This percentage is well within the 10 percent that FAA uses as a benchmark.

the airline hub to be viable. The efficiencies of the runway and taxiway system and the aircraft gate arrangement are increasingly important variables that influence the ability of the airfield to process the peak period demand.

In an effort to understand the operational limitations and possible solutions at the existing airfield, the FAA conducted a Capacity Enhancement Plan Study, which was completed in 1994. The primary goal of the Capacity Enhancement Plan Study was to investigate alternatives that would reduce delay and increase airport capacity. The Master Plan Study Update addressed the recommendations from the Capacity Enhancement Plan Study, and includes some of them in the development projects it proposes, which are assessed in the Final Environmental Impact Statement (FEIS). The Master Plan Update culminated in the development of an Airport Layout Plan (ALP), approval of which is one of the Federal actions requested in this ROD.

AIRPORT DESCRIPTION

Cleveland Hopkins International Airport (CLE) is owned by the City of Cleveland and operated by the City's Department of Port Control. This commercial service airport is located on approximately 1,600 acres of land in the City of Cleveland, Ohio. The airfield is bound to the north by Brookpark Road and I-480, to the east by the parallel transportation corridors of the Conrail Railroad and State Route 237, (which connects the airport to I-71 and I-480 providing access to the region). To the south is the Rocky River Reservation and Abram Creek and to the west of the airport is the NASA Glenn Research Center (GRC).

Access to the airport is available to the public from multiple directions. From downtown Cleveland the south access is along I-71; from the east and west, access is accomplished via I-480; and from the southeast and northwest, access is via I-80 to I-71.

Cleveland Hopkins International Airport is a major hub for Continental Airlines, which accounts for 55 percent of all passengers. The other major passenger carriers represented at the airport are Air Canada, Air Ontario, American Airlines, American Eagle, America West Airlines, Continental Express, Delta Air Lines, Delta Connection, Midwest Express, Northwest Airlines, Northwest AirlinK, Southwest Airlines, TWA, United Airlines, United Express, US Airways, and US Airways Express. Ten cargo carriers have operations at CLE, including: Airborne Express, American International, DHL Airways, Emery Worldwide, Evergreen, Federal Express, Mountain Air, United Parcel Service, Viking Airlines, and Wiggins Airways. Presently there are four fixed based operators (FBOs) and three corporate aircraft facilities.

The airfield system has three primary runways, consisting of two parallel runways, and a crosswind runway as shown in **Exhibit R-1**. The two parallel runways (5R/23L and 5L/23R) are oriented in a northeast/southwest direction with lengths of 8,999 feet and 7,095 feet, respectively. A distance of 441 feet separates these parallel runways.

Exhibit R-1 – Existing Airport Layout

Runway 10/28, the crosswind runway, is 6,015 feet long and intersects both parallel runways at their northern ends. A fourth runway, Runway 18/36, has been closed since 1997 with current plans calling for its permanent closure and decommissioning.

NASA owns or leases approximately 365 acres along the western side of Cleveland Hopkins International Airport (CLE). NASA has a direct taxiway connection to CLE. Located in western Cuyahoga County, Ohio, the NASA facilities are predominantly situated within the city limits of Cleveland, approximately 12 miles southwest of downtown. The NASA property referred to as the South 40 is located on the southeast portion of NASA's property near existing Runway 5L and is entirely within the City of Cleveland limits.

THE PROPOSED IMPROVEMENTS TO CLEVELAND HOPKINS INTERNATIONAL AIRPORT

The City of Cleveland has proposed airside and landside improvements to Cleveland Hopkins to enable the airport to enhance safety, reduce delay, and lessen the environmental impact to the surrounding community. The City's preferred development alternative, known as Alternative 6, includes a replacement parallel runway (5L/23R), 9,000 feet long by 150 feet wide, located on the northwestern side of the airport in the City of Cleveland. This runway will be located parallel to and 1,241 feet from existing Runway 5R/23L. This runway has been proposed to improve airfield capacity during both visual meteorological conditions (VMC) and instrument meteorological conditions (IMC). VMC is defined by cloud ceilings that are at least 1,000 feet above ground and forward visibility of at least three statute miles. All other weather conditions are defined as IMC.

The current parallel runways at Cleveland Hopkins, which are 441 feet apart, are too close together to allow independent operations in any weather conditions. With the proposed improvements, the peak period capacity at the airport will be increased. The separation of the replacement runway from the existing runway, with the use of associated instrumentation, will permit sufficient distance to allow the airport to accommodate simultaneous independent approaches and simultaneous independent departures during VMC. Cleveland Hopkins does not currently have this capability. This feature will allow the airport to reduce delay times, improve adverse weather capabilities, enhance peak period capacity, and continue to accommodate airline hub operations such as Continental's at Cleveland Hopkins.

Other associated actions include the transfer of approximately 35 acres of property, commonly referred to as the NASA South 40, from NASA to the City of Cleveland pursuant to 49 U.S.C., Section 47125, terminal expansion, roadway improvements, and construction and relocation of several airport and tenant operations. A summary of the major components of the development plan is provided below in **Table R-1**. **Exhibit R-2** displays the physical developments proposed at CLE.

**Table R-1
OUTLINE OF THE PROPOSED ACTION AT CLEVELAND HOPKINS
INTERNATIONAL AIRPORT**

Airfield

- Construct a replacement 9,000 foot Runway 5L/23R
- Convert existing Runway 5L/23R to a taxiway
- Construct a second parallel taxiway between Runways 5L/23R and 5R/23L
- Extend Runway 5R/23L to 11,250 feet and shift southwest 960 feet
- Decommission Runway 18/36
- Relocate a portion of the CEI power line

Passenger Terminal

- Expand Concourse C
- Extend main terminal building to the south to connect to Concourse D
- Construct new pier concourse
- Provide peplemover system

Roadways

- Construct new entrance and exit terminal roadway system
- Relocate Brookpark Road and modify the I-480/Grayton Road interchange to accommodate the Runway 5L/23R relocation
- Redesign the Cargo Road/State Route 237 intersection

Auto Parking

- Construct public parking garage on site of Lot 3 and private hangar
- Consolidate employee parking in NASA Administration lot and surrounding area
- Expand Rocky River Road Lot for employee parking
- Expand rental car storage, ready/return, and rental car employee parking south of rental car area
- Provide employee parking at the Ullrich site

Air Cargo

- Construct new facilities adjacent to NASA
- Construct new facilities to the northeast of the IX Center

Airline Maintenance

- Construct new maintenance hangars east of the IX Center
- New air services GA/airline maintenance facility

Table R-1, Continued
OUTLINE OF THE PROPOSED ACTION AT CLEVELAND HOPKINS
INTERNATIONAL AIRPORT

Support Facilities

- New fuel farm (three 1.4 million gallon tanks)
- Expand existing Continental flight kitchen
- New flight kitchen south of Runway 18/36
- Consolidated airport maintenance facility adjacent to NASA
- New deicing facility
- Construct Ground Runup Enclosure (GRE) adjacent to aircraft maintenance/GA hangar

Air Traffic Procedure Changes

- Continue restriction of runups and maintenance engine testing as specified in the 1987 NCP.
- Construct a ground runup facility/enclosure as part of the future development program.
- Continue to encourage the use of distant Noise Abatement Departure Procedures (NADPs).
- From Runways 5R/5L, equitably turn jet departures, between 6:00 a.m. and 11:00 p.m., left to headings within a corridor between 360⁰ and 035⁰ or right to headings within a corridor between 065⁰ to 095⁰, until reaching five miles from the airport or 5,000 feet above sea level (MSL) in altitude.
- From Runways 23R/23L, equitably turn jet departures, between 6:00 a.m. and 11:00 p.m., left to headings within a corridor between 190⁰ and 220⁰ or right to headings with a corridor between 250⁰ and 280⁰, until reaching five miles from the airport or an altitude of 5,000 feet above mean sea level (MSL).
- Designate Runway 5R as the primary late night departure runway, wind and weather permitting.
- Turn late night (11:00 p.m. to 6:00 a.m.) jet departures from Runway 5R to a course to overfly the industrial areas east of the airport until reaching an altitude of 5,000 feet above MSL.
- From Runways 23R/23L, turn late night (11:00 p.m. to 6:00 a.m.) jet departures left to a corridor of 200⁰ to 220⁰ until reaching an altitude of 5,000 feet above MSL.
- Instruct arriving aircraft at night to intercept the final approach course to all runways no closer than four miles.
- Implement offset approach procedures to Runway 5R/23L.

Land Use Mitigation

- Adopt development controls and standards.
- Adopt real estate disclosure policies.
- Sound insulate residences within the higher levels (65+DNL) of noise 2006 NCP noise exposure.
- Sound insulate residences within and contiguous to the 60 DNL band of the Noise Compatibility Program noise contours.

Table R-1, Continued

OUTLINE OF THE PROPOSED ACTION AT CLEVELAND HOPKINS INTERNATIONAL AIRPORT

Navigational Aids, Lighting, and Procedures

- Site select, purchase, install, and flight check all necessary navigation aids and lighting to support the proposed development.
- Implementation of necessary air traffic control procedures to support the proposed development.

NASA South 40 Facilities Planned for Relocation

- Transient Dewar Storage Area - parking areas for mobile storage vessels.
- Rocket Engine Test Facility (RETF) - B-Stand and associated vessels, buildings and equipment.*
- Miscellaneous cryogenic vessels and equipment various pumps, compressors, and other equipment that are currently inactive or are in storage.
- A Cells component that needs to be relocated together – Supplemental Multilayer Research facility (SMIRF), Test Cell 7 and the Pressure Proof Test Cell and associated vessels, buildings, and equipment.
- Liquid Hydrogen Transfer/Storage Area – paved area with equipment and vessels to store and transfer liquid hydrogen.
- B Cells - test Cells 1 and 2 and their associated buildings and equipment.
- C Cells - test skids, equipment and buildings for densification testing of liquid hydrogen and liquid oxygen
- Gated storage areas or outside storage areas - paved and fenced areas to store a variety of equipment
- Contractor trailer storage - paved areas for contractor trailer parking and storage
- Consolidated Chemical Storage Facility (CCSF) - Building 212 and associated paved areas and equipment that handle a variety of chemicals and wastes.
- Miscellaneous amenity facilities - daycare, fitness, and recreation/picnic facilities.

* Only the B-Stand and associated vessels, buildings, and equipment will be relocated.

Exhibit R-2 – Future Airport Layout Plan

MASTER PLAN / PART 150 PROCESS

Cleveland completed a draft Master Plan Update in 1999. The Master Plan is a study used to develop and evaluate facility recommendations consistent with the airport's character and activity levels. CLE's Master Plan evaluated various airfield and air traffic alternatives.

Concurrently with the Master Plan, Cleveland prepared an update of the airport's 1987 Part 150 Airport Noise Compatibility Program. The Part 150 Update was approved by the FAA on August 23, 2000. The program contains 16 mitigation measures.

EIS PROCESS

On May 11, 1998, the FAA began the public phase of the environmental process by announcing in the Federal Register (63 FR 25894) its intent to prepare an Environmental Impact Statement (EIS) and by requesting scoping comments. Scoping meetings were held with the general public and with Federal, state, and local agencies on June 17, 1998. See FEIS Section 7.3, regarding public involvement, and FEIS Appendix B, for a summary of scoping comments.

The EIS process included an active Federal process for thorough public involvement. This included seven Public Information Workshops: one Public Scoping Meeting, four Public Meetings, and one FAA Listening Session held at two locations (Parma and Olmsted Falls). Some of these were conducted concurrent with the FAR Part 150 Study Update. A Public Hearing on the Draft EIS was conducted on two nights, one in the City of Cleveland and one in the City of Olmsted Falls. Additionally, a separate public hearing was held on the Part 150 at two locations, one in the City of Cleveland and one in the City of Olmsted Falls. Copies of the Draft and Final EIS were mailed to interested parties and made available for review at locations in the Greater Cleveland area. A substantial number of comments were received on the Draft EIS through the public hearings and workshops, oral testimony, and written comments. Additionally, there were comments received from 16 commenters on the Final EIS. See Appendix A, *Agency Scoping and Coordination*, and Appendix B, *Public Involvement*, of the FEIS document to review the public information program materials and agency/public comments.

On October 29, 1999, a Notice of Availability for review and comment on the Draft Environmental Impact Statement (DEIS) was published in the Federal Register (64 FR 58404). On November 5, 1999, USEPA published a notice in the Federal Register (64 FR 60439-60440) correcting the public comment closing date from December 13, 1999, to December 29, 1999. A public hearing was held on November 30, 1999 and December 1, 1999. At the request of commenters, FAA extended the public comment period to January 31, 2000. The USEPA in a notice in the Federal Register (64 FR 73550), dated December 30, 1999, announced this extension of the Public comment period to January 31, 2000.

The EIS evaluated various airfield and air traffic alternatives for meeting the project's purpose and need from the Master Plan as well as noise abatement (air traffic) measures and land use measures approved in the Part 150 Update. The initial alternatives analysis was conducted to determine the options available to reasonably meet the needs of the airport. The full range of alternatives were analyzed and the alternatives that did not meet the purpose and need were rejected for further consideration. The remaining five alternatives, in addition to the No-Build/No-Action Alternative, were fully assessed in the EIS.

The EIS analyzed potential environmental consequences of the Proposed Action and reasonable alternatives in 2006, the date by which the Proposed Action would be implemented. As discussed in detail in Chapters 1 and 6, specific aviation activity levels and associated environmental impacts were not considered to be reasonably foreseeable at this time following the year 2006. Accordingly, that date was set as the end of the planning horizon for the proposal evaluated in the EIS. Although it is speculative, the EIS presented possible activity levels and their associated environmental impacts, for disclosure purposes only, for the Proposed Action and No Action Alternatives, through the year 2016. This ROD only approves projects that are planned to be completed by 2006. When activity levels increase to warrant the additional projects in the Cleveland Master Plan, terminal development, and associated parking, there will be additional environmental review and appropriate documentation. According to the Cleveland Master Plan this will occur after 2006.

The FEIS was approved by the FAA on June 23, 2000, and released to the public on July 5, 2000. The FEIS addressed areas of public concern by way of clarifications to the DEIS text and specific responses to public comments. Appendices S and T of the FEIS contain a summary of comments and responses on the DEIS, which were received from the public and government agencies during the hearing as well as through the mail. On July 14, 2000, pursuant to 40 CFR 1506.10, the U.S. Environmental Protection Agency (EPA) published a notice of the availability of the approved FEIS in the Federal Register (65 FR 43748). Several public agencies, community groups, and citizens submitted written comments for agency consideration. Those comments have been responded to in Appendix A of this document.

The FAA has considered all comments received on the FEIS. Appendix A of the ROD responds to substantive agency and public comments on the FEIS and any new issues that have arisen. During this period consultation under Section 106 was concluded, which resulted in a Memorandum of Agreement (see Appendix C).

AVIATION ACTIVITY FORECASTS

In this EIS the FAA relied upon the 1998 FAA Terminal Area Forecast (TAF) (published April 1999) as the basis for determining the timing of future aviation demand levels and total annual aircraft operations. Analysis of fiscal year 1997 and 1998 aircraft operations and enplanements at Cleveland Hopkins International Airport and recent data concerning Continental Airline's planned schedule expansion revealed that the 1998 TAF presented a more realistic forecast of the timing of future demand and of

actual performance in terms of total aircraft operations than the forecasts that FAA had approved earlier for use in the June 1998 Cleveland Master Plan Update. The Master Plan forecast was based upon 1996 calendar year data and reflected minor revisions based upon FAA comments.

The TAF 2006 forecast of operations, as assessed in the EIS, was 412,051. This forecast is virtually identical to the Master Plan 2003 forecast of 412,100. Subsequently, the TAF operations forecast was revised to 417,601. This value continues to be virtually identical to the Master Plan 2003 forecast.

The FAA develops the Terminal Area Forecasts each year to assist the agency in defining its long-range spending and staffing needs. In addition, numerous Federal, state, and local government agencies use the Terminal Area Forecasts for various types of aviation planning tasks. For many planning and environmental analyses, the Terminal Area Forecasts by themselves have insufficient detail, and additional forecasting data and analyses are required. As the TAF only projects total operations and enplanements within larger categories of aviation types within its forecast approach, additional detailed information is needed to supplement the TAF concerning aircraft fleet mix, lengths of flights, day/night split of aircraft operations, and peak day and peak hour passengers and operations. The FAA obtained the more detailed information needed for use in detailed environmental analysis from the June 1998 Cleveland Master Plan Update. The TAF provided the most reasonable timing for future demand, while the Master Plan Update forecasts provided reasonable detail for the types of aircraft in the fleet mix. The FAA further refined the Master Plan data using information from Continental Airlines about future plans for its fleet.

To provide a baseline for comparison of the No-Build/No-Action Alternative with the Proposed Action and other alternatives, FAA used the 1999 existing conditions activity levels and airport operational characteristics. The environmental analysis, which began in 1998, initially used 1998 as the existing conditions, and relied upon 1997 and 1998 data. Because the Draft EIS was not issued until late 1999, and there was not a significant difference in forecasts for 1998 and 1999, 1999 was identified as the baseline year.

Further review confirms that use of 1997 and 1998 operational and fleet mix data to model and compare predicted noise impacts of the Proposed Action and alternatives provided reasonable accurate results. The annual data for 1997 was equivalent to that for 1998 data as 1998 operation levels were 0.2 percent less than 1997 levels. To reflect 1998 conditions, the FAA adjusted the 1997 aircraft fleet mix data using data from the June 1998 Official Airline Guide and City of Cleveland records for the first half of 1998. Although complete actual 1998 and 1999 data were not available when the environmental analysis was conducted, that data indicates that the use of 1997/1998 data understated actual 1999 traffic levels by four percent. The 1998 annual aircraft fleet mix at Hopkins Airport was 10.8 percent Stage 2. Based upon the national schedule for the transition to Stage 3 aircraft by the year 2000, a reasonable expectation for the 1999 annual aircraft fleet mix at Cleveland would be 5.4 percent Stage 2. Although the use of 1997/1998 data overstates the percentage of Stage 2

aircraft in the fleet by approximately 5.4 percent, it understates total annual demand in 1999 by four percent. As these two factors essentially counterbalance one another, use of a 1998 aircraft activity profile provides a reasonable basis for modeling the 1999 existing condition noise impacts and for comparison of alternatives.

The Master Plan for Cleveland Hopkins International Airport defines City of Cleveland policy of when to increase capacity at the airport in response to forecast growth in demand. City of Cleveland policy is to increase airport capacity when delay levels reach six to twelve minutes per aircraft.

The FEIS defines airfield capacity as the ability to safely accommodate the flow of aircraft at the times sought by the aircraft operators, in accordance with standard air traffic management practices. The FEIS evaluates the capacity of the airport for purposes of determining whether demand will grow as forecast, even if the proposed developments are not built. FAA assumes that demand will continue to grow as forecast until full utilization of airport capacity is reached.

Experience at other airports has shown that as demand increases, airlines reschedule operations to times that are currently lightly scheduled. Similar behavior can be expected at Hopkins Airport. Airlines generally schedule their flights to match good weather (Visual Flight Rules) conditions. During poor weather conditions airlines have shown a willingness to accept delays or cancel flights to accommodate these conditions. For their part, passengers have demonstrated a willingness to accept these conditions as a fact of life relative to airline operations.

Based on 80 aircraft operations per hour that Hopkins can handle during VFR weather conditions, as well as a reasonably expected lengthening of the operating day, the maximum annual capacity of the existing Hopkins Airport is approximately 504,000 operations. This annual capacity estimate includes an allowance that on approximately 60 days per year (16 percent) actual operations will be approximately one quarter less than scheduled due to poor weather conditions. Thus, this level of operations reflects a full-utilization airport capacity (saturated demand condition), beyond which aircraft operations would be unable to grow. This is similar to the demand level that is forecast at Hopkins Airport by Year 2016.

The 2016 analysis was presented to determine possible activity level and their associated environmental impacts, for disclosure purposes only. The USEPA has reviewed this methodology as presented in the DEIS and had no comments on it. In the USEPA's review of the FEIS, the USEPA stated that all of their concerns on the DEIS had been adequately addressed and they had no objection to project implementation. The use of the forecast as presented in the FEIS is appropriate.

3. AGENCY ACTIONS

The Federal actions are:

- The approval of revisions to the ALP for construction and operation of proposed airport development, listed in full in Chapter 2 of the FEIS;
- The approval of associated safety actions;
- The approval of the transfers of certain lands by NASA to the City of Cleveland and relocation of NASA facilities and equipment;
- The approval of access point modifications to the I-480/Grayton Road interchange, as well as the realignment of Brookpark Road; and
- The Federal environmental approval necessary to proceed with processing of an application for 1) Federal funding for those development items qualifying under the former Airport and Airway Improvement Act of 1982, as amended and recodified at 49 U.S.C. 47101 et seq. and 2) approval for the collection and use of passenger facility charges under the former Federal Aviation Act, as amended and recodified at 49 U.S.C. 40117.

The necessary Federal determinations and approvals are summarized below:

- A. Approval under existing or future FAA criteria of project eligibility for Federal grant-in-aid funds and/or Passenger Facility Charges, including the following elements:
 - Land Acquisition
 - Site Preparation
 - Runway, Taxiway, and Runway Safety Area Construction
 - Terminal and Other Landside Development
 - Installation of Navigational Aids
 - Environmental Mitigation
 - Noise Mitigation Projects
- B. Unconditional approval of the revised Airport Layout Plan (ALP) for the projects summarized in Table 2-1 of the FEIS, which constitute the proposed development.
- C. Determination and actions, through the aeronautical study process of any off-airport obstacles that might be obstructions to the navigable airspace under the standards and criteria of 14 CFR Part 77.
- D. Evaluate the appropriateness of proposals for on-airport development from an airspace utilization and safety perspective based on aeronautical studies conducted pursuant to the processes under the standards and criteria of 14 CFR Part 157.

- E. Development of air traffic control and airspace management procedures to establish and maintain safe and efficient handling and movement of air traffic into and out of the airport under 49 U.S.C. Sections 40103, 40113, and 40120.
- F. Certification that the proposed air facility is reasonably necessary for use in air commerce or for national defense purposes under 14 CFR Part 169 and 49 U.S.C. Section 44502 (b).
- G. Determinations that the proposed new runway and runway extension conform to FAA design criteria. Approval of protocols for maintaining coordination among sponsor offices, construction personnel, and appropriate FAA program offices, as required to ensure safety during construction.
- H. Determinations that air quality impacts associated with the proposed new runway and runway extension conform to the State Implementation Plan under the Clean Air Act, as amended (42 U.S.C. Section 7506, Section 176 © (1), and 40 CFR Part 93).
- I. FAA determination that there would be no undue burden (unusual circumstances) barring the sponsor from obtaining a Section 404 permit for the filling of wetlands.
- J. FAA determination that there would be no undue burden (unusual circumstances) barring the sponsor from obtaining a National Pollutant Discharge Elimination System (NPDES) permit for stormwater and wastewater discharges.
- K. The transfer of the NASA land shall be made in accordance with approval of OEPA and in accordance with CERCLA, the findings, and the Consent Order for remediation of the Glenn Research Center. NASA retains responsibility for the existing environmental condition of the property consistent with Federal laws and regulations.
- L. The release and transfer of identified portions of NASA land, shown in Exhibit R-3, to the City of Cleveland and approval of the demolition of NASA facilities located on this property, that are needed for the construction of the replacement runway and associated facilities. The proposed transfer shall be subject to the requirements set forth in 49 U.S.C. Section 47125.
- M. Approval of the relocation of Brookpark Road as depicted on the revised Airport Layout Plan (ALP).
- N. Approval of the access point modification study for the I-480/Grayton Road interchange.

Exhibit R-3 – Property to be Transferred From NASA to CLE

4. PURPOSE AND NEED

The identification of a Proposed Action's purpose and need is the primary foundation for the identification of reasonable alternatives and the evaluation of the impacts of the development. In exercising its authority and in the public interest, the FAA considers assigning, maintaining, and enhancing safety and security as its highest priority (49 U.S.C. 40101(d)). This is the FAA's first consideration in evaluating the purpose and need for any proposed airport improvements.

The purpose of the Proposed Action is to meet the following needs:

- The need to enhance safety and operational capability of the airport by providing a runway layout which meets current FAA design standards to the extent practicable;
- The need to reduce unacceptable levels of delay and provide sufficient airfield capacity including peak operating periods;
- The need to provide sufficient runway length to accommodate current and reasonably anticipated air transportation demand;
- The need to provide sufficient terminal gate capacity for commuter aircraft, and domestic and international jet aircraft;
- The need to enhance the flow and capacity of the on- and off-airport roadway systems to accommodate existing and future traffic growth;
- The need to provide sufficient ancillary facilities to accommodate the current and reasonably anticipated air transportation demand;
- The need to enhance the human environment by reducing noise and other impacts on the surrounding communities.

The need to enhance safety and operational capability of the airport.

Today, Runways 5L/23R and 5R/23L function as the primary arrival and departure runways at Cleveland Hopkins. The current airfield layout includes five runway intersections on the airfield, four of which affect the Runways 5R/23L and 5L/23R in two locations each, by crosswind Runway 10/28 and Runway 18/36.³ In addition, crosswind Runway 10/28 is intersected at three points, once each by Runways 5R/23L and 5L/23R and once by Runway 18/36. Runway 18/36 is currently intersected by Runways 5R/23L and 5L/23R and terminates at its intersection with Runway 10/28. While runway intersections are unavoidable at many airports, their presence, especially at or near runway thresholds increases the potential for runway incursions.

³ Runway 18/36 is currently closed for operations and would be permanently decommissioned as part of the proposed development program.

Another issue at Cleveland Hopkins relates to the nonstandard condition of Runway Safety Areas (RSA) and Object Free Areas (OFA).⁴ RSAs enhance the safety of airports and provide pilots with surface area with no (or few) obstructions, thereby minimizing the potential for aircraft damage. Furthermore, RSAs provide greater ground accessibility for firefighting and rescue equipment during such incidents. FAA policy is that standard Runway Safety Areas should be provided for all newly constructed runways or for major runway improvements. As an airport certificated for air carrier service, Cleveland is required to construct standard Runway Safety Areas for all newly constructed or reconstructed runways or for major runway improvements to the extent practicable.

The FAA has reviewed the current ALP and determined that the existing plan provides an acceptable level of safety and that the proposed plan will enhance this acceptable level of safety and increase the operational capability of the airport.

The need to reduce delay and provide sufficient airfield capacity including peak operating periods.

The capacity of the National Airspace System (NAS) is defined as the ability to accommodate the flow of aircraft from departure to destination at the times sought by aircraft operators, in accordance with standard air traffic management practices. Airfield capacity is affected by many factors such as, the number and placement of runways, the number and location of taxiways, the types of air navigation aids, the types of air traffic surveillance equipment, weather conditions, aircraft performance, the mix of aircraft types, and pilot proficiency.

After a detailed analysis of existing conditions, the Master Plan Study Update for Cleveland Hopkins determined that, in order to maximize the airport's ability to serve as a domestic connecting hub, the airfield must have the ability to accommodate heavy arrival and departure demands during peak arrival or departure periods. During these times, at existing and forecast activity levels, the airport has inadequate airfield and airspace capacity. This condition causes delays at the airport and contributes to delays in air transportation throughout the country.

The primary constraint to accommodating the projected increase in operations (and the primary cause of increased delays) is the insufficient lateral separation between the parallel runways, which requires the airport to operate in a highly coordinated manner. Under the current condition, Runway 5R/23L is used for arrivals and Runway 5L/23R is used for departures. This situation requires departing aircraft to cross the path of arriving aircraft on approach to Runway 5R/23L. To maintain adequate safety margins air traffic controllers must increase the distance between arriving aircraft. The existing 441-foot lateral separation prevents the use of procedures typically used at other airports with more separation, such as having aircraft arriving to both runways

⁴ FAA Advisory Circular (AC) 150/5300-13, *Airport Design*, defines an RSA as a "defined surface surrounding a runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or other excursion from the runway".

simultaneously. With 1,241 feet of separation between the runways, the airport can operate more efficiently by using Runway 5L/23R for arrivals. The taxiways between the runways can be used to temporarily hold aircraft while awaiting aircraft to takeoff on Runway 5R/23L. This enhances airport safety as aircraft are crossing a departure runway rather than an arrival runway.

Due to the physical constraints of the airport property, the greatest separation achievable was 1,241 feet from Runway 5R/23L. This separation would provide sufficient peak period capacity over the fifteen-year planning period. The City of Cleveland, as part of its Master Plan Update, prepared a detailed delay and taxi-time simulation analysis (using the FAA SIMMOD model) that validated the selection of the 1,241-foot parallel runway option as providing substantially greater annual delay and taxi-time reduction and cost/benefit than the current condition. Staff from the FAA Atlantic City Technical Center independently reviewed the City's delay analysis and made comments that were used by the City of Cleveland to refine the delay and taxi-time simulation analysis.

The City of Cleveland's Master Plan analysis of airfield capacity found that a replacement Runway 5L/23R 1,241 feet from the existing Runway 5R/23L was the best available option to match airfield peak capacity rates with forecast demand. This capacity would be achieved by providing the capability to operate two runways simultaneously during weather conditions that allow the use of visual flight rules. In addition, a 1,241-foot separation provides sufficient lateral separation to have two parallel taxiways between the two main parallel runways. These two parallel taxiways give the air traffic controllers additional flexibility and space to sequence arriving aircraft across Runway 5R/23L.

Construction of a replacement 9,000-foot runway, parallel to and 1,241 feet northwest of existing Runway 5R/23L, will improve airfield operational flexibility, increase capacity, and reduce delay.

The need to provide sufficient runway length to accommodate current and reasonably anticipated air transportation demand.

Historically, Cleveland Hopkins has not had the runway facilities that can accommodate most types of aircraft used to provide transoceanic air service. As transoceanic service has diversified to more cities, new, but smaller aircraft types have been introduced into the transoceanic fleet. Some of these new aircraft can use the current runways at Cleveland Hopkins to reach a limited number of transoceanic markets. As the air service demand at Cleveland Hopkins matures and broadens, demand will grow beyond the capacity of these new smaller aircraft.

The primary physical airfield constraint inhibiting the development of long-haul transoceanic flights (over 3,500 nautical miles) originating from Cleveland Hopkins is insufficient runway length. Due to this physical constraint, airlines wishing to depart on long-haul transoceanic flights must sacrifice payload in order to have enough fuel capacity for the flight.

The Master Plan investigated the potential need for transoceanic service at Cleveland Hopkins. It concluded that the airport could reasonably anticipate current and future demand for up to four transoceanic international flights, servicing principal European gateways (i.e., London, Frankfurt, Amsterdam, Paris). The City of Cleveland's Master Plan Update included a recommendation to extend the longest runway available at Cleveland Hopkins to the point where runways no longer pose a significant constraint to the development of air service at Cleveland Hopkins. The runway length of 11,250 feet is the maximum achievable length within the constraints of the current airport site without extending south into the Rocky River Reservation or north across Runway 10/28. In addition, this length is also sufficient for passenger service to other European cities.

The need to provide sufficient terminal gate capacity for commuter aircraft and domestic and international jet aircraft.

The forecast of boarding passengers (enplanements) is critical in determining other various aviation demand elements because most activity elements (i.e., aircraft operations) derive from these boarding passenger forecasts. The airport's combined domestic air carrier, domestic commuter, and international boarding passenger volumes, show an increase from 6.0 million boarding passengers in 1997 to 9.6 million in 2006. To accommodate this growth, future terminal gate capacity will need to be increased in 2006. Cleveland Hopkins has only one international gate. With the forecast development of multiple international flights, Cleveland Hopkins will need additional international gate capacity.

The need to enhance the flow and capacity of the on- and off-airport roadway systems to accommodate existing and future traffic growth.

Implementation of the recommended changes and improvements to the on- and off-airport roadway system would allow for a more efficient flow of traffic and a reduction of congestion. The Master Plan analysis of the existing capacity and projected demand for roadway improvements identified several roadway deficiencies for both on-airport and off-airport roadway facilities.

On-airport, the landside access and circulation roadways are obsolete due to the existing restrictive layout, poor geometry, and inadequate capacity to accommodate existing and forecast automobile traffic volumes. This condition has evolved because significant parts of the existing roadway network were not designed as part of an integrated roadway system, but evolved piecemeal on a per-project basis. Therefore, the roadway network does not circulate efficiently. Due to the poor layout and function of the roadway network, automobile congestion triggers unsafe maneuvering by drivers trying to compensate for time lost.

Implementation of the proposed development would improve the roadway access system to the airport.

The need to provide sufficient ancillary facilities to accommodate current and reasonably anticipated air transportation demand.

The ancillary facilities needed to support the potential increase in air transportation demand include additional auto parking, and future development of presently undeveloped areas for air side service roads, aircraft maintenance and storage hangars, air cargo buildings, flight kitchens, and equipment storage buildings.

Based on the City of Cleveland's Master Plan analysis, the airport will require approximately 4,800 additional parking spaces by 2006 for public on-airport short-term/long-term and airport and rental car employee spaces. This increase in the number of parking spaces should accommodate the projected 2006 demands. If parking facilities beyond these 4,800 parking spaces are required, appropriate environmental review will be conducted.

The need to enhance the human environment by reducing noise and other impacts on the surrounding community.

Implementation of the measures associated with the development program as recommended in the Final Part 150 Noise Compatibility Study Update would abate and mitigate the impacts of aircraft noise for both the existing and projected future conditions. The new or modified air traffic measures would change the operating system of the airfield to reduce delay and increase capacity while providing a means to minimize noise impacts on the surrounding communities.

Sound insulation under environmental mitigation would be offered to residential structures newly impacted by the 65 DNL noise contour, and to residential structures experiencing a 1.5 dB increase in noise in the 65 DNL noise contour because of the project.

Implementation of many of the measures recommended in the City of Cleveland's Master Drainage Plan would improve and mitigate the impacts of the proposed airport development on water quality and stormwater runoff.

5. ALTERNATIVES ANALYSIS

In addition to the relevant environmental statutes, the FAA, in its consideration of alternatives, has been mindful of its statutory charter to encourage the development of civil aeronautics and safety of air commerce in the United States (49 U.S.C. 40104). FAA has also considered the congressional policy declaration that airport construction and improvement projects that increase the capacity of facilities to accommodate passenger and cargo traffic be undertaken to the maximum feasible extent so that safety and efficiency increase and delays decrease (49 U.S.C. 47101(a)(7)).

While the FAA does not have the authority to control or direct the actions and decisions of the City of Cleveland relative to planning for this project, it does have the authority to withhold project approval, including Federal funding and the other Federal actions discussed in this ROD. It was from this perspective that the various alternatives were considered in terms of evaluating and comparing their impacts to determine whether there was an alternative superior to that proposed by Cleveland, or whether Cleveland's proposal would cause impacts warranting disapproval of the Federal actions discussed in this ROD, including the withholding of Federal funds for the project.

In determining the best way to meet the needs identified in Chapter 2 of the FEIS, the FAA identified numerous alternatives to the proposal. During this exploration of alternatives, all reasonable, feasible, prudent and practicable alternatives were carefully examined, ranging from the "No-Build/No-Action Alternative" to development alternatives including a future No-Build/No-Action Baseline, noise abatement air traffic action, land use compatibility action alternatives, and facility development alternatives.

Of the wide range of alternatives evaluated, numerous alternatives were eliminated for a variety of reasons as discussed below and in more detail in the FEIS. After analysis of each of the above range of alternatives, the FAA determined that there were six alternatives to the Proposed Federal Action that needed to be subjected to thorough and detailed environmental analysis in the FEIS. These included the "No-Action Alternative" and five development alternatives. Further analysis of these six alternatives determined the agency's preferred alternative in the FEIS.

The Master Plan Update and Part 150 process were conducted concurrently with the NEPA planning process. However, alternatives considered within the Master Plan and Part 150 were reviewed independently within the NEPA process. The FEIS alternatives evaluation utilized a two-phase evaluation process that concentrated on assessing alternatives that met the purpose and need for the proposed project. The first phase of the process primarily focused on non-construction alternatives that might reasonably meet the purpose and need criteria established in Chapter 2 of the FEIS. The second phase of the process evaluated a wide range of alternatives, primarily airfield construction alternatives, which might reasonably meet the purpose and need criteria.

As part of the second phase there was an additional evaluation of a narrow range of airfield construction alternatives that met at least a portion of the purpose and need criteria. The alternatives that most reasonably satisfied the identified purpose and need criteria were retained for evaluation in the FEIS analysis.

NO-ACTION ALTERNATIVE

The FAA considered the possibility of no airfield improvements at Cleveland Hopkins over the 15-year planning horizon. Although the No-Action Alternative would be the least disruptive in terms of development impacts, it would not enhance safety at the airport. It would not solve the current and projected delays nor provide for the peak period capacity needs existing at the airport and thus would not achieve the purposes and needs for the Proposed Action. However, the FAA is required by law to submit this alternative to detailed environmental analysis. This alternative (No-Build/No-Action) was therefore retained for analysis through the EIS process under all environmental impact categories.

A discussion of the two-phase alternatives analysis considered by the FAA in reaching this decision follows.

FIRST PHASE ALTERNATIVES ANALYSIS

The following section summarizes the first phase of the alternatives analysis which focused on the potential for non-construction alternatives to reasonably meet the identified purpose and need at CLE.

- ***Use Of Other Modes Of Transportation:*** Alternative modes of transportation, such as rail, bus or automobile, can offer feasible alternatives to freight shippers and air travelers, particularly those traveling 500 miles or less. However, reliance on other surface roadway transportation modes could not replace air service in terms of speed and timeliness of product delivery or passenger service. The airport provides an interface between air and ground transportation and is an integral link in the region's economic and transportation network. Therefore, the use of other surface roadway transportation modes is not considered as a viable alternative. For example, since high-speed rail transportation will not be available in the Cleveland Hopkins area in the foreseeable future, it would not be a reasonable alternative.
- ***Communication Alternatives:*** Alternative modes of communicating, such as using teleconferencing and video-conferencing technologies, can offer limited alternatives for conducting day-to-day business transactions and communications. However, reliance on other communication modes could not replace air service in terms of the need for face-to-face interaction. In addition, the availability and cost of the infrastructure required for wide-spread use of

these technologies today is not a viable means for reducing existing and future delay issues at the airport today. Therefore, the use of alternative communication modes is not considered as a viable alternative.

- **Use of Other Airports:** As air traffic has increased throughout the United States, there have been many examples of the development of multi-airport systems serving a given metropolitan area. This phenomenon has been studied extensively by Dr. Richard DeNeufville at the Massachusetts Institute of Technology and reported in a paper entitled *Planning Multi-Airport Systems in Metropolitan Regions in the 1990's*. In his paper, Dr. DeNeufville establishes that market forces are the major factor in determining the success of multi-airport systems and that governments have only limited power to influence the distribution of traffic between airports, even under the most favorable circumstances. In the United States, this power was explicitly limited by the Airline Deregulation Act of 1978, which eliminated federal control over domestic routes and pricing.

The FAA investigated the possible use of other airports, some of which are of sufficient size to accommodate air carrier operations. There are several smaller airports serving the Cleveland area. Two of these, Akron–Canton and Burke Lakefront, are of sufficient size to potentially accommodate air carrier operations and are discussed in detail below. The remainder of the airports on the list are small, lack sufficient runway capacity, and navigational facilities to handle air carrier operations. Thus, they are not viable options to meet the identified purposes and needs for the proposed Cleveland project.

Akron-Canton Regional Airport (CAK): Akron-Canton is the region's only other airport with scheduled commercial service. Considerable capacity is available at CAK for additional service, and there are indications the demand is increasing. The current increase in demand is specific to CAK and does not indicate a diversion of service from CLE. This may be the result of CAK's distance from the City of Cleveland (approximately 42 miles) or, more likely, the fact that air service tends to concentrate at specific airports within a region at least until the perceived advantages to such concentration are no longer worthwhile. Diverting traffic to CAK from CLE, even if it could be done, would likely lead to adverse environmental impacts in the Akron-Canton area because of the increased mileage driven and the increased level of operations at the airport itself. Public mass transportation from Cleveland to CAK is not available.

Burke Lakefront Airport (BKL): Burke Lakefront Airport is located in downtown Cleveland and 13 miles from Cleveland Hopkins. It is the largest of the Cleveland Hopkins reliever airports. It has two asphalt grooved runways, 6L/24R at 6,198 feet and 6R/24L at 5,200 feet. The runways at BKL could accommodate a limited group of aircraft now in the air carrier fleet but would need a significant amount of additional work to meet the needs of even the aircraft currently in the commuter fleet (i.e. Regional jets.)

Burke Lakefront Airport (BKL) has had limited and sporadic commercial service by commuter airlines in the past. While convenient to a limited segment of passengers, commuter airlines have not found this service profitable and it was discontinued. BKL will continue to have a passenger terminal and will continue to be available as an option for limited commercial service. Past market performance suggests that BKL will not provide additional commercial service capacity relief to Cleveland Hopkins International Airport.

The operation of an airline hub depends upon convenient and timely opportunities for passengers and baggage to transfer from one aircraft to another. Having passengers change airports greatly increases the time required between flights and makes that connection not competitive when compared to airports that do not require this. As the major hub airline at Cleveland Hopkins, Continental is not likely to split its operations between two local airports. Even with a dedicated high-speed rail connection (which currently does not exist nor are there plans to develop such a system), connection times would be too long to support the current hubbing operation at the airport not to mention any increase in demand, which may be expected.

The use of other airports in the region will not meet the purpose and need of the project.

- **Construction Of A New Airport:** This alternative was not considered to be practicable for several reasons including:
 1. The large capital investment necessary for the construction of a new airport;
 2. The cost of environmental mitigation at a new location;
 3. CLE's current role as a hub for Continental Airlines;
 4. The inability of cities the size of Cleveland to generate sufficient demand to support two major air carrier airports; and
 5. The lack of a sponsor to propose and support construction of a new airport.

Additionally, the construction of a new, greenfield (or, a blue water airport built in Lake Erie) airport to serve a substantial air carrier market would generally cause greater and, potentially more significant, environmental impacts than the future airport development on an existing or adjacent site.

- **Activity Or Demand Management Alternatives:** In addition to evaluating other technologies for reducing airfield delays, the FAA also considered the possibility of the use of activity or demand management alternatives. Activity or demand management alternatives are typically implemented to address the imbalance between peak period aircraft arrival and departure demand and airport capacity by forcing a redistribution of air traffic during the operational day. By redistributing air traffic, the goal is to create a more even demand throughout the day and evening to avoid peak period back-ups and delays. Implementation of these measures, if they could be implemented at all, would have to be accomplished very carefully in order to avoid potential impermissible

restrictions of the airport's operations. In addition, these measures also must respect the requirements of the Airline Deregulation Act of 1978 and the Airport Noise and Capacity Act of 1990, since such measures could be considered regulation of the airline industry at CLE.

The City of Cleveland's Master Plan determined that a demand management program would increase daily and annual capacity by approximately five percent. This five-percent gain does not meet the purpose and need of the project.

An often-proposed activity/demand management strategy is to reduce the quantity of commuter aircraft operations, which primarily serve connecting passengers, either by limiting access to the airport or by developing a commuter airport. However, connecting traffic at Cleveland Hopkins is a consequence of airline hubbing. This connecting/hub activity is clearly demonstrated by the Continental Airlines/Continental Express relationship. Continental Express serves a number of smaller cities with smaller aircraft. More than 70 percent of Continental Express passengers fly to Cleveland to connect with a Continental Airlines flight to another destination. As a result, if such traffic were prohibited and not accommodated at any area airport, larger aircraft would likely be used in some markets and other passengers would be forced to drive to Cleveland to access air service. A prohibition on commuter traffic might be found impermissibly discriminatory and contrary to law.

A diversion of commuter traffic to another airport would result in the need for ground transportation, preferably using a dedicated express service right-of-way, between the other airport and CLE. The purpose of this right-of-way would be to provide a corridor for the fast movement of passengers and baggage between the airports. The only airport that has an existing right-of-way connection between it and Cleveland Hopkins is Burke Lakefront Airport. This right-of-way currently accommodates a rail connection that would need considerable improvements, including widening, and new signals to allow express train service between Burke and Cleveland Hopkins. Even with this type of service, connection times between flights at Burke and Cleveland Hopkins Airports would not be competitive with connection times offered by competing airlines at other airports.

The FAA determined that based on the above analysis, as well as the discussion contained within Chapter 3 of the FEIS, the alternatives analyzed in the first phase did not meet the purpose and need of the project, and therefore were not retained for further discussion or analysis. Absent any practical way to create a new airport, other competitive modes of transportation, communication, other technologies, comparable service at other local and regional airports, or feasible activity or demand management alternatives, the only remaining alternatives to be evaluated were limited to improving or not improving the airfield and landside facilities at CLE.

SECOND PHASE ALTERNATIVES ANALYSIS

The evaluation of airfield alternatives was conducted in the next phase of the alternatives evaluation process. The second phase evaluation resulted in a shortlist of alternatives that satisfied the airport sponsor's following criteria: meet the 20-year (through 2016) arrival and departure demand requirements, maximize runway use flexibility, and provide a runway with sufficient length to accommodate long-haul operations. The second phase also examined selected alternatives in greater detail and modified those alternatives based on additional analysis. This evaluation was conducted concurrently with the Master Plan Update, Part 150, and the NEPA planning processes, which included representatives from the airport, airlines, the FAA, and local planning agencies.

The analysis conducted in the FEIS as well as the alternatives analysis in the 1999 Cleveland Hopkins International Airport Master Plan Study Update evaluated a series of alternatives to the airside (runways and taxiways) and landside (passenger terminal) infrastructure of the airport. Each alternative was defined and refined, and each was evaluated using a detailed list of criteria.

Other desired miscellaneous improvements and ancillary facilities (i.e., roadway improvements, new public and employee parking, and relocation of rental car facilities) have been proposed and evaluated by airport management and staff. These desired improvements are combined with airside and landside alternatives into comprehensive packages of improvements to ultimately result in the Proposed Action Alternative.

As determined by the demand capacity and facility requirements analysis in the 1999 Master Plan Study Update, the needs and issues of the airport operator to reduce delay and lessen noise impacts resulted in the identification of development projects or programs to provide a means for reducing delay and sufficient airfield capacity during peak operating periods, and to provide sufficient runway length to accommodate current and reasonably anticipated air transportation demand.

The second phase of the airfield alternative evaluation examined a complete range of runway development alternatives. Each alternative (with the exception of the no-build alternatives) provides at least two parallel runways with a minimum of 800-foot lateral separation, reduces runway intersections (except Alternative C3), and provides 11,250 feet of runway for departures and 9,000 feet for arrivals. Each alternative was designed for large commercial aircraft (Group V – i.e., Boeing 767-400ER). Each alternative is briefly described below and shown in **Exhibit R-4**. In italics are the conclusions reached by the FAA in this phase of the analysis:

- **Alternative N1:** This alternative (No-Build/No-Action) assumes there is no new development of the airfield between now and 2016, nor will there be any changes in air traffic control procedures or technology. This alternative is included to provide a baseline for comparison with the development options.

Exhibit R-4 – Master Plan Alternatives Evaluation

- **Alternative N2:** This alternative assumes there is no new airfield development, but involves increasing the use of Runway 10/28 for departures. The only aircraft that can consistently depart Runway 10/28, which is 6,015 feet long, are turboprops. Regional jets, forecast to make up 94 percent of the commuter fleet in 2016, typically require 7,000 feet for departure and, therefore, cannot use Runway 10/28. Due to limited use of this runway, this alternative will not provide a significant reduction of delay or an increase in capacity.
- **Alternative N3:** This alternative assumes there is no new airfield development, but relies on capacity increases due to air traffic control technology advances. New emerging and anticipated air traffic control technologies were reviewed. Of these, only the Converging Approach Spacing Aid (CASA) provides a significant increase in capacity and has applications at Cleveland Hopkins with the existing runway system. Without improvements to the existing runway system, CASA only increases capacity by nine percent, and thus does not by itself provide sufficient reductions in aircraft delays or improvements to annual capacity. With the proposed airfield improvements, CASA provides capacity improvements during weather conditions where dual approaches would not otherwise be possible.
- **Alternative A1:** This alternative extends Runway 5R/23L to the south to a new length of 11,250 feet. A replacement 9,000-foot Runway 5L/23R is constructed at a lateral spacing of 800 feet from Runway 5R/23L. The existing Runway 5L/23R is converted to a taxiway. All existing runway intersections are eliminated and Runway 18/36 is closed. This alternative corrects existing operational deficiencies, requires the least amount of airfield disruption during construction, and minimizes the environmental and land utilization impacts to the surrounding communities and facilities and was recommended for further analysis.
- **Alternative A2:** This alternative converts existing Runway 5R/23L to a taxiway. Existing 5L/23R is extended to a length of 11,250 feet. A replacement Runway 5L/23R is constructed at a lateral separation of 800 feet from the existing 5L/23R at a length of 9,000 feet. All existing runway intersections are eliminated and Runway 18/36 is closed. Implementation of this alternative would result in construction of the new 9,000-foot runway through the area on the NASA Glenn Research Facility at Lewis Field that is commonly referred to as the South 40 Area. Consequently, if this alternative is implemented, the City of Cleveland would need to remove and relocate or to replicate the research and other support facilities currently located in the South 40 Area. This alternative corrects existing operational deficiencies, requires the least amount of airfield disruption during construction, and minimizes the environmental and land utilization impacts to the surrounding communities and facilities and was recommended for further analysis.

- **Alternative A3:** This alternative includes all the improvements described in Alternative A2. In addition, a new 8,500-foot runway is constructed laterally separated from the proposed Runway 5C/23C by 5,000 feet. All existing runway intersections are eliminated and Runway 18/36 is closed. Implementation of this alternative would result in construction of the new 9,000 foot runway through the area on the NASA Glenn Research Facility at Lewis Field that is commonly referred to as the South 40 Area. Consequently, if this alternative is implemented, the City of Cleveland would need to remove and relocate or to replicate the research and other support facilities currently located in the South 40 Area. This runway requires relocation of numerous on- and off-airport facilities. A third parallel runway is not required within the planning horizon of the master plan and is cost prohibitive at this time.
- **Alternative B1:** This alternative includes extending 5R/23L to a length of 11,250 feet. The existing Runway 5L/23R is replaced with a 9,000-foot runway that is laterally separated from Runway 5R/23L by 1,241 feet. There is sufficient space for two parallel taxiways between the parallel runways. All existing runway intersections are eliminated and Runway 18/36 is closed. Implementation of this alternative would result in construction of the new 9,000-foot runway through the area on the NASA Glenn Research Facility at Lewis Field that is commonly referred to as the South 40 Area. Consequently, if this alternative is implemented, the City of Cleveland would need to remove and relocate or to replicate the research and other support facilities currently located in the South 40 Area. This alternative corrects existing operational deficiencies, requires the least amount of airfield disruption during construction, and minimizes the environmental and land utilization impacts to the surrounding communities and facilities and was recommended for further analysis.
- **Alternative B2:** This alternative includes all the improvements described in Alternative B1. In addition, a replacement 7,200-foot runway is constructed laterally separated from existing Runway 5R/23L by 3,900 feet. All existing runway intersections are eliminated and Runway 18/36 is closed. Implementation of this alternative would result in construction of the new 9,000-foot runway through the area on the NASA Glenn Research Facility at Lewis Field that is commonly referred to as the South 40 Area. Consequently, if this alternative is implemented, the City of Cleveland would need to remove and relocate or to replicate the research and other support facilities currently located in the South 40 Area. This runway requires relocation of numerous on- and off-airport facilities. A third parallel runway is not required within the planning horizon of the master plan and is cost prohibitive at this time.
- **Alternative B3:** This alternative contains all the improvements described in Alternative B1. In addition, a replacement 9,000-foot runway is constructed laterally separated from existing Runway 5R/23L by 4,300 feet. All existing runway intersections are eliminated and Runway 18/36 is closed.

Implementation of this alternative would result in construction of the new 9,000-foot runway through the area on the NASA Glenn Research Facility at Lewis Field that is commonly referred to as the South 40 Area. Consequently, if this alternative is implemented, the City of Cleveland would need to remove and relocate or to replicate the research and other support facilities currently located in the South 40 Area. This runway requires relocation of numerous on- and off-airport facilities. A third parallel runway is not required within the planning horizon of the master plan and is cost prohibitive at this time.

- **Alternative C1:** This alternative changes the primary operating direction of the airport from 5/23 to 10/28. A new 8,000-foot Runway 10R/28L located 4,400 feet south of existing Runway 10/28 is constructed. Existing Runway 5R/23L is extended to 11,250 feet. Runways 18/36 and 5L/23R are closed. Implementation of this alternative would result in construction of the new 8,000-foot runway immediately southeast of the area of the NASA Glenn Research Facility at Lewis Field that is commonly referred to as the South 40 Area, thereby placing this area in the safety clear zone at the end of the new runway. Consequently, if this alternative is implemented, the City of Cleveland would need to remove and relocate or to replicate the research and other support facilities currently located in the South 40 Area. The changes in orientation do not provide fundamental increases in capacity, which are not already available from the Runway 5/23 orientation. In addition, many areas which are currently unaffected by aircraft noise would be subjected to a large increase in daily overflights. Major airport facilities would require relocation and costly land acquisition would be necessary.
- **Alternative C2:** This alternative also changes the primary operating direction of the airport. This alternative shows a new 8,000-foot Runway 18R/36L located 800 feet west of existing Runway 18/36. Existing Runway 5R/23L is extended to 11,250 feet and Runway 5L/23R is closed. The changes in orientation do not provide fundamental increases in capacity, which are not already available from the Runway 5/23 orientation. In addition, many areas which are currently unaffected by aircraft noise would be subjected to a large increase in daily overflights. Major airport facilities would require relocation and costly land acquisition would be necessary.
- **Alternative C3:** This alternative has the same 5/23 runways shown for Alternative A2 with a third Runway 5/23 laterally separated from 5R/23L by 4,341 feet. In addition, the crosswind Runways 18/36 and 10/28 are replaced with a pair of 8,000-foot Runways 14/32, laterally separated by 800 feet. Existing Runways 18/36 and 10/28 are closed. Implementation of this alternative would result in construction of the new 9,000-foot runway through the area on the NASA Glenn Research Facility at Lewis Field that is commonly referred to as the South 40 Area, as well as the construction of a new 8,000-foot runway that would impact facilities located on West Area Road. Consequently, if this alternative is implemented, the City of Cleveland would

need to remove and relocate or to replicate the research and support facilities currently located in these areas. The changes in orientation of the crosswind runways do not provide fundamental increases in capacity, which are not already available from the Runway 5/23 orientation. In addition, many areas which are currently unaffected by aircraft noise would be subjected to increases in daily overflights. Major off-airport facilities would require relocation and costly land acquisition would be necessary.

- **Move Airfield North Alternative:** This alternative would require massive disruption of areas in Cleveland north of I-480 and it would not expand the Cleveland Hopkins International Airport beyond the capacity of the current master plan proposal. Additionally this plan would not provide any additional space between the parallel runways. This alternative would require the following:
 - I-480/I-71/SR 237 relocation \$500,000,000. This includes:
 - One mile of twelve-lane tunnel for I-480 and replacement of two and a half miles of replacement I-480
 - One mile of replacement I-71
 - New Grayton Road Interchange
 - Connecting ramps and bridges
 - Replacement rail yard and rerouting of CSX main lines \$50,000,000
 - Airfield pavement and other airport infrastructure (assumed to be equivalent to the sponsor's Proposed Action, 1.1 billion)
 - Residential and commercial relocations \$500,000,000+
 - Environmental mitigation \$50,000,000 (streams, wetlands, historic structures).

This alternative would also impact wetlands and streams associated with Silver Creek and other tributaries on the north side of I-480. These impacts would be caused by the relocation of runway facilities, I-480, and other local roads and commercial/residential development. In addition, this alternative would require the relocation of several thousand residential units including a large Section Eight housing development and their associated neighborhood commercial developments. Taking into account that this alternative would neither impact Abram Creek nor the NASA ravines, the total physical facility cost of this alternative would be approximately \$2.2 billion, not including additional land acquisition and sound insulation for noise impacts. Therefore, this alternative was not considered to be practical, prudent, reasonable, nor feasible.

Alternatives A1, A2, and B1 were retained for additional analysis. All other alternatives discussed above in the second phase alternatives evaluation were determined by the FAA not to be prudent, feasible, reasonable, or practicable for the reasons discussed within the FEIS. Each of the alternatives retained for additional analysis, with the

exception of the no-build alternatives, provides at least two parallel runways with a minimum of 800-foot lateral separation, reduces runway intersections, and provides 11,250 feet of runway for departures and 9,000 feet for arrivals.

ADDITIONAL ANALYSIS OF SELECTED SECOND PHASE ALTERNATIVES

Alternatives A1 and A2: 9,000-Foot Runway 5L/23R, Spaced 800 Feet Away from Runway 5R/23L

These alternatives would provide additional peak-period capacity allowing for independent arrivals and departures during visual meteorological conditions (VMC); independent departures during instrument meteorological conditions (IMC), and dependent arrivals during IMC. In addition, due to the limited distances between the runway and associated taxiways, FAA ILS siting criteria cannot be met. Furthermore, taxiing distance and times would be longer than is currently experienced between the two existing parallel runways. The development cost is estimated at \$59.4 million, which is in the mid-range of the alternatives to develop.

Each of these alternatives would require the transfer of portions of the NASA property, commonly referred to as the NASA South 40, to the City of Cleveland. Additionally, the Rocket Engine Test Facility (RETF), a National Historic Landmark listed on the National Register of Historic Places, would need to be demolished in order to provide the necessary Object Free Area (OFA) and Primary Surface clearances for the runways.

This alternative does provide for some delay reduction; however locations and routes for aircraft exiting the runway system would still be limited and may cause excessive taxi distances. In some instances, aircraft arriving on the replacement runway would have to exit the runway on to a parallel taxiway north of the runway and then would be required to cross both runways in order to taxi to the terminal complex. This would create a less than optimal taxiing configuration from a safety and efficiency standpoint.

Therefore, alternatives with 800 feet of lateral separation were not considered by the FAA to be prudent, feasible, reasonable, or practical and were eliminated from further consideration.

Alternative B-1: 9,000-Foot Runway 5L/23R, Spaced 1,241 Feet from Runway 5R/23L

This alternative would provide additional peak-period capacity allowing for independent arrivals and departures during visual meteorological conditions (VMC), independent departures during instrument meteorological conditions (IMC), and dependent arrivals during IMC. However, taxiing distance and times would be longer than is currently experienced between the two existing parallel runways. The development cost is estimated at \$63.2 million, as compared to \$59.4 million for the other short-listed alternatives.

This alternative provides for the greatest level of delay reduction as compared to Alternative A1 and A2. Unlike Alternatives A1 and A2, aircraft arriving on the replacement runway (separated by 1,241 feet) would have ample room to exit the runway on to a parallel taxiway south of the runway and hold before crossing Runway 5R/23L in order to taxi to the terminal complex. This would create the most optimal taxiing configuration from a safety and efficiency standpoint.

Therefore, this alternative was carried forward in the detailed assessment of environmental consequences provided in Chapter 5 of the FEIS. Based on the above analysis, airfield development Alternative B1 was carried forward for further analysis.

Alternatives to Achieve a Runway Length of 11,250 Feet

The airfield requirement analysis performed in the 1999 Master Plan Study Update resulted in the recommendation of 11,250 feet of departure capability. The most notable benefit of extending a runway to 11,250 feet would be the increased operational utility of the runway for aircraft such as Boeing 767-400ER, which would be able to depart from this runway with minimal or no payload restriction on long haul routes. Continental Airlines, the dominant air carrier at CLE, has stated their intentions to operate these aircraft at CLE. As part of the development of the B-1 Alternative, an in-depth analysis was performed on which runway to extend. All three existing runways (5R/23L, 10/28, and 18/36), as well as the proposed replacement Runway 5L/23R, were considered as candidates for a runway extension.

- **Extension of Runway 10/28:** Extending Runway 10/28 would require an extension of at least 5,235 feet to provide 11,250-foot departure capability. It would not be feasible to extend this runway to the west due to the proximity and location of the Rocky River Reservation. An extension to the east would require the relocation of State Route 237, the Conrail lines, the acquisition of the Ford Motor Plant, and reconfiguration of the airport entrance/access roads. *Therefore, this alternative was not carried forward for detailed discussion in the EIS.*
- **Extension of Runway 18/36:** Runway 18/36 has been the least used runway at Cleveland Hopkins and it is currently closed due to pavement issues. Extending Runway 18/36 would require an extension of at least 4,840 feet to provide 11,250-foot departure capability. It would not be feasible to extend this runway to the north due to the proximity and location of the Rocky River Reservation as well as the need to relocate I-480 and Brookpark Road. An extension to the south would require the relocation of State Route 237, the Conrail lines, and proposed construction of Brook Park's Aerospace Technology Parkway. *Therefore, this proposal was not studied in detail in the EIS. (Note: this runway has been closed on a temporary basis for the past several years and it is now proposed that it be closed permanently.)*

- **Extension of the Proposed Replacement Runway 5L/23R:** Extension options were identified to achieve an 11,250-foot departure capability on the proposed replacement Runway 5L/23R. This option was not considered for further analysis in the Master Plan because, from an airfield operational perspective, departures should be conducted on the runway(s) closest to the terminal area and the proposed replacement Runway 5L/23R would be located farthest from the terminal area. In addition, there would be increased taxi time and distance for aircraft to reach the departure ends of the proposed runway particularly with any type of a runway extension. *For these two reasons, the EIS did not consider this alternative in detail.*
- **Extension of Runway 5R/23L:** Extending Runway 5/23 would require an extension of 2,250 feet to provide 11,250 feet in departure capacity. It would not be feasible to extend this runway to the northeast due to the proximity and location of I-480 and the Conrail lines and the intersection with Runway 10/28 would not be eliminated. Extending this runway to the southwest would require the crossing of Abram Creek. However, Abram Creek would already be impacted by the initial shift of this runway by 960 feet to the southwest to remove its intersection with Runway 10/28 as well as the construction of replacement Runway 5L/23R. The Runway Safety Area (RSA) for shifted Runway end 5R would be directly over a portion of Abram Creek, thus requiring the filling of that portion of Abram Creek to provide the required standard RSA as specified in FAA Federal Aviation Regulation (FAR) Part 139.309.

An additional benefit of extending Runway 5R would be its mitigating effect on aircraft noise impacts. The extension would reduce noise impacts because aircraft departing from this runway would be at higher altitudes over noise-sensitive areas to the northeast.

For these reasons, extending Runway 5R was studied in detail in the EIS.

Abram Creek Crossing Alternatives

Alternative B-1 would require the crossing of Abram Creek. As a result five options for the crossing of Abram Creek were considered. Table 3-2 in the FEIS illustrates the matrix used for analysis of these five options and summarizes the advantages and disadvantages of each option.

The five culvert options evaluated are as follows:

- Option 1: Culvert all runways and taxiways
- Option 2: Culvert each runway and taxiway. This would allow for 500 feet of new Abram Creek channel between 5R/23L and 5L/23R.

- Option 3: Construct a bridge or high-profile culvert over the various Abram Creek crossings. This option would be three times more expensive than any other alternative and the bridge portion could freeze before the rest of the runway and create potential safety hazards.
- Option 4: Divert flood flow of Abram Creek to East Branch of the Rocky River. This option would reduce culvert diameter but not the length of the channelization. It would also require an easement through Brook Park and Cleveland Metroparks. It is unlikely this alternative would be allowed by the OEPA since it would further degrade water quality within this segment of the creek.
- Option 5: Re-route Abram Creek around the proposed runways. This option would still require portions of the newly routed creek to be placed in culverts in order to meet FAA design standards. Thus there would be little or no aquatic life value in the creek and it would not be a replacement for the natural stream channel.

As a result of the analysis conducted during the detailed preliminary design phase, Option 1 was selected as the most feasible option. The detailed preliminary design phase analysis included consultation and review by various environmental resource agencies, including the ACOE, USEPA, and the OEPA, to determine which of the proposed options would have the least impact to the natural environment and provide the best opportunity to minimize or avoid impacts.

Option 1 involves the construction of a single culvert through the entire length of the airfield. This option and associated impacts was carried through all of the alternatives analysis discussed in Chapter 5, Environmental Consequences.

ALTERNATIVES ENVIRONMENTALLY ASSESSED IN THE FEIS

Under the National Environmental Policy Act of 1969 (NEPA), the FAA has a responsibility to explore and objectively evaluate all prudent, feasible, reasonable, and practical alternatives, including those not within the jurisdiction of the Federal agencies.

For major Federal actions in which the Federal Government, as a proprietor, plans and develops a Federal facility, the scope of alternatives considered by the sponsoring Federal agency is wide ranging and comprehensive. However, where the sponsor is not the Federal Government, but is a local government or private applicant, the Federal agency role is necessarily more limited with substantial weight given to the preferences of the local sponsor.

It should be noted that NEPA requires that a No-Build/No-Action Alternative be considered in the environmental assessment of impacts. Although not always prudent, the No-Build/No-Action Alternative is discussed as a potential alternative and serves as a baseline for the assessment of future conditions. The No-Build/No-Action Alternative was identified as Alternative 1 in the EIS.

As part of the EIS process, FAA independently reviewed the Master Plan and determined that Alternative B-1 was an acceptable runway solution to meet the purpose and need of the project. To assure consideration of all reasonable alternatives and to fulfill the purpose and need of enhancing the human environment, the FAA then considered various configurations for Alternative B-1. These were identified as Alternatives 2 through 5 in the EIS. This provided the FAA with the environmental impacts of the various components of Alternative B-1. Alternative B-1 was identified as Alternative 6 in the EIS. The alternatives evaluated in detail in the EIS were:

- **Alternative 1⁵:** Baseline Condition (No-Build/No-Action)
- **Alternative 2⁶:** Shift Runway 5R/23L (maintain 9,000 Feet) 960 feet to the south and construct a replacement Runway 5L/23R (9,000 feet) at 1,241 feet separation. Displace the Runway 5R threshold 960 feet.
- **Alternative 3:** Shift Runway 5R/23L 960-foot to the south, construct a 1,000-foot extension to Runway 5R/23L (10,000 Feet), and construct a replacement Runway 5L/23R (9,000 feet) at 1,241 feet separation. Displace the Runway 5R threshold 1,960 feet.
- **Alternative 4:** Shift Runway 5R/23L 960-foot to the south, construct a 1,500-foot extension to Runway 5R/23L (10,500 feet), and construct a replacement Runway 5L/23R (9,000 feet) at 1,241 feet separation. Displace the Runway 5R threshold 2,460 feet.
- **Alternative 5:** Shift Runway 5R/23L 960-foot to the south, construct a 2,250-foot extension to Runway 5R/23L (11,250 Feet), and construct a replacement Runway 5L/23R (9,000 feet) at 1,241 feet separation. Displace the Runway 5R threshold 1,200 feet.
- **Alternative 6:** Shift Runway 5R/23L 960-foot to the south, construct a 2,250-foot extension to Runway 5R/23L (11,250 Feet), and construct a replacement Runway 5L/23R (9,000-foot) at 1,241 feet separation. Displace the Runway 5R threshold 3,210 feet.

⁵ The No-Build/No-Action Alternative is discussed as a potential alternative and serves as a baseline for the assessment of future conditions. Therefore, the No-Build/No-Action alternative is carried through each of the factors assessed in Chapter Five, *Environmental Consequences*.

⁶ Although Alternative 2 does not fully meet the all of the needs identified in Chapter Two, *Purpose and Need*, it has been included for detailed environmental analysis in order to disclose the incremental impacts associated with the runway extension separate from the construction of the replacement runway.

6. MAJOR IMPACTS AND MITIGATION

In accordance with 40 CFR 1505.3, the FAA will take appropriate steps, as described in this Record of Decision (ROD), through Federal funding grant assurances and conditions, and airport layout plan approvals, to ensure that the following mitigation actions as described herein are implemented during project development. The FAA will monitor the implementation of these mitigation measures as necessary. The approvals contained in this ROD are specifically conditioned upon full implementation of these mitigation measures. These mitigation actions will be made the subject of a special condition included in future airport grants to the City of Cleveland.

A detailed environmental analysis of the potential environmental impacts resulting from the implementation of the selected alternative was accomplished as part of the FEIS. Two study periods were examined, 2006 and 2016. The year 2006 is projected to be the first year that the replacement runway and associated development will be implemented and operational. Although it is speculative, the EIS presented possible activity levels and their associated environmental impacts, for disclosure purposes only for the Proposed Action and No-Action Alternatives, through the year 2016. Development that is not reasonably foreseeable at this time and not approved within this ROD, but which may become ripe at a later date, would be subject to appropriate environmental review at that time.

IMPACTS AND MITIGATION

This chapter of the ROD includes a summary of mitigation measures, which are discussed more fully in the FEIS, Chapters 5 and 6, for each environmental impact category. A summary table of the 2006 impacts, **Table R-2**, is included at the end of this chapter.

The primary responsibility for implementation of the mitigation measures lies with the City of Cleveland. The FAA will have oversight responsibility and conditions this approval upon implementation of that mitigation and will further condition any grant agreements upon implementation of the mitigation measures by the City of Cleveland. Mitigation measures for those impact categories where mitigation measures are necessary to avoid or minimize significant environmental impacts, as well as identified or adopted monitoring and enforcement programs, are summarized below. The FAA finds that all practical means to avoid or minimize environmental harm have been adopted, through appropriate mitigation planning, in accordance with all applicable environmental laws, regulations, and statutes.

Noise and Compatible Land Use Impacts and Mitigation

Impacts

The implementation of the proposed development would result in less noise impacts than the No-Action Alternative. This decrease in noise impact is most prominent in the southernmost extents of the contours.

Approximately 11,553 housing units and 28,178 people would be located within the proposed development 60+ DNL noise contour. Within the 65+ DNL noise contour, 3,304 housing units and an estimated population of 8,529 would be impacted. In addition, 11 schools and libraries and 16 churches are located within the 60+ DNL contour. There are no noise-sensitive facilities in the 75 DNL noise contour.

Of the 8,249 housing units in the proposed development 60-65 DNL noise contour, 808 would experience a 3 dB increase in noise when compared to the no-action alternative. Of the 3,304 housing units in the 2006 proposed development 65+ DNL noise contour, 528 would be newly impacted and 454 housing units would experience a 1.5 dB increase when compared to the 2006 no-action alternative 65+ DNL noise contour. The West Park Alliance Church would experience a 1.5 dB increase in noise and the St. Patrick School would be newly impacted by the 65 DNL noise contour.

The remaining 2,322 housing units and noise-sensitive facilities that would continue to be impacted by being within the 65 DNL noise contour with or without the project would be eligible for funding under 14 CFR Part 150.

The proposed NASA facility relocations would have no significant impact on noise and land use.

The realignment of Brookpark Road and modifications to the I-480/Grayton Road interchange would have no impacts on noise or land use at CLE.

Mitigation

The noise mitigation program for the selected alternative includes operational and land use control measures. The program was developed in a manner which is consistent with the previous and ongoing noise mitigation and abatement programs implemented by the City of Cleveland. The main objective of this program is to mitigate noise impacts associated with the selected alternative's aircraft operations by recommending appropriate measures consistent with the approved 2000 Part 150 Noise Compatibility Program Update. It is the obligation of the City of Cleveland to implement the mitigation for the expansion.

The City of Cleveland, as a condition of approval of this ROD, has committed to provide sound mitigation to all residential structures that would be newly impacted by the 65 DNL noise contour, or experiencing a 1.5 dB increase in the 65 DNL noise contour

as a result of the proposed project. This mitigation would be voluntary on part of the property owner, but if the property owner decides to request mitigation, the City of Cleveland will implement it with or without Federal assistance.

The 528 newly impacted residential structures included within the 2006 proposed development 65+ DNL noise contour and 454 residential structures that will experience a 1.5 dB increase in noise level within the 65 DNL noise contour will be mitigated pursuant to these mitigation measures. To date 273 of the 528 newly impacted and 454 of those that will experience a 1.5 dB increase have been mitigated as part of the existing Part 150 sound insulation program.

The City of Cleveland, as a condition of approval of this ROD, has committed to provide sound mitigation to the West Park Alliance Church and St. Patrick School which would either be newly impacted or experience a 1.5 dB increase in noise in the 65 DNL noise contour when compared to No-Action Alternative.

The sound mitigation described above is voluntary on the part of the owner, but if the property owner decides to request mitigation, the City of Cleveland will implement it with or without Federal assistance.

The FEIS evaluated the implementation of the 2000 Part 150 Study Update's recommended air traffic measures that would address the operation of the proposed development to minimize impacts resulting from increases of 3 dB within the 60 DNL noise contour. Residential impacts due to a 3 dB increase in the 60 DNL noise contour would be mitigated through the sound insulation program recommended in the 2000 Part 150 Study Update.

There will be 808 residential structures within the 60-65 DNL noise contours that will experience a 3 dB increase in noise levels. To date 13 of these residential structures have been mitigated as part of the existing Part 150 Sound Insulation Program. The remaining residential structures will be completed pursuant to the Part 150 Sound Insulation Program.

The noise, land use, and social impacts that are presently within the 65 DNL noise contour and would continue to be within the 65 DNL noise contour would be mitigated pursuant to measures discussed in the Part 150 Study.

The preventative land use control, corrective land use mitigation, and program management measures proposed for implementation in the Part 150 Study Update constitute a Noise Compatibility Program that would mitigate land use and noise impacts. The following paragraphs provide a brief description of the Noise Compatibility Plan components.

Preventive Land Use Measures - These measures propose cooperative efforts on the part of the concerned local communities, into which the noise contours extend, to adopt development controls and standards. The actual development controls and standards

documents would be developed through those cooperative efforts. This measure was recommended as a Local Government Action that can be adjusted as necessary at the local level. This may require local legislative actions to be implemented.

Corrective Land Use Measures - These measures offer sound insulation of residences within the higher levels of the 2006 NCP noise exposure and continue the sound insulation program from the 1987 NCP. They incorporate the homes within the 65+ DNL noise contours which have not been sound insulated under the old program. These measures also recommend sound insulation of residences within and contiguous to the 60 DNL band of the 2006 NCP noise contour. It is expected that the sound insulation of residences within the 60-65 DNL contour band would begin after sound insulation of residences in the 65+ DNL contour has been completed and funding is acquired.

Program Management Measures - Program Management measures deal with the implementation and management of noise abatement and land use management measures. The 2000 Part 150 Study Update recommends the City of Cleveland provide system enhancements to the aircraft/airport noise monitoring system. This measure is currently being implemented by the City of Cleveland. The study also recommends the implementation of a "Fly Quiet" communication program which would include information on noise abatement procedures for airport users such as Noise Abatement Departure Procedures; noise abatement flight corridors for fixed wing aircraft, the late night runway use program, restrictions on maintenance engine runups, and suggestions for noise reduction. Conditions of the NCP should be reevaluated periodically, and the NEMs should be reassessed internally as needed.

In the Part 150 Study, the City of Cleveland committed to updating the Part 150 Study periodically. Subsequently, in the Memorandum of Agreement developed under Section 106 consultation, Appendix C, the City of Cleveland committed to conducting a Part 150 Study Update one year after the ALP expansion has been completed.

Social Impacts and Mitigation

Impacts

Due to the construction of a replacement Runway 5L/23R, and the relocation of Brookpark Road the following would be impacted: the 100th Bomber Group Restaurant, U-Store-It, Analex Building, Dome Energy gas well, and South 40 buildings in the NASA complex. No residential structures would need to be relocated for the proposed development.

Implementation of the project would not disproportionately impact minority and/or low-income persons or households. This project is environmentally just and is in compliance with Executive Order 12898.

Mitigation

Arrangements have been made with the 100th Bomber Group restaurant to relocate it approximately 800 feet west. The new location would allow the restaurant to maintain its current view of and proximity to the airport. Negotiations are currently underway between the City of Cleveland and the owner of the U-Store-It facility to relocate the facility as well as for the removal of the gas well and the Analex building. The City of Cleveland will be responsible for the relocation, purchase, or removal of these properties. The City of Cleveland will accomplish this in accordance with Federal guidelines.

Induced Socioeconomic Impacts and Mitigation

Impacts

No changes in airport passenger volume or aircraft activity is assumed with or without the proposed project in 2006; therefore, there is no projected change in economic impact in 2006 with the proposed development. The FEIS economic impact analysis predicts no loss of monetary benefit to the region with or without the proposed project. However, the proposed project has an economic benefit to the region by saving in 2006 approximately \$193.6 million of annual cost to the airlines by reducing congestion and delay during peak periods at the airport.

Mitigation

Since there will be no impacts, mitigation measures have not been proposed.

Air and Water Quality Impacts and Mitigation

Impacts

For air quality, there would be a slight increase in emissions due to the greater taxi distance to the replacement parallel runway. There would be an increase of 17.91 tons per year of carbon monoxide (CO), an increase of 4.75 tons per year of hydrocarbons (HC), and an increase of 0.35 tons per year of sulfur dioxide (SO₂). These increases would be below established Federal and state threshold levels of 100 tons per year. Construction and use of the replacement parallel runway would result in a reduction in emissions of nitrogen oxides (NO_x) by 1.14 tons per year and particulate matter (PM₁₀) by 0.21 tons per year.

Pollutant concentrations at several highly congested intersections in the vicinity of the airport showed there would be exceedances of the eight-hour carbon monoxide standard for baseline conditions. However, the modifications proposed for the affected intersections cause the concentration level to decrease, falling below the baseline concentration level, and therefore, would comply with the National Ambient Air Quality Standards (NAAQS).

Water quality would be permanently affected by the development of the proposed project and through continued airport operations, such as maintenance and deicing that influence water quality. Development related water quality impacts would result from increased impervious surface and increased stormwater volume. The impervious area of the airport is expected to increase 17.8 percent under the proposed project.

Mitigation

All measures necessary to mitigate air quality impacts are designed into the proposed development. The proposed development incorporates specific elements to improve both existing and future air quality.

All measures necessary to mitigate water quality impacts are designed into the proposed development. The proposed development incorporates specific elements to improve both existing and future water quality.

The City of Cleveland will design and construct the Abram Creek project to provide a detention basin that controls stormwater discharges into Abram Creek from the airport. With this detention basin in place, peak airport discharges into Abram Creek during storm events will be approximately one-fifth of existing peak discharge quantities. The 100-year floodplain levels in Abram Creek will not be elevated as a result of the proposed project's construction or implementation. In addition, the detention basin will provide 24-hours of extended detention for the first 0.3 inches of airport runoff into Abram Creek to remove most of the sediment-borne pollutants in airport runoff. Various storm sewers would convey airport runoff to the detention basin. Furthermore, the proposed project has been designed such that the project will not impact NASA storm sewers.

The City of Cleveland will construct a new Consolidated Maintenance Facility, consolidated fuel farm, and cargo apron along the northwestern edge of the airport. The City has adopted the use of oil/water separators in all fueling areas at the airport as a Best Management Practice (BMP). The airport-wide Spill Prevention, Control, and Countermeasure (SPCC) and Storm Water Pollution Prevention Plans (SWPPP) will be updated to include new maintenance facilities as the airport expands.

Historic, Architectural, Archaeological, and Cultural Resources (DOT Section 4(f) and 6(f)) Impacts and Mitigation

Impacts

Three types of impacts to historic resources would occur due to the project: physical taking for construction-related activities, newly impacted by the 65 DNL noise contour, or it experience a 1.5 dB increase in noise within the 65 DNL noise contour.

A physical taking occurs if a historic resource is permanently removed, demolished, or altered in such a way that eliminates its historic properties. A National Historic Landmark, the Rocket Engine Test Facility (RETF), would be impacted directly by construction under Alternatives 2 through 6. This structure would be demolished, a “physical taking.”

If the actual use of the historic resources is determined to be incompatible with 14 CFR Part 150 Table 1, the historic resource is eligible for sound insulation to mitigate the noise increase. The sound insulation measures are the only impacts to the historic structures. Typically the sound insulation process consists of window and door replacement, air conditioning improvements, and other treatments that reduce indoor noise levels. These mitigation measures impact the historic resources by altering the structures from their original as-built conditions.

The St. Patrick School and the Grasella House would be newly impacted by noise under the proposed development.

Under the proposed development, 44 residential structures would remain within the 65+ DNL noise contour and thus would be eligible for sound insulation under the 2000 Part 150 Study Update.

The FAA has determined that commercial land use is considered a compatible land use (14 CFR 150 Table 1) in the 65 DNL noise contour; therefore, commercial historic structures would not be eligible for sound insulation.

There is one historic resource (Bishop House) located near the airport that will be the subject of an independent MOA due to a proposed road project. This project is proposed by the City of Brook Park, does not involve the City of Cleveland, and is not covered by the EIS or this ROD.

One additional historic resource (17805 Flamingo) will be affected by a 1.5 DNL increase in noise. However, this property has already been sound mitigated by the City of Cleveland as part of the ongoing Part 150 Program. Another newly impacted house (17804 Glenshire) located in the City of Cleveland, that was sound mitigated under the ongoing Part 150 Program, refused to allow the consultant access to the property. Due to this a historic determination could not be completed. The FAA has determined that these homes do not need additional consideration in the Programmatic Agreement or the Memorandum of Agreement that were developed for this project.

An archaeological survey of the selected relocation sites at GRC-Lewis Field and GRC-Plum Brook Station was completed in December 1999. The survey indicated that the proposed development would have no effect on archaeological resources.

The proposed development would expose approximately 1.5 acres of Rocky River Reservation, funded through the Land and Water Conservation Act, to noise levels in excess of 75 DNL. These approximate 1.5 acres of property are located on the edge of the park property on a steep hillside.

Mitigation

The Memorandum of Agreement, signed October 16, 2000, and shown in Appendix C, ensures that proper mitigation would be implemented prior to any disturbance of historic, architectural, archaeological, or cultural resources as a result of the project. NASA, the FAA, and the City of Cleveland shall comply with the Memorandum of Agreement provided in Appendix C for implementation of Section 106 of the National Historic Preservation Act.

The two newly impacted historic resources (St. Patrick School, Grasella House) by the 65 DNL noise contour, would be eligible for sponsored sound insulation under the FEIS. This mitigation would be voluntary on the part of the owner, but if the property owner decided to accept mitigation, the City of Cleveland would implement the mitigation with or without Federal assistance.

Residential historic structures that would be in the 2006 No-Build/No-Action 65 DNL noise contour and would continue to be impacted by noise due to the project, would be eligible for mitigation under the 2000 Part 150 Study Update. Sound insulation would be voluntary and might adversely affect the historic integrity of the structures. Although greater care must be exercised in sound insulating historic structures, the technology is available and such structures are included in noise compatibility programs throughout the United States. The Advisory Council on Historic Preservation (Advisory Council) has indicated that properly accomplished sound attenuation does not render a structure non-historic. The mitigation of these structures has been reviewed by the Advisory Council and the OHPO and included within a Programmatic Agreement, dated October 2, 2000, and shown in Appendix D.

The Cleveland Metroparks has reviewed the noise analysis and has made a determination that the approximate 1.5 acres of parkland exposed to 75 DNL resulting from the proposed runway development does not constitute a constructive use or conversion of 4(f) or 6(f) land. The FAA has determined that the proposed runway development does not constitute a constructive use or conversion of 4(f) or 6(f) land based on the finding of the Cleveland Metro Parks, the organization having jurisdiction over the resource

Biotic Communities and Threatened and Endangered Species Impacts and Mitigation

Impacts

The proposed development would result in the conversion of approximately 164.45 acres of patchy habitat, including forest, forested wetlands, scrub/shrub, and old field, to Urban-Industrial-Turf.

The loss of vegetational diversity would directly result in the displacement of wildlife habitat. Many species, particularly those requiring forested habitat, would be displaced. In general, habitat for species requiring forest and scrub/shrub habitat would be

reduced. However, those species dependent upon old field and mowed areas would generally increase in abundance. The elimination of vegetated areas through the construction of impervious surfaces, such as runways and taxiways, would result in the loss of usable habitat for most species currently utilizing habitats available on the Cleveland Hopkins property.

Approximately 1.31 acres of upland forest habitat at GRC-Lewis Field would be converted to Urban-Industrial-Turf during the construction of the relocated facilities, and approximately four acres of old field/scrub-shrub habitat at GRC-Plum Brook Station would be converted to Urban-Industrial-Turf during the construction of these replicated facilities. The use and availability of this minor amount of habitat by wildlife would be permanently lost.

One previously state-listed potentially threatened plant species, blunt mountain mint, would be impacted by the proposed airfield, terminal, and landside improvements. Approximately 87 acres of the previously state-listed blunt mountain mint habitat would be converted to new and relocated runways, taxiways, light lanes and the perimeter service road in areas currently consisting of old fields, scrub-shrub, and scrub-shrub wetlands. No other Federal or state threatened or endangered species would be impacted by the proposed development.

Mitigation

The City of Cleveland will use Best Management Practices (BMP) to minimize habitat loss. Blunt mountain-mint is a facultative wetland species and would be expected to occur in the transitional wetlands like the proposed Lorain County wetland mitigation sites.

Field investigations for the subject project began in 1998 when *Pycnanthemum muticum* (blunt mountain-mint) was still listed on the Ohio rare plant list. Under consultation with outside experts (e.g. ODNR), conservation efforts to date have included the collection and storage of blunt mountain-mint seeds and flower-heads from the wetland impact site. The City of Cleveland will follow ODNR recommendations on seed specimen collection and deposit.

Wetlands Impacts and Mitigation

Impacts

The proposed development would result in the filling and culverting of 7,900 feet of Abram Creek and the South 40 tributaries. Approximately 87.85 acres of wetlands would be filled as a result of implementation of the project.

Mitigation

All measures necessary to mitigate wetland and stream deterioration are designed into the proposed development project. The City of Cleveland will comply with all measures set forth in a 401/404 permit and as of this time has committed to provide a wetlands mitigation program for a minimum of 260.01 acres or any additional amount to be determined during the permitting processes.

As mitigation for the wetland impacts, a wetland restoration project has been developed in coordination with Lorain County Metroparks (LCMP). The proposed mitigation consists of a total of 433 acres of which at least 265 acres will be restored to in-kind wetlands. The wetland restoration will be in two areas: the Columbia Station Reservation located on the East Branch of the Rocky River, and the LaGrange Township site, located on the West Branch of the Rocky River. Both sites are located within the USGS hydrologic unit and are currently primarily agricultural with forested areas along the buffer zones and scattered within the sites.

As mitigation for the stream impacts, a stream restoration project has been developed. The proposed mitigation sites are Doan Brook, located in the Cuyahoga River watershed, and Woodiebrook Creek located in the Chagrin River watershed. The proposed restoration segment of Doan Brook is located in Rockefeller Park and is characterized as a channelized streamcourse lacking in riparian corridor, having extremes in flow rates and barriers to fish migration.

The City of Cleveland also proposes to preserve 7,900 lineal feet of stream. Under this proposed stream mitigation plan, the City of Cleveland has agreed to assist the Geauga Park District's preservation of 4,700 feet of Spring Brook. Spring Brook, in the Chagrin River watershed, provides habitat for the only known native brook trout population in Ohio. The remaining stream mitigation would occur at the Elk Creek stream preservation site, located within the impact watershed in Lorain County, and has been developed in coordination with the LCMP.

Coordination with the U.S. Army Corps of Engineers (ACOE) has determined that an Individual Permit under Section 404 of the Clean Water Act would be required for construction of the proposed project. Certification under Section 401 of the Clean Water Act, including compliance with the Ohio Environmental Protection Agency's (OEPA) Anti Degradation Rules, would also be required prior to implementation of the project. The permitting process is separate from the disclosure of impacts resulting from the proposed project provided in the FEIS, an FAA NEPA document. The ACOE and OEPA will undertake a separate NEPA disclosure process for their respective permits. Coordination is currently ongoing between Cleveland and the OEPA and ACOE.

More information on the stream and wetland mitigation sites was provided in Appendices Q and R of the FEIS. Additional information on the permitting process can be found in Chapter 8 of the ROD.

Floodplains Impacts and Mitigation

Impacts

Approximately five acres of floodplain affected by a 100-year flood event would be filled (along with Abram Creek and the existing ravine) in order to accommodate the proposed runway, taxiway, and related improvements. Through mitigation designed into the project, a culvert and stormwater detention facility, there would be no increases to the inflow volume within the floodplain both upstream and downstream of the airport. Additionally, there would be no increases in water velocity as a result of the project.

Mitigation

To compensate for this loss of flood storage capacity, the proposed culvert would be sized large enough to accommodate 100-year flood flows from sources upstream of the airport and the proposed stormwater management system would be designed to detain stormwater flows from the airport. The culvert will not cause any increase in flood stage elevations either upstream or downstream of the airport.

While the existing floodplains located on airport property would be eliminated under Alternative 6, flood storage capacity would be replaced. As such, the City's internal studies have indicated that no increase in the volume of flood flows would occur downstream of the airport and property, life, and downstream floodplains would not be affected.

Coastal Barriers and Coastal Zone Management Program Impacts and Mitigation

Impacts

The proposed improvements will not affect or involve the Coastal Zone Management Program or the Coastal Barriers Resources Act of 1982.

Mitigation

Since there will be no impacts, mitigation measures have not been proposed.

Wild and Scenic Rivers Impacts and Mitigation

Impacts

Review of the U.S. Department of the Interior's National Inventory of Wild and Scenic Rivers indicated that there are no designated "Wild and Scenic Rivers" within a 1,000-foot radius of CLE.

Mitigation

There will be no impact on any rivers designated as “Wild and Scenic”; therefore, mitigation measures are not warranted.

Farmland Impacts and Mitigation

Impacts

Development will not adversely impact any prime or unique farmlands or soil types as designated by the U.S. Department of Agriculture, Natural Resource Conservation Service. The areas have already been converted into urban uses and no longer retain their previous agricultural designation.

Mitigation

Since there are no impacts anticipated, mitigation measures are not proposed.

Energy Supply and Natural Resources Impacts and Mitigation

Impacts

The total energy requirement for stationary facilities under the proposed project would be 282.31 BBTU per year, a 0.9 percent increase over the No-Build/No-Action Alternative. Under the proposed project the delay/taxi time would increase 0.40 minutes per aircraft above the No-Build/No-Action alternative. It was estimated that the aircraft would consume 23.64 million gallons of fuel, an increase of nine percent above the No-Build/No-Action alternative.

There are no known sources of mineral or energy resources in the airport’s area that will be impacted. Development of the selected alternative will not require the use of unusual materials or those that are in short supply in the airport’s area.

Mitigation

The East Ohio Gas Company and First Energy indicated that they would have sufficient reserves to provide the additional energy required under this alternative in 2006. Mitigation will not be required for the increase in fuel consumption.

Light Emissions Impacts and Mitigation

Impacts

Future light emission levels arising out of the operation of the airport as well as from airborne aircraft or aircraft operating on the ground are not anticipated to adversely impact surrounding residential areas.

Mitigation

Mitigation measures have not been proposed because there are no anticipated impacts. However, if any impacts were to be determined arising from airport operation they could be mitigated through shielding and screening techniques

Aesthetics and Visual Impacts and Mitigation

Impacts

There will be minimal change in visual characteristics of the area due to the proposed development.

Mitigation

Applicable design and landscape codes and standards will be adhered to. No additional mitigation will be required.

Surface Transportation Impacts and Mitigation

Impacts

The proposed development will require the modification of the I-480/Grayton Road interchange and the realignment of Brookpark Road. The changes in transportation patterns at Cleveland Hopkins due to the proposed development would not noticeably increase congestion at the affected intersections; nor would their modifications increase access time to community facilities, recreation areas, businesses, or residences.

Mitigation

No specific mitigation measures are required for associated roadway improvements for the proposed development.

Solid Waste Impacts and Mitigation

Impacts

According to forecasted operational activity at Cleveland Hopkins increased activity would occur at the same levels with or without the proposed development. As such, the increased volume of solid waste to be generated is not an impact or result of proposed development. The volume of solid waste generated at the airport would continue to increase with or without the proposed development.

Mitigation

No specific mitigation measures are required for solid waste impacts for the proposed development.

Hazardous Materials Impacts and Mitigation

Impacts

The proposed development would cause impacts to the following areas which have undergone investigation: Riveredge Area, Northwest Cargo Area, Replacement Runway Area, Abram Creek Area, South Airfield Area, NASA Glenn Research Center at Lewis Field, and NASA Glenn Research Center at Plum Brook Station. Each of these areas has been identified as having a potential for being contaminated with substances classified under the Resource Conservation and Recovery Act (RCRA) or by the U.S. Environmental Protection Agency (USEPA) as being hazardous.

Mitigation

Consideration of and cooperation with ongoing remedial investigation, feasibility studies, remedial design, and remedial implementation efforts disclosed within the FEIS will be a priority and will be conducted in accordance with applicable Federal and state guidelines.

In the Riveredge Area, any remaining USTs and subsurface piping system from the former trailer park and machine shop would have to be removed and contaminated soil remediated before construction of Runway 5L/23R could begin.

In the Northwest Cargo Area, the area of stressed vegetation (including possible soil contamination) would have to be investigated and remediated or removed prior to runway construction in this area.

In the Replacement Runway Area, several hazardous materials issues would have to be dealt with before runway construction could begin in this area. The Soil Stockpiles B, C, D, and F would have to be tested and any contaminated soils remediated. The Quad Hangars and any hazardous substances stored there would need to be removed. Gas wells would need to be identified and prepared for nearby construction. The electrical equipment would need to be investigated for PCB contamination and proper remedial measures taken.

In the Abram Creek Area, Soil Stockpile H would need to be characterized as would the Grayton Road Landfill and any contamination remediated prior to construction. The Excavation Site would also need to be officially closed by the USEPA under CERCLA and any gas wells identified before runway construction could begin.

In the South Airfield Area, the construction of the southern end of Runway 5L/23R and the runway safety area would require the removal of the Analex Building. All gas wells would need to be identified, the creosote soaked blocks removed, and contaminated soil remediated before runway construction could begin.

Within NASA GRC Lewis Field, a Human Health Risk Assessment is scheduled to be completed in 2000 for the runway construction activities in the NASA South 40 Area property. Any landfill sites identified by the assessment as requiring remediation would need to be remediated prior to any runway construction. The Building 203/204 Complex and any associated hazardous materials (such as asbestos and CFCs) would also have to be removed before any actions taken. All hazardous materials identified would be remediated in accordance with all local, state, and Federal regulations and guidelines.

At NASA GRC Plum Brook Station - Consideration of and cooperation with the ongoing ACOE Defense Environmental Restoration Program (DERP) and formerly used defense site (FUDS) investigations and mitigations is ongoing. The effect of the ash pit and its leachate on the western area of K-Site will continue to be evaluated. Each of the areas identified with red water waste flumes shall be screened for abandoned flume sections by safe and informed work practices established by GRC-Plum Brook Station. All hazardous materials identified would be remediated in accordance with all local, state, and Federal regulations and guidelines.

Construction Impacts and Mitigation

Impacts

Temporary construction impacts resulting from the proposed development, including surface-transportation-related improvements, may include soil erosion, construction safety, increased air emissions, water quality degradation, noise disturbance, and disrupted surface transportation patterns.

Mitigation

Construction impacts are temporary and short term in nature and can be minimized through the establishment and utilization of environmental controls and best management practices (BMPs).

To minimize construction impacts, environmental controls as specified in Advisory Circular 150/5370.10A will be included throughout the preparation of the plans and specifications for each of the proposed construction projects. These controls will be established to minimize the temporary air, water, noise, erosion, and light impacts typically associated with construction activities. The City of Cleveland will also incorporate all applicable State of Ohio and Cuyahoga County construction and environmental control provisions into the plans and specifications developed for all roadway and off-site airport-related improvements. Construction and environmental control measures will be developed as part of the preparation of plans and specifications for each airport development project and will be implemented with the initiation of demolition and construction activities.

A construction management plan will be prepared which, based on the selected contractor(s) haul plan, will specify hours of operation, haul routes, and similar controls. To minimize the stirring or entrapment of fugitive dust already on roads, mitigation measures will include frequent sweeping and/or flushing of the roads with water. In order to minimize fugitive dust transport, unpaved roads and inactive portions of the construction site will be either watered (achieving a 50 percent reduction in fugitive dust) or chemically stabilized (achieving an 80 percent reduction). The exact method or combination of methods for abatement of erosion has not yet been determined.

Furthermore, there is a separate state-required process, which would require a NPDES stormwater discharge permit for project construction as disclosed within the FEIS. Under the National Stormwater Program, the USEPA regulates stormwater discharges from construction sites containing clearing, grading, and excavation activities, if the disturbed land area is five acres or more. To comply with the USEPA regulations, the airport would have to file a "Notice of Intent" (NOI) form. The NOI indicates that the operator of the construction site would comply with the erosion, sediment, and stormwater control measures presented in Ohio EPA's General Permit for Construction Activities. The NOI requirements are promulgated at Ohio Administrative Code (OAC) 3745-38-06 (see also *EPA Final NPDES General Permits for Stormwater Discharges From Construction Sites Notice*).

As a means to minimize impacts associated with the proposed roadway improvements the City of Cleveland, in coordination with the Ohio Department of Transportation (ODOT), will develop a plan to maintain traffic to mitigate the impacts disclosed in the FEIS. This staged implementation plan will identify what portions of the proposed roadway improvements will be constructed during each phase of the implementation plan, what the overall sequence of construction will be, and how traffic flow/access will be maintained during the construction phases. This staged construction plan will be coordinated with the appropriate county and city agencies prior to the beginning of construction. The maintenance of traffic plan will be developed during the preliminary engineering and final design of the improvements.

IMPACT SUMMARY

Table R-2, shown at the end of this chapter, provides a matrix showing the major environmental impacts to each resource category for each alternative evaluated in detail within the Final Environmental Impact Statement. Comparing Alternative 6 (FAA's selected Alternative) to Alternatives 2 through 5 provides the following findings:

Alternatives 2 through 5 and Alternative 6 would have the same environmental impacts for the following resource categories: social, induced socioeconomic, air quality, floodplains, coastal zone management and coastal barriers, wild and scenic rivers, farmland, energy supply and natural resources, light emissions, aesthetic and visual, surface transportation, solid waste, and hazardous waste, construction.

For the resource categories noise and compatible land use, Alternative 6 would impact the fewest acres of land with noise levels 65 DNL or greater. Additionally, Alternative 6, when compared to Alternatives 2 through 5, impacts the fewest housing units and population.

Water quality impacts for each of the build alternatives are nearly identical, with the only small differences being the amount of pavement and other impervious surfaces constructed that would need stormwater management. Alternatives 5 and 6 increase impervious surfaces 17.8 percent over existing conditions, Alternative 4 increases 17.2 percent, Alternative 3 increases 16.6 percent, and Alternative 2 increases 15.2 percent over baseline conditions.

Section 4(f) resources would be impacted the greatest by Alternatives 6 and 5 which expose the largest number of acres of the Rocky River Reservation to sound levels of 65 DNL or greater. Alternative 2 would impact the least number of acres, when compared to other build alternatives.

Impacts to historic resources would be similar for each build alternative. Each alternative would require the demolition of the Rocket Engine Test Facility, a National Historic Landmark listed in the National Register of Historic Places. Alternatives 6, 4, and 3 would impact the fewest number of residential historic structures (40) within the 65+ DNL noise contours; Alternative 2 would include 42 residential historic structures within the 65+ DNL noise contours; and Alternative 5 would include 44 residential historic structures within the 65+ DNL noise contours. The sound insulation of residential historic structures is the action that would constitute the impact to these resources with regards to this resource category.

Biotic communities would be impacted the greatest by Alternatives 6 and 5. These alternatives would convert 164.45 acres of vegetational communities to urban industrial-turf. Alternative 4 would convert 158.56 acres; Alternative 3 would convert 156.74 acres; and Alternative 2 would impact the least by converting 141.79 acres to urban industrial-turf.

Impacts to wetlands are similar between the build alternatives. Alternatives 6 and 5 would impact the greatest area of wetlands by impacting 87.85 acres. Alternative 4 would impact 87.40 acres; Alternative 3 would impact 87.16 acres; and Alternative 2 would impact 76.16 acres of wetlands.

Approximately 87 acres of the previously state-listed potentially threatened blunt mountain-mint habitat would be converted to urban industrial turf as a result of implementation of the proposed developments. The Ohio DNR indicated in their comment letter on the FEIS that this species has been removed from the Ohio rare plant list.

Field investigations for the subject project began in 1998 when *Pycnanthemum muticum* was still listed on the Ohio rare plant list. Since that time, this species has been removed from the Ohio rare plant list for 2000 – 2001. As recommended by the Ohio

DNR, the proposed project will include collection of specimens to be deposited at the Cleveland Museum of Natural History and Ohio State University Herbarium. Furthermore, seeds and cuttings would be introduced into the Columbia Reservation wetland mitigation site.

MITIGATION SUMMARY

The FAA has provided a comprehensive mitigation program, which establishes measures to mitigate the adverse effects of construction and operation of the proposed development. This program was developed to meet applicable Federal and state requirements and in consideration of local guidelines. The concerns and interests of the public and government agencies were also addressed. The mitigation program is described in Chapter 6, *Summary of Impacts and Mitigation*, of the FEIS.

Alternative mitigation measures considered in the FEIS are conditions of approval of the project in this ROD, and the project sponsor, the City of Cleveland, has agreed to them. The FAA will monitor the implementation of these mitigation actions as necessary to assure they are carried out as project commitments. The FAA finds that these measures constitute all reasonable steps to minimize harm and all practicable means to avoid or minimize environmental harm from the selected alternative.

Accordingly, having considered: 1) the policies set forth at 49 U.S.C. Sections 40104 and 47101; 2) the ability of the alternatives to meet the purpose and need, and 3) all documents used which concerns these development projects, the FAA hereby approves the implementation of Alternative 6 as described, disclosed, and analyzed in the FEIS.

The FAA's approval of these expansion and improvement projects in this ROD signifies that these projects meet FAA standards for agency approval discussed in Chapter 2 of this ROD. It does not, however, signify an FAA commitment to provide a specific level of financial support for these projects, which must await future decisions under the separate funding criteria prescribed by 49 U.S.C. 47115 (d) and 49 U.S.C. 40117.

Table R-2
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Noise and Compatible Land Use	There would be approximately 3,480 housing units (8,834 people) within the 65 DNL noise contour. 6.63 square miles would be noise impacted within the 65+DNL.	There would be approximately 3,563 housing units (9,086 people) within the 65 DNL noise contour. 6.59 square miles would be noise impacted within the 65+DNL.	There would be approximately 3,480 housing units (8,894 people) within the 65 DNL noise. 6.54 square miles would be noise impacted within the 65+DNL.	There would be approximately 3,369 housing units (8,670 people) within the 65 DNL noise. 6.50 square miles would be noise impacted within the 65+DNL.	There would be approximately 3,309 housing units (8,549 people) within the 65 DNL noise. 6.47 square miles would be noise impacted within the 65+DNL.	There would be approximately 3,304 housing units (8,529 people) within the 65 DNL noise. 6.46 square miles would be noise impacted within the 65+DNL.
Social	No impact.	The 100 th Bomber Group Restaurant, U-Store-It, Analex Building, Dome Energy gas well, and South 40 buildings in the NASA complex would need to be demolished and relocated. No disruption of established communities or planned development. No environmental justice impacts.	The 100 th Bomber Group Restaurant, U-Store-It, Analex Building, Dome Energy gas well, and South 40 buildings in the NASA complex would need to be demolished and relocated. No disruption of established communities or planned development. No environmental justice impacts.	The 100 th Bomber Group Restaurant, U-Store-It, Analex Building, Dome Energy gas well, and South 40 buildings in the NASA complex would need to be demolished and relocated. No disruption of established communities or planned development. No environmental justice impacts.	The 100 th Bomber Group Restaurant, U-Store-It, Analex Building, Dome Energy gas well, and South 40 buildings in the NASA complex would need to be demolished and relocated. No disruption of established communities or planned development. No environmental justice impacts.	The 100 th Bomber Group Restaurant, U-Store-It, Analex Building, Dome Energy gas well, and South 40 buildings in the NASA complex would need to be demolished and relocated. No disruption of established communities or planned development. No environmental justice impacts.

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Induced Socioeconomic	The total cost resulting from delays and taxi times anticipated after implementation of this alternative is estimated to be approximately \$277,856,100.	The total cost resulting from delays and taxi times anticipated after implementation of this alternative is estimated to be approximately \$84,249,800 – a 70 percent decrease from baseline conditions.	The total cost resulting from delays and taxi times anticipated after implementation of this alternative is estimated to be approximately \$84,249,800 – a 70 percent decrease from baseline conditions.	The total cost resulting from delays and taxi times anticipated after implementation of this alternative is estimated to be approximately \$84,249,800 – a 70 percent decrease from baseline conditions.	The total cost resulting from delays and taxi times anticipated after implementation of this alternative is estimated to be approximately \$84,249,800 – a 70 percent decrease from baseline conditions.	The total cost resulting from delays and taxi times anticipated after implementation of this alternative is estimated to be approximately \$84,249,800 – a 70 percent decrease from baseline conditions.
Air Quality	No impact.	<p>Temporary, short-term net increase in emissions levels would occur due to construction emissions for proposed airport improvements in the years 2000-2006.</p> <p>There would be a slight increase in emissions due to the greater taxi distance to the replacement parallel runway in the year 2006. This increase would be below established Federal and state threshold levels.</p> <p>There would be no increase in air pollutant concentration levels due to the proposed airport improvements.</p>	<p>Temporary, short-term net increase in emissions levels would occur due to construction emissions for proposed airport improvements in the years 2000-2006.</p> <p>There would be a slight increase in emissions due to the greater taxi distance to the replacement parallel runway in the year 2006. These increases would be below established Federal and state threshold levels.</p> <p>There would be no increase in air pollutant concentration levels due to the proposed airport improvements.</p>	<p>Temporary, short-term net increase in emissions levels would occur due to construction emissions for proposed airport improvements in the years 2000-2006.</p> <p>There would be a slight increase in emissions due to the greater taxi distance to the replacement parallel runway in the year 2006. These increases would be below established Federal and state threshold levels.</p> <p>There would be no increase in air pollutant concentration levels due to the proposed airport improvements.</p>	<p>Temporary, short-term net increase in emissions levels would occur due to construction emissions for proposed airport improvements in the years 2000-2006.</p> <p>There would be a slight increase in emissions due to the greater taxi distance to the replacement parallel runway in the year 2006. These increases would be below established Federal and state threshold levels.</p> <p>There would be no increase in air pollutant concentration levels due to the proposed airport improvements.</p>	<p>Temporary, short-term net increase in emissions levels would occur due to construction emissions for proposed airport improvements in the years 2000-2006.</p> <p>There would be a slight increase in emissions due to the greater taxi distance to the replacement parallel runway in the year 2006. These increases would be below established Federal and state threshold levels.</p> <p>There would be no increase in air pollutant concentration levels due to the proposed airport improvements.</p>

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Air Quality, Continued		<p>In fact, use of the replacement parallel runway would result in a reduction in pollutant concentrations at some locations.</p> <p>Pollutant concentrations at several highly congested intersections in the vicinity of the airport showed there would be exceedances of the 8-hour carbon monoxide standard for baseline conditions. In each case, however, the modifications proposed for the affected intersection caused the concentration level to decrease, falling below the baseline concentration level, and, therefore, would comply with the AAQS.</p>	<p>In fact, use of the replacement parallel runway would result in a reduction in pollutant concentrations at some locations.</p> <p>Pollutant concentrations at several highly congested intersections in the vicinity of the airport showed there would be exceedances of the 8-hour carbon monoxide standard for baseline conditions. In each case, however, the modifications proposed for the affected intersection caused the concentration level to decrease, falling below the baseline concentration level, and, therefore, would comply with the AAQS.</p>	<p>In fact, use of the replacement parallel runway would result in a reduction in pollutant concentrations at some locations.</p> <p>Pollutant concentrations at several highly congested intersections in the vicinity of the airport showed there would be exceedances of the 8-hour carbon monoxide standard for baseline conditions. In each case, however, the modifications proposed for the affected intersection caused the concentration level to decrease, falling below the baseline concentration level, and, therefore, would comply with the AAQS.</p>	<p>In fact, use of the replacement parallel runway would result in a reduction in pollutant concentrations at some locations.</p> <p>Pollutant concentrations at several highly congested intersections in the vicinity of the airport showed there would be exceedances of the 8-hour carbon monoxide standard for baseline conditions. In each case, however, the modifications proposed for the affected intersection caused the concentration level to decrease, falling below the baseline concentration level, and, therefore, would comply with the AAQS.</p>	<p>In fact, use of the replacement parallel runway would result in a reduction in pollutant concentrations at some locations.</p> <p>Pollutant concentrations at several highly congested intersections in the vicinity of the airport showed there would be exceedances of the 8-hour carbon monoxide standard for baseline conditions. In each case, however, the modifications proposed for the affected intersection caused the concentration level to decrease, falling below the baseline concentration level, and, therefore, would comply with the AAQS.</p>

**Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport**

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Water Quality	No impact.	Temporary water quality impacts would likely occur during construction. Water quality impacts resulting from operations at the airport would improve as a result of mitigation measures designed into this alternative.	Temporary water quality impacts would likely occur during construction. Water quality impacts resulting from operations at the airport would improve as a result of mitigation measures designed into this alternative.	Temporary water quality impacts would likely occur during construction. Water quality impacts resulting from operations at the airport would improve as a result of mitigation measures designed into this alternative.	Temporary water quality impacts would likely occur during construction. Water quality impacts resulting from operations at the airport would improve as a result of mitigation measures designed into this alternative.	Temporary water quality impacts would likely occur during construction. Water quality impacts resulting from operations at the airport would improve as a result of mitigation measures designed into this alternative.
Historic, Architectural, Archaeological, and Cultural Resources, Section 4(f) (currently known as 49 USC Section 303©)	The Rocky River Reservation (funded under the Land and Water Conservation Act) would have a total of 297 acres impacted by noise, of which: <ul style="list-style-type: none"> • 189 acres would be within the 65-70 DNL contour • 108 acres would be within the 70-75 DNL contour • 0 acres would be within the 75-80 DNL contour • 1 Public Park would be within the 70-75 DNL Contour 	The Rocky River Reservation (funded under the Land and Water Conservation Act) would have a total of 491 acres impacted by noise, of which: <ul style="list-style-type: none"> • 365 acres would be within the 65-70 DNL contour • 126 acres would be within the 70-75 DNL contour • 0 acres would be within the 75-80 DNL contour • 0 Public Parks would be within the 70-75 DNL Contour 	The Rocky River Reservation (funded under the Land and Water Conservation Act) would have a total of 507 acres impacted by noise, of which: <ul style="list-style-type: none"> • 373 acres would be within the 65-70 DNL contour • 134 acres would be within the 70-75 DNL contour • 0 acres would be within the 75-80 DNL contour • 0 Public Parks would be within the 70-75 DNL Contour 	The Rocky River Reservation (funded under the Land and Water Conservation Act) would have a total of 516 acres impacted by noise, of which: <ul style="list-style-type: none"> • 376 acres would be within the 65-70 DNL contour • 140 acres would be within the 70-75 DNL contour • 0 acres would be within the 75-80 DNL contour • 0 Public Parks would be within the 70-75 DNL Contour 	The Rocky River Reservation (funded under the Land and Water Conservation Act) would have a total of 531 acres impacted by noise, of which: <ul style="list-style-type: none"> • 380 acres would be within the 65-70 DNL contour • 149 acres would be within the 70-75 DNL contour • 1.5 acres would be within the 75-80 DNL contour • 0 Public Parks would be within the 70-75 DNL Contour 	The Rocky River Reservation (funded under the Land and Water Conservation Act) would have a total of 531 acres impacted by noise, of which: <ul style="list-style-type: none"> • 380 acres would be within the 65-70 DNL contour • 149 acres would be within the 70-75 DNL contour • 1.5 acres would be within the 75-80 DNL contour • 0 Public Parks would be within the 70-75 DNL Contour

**Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport**

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Historic, Architectural, Archaeological, and Cultural Resources, Section 4(f) (currently known as 49 USC Section 303©), Continued	<ul style="list-style-type: none"> • 5 Public Parks would be within the 65-70 DNL contour • 81 Historic Structures would be within the 65-70 DNL contour.⁷ • The Bishop House would be within the 70-75 DNL contour. • The NASA Rocket Engine Test Facility would be within the 75+ DNL contour. 	<ul style="list-style-type: none"> • 6 Public Parks would be within the 65-70 DNL contour • 51 Historic Structures would be within the 65+ DNL contour.⁸ • The Bishop House would be within the 70-75 DNL contour. • The NASA Rocket Engine Test Facility would be within the 75+ DNL contour. • The NASA Rocket Engine Test Facility, which is currently listed on the National Register of Historic Places, would be demolished. • The St. Patrick School and the Grasella House would be newly impacted by the 65 DNL noise contour. 	<ul style="list-style-type: none"> • 6 Public Parks would be within the 65-70 DNL contour • 50 Historic Structures would be within the 65+ DNL contour.⁸ • The Bishop House would be within the 70-75 DNL contour. • The NASA Rocket Engine Test Facility would be within the 75+ DNL contour. • The NASA Rocket Engine Test Facility, which is currently listed on the National Register of Historic Places, would be demolished. • The St. Patrick School and the Grasella House would be newly impacted by the 65 DNL noise contour. 	<ul style="list-style-type: none"> • 5 Public Parks would be within the 65-70 DNL contour • 50 Historic Structures would be within the 65+ DNL contour.⁸ • The Bishop House would be within the 70-75 DNL contour. • The NASA Rocket Engine Test Facility would be within the 75+ DNL contour. • The NASA Rocket Engine Test Facility, which is currently listed on the National Register of Historic Places, would be demolished. • The St. Patrick School and the Grasella House would be newly impacted by the 65 DNL noise contour. 	<ul style="list-style-type: none"> • 5 Public Parks would be within the 65-70 DNL contour • 53 Historic Structures would be within the 65+ DNL contour.⁸ • The Bishop House would be within the 70-75 DNL contour. • The NASA Rocket Engine Test Facility would be within the 75+ DNL contour. • The NASA Rocket Engine Test Facility, which is currently listed on the National Register of Historic Places, would be demolished. • The St. Patrick School and the Grasella House would be newly impacted by the 65 DNL noise contour. 	<ul style="list-style-type: none"> • 5 Public Parks would be within the 65-70 DNL contour • 50 Historic Structures would be within the 65+ DNL contour.⁸ • The Bishop House would be within the 70-75 DNL contour. • The NASA Rocket Engine Test Facility would be within the 75+ DNL contour. • The NASA Rocket Engine Test Facility, which is currently listed on the National Register of Historic Places, would be demolished. • The St. Patrick School and the Grasella House would be newly impacted by the 65 DNL noise contour.

⁷ The number of historic structures listed within the 65+ DNL noise contours and the number of historic structures listed as eligible for sound insulation under the Part 150 Program have changed for each alternative since publication of the FEIS. Three structures within the Olmsted Falls Historic District that were not identified as eligible for listing, or listed, in the National Register of Historic Places have been identified as contributing structures and will given the same consideration as other historic resources. Additionally, due to the proximity of one structure to the noise contours, it has been included as impacted for Alternatives 3,4, and 6. This table has been updated to reflect the changes made and does not constitute a significant impact.

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Historic, Architectural, Archaeological, and Cultural Resources, Section 4(f) (currently known as 49 USC Section 303©), Continued		<ul style="list-style-type: none"> Forty-five residential historic structures would continue to experience noise levels of 65 DNL or greater, and thus would be eligible for Part 150 sound insulation.⁹ 	<ul style="list-style-type: none"> Forty-four residential historic structures would continue to experience noise levels of 65 DNL or greater, and thus would be eligible for Part 150 sound insulation.⁹ 	<ul style="list-style-type: none"> Forty-four residential historic structures would continue to experience noise levels of 65 DNL or greater, and thus would be eligible for Part 150 sound insulation.⁹ 	<ul style="list-style-type: none"> Forty-seven residential historic structures would continue to experience noise levels of 65 DNL or greater, and thus would be eligible for Part 150 sound insulation.⁹ 	<ul style="list-style-type: none"> Forty-four residential historic structures would continue to experience noise levels of 65 DNL or greater, and thus would be eligible for Part 150 sound insulation.⁹
Biotic Communities	No impact.	<p>Approximately 141.79 acres of various vegetational communities would be converted to Urban-Industrial-Turf under this alternative.</p> <p>Approximately 1.31 acres of Upland Forest habitat at GRC-Lewis Field would be converted to Urban-Industrial-Turf and approximately four acres of Old Field Scrub-Shrub at GRC-Plum Brook Station would be converted to Urban-Industrial-Turf under this alternative.</p>	<p>Approximately 156.74 acres of various vegetational communities would be converted to Urban-Industrial-Turf under this alternative.</p> <p>Approximately 1.31 acres of Upland Forest habitat at GRC-Lewis Field would be converted to Urban-Industrial-Turf and approximately four acres of Old Field Scrub-Shrub at GRC-Plum Brook Station would be converted to Urban-Industrial-Turf under this alternative.</p>	<p>Approximately 158.56 acres of various vegetational communities would be converted to Urban-Industrial-Turf under this alternative.</p> <p>Approximately 1.31 acres of Upland Forest habitat at GRC-Lewis Field would be converted to Urban-Industrial-Turf and approximately four acres of Old Field Scrub-Shrub at GRC-Plum Brook Station would be converted to Urban-Industrial-Turf under this alternative.</p>	<p>Approximately 164.45 acres of various vegetational communities would be converted to Urban-Industrial-Turf under this alternative.</p> <p>Approximately 1.31 acres of Upland Forest habitat at GRC-Lewis Field would be converted to Urban-Industrial-Turf and approximately four acres of Old Field Scrub-Shrub at GRC-Plum Brook Station would be converted to Urban-Industrial-Turf under this alternative.</p>	<p>Approximately 164.45 acres of various vegetational communities would be converted to Urban-Industrial-Turf under this alternative.</p> <p>Approximately 1.31 acres of Upland Forest habitat at GRC-Lewis Field would be converted to Urban-Industrial-Turf and approximately four acres of Old Field Scrub-Shrub at GRC-Plum Brook Station would be converted to Urban-Industrial-Turf under this alternative.</p>

⁸ See footnote 8 above

Table R-2, Continued
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Endangered and Threatened Species⁹	No impact.	Approximately 78 acres of State-listed potentially threatened blunt mountain mint habitat would be converted to new and relocated runways, taxiways, light lanes and the perimeter service road in areas currently consisting of old fields, scrub-shrub, and scrub-shrub wetlands.	Approximately 81 acres of State-listed potentially threatened blunt mountain mint habitat would be converted to new and relocated runways, taxiways, light lanes and the perimeter service road in areas currently consisting of old fields, scrub-shrub, and scrub-shrub wetlands.	Approximately 83 acres of State-listed potentially threatened blunt mountain mint habitat would be converted to new and relocated runways, taxiways, light lanes and the perimeter service road in areas currently consisting of old fields, scrub-shrub, and scrub-shrub wetlands.	Approximately 87 acres of State-listed potentially threatened blunt mountain mint habitat would be converted to new and relocated runways, taxiways, light lanes and the perimeter service road in areas currently consisting of old fields, scrub-shrub, and scrub-shrub wetlands.	Approximately 87 acres of State-listed potentially threatened blunt mountain mint habitat would be converted to new and relocated runways, taxiways, light lanes and the perimeter service road in areas currently consisting of old fields, scrub-shrub, and scrub-shrub wetlands.

⁹ Field investigations for the subject project began in 1998 when *Pycnanthemum muticum* was still listed on the Ohio rare plant list. Since that time, this species has been removed from the Ohio rare plant list for 2000 – 2001. As recommended by the Ohio DNR, the proposed project will include collection of specimens to be deposited at the Cleveland Museum of Natural History and Ohio State University Herbarium. Furthermore, seeds and cuttings would be introduced into the Columbia Reservation wetland mitigation site.

Table R-2, Continued
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Wetlands	No impact.	Approximately 76.16 acres of wetlands would be graded and filled in order to implement this alternative. The relocated runway 5L/23R would require filling 31.18 acres of wetland. The storm-water detention basin would require filling 30.57 acres of wetlands. The relocation and extension of 5R/23L would require the filling of 14.41 acres of wetlands.	Approximately 87.16 acres of wetlands would be graded and filled in order to implement this alternative. The relocated runway lights for 5L/23R would require filling 31.18 acres of wetlands. The storm-water detention basin would require filling 30.57 acres of wetlands. The relocation and extension of 5R/23L would require the filling of 25.41 acres of wetlands.	Approximately 87.40 acres of wetlands would be graded and filled in order to implement this alternative. The relocated runway 5L/23R would require filling 31.18 acres of wetlands. The storm-water detention basin would require filling 30.57 acres of wetlands. The relocation and extension of 5R/23L would require the filling of 25.65 acres of wetlands.	Approximately 87.85 acres of wetlands would be graded and filled in order to implement this alternative. The relocated runway 5L/23R would require filling 31.18 acres of wetlands. The storm-water detention basin would require filling 30.57 acres of wetlands. The relocation and extension of 5R/23L would require the filling of 26.10 acres of wetlands.	Approximately 87.85 acres of wetlands would be graded and filled in order to implement this alternative. The relocated runway 5L/23R would affect 31.18 acres of wetlands. The storm-water detention basin would require filling 30.57 acres of wetlands. The relocation and extension of 5R/23L would require the filling of 26.10 acres of wetlands.

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Floodplains	No impact.	Approximately five acres of floodplain affected by a 100-year flood event would be filled (along with Abram Creek and the existing ravine) in order to accommodate the proposed runway, taxiway, and related improvements.	Approximately five acres of floodplain affected by a 100-year flood event would be filled (along with Abram Creek and the existing ravine) in order to accommodate the proposed runway, taxiway, and related improvements.	Approximately five acres of floodplain affected by a 100-year flood event would be filled (along with Abram Creek and the existing ravine) in order to accommodate the proposed runway, taxiway, and related improvements.	Approximately five acres of floodplain affected by a 100-year flood event would be filled (along with Abram Creek and the existing ravine) in order to accommodate the proposed runway, taxiway, and related improvements.	Approximately five acres of floodplain affected by a 100-year flood event would be filled (along with Abram Creek and the existing ravine) in order to accommodate the proposed runway, taxiway, and related improvements.
Coastal Zone Management and Coastal Barriers	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
Wild and Scenic Rivers	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
Farmland	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.

Table R-2, Continued
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives						
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	
Energy Supply and Natural Resources	<p>Electric usage would be approximately 184.64 BBTU.</p> <p>Natural gas usage would be approximately 95.0 BBTU.</p> <p>Aircraft operations would use approximately 21.62 million gallons of fuel.</p> <p>Regional energy supplies would not be negatively impacted by the airport's energy demands resulting from implementation of this alternative.</p>	<p>Electric usage would be approximately 187.31 BBTU.</p> <p>Natural gas usage would be approximately 95.0 BBTU.</p> <p>Aircraft operations would use approximately 23.64 million gallons of fuel.</p> <p>Regional energy supplies would not be negatively impacted by the airport's energy demands resulting from implementation of this alternative.</p>	<p>Electric usage would be approximately 187.31 BBTU.</p> <p>Natural gas usage would be approximately 95.0 BBTU.</p> <p>Aircraft operations would use approximately 23.64 million gallons of fuel.</p> <p>Regional energy supplies would not be negatively impacted by the airport's energy demands resulting from implementation of this alternative.</p>	<p>Electric usage would be approximately 187.31 BBTU.</p> <p>Natural gas usage would be approximately 95.0 BBTU.</p> <p>Aircraft operations would use approximately 23.64 million gallons of fuel.</p> <p>Regional energy supplies would not be negatively impacted by the airport's energy demands resulting from implementation of this alternative.</p>	<p>Electric usage would be approximately 187.31 BBTU.</p> <p>Natural gas usage would be approximately 95.0 BBTU.</p> <p>Aircraft operations would use approximately 23.64 million gallons of fuel.</p> <p>Regional energy supplies would not be negatively impacted by the airport's energy demands resulting from implementation of this alternative.</p>	<p>Electric usage would be approximately 187.31 BBTU.</p> <p>Natural gas usage would be approximately 95.0 BBTU.</p> <p>Aircraft operations would use approximately 23.64 million gallons of fuel.</p> <p>Regional energy supplies would not be negatively impacted by the airport's energy demands resulting from implementation of this alternative.</p>	<p>Electric usage would be approximately 187.31 BBTU.</p> <p>Natural gas usage would be approximately 95.0 BBTU.</p> <p>Aircraft operations would use approximately 23.64 million gallons of fuel.</p> <p>Regional energy supplies would not be negatively impacted by the airport's energy demands resulting from implementation of this alternative.</p>
Light Emissions	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.	

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Aesthetic and Visual Impacts	No impact.	During approaches and departures, aircraft would be seen at different elevations and angles as a result of the shifting of Runway 5R/23L, the relocation of Runway 5L/23R, and extending of Runway 5R/23L.	During approaches and departures, aircraft would be seen at different elevations and angles as a result of the shifting of Runway 5R/23L, the relocation of Runway 5L/23R, and extending of Runway 5R/23L.	During approaches and departures, aircraft would be seen at different elevations and angles as a result of the shifting of Runway 5R/23L, the relocation of Runway 5L/23R, and extending of Runway 5R/23L.	During approaches and departures, aircraft would be seen at different elevations and angles as a result of the shifting of Runway 5R/23L, the relocation of Runway 5L/23R, and extending of Runway 5R/23L.	During approaches and departures, aircraft would be seen at different elevations and angles as a result of the shifting of Runway 5R/23L, the relocation of Runway 5L/23R, and extending of Runway 5R/23L.
Surface Transportation	No impact.	Temporary impacts to the transportation system would occur during construction and could include increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel time for drivers.	Temporary impacts to the transportation system would occur during construction and could include increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel time for drivers.	Temporary impacts to the transportation system would occur during construction and could include increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel time for drivers.	Temporary impacts to the transportation system would occur during construction and could include increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel time for drivers.	Temporary impacts to the transportation system would occur during construction and could include increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel time for drivers.

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Surface Transportation, Continued		Each affected intersection would show an improvement over the 2006 Baseline Level of Service (LOS) or maintain the 2006 Baseline LOS.	Each affected intersection would show an improvement over the 2006 Baseline Level of Service (LOS) or maintain the 2006 Baseline LOS.	Each affected intersection would show an improvement over the 2006 Baseline Level of Service (LOS) or maintain the 2006 Baseline LOS.	Each affected intersection would show an improvement over the 2006 Baseline Level of Service (LOS) or maintain the 2006 Baseline LOS.	Each affected intersection would show an improvement over the 2006 Baseline Level of Service (LOS) or maintain the 2006 Baseline LOS.
Solid Waste	No impact.	No impact.	No impact.	No impact.	No impact.	No impact.
Hazardous Waste	No impact.	This alternative would cause impacts to the following areas, which have undergone investigation: Riveredge Area; Northwest Cargo Area; Replacement Runway Area; Abram Creek Area; South Airfield Area; NASA Glenn Research Center at Lewis Field; NASA Glenn Research Center at Plum Brook Station.	This alternative would cause impacts to the following areas, which have undergone investigation: Riveredge Area; Northwest Cargo Area; Replacement Runway Area; Abram Creek Area; South Airfield Area; NASA Glenn Research Center at Lewis Field; NASA Glenn Research Center at Plum Brook Station.	This alternative would cause impacts to the following areas, which have undergone investigation: Riveredge Area; Northwest Cargo Area; Replacement Runway Area; Abram Creek Area; South Airfield Area; NASA Glenn Research Center at Lewis Field; NASA Glenn Research Center at Plum Brook Station.	This alternative would cause impacts to the following areas, which have undergone investigation: Riveredge Area; Northwest Cargo Area; Replacement Runway Area; Abram Creek Area; South Airfield Area; NASA Glenn Research Center at Lewis Field; NASA Glenn Research Center at Plum Brook Station.	This alternative would cause impacts to the following areas, which have undergone investigation: Riveredge Area; Northwest Cargo Area; Replacement Runway Area; Abram Creek Area; South Airfield Area; NASA Glenn Research Center at Lewis Field; NASA Glenn Research Center at Plum Brook Station.

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives					
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6
Hazardous Waste, Continued		Each of these areas has been identified as having a potential for being contaminated with substances classified under the Resource Conservation and Recovery Act (RCRA) or by the Environmental Protection Agency (EPA) as being hazardous.	Each of these areas has been identified as having a potential for being contaminated with substances classified under the Resource Conservation and Recovery Act (RCRA) or by the Environmental Protection Agency (EPA) as being hazardous.	Each of these areas has been identified as having a potential for being contaminated with substances classified under the Resource Conservation and Recovery Act (RCRA) or by the Environmental Protection Agency (EPA) as being hazardous.	Each of these areas has been identified as having a potential for being contaminated with substances classified under the Resource Conservation and Recovery Act (RCRA) or by the Environmental Protection Agency (EPA) as being hazardous.	Each of these areas has been identified as having a potential for being contaminated with substances classified under the Resource Conservation and Recovery Act (RCRA) or by the Environmental Protection Agency (EPA) as being hazardous.

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives						
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	
Construction	No impact.	<p>Increased sediment load and pollutants released from construction materials and equipment could induce impacts on water quality and aquatic life.</p> <p>Construction activities would have a short-term impact on local air quality.</p> <p>Noise impacts may occur in the vicinity of the construction sites.</p>	<p>Increased sediment load and pollutants released from construction materials and equipment could induce impacts on water quality and aquatic life.</p> <p>Construction activities would have a short-term impact on local air quality.</p> <p>Noise impacts may occur in the vicinity of the construction sites.</p>	<p>Increased sediment load and pollutants released from construction materials and equipment could induce impacts on water quality and aquatic life.</p> <p>Construction activities would have a short-term impact on local air quality.</p> <p>Noise impacts may occur in the vicinity of the construction sites.</p>	<p>Increased sediment load and pollutants released from construction materials and equipment could induce impacts on water quality and aquatic life.</p> <p>Construction activities would have a short-term impact on local air quality.</p> <p>Noise impacts may occur in the vicinity of the construction sites.</p>	<p>Increased sediment load and pollutants released from construction materials and equipment could induce impacts on water quality and aquatic life.</p> <p>Construction activities would have a short-term impact on local air quality.</p> <p>Noise impacts may occur in the vicinity of the construction sites.</p>	<p>Increased sediment load and pollutants released from construction materials and equipment could induce impacts on water quality and aquatic life.</p> <p>Construction activities would have a short-term impact on local air quality.</p> <p>Noise impacts may occur in the vicinity of the construction sites.</p>

Table R-2 (Continued)
2006 ENVIRONMENTAL IMPACT SUMMARY MATRIX
Cleveland Hopkins International Airport

Impact Category	Alternatives						
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 6	
Construction, Continued		<p>During the time that Runway 5R/23L would be under construction for extension, the runway may be closed temporarily or have a temporary displaced threshold put in place for a portion of the time. This alteration in airport operation would have a minor effect on aircraft noise impacts within the airport environs.</p> <p>Construction activities could induce increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel times for drivers.</p>	<p>During the time that Runway 5R/23L would be under construction for extension, the runway may be closed temporarily or have a temporary displaced threshold put in place for a portion of the time. This alteration in airport operation would have a minor effect on aircraft noise impacts within the airport environs.</p> <p>Construction activities could induce increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel times for drivers.</p>	<p>During the time that Runway 5R/23L would be under construction for extension, the runway may be closed temporarily or have a temporary displaced threshold put in place for a portion of the time. This alteration in airport operation would have a minor effect on aircraft noise impacts within the airport environs.</p> <p>Construction activities could induce increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel times for drivers.</p>	<p>During the time that Runway 5R/23L would be under construction for extension, the runway may be closed temporarily or have a temporary displaced threshold put in place for a portion of the time. This alteration in airport operation would have a minor effect on aircraft noise impacts within the airport environs.</p> <p>Construction activities could induce increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel times for drivers.</p>	<p>During the time that Runway 5R/23L would be under construction for extension, the runway may be closed temporarily or have a temporary displaced threshold put in place for a portion of the time. This alteration in airport operation would have a minor effect on aircraft noise impacts within the airport environs.</p> <p>Construction activities could induce increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel times for drivers.</p>	<p>During the time that Runway 5R/23L would be under construction for extension, the runway may be closed temporarily or have a temporary displaced threshold put in place for a portion of the time. This alteration in airport operation would have a minor effect on aircraft noise impacts within the airport environs.</p> <p>Construction activities could induce increased commercial traffic on neighborhood roads, increased traffic congestion, increased travel distances, and increased travel times for drivers.</p>

Source: Landrum & Brown, Incorporated, 1999

7. PUBLIC AND AGENCY INVOLVEMENT

From the outset, the concerns of the public have been considered. Both the City of Cleveland and the FAA have been forthcoming with the communities about the project through extensive opportunities for public involvement. The interests of communities have been considered throughout the decision-making process regarding expansion at Cleveland Hopkins International Airport. This is shown in part as described below.

Because of the airport's impact on the surrounding communities, the FAA and the City of Cleveland have conducted open public meetings to inform the public of the expansion plans. The FAA and the City of Cleveland have received numerous public comments throughout the EIS process. To the extent practicable, all of these comments have been reviewed to ensure that the needs and concerns of the public were considered and addressed. Based on the extensive opportunities for public participation, the FAA is satisfied that full consideration has been given to the public's views on airport expansion plans.

PUBLIC INVOLVEMENT PROCESS

Public involvement included the following:

- An agency EIS scoping meeting was held on June 17, 1998. Fifty-one individuals were in attendance. A summary of the meeting comments was provided in Appendix A of the FEIS.
- A public EIS scoping meeting was held on June 17, 1998. Forty-seven individuals were in attendance. A copy of comments received was provided in Appendix B of the FEIS.
- A scoping comment period extended from May 11, 1998, through June 30, 1998. Copies of the agency and public scoping comments received were provided in Appendices A and B of the FEIS.
- Several public workshops and listening sessions on the proposed Master Plan development and the Part 150 Noise Compatibility Study Update were held throughout the environmental process. These included:
 - Public Meeting – October 7, 1998: North Olmsted Middle School
 - FAA Listening Session – October 20, 1998: Schaaf Center, Parma
 - FAA Listening Session – October 21, 1998: Olmsted Falls High School
 - Public Meeting – December 8, 1998: Ascension of Our Lord Church

- Public Meeting – May 13, 1999: Berea High School
- Public Meeting – October 27, 1999: Gunning Recreation Center
- Public Meeting – October 28, 1999: Olmsted Falls Middle School
- The DEIS was distributed to local libraries, city halls, and to principal commenting agencies. The DEIS was available for review from October 29, 1999, through January 31, 2000.
- The DEIS was available for more than the minimum 45 days required by CEQ regulations. The comment period for the DEIS opened on October 29, 1999, was extended for a total of 94 days, and closed on January 31, 2000.
- Public workshops/public hearings were held to receive comments on the DEIS on November 30, 1999, and December 1, 1999, more than 30 days after the DEIS was released for review. Approximately 325 people attended the two events and 53 people provided oral testimony over the course of the two nights.
- Several hundred comments were received from the public and agencies in response to the DEIS. The comments were reviewed and considered by the FAA in the preparation of the FEIS. All comments received were summarized and responded to in the FEIS (Appendices S and T of the FEIS).
- The FEIS was distributed to local libraries, city halls, and the principal commenters on the DEIS. The FEIS was approved by the FAA on June 23, 2000, released to the public on July 5, 2000, and listed in the Federal Register on July 14, 2000.
- Comments were received on the FEIS. These comments are addressed in Appendix A.

The public involvement process for this project was documented in Chapter 7 and Appendix A of the FEIS. The list of recipients of the DEIS and FEIS, including public review depositories and locations, is found in Section 7.2 of the FEIS.

Subsequent to the release of the FEIS, a series of meetings and consultations were held prior to the ROD with certain interested organizations and citizens of local communities in the vicinity of the airport. The purpose of these meetings and consultations was to allow these groups to air their concerns about the proposed expansion of the airport and to discuss Section 106 issues with the FAA.

ADDITIONAL CONSULTATIONS AND MEETINGS

Section 106 Consultations

As part of the EIS process, the Ohio Historic Preservation Office (OHPO), Advisory Council for Historic Preservation (ACHP), National Parks Service (NPS), Federal Aviation Administration (FAA), National Aeronautics and Space Administration (NASA), City of Cleveland, City of Olmsted Falls, City of Brook Park, and Olmsted Township have been involved in ongoing consultation to identify historic properties in the study area and evaluate potential effects of the proposed Cleveland Hopkins Airport Improvement project upon properties of historical, architectural and cultural significance. Potential adverse effects upon the RETF as well as potential effects upon other historic properties were identified and disclosed early in the EIS process during the public involvement processes listed above. The FEIS included a draft Memorandum of Agreement.

Formal Section 106 consultation was initiated on July 14, 2000, when representatives from the FAA, Advisory Council on Historic Preservation, Ohio State Historic Preservation Office (SHPO), Congressman Kucinich's office, City of Cleveland, City of Olmsted Falls, City of Brook Park, Olmsted Falls Airport Committee, and Olmsted Falls Architectural Review Board met in the City of Olmsted Falls Historic District. Olmsted Township was invited but did not attend. After that meeting, the FAA clarified its intention to act as the lead federal agency regarding the Section 106 process for the proposed transfer of the Rocket Engine Test Facility by NASA to the City of Cleveland. A subsequent meeting was conducted in the City of Brook Park on August 2, 2000, and included the same participants with the addition of NASA. During these two meetings, the Federal agencies, the Ohio SHPO, and the consulting parties evaluated the potential impact of the proposed project upon historic resources. The City of Olmsted Falls proposed alternative mitigation measures different than those studied in the FEIS that they believed would further reduce the impacts to historic resources. Each of the alternatives proposed during the consultation process by the City of Olmsted Falls, Advisory Council, SHPO, and other consulting parties was reviewed by the FAA. The findings of these reviews are contained in Appendix F of this ROD.

Following the meeting conducted August 2, 2000, FAA and NASA corresponded and held several teleconferences with the Advisory Council, Ohio SHPO, and consulting parties to finalize terms of for a memorandum of agreement and a programmatic agreement. The consultation between the parties culminated in the signing of both the MOA and PA, which are provided in Appendices C and D of this ROD. Although signature of these agreements completes the Section 106 process, further consultation between the parties listed in the PA and MOA will occur as the measures specified in both are carried forth.

Meeting, July 12, 2000

At the request of Congressman Dennis Kucinich, FAA Headquarters staff met on July 12, 2000, in Washington, D.C., with representatives of the City of Olmsted Falls and the Olmsted Falls Airport Committee to discuss their concerns about expansion of Cleveland Hopkins Airport. Also in attendance were representatives of Continental Airlines, representatives from Congressman Kucinich's office, and a representative of Landrum & Brown, the EIS consultant.

The City of Olmsted Falls reiterated its concerns about potential noise impacts, particularly consideration of impacts on its historic district, desire for a displaced threshold on Runway 5L, and questions about the adequacy of the FAA's EIS and public hearing process.

These comments and concerns are addressed generally in Chapter 9 of this ROD and in detail in Appendix A of this ROD.

8. RELATED ISSUES

Several commenting parties maintain that in the evaluation of alternatives two areas were not adequately covered. Thus, they consider the alternative selection and evaluation process to be incomplete since, in their opinion, it failed to consider all reasonable and prudent alternatives for airport expansion. This belief is based in part that specific alternatives were not evaluated in sufficient detail, and therefore, were prematurely dismissed in the evaluation process. These alternatives included:

- Displaced threshold on Runway 5L/23R
- Development of additional alternatives that meet State of Ohio requirements for Section 401 permit
- Considerations of Abram Creek Bridge Alternative and reduced runway separation to meet Section 404 Clean Water Act Requirements

In addition to consideration of alternatives, the U.S. Army Corps of Engineers (ACOE) commented on the City of Cleveland's permit application about the adequacy of mitigation measures for Abram Creek and the Doan Brook stream restoration proposal.

DISPLACED RUNWAY THRESHOLD ON RUNWAY 5L/23R

The current runway separation between Runway 5L/23R and 5R/23L is 441 feet. At this distance it does not meet current FAA design standards. Also, the current Runway 5L/23R does not provide for Runway Safety Areas that meet the standards established in FAA Advisory Circular 150/5300-13. FAA policy is that standard Runway Safety Areas should be provided for all newly constructed runways or for major runway improvements. As an airport certificated for air carrier service, Cleveland Hopkins International Airport is required to construct standard Runway Safety Areas for all newly constructed or reconstructed runways or for major runway improvements to the extent practicable.

The current airport geometry has five runway intersections. These intersections increase the complexity of air traffic control and can lead to runway incursions. A runway incursion is defined as "any occurrence at an airport that involves an aircraft, vehicle, person or object on the ground that creates a collision hazard or results in loss of separation with an aircraft taking off, landing or intending to land." As part of an airspace review of the proposed development, the FAA concurred that eliminating the runway intersections would reduce the possibility of runway incursions for this airport. The complexity of air traffic control is reduced through the closing of Runway 18/36 and permanently relocating the threshold of Runway 23L south of Runway 10/28. The proposed plan also provides for a dual taxiway system between the parallel runways and between Runway 5R/23L and the passenger terminal area.

The sponsor, through their planning process and in consultation with the airlines and the FAA, determined that the replacement runway should have a CAT III landing system, be 9,000 feet in length, and provide adequate lateral separation from Runway 5L/23R such that a dual taxiway system could be constructed between the two parallel runways. A CAT III landing system enables pilots to land aircraft during the worst weather conditions when there is little visibility. The landing system includes radio navigation aids that alert the pilot if the plane is to the left or right of the runway, and also if it is too high or low of a standard three degree approach. In addition, the system includes approach lighting, ALSF-II, that provides the pilot with visual reference to the end of the runway. This system typically consists of 156 lights that provide the pilot with a visual reference to the runway. FAA owns, operates, and maintains the landing system.

Early in the planning process the City of Cleveland requested that the FAA conduct an airspace review of a proposed displaced threshold for the new CAT III Runway 5L/23R and upgrade the existing CAT I approach on 5R to a CAT III system with a new displaced threshold. By a letter to the City of Cleveland dated September 9, 1994, the FAA explained that the proposal was unacceptable because, among other reasons, a displaced threshold would cause a "black hole" effect, would increase air traffic controller complexity, and would increase FAA's cost to maintain the lighting system required for CAT III runways. The City of Olmsted Falls has expressed support for such a displaced threshold throughout the EIS process.

To displace the threshold for landing on a CAT III runway, the approach lighting system would have to be placed in the runway pavement instead of in the approach area in front of the runway. The approach light system required for a CAT III runway is an ALSF-II. The FAA has determined that placing this system in the runway pavement will increase FAA maintenance costs, as these lights will suffer increased damage during snow removal operations, on a winter by winter basis. Replacement of these lights will cause the runway to be closed, thus removing the runway from service, which would increase delay at the airport.

The FAA has concerns about the safety of having aircraft depart from a runway with an ALSF-II lighting system in the runway pavement. Since the start of departure roll would occur at the physical end of the pavement, the pilots would have high intensity approach lights and strobes shining into the cockpit for the length of the lighting system and this could impair their vision during the critical takeoff phase of flight (black hole effect). Furthermore, with a displaced threshold on Runway 5L, pilots, due to concern over the reduced runway length, may choose to request landing on Runway 5R/23L. These requests by the pilots for an alternate arrival runway would severely reduce the airport's ability to process peak period capacity. Although displaced thresholds exist on a limited basis at other airports on long-standing existing runways, the FAA determined it would be inappropriate to operate a displaced threshold on a CAT III runway at this airport.

FAA also determined in September 1994, that a displaced threshold would be inappropriate for use on Runway 5R with a CAT III (ALSF-II) approach. Subsequently, the City of Cleveland, through its planning process, determined that a CAT III approach would not be necessary on Runway 5R as long as Runway 5L has this capability.

Runway 5R is primarily a departure runway and typically will only have arrival flights in good weather conditions or in poor weather when Runway 5L is closed. A CAT I runway requires a MALSR light lane and can only be used when the visibility is greater than one-half mile and the cloud ceiling is above 200 feet, whereas a CAT III runway with a ALSF-II can be used with zero visibility and zero ceiling. The FAA approved the use of a displaced threshold for Runway 5R with a Cat I instrument approach, finding that it did not adversely effect airport operations and provides environmental mitigation benefits.¹⁰ These environmental benefits include the light lane not being required to be located in the Rocky River Ravine (Metropark) and no increased aircraft proximity to Olmsted Falls during aircraft arrivals.

With a displaced threshold on both Runways 5L and 5R, aircraft would have to taxi to a non-standard position prior to entering the runway for take off operations. This non-standard position would have to be outside of the approach surface for the displaced threshold. Such a non-standard operation increases the risk of confusion and reduces the safety level at this airport. This would also add complexity to the air traffic control workload. In addition, this non-standard operation would reduce runway capacity, since the air traffic controller would have to add additional time between successive arriving aircraft to allow a departing aircraft to taxi the increased distance to the end of the runway and take off. With a displaced threshold on both parallel runways, the airport would have no option to depart an aircraft on a runway without a displaced threshold. In some weather conditions, this would reduce airfield capacity below existing levels.

The FAA has extensively reviewed the use of a displaced threshold for the new Runway 5L and has determined that it does not meet the project goals, is not prudent, reasonable, and feasible and would not provide for an increase in safety for aircraft at the airport.

CONSIDERATION OF PRACTICABLE ALTERNATIVES AND MITIGATION MEASURES THAT MEET SECTION 404 CLEAN WATER ACT REQUIREMENTS

Under authority of Section 404 of the Clean Water Act (33 U.S.C. 1344) the U.S. Army Corps of Engineers (ACOE) regulates the discharge of dredged or fill material into waters of the U.S. In conjunction with the ACOE Section 404 permit, a Section 401 Water Quality Certification is required. The Section 401 Water Quality Certification is administered by the Ohio Environmental Protection Agency (OEPA). In addition, compliance with the OEPA's Anti-Degradation Rules would also be required for the proposed project. The State of Ohio Section 401 Permit Application requires presentation of non-degradation and minimal degradation alternatives that are different from a do nothing alternative or the preferred action alternative. The OEPA has requested presentation of these alternatives, notwithstanding that these alternatives may not meet the purpose and need of the project. The EIS alternatives analysis has already confirmed that no non-degradation alternatives or minimal degradation

¹⁰ The lighting system used for a Cat I approach is a MASLR system. This system has fewer lights than the ALSF-II. Also Runway 5R is primarily a departure runway and the approach lighting system would normally be turned off thus avoiding the "black hole" effect.

alternatives fulfill the public purpose of the project. The City of Cleveland has further extensively examined alternatives to the culverts for Abram Creek in the design documents prepared for the project and has found that non-degradation or minimum degradation alternatives, which meet the project's purpose and need do not exist. The results of the evaluation of non-degradation and minimal degradation alternatives show that no feasible alternative (to the proposed project) preserves all surrounding wetlands and streams, while providing needed airfield capacity and meeting FAA Airport Design Standards. The recommended proposed project creates the least impacts while preserving project goals of improving safety, increasing capacity, providing sufficient runway length, and the need to enhance the human environment (purpose and need). Future permit applications will contain "demonstration" alternatives that only meet non-degradation and minimal degradation objectives but do not meet project purpose and need. Initial permit documentation supports the findings disclosed in the FEIS and confirms that non-degradation and minimum degradation alternatives do not fulfill project purpose and need, and would not be built even if permits were issued.

UNITED STATES ARMY CORPS OF ENGINEERS COMMENTS REGARDING THE SECTION 404 PERMIT APPLICATION

The U.S. Army Corps of Engineers (ACOE) has supplied comments to the Section 404 Permit Application. These comments have identified four principal issues that the ACOE has requested additional information about prior to making a permit determination.

1. Abram Creek Bridge Alternative

The US Army Corps of Engineers (ACOE) has requested the City of Cleveland to provide additional information, specifically cost implications, in order to further evaluate the bridging of Abram Creek versus the use of the proposed culverts. The bridging alternative has been assessed by the City of Cleveland from a structural, operations, maintenance, and cost perspective and found to be neither reasonable nor prudent for accommodating both the proposed developments and the reduction of impacts to Abram Creek. A Section 404 permit would likely be required for the bridge alternative because significant impacts to Abram Creek would result from the straightening and channelization of stream segments and from the installation and maintenance of support piers.

The existing Abram Creek waterway produces a significant engineering challenge to the airfield bridge project. The bottom of the Abram Creek Ravine is approximately 80 feet below the proposed runway and taxiway pavements. The stream's meandering alignment, channel slope, sizeable hydraulic flow, stream velocities, channel bank erosion potential. Lateral migration potential and steep channel side-slopes greatly complicate efforts to bridge or culvert the waterway within the existing ravine. Structural alternatives would likely require channel modifications to straighten stream alignment, stabilize erosion-prone channel embankments, and provide scour protection measures at the bridge piers to ensure the structural integrity of proposed substructure units.

Construction Costs

The construction of a bridge to carry the proposed airfield developments over Abram Creek would have a total construction cost of approximately \$523,000,000 dollars. The estimated construction cost of the culverting and filling of Abram Creek as proposed would have an approximate cost of \$85,000,000 dollars.

Environmental Impacts

The proposed development of the relocated Runway 5L/23R and extended Runway 5R would negatively impact Abram Creek. The construction and operation of a bridge structure across Abram Creek would both minimize and increase various environmental impacts to the creek.

Construction of high-level bridges would minimize some impacts to Abram Creek by eliminating the need to fill the deep Abram Creek Ravine with embankment material. The bridge alternative would maximize opportunity for preserving the existing natural channel bottom of Abram Creek in segments that are not realigned. However, the Abram Creek waterway would require realignment of approximately 800 feet to avoid detrimental local scour impacts to substructure units, to avoid lateral channel migration, and to reduce the overall bridge span lengths.

Construction of high-level bridges, approximately 80 feet high and widths between 267 feet and 1,010 feet would eliminate sun exposure to much of the Abram Creek Ravine. Existing vegetation would gradually perish, leaving the shielded ravine slopes devoid of growth that normally provides protection against stream bank erosion. Slope stabilization would be required in the form of rip-rap and extensive rock armoring along the areas of the stream below the bridges.

Based on FAA design criteria that governs the bridge widths and based on existing topographic features, a maximum 800-foot long segment of Abram Creek could be preserved as open channel between the bridges. While this segment of the stream would be vegetated, it would be separated from adjacent open channel sections (upstream and downstream) by the width of the bridges.

An increase in impacts could result from the bridging structure because of the potential release of jet fuel or lubricants which could enter the channel from the bridges. The open nature of the bridges in the ravine would complicate control of a hazardous material spill and increase the risk of a release into the waterway.

Additionally, Abram Creek would be impact by the construction activities associated with building the bridge structures. Although the creek would not be completely and permanently impacted, as with the culvert, the construction activities would result in significant impacts to the existing stream. Temporary contractor access for bridge construction would require access roads and slope benching. Access roads would extend along the ravine side slopes from top of

bank to the channel bottom, approximately 80 feet deep, to enable drilling of pier foundations within the channel. Slope benching along proposed abutment and pier locations would be extensive due to the extremely wide proposed bridge widths.

Conclusions

The following conclusions prompted selection of the use of a culvert instead of a structural solution to cross Abram Creek:

- The bridge option creates major structures requiring constant monitoring and maintenance.
- The bridge option has an initial construction cost of over a half a billion dollars versus 85 million for the culvert option. The culvert option provides a cost-effective solution for this crossing, at nearly one-seventh the cost of the bridge
- The bridge option requires disturbing the Abram Creek channel and ravine, creating desolate areas under the proposed bridges. While not as extensive as the impacts that would result from the culvert option, significant channel realignment, floodplain and streambed armoring, and other impacts would be required to construct and maintain a bridge crossing of Abram Creek
- The culvert crossing of Abram Creek would work to benefit the overall water quality by diverting potential surface contaminants from the creek by routing flow through a detention basin allowing contaminants to settle out of the water column.

Based on this information the most feasible and cost-effective method for carrying the proposed airfield expansion across the Abram Creek Ravine is the culvert option. Not only does this option provide the lowest initial construction cost to the project, but it reduces future maintenance costs associated with the bridge structure. The culvert option provides a fiscally prudent, sound engineering solution to this unique challenge.

2. Runway Separation

FAA Advisory Circular 150/5300-13 recommends 4,300 to 5,000 feet of lateral separation between parallel runways for dual simultaneous Instrument Flight Rule (IFR) approaches. The FAA will consider runway separation distances as little as 3,000 feet on a case-by-case basis, if a 4,300-foot separation is impractical (separations down to 3,000 feet require special radar, monitoring equipment, etc.). Therefore, because "inclement weather" requires an instrument approach, between 4,300 and 5,000 feet (and possibly down to 3,000 feet) would be required to allow for simultaneous operation of both runways during inclement weather.

In comparison, for dual simultaneous approaches and departures using Visual Flight Rule (VFR) operations, the minimum separation between centerlines of parallel runways is 1,200 feet for airplanes in Design Group V and VI. VFR operations are not permitted during inclement weather conditions, i.e. when visibility ranges are below 1,000 feet.

Therefore, the proposed 1,241-foot separation for the parallel runways at CLE conforms with the FAA guidelines for simultaneous landings and takeoffs using VFR. Please note that this separation would not allow for simultaneous instrument approaches during inclement weather.

3. Oxygen Depletion of Water of Abram Creek from Stormwater, Deicing Materials

The potential of the proposed culvert to deplete the oxygen levels of waters of Abram Creek has not been assessed. As requested by the ACOE, this issue will be further investigated. If it is determined that the presence of the proposed culvert would result in oxygen depletion, actions will be taken to incorporate mitigative techniques into the final culvert and stormwater detention basin designs to abate any oxygen depletion problems. Aeration of the water column could be addressed at the discharge point of the stormwater detention basin, at the outflow point of the culvert and/or through the creation of artificial "riffles" along the culvert bottom.

4. Doan Brook Stream Restoration Proposal

The U.S. Army Corps of Engineers (ACOE) stated in their comment letter to the City of Cleveland regarding the pending 404 Permit application that they believed that the Doan Brook stream mitigation proposal does not meet the requirements for stream restoration as described to the City of Cleveland on January 22, 1999. The ACOE provided specific requirements for stream restoration to the City of Cleveland Department of Port Control's agents during a pre-application meeting held on January 22, 1999. The ACOE also states that on February 15, 2000, it informed the City of Cleveland that the Doan Brook element of the mitigation package would not satisfy mitigation requirements and that they should seek stream mitigation opportunities elsewhere.

In that the OEPA had suggested Doan Brook be used as proposed stream course mitigation, a meeting was held February 15, 2000, at the site. The purpose of the meeting was 1) to share information about Doan Creek between DPC, ACOE, OEPA and others that were present; 2) to present a comparison of Abram Creek and Doan Brook and to explore potential opportunities for improvements to Doan Brook water quality and habitat structure and to; 3) to obtain an initial barometer reading from the agencies about the viability of Doan Brook as a feasible and applicable restoration project that would compensate for impacts to Abram Creek. As part of the meeting a site visit was made to Doan Brook. At the meeting the ACOE did not give an opinion as to whether Doan Brook should be pursued as a

restoration project, until additional information could be developed and reviewed. However, neither the ACOE nor OEPA attempted to dissuade further investigation of Doan Brook as a viable streamcourse restoration project.

The ACOE has expressed concerns regarding the ability of the Doan Brook restoration project to satisfy mitigation required for impacts to Abram Creek. However, the ACOE in its August 14, 2000, letter commenting on the FEIS does not address the feasibility of using Doan Brook as stream course mitigation.

Although the City of Cleveland continues to maintain that the Doan Brook restoration plan is an appropriate urban stream restoration project, they acknowledge the ACOE's opposition and if Doan Brook is found to be inadequate will augment the proposed mitigation plan to satisfy the request of the ACOE by introducing segments of other degraded streams in the region for consideration as mitigation by ACOE and OEPA. A potential new candidate for restoration has been identified by OEPA along the West Fork of the East Branch of the Black River, which has the potential of satisfying the need for stream course mitigation. The ACOE toured the site of this potential restoration project on October 17, 2000, and indicated that an acceptable restoration project could potentially be developed.

9. ENVIRONMENTAL ISSUES RAISED ABOUT THE FEIS

During the 30-day period following the issuance of the FEIS, comments were received from the following in response to the FEIS:

Federal Agencies

U.S. Department of the Interior (2)
U.S. Environmental Protection Agency
U.S. Department of the Army, Corps of Engineers
National Aeronautic and Space Administration
U.S. Congressman Dennis J. Kucinich
Advisory Council on Historic Preservation (2)

State Agencies

Ohio Department of Natural Resources
Ohio Environmental Protection Agency

Local Agencies/Interest Groups

Cities of Berea, Middleburg Heights, and Strongsville
Cities of Bay Village, Fairview Park, Rocky River, and Westlake
City of Olmsted Falls (7)
Olmsted Falls Airport Committee

Citizen Groups

Ohio Public Interest Research Group
Continental Airlines
Letters from Interested Citizens (3)

The majority of the comments received on the FEIS were in the areas of public involvement, procedural issues, adequacy of the analysis of noise and other impact categories, airport planning, and adequacy of analysis of alternatives and mitigation.

No substantive comments were received on the following topics: light emissions; solid waste impacts; environmental justice; surface transportation; Coastal Zone Management and Coastal Barriers; Wild and Scenic Rivers; and Aesthetic and Visual Impacts.

The FAA has carefully assessed and considered comment letters received on the FEIS in making its decision. Appendix A of this ROD provides copies of each letter received with detailed responses to comments on major issues raised by the commenting agencies and citizen groups. Major airport planning issues raised in comments on the FEIS are summarized previously, in Chapter 8 of this ROD. The key environmental issues raised on the FEIS are summarized below. The detailed responses to these comments are included in Appendix A of this document.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

The USEPA commented that the environmental concerns identified on behalf of the project's DEIS in our comment letter of January 31, 2000, concerning purpose and need, range of alternatives, noise impact mitigation, compensatory wetlands mitigation plans, and stream preservation/restoration proposals have been adequately addressed within the FEIS. Consequently, our Agency has no objection to project implementation.

UNITED STATES DEPARTMENT OF INTERIOR

The United States Department of Interior (USDOI) concurred that there are no feasible and prudent alternatives to the proposed project, if the project objectives are to be met. However, USDOI expressed concern that more planning is necessary to minimize impacts to Section 4(f) resources, particularly the proposed demolition of the NASA Rocket Engine Test Facility, a National Historic Landmark. The USDOI indicated that specific mitigation measures had to be described and evidence provided that the SHPO and ACHP concur with proposed mitigation to provide an adequate basis for USDOI to determine that all measures to minimize harm have been considered. USDOI encouraged the FAA to continue to work with NPS and others to revise the draft MOA that was included in the FEIS and to reach a mutually acceptable agreement on this matter.

The SHPO, ACHP, NASA, and the City of Cleveland reached agreement on terms, including mitigation measures, in an MOA that chiefly addresses impacts to the Rocket Engine Test Facility. A copy of the signed MOA is included in Appendix C of this ROD. By letter dated October 18, 2000, the USDOI/NPS has formally concurred with the MOA and that the FAA has met its obligation under 36 CFR 800.10 in accordance with Section 106 of the National Historic Preservation Act, as amended. Additionally, Appendix F documents the measures considered to minimize harm to historic properties.

ADVISORY COUNCIL ON HISTORIC PRESERVATION

The Advisory Council on Historic Preservation transmitted the fully executed Programmatic Agreement for the City of Cleveland's Part 150 Noise Compatibility Program and the fully executed Memorandum of Agreement for the proposed development. The Advisory Council determined that the FAA, by carrying out both of these agreements, fulfilled its responsibilities under Section 106 of the National Preservation Act.

UNITED STATES ARMY CORPS OF ENGINEERS (ACOE)

The United States Army Corps of Engineers (ACOE) comments that an autonomous 404 permit application must be developed separate from the FEIS. The ACOE stated that the FEIS could not function as their primary NEPA source document without incorporating the information generated during their required public interest review. Furthermore, ACOE noted that the FEIS and ROD do not authorize the City of

Cleveland to begin work in any waters of the United States, unless, and until, the City of Cleveland receives a Department of the Army permit under Section 404 of the Clean Water Act (CWA) and a water quality certification (or waiver thereof) under Section 401 of the CWA from the Ohio Environmental Protection Agency. The ACOE also stated that they have not made a decision concerning issuance of a permit.

The copies of the Section 404 and Section 401 permit applications contained in the FEIS are for information purposes only and are not intended to initiate the permit review process or substitute for any part of it. The FAA recognizes that the City of Cleveland's permit applications are pending with ACOE and Ohio EPA and that this Record of Decision does not authorize the City to do any work in waters of the United States prior to receipt of necessary permits. Integration of the ACOE Clean Water Act Section 404 NEPA Review with FAA's NEPA review is optional.

The United States Army Corps of Engineers (ACOE) Buffalo District has issued a Public Notice October 18, 2000, for the application for permit of the proposed project under authority of Section 404 of the Clean Water Act (33 U.S.C. 1344). This notice is promulgated in accordance with Title 33, Code of Federal Regulations, parts 320-330. Any interested party desiring to comment on the work described within the permit application may do so by submitting their comments in writing by the expiration date of the public notice.

After the 30-day public review and comment period, the ACOE considers all comments received and conducts a public hearing, if needed. The district engineer will then decide whether or not to issue a permit. The decision by the ACOE to approve or deny this permit request would be based on an evaluation of the probable impact, including cumulative impacts of the proposed project on public interest.

FAA may issue a Record of Decision when, as in this case, there is a reasonable assurance that the permits will be obtained.

THE NATIONAL AERONAUTICS AND SPACE ADMINISTRATION (NASA)

The National Aeronautics and Space Administration (NASA) commented that the impacts resulting from Stage 1 of the construction of the proposed project (construction of 7,145 feet of the replacement Runway 5L/23R) have not been adequately addressed in the FEIS. NASA is concerned that Stage 1 of the construction of the runway will be used for aircraft operations before NASA has fully vacated the South 40 properties proposed for transfer from NASA to the City of Cleveland. NASA also requested additional information detailing the impacts that the proposed development would have on the environment, NASA property, and employees. NASA's comments about environmental impacts focused on treatment of retained stormwater, effects to water quality resulting from the proposed project, and stormwater effects on flooding in receiving watercourses and NASA stormwater sewers.

The EIS studied and this ROD will approve a two-stage construction of replacement Runway 5L/23R for a total length of 9,000 feet. The EIS/ROD provides for the environmental approval of the Stage I runway on an interim basis providing that the NASA determinations set forth earlier in this document are complied with. However, the EIS/ROD is based upon initiation and completion of construction of the second stage in a timely fashion. Failure to proceed with the second stage of the runway construction would require supplementation of the EIS. The staging of the construction of this runway is necessary in order to take advantage of construction seasons while maintaining existing airport services. The impacts resulting from the construction of the replacement runway (including Stage 1) are disclosed in the FEIS. The proposed project has been designed to incorporate water quality mitigation measures, including the construction of a centralized detention facility and consolidated deicing and maintenance facilities. These measures mitigate impacts to water quality resulting from the proposed project as well as existing operations. The proposed project, when the water quality mitigation measures are considered, will not cause any increases to floodplain levels, as they exist today.

CONGRESSMAN DENNIS KUCINICH

Congressman Dennis Kucinich commented that the FAA has not responded to the concerns expressed by the public and elected officials from neighboring communities, as well as the congressman's office, during the drafting and finalizing of the airport development plan. The congressman stated that the FAA is proceeding under artificially imposed timelines that do not account for good-faith negotiation and conflict resolution among parties of interest to the development project. In addition, he expressed concerns about construction and operational impacts resulting from hazardous materials located at the NASA Glenn Research Center, impacts to wetlands and streams, and the FAA's compliance with Section 106 of the Historic Preservation Act.

In updating its master plan and airport noise compatibility program, the City of Cleveland afforded opportunities for public participation, considered alternatives, and tried to identify a proposal for airport development that strikes the right balance between the need to improve aviation infrastructure and the local need to maintain a high quality of life for residents in communities surrounding the airport. The FAA completed an extensive EIS process. As part of this process, the FAA also analyzed alternatives, including those evaluated by City of Cleveland. The FAA actively solicited input from citizens and officials from surrounding communities through workshops and seven listening sessions and public hearings. In response to public concerns and environmental requirements, the FAA and the City of Cleveland agreed upon a host of measures to be implemented to minimize adverse impacts described in detail in Chapter 6 of this ROD. For example, as part of the selected alternative the threshold for arrivals on Runway 5R will be displaced. This will result in a reduction of potential noise increases over Olmsted Falls.

Within the NEPA process the FAA has consistently exceeded the minimum times frames required by CEQ. On numerous occasions the FAA has granted extension of time to allow for additional community input.

Given the controversial nature of airport development proposals, it is increasingly difficult for airport sponsors to reach consensus with surrounding communities. Although concurrence is desired at Cleveland, it is not necessary and may not be possible if the airport is to be improved in the foreseeable future. While FAA lacks authority to control or direct the actions of Cleveland, the FAA does have the authority to withhold project approval, including Federal funding and the other federal actions discussed in this ROD. It was from this perspective that the FAA compared alternatives and concludes that there is no alternative environmentally superior to that proposed by Cleveland and that Cleveland's proposal does not have impacts warranting disapproval, as described in more detail in Chapter 5 of this ROD. The EIS meets requirements under all applicable federal laws. For example, the FEIS analyzes the potential construction and operational impacts of the proposed project on hazardous materials, wetlands, and streams. The Appendices to this ROD contain the signed Memorandum of Agreement and Programmatic Agreement evidencing compliance with Section 106 of the National Historic Preservation Act.

THE OHIO DEPARTMENT OF NATURAL RESOURCES (Ohio DNR)

The Ohio Department of Natural Resources (ODNR) considered it regrettable that such a significant amount of high quality aquatic habitat will be impacted as a result of the proposed project. However, they stated that since the public need criteria has apparently been met, they are supportive of the proposed mitigation for both wetland and stream habitat. The ODNR expressed concern regarding the handling of the previously State-Listed rare plant species, blunt mountain-mint. Despite the removal of the blunt mountain-mint species from the Ohio rare plant list for 2000-01, the ODNR encouraged the collection of specimens to document the occurrence of this species. They recommended that specimens be deposited at the Cleveland Museum of Natural History Herbarium and that a duplicate set be deposited at the Ohio State University Herbarium. They also suggested that seeds and cuttings of the this species be introduced into the Columbia Reservation wetland mitigation site as was initially proposed; however, the ODNR stated they did not believe it is necessary or even desirable to transplant this species to other sites. Additionally, the ODNR expressed interest in ensuring that local and Federal floodplain standards and regulations are adhered to during and after implementation.

This Record Of Decision commits the City of Cleveland to follow all ODNR recommendations concerning the treatment of the blunt mountain-mint plant species. The City of Cleveland will contact the floodplain administrators for the applicable jurisdictions affected by the proposed project for specific development standards and permits. Additionally, upon the completion of the project, the Federal Emergency Management Agency will be notified of the alteration of the watercourse.

CITIES OF BEREA, MIDDLEBURG HEIGHTS, AND STRONGSVILLE

The cities of Berea, Middleburg Heights, and Strongsville expressed their concern that the EIS is invalid. They were concerned that the noise contours established in the 2000 Part 150 Study and referenced in the FEIS do not reflect the actual noise contours created by current flight tracks. The cities stated that the Cleveland ATCT has changed its procedures since the 2000 Part 150 Study was conducted and now turns being issued to turbo-prop aircraft occur prior to departure. The cities had concerns that the noise contours established in the 2000 Part 150 Study and referenced in the FEIS do not reflect actual noise contours created by these flight tracks at present. The cities were concerned that the contours may potentially exclude houses from sound insulation that fall within the actual 65+ DNL noise contour.

During the initiation of the Part 150 Study the FAA made an administrative change to how air traffic controllers gave departure instructions to noise abatement aircraft. This change did not affect how controllers gave departure instructions to small prop aircraft.

The flight tracks, which were used to create the baseline noise contour of the EIS and Part 150 Study, including the administrative change in departure instructions to noise abatement aircraft, reflect all operating procedures in effect during 1998 and 1999, and up to the present time. These contours accurately reflect departure instructions given to small prop aircraft. An examination of documents that describe departure instructions indicates that no changes to departure instructions have been made since 1998. The noise contours presented in the EIS for 2006 Alternative 6, from which the sound insulation program would be based, accurately reflect future conditions and the forecast noise exposure. No houses from Berea, Middleburg Heights, or Strongsville are incorrectly excluded from sound insulation within the 65+ DNL noise contour.

SAFE AIR FOR ENVIRONMENT (SAFE)

Safe Air for Environment (SAFE) comprising of the cities of Bay Village, Fairview Park, Rocky River, and Westlake primarily expressed concerns regarding aircraft noise. The SAFE communities enthusiastically support the determination to permanently close Runway 18/36 as part of the proposed project. Additionally, they commented on the Part 150 Study recommendations included within the proposed project. The Safe Communities commented that an analysis of the anticipated impact of the proposed noise abatement procedural changes on noise levels at key noise sensitive locations in the communities over which the noise is to be dispersed must be completed before the Part 150 Study recommendations can be implemented. They commented that Noise Abatement Departure Procedures (NADP's) should be recommended for all aircraft and monitoring should be required to validate the data contained within the noise model. They commented that routine and effective noise monitoring must be utilized as a means of documenting abnormally high noise levels which result from the procedural deviations. Additionally, the SAFE communities commented that the adoption of real-estate disclosure policies at the local government level should be eliminated as a Land Use Management Measure.

Runway 18/36 will be closed permanently as part of the proposed project. Within the Part 150 Study, as evaluated in the FEIS, the noise analysis incorporated all proposed noise abatement procedural measures. This analysis showed a decrease in noise exposure to residences for the Proposed Action. All key noise sensitive facilities within the 65+ DNL noise contour were evaluated with the results showing a sizable reduction in the number of facilities impacted by 65+ DNL noise exposure as a result of the proposed project. Regarding NADPs, the Part 150 Study states no exclusions of aircraft base on stage or equipment; however, these procedures work better for some aircraft than others. In fact, some aircraft perform so well that utilization of NADPs would increase noise experience over some areas. Currently the City of Cleveland is developing an enhanced noise monitoring system that will be used in a manner that addresses local communities' concerns about aircraft operations and noise levels. The adoption of real estate disclosure policies is strictly voluntary on the part of the cities and local governments. The real estate disclosure policy is best suited to remain a local government action so it can be tailored to fit the need of the local area.

CITY OF OLMSTED FALLS

The City of Olmsted Falls submitted seven letters commenting on the FEIS. The first letter requested an extension of time to comment on the FEIS from August 14, 2000, to October 2, 2000. Olmsted Falls indicated that the FEIS was deficient in data and analysis and that Olmsted Falls and their consultants would have to independently analyze the integrity of the document. Examples of where Olmsted Falls considered the FEIS to be insufficient and requiring supplemental analysis include the Section 106 of the Historic Preservation Act consultations and findings. Additionally, Olmsted Falls claimed that the FEIS failed to provide any data or analysis on possible operational measures to mitigate noise impacts on their historic district. Olmsted Falls also commented that the FEIS alternatives analysis is insufficient and failed to provide data or analysis concerning the use of a displaced threshold on replacement Runway 5L/23R. They questioned the adequacy of the noise analysis based upon the data used. Additionally, Olmsted Falls stated it would need to determine whether blunt mountain-mint exists in the Lorain County mitigation site to assure mitigation of the 87 acres of habitat that would be disturbed by the Proposed Action. Olmsted Falls also needed to conduct analysis of the increased operational capacity that the City of Cleveland claimed would result from the proposed project terminal developments. Finally, Olmsted Falls commented that analysis had to be conducted to ascertain the origin of the purported decrease in noise between the years 2006 and 2016.

According to the regulations implementing NEPA, the period of time after issuance of the FEIS is a minimum 30-day waiting period before the lead agency may issue a Record of Decision. It is not an official comment period subject to extension. It is the FAA's practice to consider late comments to the extent that we can, consistent with our efforts and plans for completing the ROD. The FAA has responded in this ROD to all comments on the FEIS. The City of Cleveland and the FAA have negotiated an extensive planning and environmental review process. In this EIS the FAA has met and exceeded the requirements under NEPA, as implemented by the CEQ regulations, and other applicable Federal laws and requirements. FAA considered a wide range of

alternatives to satisfy the purpose and need of the project while reducing or eliminating existing and future impacts. FAA has fulfilled the requirements of Section 106 of the National Historic Preservation Act as shown in the signed Memorandum of Agreement, Programmatic Agreement, and supporting documentation prepared and included in the appendices of this ROD. The FAA has designed Runway 5R to include a displaced threshold for arrivals. After careful review, FAA determined that a displaced threshold on Runway 5L, a CAT III runway, is not a viable alternative mitigation measure due to safety and operational considerations. Furthermore, FAA has reviewed the FEIS analysis concerning noise impacts, impacts to blunt mountain-mint habitat, in consultation with Ohio DNR, and the claim of increased operations resulting from terminal developments. The FAA has concluded that the FEIS is sufficient and that no additional analysis is needed or warranted.

In a second letter, the City of Olmsted Falls claimed that historic structures had been omitted from the table in the FEIS that summarizes potential impacts resulting from implementation of the proposed project in 2016.

The FEIS lists the historic structures that are listed or eligible for listing in the National Register of Historic Places that were identified during the field surveys and subsequent reviews by the State Historic Preservation Office. Olmsted Falls identified three structures that were not previously considered. These three structures (Lee/Vacha House, Weber House, and Meiner House) have been determined to be contributing structures to the historic district. Because these structures are within the 65 DNL with or without the proposed project they are eligible for sound insulation. The mitigation must be consistent with the Programmatic Agreement, such that the sound insulation does not affect the integrity of the historic district. Additionally, the Harding house, which is just outside the 2006 65 DNL noise contour for the proposed project, has been added to the Programmatic Agreement as being contiguous to the project area.

In a third letter Olmsted Falls commented that the FEIS utilized an incorrect analysis of baseline conditions. They claimed the impacts of the project should be compared to conditions existing before initiation of the project (1999-2000). Olmsted Falls also commented that the FEIS cannot predict future baselines for 2006 and 2016 based on demand caused by natural growth and that the FEIS failed to properly analyze the required spectrum of reasonable alternatives. Additionally, they commented that the FEIS omits analysis of the proposed project's growth inducing impacts. Olmsted Falls also questioned the adequacy of the FEIS analysis of the project's impact on neighboring parks and historic districts under Section 4(f) of the Department of Transportation Act and Section 106 of the National Historic Preservation Act. Olmsted Falls commented that the FEIS air quality analysis is inadequate and its conclusions inaccurate and also claimed that the FEIS fails to properly analyze the water quality impacts of the proposed project, including a non-degradation, minimal degradation, and

mitigation alternative, as required by the Ohio Environmental Protection Agency Anti-Degradation Policy. The City of Olmsted Falls claims in this letter that given the errors and omissions in the FEIS, a supplemental Environmental Impact Statement is required.

The FAA's choice of baseline and analysis of alternatives complies with NEPA. The EIS properly used the No-Action Alternative as a construct for the concept of a baseline for purposes of comparing the predicted effects of the Proposed Action and alternatives in the future. The FAA used its own independently prepared forecasts of aviation demand for preparation of the EIS. This forecast directly correlates growth in aviation traffic, local demographics, economic factors, and national trends. The EIS provides a detailed comparison of the environmental consequences of a no-action alternative, the Proposed Action Alternative, and four reasonable alternatives to the proposed project in 2006. Additionally, the FEIS discusses a wide range of alternatives which were considered, but were not retained for detailed study because they were not feasible or capable of meeting the project's purpose and need. The FEIS provides a full analysis of the proposed project's growth inducing impacts in Section 5.4, *Socioeconomic Impacts*. Furthermore, the FEIS fulfills Section 4(f) and NHPA Section 106 requirements. As evidence of compliance with Section 106, the executed Memorandum of Agreement, Programmatic Agreement, and comment letters indicating compliance are contained in the appendices of this ROD. The air quality analysis for the EIS was conducted pursuant to the Clean Air Act, as implemented by EPA regulations, and the FAA's *Air Quality Procedures for Civilian Airports and Air Force Bases* manual as required. Air quality conformity for the Proposed Action has been reviewed by the USEPA. By their letter dated January 31, 2000, the USEPA states that the air quality issues were adequately identified and discussed in the DEIS. Additionally, by their letter of August 11, 2000, the USEPA stated that the environmental concerns identified in their January 31, 2000, letter (non air quality) have been adequately addressed within the FEIS and they have no objection to project implication. In regards to water quality, the analysis presented in the FEIS complies with FAA Orders 5050.4A and 1050.1D, as well as the requirements of NEPA. The Ohio Anti-Degradation Policy is administered through Section 401 of the Clean Water Act, a process separate from NEPA. The FAA has reviewed the FEIS and finds the FEIS to meet its obligations under NEPA and other applicable federal laws. This ROD is based on the findings of the FEIS.

In a final fourth letter the City of Olmsted Falls submitted supplemental comments regarding the air quality and noise analyses contained in the FEIS. Included with the letter were two reports, one regarding air quality and the other regarding a noise assessment. The City of Olmsted Falls stated that the air quality supplement was required due to inadequacy of data in Appendix D of the FEIS. The letter states that the air quality report concludes that the air quality impacts of the proposed project are not de minimis as contended in the FEIS. They also state that the air quality analysis contained in the FEIS completely ignores the potential impact of the Ozone Transport Rule and its effect on conformity. The City of Olmsted Falls claims that based on their findings, the proposed project can not be approved or funded until a General Conformity Determination is completed and properly circulated for review. The supplemental report prepared by the City of Olmsted Falls on noise concluded that the noise contours shown

in the FEIS for the proposed project could potentially increase by 700-900 feet, or as much as 100 acres into residential, thus incompatible, areas of Olmsted Falls. Their report also concluded that the use of a 2,000 foot displaced threshold on replacement Runway 5L/23R would cause a retraction in the 65 DNL noise contour by approximately 1,200 feet out of Olmsted Falls residential areas, therefore, constituting a reasonable mitigation measure for the proposed project's noise impacts.

As stated above, the air quality analysis for the EIS was conducted pursuant to the Clean Air Act, as implemented by USEPA regulations, and FAA's *Air Quality Procedures for Civilian Airports and Air Force Bases* manual as required. Air quality conformity for the Proposed Action as discussed above has been found to be by the USEPA adequately identified and discussed in the EIS. The 1990 CAAA (Clean Air Act Amendments of 1990) established the Ozone Transport Region (OTR) as designated by USEPA to include 11 northeastern states (not including Ohio), parts of Virginia, and the District of Columbia. The OTR includes areas impacted by the transport of ozone to downwind sources. Regulations for the OTR are in 40 CFR Part 93.158. As Ohio is not included in the northeast states for these regulations, the OTR regulations do not apply for this project. In response to the comments received from the City of Olmsted Falls regarding noise impacts, the FAA has reviewed and verified the noise contour analysis presented in the FEIS. These noise contours were prepared in compliance with all applicable FAA guidelines and accurately depict the predicted noise exposure resulting from existing and forecast airport operations. Furthermore, the FAA has reviewed the proposed use of a displaced threshold on Runway 5L/23R and determined that this alternative is not viable due to safety and operational considerations.

Olmsted Falls also transmitted the above referenced reports to the Administrator of the FAA, Jane Garvey. An additional letter dealt with changes Olmsted Falls desired to see in the Section 106 Memorandum of Agreement (MOA). They requested language be deleted from the MOA, which stated that the FAA has taken into account the effects of the undertaking on historic properties. The FAA did not make these changes because it had taken into account the effects to historic properties. In their last letter, Olmsted Falls stated that they would not sign the MOA because the Record of Decision for the environmental analysis of the project has not been approved and there was no assurance that the expansion would go forward, as currently planned. The FAA will offer Olmsted Falls an opportunity to sign the MOA after the Record of Decision is approved.

OLMSTED FALLS AIRPORT COMMITTEE

The Olmsted Falls Airport Committee commented on the FEIS regarding the following subjects: forecast of aviation demand, capacity, alternatives analysis, displaced threshold on Runway 5L, IX Center development, fuel handling, air quality, fill dirt, deicing fluids, co-generators, and permits. Concerning each topic, the committee poses specific questions that they believed were unanswered in the DEIS process. In addition, the committee states that the elimination of the alternatives proposing a new Runway 10R/28L having a separation greater than 1,241 feet and the alternative proposing an alternative airport location is unacceptable. The Olmsted Falls Airport

Committee also commented that a displaced threshold on Runway 5L is essential since it would be the primary arrival runway. They also commented that the FEIS should consider the IX Center and any plans for runway development in its place.

Many of the questions posed by the Olmsted Falls Airport Committee asked for specific values (data) that were requested within the DEIS process and responded to in the FEIS. This included such questions as, “how many thousand gallons of jet fuel were delivered to the airport for each of the last five years?” The quantities and properties requested in the comment letter that were needed for the environmental evaluation were incorporated as assumptions within the models and analysis to determine the impacts that would result from the proposed project. Appendix A contains the response to their request. However, some of the values requested were not needed in the EIS (modeling) process. Model data was provided to interested parties upon request. The analyses performed for this EIS were consistent with the procedures approved by the FAA, EPA, and other agencies and organizations having expertise in the specific impact categories assessed. The alternatives analysis presented in the FEIS describes the evaluation process and specifically why the new Runway 10R/28L and alternative airport location alternatives were eliminated from consideration for this project. A displaced threshold on Runway 5L has been evaluated by the FAA and determined not to be a viable alternative due to safety and operational considerations. The IX Center location has not been proposed for runway development at this time. The preliminary alternatives analysis considered this as an alternative to the Proposed Action and found it not to be a feasible alternative to the Proposed Action. At such time the City of Cleveland proposes this alternative, a full planning and environmental review process would be completed.

OHIO PUBLIC INTEREST RESEARCH GROUP (PIRG)

The Ohio Public Interest Research Group (PIRG) requested an extension of the deadline for comments received on the FEIS. The PIRG commented that an extension was needed because PIRG did not receive a copy of the FEIS despite the submission of comments on the DEIS. PIRG expressed concern about the lack of time to review the FEIS to determine how well issues raised in their comments of the DEIS were addressed. PIRG anticipated that it would require at least 45-60 days to review the FEIS and thus requested a 45-60 day extension of the comment period.

A copy of the FEIS was sent to PIRG shortly after originally being distributed. It is the FAA’s practice to consider late comments to the extent that we can, consistent with our efforts and plans for completing the ROD. The FAA has responded in this ROD to all comments on the FEIS. According to CEQ regulations, the period of time after issuance of the FEIS is a minimum 30-day waiting period before the lead Federal agency may issue a Record of Decision, not an official comment period subject to extension.

CITIZENS

Ms. Karen J. Weiland, a City of Olmsted Falls resident and a NASA employee, commented that the proposed project would have a large, negative, long-term impact on the community of Olmsted Falls and its surroundings. She also expressed concern regarding the negative impact of the airport being extended onto property currently owned by NASA. She believes that the shift and extension of Runway 5R/23L would result in Olmsted Falls receiving most of the noise from the airport with little direct economic benefit. She stated that the easements associated with the sound insulation program lowered property values and that the sound insulation was not a satisfactory mitigation technique. Ms. Weiland also commented on the project's impacts to wetlands, streams, and the Metroparks property. Additionally, she commented that the FEIS does not address the handling of hazardous materials present at the South 40 properties and that construction in that area should be put on hold until the Human Health Risk Assessment (HHRA) is complete. In the summary to the letter Ms. Weiland stated that the environmental cost of a project this size far outweighs the economic benefits.

The FAA has assessed and disclosed the impacts to the City of Olmsted Falls that may result from the proposed project. Although the runway shift and extension is in the direction of Olmsted Falls, the runway end which supports takeoffs in the direction of Olmsted Falls is only approximately 1,000 feet closer and the arrivals threshold would remain in its current location. Very little additional noise exposure can be expected from this small adjustment. Noise abatement measures coupled with the phase out of older noisier jet aircraft shows a reduction of noise exposure over Olmsted Falls for the future. Furthermore, the location of the airport relative to the City of Olmsted Falls offers multiple economic benefits as described in the FEIS. The impacts to wetlands and streams will be mitigated in accordance with all Federal and state regulations and permits. The HHRA will be completed and evaluated before construction begins on the South 40 properties. As to the balancing of costs and benefits, see the response below concerning FAA's role in deciding whether to approve the project.

It should be noted that, although Ms. Weiland is a NASA employee, her comments do not reflect the official views, opinions, or positions of NASA, which are contained in this document.

Mr. Craig Nedbalski, a City of Brook Park resident, commented on the proposed project funding and design and build contract allocations. He urged the FAA to reject the airport development project.

The FAA has no authority regarding the awarding of local contracts. The FAA is required to conduct environmental review to consider the potential impacts of proposed aviation projects in deciding whether to approve the Federal actions necessary to support the project, such as approval to revise the airport layout plan and determination of eligibility for Federal funding. As discussed in response to Congressman Kucinich above, while FAA lacks authority to control or direct the actions of Cleveland, the FAA does have the authority to withhold project approval, including Federal funding and the

other Federal actions discussed in this ROD. It was from this perspective that the FAA compared alternatives and concludes that there is no alternative environmentally superior to that proposed by Cleveland and that Cleveland's proposal does not have impacts warranting disapproval. It should be noted that this ROD does not commit any Federal funding.

Sara Nedbalski, a City of Brook Park resident, commented on the proposed impact to animals, the demolition of a waterfall (old mill site), and recreational impacts. The City of Cleveland has developed a wetland mitigation plan. Research conducted for the EIS, found that there would be no impact to the old mill site. Recreational activities will remain the same with or without the proposed development.

ADDITIONAL CORRESPONDENCE

On November 6, 2000, Chevalier, Allen & Lichman, representing the City of Olmsted Falls, submitted additional comments via facsimile transmittal.

Due to the date of its transmittal, this letter has not been addressed in the prior sections of the ROD, but are addressed in its entirety in Appendix A, pages L11-1 through L11-7.

10. FEDERAL AGENCY FINDINGS

In accordance with applicable law, the FAA makes the following determinations for this project, based upon the appropriate information and data contained in the FEIS and the administrative record.

A. The project is consistent with existing plans of public agencies for development of the area surrounding the airport (49 U.S.C. 47106(a)(1)).

The determination prescribed by this statutory provision is a precondition to agency approval of airport project funding applications. It has been the long-standing policy of the FAA to rely heavily upon actions of metropolitan planning organizations (MPOs) to satisfy the project consistency requirement of 49 U.S.C. 47106 (a) (1) [see, e.g., *Suburban O'Hare Com'n v. Dole*, 787 F.2d 186, 199 (7th Cir., 1986)]. Furthermore, both the legislative history and consistent agency interpretations of this statutory provision make it clear that reasonable, rather than absolute consistency with these plans is all that is required.

Under the provisions of both Federal and state law, the Northeast Ohio Areawide Coordinating Agency (NOACA) has been designated as the MPO for the Cleveland metropolitan area and given primary responsibility for transportation planning in the region. On July 13, 2000, NOACA notified the FAA that it supported the expansion plan. NOACA stated that it "recognizes the significance and importance of Cleveland Hopkins International Airport for the region's economic future and for the region's air connection to the rest of the world." NOACA reviewed the overall airport plans as they relate to the relocation of Brookpark Road and reconfiguration of the ingress-egress road system. The NOACA Governing Board endorsed both road projects in support of the airport. On August 11, 2000, NOACA named these projects as its number one regional priority for funding from the State of Ohio's Transportation Review Advisory Council (TRAC) for fiscal year 2005. Furthermore, NOACA identified that the sponsor's Proposed Project (Alternative 6) is reasonably consistent with the plans of public agencies having broad geographic responsibilities in the area.

The FAA finds that the project is reasonably consistent with the existing plans of public agencies authorized by the state in which the airport is located to plan for the development of the area surrounding the airport. The FAA is satisfied that it has fully complied with 49 U.S.C. 47106 (a)(1).

In addition, the proposed Hopkins expansion lies entirely within the boundaries of the airport and within the boundaries of the City of Cleveland or on federally owned land, with the possible exception of the land containing the IX Center. The proposed expansion is reasonably consistent with the City of Cleveland's General Plan as described in Section 5.2.7 of the FEIS. The City of Cleveland Planning Commission

stated in a letter, dated July 20, 2000, that the City of Cleveland planning department has reviewed the proposed development plan as set forth in the FEIS and have found the plan to be consistent with the City of Cleveland's adopted General Plan known as Civic Vision 2000.

The proposed expansion is also reasonably consistent with comprehensive plans that have been adopted by jurisdictions in the vicinity of the airport as described in Section 5.2.7 of the FEIS. However, the FAA has also reviewed and considered the substantial documentation in the administrative record demonstrating that throughout the environmental process the City of Cleveland has shown concern for the impact of the proposed development actions on surrounding communities. Implementation of the City of Cleveland's preferred alternative would not be expected to result, after mitigation, in any significant increases of noise on land of neighboring jurisdictions.

In making its determination under *49 U.S.C. 47106 (a) (1)*, the FAA has considered the fact that local governments have been represented by NOACA and have participated as members of that organization in its decision to authorize the new runway project at Hopkins. The FAA has also recognized the fact that none of these jurisdictions has regulatory authority over airport operations, since long-established doctrines of Federal preemption preclude these communities from regulating aircraft operations conducted at Hopkins.

B. The interest of the communities in or near where the project may be located was given fair consideration (*49 U.S.C. 47106(b)(2)*).

The determination prescribed by this statutory provision is a precondition to agency approval of airport development project funding applications. The regional planning process over the past decade and the environmental process for this project-specific EIS, which began in 1998 and extended to this point of decision, provided numerous opportunities for the expression of and response to issues put forward by communities in and near the project location. Nearby communities and their residents have had the opportunity to express their views during the DEIS public comment period, at a public hearing, as well as during the review period following public issuance of the FEIS. The FAA's consideration of these community views is set forth in FEIS Appendices S and T and in Appendix A of this ROD.

Thus, the FAA has determined that throughout the environmental process, beginning at its earliest planning stages, fair consideration was given to the interest of communities in or near the project location.

C. The State of Ohio has certified in writing that there is reasonable assurance that the project will be located, designed, constructed and operated in compliance with applicable air and water quality standards (49 U.S.C. Section 47106©(1)(B)).

The determination prescribed by this statutory provision is a precondition to agency approval of airport development project funding applications involving a new runway. By letter dated May 18, 2000 (Appendix A of the FEIS and Appendix B of this ROD), after consultation with the OEPA (the Governor's designated agency for air and water quality), the Governor of Ohio certified that there is a reasonable assurance that the project will meet all applicable air and water quality standards.

The FAA concludes that the airport project evaluated in the FEIS will be located, designed, constructed, and operated so as to comply with applicable air and water quality standards.

D. Effect on Natural Resources (49 U.S.C. Section 47106©(1)©).

Under this statutory provision, after consultation with the Secretary of the Interior and the Administrator of the EPA, the FAA may approve funding of a new runway having a significant adverse effect on natural resources, only after determining that no possible and prudent alternative to the project exists and that every reasonable step has been taken to minimize the adverse effect.

FAA has consulted extensively with both the Departments of Interior and the EPA. The FAA finds that the selected alternative would have significant adverse impacts in the categories of noise and compatible land use, historic properties, wetlands, and water quality, without mitigation described in Section 6.2 of the FEIS. However, given the inability of other alternatives discussed in the FEIS to satisfy the purpose and needs of the project, we have concluded that no possible and prudent alternative exists to development of the proposed alternative. As discussed in detail in Section 6.2 of the FEIS and Chapter 6 of this ROD, and documented throughout the FEIS and the administrative record, every reasonable step has been taken to minimize significant adverse environmental effects resulting from the project.

The FAA has decided to condition approval of the proposed alternative upon the mitigation measures described in the FEIS and in Chapter 6 of this ROD. This condition will be enforced through a special assurance included in future Federal airport grants to the City of Cleveland.

The FAA has determined that all reasonable steps have been taken to minimize any significant adverse effects on natural resources through mitigation.

E. Appropriate action, including the adoption of zoning laws, has been or will be taken to the extent reasonable to restrict the use of land next to or near the airport to uses that are compatible with normal airport operations (49 U.S.C. Section 47107(a)(10)).

The sponsor assurance prescribed by this statutory provision is a precondition to agency approval of airport development project funding applications. In addition to the actions described in Section A in this chapter, the City of Cleveland has worked extensively with local jurisdictions to develop and implement plans and policies to ensure compatible land use in the airport vicinity.

FEIS Section 5.2 describes the current status of zoning and land use planning for lands near the airport. The airport has an existing noise compatibility program, designed to either reduce noise at the source or mitigate the noise received by sensitive land uses in the airport vicinity. As explained in the FEIS, with planned mitigation, development of the project will not result in any increased significant impacts on non-compatible land uses.

The FAA requires satisfactory assurances, in writing, that appropriate action, including the adoption of zoning laws, has been or will be taken to restrict, to the extent reasonable, the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft.

Based upon the administrative record for this ROD, the FAA has concluded that existing and planned noise reduction programs at Hopkins provide for appropriate action to ensure compatible land use in the airport vicinity.

F. Clean Air Act, Section 176 © (1) Conformity Determination Regarding Cleveland Hopkins International Airport Master Plan Update Development Actions (42 U.S.C. Section 7506©).

The determination prescribed by this statutory provision is a precondition for Federal Agency support or approval of airport development projects. The USEPA regulations generally governing the conformity determination process are found at 40 CFR Part 93, Subpart B, Sections 93.154 through 93.159, 40 CFR Part 50, and 40 CFR Part 51, Appendix W.

Because Hopkins is located in Cuyahoga County, which has been designated as a moderate nonattainment area for particulate matter (PM₁₀), a primary nonattainment area for sulfur dioxide (SO₂), and a moderate maintenance area for ozone (O₃), the FAA needed to determine that the project would be consistent with the purpose of the Ohio state air quality implementation plan and not cause or contribute to any new violations of the NAAQS in the project area or the metropolitan area. The air quality analysis conducted for the FEIS indicated that, in 2006 the estimated air emissions caused by the proposed project would be de minimis under 40 CFR Part 93 Subpart B and would result in ambient pollutant concentration levels less than the NAAQS as

prescribed under 40 CFR Part 50 and adopted by reference as the Ohio and Cuyahoga County Ambient Air Quality Standards (AAQS). The FEIS showed that the project would not increase the frequency or severity of any existing violations of any NAAQS and that the project would not delay timely attainment of the NAAQS or any required interim emission reduction in the project area as described in the Ohio State Implementation Plan. Appendix B of the ROD presents the letter from the USEPA Region 5, dated August 11, 2000, which stated the agency reviewed the FEIS pursuant to Section 309 of the Clean Air Act and the agency had no objection to project implementation.

Based upon the air quality analysis in the FEIS and its appendices and supporting material in the administrative record, the FAA concluded that the Cleveland Hopkins project is de minimis under Section 176©(1) [42 USC 7506c] of the Clean Air Act Amendments of 1990, as implemented by 40 CFR Part 93, Subpart B.

G. For this project, involving new construction which will directly affect wetlands, there is no practicable alternative to such construction. The Proposed Action includes all practicable measures to minimize harm to wetlands that may result from such use (*Executive Order 11990, as amended*).

This executive order requires all Federal agencies to avoid providing assistance for new construction located in wetlands, unless there is no practicable alternative to such construction, and all practicable measures to minimize harm to wetlands are included in the action.

The FEIS, Section 5.11 documents that the selected alternative (Alternative 6) will directly affect approximately 87.85 acres of wetlands. There is no reasonable or practicable alternative to developing a new runway at Hopkins resulting in these wetland impacts, given the purpose and need for the project, consideration of environmental and economic factors, and land use issues, as shown in Chapter 3 and Section 5.11 of the FEIS.

Section 5.11 indicates that the other development alternatives (Alternatives 2, 3, 4, and 5) would result in similar impacts to wetlands (76.16, 87.16, 87.40, and 87.85 acres, respectively) as compared to Alternative 6 (87.85 acres). This is primarily due to FAA requirements for an Object Free Area (OFA) at the runway end. The OFA clearing standards prohibit a scrub/shrub or forested wetland in the approach area of the runway. FAA's policy is to extend the OFA beyond the required 1,000 feet to the end of the airport property or end of the runway protection zone, where practicable. With this requirement, the runway impacts for the different alternatives are similar. The FEIS demonstrates that these are low quality wetlands. Two of their significant functions, floodwater attenuation and floodwater storage, would be fully mitigated by the construction of the on-airport detention basin. Additional wetland functions for these wetlands will be mitigated as part of the overall wetlands mitigation program.

Alternatives of staggering runway ends or relocating the entire runway further northeast are not practicable, because, among other reasons, they would increase delays, have additional detrimental environmental effects (impacts to other wetlands, streams and relocation of several thousand people), require considerable additional cost (relocation of I-480), and complicate air traffic control procedures.

The FAA finds that there is no practicable alternative to the proposed development's use of the 87.85 acres of wetlands located on the airport. This is due to the proposed replacement runway and runway extension being determined by the only feasible and prudent location for siting at the airport. The southwest quadrant of the airport, where the affected wetlands are located, is the only remaining mostly undeveloped portion of the site, and there is very limited space available overall in which to accomplish airport improvements.

Considering these and other reasons described more fully in Chapter 3 of the FEIS, and taking into consideration cost, existing air traffic control and aviation technology and logistics, in light of the overall purpose of the runway project, the FAA finds that there is no practicable alternative to the wetland loss associated with the proposed development.

As noted in the FEIS Section 5.11, the ACOE has worked with the FAA to ensure that all practicable measures will be taken to minimize harm to wetlands, impacted through development of the selected alternative. This will be accomplished by using BMPs during construction and developing a wetland compensatory mitigation site. Following issuance of this ROD, the ACOE, in consultation with the OEPA, will complete its processing of a Section 404 permit and Section 401 certification, required for the City of Cleveland to proceed with development impacting wetlands. The project approvals in this ROD and this wetlands determination are expressly conditioned upon permit approval and conditions to be outlined by the ACOE, and upon the City of Cleveland accomplishing the wetlands mitigation measures identified in the FEIS and any ACOE permit approval.

Although it is generally preferable to attempt to mitigate wetland loss through replacement wetlands in the same watershed, this is not the case where such replacement would create man-made wetlands in the vicinity of airport aircraft movement areas. FAA Advisory Circular 150/5300-33, dated May 1, 1997, states the FAA's policy that wetland mitigation projects located within 10,000 feet of airports serving turbine-powered aircraft (such as Cleveland Hopkins), present a safety hazard as attractants of wildlife that significantly increase the risk of bird/aircraft strikes.

The safety standards set forth in this FAA policy statement are recommended for the operators of all public-use airports. Furthermore, for airport sponsors who are the recipients of Federal grant funding, adherence to safety standards set forth in FAA advisory circulars is a requirement of standard grant assurance #34, as acknowledged in paragraph 4-6.a. of Advisory Circular 150/5200-33.

This recent agency policy guidance supports the FEIS determination that the replacement wetlands for the Cleveland Hopkins development actions should not be located in the vicinity of the airport. Given the potential hazard associated with the creation of wildlife attractions within 10,000 feet of jet runways, the FAA, ACOE, and Ohio EPA agreed that it is prudent to permit the City of Cleveland to replace these impacted wetlands outside of the airport's immediate watershed. The replacement wetlands are located in the same USGS hydrologic unit.

As detailed in the FEIS Section 6.2, a wetland mitigation program has been developed to offset the impacts of the project and to recognize other long-term biological problems. The mitigation plan calls for replacing the filled wetlands. Several candidate wetland mitigation sites have been examined. Final mitigation requirements will be determined during the Section 404 permit application and review process in consultation with the ACOE.

H. For this project, involving an encroachment on a floodplain, there is no practicable alternative to the selected development of the preferred alternative. The Proposed Action conforms to all applicable state and/or local floodplain protection standards (*Executive Order 11988*).

This executive order, together with the applicable DOT order, establish a policy to avoid supporting construction within a 100-year floodplain where practicable, and where avoidance is not practicable, to ensure that the construction design minimizes potential harm to or within the floodplain.

Section 5.12 of the FEIS explains that, without mitigation, construction and operation of the select alternative (Alternative 6) could result in adverse floodplain impacts in the Abram Creek floodplain.

As shown in the FEIS and explained in the "Alternatives" discussion in Chapter 5 of this ROD, there is no practicable alternative to the selected alternative. Development of this alternative achieves the purposes and needs for the projects in the most cost-effective manner with the least impact on the surrounding land uses. As shown in the FEIS Section 6.2, a mitigation program has been designed such that a stormwater detention basin and culvert will be designed and constructed such that there would be no net loss of flood storage capacity or increased risk of loss of human life or property damage. This program has been designed to comply with applicable requirements of the permitting agencies, with whom the FAA and the City of Cleveland have been coordinating, in order to ensure that the construction design minimizes potential harm to or within the floodplain. Each of these agencies have agreed with the mitigation plan in concept, and coordination will continue throughout the permitting process.

I. Relocation Assistance (42 U.S.C. Section 4601 et seq.).

These statutory provisions, imposed by Title II of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, require that state or local agencies, undertaking Federally-assisted projects which cause the involuntarily displacement of persons or businesses, must make relocation benefits available to those persons impacted.

As detailed in the FEIS Section 5.3, the selected development alternative will displace approximately four (4) businesses.

The FAA will require the City of Cleveland to provide fair and reasonable relocation payments and assistance payments pursuant to the provision of the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Comparable decent, safe, and sanitary replacement properties are available on the open market.

J. For any use of lands with significant historic sites, there is no prudent and feasible alternative to using the land; the project includes all possible planning to minimize harm resulting from the use (49 U.S.C. Section 303©).

The selected alternative would have a significant adverse affect upon and result in the use or constructive use of historic properties protected under 49 U.S.C. Section 303©, commonly known as Section 4(f) of the Department of Transportation Act. The selected alternative would require the demolition of the NASA Rocket Engine Test Facility (RETF), a National Historic Landmark listed in the National Register of Historic Places. Demolition is an actual, physical taking within the meaning of Section 4(f). Additionally, the selected alternative would significantly increase noise levels over four historic properties (two have already been sound insulated), resulting in a constructive use. The project would newly impact two structures of historic significance (St. Patrick School and Grasella House) as described in Section 5.8 of the FEIS.

In terms of avoidance, review of the alternatives evaluation prepared in Chapter 3 of the FEIS indicated that there are no prudent and feasible alternatives to the removal of the RETF and to the constructive use of these historic properties. Through the EIS and National Historic Preservation Act Section 106 process, in consultation with the Ohio SHPO and interested parties, the FAA has evaluated alternatives to minimize the use of these properties. The FAA has coordinated with the public and agencies having jurisdiction concerning the impacted properties to determine site significance and to evaluate feasible mitigation measures to meet Section 106 and Section 4(f) requirements. The agencies involved in the coordination were the DOI/National Parks Service, the Advisory Council, the Ohio SHPO, the City of Cleveland, the City of Brook Park, the City of Olmsted Falls, and Olmsted Township.

The Ohio SHPO has been consulted concerning potential adverse impacts of the undertaking upon historic properties. Sound attenuation and treatment measures for the four adversely affected historic properties are included within the MOA for the selected alternative, Alternative 6. It stipulates measures to be implemented to avoid,

reduce, or mitigate the adverse effects this project will have on historic properties. The MOA was signed by the FAA, the Ohio SHPO, and the Advisory Council. The City of Cleveland signed as a concurring party. The City of Olmsted Falls was invited to participate as a concurring party to the MOA, but they chose not to concur in the MOA. The Advisory Council executed the MOA on October 16, 2000. A copy of the MOA is included in Appendix C of this ROD.

Based upon the planned mitigation (discussed at FEIS Section 6.2), the FAA concludes that there has been all possible planning to minimize any harm resulting from the actual and constructive use of historic properties.

K. There are no disproportionately high or adverse human health or environmental effects from the project on minority or low-income populations (*Executive Order 12898*).

Environmental justice concerns were addressed in Section 5.3 of the FEIS, and it was concluded that no minority or low-income group would be disproportionately affected by displacements occurring as a result of the selected alternative. The FEIS contains a discussion of environmental justice issues relative to the selected alternative. It was concluded that the impacts from the selected alternative will not have a disproportionately high or adverse effect on minority or low-income communities.

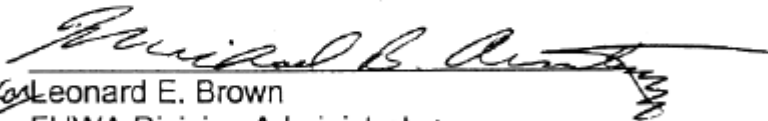
L. The FAA has given this proposal the independent and objective evaluation required by the Council on Environmental Quality (*40 C.F.R. Section 1506.5*).

As the FEIS outlined, a lengthy process led to the ultimate identification of the selected alternative, disclosure of potential impacts, and selection of appropriate mitigation measures. This process began with the FAA's competitive selection of an independent EIS contractor, continuing throughout the preparation of the DEIS and FEIS, and culminating in this ROD. The FAA provided input, advice, and expertise throughout the planning and technical analysis, along with administrative direction and legal review of the project. From its inception, the FAA has taken a strong leadership role in the environmental evaluation of this project and has maintained its objectivity.

11. APPROVALS AND FAA ORDER

FHWA APPROVAL

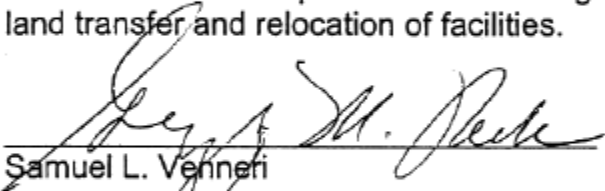
I have carefully considered FHWA's goals and objectives in relation to the surface transportation aspects of the proposed development actions discussed in the FEIS. After careful review of Section 5.19 of the FEIS and Chapter 10 of this ROD, I find the surface transportation projects described in this ROD meet FHWA's NEPA requirements.


Leonard E. Brown
FHWA Division Administrator
Ohio Federal Aid Division

11/8/2000
Date

NASA APPROVAL

I have carefully considered NASA's goals and objectives in relation to the land release aspects of the proposed development actions discussed in the FEIS. After careful review of the FEIS, comments received on the FEIS, and responses to the comments, I find that the NEPA process culminating in this ROD meets NASA's requirements for land transfer and relocation of facilities.

for 

Samuel L. Veneri
Associate Administrator for Aero-Space Technology
NASA Approving Official

11/7/00
Date

FAA APPROVAL AND ORDER

Having determined that the agency's preferred alternative, Alternative 6, is the only possible, prudent, and practicable alternative, the remaining decision is whether to approve or not approve the agency actions necessary for implementation of the project. Approval would signify that applicable Federal requirements relating to airport development planning have been met, and would permit the City of Cleveland to proceed with the proposed development and possibly receive Federal funding for eligible items. Not approving these actions would prevent the City of Cleveland from proceeding with Federally supported development in a timely way.

I have carefully considered the FAA's goals and objectives in relation to various aeronautical aspects of the proposed development actions discussed in the FEIS. These include the purposes and needs to be served by the projects, the alternative means of achieving them, the environmental impacts of these alternatives, the mitigation necessary to preserve and enhance the environment, and the costs and benefits of achieving these purposes and needs in terms of effective and fiscally responsible expenditure of Federal funds. I have also considered comments received by the FAA on the social, environmental, and economic impacts of the Proposed Actions.

Therefore, under the authority delegated to me by the Administrator of the FAA, I find that the projects in the ROD are reasonably supported and approved. For those projects I, therefore, direct that action be taken to carry out the agency actions discussed more fully in Chapter 3 of this ROD, including:

- A. Approval under existing or future FAA criteria of project eligibility for Federal grant-in-aid funds and/or PFC, including the following elements:
 - 1. Land Acquisition
 - 2. Site Preparation
 - 3. Runway, Taxiway, and Runway Safety Area Construction
 - 4. Landside Developments, including Roadways
 - 5. Certain Navigational Aids
 - 6. Relocation of NASA Facilities and Transfer of NASA Property
 - 7. Terminal Facility Improvements and New Terminal Facilities
 - 8. Environmental Mitigation

- B. Approval of a revised ALP, based on determinations through the aeronautical study process regarding obstructions to navigable airspace, and no FAA objection to the airport development proposal from an airspace perspective.

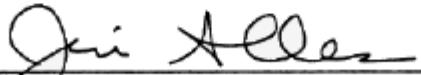
- C. Approval for relocation and/or upgrade of various navigational aids.

- D. The development of air traffic control and airspace management procedures to effect the safe and efficient movement of air traffic to and from the proposed new runway, including the development of a system for the routing of arriving and departing traffic and the design, establishment, and publication of standardized flight operating procedures, including instrument approach procedures and standard instrument departure procedures.

- E. Review and subsequent approval of an amended Airport Certification Manual for Cleveland Hopkins International Airport (per 14 CFR Part 139).

Finally, based upon the administrative record of this project, I certify, as prescribed by 49 U.S.C. 44502 (b), that implementation of the proposed project is reasonably necessary for use in air commerce.

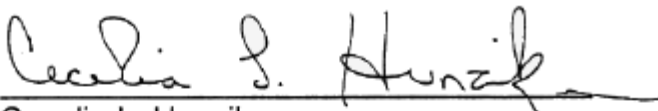
Concur:



Jeri Alles
Manager Airports Division, Great Lakes Region

11-8-00
Date

Approved:



Cecelia L. Hunziker
Regional Administrator, Great Lakes Region

11-8-00
Date

RIGHT OF APPEAL

This decision constitutes the Federal approval for the actions identified above and any subsequent actions approving a grant of Federal funds to the City of Cleveland. Today's action is taken pursuant to 49 U.S.C. Subtitle VII, Parts A and B, and constitutes a final order of the Administrator subject to review by the Courts of Appeals of the United States in accordance with the provisions of 49 U.S.C. Section 46110.

LIST OF ABBREVIATIONS AND ACRONYMS

AAIA	Airport & Airway Improvement Act
ACOE	U.S. Army Corps of Engineers
ADP	Airport Development Plan
AF	Airway Facilities Division, FAA
AGL	Above Ground Level
ALP	Airport Layout Plan
ALS	Approach Light System
ALSF-II	High Intensity Approach Lighting System with Sequenced Flashers
AP	Airports Division, FAA
ARSA	Airport Radar Service Area
ARSR	Air Route Surveillance Radar
ARTCC	Air Route Traffic Control Center
ARTS	Automated Radar Terminal System
ASR	Airport Surveillance Radar
AT	Air Traffic Division, FAA
ATA	American Trans Air or Air Transport Association
ATC	Air Traffic Control
ATCT	Airport Traffic Control Tower
BMP	Best Management Practice
BRL	Building Restriction Lines
BTU	British Thermal Unit
CAB	Civil Aeronautics Board
CASA	Converging Approach Spacing Aid
CATI	Category I Instrument Landing System (uses MALSR)
CATII	Category II Instrument Landing System (uses ALSF-2)
CATIII	Category III Instrument Landing System (uses ALSF-2)
CBRA	Coastal Barriers Resources Act
CE	Categorical Exclusion
CEQ	Council on Environmental Quality
CEQ Regulations	Council on Environmental Quality Regulations Implementing The National Environment Policy Act
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CL	Centerline Lights
CO	Carbon Monoxide
cy	Cubic Yards
CZMA	Coastal Zone Management Act
CZMP	Coastal Zone Management Program
dB	Decibels
dBA	Decibels A-weighted
D/C	Demand/Capacity Ratio

DEIS	Draft Environmental Impact Statement
DNL	Day-Night Average Sound Level
DOI	Department of the Interior
DOT	Department of Transportation
EA	Environmental Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Agency
F&E	Facilities and Equipment
FAA	Federal Aviation Administration
FAA Order 1050.1D	Policies and Procedures for Considering Environmental Impacts
FAA Order 5050.4A	Airport Environmental Handbook
FAR	Federal Aviation Regulation
FBO	Fixed Base Operator
EDDA	Environmental Due Diligence Audit
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FF	Federal Finding
FHWA	Federal Highway Administration
FIA	Federal Flood Insurance Administration
FIRM	Flood Insurance Rate Map
FIS	Federal Inspection Services
FO	Forested Land
FONSI	Finding of No Significant Impact
FPPA	Farmland Protection Policy Act
FR	Federal Register
FS	Flight Standards Division, FAA
GA	General Aviation
GRE	Ground Runup Enclosure
GS	Glide Slope
HC	Hydrocarbons
HHRA	Human Health Risk Assessment
HIRL	High Intensity Runway Lights
HUD	Housing & Urban Development
IFR	Instrument Flight Rules
ILS	Instrument Landing System
INM	Integrated Noise Model
kwh	Kilowatt
LDA	Localizer Directional Aid
Ldn	Day-Night Equivalent Sound Level
Leq	Equivalent Sound Level
LTO	Landing and Takeoff Cycle
MALS	Medium Intensity Approach Lighting System
MALSR	Medium Intensity Approach Lighting System with Runway Alignment Indicator Lighting System
Mgd	Million Gallons per Day

MIRL	Medium Intensity Runway Lights
MITL	Medium Intensity Taxiway Lights
MLS	Microwave Landing System
MM	Middle Marker
MP	Master Plan
MPU	Master Plan Update
MSA	Metropolitan Statistical Area
MSL	Mean Sea Level
N/A	Not Applicable
NAAQS	National Ambient Air Quality Standards
NADP	Noise Abatement Departure Procedures
NAS Plan	National Airports System Plan
NASA	National Aeronautics and Space Administration
NCP	Noise Compatibility Program
NDB	Non-directional Beacon
NEM	Noise Exposure Maps
NEPA	National Environmental Policy Act
NEXRAD	Next Generation Radar
NLR	Noise Level Reduction
NOAA	National Oceanic and Atmospheric Administration
NOx	Nitrogen Oxides
NPIAS	National Plan of Integrated Airport Systems
NPDES	National Pollutant Discharge Elimination System
NWS	National Weather Service
OAC	Ohio Administrative Code
OAG	Official Airline Guide
ODALS	Omnidirectional Airport Lighting System
OFA	Obstacle Free Areas
O&D	Origination-Destination
OM	Outer Marker
PAC	Planning Advisory Committee
Part 139	FAR Part 139
Part 150	FAR Part 150 Noise Compatibility Planning Process
PFC	Passenger Facility Charges
PM	Particulate Matter
R/W	Runway
RAILS	Runway Alignment Indicator Lighting System
RCRA	Resource Conservation and Recovery Act
REIL	Runway End Identifier Lights
RETF	Rocket Engine Test Facility
RI/FS	Remedial Investigation and Feasibility Study
RJ	Regional Jet
ROD	Record of Decision
RT/R	Remote Transmitter/Receiver
RSA	Runway end Safety Areas
RVR	Runway Visual Range

SCS	USDA, Soil Conservation Service
SEL	Single Event Sound Exposure Level
SHPO	State Historic Preservation Officer
SIMMOD	Airport and Airspace Simulation Model
SIP	State Implementation Plan
SMIRF	Supplemental Multilayer Research Facility
SO2	Sulfur Oxides
SOIA	Simultaneous Offset Instrument Approaches
SR	State Road
SPCC PLAN	Spill Prevention Control and Countermeasure Plan
SWPPP	Storm Water Pollution Prevention Plans
TA	Time- Above
TAF	Terminal Area Forecast
TCA	Terminal Control Area
TDWR	Terminal Doppler Weather Radar
TDZ	Touchdown Zone
TSP	Particulate Matter
TRACON	Terminal Radar Approach Control
TRSA	Terminal Radar Service Area
UMTA	Urban Mass Transportation Administration
USC	U.S. Code
USDA	U.S. Department of Agriculture
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service
UST	Underground Storage Tanks
VASI	Visual Approach Slope Indicator
VFR	Visual Flight Rules
VOR	Very High Frequency Omnidirectional Range
VORTAC	VHF Omni directional Range with Tactical Air Navigation

GLOSSARY OF TERMS

A-Weighted Sound (dBA) - A measurement representing a sound generally as the human ear hears it by filtering out as much as 20 to 40 decibels of sound below 100 hertz (Hz). Used for aircraft noise evaluations.

Aircraft Operations - The total number of movements in landings (arrivals) plus takeoffs (departures) from an airport.

Airport Elevations - The highest point on an airport's usable runways expressed in feet above mean sea level (MSL).

Airport Improvement Program (AIP) - A Federal funding program for airport improvements. Funds are derived from sources such as airline tickets, aviation fuel, etc.

Airport Layout Plan - An airport plan (ALP) is a scaled drawing of existing and proposed land and facilities necessary for the operation and development of the airport. Any airport will benefit from a carefully developed plan that reflects current FAA design standards and planning criteria. The ALP shows boundaries and proposed additions to all areas owned or controlled by the sponsor for airport purposes, the location and nature of existing and proposed airport facilities and structures, and the location on the airport of existing and proposed non-aviation areas and improvements thereon.

Airport Surveillance Radar (ASR) - A radar system which allows air traffic controllers to identify an arriving or departing aircraft's distance and direction from an Airport.

Annual Service Volume (ASV) - A planning term which describes the number of annual aircraft operations which are possible at an airport with an acceptable amount of delay. The measure is specific to individual airports because it is derived from their own particular capacity characteristics.

Automated Radar Terminal System (ARTS) - Computer-aided radar display subsystems capable of associating alphanumeric data with radar returns.

Base Floodplain - That area subject to a one percent or greater chance of flooding in any given year (i.e., the 100-year floodplain).

Baseline Condition - The existing conditions or conditions prior to future development which serve as a foundation for analysis.

Best Management Practices - Methods employed during construction and included in the development for ensuring environmental management to the greatest possible extent.

Biochemical Oxygen Demand (BOD) - The oxygen used in meeting the metabolic needs of aerobic microorganisms in water rich in organic matter.

Building Restriction Line (BRL) - A line which identifies suitable building area locations on airports. The BRL encompasses the runway protection zones, the runway visibility zone areas required for airport traffic control tower clear line of sight, and all airport areas with less than 35 foot (10.5 m) clearance under the FAR Part 77 surfaces.

Capacity - The number of aircraft operations possible at a particular airport. When a continuous demand of activity is assumed, regardless of delay, it is described as ultimate capacity. When a limit on the number of operations is considered based on an acceptable level of delay, it is described as practical capacity.

CAT I - Precision Approach Category I Runway - A runway with an instrument approach procedure which provides for approaches to a decision height of not less than 200 feet (60 m) and visibility of not less than ½ mile (800 m) or Runway Visual Range (RVR) 2400.

CAT II - Precision Approach Category II Runway - A runway with an instrument approach procedure which provides for approaches to a minima less than CAT I to as low as a decision height of not less than 100 feet (30 m) and Runway Visual Range (RVR) of not less than RVR 1200.

CAT III - Precision Approach Category III Runway - A runway with an instrument approach procedure which provides for approaches to a minima less than CAT II.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) - A Federal law enacted in 1980 that governs the cleanup of hazardous, toxic, and radioactive substances. Under this act the Department conducts remedial investigations and feasibility studies to determine the sources and extent of contamination and ultimately the cleanup alternatives.

Commercial Service Airport - A public airport which is determined by the Secretary of Transportation to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft.

Commuter Aircraft - Commuters are those carriers that provide regularly scheduled passenger or cargo service or aircraft predominantly seating fewer than 66 passengers or holding cargo with 18,000 pounds of payload or less. A typical commuter flight operates over a trip distance of 100 to 300 miles and is flown at lower altitudes than those operated by the long-haul carriers.

Connecting Passenger - An airline passenger who transfers from an arriving aircraft to a departing aircraft at a hub airport in order to reach their ultimate destination.

Constructive Use - Refers to the possible indirect impacts to DOT Section 4(f) properties such as parks. Constructive use is considered to occur when a transportation project does not incorporate land from a Section 4(f) resource but the project's proximity impacts are so severe that the protected activities, features or attributes that qualify a resource for protection under Section 4(f) are substantially

impaired. Substantial impairment occurs only when the protected activities, features or attributes of the resource are substantially diminished. For example, a substantial increase in noise levels at a park due to a transportation project may represent a constructive use, even though the park is not directly affected through acquisition or development.

Day-Night Equivalent Sound Level (DNL or Ldn)- A noise measure used to describe the average aircraft noise levels over a 24-hour period, typically an average day over the course of a year. DNL considers aircraft operations that occur between the hours of 10 p.m. and 7 a.m. to be 10 decibels louder than they actually are to account for increased annoyance. DNL may be determined for individual locations or expressed contours. DNL is currently the accepted measure for aircraft noise analysis.

Decibel (dB) - A unit of noise level representing a relative quantity. This reference value is a sound pressure of 20 micronewtons per square meter.

Delay - The difference, in minutes, between the scheduled time and actual time of an aircraft arrival or departure. For airport planning purposes, it is often expressed as an annual average.

Displaced Threshold - A threshold that is located at a point on the runway other than the designated beginning of the runway. The portion of pavement behind a displaced threshold may be available for takeoffs in both direction and landings from the opposite direction.

Enplanements - Domestic, territorial, and international revenue passenger boarding passengers in scheduled and nonscheduled service of aircraft in intrastate, interstate, and foreign commerce.

Environmental Assessment (EA) - An environmental assessment is a concise document that assesses the environmental impacts of a proposed Federal action. This document discusses the need for, and environmental impacts of, the Proposed Action and alternatives. A listing of agencies and persons consulted is also included. An environmental assessment should provide sufficient evidence and analysis for a Federal determination of whether to prepare an Environmental Impact Statement (EIS) or a Finding of No Significant Impact (FONSI).

Environmental Impact Statement (EIS) - An EIS is normally required for a first time airport layout plan approval or airport location approval for a commercial service airport located in a standard metropolitan statistical area and Federal financial participation in or airport layout plan approval of, a new runway capable of handling air carrier aircraft at a commercial service airport in a standard metropolitan statistical area. Even though these actions normally require an environmental impact statement, the preparation of the environmental impact statement will usually be preceded by an environmental assessment. If the environmental assessment demonstrates that there are no significant impacts, the action shall be processed as a FONSI instead of an EIS.

Farmland Conversion Impact Rating - A form (AD-1006) used by the U.S. Soil Conservation Service to evaluate soils which are potentially eligible for protection as Prime or Unique (or Statewide Important) farmland under the Farmland Protection Policy Act of 1981.

Federal Aviation Administration (FAA) - The FAA constructs, operates, and maintains the National Airspace System and the facilities which are a part of the system; allocates and regulates the use of the airspace; ensures adequate separation between aircraft operating in controlled airspace; and through research and development programs, provides new systems and equipment to improve utilization of the nation's airspace.

Federal Aviation Regulation (FAR) Part 150 - Established by Congress under the Aviation Safety and Noise Abatement Act of 1979 for the purpose of developing a balanced and cost effective program to reduce the effects of aircraft noise on local communities.

Finding of No Significant Impact - Following the preparation of an environmental assessment, the Federal Agency determines whether to prepare an EIS or FONSI. If the proposed project is determined not to result in any significant environmental impact, a finding (FONSI) is made by the Federal Agency.

Flight Track Utilization - The use of established routes for arrival and departure by aircraft to and from the existing runways at the airport.

General Aviation (GA) - All civil aviation operations other than scheduled air services and nonscheduled air transport operations.

Grid Analysis - A type of aircraft noise analysis, which evaluates the noise levels at individual points rather than generate noise contours.

Hub - An airport that serves airlines that have hubbing operations.

Hubbing - A method of airline scheduling that times the arrival and departure of several aircraft in a close period of time in order to allow the transfer of passengers between different flights of the same airline in order to reach their ultimate destination. Several airlines may conduct hubbing operations at an airport.

Hubbing Complex - The period of time in which an airline times the arrival and departure of several aircraft to accomplish hubbing. An airline may operate several complexes at an airport each day.

Instrument Flight Rules (IFR) - Flight procedures used during weather conditions when visibility is less than three miles and/or cloud ceiling is less than 1,000 feet above the ground (from FAR Part 91).

Instrument Landing System (ILS) - An electronic system installed at some airports which helps to guide pilots to runways on landing during periods of limited visibility or adverse weather. A pilot must have proper training and his aircraft properly equipped to use an ILS. Most major airports have at least one of their runways equipped with an ILS.

Instrument Meteorological Conditions (IMC) - Meteorological conditions expressed in terms of visibility, distance from cloud and ceiling which are less than the minimums specified for visual meteorological conditions.

Integrated Noise Model (INM) - A computer model developed and maintained by the FAA to predict the noise impacts generated by aircraft operations.

IX Center – International Exposition Center. A convention center located on the south side of the airport.

Land Use Compatibility - The ability of land uses surrounding the airport to coexist with airport-related activities with minimum conflict.

Landing and Takeoff (LTO) Cycle - The time that an aircraft is in operation at an airport. An LTO cycle begins when an aircraft starts its final approach (arrival) and ends after the aircraft has made its climb-out (departure).

Localizer Directional Aid (LDA) - A navigation aid used for instrument approaches that operates similarly to and provides the same accuracy as an ILS localizer.

Local Passenger - A passenger who either enters or exits a metropolitan area on flights served by the area's airport. The opposite of a connecting passenger.

Location Impact Analysis - An analysis conducted to determine if noise level increases associated with projected development would approach the FAA threshold of a 1.5 dBA of DNL increase within the 65 DNL or greater noise contours over any noise-sensitive land use.

Loudness - The subjective intensity of sound.

Mitigation Measure - An action taken to alleviate negative impacts.

Navigational Aid (NAVAID) - Any visual or electronic device airborne or on the surface that provides point-to-point guidance information or position data to aircraft in flight.

Master Plan - A comprehensive plan to guide the long-term physical development of an airport.

NEPA - The National Environmental Policy Act of 1969 (NEPA) is the original legislation establishing the environmental review process.

Noise - Noise is defined as unwanted sound. Whether a sound is considered noise is based on human perception.

Noise Contour Map - A map representing average annual noise levels summarized by lines connecting points of equal noise exposure.

Noise Exposure Map (NEM) - A map of an airport and its environs which identifies the area impacted by various aircraft noise levels. The FAA has specified criteria for presentation of Part 150 Noise Exposure Maps.

Noise Level Reduction (NLR) - The amount of noise level reduction achieved through incorporation of noise attenuation (soundproofing) in the design and construction of a structure.

Object Free Areas (OFA) - An area on the ground centered on a runway, taxiway, or taxilane centerline provided to enhance the safety of aircraft operations by having the area free of objects, except for objects that need to be located in the OFA for air navigation or aircraft ground maneuvering purposes.

Part 139 - This part prescribes rules governing the certification and operation of land airports which serve any scheduled or unscheduled passenger operation of an air carrier that is conducted with an aircraft having a seating capacity of more than 30 passengers.

Part 150 - Prescribes the procedures, standards, and methodology governing the development, submission, and review of airport noise exposure maps and airport noise compatibility programs, including the process for evaluating and approving or disapproving those programs. It prescribes single systems for-- (a) measuring noise at airports and surrounding areas that generally provides a highly reliable relationship between projected noise exposure and surveyed reaction of people to noise; and (b) determining exposure of individuals to noise that results from the operations of an airport. This part also identifies those land uses which are normally compatible with various levels of exposure to noise by individuals.

Precision Approach Procedure/Precision Approach - A standard instrument approach procedure in which an electronic glideslope/glidepath is provided, e.g., ILS/MLS and PAR.

Public-use Airport Any public airport, any privately owned reliever airport, any privately owned airport which is determined to enplane annually 2,500 or more passengers and receive scheduled passenger service of aircraft, and which is used or to be used for public purposes.

Regional Jet (RJ) - A smaller jet powered aircraft, typically 50 seats or less.

Reliever Airport - An airport having the function of relieving congestion at a commercial service airport and providing more general aviation access to the overall community.

Rocky River Reservation – Designation for that portion of the Cleveland Metroparks located west of the airport.

Rotational Runway Use - Variance in the particular runways in use over a specific time period to prevent constant use of one runway.

Run-Up - Stationary aircraft engine maintenance test that produces high aircraft noise levels.

Runway - A defined rectangular area on an airport prepared for the landing and takeoff run of aircraft along its length. Runways are normally numbered in relation to their magnetic direction rounded off to the nearest 10 degrees, e.g., Runway 14, Runway 32.

Runway Protection Zone (RPZ) - An area (formerly called the clear zone) trapezoidal in shape and centered about the extended runway centerline, that is used to enhance the safety of aircraft operations. It begins 200 feet (60 m) beyond the end of the area usable for takeoff or landing. The RPZ dimensions are functions of the design aircraft, type of operation, and visibility minimums.

Runway Safety Area (RSA) - A defined surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot, or excursion from the runway.

Section 106 of the National Historic Preservation Act (Section 106) - Governs the identification, evaluation, and protection of historical and archeological resources affected by state and Federal transportation projects. Principal areas identified include required evaluations to determine the presence or absence of site, the eligibility based on National Register of Historic Places criteria, and the significance and effect of a proposed project upon such a site.

Section 401 of the Clean Water Act (Section 401) - The State Water Quality Certification program requires that states certify compliance of federal permits or licenses with state water quality requirements and other applicable state laws. Under Section 401, states have authority to review any federal permit or license that may result in a discharge to wetlands and other waters under state jurisdiction, to ensure that the actions would be consistent with the state's water quality requirements.

Section 404 of the Clean Water Act (Section 404) - authorizes the U.S. Army Corps of Engineers (Army Corps) to issue permits regulating the discharge of dredged or fill material into the waters of the United States, including wetlands.

Section Eight Housing Development – A U.S. housing and urban development program that provides housing assistance to low-income people.

SIMMOD - Airport and Airspace Simulation Model. FAA's simulation model used for calculating capacity and delay information.

Sound - Sound is the result of a sound source vibration in the air. The vibration produces alternating bands of relatively dense and sparse particles of air, spreading outward from the source in the same way as ripples do on water after a stone is thrown into it. The result of the movement is a fluctuation in the normal atmospheric pressure or sound waves.

Taxiway - A defined path established for the taxiing of aircraft from one part of an airport to another.

Terminal Area Forecast (TAF) – The Terminal Area Forecast (TAF) contains historical and forecast data for enplanements, airport operations and instrument operations. The data covers the 315 FAA towered airports, 128 Federal contract tower airports, 175 radar approach control facilities, and 2,962 non-FAA airports. Data in the TAF is presented on a U.S. Government fiscal year basis (October through September). The TAF is prepared to assist the FAA in meeting its planning, budget, and staffing requirements. In addition, many state aviation authorities and other aviation planners use the TAF as a basis for planning future airport improvements.

Time Above A Threshold Sound Level - The time in minutes at a specific location that a preselected sound level is exceeded due to aircraft operations (e.g., time in minutes that the sound level is above 75 dBA).

USGS Hydrologic Unit – Geographic area representing part or all of a surface drainage basin or distinct hydrologic feature.

Visual Approach - An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

Visual Flight Rules (VFR) - Rules that govern the procedures for conducting flight under visual conditions. In addition, it is used by pilots and controllers to indicate type of flight plan.

Visual Meteorological Conditions (VMC) - Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specific minimum. Typically, these conditions occur whenever the cloud ceiling is at least 1,000 feet above ground level, distance to cloud is one statute mile, and the visibility is at least three statute miles.

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