

CHAPTER TWO PURPOSE AND NEED

Port Columbus International Airport (CMH or Airport) is owned and operated by the Columbus Regional Airport Authority (CRAA). CMH, located in Franklin County, Ohio, provides commercial air service for the Columbus region and Central Ohio. The CRAA continuously undertakes planning efforts designed to meet passenger and facility demand well into the 21st Century. To address the changing aviation needs at the Airport, the CRAA prepared the 1999 Master Plan Update¹ Study (Study), which identified numerous facility upgrades that may be required to maintain CMH's ability to meet and exceed requirements and expectations. The Study identified the need to evaluate the possibility of either expanding the existing passenger terminal or developing a new expanded terminal complex.

The CRAA conducted multiple terminal planning studies, including the 2005 Program Management Airport Development Plan,² to provide more information on the size, location, and layout of terminal improvements. Through the process of evaluating various terminal options, the relocation of existing Runway 10R/28L was identified as an alternative which may provide both airfield capacity enhancements and additional space for terminal development. In 2000, the CRAA identified the need to reconstruct Runway 10R/28L due to severe deterioration of the runway surface. Progress on this reconstruction was halted until the optimum location of the runway was determined based on the findings of the Terminal Planning Study.

The CRAA initiated two studies to evaluate the potential relocation of Runway 10R/28L. The first study³ determined the optimum location and length of a relocated runway that culminated in the development of a revised Airport Layout Plan (ALP). Unconditional environmental approval of the Airport Layout Plan (ALP) is one of the Federal actions in this Environmental Impact Statement (EIS). The second study⁴ evaluated the potential impacts of the proposed runway location in order to determine the level of environmental processing that would be required through the National Environmental Policy Act of 1969 (NEPA). This second study identified the likelihood of significant environmental impacts occurring as a result of the proposed improvements and recommended the preparation of an EIS. The Federal purpose and need for Federal Aviation Administration (FAA) actions and the time frame for these actions are discussed below.

¹ *Master Plan Update - Port Columbus International Airport, Final*, April 1999, prepared by Leigh Fisher Associates.

² *Program Management Airport Development Plan*, June 2005, prepared by the Program Management Team

³ *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, February 2006, prepared by URS.

⁴ *Environmental Overview - Replacement Runway 10R/28L at Port Columbus International Airport*, March 2006, prepared by Landrum & Brown.

2.1 PURPOSE AND NEED FOR FAA ACTIONS

The FAA prepared this EIS, in accordance with the provisions of the Council on Environmental Quality (CEQ) 40 Code of Federal Regulations (CFR) § 1506.2 which directs Federal agencies to cooperate with state and local agencies “to the fullest extent possible” to reduce duplication between the National Environmental Policy Act (NEPA) and comparable state and local requirements. As such, this chapter complies with Ohio Environmental Protection Agency (OEPA) Section 401, Water Quality Certification requirements, per Ohio Administrative Code (OAC) 3745-1-54, demonstrating public need for the project. In addition, this EIS will satisfy the requirements of the U.S. Army Corps of Engineers (USACOE), Section 404 process for impacts to waters of the U.S., as well as Section 106 consultation for impacts to historic structures, as identified in 36 CFR 800.8, *Coordination with the National Environmental Policy Act*. This EIS also includes U.S. Department of Transportation Section 303(c) consultation.⁵ The proposed FAA actions, which are the subject of this EIS, respond to the need for the proposed development at CMH. The requested actions are specifically linked to the requirements to reconstruct Runway 10R/28L and preserve the flexibility to accommodate capacity needs both on the airfield and in the terminal and landside areas.

It is anticipated that the application for Federal assistance to finance the proposed development program under the Airport and Airways Improvement Act, as amended and recodified at 49 U.S.C. § 47101 et seq, will be submitted to the FAA for several elements contained in the proposed action.

CMH is an essential transportation resource centrally-located within the Columbus Metropolitan Region. As a result of the evaluations of the Airport’s operations and facilities conducted during the CRAA’s planning studies and the evaluations conducted under this EIS process, issues were identified at the Airport that affect its ability to maintain its critical transportation function, both now and in the near future. These issues must be addressed for CMH to continue to be an effective air carrier service provider. Additionally, the CRAA updated the Part 150 Noise Compatibility Program (NCP) for CMH (2007 Part 150 Study)⁶ in accordance with 14 CFR Part 150 and proposes the implementation of actions designed to abate aircraft noise. These measures need to be environmentally assessed to disclose the environmental consequences of the actions and to ensure that operational changes that reduce noise do not create other adverse environmental impacts.

The first issue is the need to reconstruct existing Runway 10R/28L. The current runway is in a state of pavement deterioration. Given the findings of the previous planning studies and the potential relocation of Runway 10R/28L, the CRAA opted to overlay the runway in 2004 with less asphalt (thinner overlay) instead of undertaking an overlay with more structural value (thicker overlay) that was

⁵ Section 4(f) of the Department of Transportation Act of 1966 is currently codified as 49 U.S.C. § 303(c). Consistent with FAA Order 1050.1E, Appendix A, paragraph 6.1a, Section 303(c) will be referred to as Section 4(f).

⁶ The Final Part 150 Study Update for Port Columbus International Airport was submitted to the FAA for approval in November 2007. The FAA accepted the NEMs on December 5, 2007. The FAA issued a Record of Approval on the NCP on May 28, 2008.

recommended.⁷ This overlay extends the useful life of the pavement to approximately 2009/2010. Additional patching and paving will be required to maintain the pavement as usable past 2010.

The purpose and need is:

- To reconstruct Runway 10R/28L in a way that preserves the Airport's current and future flexibility to accommodate capacity needs both on the airfield and in the terminal and landside areas.

In an effort to provide for current and future flexibility at the Airport, additional benefits that support airfield and terminal and landside flexibility include:

- Long-term airfield capacity and delay reduction during peak operating periods;
- Sufficient terminal capacity to accommodate projected passenger growth;
- Sufficient ancillary facilities to support the projected increase in air transportation demand; and
- Enhance the human environment by reducing noise impacts on the surrounding communities.

The cumulative effect of the many issues at CMH is evident in all aspects of the Airport's operations. Structurally sound runways, delay reduction, and lack of passenger handling facilities affect the utility and function of the Airport. The purpose for the proposed Federal Action is to address these needs in a comprehensive, integrated plan for improvement. The integrated nature of airport infrastructure and operations results in a ripple effect across disciplines when an issue is not addressed. Conversely, when infrastructure and/or operations are improved, a beneficial ripple occurs across disciplines. For this reason, each issue must be addressed in order to wholly fulfill the purpose and need for the project.

The following paragraphs provide a summary discussion of the needs to remedy the issues identified above. Each need statement is shown in ***bold italics***. Chapter Three, *Alternatives*, compares various configurations of options that can fulfill the purpose and need for the project by addressing these issues.

THE NEED TO RECONSTRUCT RUNWAY 10R/28L

As part of the CRAA's continuing pavement management planning, pavement evaluation and design studies for Runway 10R/28L were initiated in 2000. Based on visual inspection of the pavement condition and associated engineering evaluations, the studies provided recommendations to improve the serviceability of the runway.

⁷ Preliminary Engineering Report, Runway 10R-28L & Taxiway C Rehabilitation, Rehabilitation and Reconstruction Analysis, April 2001, prepared by R.W. Armstrong.

Some areas of the runway were determined to be in need of full depth/structural repair. The CRAA examined two options: rebuild Runway 10R/28L at the same location or build a replacement runway in another location.

One benefit of relocating Runway 10R/28L addresses, in part, the need for maintaining flexibility in current and future terminal development. By relocating the runway, a sufficiently sized terminal development envelope would be created. The CRAA, recognizing the potential benefits of replacing the runway in another location, decided to move forward with a short-term runway overlay project and defer larger pavement investments to a future, more optimum location on the airfield.

THE NEED TO PROVIDE LONG-TERM AIRFIELD CAPACITY, DELAY REDUCTION DURING PEAK OPERATING PERIODS, AND AIRFIELD EFFICIENCY

The primary factors that dictate a runway system's ability to accommodate overall levels of traffic or peak hour traffic include the length of the runways, the orientation and separation of the runways, the navigational instrumentation on each runway end, and the remainder of the airfield infrastructure (taxiways, hold pads, etc.).

The CRAA has identified the need to reconstruct Runway 10R/28L. A study⁸ was initiated to determine a minimum runway length, optimum runway separation, necessary navigational instrumentation, and other airfield improvements that would be necessary to maintain, and in some cases enhance the ability of the Airport to accommodate long-term and peak period aviation demand. The needs assessment for each of these is described below:

Runway Length

In order to develop a runway length requirement, it is first necessary to identify a critical aircraft. This was accomplished by reviewing the latest forecast of aviation activity.⁹ The existing and forecasted operations at the Airport were sorted by type of aircraft and destination, the distance to each destination, and the aircraft operator. It was assumed that the farthest destination by each aircraft type would require the greatest runway length due to greater fuel loads and overall weight. Based on this analysis, the 737-300 and A320 aircraft operating to Houston and Las Vegas were identified as the critical aircraft for runway length analysis purposes.

Runway length requirements for the replacement runway were determined through a combination of methodologies including FAA's "Airport Design" Computer Program - version 4.2, Aircraft Manufacturers' Airport Compatibility manuals, and Aircraft Takeoff Performance tables. The level of accuracy provided by each of these methodologies varies greatly. Therefore, a combination of these methods that takes into account the aircraft that operate at the Airport with actual and

⁸ *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, February 2006, prepared by URS.

⁹ *Aviation Forecasts – Port Columbus International Airport*, May 2006, prepared by Landrum & Brown.

predicted destinations, and load factors was used for the assessment. This analysis resulted in a recommended runway length of approximately 10,125 feet, which is the same as the existing Runway 10R/28L.

Additional analysis was conducted to determine the most appropriate location of each runway end threshold. This analysis took into account FAA clearance and geometric criteria, the location of navigational aids and approach lighting systems, airspace obstructions, and other site restrictions. Based on the results of this analysis, the most appropriate location for the runway thresholds was identified. This resulted in an overall length of 10,113 feet for the replacement runway, which is 12 feet shorter than the existing Runway 10R/28L.

Runway Separation

Currently, the Airport has two runways that are separated by 2,800 feet. This separation allows the two runways to operate “independently” (simultaneous arrivals and departures) during visual flight rules (VFR) conditions. However, the existing airfield loses the ability to perform simultaneous arrivals during instrument flight rules (IFR) conditions. These conditions are taken into account when calculating the Annual Service Volume (ASV), which is the theoretical limit of the number of annual operations an airfield can efficiently accommodate. At CMH, with the existing airfield, the ASV is between 370,000 to 410,000 annual operations.

FAA Order 5090.3C, *Field Formulation of the National Plan of Integrated Airport Systems (NPIAS)*, Table 3-2, specifies that the airport sponsor should initiate planning studies to evaluate means of increasing airfield capacity when annual operations approach 60 to 75 percent of the calculated ASV. The existing airfield reached 56 to 62 percent of the estimated ASV in 2006. The forecast of activity for CMH includes two scenarios, Base-Growth and High-Growth. By 2013, the existing CMH airfield configuration is projected to reach 67 to 74 percent of ASV under the Base-Growth conditions and 70 to 78 percent ASV under the High-Growth conditions. Both forecast scenarios project continued growth in operations for the Airport and, as a result, the percentage of ASV would continue to increase. Based on this analysis, it can be demonstrated that a long-term need exists for additional airfield capacity. **Table 2-1** summarizes the ASV analysis.

In addition to applying the handbook methodology, an airfield delay analysis was completed to further analyze the long-term needs during peak operating periods. The analysis was conducted using the FAA Airport and Airspace Simulation Model, SIMMOD. Simulations were conducted with aircraft traffic flowing to the east for both VFR and IFR.

**Table 2-1
COMPARISON OF FORECAST OPERATIONS TO EXISTING AIRFIELD ASV
Port Columbus International Airport**

BASE-GROWTH DEMAND

Year	Forecast of Operations	Estimated ASV with Existing Airfield	Forecasted Operations as a Percentage of ASV
2003 (actual)	237,979	370,000 to 410,000	58 to 64 percent
2008	250,186	370,000 to 410,000	61 to 68 percent
2013	273,880	370,000 to 410,000	67 to 74 percent
2018	293,388	370,000 to 410,000	72 to 79 percent
2023	307,809	370,000 to 410,000	75 to 83 percent

HIGH-GROWTH DEMAND

Year	Forecast of Operations	Estimated ASV with Existing Airfield	Forecasted Operations as a Percentage of ASV
2003 (actual)	237,979	370,000 to 410,000	58 to 64 percent
2008	286,056	370,000 to 410,000	70 to 77 percent
2013	316,890	370,000 to 410,000	77 to 86 percent
2018	344,968	370,000 to 410,000	84 to 93 percent
2023	369,669	370,000 to 410,000	90 to 100 percent

Source: *Airfield Planning Report Associated with Replacement of Runway 10R/28L at the Port Columbus International Airport*, February 2006, prepared by URS.

Table 2-2 summarizes the daily VFR and IFR average arrival and departure delays for the existing airfield for both the 2023 Base-Growth and High-Growth scenarios in the forecast. The VFR and IFR daily average arrival and departure delays for the existing runway layout at the 2023 Base-Growth demand level are within acceptable NPIAS limits.

For the 2023 High-Growth demand level, the VFR and IFR average arrival delays are slightly higher than the Base-Growth conditions due to the increase in operating levels. However, the IFR average departure delay increases significantly (by over 60 minutes) over the Base-Growth conditions. This increase is due to a combination of increased operations and the anticipated peaking of departures in the morning and afternoon timeframes. Based on this analysis, it can be determined that if growth occurs more quickly than described in the Base-Growth scenario, there will be a need for additional IFR departure capacity/delay reduction.

**Table 2-2
COMPARISON OF DAILY VFR AND IFR AVERAGE ARRIVAL & DEPARTURE
TIMES – EXISTING AIRFIELD
Port Columbus International Airport**

2023 BASE-GROWTH DEMAND

BASE GROWTH DEMAND SCENARIO		AVERAGE ARRIVAL TIME (IN MINUTES)			AVERAGE DEPARTURE TIME (IN MINUTES)	
		AIR DELAY	GROUND DELAY	GROUND TAXI	GROUND + QUEUE DELAY	GROUND TAXI
VFR	Existing Airfield	0.6	0.0	3.8	1.3	8.6
IFR	Existing Airfield	0.8	0.0	3.9	7.6	9.0

2023 HIGH-GROWTH DEMAND

HIGH GROWTH DEMAND SCENARIO		AVERAGE ARRIVAL TIME (IN MINUTES)			AVERAGE DEPARTURE TIME (IN MINUTES)	
		AIR DELAY	GROUND DELAY	GROUND TAXI	GROUND + QUEUE DELAY	GROUND TAXI
VFR	Existing Airfield	0.9	0.0	4.0	3.0	9.2
IFR	Existing Airfield	1.1	0.5	4.1	>60	9.6

Source: *Results of SIMMOD Analysis for the Port Columbus International Airport Airside Capacity Analysis*, TransSolutions, January 2005.

Navigational Instrumentation

The Airport currently has CAT I instrument approaches on Runways 10R and 10L. Although CMH does not presently support CAT II/III instrument approaches, maintaining the capability to do so in the future was deemed an important operational objective by the CRAA and FAA Airport Traffic Control Tower (ATCT) as the planning for this runway was occurring. Computer modeling was performed and determined that a minimum 702-foot southern relocation of Runway 10R/28L would allow CAT II/III instrument approaches to occur to the Runway 10R end.

Other Airfield Improvements

Currently, Runway 10R/28L has a full-length parallel taxiway on both the north and south sides of the runway. The optimum taxiway layout from an efficiency perspective is to have a dual parallel taxiway system on the north side of Runway 10R/28L with high-speed exits. This would allow free flow of traffic to and from the terminal area and the runway ends. To the south of Runway 10R/28L, a full-length single taxiway is needed to provide access to Airport users located in the south airfield area.

THE NEED TO PROVIDE SUFFICIENT TERMINAL CAPACITY TO ACCOMMODATE PROJECTED PASSENGER LEVELS

The existing passenger terminal facilities were analyzed to estimate when the terminal would exceed its current capacity.^{10, 11} The results of the modeling determined the capacity of the existing terminal by increasing the number of passengers within the peak hour until demand exceeded the available capacity of the various terminal elements. This peak hour passenger volume was converted into an annual passenger volume using the peak hour/average day/peak month mathematical relationship. The annual passenger volume was then compared to the projection of annual enplanements in order to associate this level of activity to a specific year in the forecast. The existing terminal configuration cannot accommodate 5 Million Annual Enplaned Passengers (MAEP) or more. The major terminal components that were examined included the following:

- Ticketing Lobby
- Security Screening Checkpoints
- Baggage Claim Hall
- Inbound/Outbound Baggage
- Passenger Holdrooms
- Gates and Aircraft Parking Apron
- Major Vertical Circulation elements
- Restrooms
- Arrival and Departure Curbs
- Meeter/Greeter Areas

The CRAA studied the possibilities for meeting the future passenger demand. Additional study of new terminal concepts identified the need for a terminal development envelope that is sufficiently large enough to accommodate terminal planning flexibility that will meet long-term demand (9 MAEP), allow for the other support facility development, and to maintain airfield operational flexibility and efficiency.

THE NEED TO PROVIDE SUFFICIENT ANCILLARY FACILITIES TO SUPPORT THE PROJECTED INCREASE IN AIR TRANSPORTATION DEMAND

The ancillary facilities needed to support the potential increase in air transportation demand include the addition of an auto parking garage, development of access roadways to support the new terminal and parking garage, the relocation of the Airport's perimeter road in the south airfield, the expansion of a Big Walnut Creek tributary stream (ravine) in the east airfield into a stormwater detention basin, and future development of presently undeveloped areas (relocation of support facilities and hangars). The CRAA's analysis of the existing capacity and projected demand for parking facilities was based on the following assumptions:

- Existing demand for public parking spaces was increased at the same rate as forecast origination and destination (O&D) enplanements to determine future need for public parking;

¹⁰ *Port Columbus International Airport – Capital Improvement Program*, June 2005, prepared by The Program Management Team.

¹¹ *Port Columbus International Airport – Existing Terminal Capacity Enhancements*, September 2006, NBBJ + Leigh Fisher Associates.

- The total number of required public parking spaces was increased by 15 percent to minimize the amount of time required to find a parking space; and
- Parking demand was allocated according to the current utilization percentages for each of the parking facilities.

Currently, there are approximately 12,000 parking spaces available at CMH. Based on the CRAA's analysis of parking demand by passengers and employees, CMH will require between 2,700 to 4,000¹² additional parking spaces by 2018 for public on-Airport short-term/long-term, Airport/rental car, and employee spaces. A majority of these spaces will require direct access to the new passenger terminal.

THE NEED TO ENHANCE THE HUMAN ENVIRONMENT BY REDUCING NOISE IMPACTS ON THE SURROUNDING COMMUNITIES

Implementation of the measures associated with the development program recommended in the 2007 Part 150 Study 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. Residential structures newly impacted by the 65 Day-Night Average Sound Level (DNL) noise contour would be eligible for mitigation under the recommendations of the 2007 Part 150 Study.

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 decibel (dB) increase in noise in the 65 DNL noise contour because of the project. Those residential structures experiencing a 3 dB increase in noise between the 60 and 65 DNL noise contours should be considered for mitigation, including consideration of the same range of mitigation options available at DNL 65 dB. However, this is not to be interpreted as a commitment to fund or otherwise implement mitigation measures for a particular area.

2.2 SPONSOR'S PROPOSED ACTION

The CRAA's planning studies and the 2007 Part 150 Study identified the projects that are able to meet the stated purpose of the identified needs. The primary elements of the Sponsor's Proposed Action include:

- Replace Runway 10R/28L a minimum of 702 feet south of the existing runway;
- Preserve a terminal development envelope that can ultimately accommodate a 75 gate terminal that can accommodate 9 MAEP;

¹² The range of required parking is a function of the two forecast levels, Base-Growth and High-Growth, which are described in the Forecast of Activity for Port Columbus International Airport. Appendix C, *Aviation Activity Forecast*.

- Provide the necessary ancillary infrastructure to support both airfield and terminal and landside development;
- Provide the capability to provide long-term airfield capacity and delay reduction during peak periods; and
- Enhance the human environment by reducing noise impacts on the surrounding communities.

As part of and in support of these primary elements, a number of other projects and actions would also be required. In order to more easily understand all of the elements included in the Sponsor's Proposed Project, the following categories of projects will be discussed:

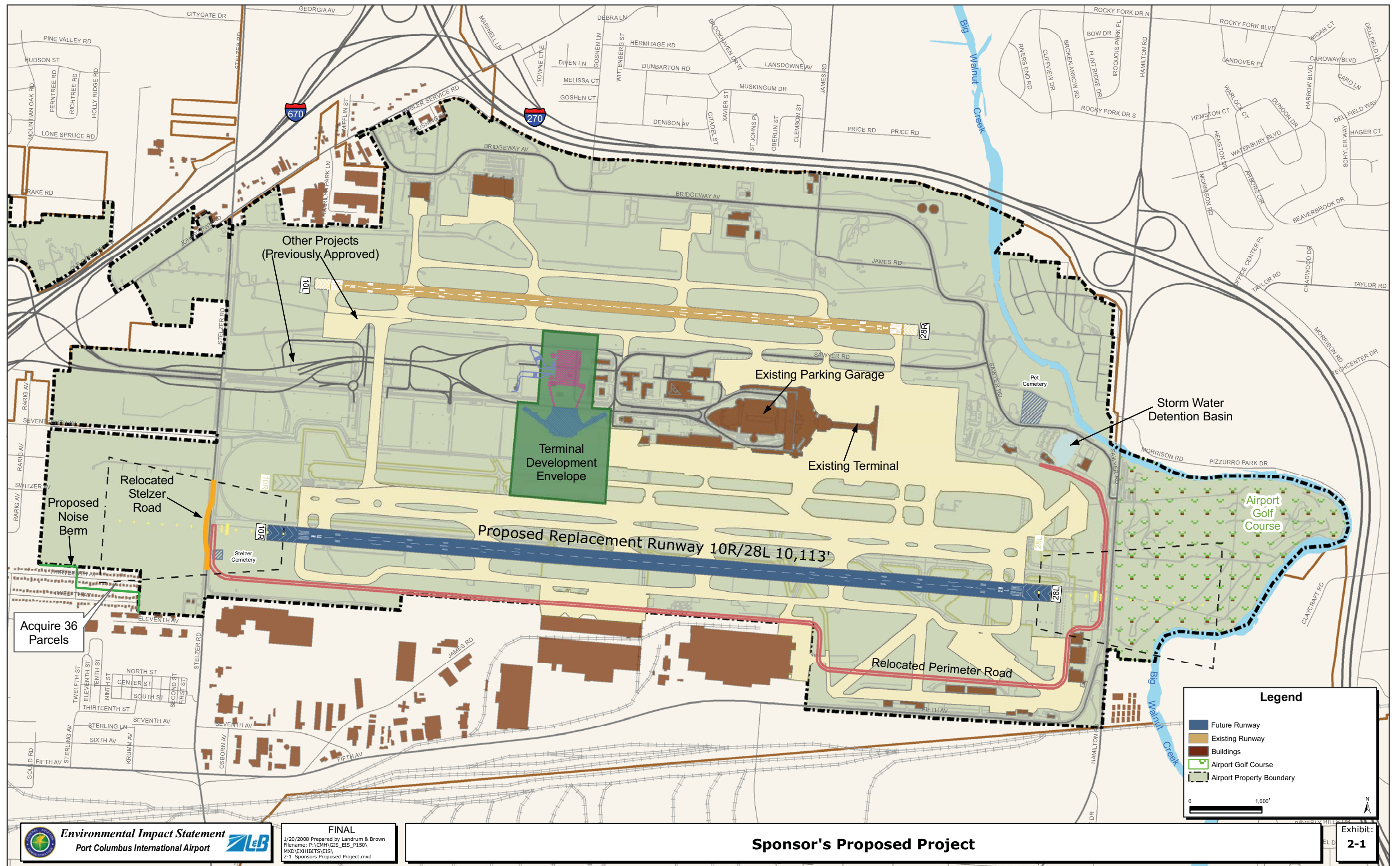
- Airfield developments;
- Passenger terminal development;
- Other on-airport development projects;
- Other off-airport development projects; and
- Implementation of various elements of the 2007 Part 150 Noise Compatibility Program.

This section provides a discussion of those projects (shown in ***bold italics***), as well as the year the project is anticipated to be completed. See ***Exhibit 2-1, Sponsor's Proposed Project*** for a map of development projects.

2.2.1 AIRFIELD DEVELOPMENT

Construct a replacement 10,113-foot runway, parallel to and at a minimum of 702 feet south of existing Runway 10R/28L (2012)

A new 10,113-foot runway, located at a minimum of 702 feet south of the existing Runway 10R/28L, is proposed to replace the existing 10,250-foot Runway 10R/28L. The proposed runway would have at a minimum the same navigational aids that the existing Runway 10R/28L has today (ILS, vertical guidance, and Area Navigation (RNAV) procedures). In addition, the proposed runway would include the development of RNAV GPS with vertical guidance procedures and Wide Area Augmentation Systems (WAAS) approaches, in order to comply with the FAA 2008-2012 Flight Plan. Replacing existing Runway 10R/28L with the proposed runway would achieve the goal of reconstructing the runway and preserving the current and future flexibility of the airfield and terminal and landside areas. The additional airfield capacity and larger terminal development envelope would be achieved by increasing the separation between the two runways. Each of these is described below.



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Airfield Capacity

Table 2-2 highlighted the average delay during VFR and IFR conditions for the existing airfield. **Table 2-3** provides a comparison of that information with the proposed airfield. The VFR and IFR daily average arrival and departure delays for both the existing airfield and proposed airfield at the 2023 base-growth demand levels are within acceptable NPIAS limits. However, for the 2023 high-growth demand scenario, the proposed airfield provides a significant reduction in IFR departure delays.

**Table 2-3
COMPARISON OF DAILY VFR AND IFR AVERAGE ARRIVAL & DEPARTURE
TIMES – EXISTING AND PROPOSED AIRFIELD
Port Columbus International Airport**

2023 BASE-GROWTH DEMAND

BASE GROWTH DEMAND SCENARIO		AVERAGE ARRIVAL TIME (IN MINUTES)			AVERAGE DEPARTURE TIME (IN MINUTES)	
		AIR DELAY	GROUND DELAY	GROUND TAXI	GROUND + QUEUE DELAY	GROUND TAXI
VFR	Existing Airfield	0.6	0.0	3.8	1.3	8.6
	Proposed Airfield	0.6	0.0	3.7	1.3	8.8
IFR	Existing Airfield	0.8	0.0	3.9	7.6	9.0
	Proposed Airfield	0.7	0.0	3.8	5.9	9.2

2023 HIGH-GROWTH DEMAND

HIGH GROWTH DEMAND SCENARIO		AVERAGE ARRIVAL TIME (IN MINUTES)			AVERAGE DEPARTURE TIME (IN MINUTES)	
		AIR DELAY	GROUND DELAY	GROUND TAXI	GROUND + QUEUE DELAY	GROUND TAXI
VFR	Existing Airfield	0.9	0.0	4.0	3.0	9.2
	Proposed Airfield	0.9	0.0	3.9	3.0	9.3
IFR	Existing Airfield	1.1	0.5	4.1	>60	9.6
	Proposed Airfield	1.0	0.0	3.9	34.8	9.7

Note: IFR conditions at CMH occur approximately 8.9% of the time.

2023 represents the 20-year forecast for CMH.

Source: *Results of SIMMOD Analysis for the Port Columbus International Airport Airside Capacity Analysis*, TransSolutions, January 2005.

Terminal Development Envelope

The CRAA analysis of terminal facilities concluded that the existing terminal would not be able to efficiently nor cost effectively accommodate 5 MAEP. The latest forecast of activity for CMH projected that the Airport would reach 5 MAEP by 2018, assuming Base-Growth factors. The Airport could reach 5 MAEP by 2009 – 2010 if the High-Growth factors were realized.

The terminal development envelope concept provides a more “balanced” approach to accommodating growth, such that the respective capacities of each major airport component (airfield, terminal, and landside) complement each other, and the total site and its operation are fully optimized.

Construct parallel taxiways to support the relocation of Runway 10R/28L (2012)

In order to provide aircraft the necessary taxiway infrastructure to efficiently utilize the relocated runway and new passenger terminal, three new parallel taxiways would be constructed. Each of these is described below.

Dual Parallel Taxiways North of Runway 10R/28L

In order to provide efficient movement of aircraft both to and from the relocated runway, a dual taxiway system would be constructed. The proposed runway will have two north parallel taxiways. The existing runway will be converted to the north parallel taxiway. This will be 641 feet from the proposed runway centerline. The second or south parallel taxiway will be 400 feet from the proposed centerline. High-speed taxiway exits would be provided on the north side of the proposed runway. Both of these taxiways would be integrated into the airfield, with new runway exits and extensions of existing taxiways where necessary.

Parallel Taxiway South of Runway 10R/28L

In order to provide efficient movement of aircraft on the south side of the relocated runway, a parallel taxiway system would be constructed. The taxiway would be separated by 400 feet from the proposed runway centerline for the majority of the runway length. The separation would be increased to 610 feet for the last 1,100 feet from both runway ends, due to navigational aid (NAVAID) critical area criteria. This taxiway would be integrated into the airfield, with new runway exits and extensions of existing taxiways where necessary.

2.2.2 PASSENGER TERMINAL DEVELOPMENT

Construct a new passenger terminal and apron in the midfield area (2018)

To meet future aircraft parking and passenger processing requirements, a new midfield terminal complex would be constructed. Projects associated with this development include:

Removal of Existing Structures Along International Gateway

Four structures are located along the north side of International Gateway. Rental storage facilities and automobile parking lots are located along the north and south sides of International Gateway. The structures and automobile parking lots would be demolished in preparation for construction of the new midfield terminal.

Construction of a New Terminal Complex

The terminal planning study found that the existing passenger terminal could not efficiently accommodate passenger levels above 5 MAEP and at that time expanded terminal facilities would be required. Conservative projections of future passenger activity at CMH indicate that the 5 MAEP level will occur by 2018 and maybe sooner if more aggressive growth scenarios are realized. The long-term program for terminal development identified a need for 75 aircraft parking gates, to be built in phases. The first phase of that development is being assessed in this EIS and includes the following:

- Construction of central terminal core and passenger processing units including ticketing, security, baggage services, and concessions; and
- A maximum of ten aircraft parking gates.

New Terminal Apron Area

A new terminal apron area (approximately 1.3 million square feet) located south of the proposed midfield terminal would be constructed to accommodate aircraft parking and movement.

New Automobile Parking Garage

A new automobile parking garage would be constructed north of the proposed midfield terminal to accommodate the increased passenger levels, and would provide approximately 2,700 short-term parking spaces.

New Automobile Parking Lots

New automobile parking lots would be constructed on Airport owned property, west of the current parking lots along International Gateway, to replace the parking lots that will be demolished for the proposed midfield terminal. This 45-acre area would accommodate approximately 6,600 long-term parking spaces.

Modification to Internal Loop Roadway

Because of the new terminal and parking garage, the internal loop roadway system would have to be modified to provide access to the new facilities. Most of the loop roadway system has been planned and environmentally reviewed as part of other development projects at CMH. This EIS will assess only those portions that have not been previously environmentally approved and are required for this project.

2.2.3 OTHER ON-AIRPORT DEVELOPMENT PROJECTS

Stormwater Detention Basin (2010)

A small headwater tributary of Big Walnut Creek is located on the east airfield south of Sawyer Road. Stormwater runoff from Airport grounds collects in the ravine and drains into Big Walnut Creek. Construction and operation of the runway and terminal projects at CMH would require expansion of the ravine into a stormwater detention basin to reroute stormwater drainage from the proposed development areas into Big Walnut Creek. The flow of water through the ravine would be constrained by the installation of a fluid flow control device, or restrictor.

Relocate Airport Perimeter Road (2012)

The Airport Perimeter Road would be relocated as part of the project to a more southerly position. There would be no land acquisition or facility modification required for this relocation.

Site selection, purchase, installation, and flight checks of all necessary NAVAIDs and lighting to support the proposed development (2012)

The proposed project includes upgrading Runway 10R to a CAT II/III approach and maintaining the CAT I approach to Runway 28L. This would require the installation of new NAVAIDs and lighting systems. Site selection, purchase, installation, and flight checking of the equipment would be necessary.

Implementation of necessary air traffic control procedures to support the proposed development (2012)

The proposed runway development would require development of arrival and departure procedures to and from the proposed runway. The flight procedures would be coordinated with the 2007 Part 150 Study to identify options for reducing noise impacts.

Implementation of ancillary facilities to support the proposed development (2012/2018)

The proposed runway development would require the expansion of the central utility plant, aircraft fueling system, airside-landside drainage system, and the glycol collection and treatment system. In addition, a number of utility corridors in the project area would need to be relocated.

2.2.4 OTHER OFF-AIRPORT DEVELOPMENT PROJECTS

Acquisition and demolition of 36 parcels (35 homes) located on Thirteenth Avenue in the City of Columbus (2012)

The proposed runway development would require the acquisition of off-Airport property for the relocated Runway Protection Zone (RPZ) area west of the Airport. In addition, land acquisition or easements would be required for the relocation of the outer markers for the relocated runway.

Reconfiguration of Airport Golf Course to accommodate new landing lights on the east side of the Airport (2012)

The proposed development would require new landing lights on the east end of Runway 10L/28R in the Airport Golf Course. This would require 12 of the 18 holes to be reconfigured or reconstructed to allow golfers to play around the new light lane. At least nine holes would be playable during the reconfiguration or reconstruction.

Relocation of a portion of Stelzer Road to the west to accommodate landing light locations (2012)

A portion of Stelzer Road, south of the intersection with International Gateway, would be relocated for the project. The location and safety requirements of the navigation landing lights would require that the road be moved approximately 100 feet to the west of its current location for a length of approximately 0.25 miles.

Removal of the non-functioning control tower from the top of Building 7 of the International Aircenter (2012)

A portion of the Air Force Plant 85 (now known as the Columbus International Aircenter) would be demolished to remove signal interference with the CAT II navigation system. Air Force Plant 85 has been identified as an eligible district for the National Register of Historic Places. The portion of the Air Force Plant 85 that would be removed is a non-functioning control tower that is located on top of Building 7.

2.2.5 IMPLEMENTATION OF PROPOSED NOISE ABATEMENT AND ASSOCIATED LAND USE MITIGATION MEASURES PROPOSED IN THIS EIS AND THE UPDATED NOISE COMPATIBILITY PROGRAM

The CRAA has prepared an update to the Airport's Part 150 Study to address the current and future noise conditions within the Airport environs. The 2007 Part 150 Study includes an analysis of the potential noise and land use impacts resulting from the proposed development of relocating Runway 10R/28L to the south. The noise abatement and land use mitigation recommendations from the 2007 Part 150 Study are included in the EIS.

Noise Abatement Recommendations

- NA-1: Amend the Port Columbus International Airport Night Time Aircraft Maintenance Run-Up Policy to designate a new run-up location such that EJA's new building will provide attenuation of jet engine maintenance run-ups for adjacent residential areas located along I-270.
- NA-2: Construct a new run-up barrier at the north airfield, if the EJA building does not adequately attenuate jet maintenance run-up for adjacent residential areas located along I-270.
- NA-3: Increase nighttime use of Runway 10L/28R and amend FAA Tower Order CMH ATCT 7110.1 to read as follows: Unless wind, weather, runway closure, or loss of NAVAIDs dictate otherwise, between the hours of 10:00 p.m. and 8:00 a.m. local time, Runways 28L or 10R are assigned jet aircraft; jet aircraft with Stage 3 engines may use Runway 10L/28R for arrival operations between the hours of 10:00 p.m. and 1:00 a.m., local time; and jet aircraft with Stage 3 engines may use Runway 10L or 28R after 6:00 a.m.
- NA-4: Maximize east flow and amend FAA Tower order CMH ATCT 7110.1b and the Airport Facilities Directory to reflect implementation of the "east flow" informal preferential runway use system.
- NA-5: Amend FAA Tower Order CMH ATCT 7110.1 and FAA Notice CMH ATCT N7110.22 to read as follows: During nighttime operations, 10:30 p.m. to 7:00 a.m. local time, the following procedures shall be used for departures off runway 10R: (1) Aircraft normally assigned a runway heading shall be assigned a heading of 100 degrees; (2) Propeller driven aircraft, conventional or turboprop, shall be turned no further than 15 degrees left or right (085 to 115). These headings shall not be altered until the aircraft has reached 3,000 MSL or is 3 miles from runway end; (3) The aircraft will begin the turn at 2.2 DME from the runway 10R LOC/DME; (4) the aircraft must climb to an altitude of 1,215 feet MSL before turning. – *This measure was withdrawn.*
- NA-6: Implement a 15-degree divergent turn off of Runway 28R, after crossing the runway end to a 295-degree heading, only during peak operating periods when traffic warrants.
- NA-7: Create performance-based overlay procedures for all existing and proposed arrival/departure procedures. (RNAV/RNP/GPS/CDA)
- NA-8: Construct a noise berm/wall.
- NA-9: Replacement and potential relocation of Ground Run-up Barrier B (location/materials/size).

Land Use Mitigation Recommendations

- LU-1: Offer a program for noise insulation of noncompatible structures for noncompatible residences within the 65+ DNL contour of the Future (2012) Noise Compatibility Program (NCP) condition, in exchange for an avigation easement.

- LU-2: Offer a program for noise insulation of noncompatible structures for noncompatible churches within the 65+ DNL contour of the Future (2012) Noise Compatibility Program (NCP) condition in exchange for an avigation easement.
- LU-3: Seek cooperation from the City of Columbus and Franklin County to amend their land use compatibility standards to achieve the level of compatibility identified in the recommended land use compatibility guidelines.
- LU-4: Seek cooperation from the City of Columbus and Franklin County to amend the boundaries of the Airport Environs Overlay (AEO) district to reflect the proposed Airport Land Use Management District (ALUMD).
- LU-5: Seek cooperation from Franklin County, City of Gahanna, and Jefferson Township to amend the Franklin County zoning resolution, Section 660.07, avigation easement, to require applicants for rezoning, change of use, or special use permit to convey an avigation easement to the appropriate airport.
- LU-6: Seek cooperation from Jefferson Township and the City of Gahanna to adopt the proposed Airport Land Use Management District (ALUMD) as part of their official zoning regulations.
- LU-7: Seek cooperation from Franklin County, Jefferson Township, Mifflin Township, and the City of Gahanna to adopt subdivision codes applicable to the proposed Airport Land Use Management District (ALUMD).
- LU-8: Seek cooperation from Franklin County, Jefferson Township, Mifflin Township, and the City of Gahanna to adopt building codes applicable to the proposed Airport Land Use Management District (ALUMD).
- LU-9: Seek cooperation from the board of realtors to participate in a fair disclosure program for property located within the proposed Airport Land Use Management District (ALUMD).
- LU-10: Periodically place advertisements in a variety of media outlets delineating the boundaries of the Airport Land Use Management District (ALUMD).
- LU-11: Purchase the Buckles property to prevent imminent noncompatible development from occurring. – *This measure was withdrawn.*
- LU-12: Develop an Airport Land Use Management District (ALUMD) based on the 20-year Noise Exposure Map/Noise Compatibility Program (NCP) noise contour, natural geographic and jurisdictional boundaries.

2.3 FEDERAL ACTIONS

Several Federal actions are directly or indirectly proposed to occur. The CRAA will request Federal actions related to the following issues:

- Unconditional environmental approval of the ALP;
- Federal environmental approval necessary to proceed with processing of Federal funding for those development items qualifying under the Airport and Airway Improvement Act as amended, or an approval to use Passenger Facility Charges (PFCs);
- 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 runway development. Such actions will include, but are not limited to, the establishment or modification of flight procedures and the installation and/or relocation of NAVAIDs associated with the proposed runway development;
- Implementation of approved noise abatement air traffic actions (Acceptability of the approved noise abatement air traffic actions and associated land use compatibility actions are addressed under the 2007 Part 150 Study).

The EIS will constitute the environmental review of the proposed development depicted on the ALP and implementation of the approved noise abatement air traffic actions. The proposed development projects under consideration in this EIS are planned to allow the Airport to accommodate aviation traffic and passenger demand through 2023 and beyond. To complete the necessary development, the CRAA would phase the development of facilities between now and 2023, to coincide with demand and availability of funding.

2.4 TIME FRAME FOR FEDERAL ACTIONS

The FAA issued a *Federal Register* Notice in May 2006, announcing its intent to prepare an EIS for the proposed improvements at CMH. A public and agency scoping meeting was conducted on May 31, 2006. Review of the NCP for purposes of compliance with 14 CFR Part 150 was addressed separately.

The FAA prepared this EIS for the proposed development and implementation of recommendations in the updated NCP. The EIS was prepared to evaluate the impact of the proposed development and its alternatives on the environment. The EIS constitutes the environmental review of the proposed development depicted on the ALP and for the implementation of the noise abatement measures and strategies contained within this EIS.

The proposed Federal actions under consideration in this EIS are planned to allow the Airport to continue to accommodate aviation traffic and passenger growth in the future. To complete the necessary actions, the CRAA will phase the implementation of facilities and mitigation in accordance with demand and availability of funding.

Once the FAA issues a Record of Decision (ROD), formally approving the project, the first projects to be undertaken by the CRAA would be the implementation of noise abatement and land use mitigation measures that are not dependent upon the new airfield reconfiguration. Concurrently, final design for the proposed airfield would be completed and construction would begin on the replacement runway and taxiways. The proposed runway would be commissioned as Runway 10R/28L and at the same time existing Runway 10R/28L would be decommissioned. At that point, flight operations would begin using the replacement runway instead of the existing runway. Final air traffic changes (standard and noise abatement) would be implemented consistent with the proposals identified in this EIS. Work would then begin on converting existing Runway 10R/28L into a taxiway to support the rest of the airfield. After airfield construction is completed, final architecture and design would be completed for the proposed passenger terminal and parking garage. Construction of the proposed passenger terminal and parking garage would commence by first clearing the site of any existing structures or facilities. The program would end with the completion and opening of the proposed passenger terminal and parking garage.

Table 2-4 provides a general schedule for the major proposed development items by phase.

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**Table 2-4
GENERALIZED PROPOSED DEVELOPMENT SCHEDULE
Port Columbus International Airport**

Proposed Development Projects	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Part 150 – Record of Approval											
EIS – Record of Decision											
Implementation of the Part 150 NCP (short term) Recommendations											
Runway 10R/28L Design and Construction											
Runway 10R/28L Commissioning											
Implementation of Air Traffic Procedures for Replacement Runway 10R/28L (including long-term noise abatement)											
Convert Existing Runway 10R/28L to a Taxiway											
Passenger Terminal/Parking Garage Design and Construction											
Opening of Passenger Terminal/Parking Garage											

Source: Landrum & Brown, 2007.

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2.5 INDEPENDENT UTILITY OF OTHER AIRPORT DEVELOPMENT PROJECTS

In addition to the proposed development and 2007 Part 150 Study noise abatement measures, several improvement projects are currently underway. These include:

- Stelzer Road/International Gateway Re-Alignment – This project will realign the intersection of Stelzer Road and International Gateway on the west side of the Airport. It includes the relocation of International Gateway to the north of its current location. The Federal Highway Administration (FHWA), in coordination with the Ohio Department of Transportation, received environmental approval for the project. Construction began in July 2007 and is scheduled to be complete in 2009.
- Crossover Taxiway Project – This project will add a crossover taxiway between the north and south runways on the west side of the airfield. Once complete, the crossover taxiway will provide for the more efficient flow of aircraft on the Airport. The FAA environmentally approved this project and construction began in 2005. Construction was completed in 2008.
- Consolidated Rental Car Facility – The CRAA is currently planning to construct a consolidated rental car facility west of the Airport. This project will result in more efficient rental car operations and provide needed parking spaces near the passenger terminal. The FAA, in accordance with NEPA, is managing the environmental review required for the project. Construction is multi-phased and is expected to occur between 2010 and 2012.
- City of Gahanna Hike/Bike Path Extension – Discussion has occurred between the City of Gahanna and the CRAA regarding the possibility of extending a hike/bike path along the eastern boundary of the Airport. Final plans for this project have yet to be finalized.
- Addition of Terminal Switchback Ramp – This project added a switchback ramp to the existing terminal to accommodate Skybus Airlines start-up at CMH. FAA environmentally approved this project and construction was completed in April 2007.
- Red Parking Lot - The Red Parking Lot project involved major subsurface restoration with a new overlay and striping plan. The project also included the expansion of the Red Lot to the south and the enclosure of Turkey Run.
- Perimeter Road (Phase 1 and Phase 2) - This project constructed roads around the perimeter of the airfield. This allowed for vehicular traffic to travel from north to south (south to north) and east to west (west to east) inside the Aircraft Operations Area (AOA) minimizing the need to cross aircraft movement areas. Phase 1 included the North Airfield and around the west end of existing Runway 10R/28L. Phase 2 was constructed with the Crossover Taxiway.

- Airport Loop Roadway Project – The Airport Loop Roadway project was the generic name given to a number of improvements in the midfield area of the Airport. These improvements included a loop roadway connector and various parking lot additions/improvements. FAA environmentally approved these projects. Construction was completed in October 2008.
- NetJets Corporate Campus - NetJets announced in early 2008 their desire to locate their headquarters at CMH. In order to accomplish this goal, a new office campus is being proposed on and adjacent to their current location in the north airfield. The FAA, in accordance with NEPA, will manage the environmental review required for this project.
- Replacement Employee Parking Lot - This project will reconstruct employee parking that will be displaced due to the new rental car facility being placed on the north side of 17th Avenue. This project constructs approximately 1,500 spaces on the south side of 17th Avenue.

These projects are not dependent or interdependent upon the approval of the Federal actions being requested in this EIS. Furthermore, these projects have all received NEPA approval and therefore, it is expected that these projects will be completed regardless of the approval and progress of the Airport development proposed in this EIS. As such, these projects will occur regardless of the proposed action and are therefore included within the Baseline (No Action) Alternative as well as each development alternative.

2.6 FUNDING

Full implementation of the entire development program would cost approximately \$574 million.¹³ The development could be financed using a combination of private, State of Ohio, local, and Federal funding. Potential funding may be requested from the following sources: the Federal¹⁴ grant-in-aid program authorized by the Airport and Airway Improvement Act of 1982, as amended (recodified at Title 49 U.S.C. § 47101 et seq.) and/or approval of an application to use PFCs, State grants, the issuance of new debt, tenant funds, and local Airport funding. In addition to the capital projects themselves, the structure of the financing plan will ultimately affect the cost of implementation. Funding from the Aviation Trust Fund could provide funds for the capacity and airfield-related projects. The Aviation Trust Fund is derived primarily by a nationwide airline passenger ticket tax.

¹³ The estimated project costs for the Sponsor's Proposed Project is a combination of costs for the Runway 10R/28L relocation project (\$162 million based on the *South Airfield Improvement Study – Conceptual Estimate*, February 2008, prepared by Connico, Inc.) and phase 1 of the terminal project (\$412 million based on the *Program Summary Document*, June 2005, prepared by The Program Management Team).

¹⁴ The projects at Port Columbus International Airport will have to compete with other airport development projects on a national basis for potential funding.