CHAPTER FIVE
ENVIRONMENTAL CONSEQUENCES

5.A INTRODUCTION

This chapter presents an assessment of the environmental impacts of the Sponsor's Proposed Project and its alternatives, including the No Action Alternative. It also presents a discussion of preliminary mitigation measures that the Federal Aviation Administration (FAA) and the Columbus Regional Airport Authority (CRAA) would consider to avoid and minimize potential adverse environmental effects.

As stated in FAA Order 1050.1E, *Environmental Impacts: Policy and Procedures* the environmental consequences section forms the scientific and analytical basis for comparing the Sponsor's Proposed Project and reasonable alternatives. It includes considerations of direct and indirect effects and their significance and possible conflicts between the Sponsor's Proposed Project and the objectives of Federal, regional, state, tribal, and local land use plans, policies, and controls for the area concerned.

The following analysis discloses the impacts for the projected future conditions in 2012 and 2018. The FAA uses 2012 and 2018 as a basis for analysis because 2012 is the projected implementation year of the proposed runway relocation and 2018 is the projected implementation year for the proposed passenger terminal development in the Sponsor's Proposed Project. The 2012 implementation year is based on the lifespan of the runway and the projected need for conducting major repair work. The 2018 implementation year is based on the currently approved forecast of passengers (See Appendix C, *Aviation Activity Forecast*).[1] Appendix P, *Analysis of Accelerated Sponsor's Proposed Project Alternative*, includes an assessment of environmental impacts for the Sponsor's Proposed Project under an accelerated schedule, where both the proposed runway relocation and the proposed passenger terminal development occur in the same general timeframe.

Based on the guidance provided by FAA Order 1050.1E, the environmental impacts of the Sponsor's Proposed Project and alternatives have been evaluated under the categories listed below. In general, the proposed installation of navigational aids (NAVAIDs), relocation of the perimeter road, and modification to Stelzer Road will not result in direct or indirect environmental impacts. Therefore, these elements of the Sponsor's Proposed Project are not directly referenced in most of the impact category sections in this chapter.

[1] FAA approved the Port Columbus International Airport Forecast of Activity on January 9, 2007.

- Section 5.1: Noise
- Section 5.2: Compatible Land Use
- Section 5.3: Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks
- Section 5.4: Secondary (Induced) Impacts
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- Section 5.15: Natural Resources and Energy Supply
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- Section 5.18: Construction Impacts

5.1 NOISE

This section presents the aircraft noise exposure to surrounding communities resulting from implementation of the Proposed Action alternatives as compared to the No Action Alternative. The impact of airport-related noise levels upon the surrounding area is presented in terms of housing units, population, and noise-sensitive land uses within the noise contours. The existing land use and zoning surrounding Port Columbus International Airport (CMH or Airport) is described in Chapter Four, *Affected Environment*. The methodologies used to develop the Geographic Information System (GIS) land use database, the estimated population, and classification of housing units and other noise-sensitive land uses are provided in Appendix F, *Geographic Information System Database Development and Land Use Methodology*. A detailed description of the methodology used to prepare the Day-Night Average Sound Level (DNL) noise contours using the Integrated Noise Model (INM), Version 6.2a, is provided in Appendix D, *Noise*.

Based on Federal Aviation Administration (FAA) standards, aircraft noise impacts are analyzed for areas located within the 65+ DNL noise contour compared to Alternative A the No Action Alternative. The No Action Alternative noise contour provides a baseline for noise impact analysis in this Environmental Impact Statement (EIS). Within the 65+ DNL noise contour, the analysis identifies noise-sensitive land uses such as churches, schools, libraries, hospitals, and nursing homes. An increase in the noise level of DNL 1.5 decibels (dB) or more for a noise-sensitive land use located within the 65+ DNL noise contour is the threshold FAA uses for determining significant noise impacts.

The following alternatives are analyzed for potential noise impacts for 2012 and 2018 conditions:

Alternative A: No Action;

Alternative C2a: Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario A;

Alternative C2b: Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario B;

Alternative C3a: Relocate Runway 10R/28L 702 feet to the South – Noise Abatement Scenario A; and

Alternative C3b: Relocate Runway 10R/28L 702 feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project).

5.1.1 NOISE ANALYSIS AND IMPACT ASSESSMENT – 2012 CONDITIONS

This section provides a summary of the noise analysis of the 2012 conditions for each alternative. An analysis of the 2012 conditions provides potential impacts during the first full year of operation of the runway relocation alternatives.

The 2012 Alternative A will be compared to each of the 2012 runway relocation alternatives, including the Sponsor's Proposed Project (Alternative C3b). More detailed descriptions of the operational characteristics of each alternative are provided later in this section.

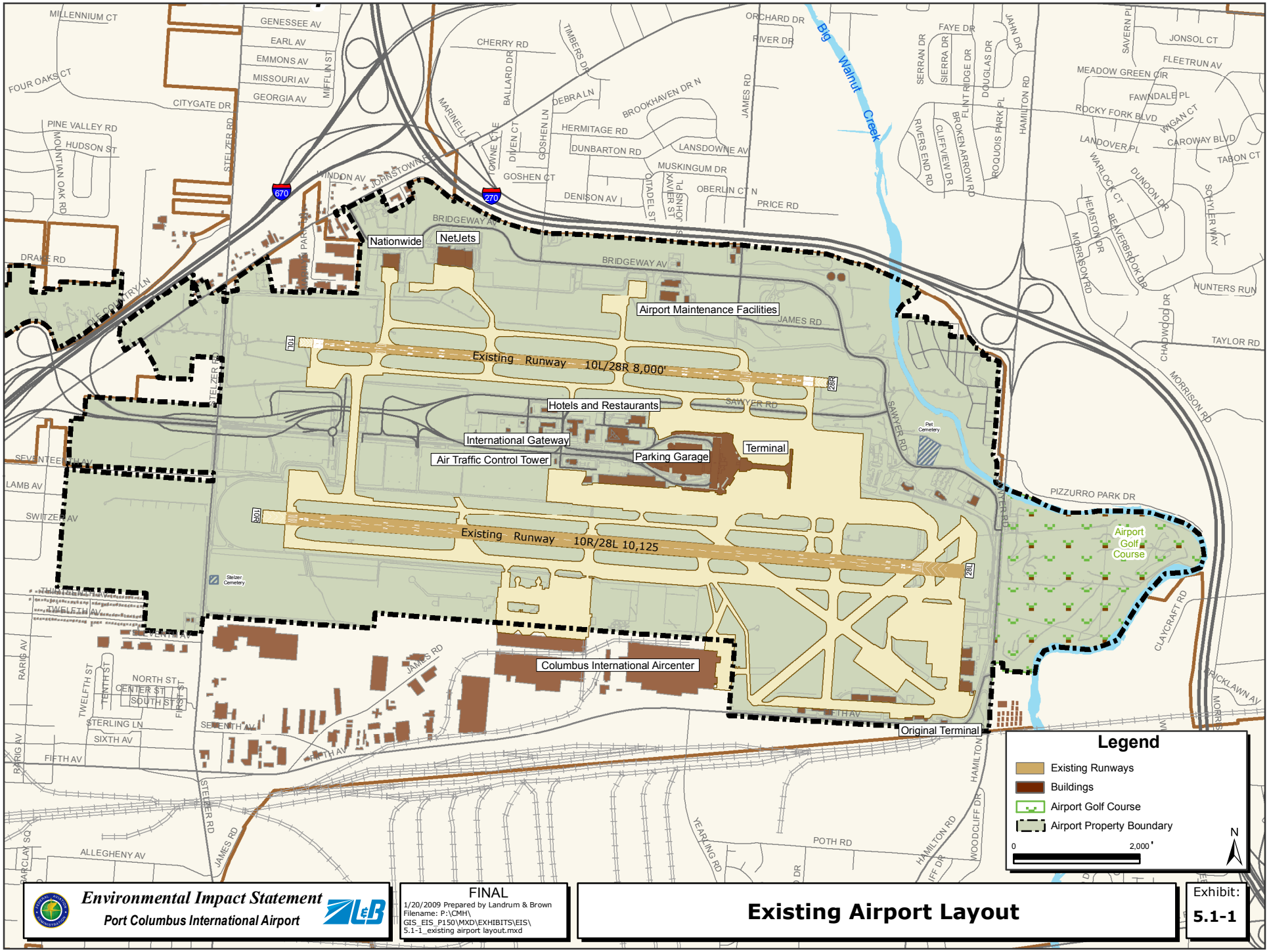
5.1.1.1 2012 Alternative A: No Action

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative A in 2012. The noise exposure and impact assessment prepared for the 2012 Alternative A is the baseline against which all other 2012 alternatives are evaluated.

Runway Definition: CMH has two east/west parallel runways (10L/28R and 10R/28L) spaced 2,800 feet apart. Runway 10R/28L is the longest runway on the airfield at 10,125 feet in length and 150 feet wide. Runway 10L/28R is 8,000 feet long and 150 feet wide. All existing runway ends are equipped with a CAT I Instrument Landing System (ILS). **Exhibit 5.1-1, *Existing Airport Layout*** graphically depicts the existing Airport layout.

Activity Levels and Fleet Mix: **Table 5.1-1** and **Table 5.1-2** provide the operating levels and fleet mix for the 2012 Alternative A. The 2012 aircraft operations are based on the forecast prepared for the 2007 Part 150 Noise Compatibility Study Update[1] (2007 Part 150 Study) and this EIS. The forecast was approved on January 9, 2007 and is included in Appendix C, *Aviation Activity Forecast*. The forecast is based on aviation industry trends and specific airline activity at CMH. The 2012 Alternative A includes 241,600 annual aircraft operations or 662 average-annual day operations, an increase of 22.6 percent from the Existing (2006) Baseline operating levels. The forecast shows a projected increase in the percentage of commuter jet aircraft because airlines are expected to continue the trend of replacing large jets with commuter jets. The percentage of commuter jets in the fleet mix increases from 42 percent in the Existing (2006) Baseline to 51 percent in the 2012 Alternative A. For large jets, there is an overall increase in total operations, but the percentage decreases from 21 percent in the Existing (2006) Baseline to 19 percent in the 2012 Alternative A. Embraer 145s, Embraer 170s, and Canadair Regional Jets are expected to continue to be the most common aircraft at CMH.

[1] 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.



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Existing Airport Layout

Exhibit: **5.1-1**

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Table 5.1-1
AVERAGE DAY OPERATIONS – 2012 ALTERNATIVE A
Port Columbus International Airport

Aircraft Category	Arrivals		Departures		Total		Grand Total	Percent of Total
	Day	Night	Day	Night	Day	Night		
Large Jet	49	15	55	9	104	24	128	19%
Commuter Jet	144	26	141	29	285	55	340	51%
Commuter Prop	5	2	5	2	10	4	14	2%
General Aviation Jet	39	6	39	6	78	12	90	14%
General Aviation Prop	41	4	41	4	82	8	90	14%
Total	**278**	**53**	**281**	**50**	**559**	**103**	**662**	**100%**

Day: 7:00 a.m. to 9:59 p.m.
Night: 10:00 p.m. to 6:59 a.m.
Source: ATCT records, Official Airline Guide (OAG), and Landing Fee Reports, Landrum & Brown, 2007.

Table 5.1-2
AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE –
2012 ALTERNATIVE A
Port Columbus International Airport

Aircraft Type	INM Code	Arrivals		Departures		Total	
		Day	Night	Day	Night	Day	Night
Large Jet							
Boeing 737-300	737300	11	4	12	3	23	7
Boeing 737-300	7373B2	3	0	3	0	6	0
Boeing 737-400	737400	4	1	5	0	9	1
Boeing 737-500	737500	3	1	3	1	6	2
Boeing 737-700	737700	14	3	14	3	28	6
Boeing 737-800	737800	5	1	6	0	11	1
Boeing 757-300	757300	1	0	1	0	2	0
Airbus 320	A320	0	1	1	0	1	1
Airbus 320	A32023	0	1	1	0	1	1
McDonnell-Douglas DC-9	DC93LW	5	1	5	1	10	2
Military Tanker	KC135R	1	0	1	0	2	0
McDonnell-Douglas MD-83	MD83	2	2	3	1	5	3
Subtotal		***49***	***15***	***55***	***9***	***104***	***24***

Table 5.1-2, *Continued*
AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE – 2012 ALTERNATIVE A
Port Columbus International Airport

Aircraft Type	INM Code	Arrivals		Departures		Total	
		Day	Night	Day	Night	Day	Night
Commuter Jet							
BAe Avro RJ-85	BAE146	1	0	1	0	2	0
Dessault Falcon 2000	CL600	3	0	3	0	6	0
Canadair Regional Jet / Embraer ERJ-170 / 190	CL601	43	4	42	5	85	9
Embraer 135 / 145	EMB145	6	0	4	2	10	2
Embraer 145	EMB14L	62	17	62	17	124	34
Commuter Jet	GIV	3	0	2	1	5	1
Commuter Jet	LEAR25	4	2	6	0	10	2
Cessna Citation / BAE125 Hawker	LEAR35	10	1	10	1	20	2
Cessna 560	MU3005	12	2	11	3	23	5
Subtotal		***144***	***26***	***141***	***29***	***285***	***55***
Commuter Prop							
Beech 1900D	DHC6	2	1	2	1	4	2
Bombardier Dash-8 Series	DHC8	1	1	1	1	2	2
Commuter Turbo Prop	HS748A	2	0	2	0	4	0
Subtotal		***5***	***2***	***5***	***2***	***10***	***4***
General Aviation Jet							
Business Jet	CIT3	3	0	3	0	6	0
Business Jet	CL600	5	2	5	2	10	4
Business Jet	CNA500	1	1	2	0	3	1
Business Jet	FAL20	2	0	2	0	4	0
Business Jet	GIIB	2	0	2	0	4	0
Business Jet	GIV	3	0	2	1	5	1
Business Jet	LEAR25	10	0	9	1	19	1
Business Jet	LEAR35	6	3	7	2	13	5
Business Jet	MU3001	7	0	7	0	14	0
Subtotal		***39***	***6***	***39***	***6***	***78***	***12***
General Aviation Prop							
Twin-Engine Prop	BEC58P	11	2	11	2	22	4
Twin-Engine Turbo Prop	CNA441	3	0	3	0	6	0
Single-Engine Prop	GASEPF	15	2	15	2	30	4
Single-Engine Prop	GASEPV	9	0	9	0	18	0
Single-Engine Prop	PA28	2	0	2	0	4	0
Twin-Engine Prop	PA31	1	0	1	0	2	0
Subtotal		***41***	***4***	***41***	***4***	***82***	***8***
Grand Total		**278**	**53**	**281**	**50**	**559**	**103**

Day: 7:00 a.m. to 9:59 p.m.

Night: 10:00 p.m. to 6:59 a.m.

Source: Landing Fee Reports, ATCT records, CRAA ANOMS data, Landrum & Brown, 2007.

Runway End Utilization: Average-annual runway end utilization for the 2012 Alternative A was derived from analysis of the CMH Airport Noise and Operations Monitoring System (ANOMS) data from 2005 through 2007 with modifications to account for operational conditions expected in 2012.

It was observed that during the Day (7:00 a.m. - 9:59 p.m.), the Airport is operated in one of two configurations — west flow (approximately 75 percent of the time) or east flow (approximately 25 percent of the time). West flow is the more dominant flow due to the prevailing southwest winds. This ratio of east-west flow would be expected to continue under the 2012 Alternative A. However, by not reconstructing the south runway (Runway 10R/28L), it is expected that an increasing number of periodic closures for maintenance would be required, thus necessitating more usage of the north runway than was seen in the Existing (2006) Baseline. In general, it was assumed that the north runway would experience six percent additional use due to the increased periodic closures. The runway use modeled for the 2012 Alternative A is shown in **Table 5.1-3**

Table 5.1-3
RUNWAY END UTILIZATION – 2012 ALTERNATIVE A
Port Columbus International Airport

Day Arrivals				
Aircraft Category	**10L**	**10R**	**28L**	**28R**
Large Jet	11.4	13.6	44.9	30.1
Commuter Jet	18.8	4.3	19.4	57.5
Commuter Prop	15.8	8.3	27.5	48.4
General Aviation Jet	8.0	14.5	53.8	23.7
General Aviation Prop	8.7	14.6	51.3	25.4
Night Arrivals				
Aircraft Category	**10L**	**10R**	**28L**	**28R**
Large Jet	13.2	37.3	35.5	14.0
Commuter Jet	27.8	6.6	17.2	48.4
Commuter Prop	17.6	25.0	30.2	27.2
General Aviation Jet	9.2	22.6	46.2	22.0
General Aviation Prop	15.0	34.1	28.9	22.0
Day Departures				
Aircraft Category	**10L**	**10R**	**28L**	**28R**
Large Jet	8.5	13.2	50.1	28.2
Commuter Jet	16.5	5.4	25.6	52.5
Commuter Prop	15.6	8.7	30.8	44.9
General Aviation Jet	7.4	13.8	56.1	22.7
General Aviation Prop	8.9	14.6	51.5	25.0
Night Departures				
Aircraft Category	**10L**	**10R**	**28L**	**28R**
Large Jet	7.6	10.3	52.3	29.8
Commuter Jet	12.5	8.4	18.3	60.8
Commuter Prop	7.6	17.6	40.1	34.7
General Aviation Jet	7.3	16.8	54.7	21.2
General Aviation Prop	7.3	20.3	43.0	29.4

Day: 7:00 a.m. – 9:59 p.m.
Night: 10:00 p.m. – 6:59 a.m.
Source: 2005, 2006, 2007 CRAA ANOMS data, Landrum & Brown, 2007.

Flight Tracks: A flight track is the path over the ground as an aircraft flies to or from the Airport. ANOMS radar data was gathered for the period from May 2005 through April 2006 and analyzed to verify the location, density, and width of existing flight corridors. Consolidated flight tracks were developed from this radar data and used in the INM to model the flight corridors present around the Airport.

There are two components to flight tracks used for noise modeling: track definition and percentage of use. Exhibits showing the individual flight tracks modeled for the 2012 alternatives and the corresponding tables providing the proportion of aircraft

operations assigned to each of the flight tracks are included in Appendix D. Flight corridors at CMH are a function of the standard departure procedures, which assign jet aircraft to fly the runway heading until reaching five miles or 3,500 feet mean sea level (MSL). The use of each flight track is a function of runway use and the destination or origin of each aircraft.

Aircraft Weight and Trip Length: Aircraft weight during departure is a factor in the dispersion of noise because it impacts the rate at which an aircraft is able to climb. Generally, heavier aircraft have a slower rate of climb and a wider dispersion of noise along their flight routes. Where specific aircraft weights are unknown, the INM uses the distance flown to the first stop as a surrogate for the weight, by assuming that the weight has a direct relationship with the fuel load necessary to reach the first destination. The INM groups trip lengths into seven stage categories and assigns standard aircraft weights to each stage category. These categories are:

Stage Category	Stage Length
1	0-500 nautical miles
2	500-1000 nautical miles
3	1000-1500 nautical miles
4	1500-2500 nautical miles
5	2500-3500 nautical miles
6	3500-4500 nautical miles
7	4500+ nautical miles

The trip lengths flown from CMH are based on scheduled operations for the baseline period. **Table 5.1-4** indicates the proportion of the operations that fell within each of the seven stage length categories for the 2012 Alternative A operating levels. This table shows that 53 percent of all large jet departures and 84 percent of all commuter jet departures operated to destinations with a stage length of one.

Table 5.1-4
DEPARTURE TRIP LENGTH DISTRIBUTION –
2012 ALTERNATIVE A
Port Columbus International Airport

Stage Length	Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
1	53%	84%	100%	100%	100%
2	20%	16%	0%	0%	0%
3	13%	0%	0%	0%	0%
4	14%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%

Source: Landrum & Brown, 2007.

Results from the correlation of noise levels and altitude distances from the Noise Measurement Program conducted in June 2006 for the 2007 Part 150 Study found that in most cases the standard approach to assigning aircraft weights adequately represents the activity at CMH. However, during aircraft monitoring sessions it was noted that Boeing 737-300, Airbus 320, and McDonnell Douglas MD-80 Series aircraft were consistently lower (and presumably heavier) than their distance-based stage length would define them to be. Therefore, a higher stage length was assigned when modeling these aircraft to more accurately reflect their measured noise levels and departure profiles. A complete discussion of the aircraft monitoring results is included in Appendix D.

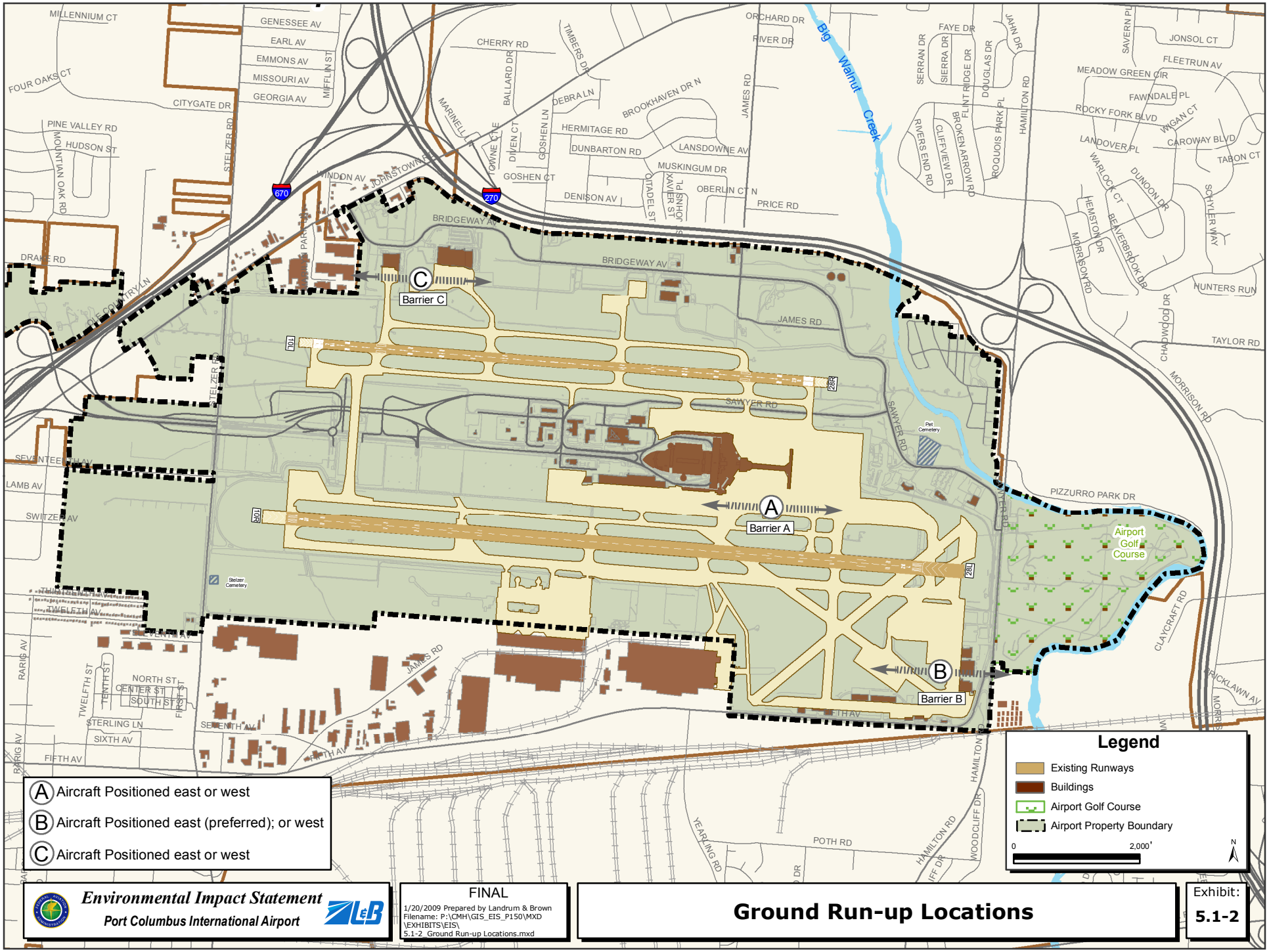
Ground Run-up Noise: Engine run-up locations and times were obtained from the Columbus Regional Airport Authority (CRAA) and modeled in the INM. At CMH, engine run-ups are primarily performed on regional jet, general aviation jet, and narrowbody jet aircraft. These run-ups occur at the three locations described below and graphically depicted on **Exhibit 5.1-2, *Ground Run-up Locations***. Nearly all engine run-ups occur during the Night (10:00 p.m. - 6:59 a.m.). **Table 5.1-5** shows the number, types, and the duration of engine run-ups that were modeled for the 2012 Alternative A.

- **Barrier A:** Located to the south of Concourse B, along the south edge of the terminal apron. Aircraft face either east or west, parallel to the wall, and are positioned on the north side of the barrier.
- **Barrier B:** Located just north of the southeast end of Taxiway G. Aircraft face east (preferred) or west between the two sound barrier walls. The majority of run-ups occur here due to the proximity to the American Eagle and Chautauqua maintenance hangar. This location is also where the narrowbody run-ups will occur in the future after modifications are made to the barrier.
- **Barrier C:** Located on the north airfield near the NetJets ramp, north of Runway 10L/28R. Aircraft face either east or west, parallel to the wall, and are positioned on the south side of the barrier.

Table 5.1-5
GROUND RUN-UP OPERATIONS – 2012 ALTERNATIVE A: NO ACTION
Port Columbus International Airport

INM Aircraft Type	Average Daily Ground Run-up Operations	Average Duration in Seconds	Power (Thrust) Settings
CL600	2.3	420	6000 lbs.
Narrowbody (i.e., A319, A320, B737)	0.5	420	70%

Source: Landrum & Brown, 2007.


Barrier C
Barrier A
Barrier B
Big Walnut Creek
Airport Golf Course
Stelzer Cemetery
Pet Cemetery
Legend
Existing Runways
Buildings
Airport Golf Course
Airport Property Boundary
0
2,000'
N
A Aircraft Positioned east or west
B Aircraft Positioned east (preferred); or west
C Aircraft Positioned east or west
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Ground Run-up Locations
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5.1-2

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Noise Exposure Contour: The 2012 Alternative A noise exposure contour for 60, 65, 70, and 75 DNL levels are graphically depicted on **Exhibit 5.1-3**, ***2012 Alternative A: No Action Noise Exposure Contour.***

A DNL noise contour does not represent the noise levels present on any specific day, but rather represents the energy-average of all 365 days of operation during the year. Noise contour patterns extend from an airport along each extended runway centerline, reflective of the flight tracks used by all aircraft. The relative distance of a contour from the airport along each route is a function of the frequency of use of each runway end for total arrivals and departures, as well as its use at night and the type of aircraft flying each route.

The size and shape of the noise contours for CMH are a function of the combination of flight tracks and runway use. As modeled for the 2012 Alternative A, 75 percent of operations were in west flow (arriving to and departing from Runways 28L/28R) and 25 percent of the operations were in east flow (arriving to and departing from Runways 10L/10R). As a result, the 2012 Alternative A noise contour is longer and wider to the west of the Airport than to the east. **Table 5.1-6** provides the total area within the 2012 No Action noise contours.

Table 5.1-6
COMPARISON OF AREAS WITHIN THE 2012 ALTERNATIVE A NOISE EXPOSURE CONTOUR (IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2012 ALTERNATIVE A
60-65 DNL	5.8
65-70 DNL	2.7
70-75 DNL	1.3
75 + DNL	1.1
65 + DNL	5.1

Contour: 2012_NA_rev6.
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2012 Alternative A, encompasses 5.1 square miles of land. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: FAA Order 1050.1E*, Environmental Impacts: Policies and Procedures,* Appendix A, paragraph 14.1a states that DNL is the primary metric for describing aircraft noise exposure. However, DNL analysis may be supplemented with additional metrics to assist in the public's understanding of the noise impact. Therefore, supplemental noise analysis was prepared for this EIS.

Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results for DNL, equivalent sound level (Leq), single event noise level (SEL), maximum noise levels (Lmax), and Time Above 65 dB (TA65) for all of the conditions assessed in this EIS are provided in Appendix D.

5.1.1.2 Alternative C2a: 2012 Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario A

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C2a in 2012.

Runway Definition: Alternative C2a includes the relocation of Runway 10R/28L 800 feet to the south. The proposed relocated runway would be 10,113 feet in length and would be separated from the north runway by 3,600 feet. For discussion purposes in this document the proposed relocated runway will be referred to as Runway 10X/28X. **Exhibit 5.1-4, *2012 Alternative C2a Proposed Airport Layout*** graphically depicts the Airport layout proposed under Alternative C2a.

Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2012 Alternative A and shown on Table 5.1-1 and Table 5.1-2, would remain the same for the 2012 Alternative C2a.

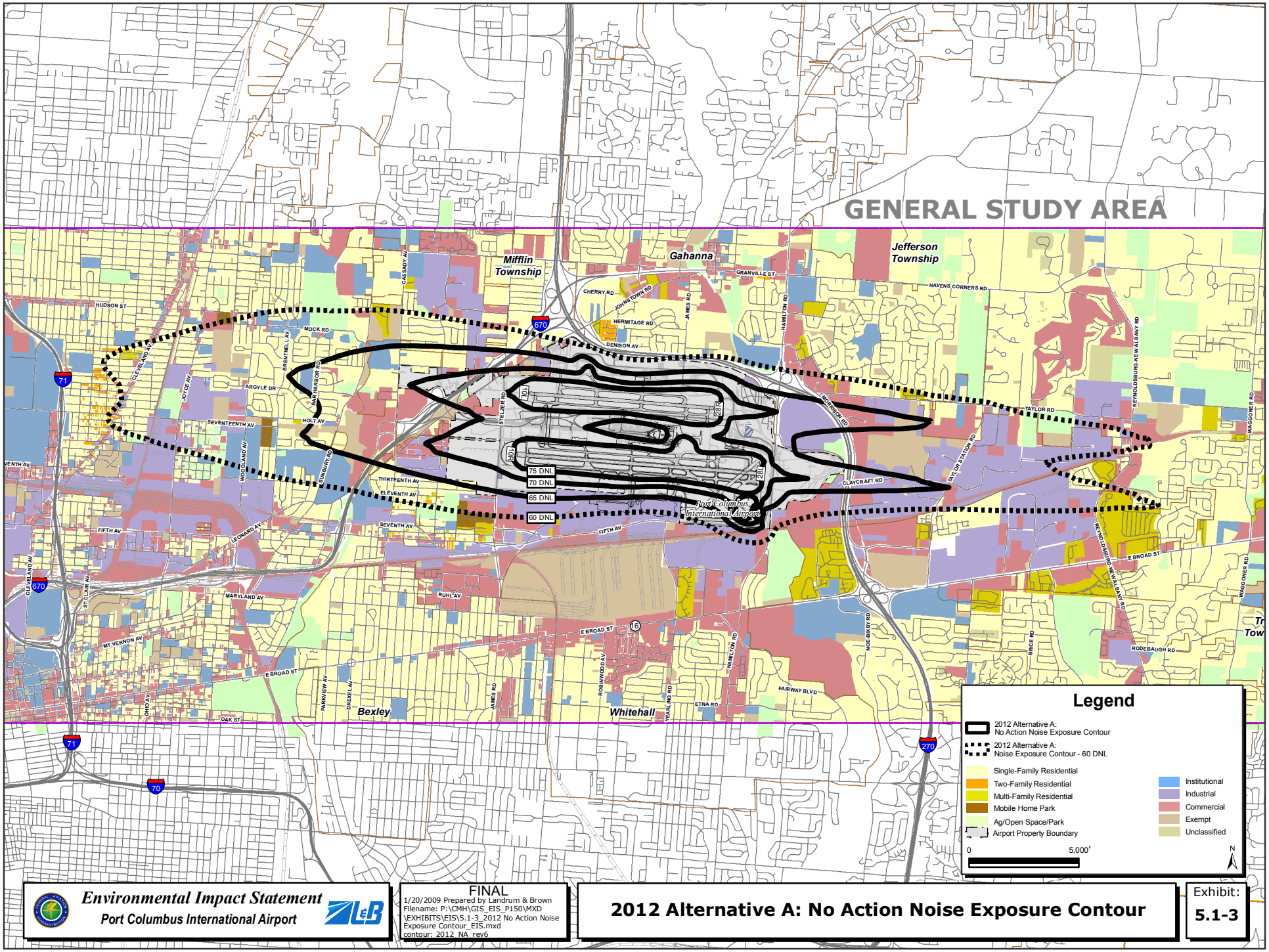
Runway End Utilization: The proposed relocation of Runway 10R/28L (10X/28X) is not expected to affect runway use percentages from what was modeled for the Existing (2006) Baseline. Under this alternative, by 2012 the relocated runway would be fully operational. **Table 5.1-7** shows the runway use that was modeled for 2012 Alternative C2a.

Flight Tracks: Proposed Runway 10X/28X under Alternative C2a would not affect the flight track utilization percentages shown in Appendix D. However, it would affect the location of flight tracks because they would shift in relation to the proposed relocated runway. Exhibits in Appendix D show the INM flight tracks modeled for the 2012 Alternative C2a.

Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2012 Alternative A, and shown in Table 5.1-4, would remain the same for the 2012 Alternative C2a.

Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2012 Alternative A and shown in Table 5.1-5 and graphically depicted on Exhibit 5.1-2, would remain the same for the 2012 Alternative C2a.

Noise Exposure Contour: The 2012 Alternative C2a noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-5**, ***2012 Alternative C2a Noise Exposure Contour.***



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contour: 2012_NA_rev6

2012 Alternative A: No Action Noise Exposure Contour

Exhibit: **5.1-3**

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Relocate Runway
10R/28L 800 feet South

Runway Protection Zone

Object Free Area
Runway Safety Area

Runway Protection Zone

Airport
Golf
Course

Pet
Cemetery

Stelzer
Cemetery

Legend

- Future Runways
- Buildings
- Airport Golf Course
- Airport Property Boundary

0 1,000' N

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2012 Alternative C2a Proposed Airport Layout

Exhibit:
5.1-4

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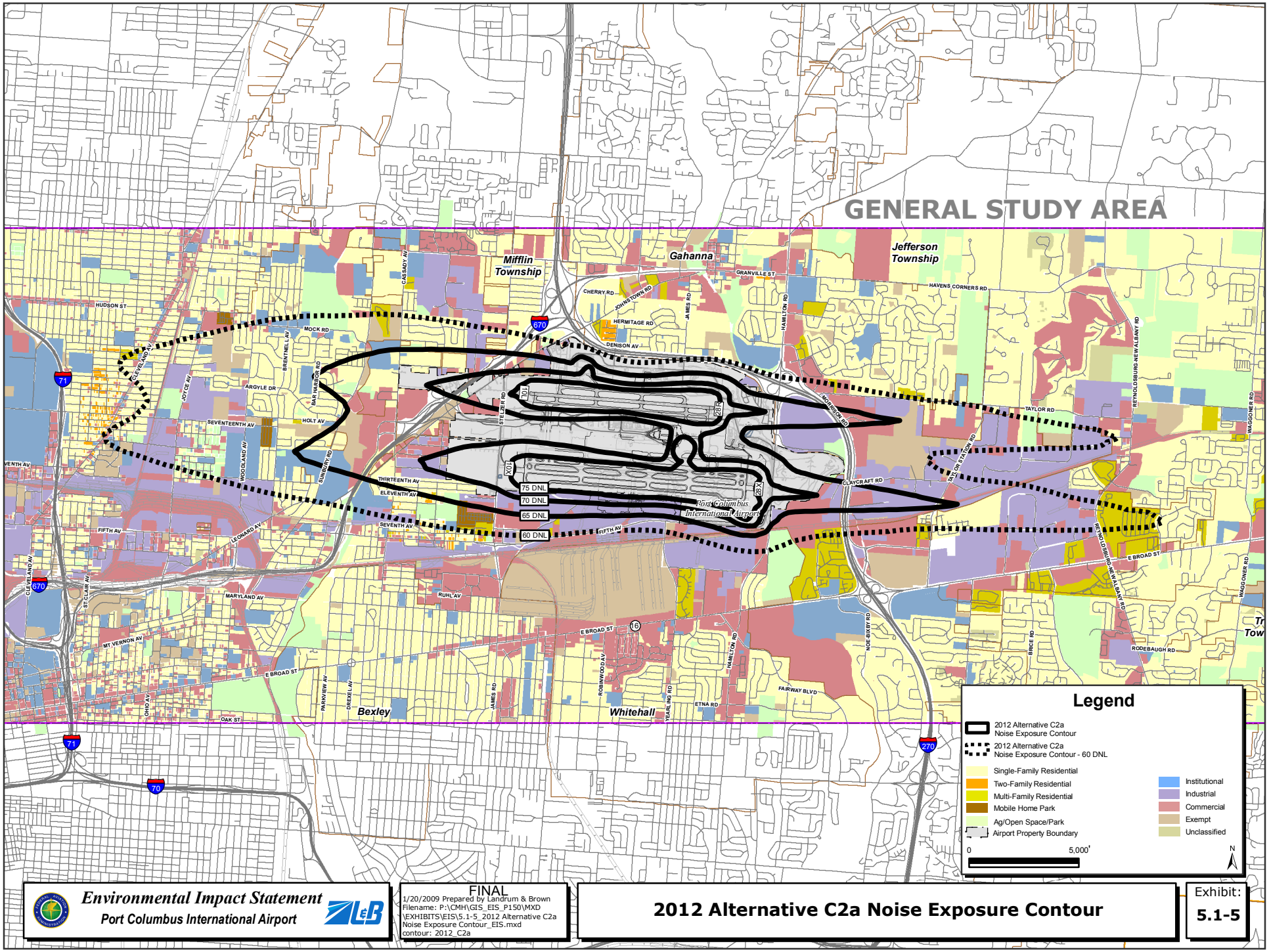

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contour: 2012_C2a

2012 Alternative C2a Noise Exposure Contour

Exhibit: **5.1-5**

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Table 5.1-7
RUNWAY END UTILIZATION – 2012 ALTERNATIVE C2a
Port Columbus International Airport

Day Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	8.4	16.6	27.1	47.9
Commuter Jet	15.8	7.3	54.5	22.4
Commuter Prop	12.8	11.3	45.4	30.5
General Aviation Jet	5.0	17.5	20.7	56.8
General Aviation Prop	5.7	17.6	22.4	54.3
Night Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	10.2	40.3	11.0	38.5
Commuter Jet	24.8	9.6	45.4	20.2
Commuter Prop	14.6	28.0	24.2	33.2
General Aviation Jet	6.2	25.6	19.0	49.2
General Aviation Prop	12.0	37.1	19.0	31.9
Day Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	5.5	16.2	25.2	53.1
Commuter Jet	13.5	8.4	49.5	28.6
Commuter Prop	12.6	11.7	41.9	33.8
General Aviation Jet	4.4	16.8	19.7	59.1
General Aviation Prop	5.9	17.6	22.0	54.5
Night Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	4.6	13.3	26.8	55.3
Commuter Jet	9.5	11.4	57.8	21.3
Commuter Prop	4.6	20.6	31.7	43.1
General Aviation Jet	4.3	19.8	18.2	57.7
General Aviation Prop	4.3	23.3	26.4	46.0

Day: 7:00 a.m. – 9:59 p.m.
Night: 10:00 p.m. – 6:59 a.m.
Note: 10X/28X denotes the proposed relocated Runway 10R/28L.
Source: 2005, 2006, 2007 CRAA ANOMS data, Landrum & Brown, 2007.

The 2012 Alternative C2a noise contour is larger than the 2012 Alternative A noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations further south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by approximately 800 feet. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contour. **Table 5.1-8** provides a comparison of the areas within the 2012 Alternative A and the 2012 Alternative C2a noise contours.

Table 5.1-8
COMPARISON OF AREAS WITHIN THE 2012 ALTERNATIVE C2a AND THE 2012 ALTERNATIVE A NOISE EXPOSURE CONTOUR (IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2012 NO ACTION	2012 ALTERNATIVE C2a	DIFFERENCE
60-65 DNL	5.8	6.1	0.3
65-70 DNL	2.7	3.1	0.4
70-75 DNL	1.3	1.1	-0.2
75 + DNL	1.1	1.1	0.0
65 + DNL	5.1	5.3	0.2

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2012_NA_rev6/ 2012_C2a
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2012 Alternative C2a encompasses 5.3 square miles of land, an increase of 0.2 square miles compared to the 65+ DNL of the 2012 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.

5.1.1.3 Alternative C2b: 2012 Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario B

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C2b in 2012.

Runway Definition: The runway layout discussed for the 2012 Alternative C2a including the relocation of Runway 10R/28L (10X/28X) 800 feet to the south graphically depicted on Exhibit 5.1-4, would remain the same for the 2012 Alternative C2b.

Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2012 Alternative A and shown on Table 5.1-1 and Table 5.1-2, would remain the same for 2012 Alternative C2b.

Runway End Utilization: 2012 Alternative C2b includes the recommendations of the 2007 Noise Compatibility Plan (NCP). The 2007 NCP recommends renewed efforts to maximize east flow during calm winds, which is currently in the Airport Traffic Control Tower (ATCT) Tower Order for CMH. Renewed efforts will include identifying impediments to higher use of east flow, and working with ATCT staff and the airlines to address these issues. For the 2012 Alternative A, it was assumed that the Airport would continue to operate in west flow approximately 75 percent of the time and east flow approximately 25 percent of the time. For the purposes of modeling the 2012 Alternative C2b, which includes the implementation of the 2007 NCP, it was assumed that renewed efforts to maximize east flow would result in at least a five percent shift towards east flow (70 percent west flow, 30 percent east flow). **Table 5.1-9, *Runway End Utilization – 2012 Alternative C2b***, shows runway use percentages modeled for the 2012 Alternative C2b.

Table 5.1-9
RUNWAY END UTILIZATION – 2012 ALTERNATIVE C2b
Port Columbus International Airport

Day Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	10.1	19.9	25.3	44.7
Commuter Jet	20.5	9.5	49.6	20.4
Commuter Prop	15.9	14.1	41.9	28.1
General Aviation Jet	6.7	23.3	18.7	51.3
General Aviation Prop	7.3	22.7	20.4	49.6
Night Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	10.2	40.3	11	38.5
Commuter Jet	24.8	9.6	45.4	20.2
Commuter Prop	14.6	28	24.2	33.2
General Aviation Jet	6.2	25.6	19	49.2
General Aviation Prop	12	37.1	19	31.9
Day Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	7.6	22.4	22.5	47.5
Commuter Jet	18.5	11.5	44.4	25.6
Commuter Prop	15.6	14.4	38.7	31.3
General Aviation Jet	6.2	23.8	17.5	52.5
General Aviation Prop	7.5	22.5	20.1	49.9
Night Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	7.7	22.3	22.9	47.1
Commuter Jet	13.6	16.4	51.2	18.8
Commuter Prop	5.5	24.5	29.7	40.3
General Aviation Jet	5.4	24.6	16.8	53.2
General Aviation Prop	4.7	25.3	25.5	44.5

Day: 7:00 a.m. – 9:59 p.m.

Night: 10:00 p.m. – 6:59 a.m.

Note: 10X/28X denotes the proposed relocated Runway 10R/28L.
Source: 2005, 2006, 2007 CRAA ANOMS data, Landrum & Brown, 2007.

Flight Tracks: 2012 Alternative C2b includes the NCP measures recommended by the 2007 Part 150 Study. The following recommendation would affect flight tracks:

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.

Exhibits showing the individual flight tracks modeled for the 2012 alternatives and the corresponding tables providing the proportion of operations assigned to each of the flight tracks are included in Appendix D.

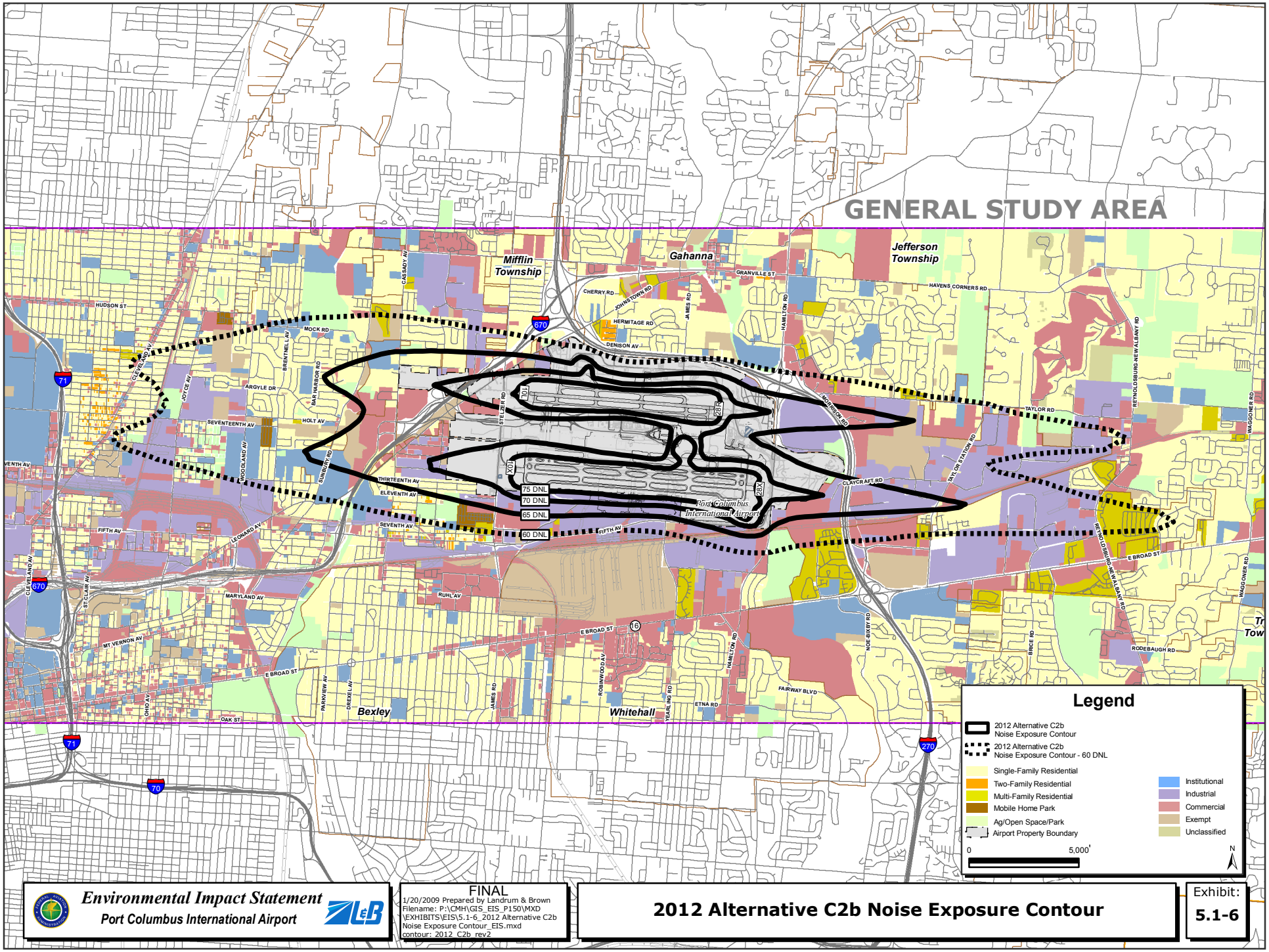
Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2012 Alternative A and shown in Table 5.1-4, would remain the same for the 2012 Alternative C2b.

Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2012 Alternative A, and shown in Table 5.1-5 and graphically depicted on Exhibit 5.1-2, would remain the same for the 2012 Alternative C2b.

Noise Exposure Contour: The 2012 Alternative C2b noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-6**, ***2012 Alternative C2b Noise Exposure Contour.***

The 2012 Alternative C2b noise contour is larger than the 2012 Alternative A noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations further south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by approximately 800 feet. Therefore, the noise contour would shift in relation to the relocated runway. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contours.

The implementation of the 2007 NCP also affects the noise contour compared to the 2012 Alternative A noise contour. Due to the recommendation to maximize east flow, the noise contour increases in size to the east while decreasing in size to the west. **Table 5.1-10** provides a comparison of the areas within the 2012 Alternative A and the 2012 Alternative C2b noise contours.



Environmental Impact Statement
Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.1-6_2012 Alternative C2b Noise Exposure Contour_EIS.mxd
contour: 2012_C2b_rev2

2012 Alternative C2b Noise Exposure Contour

Exhibit: **5.1-6**

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Table 5.1-10
COMPARISON OF AREAS WITHIN THE 2012 ALTERNATIVE C2b AND THE 2012 ALTERNATIVE A NOISE EXPOSURE CONTOUR
(IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2012 ALTERNATIVE A	2012 ALTERNATIVE C2b	DIFFERENCE
60-65 DNL	5.8	6.3	0.5
65-70 DNL	2.7	3.1	0.4
70-75 DNL	1.3	1.1	-0.2
75 + DNL	1.1	1.1	0.0
65 + DNL	5.1	5.3	0.2

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2012_NA_rev6 / 2012_C2b_rev2
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2012 Alternative C2a encompasses 5.3 square miles of land, an increase of 0.2 square miles compared to the 65+ DNL of the 2012 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.

5.1.1.4 Alternative C3a: 2012 Relocate Runway 10R/28L 702 feet to the South – Noise Abatement Scenario A

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C3a in 2012.

Runway Definition: Alternative C3a includes the relocation of Runway 10R/28L 702 feet to the south. The proposed relocated runway would be 10,113 feet and would be separated from the north runway by 3,502 feet. For discussion purposes in this document, the proposed relocated runway will be referred to as Runway 10X/28X. **Exhibit 5.1-7, *2012 Alternative C3a Proposed Airport Layout*,** graphically depicts the Airport layout proposed under Alternative C3a.

Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2012 Alternative A and shown on Table 5.1-1 and 5.1-2 would remain the same for the 2012 Alternative C3a.

Runway End Utilization: The runway end utilization discussed for the 2012 Alternative C2a and shown in Table 5.1-7, would remain the same for the 2012 Alternative C3a.

Flight Tracks: The proposed relocation of Runway 10R/28L under Alternative C3a would not affect the flight track utilization percentages shown in Appendix D. However, it would affect location of flight tracks as they would shift in relation to the proposed relocated runway. Exhibits in Appendix D depict flight tracks modeled for the 2012 Alternative C3a, which includes the proposed relocated runway.

Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2012 Alternative A, and shown in Table 5.1-4, would remain the same for the 2012 Alternative C3a.

Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2012 Alternative A, shown in Table 5.1-5 and graphically depicted on Exhibit 5.1-2, would remain the same for the 2012 Alternative C3a.

Noise Exposure Contour: The 2012 Alternative C3a noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-8**, ***2012 Alternative C3a Noise Exposure Contour.***

The 2012 Alternative C3a noise contour is larger than the 2012 Alternative A noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations farther south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by approximately 702 feet. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contour. **Table 5.1-11** provides a comparison of the areas within the 2012 Alternative A and the 2012 Alternative C3a noise contours.

Relocate Runway
10R/28L 702 feet South

Runway Protection Zone

Object Free Area
Runway Safety Area

Airport
Golf
Course

Pet
Cemetery

Stelzer
Cemetery

Big Walnut Creek

Legend

- Future Runways
- Buildings
- Airport Golf Course
- Airport Property Boundary

0 1,000' N

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2012 Alternative C3a Proposed Airport Layout

Exhibit:
5.1-7

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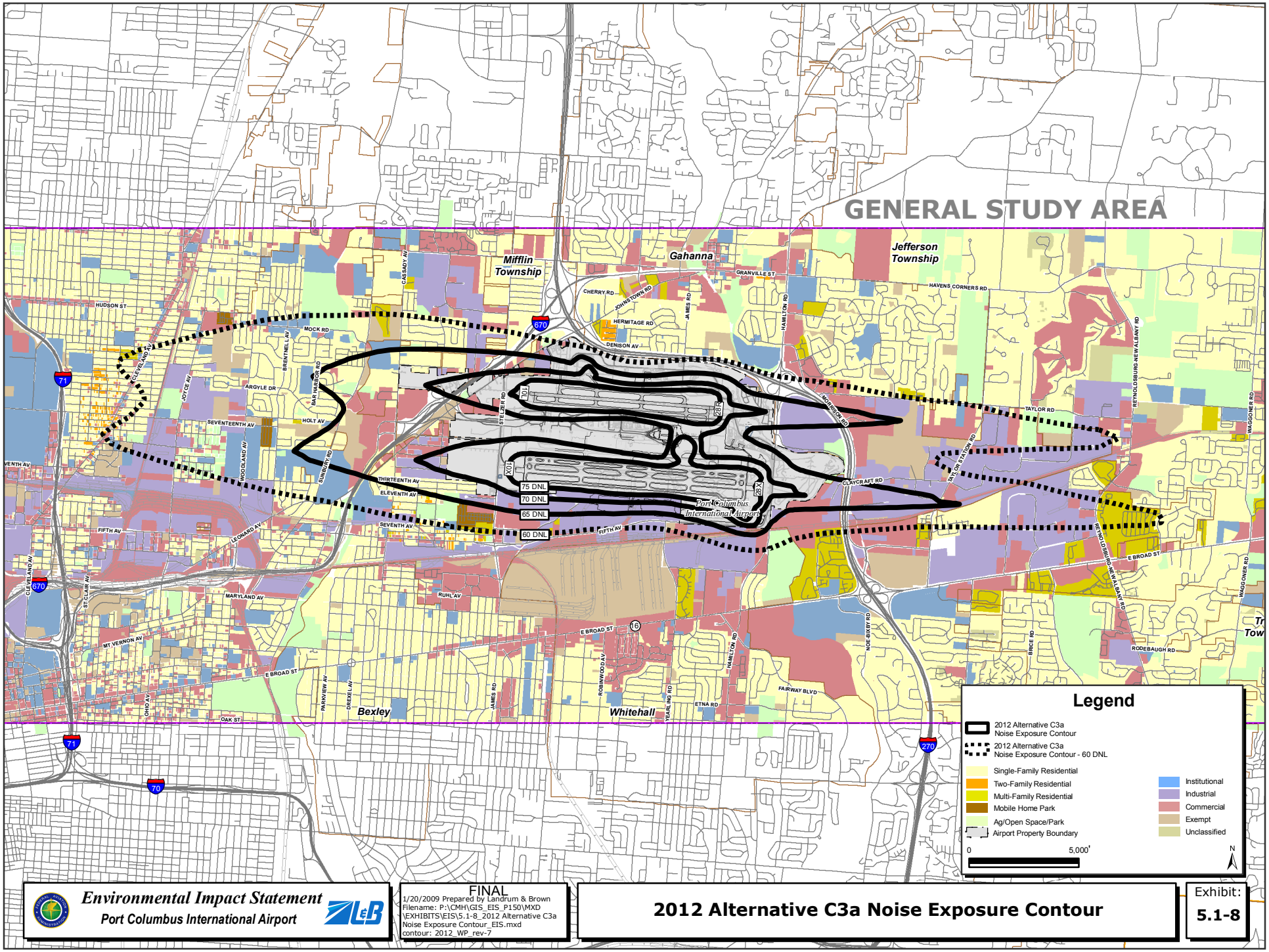

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Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.1-8_2012 Alternative C3a Noise Exposure Contour_EIS.mxd
contour: 2012_WP_rev-7

2012 Alternative C3a Noise Exposure Contour

Exhibit: **5.1-8**

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Table 5.1-11
COMPARISON OF AREAS WITHIN THE 2012 ALTERNATIVE C3a AND THE 2012 ALTERNATIVE A NOISE EXPOSURE CONTOUR
(IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2012 ALTERNATIVE A	2012 ALTERNATIVE C3a	DIFFERENCE
60-65 DNL	5.8	6.0	0.2
65-70 DNL	2.7	3.0	0.3
70-75 DNL	1.3	1.1	-0.2
75 + DNL	1.1	1.1	0.0
65 + DNL	5.1	5.2	0.1

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2012_NA_rev6 / 2012_WP_rev7
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2012 Alternative C3a, encompasses 5.2 square miles of land, an increase of 0.1 square miles compared to the 65+ DNL of the 2012 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours, are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.

5.1.1.5 Alternative C3b: 2012 Relocate Runway 10R/28L 702 feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C3b in 2012.

Runway Definition: The runway layout discussed for the 2012 Alternative C3a, including the relocation of Runway 10R/28L (10X/28X) 702 feet to the south, and graphically depicted on Exhibit 5.1-7, would remain the same for the 2012 Alternative C3b.

Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2012 Alternative A and shown on Table 5.1-1 and Table 5.1-2, would remain the same for Alternative C3b.

Runway End Utilization: The runway end utilization discussed for 2012 Alternative C2b and shown in Table 5.1-9, would remain the same for the 2012 Alternative C3b.

Flight Tracks: In addition to the proposed relocated runway, 2012 Alternative C3b includes the following recommendation that would affect flight tracks:

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.

Exhibits depicting the individual flight tracks modeled for the 2012 alternatives and the corresponding tables providing the proportion of operations assigned to each of the flight tracks are included in Appendix D.

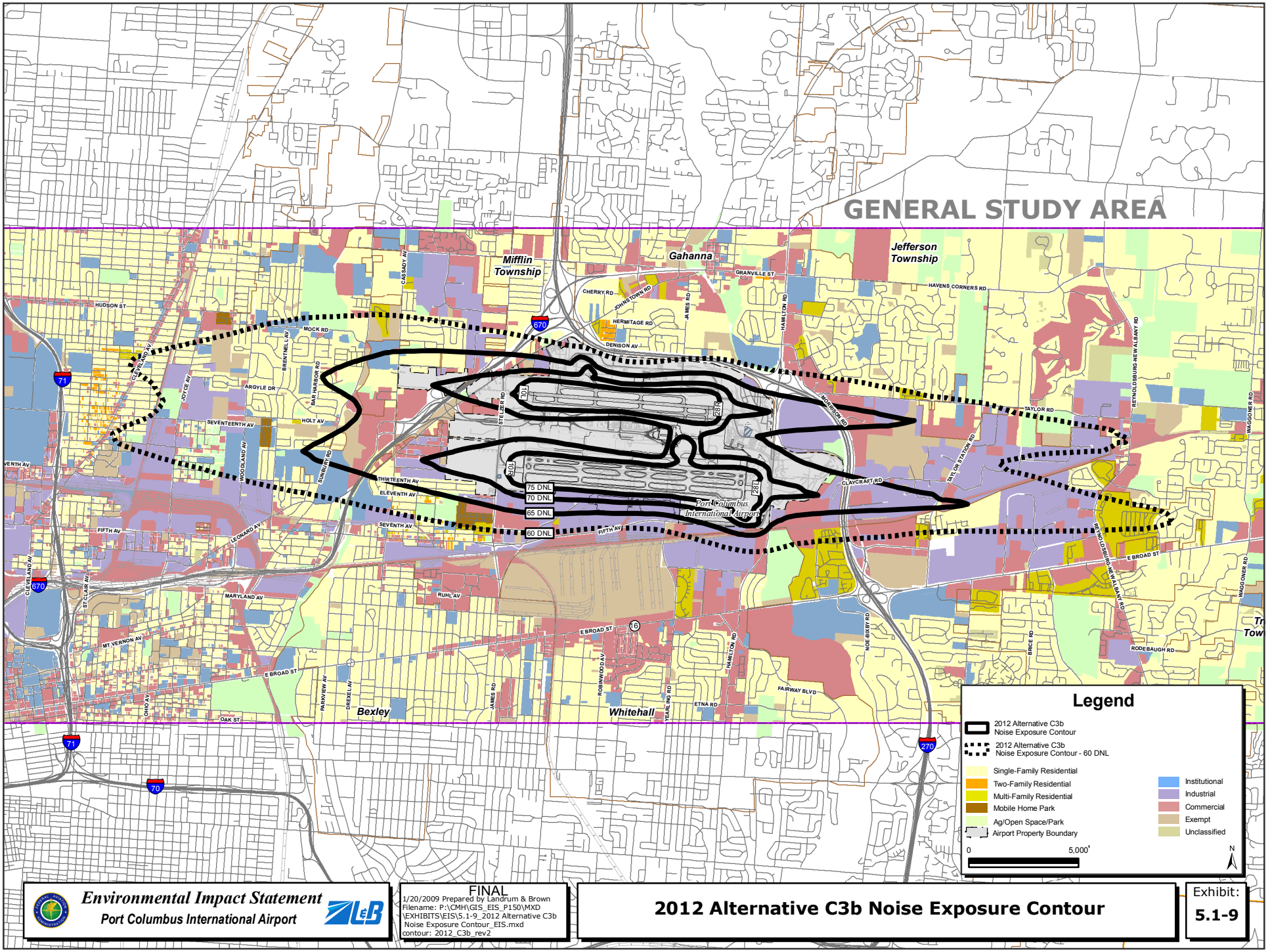
Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2012 Alternative A, and shown in Table 5.1-4, would remain the same for the 2012 Alternative C3b.

Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2012 Alternative A, and shown in Table 5.1-5 and graphically depicted on Exhibit 5.1-2, would remain the same for the 2012 Alternative C3b.

Noise Exposure Contour: The 2012 Alternative C3b noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-9**, ***2012 Alternative* C3b *Noise Exposure Contour.***

The 2012 Alternative C3b noise contour is larger than the 2012 Alternative A noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations farther south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by approximately 702 feet. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contour.

The implementation of the 2007 NCP also affects the noise contour compared to the 2012 Alternative A noise contour. Due to the recommendation to maximize east flow, the noise contour increases in size to the east while decreasing in size to the west. **Table 5.1-12** provides a comparison of the areas within the 2012 Alternative A and the 2012 Alternative C3b noise contours.


GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Bexley
Whitehall
Port Columbus International Airport
75 DNL
70 DNL
65 DNL
60 DNL
Legend
2012 Alternative C3b Noise Exposure Contour
2012 Alternative C3b Noise Exposure Contour - 60 DNL
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
Institutional
Industrial
Commercial
Exempt
Unclassified
0
5,000'
N
Environmental Impact Statement
Port Columbus International Airport
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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.1-9_2012 Alternative C3b Noise Exposure Contour_EIS.mxd
contour: 2012_C3b_rev2
2012 Alternative C3b Noise Exposure Contour
Exhibit:
5.1-9

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Table 5.1-12
COMPARISON OF AREAS WITHIN THE 2012 ALTERNATIVE C3b AND THE 2012 ALTERNATIVE A NOISE EXPOSURE CONTOUR
(IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2012 ALTERNATIVE A	2012 ALTERNATIVE C3b	DIFFERENCE
60-65 DNL	5.8	6.2	0.4
65-70 DNL	2.7	3.1	0.4
70-75 DNL	1.3	1.1	-0.2
75 + DNL	1.1	1.1	0.0
65 + DNL	5.1	5.3	0.2

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2012_NA_rev6 / 2012_C3b_rev2
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2012 Alternative C3b encompasses 5.3 square miles of land, an increase of 0.2 square miles compared to the 65+ DNL of the 2012 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.

5.1.2 NOISE ANALYSIS AND IMPACT ASSESSMENT – 2018 CONDITIONS

This section provides a summary of the noise analysis of the 2018 conditions for each alternative. An analysis of the 2018 conditions provides potential impacts five years after the first full year of operation of the runway replacement alternatives, and also represents the opening year of the proposed passenger terminal. The 2018 No Action Alternative will be compared to each of the 2018 runway replacement alternatives, including the Sponsor's Proposed Project (Alternative C3b). More detailed descriptions of the operational characteristics of each alternative are provided later in this section.

5.1.2.1 Alternative A: 2018 No Action

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative A, the No Action Alternative in 2018. The noise exposure and impact assessment prepared for the 2018 Alternative A is the baseline against which all other 2018 alternatives are evaluated.

Runway Definition: The runway layout discussed for the 2012 Alternative A and graphically depicted on Exhibit 5.1-1, would remain the same for the 2018 Alternative A.

Activity Levels and Fleet Mix: **Table 5.1-13** and **Table 5.1-14** provide the operating levels and fleet mix for the 2018 Alternative A. The 2018 operations are based on the forecast prepared for the 2007 Part 150 Study and this EIS. The forecast was approved on January 9, 2007 and is included in Appendix C. The forecast is based upon aviation industry trends and specific airline activity at CMH. The 2018 No Action Alternative includes 271,450 annual operations or 744 average annual day operations, an increase of 12.4 percent from the 2012 forecasted operating levels. The forecast shows a projected increase in the percentage of commuter jet aircraft. The percentage of commuter jets in the fleet mix increases from 51 percent in the 2012 forecast to 56 percent in the 2018 forecast. Embraer 145s, Embraer 170s, and Canadair Regional Jets are expected to continue to be the most common aircraft at CMH.

Table 5.1-13
AVERAGE DAY OPERATIONS – 2018 ALTERNATIVE A
Port Columbus International Airport

Aircraft Category	Arrivals		Departures		Total		Grand Total	Percent of Total
	Day	Night	Day	Night	Day	Night		
Large Jet	55	16	59	12	114	28	142	19%
Commuter Jet	174	33	173	34	347	67	414	56%
Commuter Prop	2	0	2	0	4	0	4	1%
General Aviation Jet	39	8	40	7	79	15	94	13%
General Aviation Prop	40	5	41	4	81	9	90	12%
Total	**310**	**62**	**315**	**57**	**625**	**119**	**744**	**100%**

Day: 7:00 a.m. to 9:59 p.m.
Night: 10:00 p.m. to 6:59 a.m.
Source: ATCT records, Official Airline Guide (OAG), and Landing Fee Reports, Landrum & Brown, 2007.

Table 5.1-14
AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE –
2018 ALTERNATIVE A
Port Columbus International Airport

Aircraft Type	INM Code	Arrivals		Departures		Total	
		Day	Night	Day	Night	Day	Night
Large Jet							
Boeing 737-300	737300	16	6	18	4	34	10
Boeing 737-400	737400	2	0	2	0	4	0
Boeing 737-500	737500	2	1	2	1	4	2
Boeing 737-700	737700	21	3	18	6	39	9
Boeing 737-800	737800	6	1	7	0	13	1
Boeing 757-300	757300	1	0	1	0	2	0
Boeing 737-300	7373B2	3	1	4	0	7	1
Boeing 757-200	757PW	1	1	2	0	3	1
Airbus 320	A320	0	1	1	0	1	1
McDonnell-Douglas DC-9	DC93LW	1	1	2	0	3	1
Military Tanker	KC135R	1	0	1	0	2	0
McDonnell-Douglas MD-83	MD83	1	1	1	1	2	2
Subtotal		***55***	***16***	***59***	***12***	***114***	***28***
Commuter Jet							
Dessault Falcon 2000	CL600	3	1	3	1	6	2
Canadair Regional Jet / Embraer ERJ-170 / 190	CL601	71	6	68	9	139	15
Embraer 135 / 145	EMB145	7	2	7	2	14	4
Embraer 145	EMB14L	58	14	56	16	114	30
Commuter Jet	GIV	3	1	2	2	5	3
Commuter Jet	LEAR25	5	2	7	0	12	2
Business Jet	CIT3	3	1	4	0	7	1
Cessna Citation / BAE125 Hawker	LEAR35	12	1	12	1	24	2
Cessna 560	MU3001	12	5	14	3	26	8
Subtotal		***174***	***33***	***173***	***34***	***347***	***67***
Commuter Prop							
Commuter Turbo Prop	HS748A	*2*	*0*	*2*	*0*	*4*	*0*
Subtotal		***2***	***0***	***2***	***0***	***4***	***0***
General Aviation Jet							
Business Jet	CL600	5	3	5	3	10	6
Business Jet	CNA500	1	1	2	0	*3*	*1*
Business Jet	FAL20	2	0	2	0	4	0
Business Jet	GIIB	2	0	2	0	4	0
Business Jet	GIV	3	1	3	1	6	2
Business Jet	LEAR25	11	0	10	1	21	1
Business Jet	LEAR35	7	3	8	2	15	5
Business Jet	MU3001	8	0	8	0	16	0
Subtotal		***39***	***8***	***40***	***7***	***79***	***15***

Table 5.1-14, *Continued*
AVERAGE DAY OPERATIONS BY AIRCRAFT TYPE –
2018 ALTERNATIVE A
Port Columbus International Airport

Aircraft Type	INM Code	Arrivals		Departures		Total	
		Day	Night	Day	Night	Day	Night
General Aviation Prop							
Twin-Engine Prop	BEC58P	10	2	10	2	20	4
Twin-Engine Turbo Prop	CNA441	3	0	3	0	6	0
Twin-Engine Turbo Prop	DHC6	3	1	3	1	6	2
Single-Engine Prop	GASEPF	14	2	15	1	29	3
Single-Engine Prop	GASEPV	7	0	7	0	14	0
Single-Engine Prop	PA28	2	0	2	0	*4*	*0*
Twin-Engine Prop	PA31	1	0	1	0	2	0
Subtotal		***40***	***5***	***41***	***4***	***81***	***9***
Grand Total		**310**	**62**	**315**	**57**	**625**	**119**

Day: 7:00 a.m. to 9:59 p.m.
Night: 10:00 p.m. to 6:59 a.m.
Source: Landing Fee Reports, ATCT records, CRAA ANOMS data, Landrum & Brown, 2007.

Runway End Utilization: Average-annual runway end utilization discussed for the 2012 Alternative A and shown on Table 5.1-3, would remain the same for the 2018 Alternative A.

Flight Tracks: The flight track locations discussed for the 2012 Alternative A would not change for the 2018 Alternative. However, because runway use would change, the flight track utilization percentages would also change. Exhibits depicting the individual flight tracks modeled for the 2018 alternatives and the corresponding tables providing the proportion of operations assigned to each of the flight tracks are included in Appendix D.

Aircraft Weight and Trip Length: The trip lengths flown from CMH are based on scheduled operations for the baseline period. **Table 5.1-15, *Departure Trip Length Distribution – 2018 Alternatives,*** indicates the proportion of the operations that fell within each of the seven trip length categories for the 2018 Alternative A operating levels. This table shows that 68 percent of all large jet departures and 87 percent of all commuter jet departures operated to destinations with a stage length of one.

Table 5.1-15
DEPARTURE TRIP LENGTH DISTRIBUTION –
2018 ALTERNATIVE A
Port Columbus International Airport

Stage Length	Large Jet	Commuter Jet	Commuter Prop	General Aviation Jet	General Aviation Prop
1	68%	87%	100%	100%	100%
2	17%	13%	0%	0%	0%
3	8%	0%	0%	0%	0%
4	7%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%

Source: Landrum & Brown, 2007.

As discussed for the 2012 Alternative A, a higher stage length was assigned when modeling Boeing 737-300, Airbus 320, and McDonnell Douglas MD-80 Series to more accurately reflect their measured noise levels and departure profiles based upon field monitoring. A complete discussion of the aircraft monitoring results is included in Appendix D.

Ground Run-up Noise: No change would occur in time, location, and thrust settings from the 2012 Alternative A. The number of operations and fleet mix was updated to reflect 2018 conditions. **Table 5.1-16, *Ground Run-up Operations—2018 Alternative A*,** shows the number, types, and duration of the engine run-ups assumed to occur at CMH during the 2018 No Action condition.

Table 5.1-16
GROUND RUN-UP OPERATIONS – 2018 ALTERNATIVE A
Port Columbus International Airport

INM Aircraft Type	Average Daily Ground Run-up Operations	Average Duration in Seconds	Power (Thrust) Settings
CL600	2.75	420	6000 lbs.
Narrowbody (i.e. A319, A320, B737)	0.6	420	70%

Source: Landrum & Brown, 2007.

Noise Exposure Contour: The 2018 Alternative A noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-10, *2018 Alternative A: No Action Noise Exposure Contour***.

The 2018 Alternative A noise contour is larger than the 2012 Alternative A noise contour due to a projected increase in the number of operations. For the 2018 Alternative A conditions, operating levels are expected to increase from 662 average-annual day operations to 744 average-annual day operations. **Table 5.1-17** provides the total area within the 2018 Alternative A noise contours.

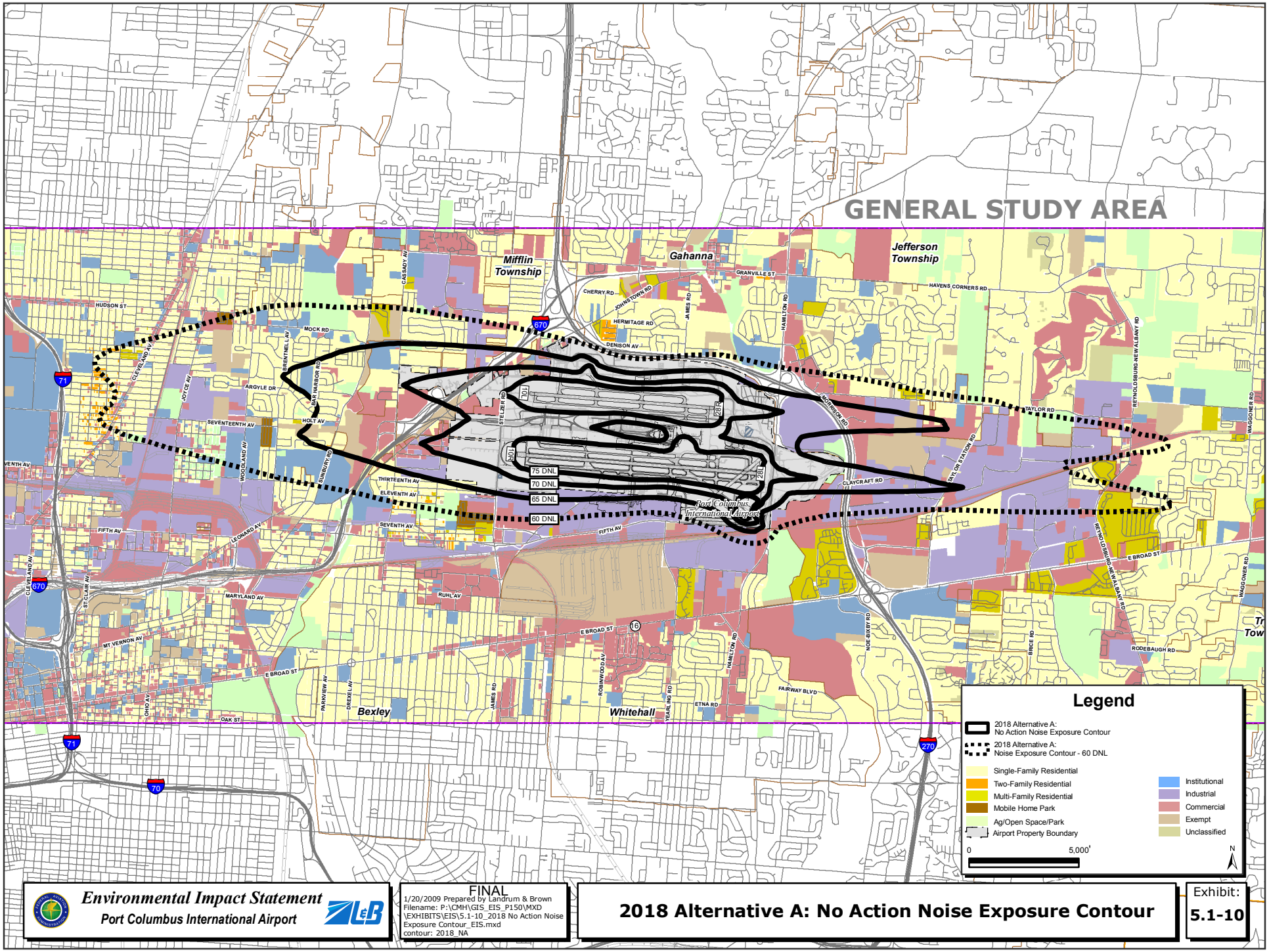
Table 5.1-17
COMPARISON OF AREAS WITHIN THE 2018 ALTERNATIVE A NOISE EXPOSURE CONTOUR (IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2012 ALTERNATIVE A	2018 ALTERNATIVE A	DIFFERENCE
60-65 DNL	5.8	6.1	0.3
65-70 DNL	2.7	2.8	0.1
70-75 DNL	1.3	1.4	0.1
75 + DNL	1.1	1.1	0.0
65 + DNL	5.1	5.3	0.2

Note: Difference between areas may not equal subtracted value due to rounding.
Contour: 2012_NA_rev6 / 2018_NA
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2018 Alternative A encompasses 5.3 square miles of land, an increase of 0.2 square miles compared to the 65+ DNL of the 2012 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours, are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.


GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Bexley
Whitehall
Port Columbus International Airport
75 DNL
70 DNL
65 DNL
60 DNL
Legend
2018 Alternative A: No Action Noise Exposure Contour
2018 Alternative A: Noise Exposure Contour - 60 DNL
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
Institutional
Industrial
Commercial
Exempt
Unclassified
0
5,000'
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Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.1-10_2018 No Action Noise Exposure Contour_EIS.mxd
contour: 2018_NA
2018 Alternative A: No Action Noise Exposure Contour
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5.1-10

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5.1.2.2 Alternative C2a: 2018 Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario A

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C2a in 2018.

Runway Definition: The runway layout discussed for the 2012 Alternative C2a, including the relocation of Runway 10R/28L (10X/28X) 800 feet to the south, would remain the same for the 2018 Alternative C2a. However, the first phase of the new terminal is expected to be completed by 2018. **Exhibit 5.1-11, *2018 Alternative C2a Proposed Airport Layout,*** depicts the proposed Airport layout for the 2018 Alternative C2a.

Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2018 Alternative A and shown on Tables 5.1-13 and 5.1-14, would remain the same for the 2018 Alternative C2a.

Runway End Utilization: It is anticipated that the first phase of the proposed passenger terminal will be in operation by 2018. The new terminal will be more centrally located on the airfield, located further south than the existing terminal and is expected to impact runway use. Therefore aircraft operating from the new terminal would likely use the south runway more often than the north runway. **Table 5.1-18, *Runway End Utilization, 2018 Alternative C2a***, shows runway use percentages modeled for the 2018 Alternative C2a.

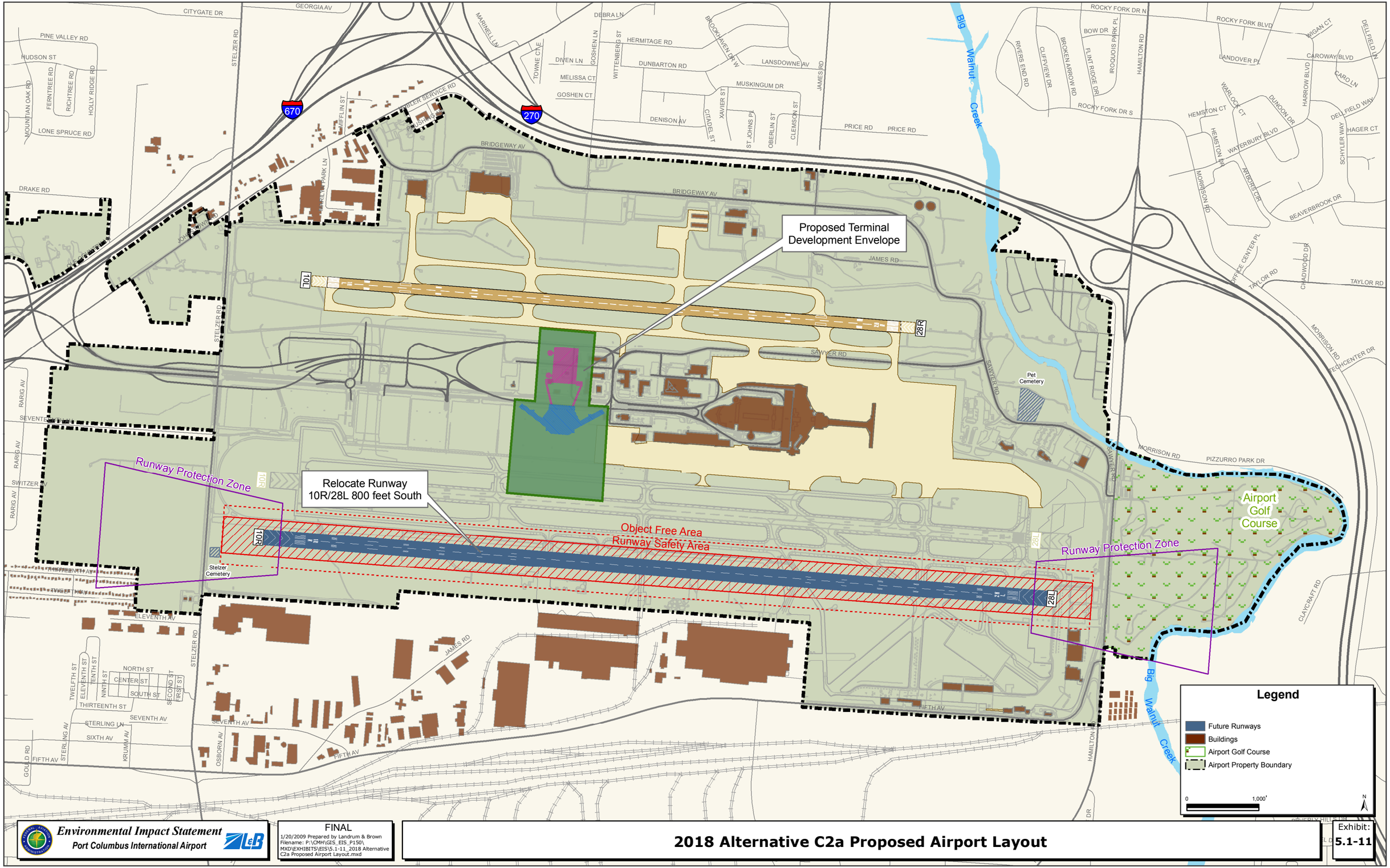
Table 5.1-18
RUNWAY END UTILIZATION – 2018 ALTERNATIVE C2a
Port Columbus International Airport

Day Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	3.8	26.3	12.3	57.6
Commuter Jet	11.4	17.0	39.5	32.1
Commuter Prop	8.5	21.0	30.3	40.2
General Aviation Jet	5.0	17.5	20.7	56.8
General Aviation Prop	5.7	17.6	22.4	54.3
Night Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	2.0	25.9	9.3	62.8
Commuter Jet	9.3	18.2	34.3	38.2
Commuter Prop	8.1	21.4	27.0	43.5
General Aviation Jet	4.4	16.8	19.7	59.1
General Aviation Prop	5.9	17.6	22.0	54.5
Day Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	0.9	50.0	0.9	48.2
Commuter Jet	18.0	19.3	32.8	29.9
Commuter Prop	7.3	37.7	12.1	42.9
General Aviation Jet	6.2	25.6	19.0	49.2
General Aviation Prop	12.0	37.1	19.0	31.9
Night Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	1.8	23.0	10.3	64.9
Commuter Jet	6.8	21.1	41.1	31.0
Commuter Prop	2.1	30.3	14.8	52.8
General Aviation Jet	4.3	19.8	18.2	57.7
General Aviation Prop	4.3	23.3	26.4	46.0

Day: 7:00 a.m. – 9:59 p.m.

Night: 10:00 p.m. – 6:59 a.m.

Note: 10X/28X denotes the proposed relocated Runway 10R/28L.
Source: 2005, 2006, 2007 CRAA ANOMS data, Landrum & Brown, 2007.



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2018 Alternative C2a Proposed Airport Layout

Exhibit: **5.1-11**

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Flight Tracks: The flight track locations discussed for the 2012 Alternative C2a would not change for the 2018 Alternative. However, since runway use would change, the flight track utilization percentages would also change. Exhibits depicting the individual flight tracks modeled for the 2018 alternatives and the corresponding tables providing the proportion of operations assigned to each of the flight tracks are included in Appendix D.

Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2018 Alternative A and shown in Table 5.1-15, would remain the same for the 2018 Alternative C2a.

Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2012 Alternative A, and shown in Table 5.1-5 and graphically depicted on Exhibit 5.1-2, would remain the same for the 2018 Alternative C2a.

Noise Exposure Contour: The 2018 Alternative C2a noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-12, *2018 Alternative C2a Noise Exposure Contour.***

The 2018 Alternative C2a noise contour is larger than the 2018 Alternative A noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations farther south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by approximately 800 feet. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contour. **Table 5.1-19,** provides a comparison of the areas within the 2018 Alternative A and the 2018 Alternative C2a noise contours.

Table 5.1-19
COMPARISON OF AREAS WITHIN THE 2018 ALTERNATIVE C2a AND THE 2018 ALTERNATIVE A NOISE EXPOSURE CONTOUR (IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2018 ALTERNATIVE A	2018 ALTERNATIVE C2a	DIFFERENCE
60-65 DNL	6.1	6.3	0.2
65-70 DNL	2.8	3.2	0.4
70-75 DNL	1.4	1.2	-0.2
75 + DNL	1.1	1.1	0.0
65 + DNL	5.3	5.4	0.1

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2018_NA / 2018_C2a_rev2
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2018 Alternative C2a encompasses 5.5 square miles of land, an increase of 0.2 square miles compared to the 65+ DNL of the 2018 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours, are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.

5.1.2.3 Alternative C2b: 2018 Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario B

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C2b in 2018.

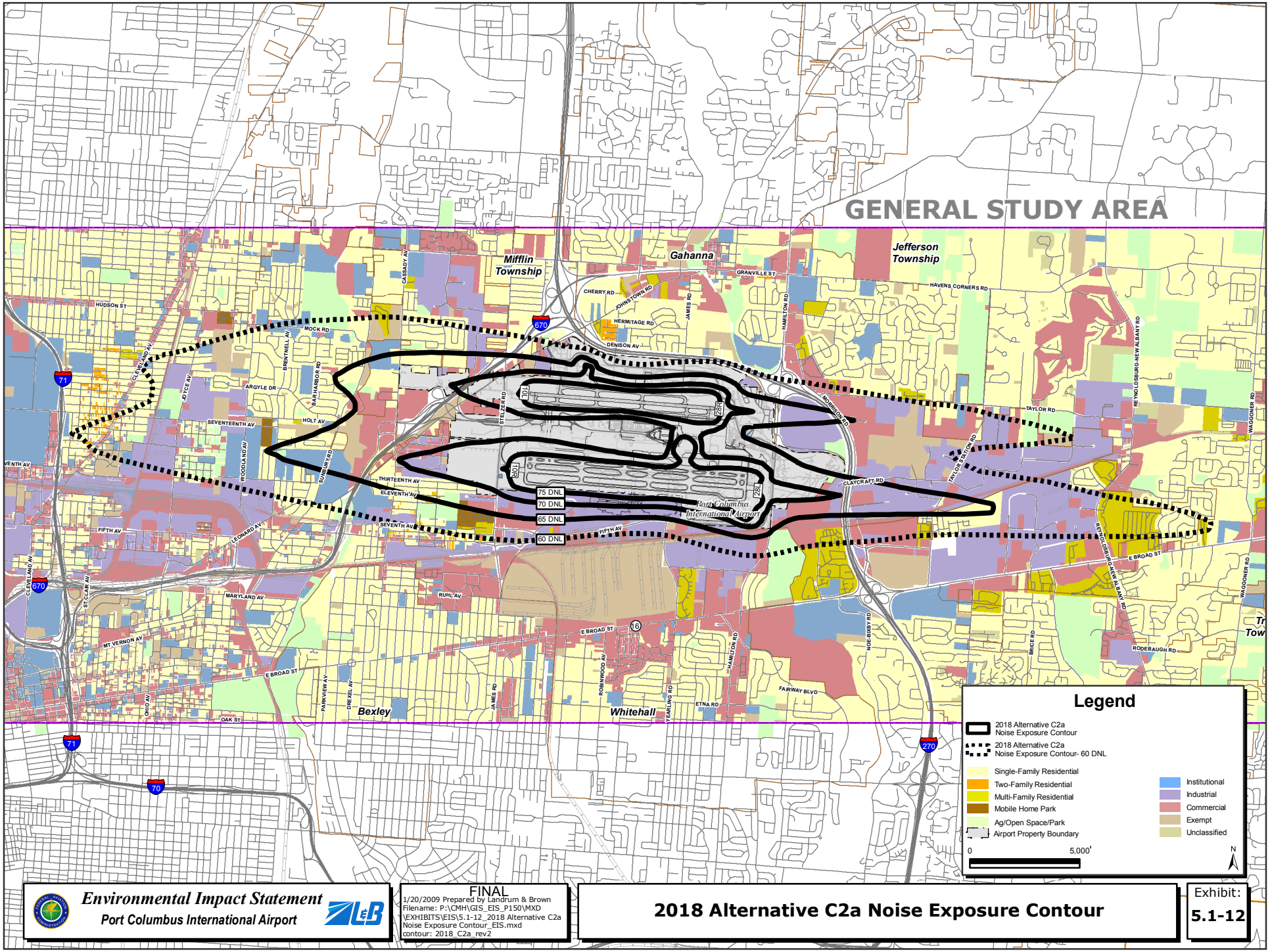
Runway Definition: The runway layout discussed for the 2018 Alternative C2a, including the relocation of Runway 10R/28L (10X/28X) 800 feet to the south, and graphically depicted on Exhibit 5.1-11, would remain the same for the 2018 Alternative C2b.

Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2018 Alternative A and shown on Table 5.1-13 and Table 5.1-14, would remain the same for Alternative C2b.

Runway End Utilization: The runway use for 2018 alternative C2b is similar to that discussed for the 2012 Alternative C2b, with the exception that, like 2018 Alternative C2a, runway use for 2018 Alternative C2b would be affected by the location of the new terminal, which is anticipated to be in operation by 2018 as depicted in **Table 5.1-20, *Runway End Utilization – 2018 Alternative C2b***.

Flight Tracks: 2018 Alternative C2b includes the NCP measures recommended by the 2007 Part 150 Study as discussed for the 2012 Alternative C2b. Exhibits depicting the individual flight tracks modeled for the 2018 alternatives and the corresponding tables providing the proportion of operations assigned to each of the flight tracks are included in Appendix D.

Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2018 Alternative A and shown in Table 5.1-15, would remain the same for the 2018 Alternative C2b.


GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Bexley
Whitehall
Port Columbus International Airport
75 DNL
70 DNL
65 DNL
60 DNL
Legend
2018 Alternative C2a Noise Exposure Contour
2018 Alternative C2a Noise Exposure Contour- 60 DNL
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
Institutional
Industrial
Commercial
Exempt
Unclassified
0
5,000'
N
Environmental Impact Statement
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Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.1-12_2018 Alternative C2a Noise Exposure Contour_EIS.mxd
contour: 2018_C2a_rev2
2018 Alternative C2a Noise Exposure Contour
Exhibit:
5.1-12

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Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2012 Alternative A, and shown in Table 5.1-5 and graphically depicted on Exhibit 5.1-2, would remain the same for the 2018 Alternative C2b.

Table 5.1-20
RUNWAY END UTILIZATION – 2018 ALTERNATIVE C2b
Port Columbus International Airport

Day Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	4.6	29.6	11.4	54.4
Commuter Jet	14.8	19.2	35.9	30.1
Commuter Prop	10.6	23.8	27.8	37.8
General Aviation Jet	6.7	23.3	18.7	51.3
General Aviation Prop	7.3	22.7	20.4	49.6
Night Arrivals				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	1.0	50.0	1.0	48.0
Commuter Jet	18.0	19.3	32.8	29.9
Commuter Prop	7.3	37.7	12.1	42.9
General Aviation Jet	6.2	25.6	19.0	49.2
General Aviation Prop	12.0	37.1	19.0	31.9
Day Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	2.7	32.1	8.0	57.2
Commuter Jet	12.8	21.2	30.7	35.3
Commuter Prop	10.0	24.1	24.9	41.0
General Aviation Jet	6.2	23.8	17.5	52.5
General Aviation Prop	7.5	22.5	20.1	49.9
Night Departures				
Aircraft Category	**10L**	**10X**	**28R**	**28X**
Large Jet	2.8	32.0	8.4	56.8
Commuter Jet	9.5	26.1	35.9	28.5
Commuter Prop	2.5	34.2	13.3	50.0
General Aviation Jet	5.4	24.6	16.8	53.2
General Aviation Prop	4.7	25.3	25.5	44.5

Day: 7:00 a.m. – 9:59 p.m.
Night: 10:00 p.m. – 6:59 a.m.
Note: 10X/28X denotes the proposed relocated Runway 10R/28L.
Source: 2005, 2006, 2007 CRAA ANOMS data, Landrum & Brown, 2007.

Noise Exposure Contour: The 2018 Alternative C2b noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-13, *2018 Alternative C2b Noise Exposure Contour.***

The 2018 Alternative C2b noise contour is larger than the 2018 Alternative A noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations farther south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by 800 feet. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contour.

The implementation of the 2007 NCP also affects the noise contour compared to the 2018 Alternative A noise contour. Due to the recommendation to maximize east flow, the noise contour increases in size to the east while decreasing in size to the west. **Table 5.1-21** provides a comparison of the areas within the 2018 Alternative A and the 2018 Alternative C2b noise contours.

Table 5.1-21
COMPARISON OF AREAS WITHIN THE 2018 ALTERNATIVE C2b AND THE 2018 ALTERNATIVE A NOISE EXPOSURE CONTOUR
(IN SQUARE MILES)
Port Columbus International Airport

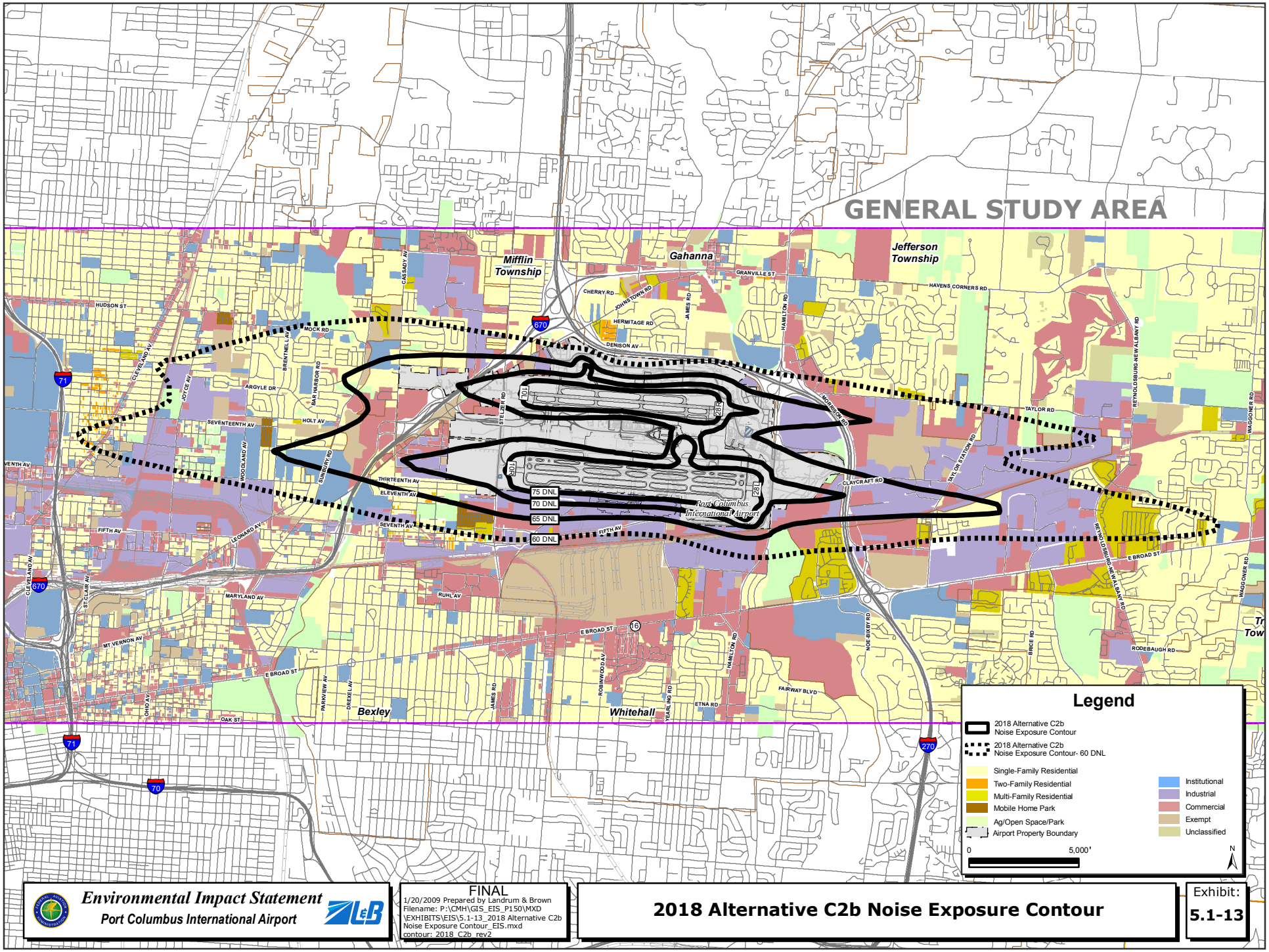
CONTOUR RANGE	2018 ALTERNATIVE A	2018 ALTERNATIVE C2b	DIFFERENCE
60-65 DNL	6.1	6.4	0.3
65-70 DNL	2.8	3.2	0.4
70-75 DNL	1.4	1.1	-0.3
75 + DNL	1.1	1.1	0.0
65 + DNL	5.3	5.4	0.1

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2018_NA / 2018_C2b_rev2
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2018 Alternative C2b encompasses 5.4 square miles of land, an increase of 0.1 square miles compared to the 65+ DNL of the 2018 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours, are included in Section 5.2, *Compatible Land Use*.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

Mitigation Commitments*:* Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.



Environmental Impact Statement
Port Columbus International Airport

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contour: 2018_C2b_rev2

2018 Alternative C2b Noise Exposure Contour

Exhibit: **5.1-13**

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5.1.2.4 Alternative C3a: 2018 Relocate Runway 10R/28L 702 feet to the South – Noise Abatement Scenario A

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C3a in 2018.

Runway Definition: The runway layout discussed for the 2012 Alternative C3a, including the relocation of Runway 10R/28L (10X/28X) 702 feet to the south, would remain the same for the 2018 Alternative C3b. However, the first phase of the new terminal is expected to be completed by 2018. **Exhibit 5.1-14, *2018 Alternative C3a Proposed Airport Layout,*** graphically depicts the proposed Airport layout for the 2018 Alternative C3a.

Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2018 Alternative A and shown on Table 5.1-13 and Table 5.1-14, would remain the same for the 2018 Alternative C3a.

Runway End Utilization: The runway end utilization discussed for the 2018 Alternative C2a and shown on Table 5.1-17, would remain the same for the 2018 Alternative C3a.

Flight Tracks: The flight track locations discussed for the 2012 Alternative C3a would not change for the 2018 Alternative C3a. However, since runway use would change, the flight track utilization percentages would also change. Exhibits depicting the individual flight tracks modeled for the 2018 alternatives and the corresponding tables providing the proportion of operations assigned to each of the flight tracks are included in Appendix D.

Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2018 Alternative A and shown in Table 5.1-15, would remain the same for the 2018 Alternative C3a.

Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2012 Alternative A, and shown in Table 5.1-5 and graphically depicted on Exhibit 5.1-2, would remain the same for the 2018 Alternative C3a.

Noise Exposure Contour: The 2018 Alternative C3a noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-15**, ***2018 Alternative C3a Noise Exposure Contour.***

The 2018 Alternative C3a noise contour is larger than the 2018 No Action noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations farther south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by 702 feet. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contour. **Table 5.1-22** provides a comparison of the areas within the 2018 Alternative A and the 2018 Alternative C3a noise contours.

Table 5.1-22
COMPARISON OF AREAS WITHIN THE 2018 ALTERNATIVE C3a AND THE 2018 ALTERNATIVE A NOISE EXPOSURE CONTOURS (IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2018 ALTERNATIVE A	2018 ALTERNATIVE C3a	DIFFERENCE
60-65 DNL	6.1	6.2	0.1
65-70 DNL	2.8	3.1	0.3
70-75 DNL	1.4	1.2	-0.2
75 + DNL	1.1	1.1	0.0
65 + DNL	5.3	5.5	0.2

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2018_NA / 2018_C3a_rev2
Source: Landrum & Brown, 2007.

Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

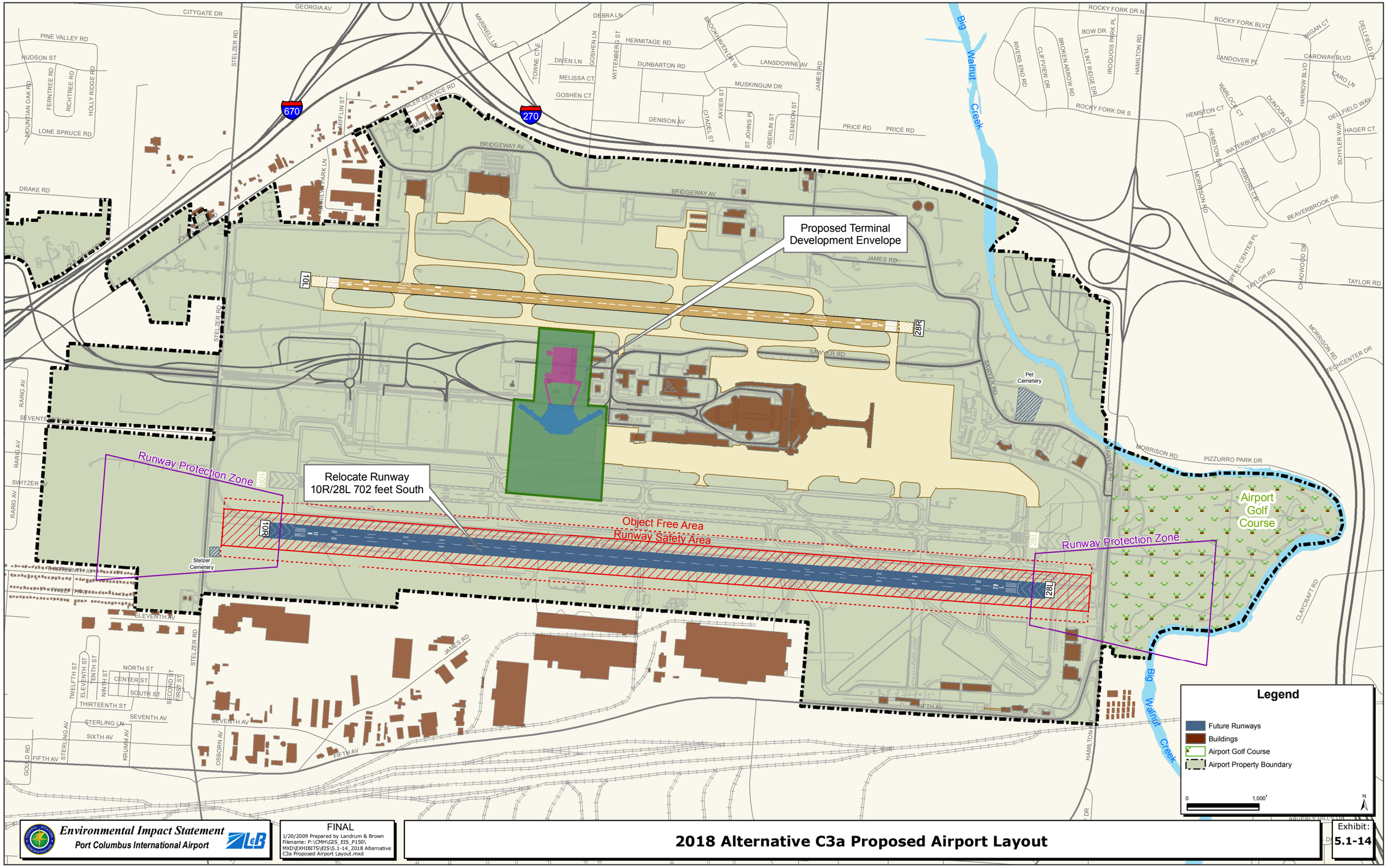
Land Use Impact Assessment: The 65+ DNL noise contour for the 2018 Alternative C3a encompasses 5.5 square miles of land, an increase of 0.2 square miles compared to the 65+ DNL of the 2018 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours, are included in Section 5.2, *Compatible Land Use*.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.

5.1.2.5 Alternative C3b: 2018 Relocate Runway 10R/28L 702 feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

This section provides a summary of the INM input data, the resulting noise exposure pattern, and the disclosure of the potential noise impacts resulting from the operation of the Airport under Alternative C3b in 2018.

Runway Definition: The runway layout discussed for the 2012 Alternative C3b, including the relocation of Runway 10L/28R (10X/28X) 702 feet to the south, and graphically depicted on Exhibit 5.1-7, would remain the same for the 2018 Alternative C3b. However, the first phase of the new terminal is expected to be completed by 2018.



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2018 Alternative C3a Proposed Airport Layout

Exhibit: **5.1-14**

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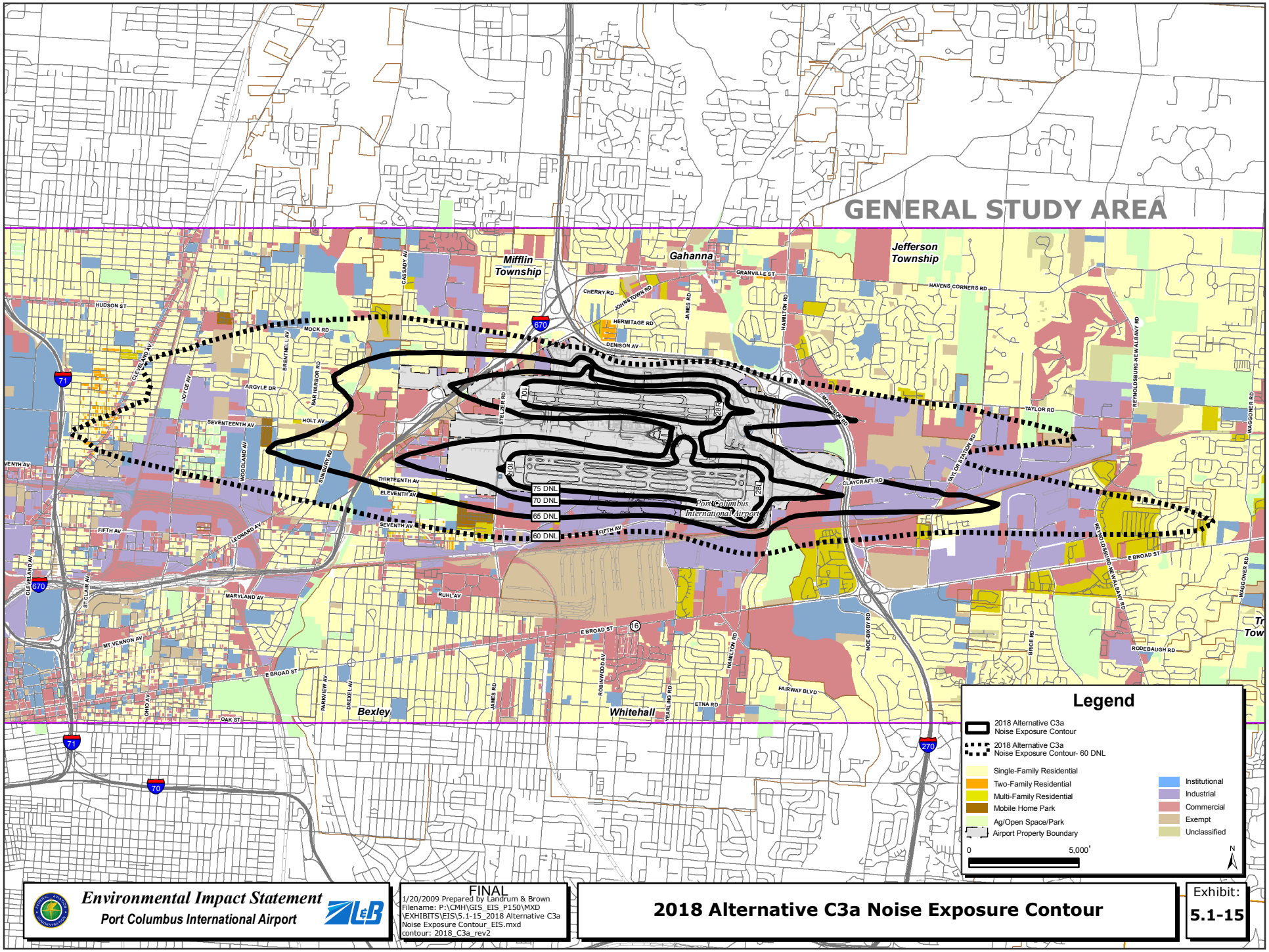

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Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.1-15_2018 Alternative C3a Noise Exposure Contour_EIS.mxd
contour: 2018_C3a_rev2

2018 Alternative C3a Noise Exposure Contour

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Activity Levels and Fleet Mix: The operating levels and fleet mix discussed for the 2018 Alternative C2a and shown on Tables 5-13 and 5-14, would remain the same for Alternative C3b.

Runway End Utilization: The runway end utilization discussed for the 2018 Alternative C2b and shown on Table 5.1-19, would remain the same for the 2018 Alternative C3b.

Flight Tracks: 2018 Alternative C3b includes the NCP measures recommended by the 2007 Part 150 Study as discussed for the 2012 Alternative C3b. Exhibits depicting the individual flight tracks modeled for the 2018 alternatives and the corresponding tables providing the proportion of operations assigned to each of the flight tracks are included in Appendix D.

Aircraft Weight and Trip Length: The departure trip length distribution discussed for the 2018 Alternative A would remain the same for the 2018 Alternative C3b.

Ground Run-up Noise: The number, type, and duration of engine run-ups discussed for the 2018 Alternative A would remain the same for the 2018 Alternative C3b.

Noise Exposure Contour: The 2018 Alternative C3b noise exposure contour for 60, 65, 70, and 75 DNL levels is graphically depicted on **Exhibit 5.1-16, *2018 Alternative C3b Noise Exposure Contour.***

The 2018 Alternative C3b noise contour is larger than the 2018 Alternative A noise contour due to the proposed relocation of Runway 10R/28L. The proposed relocated runway would shift aircraft operations farther south. The flight paths that aircraft would use when arriving to and departing from the proposed relocated runway would shift south by 702 feet. Current arrival and departure procedures would remain the same for the proposed relocated runway. However, because the location of the flight paths shift, new areas would be included in the 65+ DNL noise contour.

The implementation of the 2007 NCP also affects the noise contour compared to the 2012 Alternative A noise contour. Due to the recommendation to maximize east flow, the noise contour increases in size to the east while decreasing in size to the west. **Table 5.1-23** provides a comparison of the areas within the 2018 Alternative A and the 2018 Alternative C3b noise contours.

Table 5.1-23
COMPARISON OF AREAS WITHIN THE 2018 ALTERNATIVE A AND THE 2018 ALTERNATIVE C3b NOISE EXPOSURE CONTOURS
(IN SQUARE MILES)
Port Columbus International Airport

CONTOUR RANGE	2018 ALTERNATIVE A	2018 ALTERNATIVE C3b	DIFFERENCE
60-65 DNL	6.1	6.3	0.2
65-70 DNL	2.8	3.2	0.4
70-75 DNL	1.4	1.1	-0.3
75 + DNL	1.1	1.1	0.0
65 + DNL	5.3	5.4	0.1

Note: Difference between areas may not equal subtracted value due to rounding.
Contours: 2018_NA / 2018_C3b_rev2
Source: Landrum & Brown, 2007.

Land Use Impact Assessment: The 65+ DNL noise contour for the 2018 Alternative C3b encompasses 5.4 square miles of land, an increase of 0.1 square miles compared to the 65+ DNL of the 2018 Alternative A noise contour. Additional discussion of land use impacts, including the number of housing units and noise-sensitive facilities within the noise contours, are included in Section 5.2, *Compatible Land Use*.

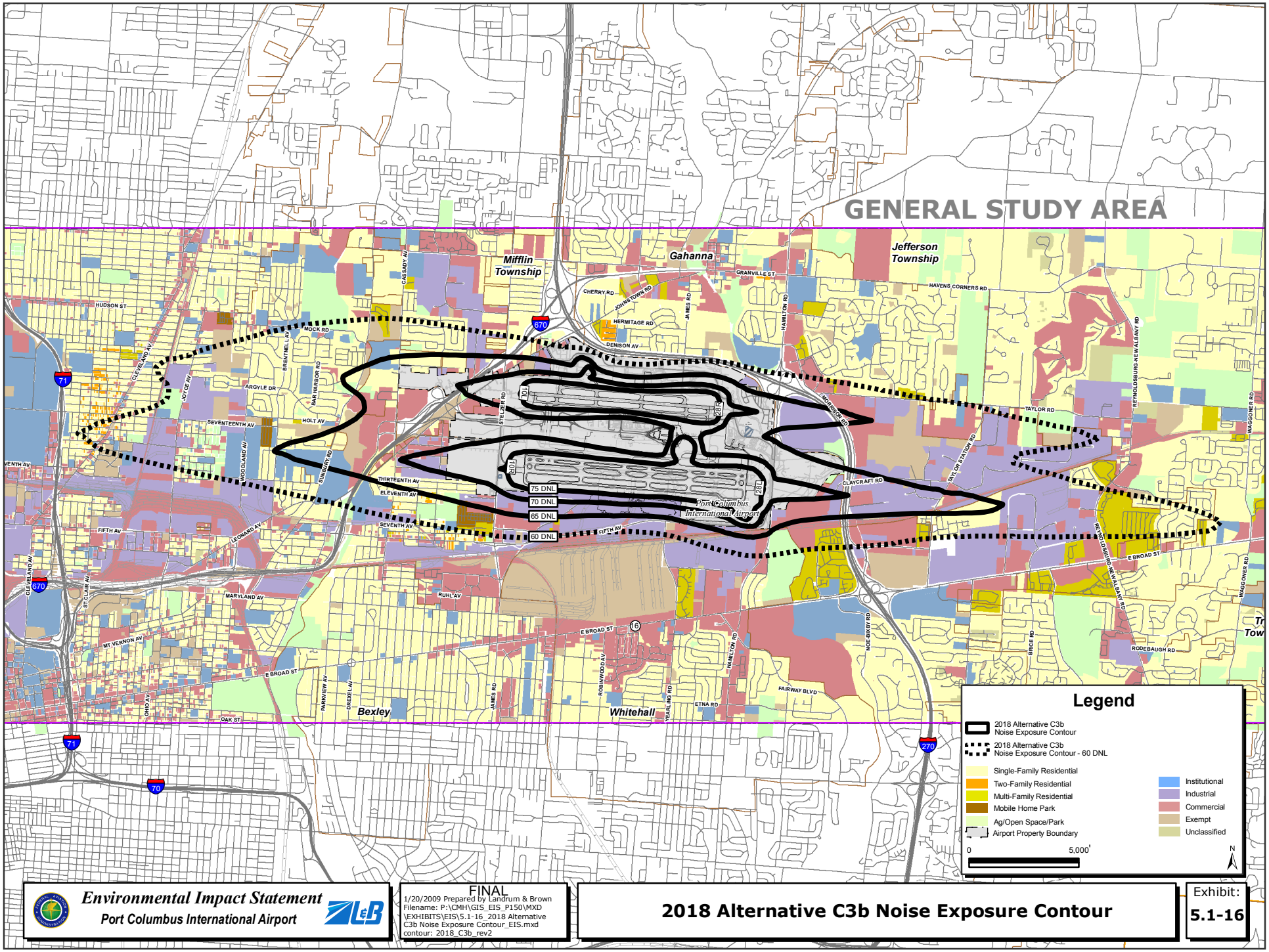
Grid Point Assessment: Regularly spaced grid points and specific noise-sensitive facility grid points were located throughout the Airport environs for supplemental analysis. Exhibits depicting the grid point locations and tables comparing the grid point results of all of the conditions assessed in this EIS are provided in Appendix D.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels. Section 5.2, *Compatible Land Use*, discusses the specific areas impacted and the proposed sound insulation boundary.

5.1.3 SIGNIFICANT NOISE ANALYSIS

A significant noise impact would occur if analysis shows that an action would result in noise-sensitive areas to experience an increase in noise of DNL 1.5 dB or more, at or above DNL 65 dB noise exposure when compared to the No Action alternative for the same timeframe. For example, an increase in noise exposure over a noise-sensitive land use from 65 DNL to 66.5 DNL is considered a significant impact. Similarly, if a noise-sensitive area that receives less than 65 DNL under the No Action alternative would receive noise exposure of 65 DNL as a result of the action, then those areas are also considered significantly impacted.

All of the alternatives were analyzed against Alternative A: No Action for their respective years (2012 or 2018). The analysis concluded that a 1.5 dB increase would occur within the 65 DNL or greater noise contour for all four of the alternatives in both analysis years. In addition, for all four of the alternatives,



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contour: 2018_C3b_rev2

2018 Alternative C3b Noise Exposure Contour

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residential land uses that would receive noise exposure at levels less than 65 DNL under the No Action would be exposed to noise levels of at least 65 DNL for their respective years.

5.1.3.1 Noise Impacts Between the 60 and 65 DNL Noise Exposure Contours

To assess the potential noise impacts to housing units and the population located between the 60 and 65 DNL noise exposure contours, analysis was conducted using the recommendations of the Federal Interagency Committee on Noise (FICON), which the FAA has incorporated into FAA Order 1050.1E.

The FICON was formed to review and make recommendations on Federal policies that govern the assessment of airport noise impacts. Under one of its policy recommendations, FICON concluded that it is prudent to provide for a systematic analysis of noise levels below 65 DNL in National Environmental Policy Act (NEPA) documents using the following screening procedures:

1. Determine if a 1.5 dB increase occurs at noise-sensitive sites within the 65 DNL or greater noise contour. If a 1.5 dB increase does not occur, then it is likely that a 3 dB increase would not be found within the 60 to 65 DNL noise contour, and no further screening would be necessary.
2. If a 1.5 dB increase does occur at noise-sensitive sites within the 65 DNL or greater noise contour, then determine the areas where a 3 dB increase occurs within the 60 to 65 DNL noise contour.

According to the policy recommendations of the FICON, when areas of a 3 dB increase in noise exposure within the 60 to 65 DNL noise contour are identified in a NEPA analysis, the consideration of appropriate mitigation should include the potential for mitigating noise in these areas. The same range of currently approved mitigation options that are potentially available at 65 DNL or greater should be considered, including eligibility for Federal funding. The FICON further acknowledges that there is no commitment by either the FAA or the airport sponsor for funding potential land use mitigation within a 60 to 65 DNL noise contour, because it is generally expected that Federal priority would be given to mitigating noise at higher levels.

The initial FICON screening analysis was prepared for each airfield alternative. All of the alternatives were analyzed against Alternative A: No Action for their respective years (2012 or 2018). The analysis concluded that a 1.5 dB increase would occur within the 65 DNL or greater noise contour for all four of the alternatives in both analysis years. Therefore, the second step of the FICON screening procedures was performed to identify if there were areas where a 3 dB increase in noise would occur within the 60 to 65 DNL noise contour. **Table 5.1-24** provides a summary of the impacts for the 1.5 dB and 3 dB increase areas for the 2012 and 2018 alternatives.

Table 5.1-24
NOISE IMPACTS BETWEEN THE 60 AND 65 DNL NOISE EXPOSURE CONTOURS – 2012 AND 2018 ALTERNATIVES
Port Columbus International Airport

1.5 dB Increase in 65+ DNL	3 dB Increase in 60-65 DNL					
	Status	Single-Family Housing Units	Multi-Family Housing Units	Mobile Home	Total	Population
2012 Alternative C2a						
Yes	Sound Insulated	6	0	0	6	15
	Easement	3	145	0	148	365
	Not Insulated	510	283	271	1,064	2,628
	Total	*519*	*428*	*271*	*1,218*	*3,008*
2018 Alternative C2a						
Yes	Sound Insulated	6	0	0	6	15
	Easement	5	381	0	386	953
	Not Insulated	577	457	259	1,293	3,194
	Total	*588*	*838*	*259*	*1,685*	*4,162*
2012 Alternative C2b						
Yes	Sound Insulated	6	0	0	6	15
	Easement	0	296	0	296	731
	Not Insulated	377	160	155	692	1,709
	Total	*383*	*456*	*155*	*994*	*2,455*
2018 Alternative C2b						
Yes	Sound Insulated	6	0	0	6	15
	Easement	0	449	0	449	1,109
	Not Insulated	481	467	272	1,220	3,013
	Total	*487*	*916*	*272*	*1,675*	*4,137*
2012 Alternative C3a						
Yes	Sound Insulated	6	0	0	6	15
	Easement	0	56	0	56	138
	Not Insulated	400	72	117	589	1,455
	Total	*406*	*128*	*117*	*651*	*1,608*
2018 Alternative C3a						
Yes	Sound Insulated	6	0	0	6	15
	Easement	4	351	0	355	877
	Not Insulated	446	373	272	1,091	2,695
	Total	*456*	*724*	*272*	*1,452*	*3,586*
2012 Alternative C3b						
Yes	Sound Insulated	6	0	0	6	15
	Easement	0	203	0	203	501
	Not Insulated	338	120	7	465	1,149
	Total	*344*	*323*	*7*	*674*	*1,665*
2018 Alternative C3b						
Yes	Sound Insulated	6	0	0	6	15
	Easement	0	428	0	428	1,057
	Not Insulated	418	270	156	844	2,085
	Total	*424*	*698*	*156*	*1,278*	*3,157*

- Noise contours were generated using the FAA's Integrated Noise Model, Version 6.2 computer model.
- Housing counts are based on field verification.
- Population numbers are approximate based on the housing counts multiplied by the 2000 Census housing to population ratio.

Source: Landrum & Brown, 2007.

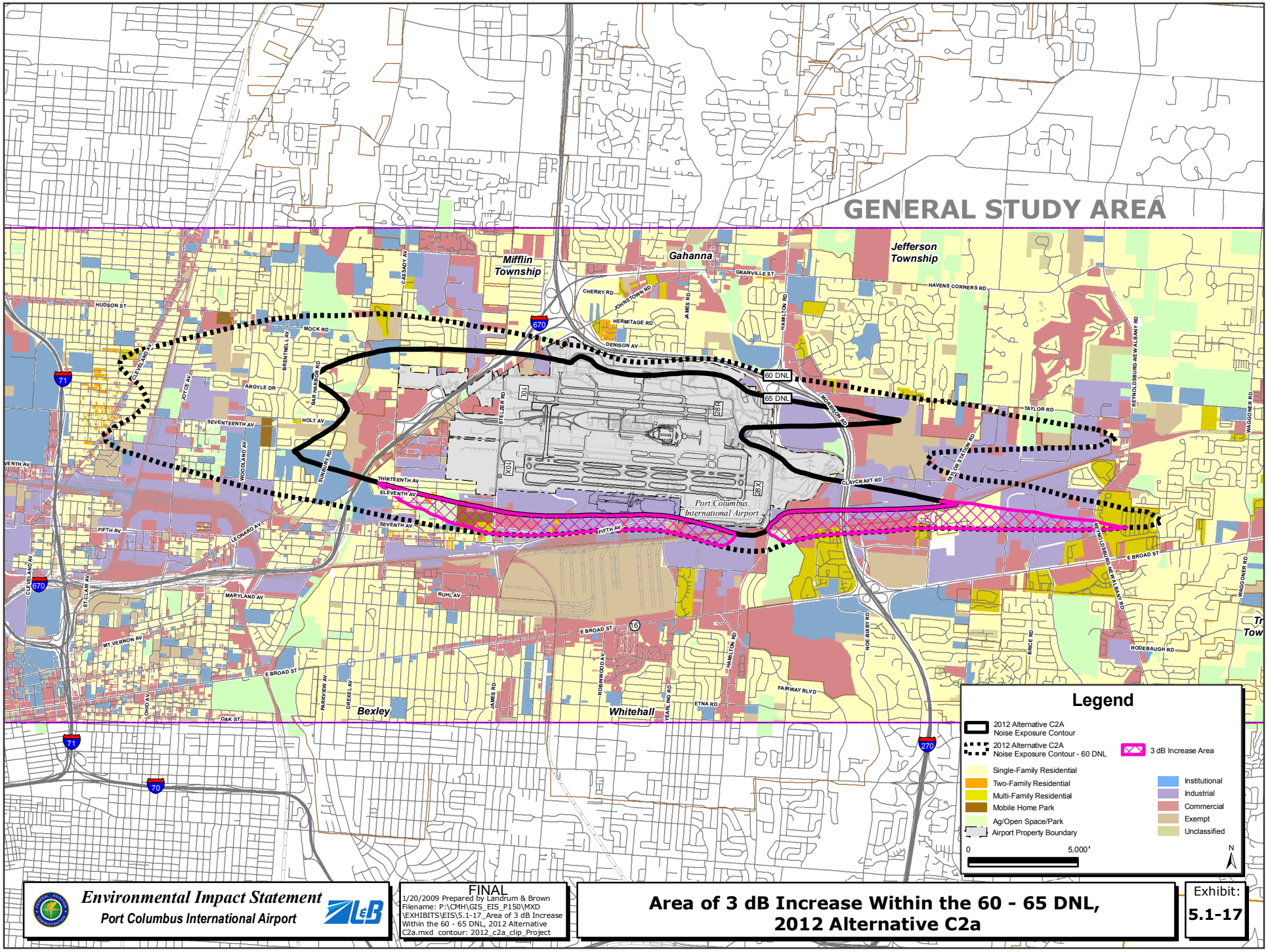
2012 Alternative C2a: A screening analysis was prepared which determined that a 1.5 dB increase would occur within the 65 DNL or greater noise contour over noise-sensitive land uses for the 2012 Alternative C2a. The second step of the FICON screening procedures identified the areas where a 3 dB increase in noise would occur within the 60 to 65 DNL noise contour. **Exhibit 5.1-17**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C2a,*** graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2012. There are 1,218 housing units and approximately 3,008 residents located within this area. Similarly, for 2018 Alternative C2a, a 1.5 dB increase would occur over noise-sensitive land uses. An assessment of the area where a 3 dB increase would occur for the 2018 Alternative C2a found that there would be 1,685 housing units and approximately 4,162 residents located within this area. There are no noise-sensitive facilities located within the area of 3 dB increase for the 2012 Alternative C2a. There is one noise-sensitive facility (East Columbus Elementary School) located within the area of 3 dB increase for the 2018 Alternative C2a. **Exhibit 5.1-18**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C2a,*** graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2018.

2012 Alternative C2b: A screening analysis was prepared which determined that a 1.5 dB increase would occur within the 65 DNL or greater noise contour over noise-sensitive land uses for the 2012 Alternative C2b. The second step of the FICON screening procedures identified the areas where a 3 dB increase in noise would occur within the 60 to 65 DNL noise contour. **Exhibit 5.1-19**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C2b,*** graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2012. There are 994 housing units and approximately 2,455 residents located within this area. Similarly, for 2018 Alternative C2b, a 1.5 dB increase would occur over noise-sensitive land uses. An assessment of the area where a 3 dB increase would occur for the 2018 Alternative C2b found that there would be 1,675 housing units and approximately 4,137 residents located within this area. There are no noise-sensitive facilities located within the area of 3 dB increase for the 2012 or 2018 Alternative C2b. **Exhibit 5.1-20**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C2b,*** graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2018.

2012 Alternative C3a: A screening analysis was prepared which determined that a 1.5 dB increase would occur within the 65 DNL or greater noise contour over noise-sensitive land uses for the 2012 Alternative C3a. The second step of the FICON screening procedures identified the areas where a 3 dB increase in noise would occur within the 60 to 65 DNL noise contour. **Exhibit 5.1-21**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C3a,*** graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2012. There are 651 housing units and approximately 1,608 residents located within this area. Similarly, for 2018 Alternative C3a, a 1.5 dB increase would occur over noise-sensitive land uses. An assessment of the area where a 3 dB increase would occur for the 2018 Alternative C3a found that there would be 1,452 housing units and approximately 3,586 residents located within this area.

There are no noise-sensitive facilities located within the area of 3 dB increase for the 2012 or 2018 Alternative C3a. **Exhibit 5.1-22**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C3a***, graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2018.

2012 Alternative C3b: A screening analysis was prepared which determined that a 1.5 dB increase would occur within the 65 DNL or greater noise contour over noise-sensitive land uses for the 2012 Alternative C3b. The second step of the FICON screening procedures identified the areas where a 3 dB increase in noise would occur within the 60 to 65 DNL noise contour. **Exhibit 5.1-23**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C3b***, graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2012. There are 674 housing units and approximately 1,665 residents located within this area. Similarly, for 2018 Alternative C3b, a 1.5 dB increase would occur over noise-sensitive land uses. An assessment of the area where a 3 dB increase would occur for the 2018 Alternative C3b found that there would be 1,278 housing units and approximately 3,157 residents located within this area. There are no noise-sensitive facilities located within the area of 3 dB increase for the 2012 or 2018 Alternative C3b. **Exhibit 5.1-24**, ***Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C3b***, graphically depicts the areas of 3 dB increases resulting from the relocation of Runway 10R/28L in 2018.



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Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C2a

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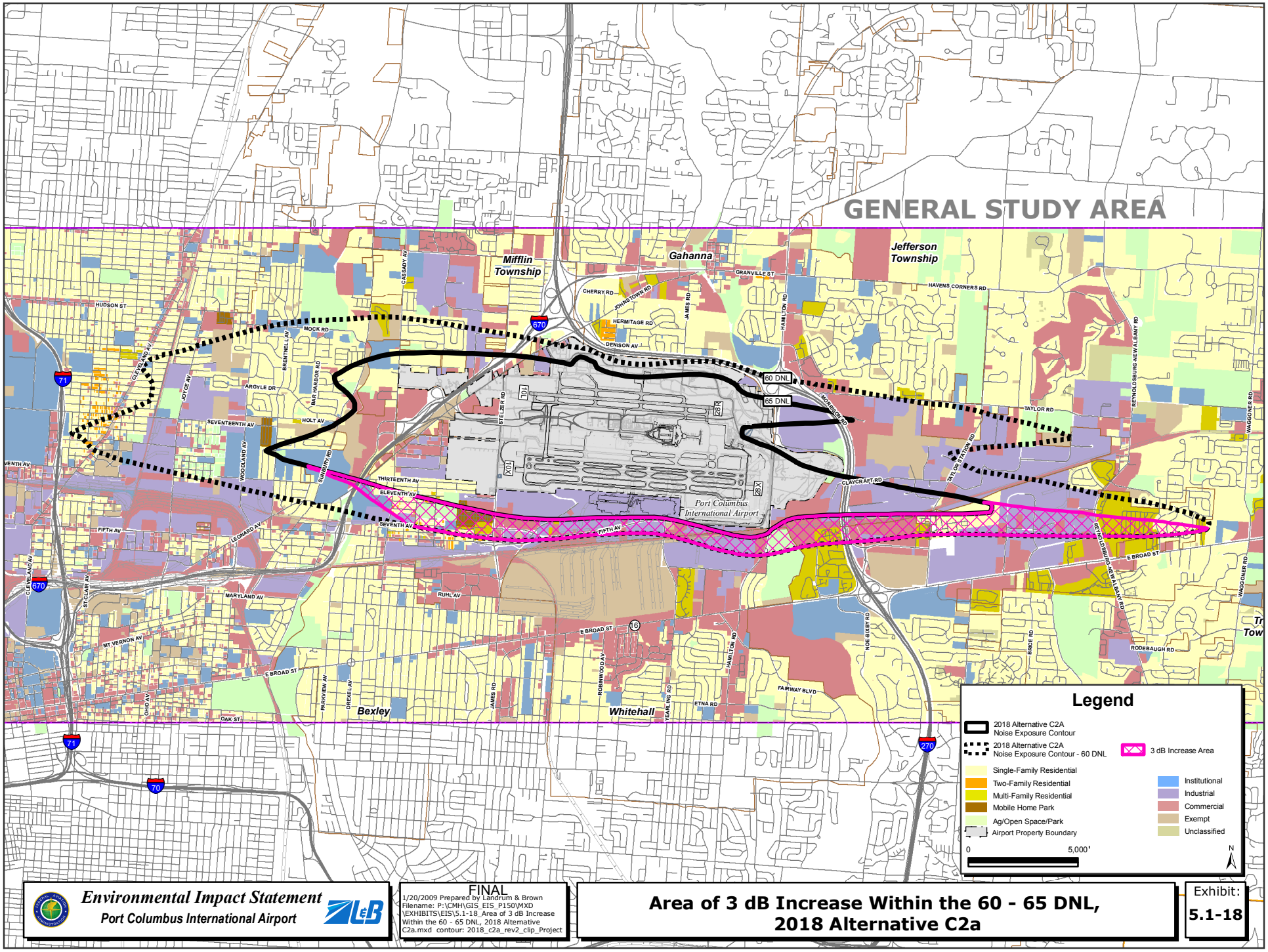

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Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C2a

Exhibit: **5.1-18**

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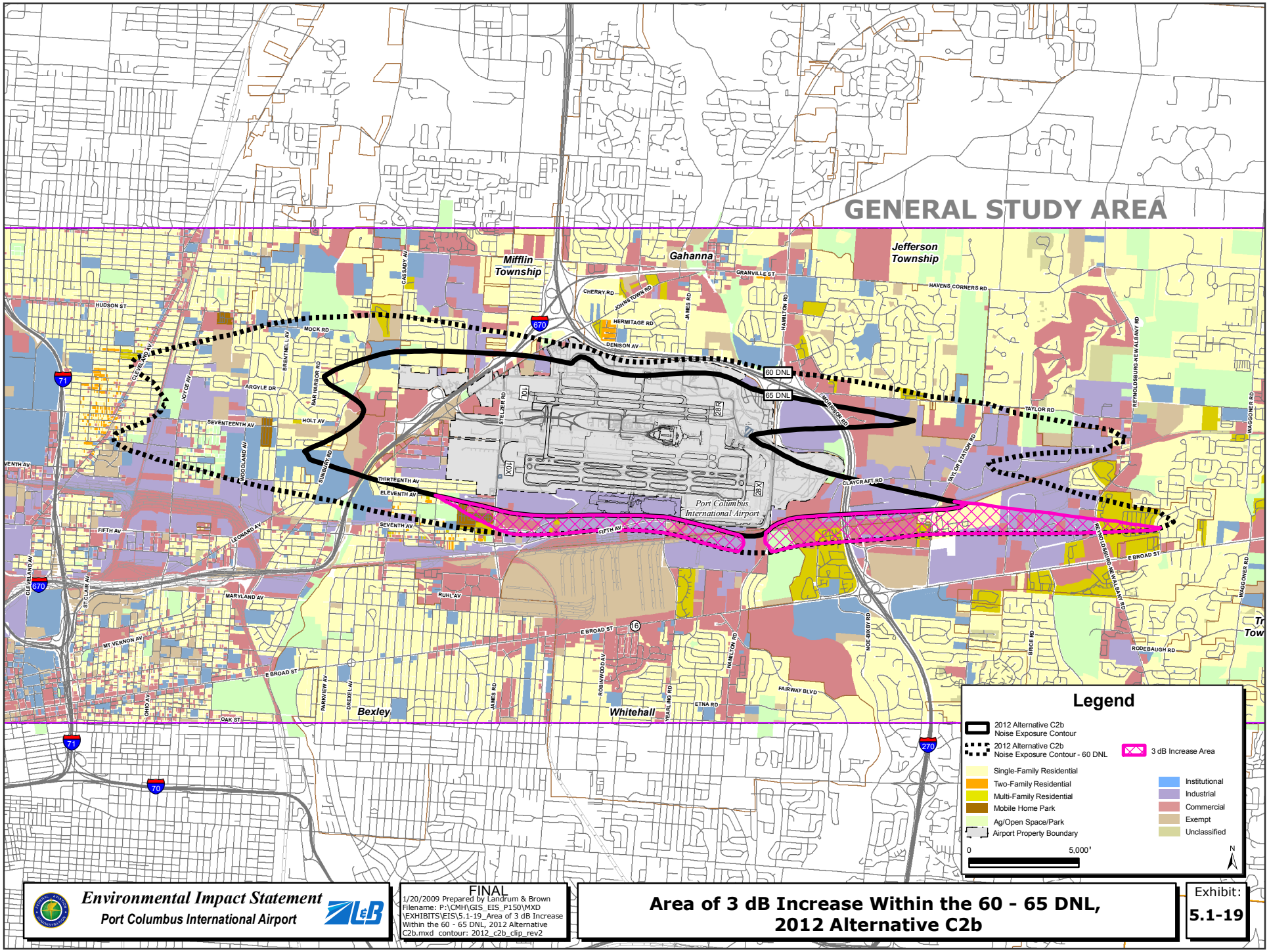

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Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C2b

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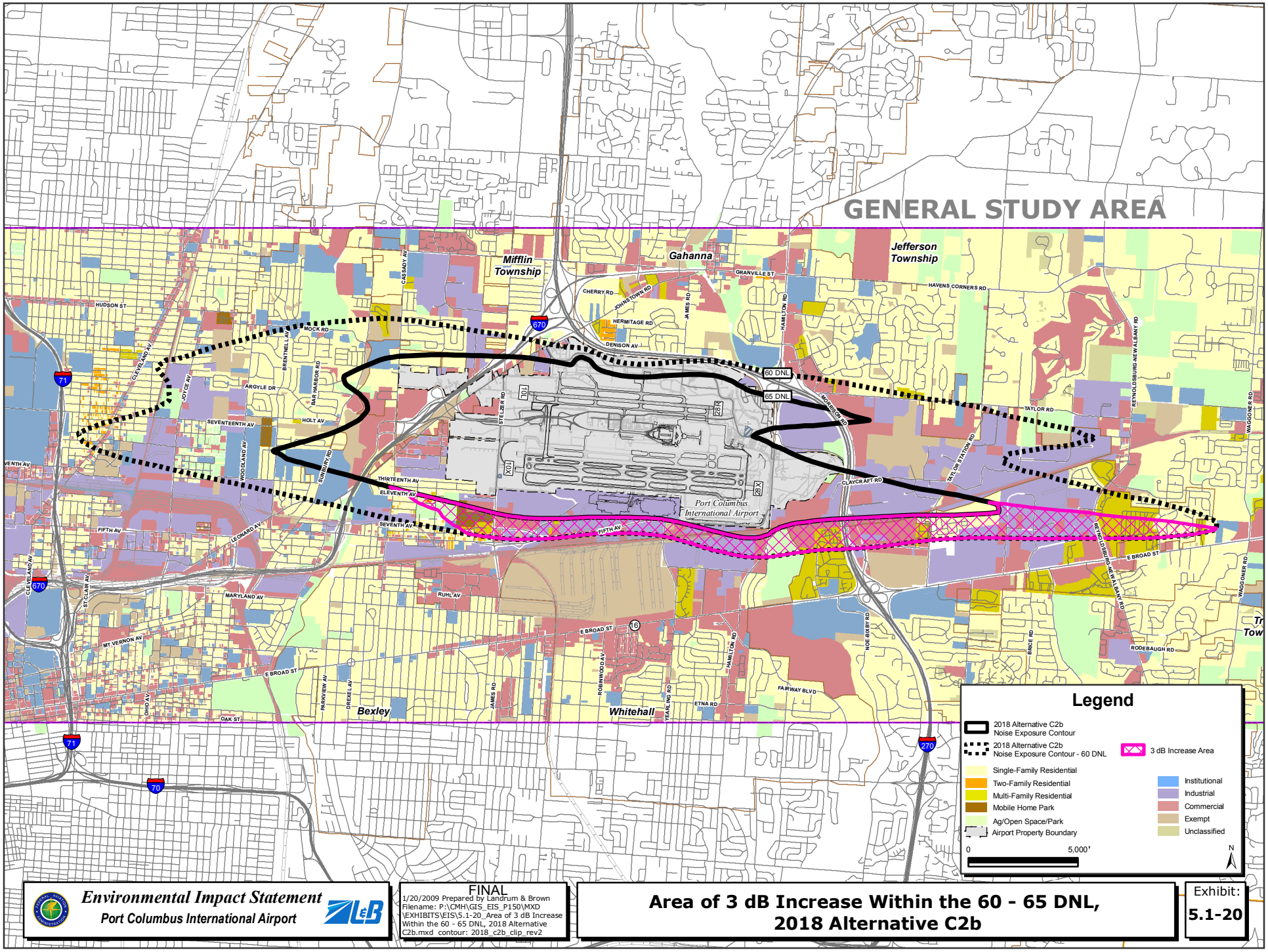

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Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C2b

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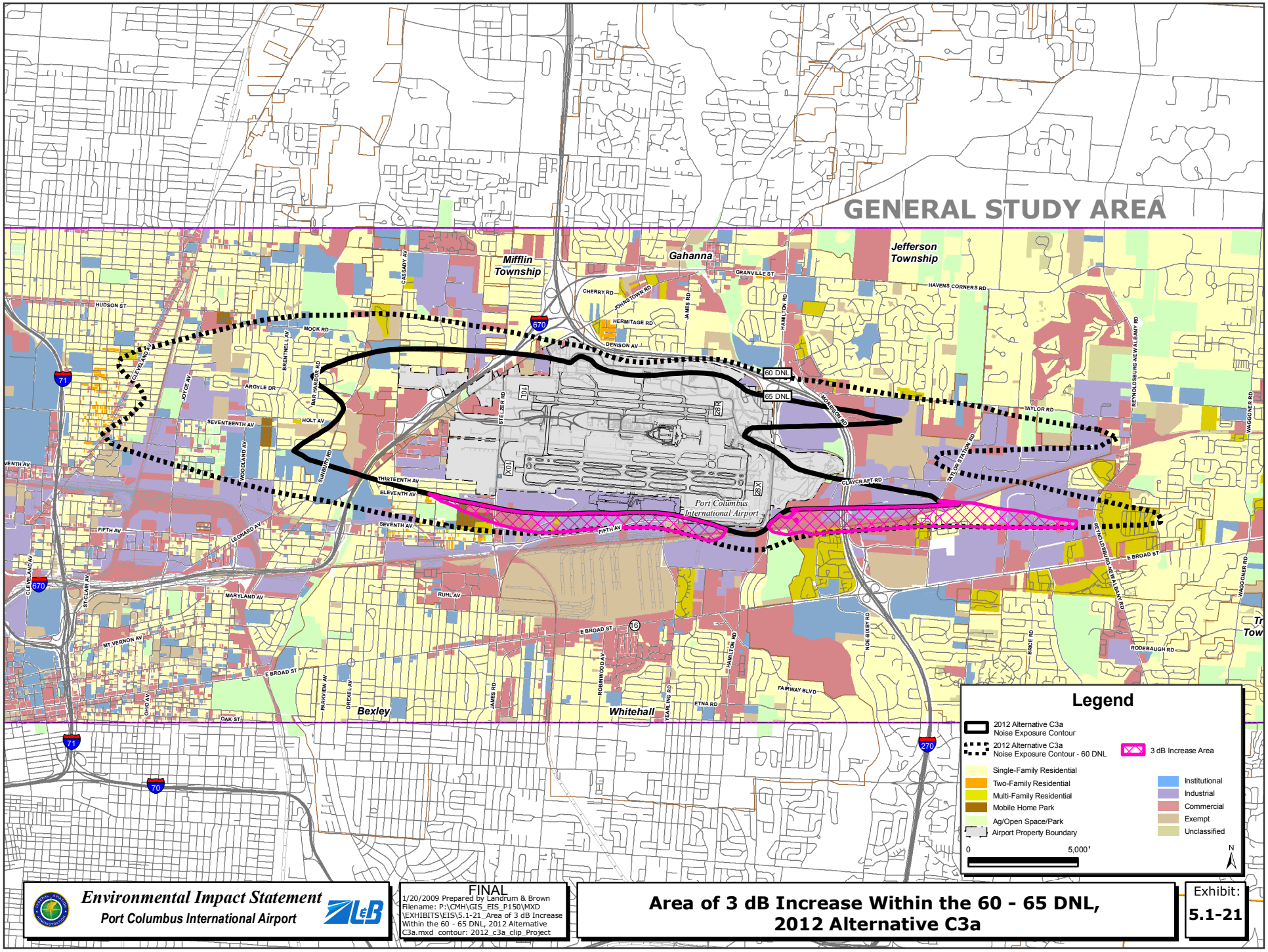

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Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C3a

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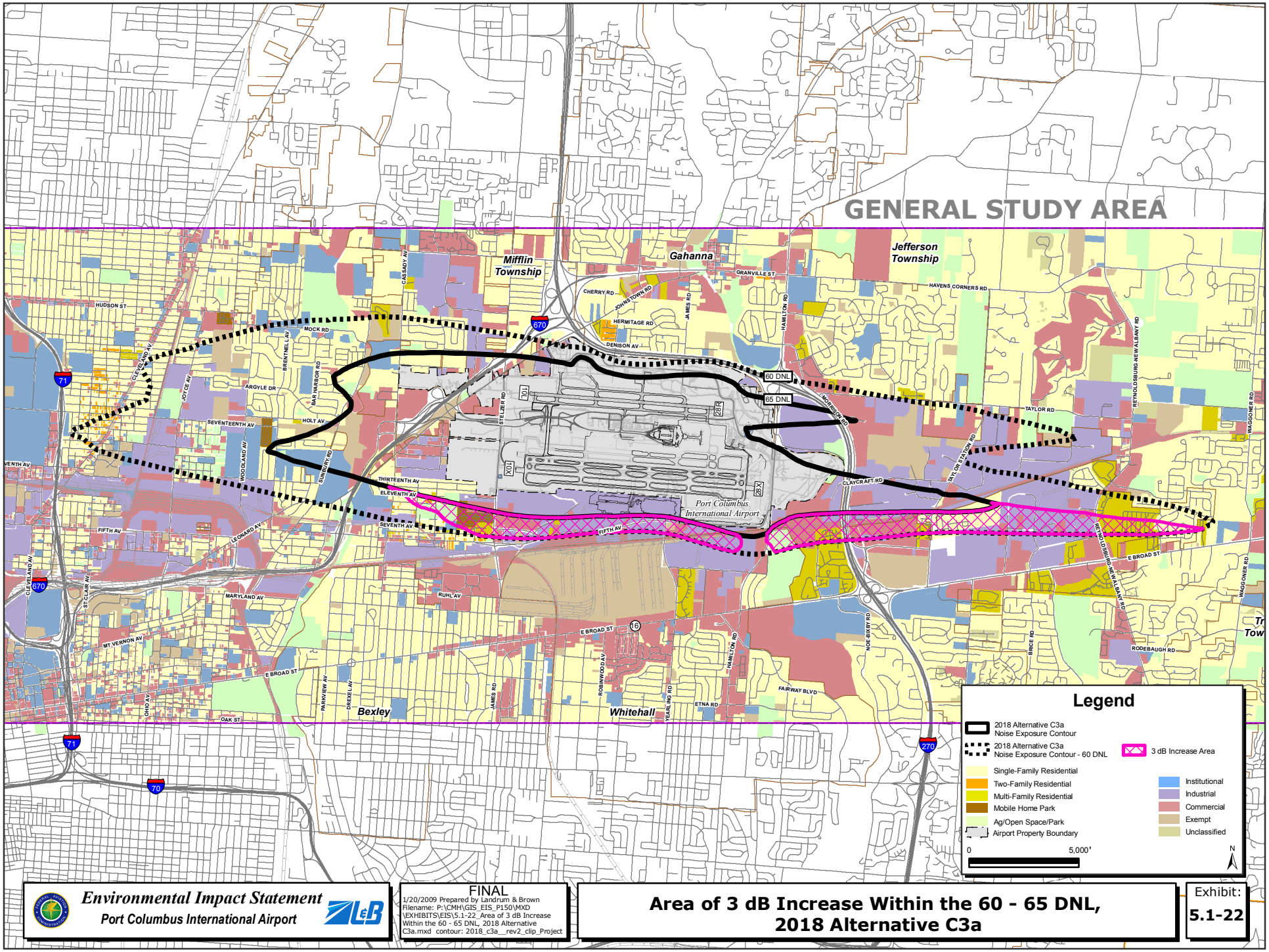

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Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C3a

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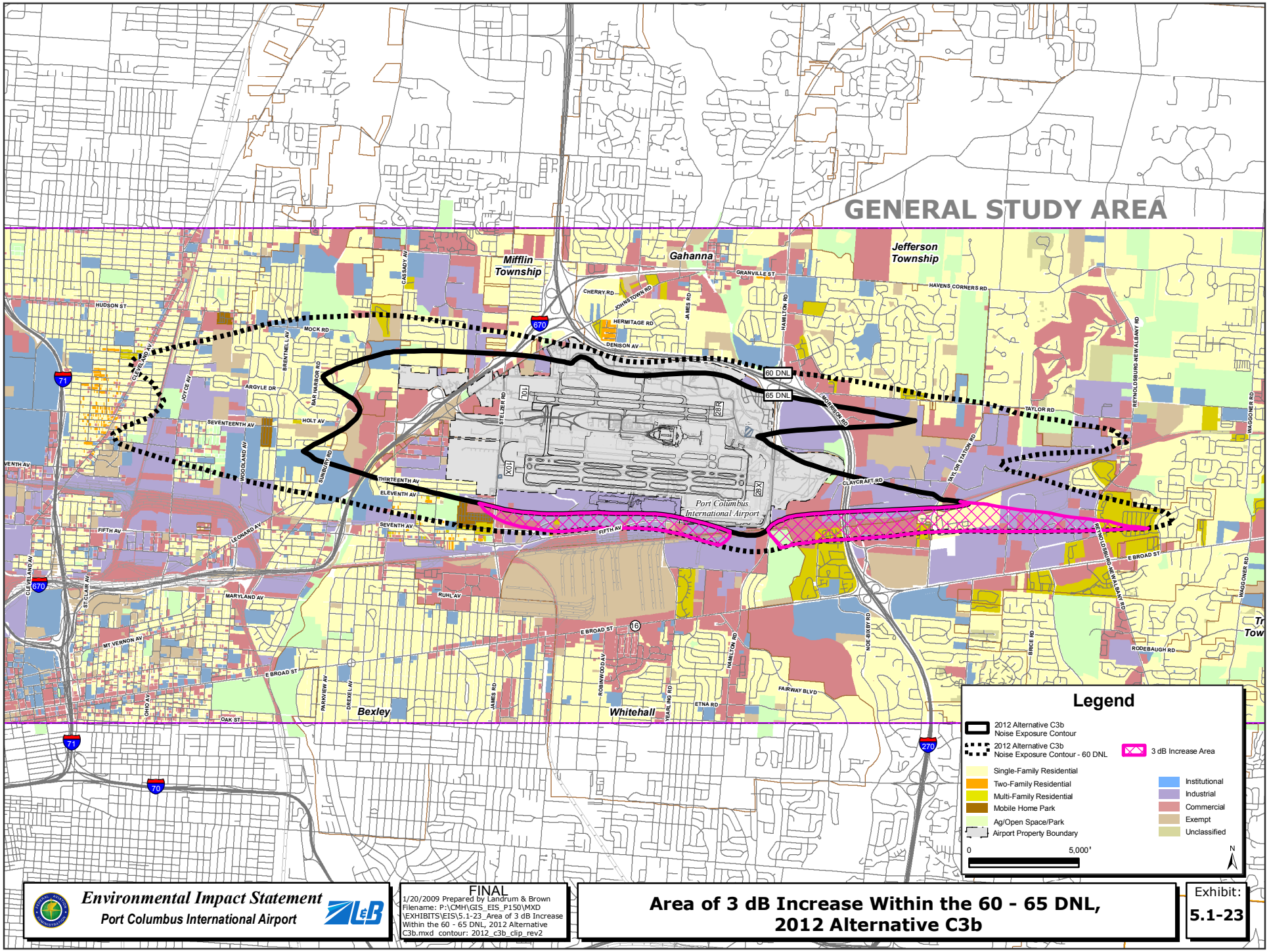

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Area of 3 dB Increase Within the 60 - 65 DNL, 2012 Alternative C3b

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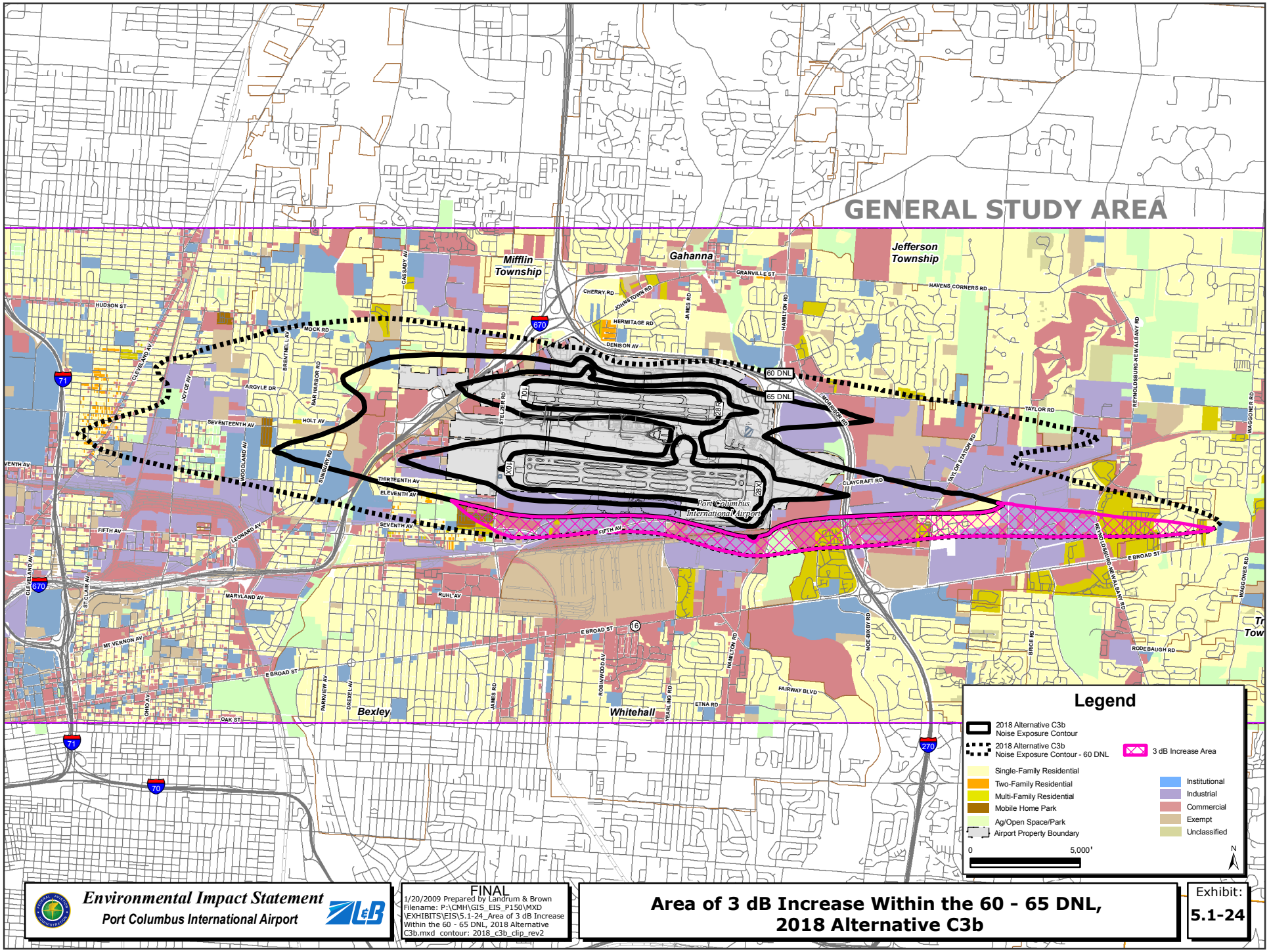

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Area of 3 dB Increase Within the 60 - 65 DNL, 2018 Alternative C3b

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5.2 COMPATIBLE LAND USE

This section provides an evaluation of the compatibility of land uses in the vicinity of Port Columbus International Airport (CMH or Airport) for the Sponsor's Proposed Project and its alternatives. The impacts of each alternative on surrounding land uses and the consistency of the alternatives with the comprehensive plans of the surrounding communities are assessed in accordance with Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Projects.*

5.2.1 EXISTING CONDITIONS: 2006

The existing land use patterns within the General Study Area (GSA) are described in Chapter Four, *Affected Environment*. The majority of the land use in the area surrounding the Airport are residential, industrial, and commercial uses. **Exhibit 5.2-1, *Generalized Land Use,*** graphically depicts the general land use pattern in the GSA.

Existing land use data was collected from Franklin County, municipalities, and townships within the GSA, as well as from reports generated by the Mid-Ohio Regional Planning Commission (MORPC). Land uses in the vicinity of the Airport were categorized in terms of the general land use classifications presented in 14 Code of Federal Regulations (CFR) Part 150, which includes residential (single and multi-family), commercial, public/institutional, and agricultural/recreational/open space. These land uses were identified based on Franklin County's Geographic Information System (GIS) database and additional land use surveys provided by the Columbus Regional Airport Authority (CRAA) or local jurisdictions, and was supplemented as necessary by field verification.

The FAA has identified guidelines relating the compatibility of land use types to airport sound levels. These guidelines are defined in Federal Aviation Regulations, 14 CFR Part 150 (Table 1 of Appendix A), *Land Use Compatibility with Yearly Day-Night Average Sound Levels*. These guidelines, shown in **Table 5.2-1**, delineate the compatibility parameters for residential, public (schools, churches, nursing homes, hospitals, libraries), commercial, manufacturing and production, and recreational land uses.

Housing and Population: The 2000 U.S. Census data was combined with the Franklin County GIS land use database to identify the location of residential land uses in the GSA. Field checking was conducted to verify the location of homes and to identify new or planned development. Population was estimated using a ratio of persons per household based on the Census data and housing unit counts in the area. The number of housing units and the population within each noise contour level were determined by overlaying each noise contour level with the GIS land use and housing structure layers.

Table 5.2-1
LAND USE COMPATIBILITY GUIDELINES - FAR PART 150

	YEARLY DAY-NIGHT AVERAGE SOUND LEVEL (DNL) IN DECIBELS					
LAND USE	**BELOW 65**	**65-70**	**70-75**	**75-80**	**80-85**	**OVER 85**
RESIDENTIAL						
Residential, other than mobile homes & transient lodgings	Y	N[1]	N[1]	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N[1]	N[1]	N[1]	N	N
PUBLIC USE						
Schools, hospitals, nursing homes	Y	25	30	N	N	N
Churches, auditoriums, and concert halls	Y	25	30	N	N	N
Governmental services	Y	Y	25	30	N	N
Transportation	Y	Y	Y[2]	Y[3]	Y[4]	N[4]
Parking	Y	Y	Y[2]	Y[3]	Y[4]	N
COMMERCIAL USE						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail -- building materials, hardware, and farm equipment	Y	Y	Y[2]	Y[3]	Y[4]	N
Retail trade, general	Y	Y	25	30	N	N
Utilities	Y	Y	Y[2]	Y[3]	Y[4]	N
Communication	Y	Y	25	30	N	N
MANUFACTURING AND PRODUCTION						
Manufacturing, general	Y	Y	Y[2]	Y[3]	Y[4]	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y[6]	Y[7]	Y[8]	Y[8]	Y[8]
Livestock farming and breeding	Y	Y[6]	Y[7]	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
RECREATIONAL						
Outdoor sports arenas and spectator sports	Y	Y	Y[5]	N[5]	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Table 5.2-1, *Continued*
LAND USE COMPATIBILITY GUIDELINES - FAR PART 150

The designations contained in this table do not constitute a Federal determination that any use of land covered by the program is acceptable under Federal, State, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise compatible land uses.

Key To Table A-1

Y (Yes) Land use and related structures compatible without restrictions.

N (No) Land use and related structures are not compatible and should be prohibited.

NLR Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure

25, 30, 35 Land use and related structures generally compatible; measures to achieve a NLR of 25, 30, or 35 dB must be incorporated into design and construction of structure.

Notes for Table A-1

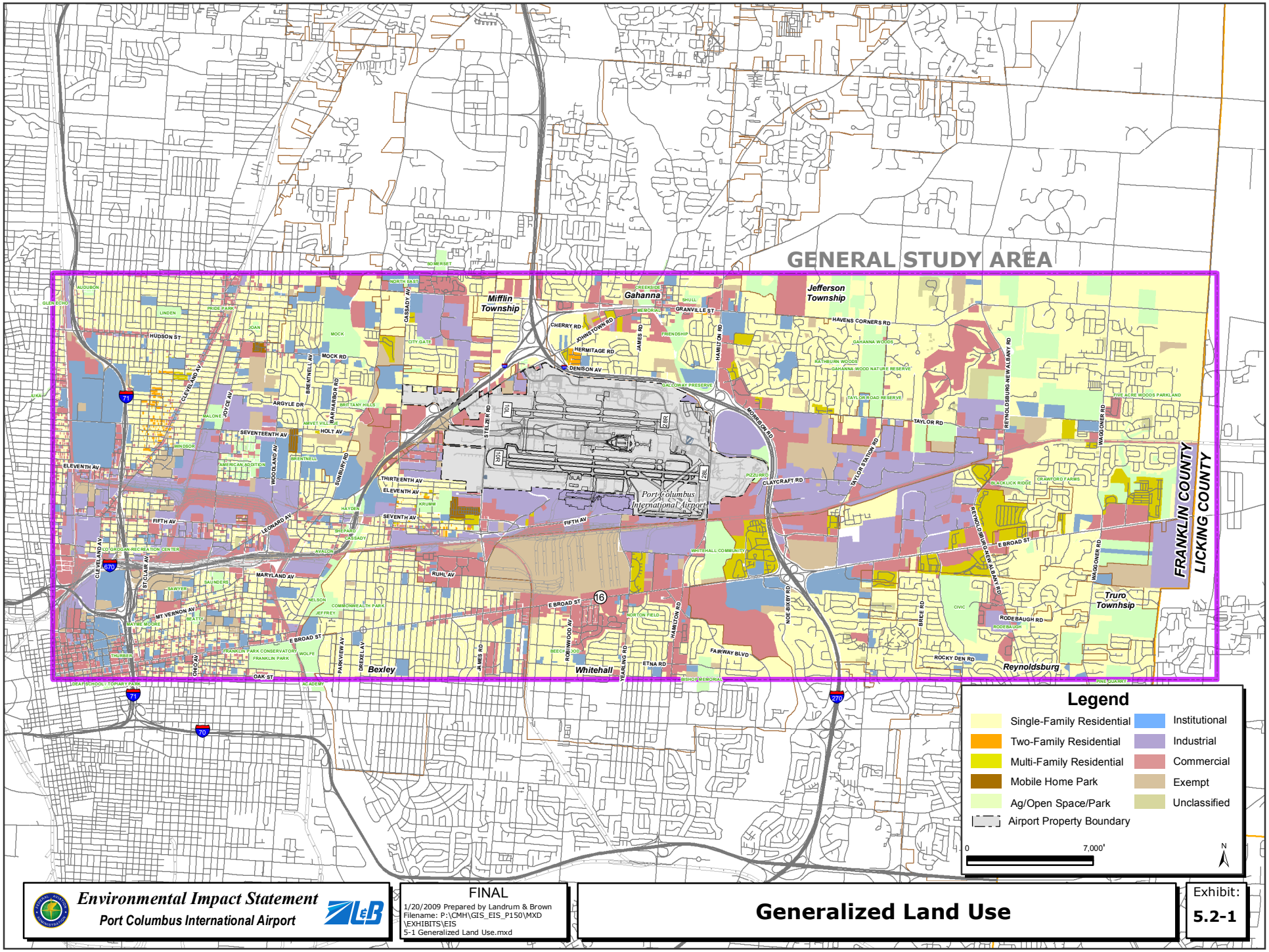
1. Where the community determines that residential or school uses must be allowed, measures to achieve outdoor-to-indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide a NLR of 20 dB, thus, the reduction requirements are often stated as five, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year round. However, the use of NLR criteria will not eliminate outdoor noise problems.
2. Measures to achieve NLR of 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
3. Measures to achieve NLR of 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
4. Measures to achieve NLR of 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
5. Land use compatible provided special sound reinforcement systems are installed.
6. Residential buildings require a NLR of 25 dB.
7. Residential buildings require a NLR of 30 dB.
8. Residential buildings not permitted.

Source: FAR Part 150 Airport Noise Compatibility Planning, Appendix A, Table 1.

Noise-Sensitive Public Facilities: Noise-sensitive public facilities include schools, churches, libraries, hospitals, and nursing homes. The number and location of noise-sensitive public facilities within the Airport environs were derived from a number of different sources. Schools, libraries, hospitals, nursing homes, and churches initially were extracted from Franklin County Auditor data. These facilities were then field-checked to verify their locations. **Table 5.2-2** lists the noise-sensitive public facilities that are graphically depicted on **Exhibit 5.2-2, *Existing Noise-Sensitive Public Facilities***.

Historic, Architectural, Archaeological, and Cultural Resources: Following a survey of over 1,400 sites in the GSA, four historic sites have been identified as being listed or eligible for listing in the National Register of Historic Places (NRHP). These sites qualify for protection under Section 106 of the National Historic Preservation Act (NHPA) and Section 4(f) of the Department of Transportation Act[1], which was designed to preserve historic and recreational sites. For more information on historic sites in the GSA, see Section 5.7, *Department of Transportation Section 4(f),* and Section 5.8, *Historic, Architectural, Archaeological, and Cultural Resources*. Exhibit 5.2.-2 includes the location of the four historic sites in the GSA.

[1] Section 4(f) of the Department of Transportation Act of 1966 is currently codified at 49 U.S.C. Section 303(c). Consistent with FAA Order 1050.1E, Appendix 1, paragraph 6.1a, Section 303(c) will be referred to as Section 4(f).



Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
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Generalized Land Use

Exhibit: 5.2-1

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GENERAL STUDY AREA

Mifflin Township

Gahanna

Jefferson Township

Elam Drake

Valley Dale Ballroom

1388 Sunbury Road

Air Force Plant 85

Old Port Columbus Airport Control Tower

Port Columbus International Airport

Bexley

Whitehall

Reynoldsburg

Truro Townhsip

FRANKLIN COUNTY

LICKING COUNTY

Legend

- Church
- School
- NRHP Site
- Eligible NRHP Site
- Airport Property Boundary
- Library
- Hospital

0 4,000' N

Environmental Impact Statement
Port Columbus International Airport

FINAL

2/4/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.2-2_Existing Noise Sensitive Public Facilities.mxd

Existing Noise-Sensitive Public Facilities

Exhibit: 5.2-2

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Table 5.2-2
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Churches	
C-1	Zion Lighthouse Spiritualist Church
C-2	World Peace Healing Temple
C-3	Woodland Christian Church
C-4	Wilson Avenue Church
C-5	Williams Temple Pentecostal Church
C-6	Welsh Presbyterian Church (historic)
C-7	Weber Road Alliance Church
C-8	Way of Holiness Church
C-9	Unveiling and Unfolding of the Truth Ministries
C-10	University Bible Fellowship Church
C-11	Union Tabernacle Church of God
C-12	Union Grove Baptist Church
C-14	The Greater 12th Baptist Church
C-15	Trinity Episcopal Church
C-16	Trinity Baptist Church
C-17	Triedstone Baptist Church
C-18	Travelers Rest Baptist Church
C-19	Temple of Psychic Prophecy
C-20	Temple of Faith Church of Deliverance
C-21	Temple of Faith Church
C-22	Temple Israel
C-23	Temple Beth Shalom
C-24	Taylor Station Church
C-25	Tabernacle of Christian Fellowship
C-26	Strong Tower Church of Christ
C-27	Spring Hill Baptist Church
C-28	Spanish Evangelistic Association of the Living God
C-29	Lighthouse Community Baptist Church
C-30	Solid Rock Baptist Church
C-31	Sigsbee Avenue Church of God
C-32	Shining Light Bible Mission Church
C-33	Shiloh Baptist Church
C-34	Shepard United Methodist Church
C-35	Shady Grove Baptist Church of Christ
C-36	Second Baptist Church
C-37	Sanctified Temple Church of God in Christ
C-38	Salvation Army Chapel Church
C-39	Saint Thomas the Apostle Roman Catholic Church
C-40	Saint Theresa's Shrine
C-41	Saint Pius X Catholic Church
C-42	Saint Philips Episcopal Church
C-43	Saint Philip Lutheran Church
C-44	Saint Peters Evangelical Lutheran Church

Table 5.2-2, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Churches, *Continued*	
C-45	Saint Paul's Episcopal Church
C-46	Living Word Church
C-47	Saint Paul African Methodist Episcopal Church
C-48	Saint Mary's Macedonian Eastern Orthodox Church
C-49	Saint Mark African Methodist Episcopal Church
C-50	Saint Joseph Cathedral
C-51	Saint Johns Baptist Church
C-52	Saint John the Baptist Roman Catholic Church
C-53	Saint James Baptist Church
C-54	Saint Dominic Roman Catholic Church
C-55	Saint Albans Church
C-56	Ruth Temple Apostolic Original Holy Church of God
C-57	Rose of Sharon Baptist Church
C-58	Rose Hill Church of God
C-59	Reynoldsburg Baptist Church
C-60	Rehoboth Temple
C-61	Refuge Church of Christ
C-62	Purple Rose Temple of Truth Spiritualist Church
C-63	Praise Temple Christian Methodist Episcopal Church
C-64	Pleasant Hill Church of the Living God
C-65	Pilgrim Baptist Church
C-66	Pentecostal House of Prayer
C-67	Peace Baptist Mission
C-68	Pathway to Power Baptist Church
C-69	Original Glorious Church of God in Christ
C-70	Old Peace Lutheran Church
C-71	Ohio Union Steadfast Primitive Church
C-72	Northside Church of God
C-73	Northeast Church of Christ
C-74	North Linden Baptist Church
C-76	Beginning Missionary Baptist Church
C-77	New Bethlehem Baptist Church
C-78	Mount Zion Missionary Baptist Church
C-79	Mount Zion Church of God in Christ
C-80	Mount Zion Church of God in Christ
C-81	Mount Victory Baptist Church
C-82	Mount Vernon Avenue Missionary Baptist Church
C-83	Mount Vernon African Methodist Episcopal Church
C-84	Mount Sinai Missionary Baptist Church
C-85	Mount Sinai Holy Temple
C-86	Great St. Paul Church
C-87	Mount Pisgah Baptist Church
C-88	Mount Pisgah Baptist Church

Table 5.2-2, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Churches, *Continued*	
C-89	Mount Nebo Baptist Mission
C-90	Living Charity Church
C-91	Mount Herman Baptist Church
C-92	Mount Calvary Holy Church
C-93	Metropolitan Baptist Church
C-94	Meredith Temple Church of God in Christ
C-95	Maynard Avenue Baptist Church
C-96	Masjid Al-Islam Mosque
C-97	Man in Christ Ministries
C-98	Loving Charity Baptist Church
C-99	Love Zion Baptist Church
C-100	Lord of Life Fellowship Church
C-101	Lord Jesus Christ of Apostolic Faith Church
C-102	Living Faith Apostolic Church
C-103	Little Flock Church
C-104	Linden United Methodist Church
C-105	Linden Spiritualist Church
C-106	Lee Avenue United Methodist Church
C-107	Kingdom Hall of Jehovah's Witnesses
C-108	New Horizons Christian Fellowship Church
C-109	Jordan Baptist Church
C-110	Jireh House Full Gospel Church
C-111	Jesus People Evangelistic Center
C-112	Jerusalem Tabernacle Baptist Church
C-113	Jerusalem Baptist Church
C-114	Islamic Center Church
C-115	International Gospel Center
C-116	Independent Missionary Church of God in Christ
C-117	House of God Holy Church
C-118	Holy Temple Church of God
C-119	Holy Church of God
C-120	Holy Carmel Holy Church of America
C-121	Agudas Achim Congregation
C-122	Apostolic Assembly of Our Lord Jesus Christ Church
C-123	Apostolic Faith Tabernacle
C-124	Apostolic Glorious Church
C-125	Asbury Church
C-126	Bethany Presbyterian Church
C-127	Bethel African Methodist Episcopal Church
C-128	Bethel Baptist Church
C-129	Bethel Holy Temple Church of God
C-130	Broad Street Christian Church
C-131	Broad Street Presbyterian Church

Table 5.2-2, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Churches, *Continued*	
C-132	Broad Street United Methodist Church
C-133	Calhoun's Memorial Temple Church
C-134	Calvary Tremont Baptist Church
C-135	Power of Faith Ministries
C-136	Centenary United Methodist Church
C-137	Christ Memorial Baptist Church
C-138	Christian Home Ministry Church
C-139	Church in Jesus Christ
C-140	Pleasant Green Baptist Church
C-141	Church of Christ Apostolic Faith
C-142	Church of God and Saint of Christ
C-143	Church of God of Franklin County
C-144	Church of God of Prophecy
C-145	Church of Spiritual Unity
C-146	Church of Universal Forces
C-147	Church of the Living God
C-148	Church of the Living God
C-149	Columbus Chinese Christian Church
C-150	Columbus Eastwood Seventh Day Adventist Church
C-151	Community Baptist Church
C-152	Consolidated Baptist Church
C-153	Corinthian Baptist Church
C-154	Cornerstone Church
C-156	Deliverance Church of God
C-157	East Linden United Methodist Church
C-158	East Mount Olivet Baptist Church
C-159	Eastminster Church
C-160	Eliezer Church of Our Lord Jesus Christ
C-161	Emmanuel Community Baptist Church
C-162	Emmanuel Holy Church of God
C-163	Emmanuel Tabernacle Baptist Church
C-165	Fairmoor Presbyterian Church
C-166	Faith Mission United Methodist Church
C-167	Faith Tabernacle
C-168	Faith Tabernacle Church of God in Christ
C-169	Faith Temple Apostolic Holiness Church of God
C-170	Faith Temple House of Prayer
C-171	Christian Outreach Ministries
C-172	First Baptist Church
C-173	First Congregational Church
C-174	First Spiritualist Church of Sprit Revelation
C-175	First Spiritualist Temple
C-176	Flintridge Baptist Church

Table 5.2-2, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Churches, *Continued*	
C-177	Free Pentecostal Church of God
C-178	Freewill Pentecostal Holiness Church of Christ
C-179	C.R.A.C.K. House Ministries Church
C-180	Anointed Touch Ministries
C-181	Galilee Baptist Church
C-182	Gay Tabernacle Baptist Church
C-183	Gods House of Prayer
C-184	Good Neighbor Community Church
C-185	Good Shepherd Baptist Church
C-186	Good Shepherd Church
C-187	Goodwill Baptist Church
C-188	Gospel Tabernacle Church
C-189	Grace Bible Baptist Church
C-190	Grace Temple
C-191	Greater Emmanuel Apostolic Faith Church
C-192	Greater Emmanuel Church
C-193	Greater Harvest Baptist Church
C-194	Greater Liberty Temple Church
C-195	Greater Life Evangelistic Temple
C-196	Greater Light Church of the Living God
C-197	Havens Corners Church of Christ in Christian Union
C-198	Higher Ground Always Abounding Assembly Church
C-199	Highway Church of God
C-200	Lutheran Village of Columbus
C-201	Victory In Pentecost
C-202	Mifflin Presbyterian Church
C-203	Christian Center Church
C-204	Shepherd Church of the Nazarene and Christian School
C-205	Everlasting Life Ministries
C-206	New Tabernacle Church of God in Christ
C-207	Ephphatha New Ministries
C-208	Paradise Baptist Church
C-209	Temple of Faith Church of the Living God
C-210	Aenon Missionary Baptist Church
C-211	Faith Comes by Hearing Christian Center
C-212	Apostolic House of Worship
C-213	Redeemed Christian Church of God
C-214	Mt. Judia Church
C-215	United Baptist Church
C-216	Country Fellowship Church
C-217	East Pointe Christian Church
C-218	East Side Brethren Grace Church
C-219	St. Mary Church

Table 5.2-2, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Churches, *Continued*	
C-220	Church of God Militant Pillar and the Ground of Truth
C-221	Columbus Christian Center Church
C-222	Eternal Life Church of Christ
C-223	Advent United Church of Christ
C-224	Jerusalem Deliverance Church of God in Christ
C-225	The House of God Church
C-226	Terry Lee Center
C-230	St. Matthews Church
C-231	Greater Liberty Temple
C-232	Wonderland Community Church
C-233	Greater Works Ministries
Hospitals	
H-1	University Hospital East
H-2	Mount Carmel Hospital East
Libraries	
L-1	Gahanna Library
L-2	Columbus Library Linden Branch
L-3	Martin Luther King Library
L-4	Shepard Library
L-5	Whitehall Library
Schools	
S-1	Windsor Alternative Elementary School
S-2	Trevitt Elementary School
S-3	The Columbus Academy
S-4	South Mifflin Elementary School
S-5	Shepard Street School (historic)
S-6	Shepard School
S-7	School Number 5 (historic)
S-8	Saint Thomas the Apostle School
S-9	Saint Pius School
S-10	Saint Peters School
S-11	Saint Patrick's School
S-12	Saint Matthews School
S-13	Saint Dominic School
S-14	Saint Charles Seminary
S-15	Saint Augustine School
S-16	Rosemont High School
S-17	Rose More School
S-18	Rose Hill Elementary School
S-19	Pilgrim Elementary School
S-20	Ohio Dominican University
S-22	Monroe Junior High School
S-23	Milo School

Table 5.2-2, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Schools, *Continued*	
S-24	Mifflin Junior High School
S-25	Mifflin High School
S-26	Maryland Avenue Elementary School
S-27	Linmoor Alternative School
S-28	Linden McKinley High School
S-29	Linden Elementary School
S-30	Lincoln Schools
S-31	Lincoln School
S-32	Lincoln High School
S-33	Lincoln Elementary School
S-34	Leonard School
S-35	Kay Avenue Elementary School
S-36	Karl F Smith Bible School
S-37	Holy Spirit School
S-38	Hamilton School
S-39	Goshen Lane Elementary School
S-40	Garfield School
S-41	Franklin Middle School
S-42	Fort Hayes Career Center
S-43	Felton School
S-44	Fairmoor Elementary School
S-45	Fair Elementary School
S-46	Etna Road Elementary School
S-47	CMHA Institution
S-48	Eastwood Avenue School
S-49	Eastmoor Junior High School
S-50	Eastmoor High School
S-51	Eastgate Elementary School
S-52	East Linden Elementary School
S-53	East High School
S-54	East Columbus Elementary School
S-55	East Broad Street School
S-56	Duxberry Park School
S-57	Douglas Alternative Elementary School
S-58	Columbus State Community College
S-59	Columbus School for Girls
S-60	Columbus Community College
S-61	Columbus College of Art and Design
S-62	Columbus Alternative High School
S-63	Champion Alternative Middle School
S-64	Broadleigh Elementary School
S-65	Oakland Park at Brentnell Elementary School
S-66	Bexley Junior High School

Table 5.2-2, *Continued*
NOISE-SENSITIVE PUBLIC FACILITIES
Port Columbus International Airport

Map ID	Name
Schools, *Continued*	
S-67	Bexley High School
S-68	Beechwood Elementary School
S-69	Arlington Park Elementary School
S-70	Agudas Achim School
S-71	Columbus State Community College
S-73	Waggoner Road Middle School
S-74	FCI Academy
S-75	Gladstone Elementary School

Source: Landrum & Brown, 2007.

5.2.2 FUTURE CONDITIONS: 2012

The following section discusses the land use impacts of the Sponsor's Proposed Project and its alternatives in 2012, which includes quantifying the number of residential and other noise-sensitive land uses that are impacted by aircraft noise for each of the 2012 alternatives. Impacts are determined according to the FAA land use compatibility guidelines, relating types of land use to airport sound levels shown in Table 5.2-1.

5.2.2.1 Alternative A: No Action

This section provides a summary of the residential population, housing units, and noise-sensitive facilities affected by noise levels for the 2012 Alternative A: No Action.

Land Use Incompatibilities: **Table 5.2-3** shows the number of housing units, residents, and noise-sensitive facilities located within the 2012 Alternative A: No Action noise contour. There are 693 housing units and an estimated 1,712 residents located within the 65+ Day-Night Average Sound Level (DNL) of the 2012 Alternative A: No Action noise contour. Of those 693 housing units, 638 are within the City of Columbus and 55 are within Mifflin Township. A total of 357 of those housing units have received sound insulation and are therefore considered mitigated. There are three churches and one school located within the 65+ DNL of the 2012 Alternative A: No Action noise contour, the Christian Outreach Ministries, the Eternal Life Church of Christ, the Mt. Judia Church, and South Mifflin Elementary School (which has received sound insulation). **Table 5.2-4** summarizes the housing unit and population impacts for all of the 2012 alternatives.

Table 5.2-3
2012 ALTERNATIVE A: NO ACTION HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,139**	**638**	**0**	**0**	**638**
Mitigated					
Sound Insulated[1]	326	322	0	0	322
Easement[2]	191	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	106	61	0	0	61
Not Previously Mitigated[4]	4,516	255	0	0	255
Mifflin Township	**17**	**55**	**0**	**0**	**55**
Mitigated					
Sound Insulated	1	35	0	0	35
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	3	17	0	0	17
Not Previously Mitigated	13	3	0	0	3
Gahanna	**194**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	3	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	0	0	0	0
Not Previously Mitigated	190	0	0	0	0
Jefferson Township	**56**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	27	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	29	0	0	0	0
Total Housing Units	**5,406**	**693**	**0**	**0**	**693**
Population					
Total Population	**13,353**	**1,712**	**0**	**0**	**1,712**
Noise-Sensitive Facilities					
Churches	38	3	0	0	3
Schools	7	1	0	0	1
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

Table 5.2-4
COMPARISON OF HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES FOR 2012 ALTERNATIVES
Port Columbus International Airport

CATEGORY	2012 ALTERNATIVE A: NO ACTION	2012 ALTERNATIVE C2a	2012 ALTERNATIVE C2b	2012 ALTERNATIVE C3a	2012 ALTERNATIVE C3b
Housing Units					
65-70 DNL	693	725	507	700	473
70-75 DNL	0	0	0	0	0
75+ DNL	0	0	0	0	0
65+ DNL	693	725	507	700	473
Population					
65-70 DNL	1,712	1,791	1,252	1,729	1,168
70-75 DNL	0	0	0	0	0
75+ DNL	0	0	0	0	0
65+ DNL	1,712	1,791	1,252	1,729	1,168
Noise Sensitive Facilities (Churches, Schools, Libraries, Hospitals, and Nursing Homes)					
65-70 DNL	4	1	0	0	0
70-75 DNL	0	0	0	0	0
75+ DNL	0	0	0	0	0
65+ DNL	4	1	0	0	0

Source: Landrum & Brown, 2007.

5.2.2.2 Alternative C2a: 2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2012 Alternative C2a noise contour.

Land Use Incompatibilities: **Table 5.2-5** shows the number of housing units, residents, and noise-sensitive facilities located within the 2012 Alternative C2a noise contour. Table 5.2-4 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2012 alternatives. There are 725 housing units and an estimated 1,791 residents located within the 65+ DNL of the 2012 Alternative C2a noise contour. A total of 318 of those housing units have received sound insulation (282 in Columbus and 36 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. The CRAA has obtained an avigation easement on one additional housing unit located in Columbus. There is one church, the East Mount Olivet Baptist Church (2940 East 11th Ave.), located within the 65+ DNL of the 2012 Alternative C2a noise contour. There are no schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2012 Alternative C2a noise contour.

Table 5.2-5
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2012 ALTERNATIVE C2a
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,610**	**667**	**0**	**0**	**667**
Mitigated					
Sound Insulated[1]	370	282	0	0	282
Easement[2]	373	1	0	0	1
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	91	77	0	0	77
Not Previously Mitigated[4]	4,776	307	0	0	307
Mifflin Township	**12**	**58**	**0**	**0**	**58**
Mitigated					
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	11	3	0	0	3
Gahanna	**31**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	1	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	0	0	0	0
Not Previously Mitigated	29	0	0	0	0
Jefferson Township	**15**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	15	0	0	0	0
Total Housing Units	**5,668**	**725**	**0**	**0**	**725**
Population					
Total Population	**14,000**	**1,791**	**0**	**0**	**1,791**
Noise-Sensitive Facilities					
Churches	37	1	0	0	0
Schools	8	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

*14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

Consistency with Local Land Use Plan: This section describes the affects of this alternative on land use and the compatibility with local land use plans. Alternative C2a would result in impacts to a number of facilities that could affect future land use patterns within the surrounding jurisdictions.

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would require the acquisition of 36 residential properties for clearing the Runway Protection Zone (RPZ) and vacating all of East 13th Avenue east of Sterling Avenue (see Exhibit 5.3-2 in Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*). These 36 properties are the eastern-most properties on the street and are bounded by Airport property on two sides. The acquisition and relocation of the residents from these 36 properties is considered an impact of this alternative. Because the 35 housing units and one vacant lot represents a small percentage of the overall neighborhood and are located on the edge of the neighborhood, removing these housing units would not constitute a significant impact to the overall pattern of land use in this area. Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*, further discusses the potential impacts of these acquisitions.

Portions of the Columbus International Aircenter (CIAC) would be acquired and removed to allow the installation of a CAT II/III Instrument Landing System (ILS) to Runway 10R. The displaced tenants could be relocated elsewhere on the Airport for those needing airfield access or within Franklin County for those not requiring airfield access. The specific location of on-Airport or off-Airport sites would be done prior to relocation if this alternative were implemented. The land use of the remaining buildings on the CIAC campus could remain warehousing/commercial, so there would not be a change in land use.

The Airport Golf Course, located east of the Airport, would be reconfigured as a result of relocating Runway 10R/28L 800 feet to the south. The approach lighting system, which currently is located in the golf course, would be shifted 800 feet to the south and cause at least nine holes to be reconfigured. During re-construction of the golf course, it is the desire of both the CRAA and the City of Columbus to maintain a minimum of nine holes. The feasibility of this will be further analyzed and determined during the design phase of the project. Because the land use is expected to be maintained and the golf course would return to a full 18-hole facility, there would be no impact to the existing land use. The reconfiguration of the Airport Golf Course is discussed further in Section 5.7, *Department of Transportation Section 4(f) Lands*.

Stormwater Detention Basin: One entrance driveway and 24 parking spaces associated with the 94th Aero Squadron restaurant would be removed to allow for expansion of the ravine located south of Sawyer Road. The ravine is a small tributary of Big Walnut Creek and the proposed expansion will allow stormwater drainage during construction and operation from the proposed airfield projects. The driveway off Sawyer Road will be relocated in-kind, west of the present location and replacement parking areas will be constructed west of the building resulting in

no net loss in parking capacity or access to the restaurant. Because there are two entrance driveways to the restaurant and an abundance of parking, disruption of access and parking for the restaurant would be temporary and minimal.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels, providing relocation assistance to the residents that would be displaced to clear the RPZ, and constructing a noise berm/wall near the area where the homes on East 13th Avenue would be removed.

Sound Insulation

The CRAA prepared an update to the CMH Noise Compatibility Program in 2007 (2007 Part 150 Study).[2] One of the recommendations of the 2007 Part 150 Study is to offer sound insulation to eligible homes that are located within and adjacent[3] to an approved 65 DNL noise contour (Measure LU-1). If Alternative C2a were selected as the preferred alternative and implemented, the sound insulation eligibility boundary would be updated to reflect the area graphically depicted on **Exhibit 5.2-3, *2012 Alternative C2a - Proposed Sound Insulation Boundary***. Within this boundary, there are 422 housing units[4] that would be eligible for sound insulation under this alternative. There are homes within the 65 DNL Noise Contour that were built within a published Noise Exposure Map (graphically depicted in green on Exhibit 5.2-3). The 2007 Part 150 Study concluded that these homes are not eligible for noise mitigation due to the FAA's Final Policy on Noise Mitigation, published in 1998. An analysis was conducted for this EIS to determine if there would be an increase in noise in these areas as a result of implementing this alternative. It was found that Alternative C2a would not increase noise levels in these areas. Therefore, these homes would not be eligible for noise mitigation in this EIS.

Relocation Assistance

A negotiated purchase program would be offered to the 36 properties located inside and adjacent to the RPZ. A negotiated purchase program is the purchase of real property through negotiation (i.e., the offer of fair market value) and involves the payment of relocation assistance and moving expenses, which is consistent with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24). The acquired property would be converted to open space, which is a land

[2] 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.

[3] To remain consistent with FAA and CRAA policies regarding sound insulation eligibility, housing units that are adjacent to the 65+ DNL would be included in the sound insulation program to preserve the integrity of contiguous, stable, and viable residential neighborhoods of similar housing design, construction type, and materials.

[4] This includes 296 unmitigated housing units that are within the 65 DNL Noise Contour and 126 unmitigated housing units that are within the proposed sound insulation boundary adjacent to the 65 DNL Noise Contour for this alternative that would be eligible for mitigation.

use that is compatible with RPZs. Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*, discusses the relocation assistance that would be offered to these residents.

Noise Berm/Wall

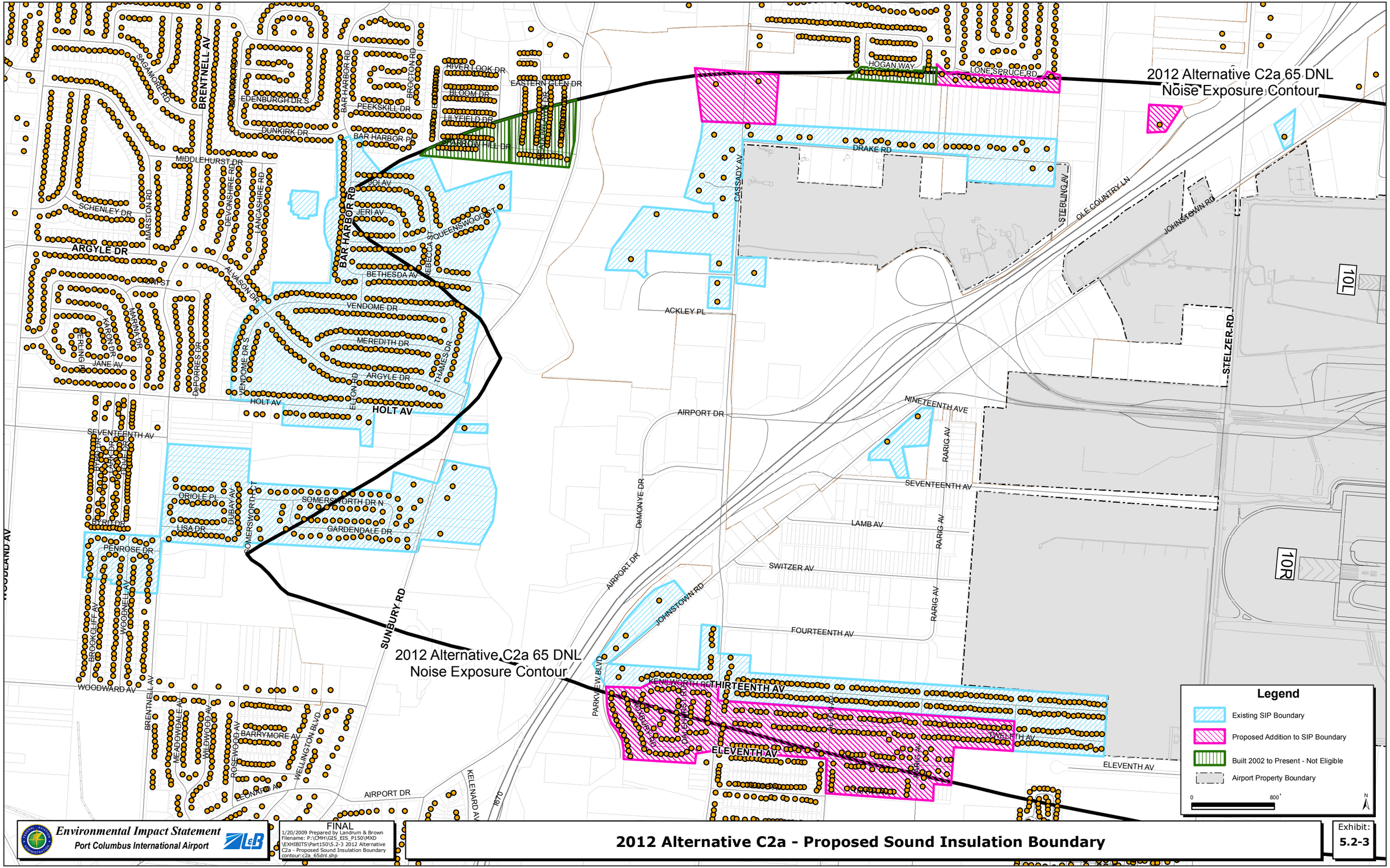
After the negotiated purchase program acquires the 36 properties located inside and adjacent to the RPZ, a noise berm or berm/wall combination will be built along the new Airport property boundary (See **Exhibit 5.2-4, Location of Proposed Noise Berm/Wall**). This noise berm/wall was recommended in the 2007 Part 150 Study and would serve to reduce noise as well as visual impacts from the removal of houses and trees in the relocated RPZ area.

5.2.2.3 Alternative C2b: 2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2012 Alternative C2b noise contour. ***Land Use Incompatibilities:*** **Table 5.2-6** shows the number of housing units, residents, and noise-sensitive facilities located within the 2012 Alternative C2b noise contour. Table 5.2-4 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2012 alternatives. There are 507 housing units and an estimated 1,252 residents located within the 65+ DNL of the 2012 Alternative C2b noise contour. A total of 238 of those housing units have received sound insulation (203 in Columbus and 35 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. There are no churches, schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2012 Alternative C2b noise contour.

Consistency with Local Land Use Plan: This section describes the affects of this alternative on land use and the compatibility with local land use plans. Alternative C2b would result in impacts to a number of facilities that could affect future land use patterns within the surrounding jurisdictions. The impacts described under Alternative C2a for the acquisition of homes in East Columbus, the removal of portions of the CIAC, and the reconfiguration of the Airport Golf Course would remain the same for Alternative C2b.

In addition, Alternative C2b includes a number of recommended land use measures from the 2007 Part 150 Study that could potentially impact land use and development patterns around the Airport. The land use measures are intended to enhance land use compatibility surrounding the Airport through the implementation of land use restrictions. Currently, the City of Columbus and Franklin County have adopted an Airport Environs Overlay (AEO) District that corresponds to the 65-70, 70-75, and 75+ DNL contours of the most recent Noise Exposure Map (NEM) for the Airport. Within the AEO, development standards are enacted that restrict residential land uses in the highest noise areas and provides for avigation easements in the areas of 65+ DNL. Two problems have occurred with this


2012 Alternative C2a 65 DNL
Noise Exposure Contour
2012 Alternative C2a 65 DNL
Noise Exposure Contour
BRENTNELL AV
SAGAMORE RD
EDENBURGH DR S
DUNKIRK DR
PEEKSKILL DR
BAR HARBOR RD
BROCTON RD
RIVER LOOK DR
BLOOM DR
LIVEFIELD DR
EASTERN GLEN DR
BAR HARBOR P
MIDDLEHURST DR
DEVONSHIRE RD
LANCASHIRE RD
MARSTON RD
SCHENLEY DR
ARGYLE DR
ZOLL ST
ALVASON DR
JERI AV
QUEENSWOOD CT
REBECCA ST
BETHESDA AV
VENDOME DR
MEREDITH DR
ARGYLE DR
HOLT AV
SEVENTEENTH AV
ORIOLE PL
SOMERSWORTH DR N
GARDENDALE DR
LISA DR
PENROSE DR
WOODWARD AV
WOODLAND AV
BROOKCLIFF AV
WOODNELL AV
SUNBURY RD
HOGAN WAY
LONE SPRUCE RD
DRAKE RD
CASSADY AV
STERLING AV
OLE COUNTRY LN
JOHNSTOWN RD
ACKLEY PL
STELZER RD
10L
10R
AIRPORT DR
NINETEENTH AVE
RARIG AV
SEVENTEENTH AV
LAMB AV
SWITZER AV
FOURTEENTH AV
DeMONYE DR
PARKVIEW BLVD
KENILWORTH RD
THIRTEENTH AV
ELEVENTH AV
TWELFTH AV
ROSEBURY RD
DAVENPORT RD
BRENTNELL AV
HEADOWDALE AV
WILDWOOD AV
ROSEWOOD AV
BARRYMORE AV
WELLINGTON BLVD
LEONARD AV
KELENARD AV
670
Legend
Existing SIP Boundary
Proposed Addition to SIP Boundary
Built 2002 to Present - Not Eligible
Airport Property Boundary
0
800'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD
\EXHIBITS\Part150\5.2-3 2012 Alternative
C2a - Proposed Sound Insulation Boundary
contour:c2a_65dnl.shp
2012 Alternative C2a - Proposed Sound Insulation Boundary
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5.2-3

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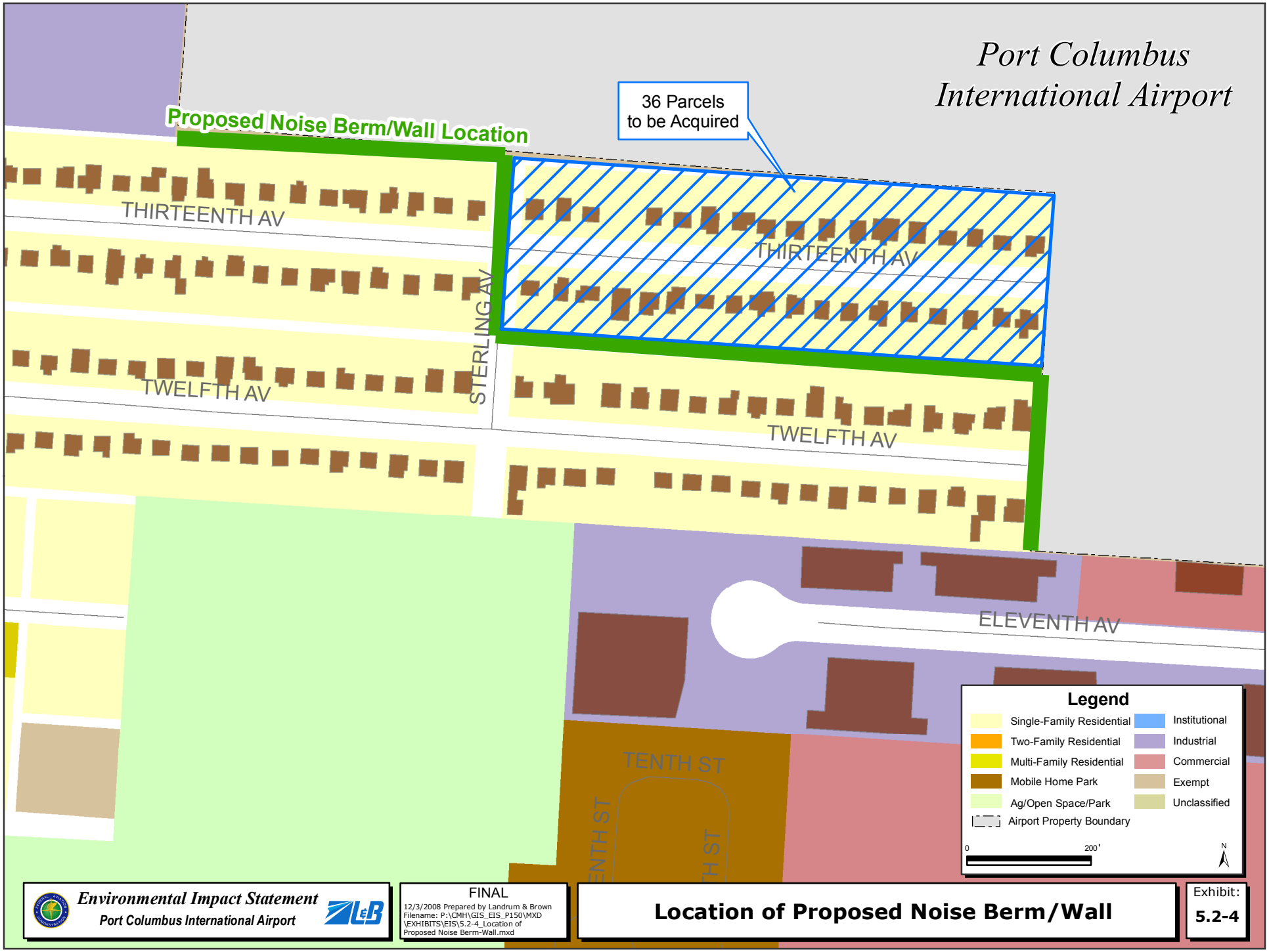

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Port Columbus International Airport

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12/3/2008 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.2-4_Location of Proposed Noise Berm-Wall.mxd

Location of Proposed Noise Berm/Wall

Exhibit:
5.2-4

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program: lack of implementation by the City of Gahanna and Jefferson Township; and the AEO boundary changes every time the NEMs are updated for the Airport (which occurs every three years on average).

In response to these issues, the 2007 Part 150 Study recommends that a fixed-boundary approach be implemented where the boundaries are larger than the 65 DNL of the most recent NEM. The approach of creating fixed-boundaries is recommended as Measure LU-12 in the 2007 Part 150 Study. This approach to land use planning was discussed with the local planning jurisdictions on several occasions throughout the development of the 2007 Part 150 Study. While it is not possible to get assurance on the implementation of the recommendations of the land use measures in a Part 150 study, the local planning jurisdictions have participated in the development of the recommendations and have not objected to the measures being included in the study. If fully implemented, new development around the Airport would be compatible with Airport development and anticipated noise levels.

Stormwater Detention Basin: The stormwater detention basin would stay the same as described under Alternative C2a.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels and providing relocation assistance to the residents that would be displaced to clear the RPZ, and constructing a noise berm/wall near the area where the homes on East 13th Avenue would be removed.

Table 5.2-6
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2012 ALTERNATIVE C2b
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,366**	**451**	**0**	**0**	**451**
Mitigated					
Sound Insulated[1]	449	203	0	0	203
Easement[2]	525	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	102	66	0	0	66
Not Previously Mitigated[4]	4,290	182	0	0	182
Mifflin Township	**14**	**55**	**0**	**0**	**55**
Mitigated					
Sound Insulated	1	35	0	0	35
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	12	1	0	0	1
Gahanna	**138**	**1**	**0**	**0**	**1**
Mitigated					
Sound Insulated	3	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	1	0	0	1
Not Previously Mitigated	135	0	0	0	0
Jefferson Township	**22**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	22	0	0	0	0
Total Housing Units	**5,540**	**507**	**0**	**0**	**507**
Population					
Total Population	**13,684**	**1,252**	**0**	**0**	**1,252**
Noise-Sensitive Facilities					
Churches	34	0	0	0	0
Schools	8	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.

2. Homes that have an avigation easement.

3. Homes that were previously offered sound insulation but declined.

4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

Sound Insulation

The CRAA prepared an update to the CMH Part 150 Study in 2007.[5] One of the recommendations of the 2007 Part 150 Study was to offer sound insulation to eligible homes located within and adjacent to an approved 65 DNL noise contour (Measure LU-1). If Alternative C2b is selected as the preferred alternative and implemented, the sound insulation eligibility boundary would be updated to reflect the area graphically depicted on **Exhibit 5.2-5, *2012 Alternative C2b - Proposed Sound Insulation Boundary***. Within this boundary, there are 297 housing units[6] that would be eligible for sound insulation under this alternative. There are homes within the 65 DNL Noise Contour that were built within a published NEM (graphically depicted in green on Exhibit 5.2-5). The 2007 Part 150 Study concluded that these homes are not eligible for noise mitigation due to the FAA's Final Policy on Noise Mitigation, published in 1998. An analysis was conducted for this EIS to determine if there would be an increase in noise in these areas as a result of implementing this alternative. It was found that alternative C2b would not increase noise levels in these areas. Therefore, these homes would not be eligible for noise mitigation in this EIS.

Relocation Assistance

A negotiated purchase program would be offered to the 36 properties located inside and adjacent to the RPZ. A negotiated purchase program is the purchase of real property through negotiation (i.e., the offer of fair market value) and involves the payment of relocation assistance and moving expenses, which is consistent with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24). The acquired property would be converted to open space, which is a land use that is compatible with RPZs. Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*, discusses the relocation assistance that would be offered to these residents.

Noise Berm/Wall

The noise berm/wall would remain the same as discussed under Alternative C2a.

5.2.2.4 Alternative C3a: 2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2012 Alternative C3a noise contour.

[5] Final 2007 Part 150 Noise Compatibility Program Update, Novmeber 2007. FAA Record of Approval is anticipated by June 1, 2008.

[6] This includes 226 unmitigated housing units that are within the 65 DNL Noise Contour and 71 unmitigated housing units that are within the proposed sound insulation boundary adjacent to the 65 DNL Noise Contour for this alternative that would be eligible for mitigation.

Land Use Incompatibilities: **Table 5.2-7** shows the number of housing units, residents, and noise-sensitive facilities located within the 2012 Alternative C3a noise contour. Table 5.2-4 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2012 alternatives. There are 700 housing units and an estimated 1,729 residents located within the 65+ DNL of the 2012 Alternative C3a noise contour. A total of 337 of those housing units have received sound insulation (301 in Columbus and 36 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. There are no churches, schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2012 Alternative C3a noise contour.

Consistency with Local Land Use Plan: This section describes the affects of this alternative on land use and the compatibility with local land use plans. Alternative C3a would result in impacts to a number of facilities that could affect future land use patterns within the surrounding jurisdictions.

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would result in the acquisition of the same 36 residential properties for clearing the RPZ and vacating East 13th Avenue, as discussed above for Alternative C2a (see Exhibit 5.3-3 in Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*). These 36 properties are the eastern most properties on the street and are bounded by Airport property on two sides. The acquisition of the property and relocation of the residents from these 36 properties is considered an impact of this alternative. Because the 35 housing units and one vacant lot represents a small percentage of the overall neighborhood and are located on the edge of the neighborhood, removing these housing units would not constitute a significant impact to the overall pattern of land use in this area. Section 5.3, *Socioeconomic Impacts; Environmental Justice; and Children's Environmental Health and Safety Risks*, discusses the potential impacts of these acquisitions.

The Airport Golf Course, located east of the Airport, would be reconfigured as a result of relocating Runway 10R/28L 702 feet to the south. The approach lighting system, which currently is located in the golf course, would be shifted 702 feet to the south and cause at least nine holes to be reconfigured. During re-construction of the golf course, it is the desire of both the CRAA and the City of Columbus to maintain a minimum of nine holes. The feasibility of this will be further analyzed and determined during the design phase of the project. Because the land use is expected to be maintained and the golf course would return to a full 18-hole facility, a temporary impact to the existing land use is expected. However, the land use would return to its existing use when the golf course reconfiguration was completed. The reconfiguration of the Airport Golf Course is discussed further in Section 5.7, *Department of Transportation Section 4(f) Lands*.

2012 Alternative C2b 65 DNL
Noise Exposure Contour

2012 Alternative C2b 65 DNL
Noise Exposure Contour

Legend

- Existing SIP Boundary
- Proposed Addition to SIP Boundary
- Built 2002 to Present - Not Eligible
- Airport Property Boundary

0 800' N

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Port Columbus International Airport

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1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\Part150\5.2-5 2012 Alternative C2b - Proposed Sound Insulation Boundary contour:c2b_rev2_65dnl.shp

2012 Alternative C2b - Proposed Sound Insulation Boundary

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5.2-5

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Table 5.2-7
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2012 ALTERNATIVE C3a
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,526**	**642**	**0**	**0**	**642**
Mitigated					
Sound Insulated[1]	357	301	0	0	301
Easement[2]	338	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	81	80	0	0	80
Not Previously Mitigated[4]	4,750	261	0	0	261
Mifflin Township	**12**	**58**	**0**	**0**	**58**
Mitigated					
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	18	0	0	18
Not Previously Mitigated	11	4	0	0	4
Gahanna	**31**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	2	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	29	0	0	0	0
Jefferson Township	**15**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	15	0	0	0	0
Total Housing Units	**5,584**	**700**	**0**	**0**	**700**
Population					
Total Population	**13,792**	**1,729**	**0**	**0**	**1,729**
Noise-Sensitive Facilities					
Churches	37	0	0	0	0
Schools	8	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

Stormwater Detention Basin: The stormwater detention basin would stay the same as described under Alternative C2a.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels and providing relocation assistance to the residents that would be displaced to clear the RPZ, and constructing a noise berm/wall near the area where the homes on East 13th Avenue would be removed.

Sound Insulation

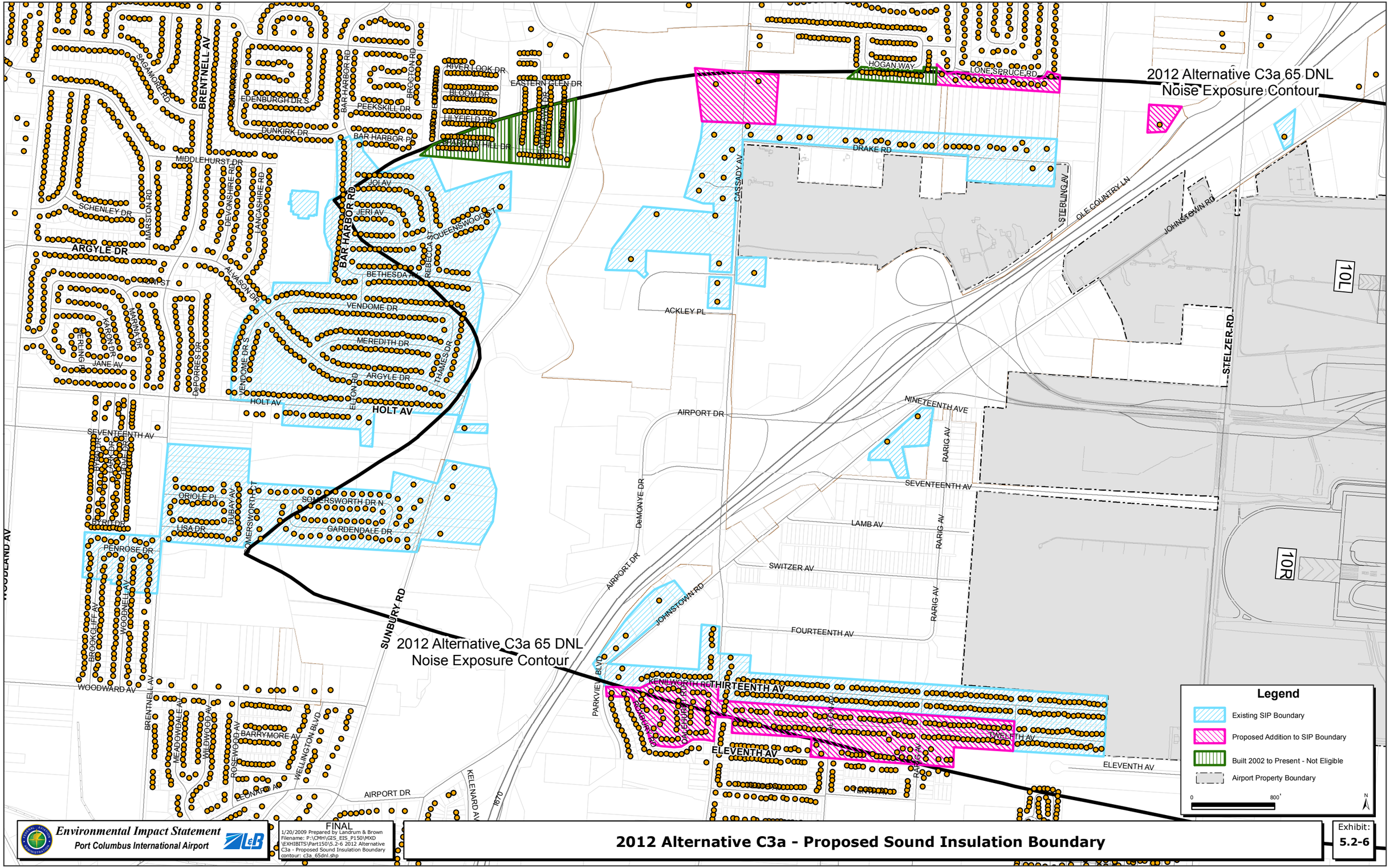
The CRAA prepared an update to the CMH Part 150 Study in 2007. One of the recommendations of the 2007 Part 150 Study is to offer sound insulation to eligible homes that are located within and adjacent[7] to an approved 65 DNL noise contour (Measure LU-1). If Alternative C3a were selected as the preferred alternative and implemented, the sound insulation eligibility boundary would be updated to reflect the area graphically depicted on **Exhibit 5.2-6, *2012 Alternative C3a - Proposed Sound Insulation Boundary***. Within this boundary, there are 313 housing units[8] that would be eligible for sound insulation under this alternative. There are homes within the 65 DNL Noise Contour that were built within a published Noise Exposure Map (graphically depicted in green on Exhibit 5.2-6). The 2007 Part 150 Study concluded that these homes are not eligible for noise mitigation due to the FAA's Final Policy on Noise Mitigation, published in 1998. An analysis was conducted for this EIS to determine if there would be an increase in noise in these areas as a result of implementing this alternative. It was found that alternative C3a would not increase noise levels in these areas. Therefore, these homes would not be eligible for noise mitigation in this EIS.

Relocation Assistance

A negotiated purchase program would be offered to the 36 properties located inside and adjacent to the RPZ. A negotiated purchase program is the purchase of real property through negotiation (i.e., the offer of fair market value) and involves the payment of relocation assistance and moving expenses, which is consistent with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24). The acquired property would be converted to open space, which is a land use that is compatible with RPZs. Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*, discusses the relocation assistance that would be offered to these residents.

[7] To remain consistent with FAA and CRAA policies regarding sound insulation eligibility, housing units that are adjacent to the 65+ DNL would be included in the sound insulation program to preserve the integrity of contiguous, stable, and viable residential neighborhoods of similar housing design, construction type, and materials.

[8] This includes 259 unmitigated housing units that are within the 65 DNL Noise Contour and 54 unmitigated housing units that are within the proposed sound insulation boundary adjacent to the 65 DNL Noise Contour for this alternative that would be eligible for mitigation.



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Port Columbus International Airport

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2012 Alternative C3a - Proposed Sound Insulation Boundary

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5.2-6

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Noise Berm/Wall

The noise berm/wall would remain the same as discussed under Alternative C2a.

5.2.2.5 Alternative C3b: 2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2012 Alternative C3b noise contour.

Land Use Incompatibilities: **Table 5.2-8** shows the number of housing units, residents, and noise-sensitive facilities located within the 2012 Alternative C3b noise contour. Table 5.2-4 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2012 alternatives. There are 473 housing units and an estimated 1,168 residents located within the 65+ DNL of the 2012 Alternative C3b noise contour. A total of 248 of those housing units have received sound insulation (212 in Columbus and 36 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. There are no churches, schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2012 Alternative C3b noise contour.

Consistency with Local Land Use Plan: This section describes the affects of this alternative on land use and the compatibility with local land use plans. Alternative C3b would result in impacts to a number of facilities that could affect future land use patterns within the surrounding jurisdictions. The impacts described under Alternative C3a for the acquisition of homes in East Columbus and the reconfiguration of the Airport Golf Course would remain the same for Alternative C3b.

In addition, Alternative C3b includes a number of recommended land use measures from the 2007 Part 150 Study that could potentially impact land use and development patterns around the Airport. The land use measures are intended to enhance land use compatibility surrounding the Airport through the implementation of land use restrictions. Currently, the City of Columbus and Franklin County have adopted an AEO district that corresponds to the 65-70, 70-75, and 75+ DNL contours of the most recent NEM for the Airport. Within the AEO, development standards are enacted that restrict residential land uses in the highest noise areas and provide for avigation easements in the areas of 65+ DNL. Two problems have occurred with this program: lack of implementation by the City of Gahanna and Jefferson Township and the AEO boundary changes every time the NEMs are updated for the Airport (which occurs every three years on average).

In response to these issues, the 2007 Part 150 Study recommends that a fixed-boundary approach be implemented where the boundaries are larger than the 65 DNL of the most recent NEM (see Chapter Four, Exhibit 4-10). The approach of creating fixed-boundaries is recommended as Measure LU-12 in the 2007 Part 150 Study. This approach to land use planning was discussed with the local planning jurisdictions on several occasions throughout the development of the

Table 5.2-8
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2012 ALTERNATIVE C3b
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,233**	**415**	**0**	**0**	**415**
Mitigated					
Sound Insulated[1]	440	212	0	0	212
Easement[2]	471	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	100	68	0	0	68
Not Previously Mitigated[4]	4,222	135	0	0	135
Mifflin Township	**12**	**57**	**0**	**0**	**57**
Mitigated					
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	11	2	0	0	2
Gahanna	**148**	**1**	**0**	**0**	**1**
Mitigated					
Sound Insulated	3	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	1	0	0	1
Not Previously Mitigated	145	0	0	0	0
Jefferson Township	**27**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	4	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	23	0	0	0	0
Total Housing Units	**5,420**	**473**	**0**	**0**	**473**
Population					
Total Population	**13,387**	**1,168**	**0**	**0**	**1,168**
Noise-Sensitive Facilities					
Churches	32	0	0	0	0
Schools	8	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

2007 Part 150 Study. While it is not possible to get assurance on the implementation of the recommendations of the land use measures in a Part 150 study, the local planning jurisdictions have participated in the development of the recommendations and have not objected to the measures being included in the study. If fully implemented, new development around the Airport would be compatible with airport development and anticipated noise levels.

Stormwater Detention Basin: The stormwater detention basin would stay the same as described under Alternative C2a.

Mitigation Commitments: Mitigation for this alternative includes offering sound insulation to homes affected by significant noise levels and providing relocation assistance to the residents that would be displaced to clear the RPZ, and constructing a noise berm/wall near the area where the homes on East 13th Avenue would be removed.

Sound Insulation

The CRAA prepared an update to the CMH Part 150 Study in 2007. One of the recommendations of the 2007 Part 150 Study is to offer sound insulation to eligible homes that are located within and adjacent[9] to an approved 65 DNL noise contour (Measure LU-1). If Alternative C3b were selected as the preferred alternative and implemented, the sound insulation eligibility boundary would be updated to reflect the area graphically depicted on **Exhibit 5.2-7, *2012 Alternative C3b - Proposed Sound Insulation Boundary***. Within this boundary, there are approximately 247 housing units[10] that would be eligible for sound insulation under this alternative. There are homes within the 65 DNL Noise Contour that were built within a published Noise Exposure Map (graphically depicted in green on Exhibit 5.2-7). The 2007 Part 150 Study concluded that these homes are not eligible for noise mitigation due to the FAA's Final Policy on Noise Mitigation, published in 1998. An analysis was conducted for this EIS to determine if there would be an increase in noise in these areas as a result of implementing this alternative. It was found that alternative C3b would not increase noise levels in these areas. Therefore, these homes would not be eligible for noise mitigation in this EIS.

Relocation Assistance

A negotiated purchase program would be offered to the 36 properties located inside and adjacent to the RPZ. A negotiated purchase program is the purchase of real property through negotiation (i.e., the offer of fair market value) and involves the payment of relocation assistance and moving

[9] To remain consistent with FAA and CRAA policies regarding sound insulation eligibility, housing units that are adjacent to the 65+ DNL would be included in the sound insulation program to preserve the integrity of contiguous, stable, and viable residential neighborhoods of similar housing design, construction type and materials.

[10] This includes 187 unmitigated housing units that are within the 65 DNL Noise Contour and 60 unmitigated housing units that are within the proposed sound insulation boundary adjacent to the 65 DNL Noise Contour for this alternative that would be eligible for mitigation.

expenses, which is consistent with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24). The acquired property would be converted to open space, which is a land use that is compatible with RPZs. Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*, discusses the relocation assistance that would be offered to these residents.

Noise Berm/Wall

The noise berm/wall would remain the same as discussed under Alternative C2a.

5.2.3 FUTURE CONDITIONS: 2018

The following discusses the land use impacts of the Sponsor's Proposed Project and its alternatives in 2018, which includes quantifying the number of residential and other noise-sensitive land uses that are impacted by aircraft noise for each of the 2018 alternatives. The 2018 alternatives do not change the off-airport land use impacts discussed for the 2012 alternatives. The only difference between the 2012 and 2018 alternatives from a land use perspective is the number of housing units located within the various noise contours. These noise contours are based on the latest forecasts of operating activity for the Airport. However, forecasts are projections that become more speculative and less dependable the farther away from the current year they are. Therefore, for land use mitigation planning (such as sound insulation), the CRAA would commit to the proposed mitigation described for the alternatives under 2012 conditions. Furthermore, the CRAA would commit to updating the Airport's NEMs 12 to 18 months after the opening of the proposed runway to identify any potential changes in noise levels that may warrant an update to the sound insulation program boundaries.

5.2.3.1 Alternative A: 2018 No Action

This section provides a summary of the residential population, housing units, and noise-sensitive facilities affected by noise levels for the 2018 Alternative A: No Action.

Land Use Incompatibilities: **Table 5.2-9** shows the number of housing units, residents, and noise-sensitive facilities located within the 2018 Alternative A: No Action noise contour. There are 819 housing units and an estimated 2,023 residents located within the 65+ DNL of the 2018 Alternative A: No Action noise contour. Of those 819 housing units, 762 are within the City of Columbus and 57 are within Mifflin Township. A total of 382 of those housing units have received sound insulation and are therefore considered previously mitigated. There are four churches and one school located within the 65 DNL of the 2018 Alternative A: No Action noise contour, the Mt. Judia Church, the Eternal Life Church of Christ, the Christian Outreach Ministries, the Wonderland Community Church (which has an avigation easement), and the South Mifflin Elementary School (which has received sound insulation and an avigation easement has been conveyed to the CRAA). **Table 5.2-10** summarizes the housing unit and population impacts for all of the 2018 alternatives.

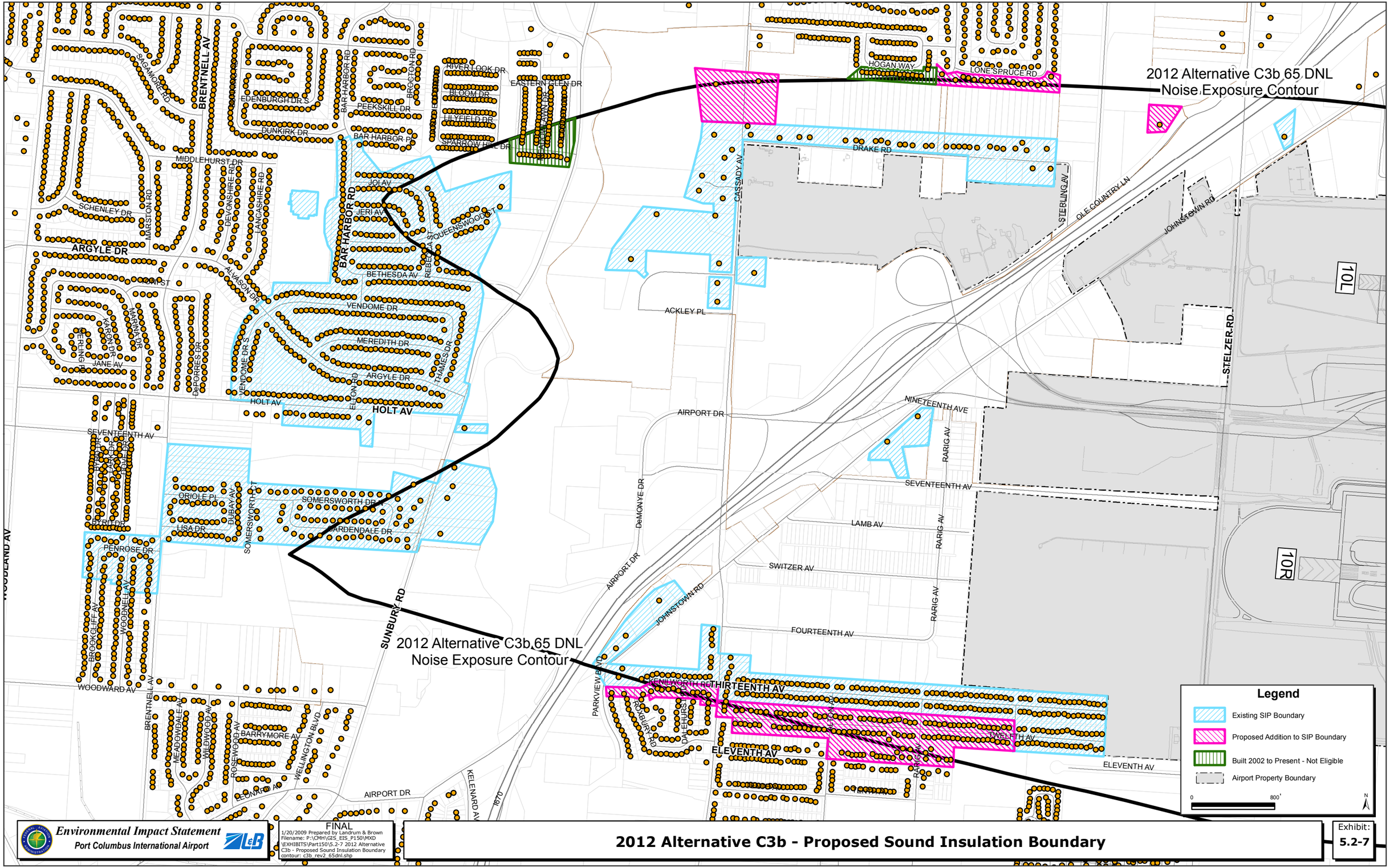
2012 Alternative C3b 65 DNL
Noise Exposure Contour
2012 Alternative C3b 65 DNL
Noise Exposure Contour
BRENTNELL AV
BAR HARBOR RD
BROCTON RD
EDENBURGH DR S
DUNKIRK DR
PEEKSKILL DR
RIVER LOOK DR
BLOOM DR
LIVEFIELD DR
SPARROW HILL DR
EASTERN GLEN DR
BAR HARBOR PL
MIDDLEHURST DR
SAGAMORE RD
SCHENLEY DR
MARSTON RD
DEVONSHIRE RD
LANCASHIRE RD
ARGYLE DR
JOLAV
JERI AV
QUEENSWOOD CT
REBECCA ST
BETHESDA AV
ALVASON DR
ZOMIST
VENDOME DR
MEREDITH DR
ARGYLE DR
THAMES DR
VENDOME DR S
ELTON RD
HOLT AV
KARON DR
MARNAN DR
STERLING DR
JANE AV
DePORRES DR
SEVENTEENTH AV
ORIOLE PL
LISA DR
BUBAY AV
SOMERSWORTH CT
SOMERSWORTH DR
GARDENDALE DR
PENROSE DR
BYRD DR
WOODLAND AV
BROOKCLIFF AV
WOODNELL AV
WOODWARD AV
BRENTNELL AV
HEADOWDALE AV
WILDWOOD AV
ROSEWOOD AV
BARRYMORE AV
WELLINGTON BLVD
LEONARD AV
KELENARD AV
AIRPORT DR
SUNBURY RD
ACKLEY PL
HOGAN WAY
LONE SPRUCE RD
DRAKE RD
CASSADY AV
STERLING AV
OLE COUNTRY LN
JOHNSTOWN RD
STELZER RD
10L
10R
NINETEENTH AVE
RARIG AV
SEVENTEENTH AV
DeMONYE DR
AIRPORT DR
LAMB AV
SWITZER AV
JOHNSTOWN RD
FOURTEENTH AV
PARKVIEW BLVD
KENILWORTH RD
ROXBURY RD
DAYEHURST AV
THIRTEENTH AV
ELEVENTH AV
TWELFTH AV
Legend
Existing SIP Boundary
Proposed Addition to SIP Boundary
Built 2002 to Present - Not Eligible
Airport Property Boundary
0
800'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXH1BITS\Part150\5.2-7 2012 Alternative C3b - Proposed Sound Insulation Boundary contour: c3b_rev2_65dnl.shp
2012 Alternative C3b - Proposed Sound Insulation Boundary
Exhibit:
5.2-7

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Table 5.2-9
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2018 ALTERNATIVE A: NO ACTION
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,591**	**762**	**0**	**0**	**762**
Mitigated					
Sound Insulated[1]	301	347	0	0	347
Easement[2]	241	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	94	73	0	0	73
Not Previously Mitigated[4]	4,955	342	0	0	342
Mifflin Township	**17**	**57**	**0**	**0**	**57**
Mitigated					
Sound Insulated	1	35	0	0	35
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	2	18	0	0	18
Not Previously Mitigated	14	4	0	0	4
Gahanna	**256**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	3	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	0	0	0	0
Not Previously Mitigated	252	0	0	0	0
Jefferson Township	**105**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement					
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	32	0	0	0	0
Total Housing Units	**5,969**	**819**	**0**	**0**	**819**
Population					
Total Population	**14,743**	**2,023**	**0**	**0**	**2,023**
Noise-Sensitive Facilities					
Churches	39	4	0	0	4
Schools	7	1	0	0	1
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

Table 5.2-10
COMPARISON OF HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES FOR 2018 ALTERNATIVES
Port Columbus International Airport

CATEGORY	2018 ALTERNATIVE A: NO ACTION	2018 ALTERNATIVE C2a	2018 ALTERNATIVE C2b	2018 ALTERNATIVE C3a	2018 ALTERNATIVE C3b
Housing Units					
65-70 DNL	819	811	740	738	656
70-75 DNL	0	0	0	0	0
75+ DNL	0	0	0	0	0
65+ DNL	819	811	740	738	656
Population					
65-70 DNL	2,023	2,003	1,828	1,823	1,620
70-75 DNL	0	0	0	0	0
75+ DNL	0	0	0	0	0
65+ DNL	2,023	2,003	1,828	1,823	1,620
Noise Sensitive Facilities (Churches, Schools, Libraries, Hospitals, and Nursing Homes)					
65-70 DNL	5	2	2	1	2
70-75 DNL	0	0	0	0	0
75+ DNL	0	0	0	0	0
65+ DNL	5	2	2	1	2

Source: Landrum & Brown, 2007.

5.2.3.2 Alternative C2a: 2018 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2018 Alternative C2a noise contour.

Land Use Incompatibilities: **Table 5.2-11** shows the number of housing units, residents, and noise-sensitive facilities located within the 2018 Alternative C2a noise contour. Table 5.2-10 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2018 alternatives. There are 811 housing units and an estimated 2,003 residents located within the 65+ DNL of the 2018 Alternative C2a noise contour. A total of 270 of those housing units have received sound insulation (234 in Columbus and 36 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. There are two churches located within the 65 DNL of the 2018 Alternative C2a noise contour, the East Mount Olivet Baptist Church and the Greater Works Ministries. There are no schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2018 Alternative C2a noise contour.

Consistency with Local Plans: 2018 Alternative C2a would have the same impacts to local plans as the 2012 Alternative C2a.

Mitigation Commitments: 2018 Alternative C2a would include the same mitigation as the 2012 Alternative C2a.

5.2.3.3 Alternative C2b: 2018 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2018 Alternative C2b noise contour.

Land Use Incompatibilities: **Table 5.2-12** shows the number of housing units, residents, and noise-sensitive facilities located within the 2018 Alternative C2b noise contour. Table 5.2-10 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2018 alternatives. There are 740 housing units and an estimated 1,828 residents located within the 65+ DNL of the 2018 Alternative C2b noise contour. A total of 237 of those housing units have received sound insulation (201 in Columbus and 36 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. There are two churches located within the 65 DNL of the 2018 Alternative C2b noise contour, the East Mount Olivet Baptist Church and the Greater Works Ministries. There are no schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2018 Alternative C2b noise contour.

Table 5.2-11
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2018 ALTERNATIVE C2a
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,752**	**754**	**0**	**0**	**754**
Mitigated					
Sound Insulated	408	234	0	0	234
Easement	624	18	0	0	18
Unmitigated					
Eligible for Sound Insulation but not Insulated	89	79	0	0	79
Not Previously Mitigated	4,631	423	0	0	423
Mifflin Township	**13**	**56**	**0**	**0**	**56**
Mitigated					
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	12	1	0	0	1
Gahanna	**13**	**1**	**0**	**0**	**1**
Mitigated					
Sound Insulated	1	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	1	0	0	1
Not Previously Mitigated	12	0	0	0	0
Jefferson Township	**70**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	38	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	32	0	0	0	0
Total Housing Units	**5,848**	**811**	**0**	**0**	**811**
Population					
Total Population	**14,445**	**2,003**	**0**	**0**	**2,003**
Noise-Sensitive Facilities					
Churches	36	2	0	0	2
Schools	9	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

Table 5.2-12
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2018 ALTERNATIVE C2b
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,420**	**683**	**0**	**0**	**683**
Mitigated					
Sound Insulated[1]	451	201	0	0	201
Easement[2]	701	1	0	0	1
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	94	74	0	0	74
Not Previously Mitigated[4]	4,174	407	0	0	407
Mifflin Township	**11**	**56**	**0**	**0**	**56**
Mitigated					
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	10	1	0	0	1
Gahanna	**48**	**1**	**0**	**0**	**1**
Mitigated					
Sound Insulated	2	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	1	0	0	1
Not Previously Mitigated	46	0	0	0	0
Jefferson Township	**96**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	55	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	41	0	0	0	0
Total Housing Units	**5,575**	**740**	**0**	**0**	**740**
Population					
Total Population	**13,770**	**1,828**	**0**	**0**	**1,828**
Noise-Sensitive Facilities					
Churches	29	2	0	0	2
Schools	6	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

Consistency with Local Plans: 2018 Alternative C2b would have the same impacts to local plans as the 2012 Alternative C2b.

Mitigation Commitments: 2018 Alternative C2b would include the same mitigation as the 2012 Alternative C2b.

5.2.3.4 Alternative C3a: 2018 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2018 Alternative C3a noise contour.

Land Use Incompatibilities: **Table 5.2-13** shows the number of housing units, residents, and noise-sensitive facilities located within the 2018 Alternative C3a noise contour. Table 5.2-10 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2018 alternatives. There are 738 housing units and an estimated 1,823 residents located within the 65+ DNL of the 2018 Alternative C3a noise contour. A total of 295 of those housing units have received sound insulation (259 in Columbus and 36 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. There are three churches, Aenon Missionary Baptist Church, East Mount Olivet Baptist Church, and the Greater Works Ministries, located within the 65 DNL of the 2018 Alternative C3a noise contour. There are no schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2018 Alternative C3a noise contour.

Mitigation Recommendations: Mitigation for this alternative is discussed for the 2012 Alternative C3a conditions.

Consistency with Local Plans: Land use consistency is discussed in the section describing the 2012 Alternative C3a.

Table 5.2-13
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2018 ALTERNATIVE C3a
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,870**	**681**	**0**	**0**	**681**
Mitigated					
Sound Insulated	393	259	0	0	259
Easement	589	23	0	0	23
Unmitigated					
Eligible for Sound Insulation but not Insulated	87	81	0	0	81
Not Previously Mitigated	4,801	318	0	0	318
Mifflin Township	**13**	**56**	**0**	**0**	**56**
Mitigated					
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	12	1	0	0	1
Gahanna	**19**	**1**	**0**	**0**	**1**
Mitigated					
Sound Insulated	2	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	1	0	0	1
Not Previously Mitigated	17	0	0	0	0
Jefferson Township	**84**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	54	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	30	0	0	0	0
Total Housing Units	**5,986**	**738**	**0**	**0**	**738**
Population					
Total Population	**14,785**	**1,823**	**0**	**0**	**1,823**
Noise-Sensitive Facilities					
Churches	32	3	0	0	3
Schools	10	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

5.2.3.5 Alternative C3b: 2018 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

This section provides a summary of the potential land use impacts, including impacts to residential population, housing units, and noise-sensitive facilities affected by the 2018 Alternative C3b noise contour.

Land Use Incompatibilities: **Table 5.2-14** shows the number of housing units, residents, and noise-sensitive facilities located within the 2018 Alternative C3b noise contour. Table 5.2-10 shows a comparison of the number of housing units, residents, and noise-sensitive facilities for all of the 2018 alternatives. There are 656 housing units and an estimated 1,620 residents located within the 65+ DNL of the 2018 Alternative C3b noise contour. A total of 256 of those housing units have received sound insulation (220 in Columbus and 36 in Mifflin Township) from the CRAA and are therefore considered previously mitigated. There are two churches, located within the 65+DNL of the 2018 Alternative C3b noise contour, the East Mount Olivet Baptist Church and the Greater Works Ministries. There are no schools, libraries, hospitals, or nursing homes located within the 65+ DNL of the 2018 Alternative C3b noise contour.

Consistency with Local Plans: 2018 Alternative C3b would have the same impacts to local plans as the 2012 Alternative C3b.

Mitigation Commitments: 2018 Alternative C3b would include the same mitigation as the 2012 Alternative C3b.

Table 5.2-14
HOUSING, POPULATION, AND NOISE-SENSITIVE FACILITY INCOMPATIBILITIES - 2018 ALTERNATIVE C3b
Port Columbus International Airport

	60-65 DNL*	65-70 DNL	70-75 DNL	75+ DNL	65+ DNL
Housing Units					
Columbus	**5,570**	**599**	**0**	**0**	**599**
Mitigated					
Sound Insulated[1]	432	220	0	0	220
Easement[2]	705	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated[3]	93	75	0	0	75
Not Previously Mitigated[4]	4,340	304	0	0	304
Mifflin Township	**11**	**56**	**0**	**0**	**56**
Mitigated					
Sound Insulated	0	36	0	0	36
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	1	19	0	0	19
Not Previously Mitigated	10	1	0	0	1
Gahanna	**62**	**1**	**0**	**0**	**1**
Mitigated					
Sound Insulated	2	0	0	0	0
Easement	0	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	1	0	0	1
Not Previously Mitigated	60	0	0	0	0
Jefferson Township	**103**	**0**	**0**	**0**	**0**
Mitigated					
Sound Insulated	0	0	0	0	0
Easement	62	0	0	0	0
Unmitigated					
Eligible for Sound Insulation but not Insulated	0	0	0	0	0
Not Previously Mitigated	41	0	0	0	0
Total Housing Units	**5,746**	**656**	**0**	**0**	**656**
Population					
Total Population	**14,193**	**1,620**	**0**	**0**	**1,620**
Noise-Sensitive Facilities					
Churches	30	2	0	0	2
Schools	5	0	0	0	0
Libraries	0	0	0	0	0
Hospitals	0	0	0	0	0
Nursing Homes	0	0	0	0	0

Notes:

* 14 CFR Part 150 Land Use Compatibility Guidelines indicate that residential land uses are compatible with noise levels below 65 DNL. Counts of housing units below 65 DNL are provided for informational purposes only.

1. Homes that have previously received sound insulation.
2. Homes that have an avigation easement.
3. Homes that were previously offered sound insulation but declined.
4. Homes that have not received and were never offered sound insulation or avigation easement by the CRAA.

Source: Landrum & Brown, 2007.

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5.3 SOCIOECONOMIC IMPACTS, ENVIRONMENTAL JUSTICE, AND CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

This section assesses the potential socioeconomic impacts, environmental justice impacts, and children's environmental health and safety risks that would occur as a result of implementing the Sponsor's Proposed Project or its alternatives.

5.3.1 SOCIOECONOMIC IMPACTS

Socioeconomic impacts are assessed to determine the effect that the proposed airport development would have on the social and economic fabric of the surrounding communities. The types of socioeconomic impacts that typically arise from airport development are:

- Extensive relocation of residents without the availability of sufficient replacement housing;
- Extensive relocation of community businesses that would create severe economic hardship for the affected communities;
- Disruptions of local traffic patterns that would substantially reduce the levels of service of the roads serving the airport and its surrounding communities; and
- A substantial loss in community tax base.

The following analyzes the impacts that the Sponsor's Proposed Project and its alternatives would have with respect to the above factors.

5.3.1.1 Relocation of Residences

Implementation of the Sponsor's Proposed Project would result in the acquisition and conversion of residential properties to Airport property. The properties required for the proposed relocated runway are located west of the Port Columbus International Airport (CMH or Airport) within a neighborhood of the City of Columbus, generally referred to as East Columbus. The proposed area of residential acquisition has been identified and is discussed in Section 5.3.1.1.2, *Future Conditions: 2012*. The following text discusses the existing conditions and the project alternatives.

5.3.1.1.1 EXISTING CONDITIONS: 2006

The Airport is surrounded by many different types of land uses including industrial, commercial, residential, vacant, and interstate transportation infrastructure. The closest residential neighborhood to the project area is located southwest of the Airport in an area commonly referred to as the East Columbus Neighborhood. For the purposes of identifying the boundaries for assessing potential impacts, the Neighborhood is bounded on the south by East 5th Avenue, by Cassady Avenue and Johnstown Road on the west, by East 13th Avenue on the north, and by Airport property and Krumm Park on the east. This area includes approximately

750 homes and apartments. Most of the single-family homes were built between 1910 and 1960 and are a combination of owner-occupied and rental properties. **Exhibit 5.3-1, *Assessment Area of East Columbus Neighborhood*** shows the location of this Neighborhood in relationship to the Airport.

5.3.1.1.2 FUTURE CONDITIONS: 2012

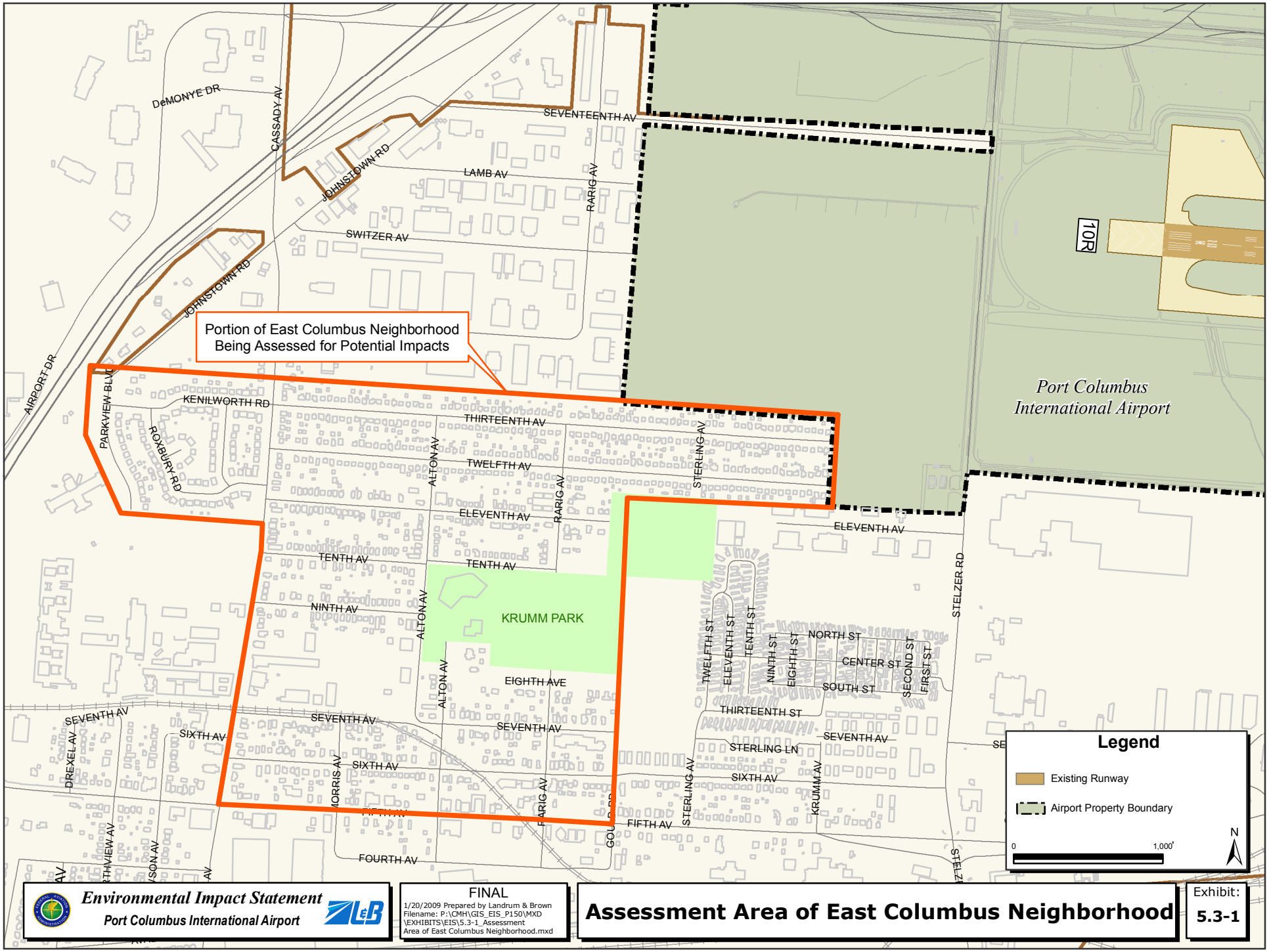
Implementation of the various alternatives being evaluated would require acquisition and relocation of several properties in the East Columbus Neighborhood in order to comply with Federal Aviation Administration (FAA) guidance regarding Runway Protection Zones (RPZs). According to FAA Advisory Circular (AC) 150/5300-13, paragraph 212, *Runway Protection Zone*, the airport owner must control the RPZ. This includes clearing the RPZ of incompatible land objects and property. Paragraph 212 (a)(2)(b) states: "Land uses prohibited from the RPZ are: residences and places of public assembly. (Churches, schools, hospitals, office buildings, shopping centers, and other uses with similar concentrations of persons typify places of public assembly.)" For each alternative, the minimum number of homes to be acquired for the RPZ is discussed. It is recognized that acquisition of the minimum area would create 'holes' in the streetscape that could reduce neighborhood continuity. In an effort to reduce the potential disruption of a portion of the Neighborhood, recommendations for additional acquisition areas are provided as part of the mitigation commitments.

Alternative A:
2012 No Action

Because the No Action Alternative would not result in further development, the acquisition and relocation of residences would not be required.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would require the acquisition of 36 residential properties for clearing the RPZ and vacating a portion of East 13th Avenue east of Sterling Avenue. **Exhibit 5.3-2, *Alternative C2a/b Area of Acquisition*** shows the properties that would be acquired as a result of implementing this alternative. As shown on the map, these 36 properties are the eastern most properties on the street and are bounded by Airport property on two sides. The acquisition and relocation of the residents from these 36 properties is considered an impact of this alternative. Appendix G, *Proposed Property Acquisition*, Table G-1, *Property Identified for Acquisition*, provides a list of all properties that would be acquired for this alternative with the tax parcel number, street address, existing land use, and acreage for each parcel, as well as documentation of outreach that was conducted with the owners and residents of the properties.


Portion of East Columbus Neighborhood
Being Assessed for Potential Impacts
Port Columbus
International Airport
10R
KRUMM PARK
DeMONYE DR
CASSADY AV
JOHNSTOWN RD
SEVENTEENTH AV
LAMB AV
RARIG AV
SWITZER AV
AIRPORT DR
PARKVIEW BLVD
KENILWORTH RD
ROXBURY RD
THIRTEENTH AV
TWELFTH AV
ELEVENTH AV
TENTH AV
NINTH AV
EIGHTH AVE
SEVENTH AV
SIXTH AV
FIFTH AV
FOURTH AV
ALTON AV
STERLING AV
STELZER RD
DREXEL AV
MORRIS AV
TWELFTH ST
ELEVENTH ST
TENTH ST
NINTH ST
EIGHTH ST
NORTH ST
CENTER ST
SOUTH ST
SECOND ST
FIRST ST
THIRTEENTH ST
STERLING LN
KRUMM AV
Legend
Existing Runway
Airport Property Boundary
0
1,000'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
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Area of East Columbus Neighborhood.mxd
Assessment Area of East Columbus Neighborhood
Exhibit:
5.3-1

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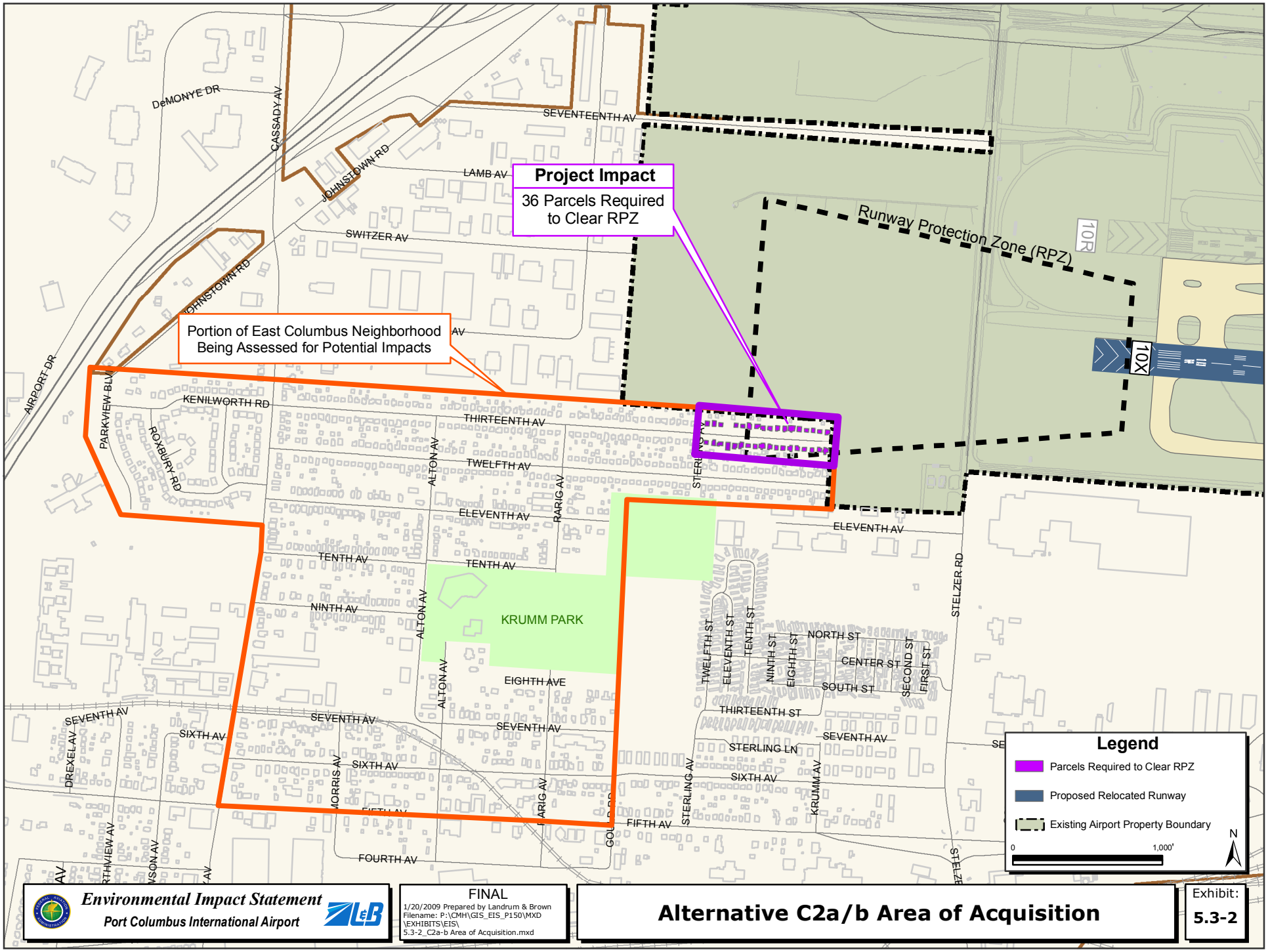

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Alternative C2a/b Area of Acquisition

Exhibit: **5.3-2**

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A negotiated purchase program would be offered to the 36 properties in this area. A negotiated purchase program is the purchase of real property through negotiation (i.e., the offer of fair market value) and involves the payment of relocation assistance and moving expenses, which is consistent with the Uniform Relocation Assistance and Real Property Acquisition Policies Act (49 CFR Part 24). A discussion of the racial and income characteristics of this area are included in Section 5.3.2, *Environmental Justice*. The acquired property would be converted to open space, which is a land use that is compatible with RPZs. If a negotiated purchase agreement cannot be reached with a property owner, the Columbus Regional Airport Authority (CRAA) could use eminent domain to gain ownership of the properties.

Stormwater Detention Basin: One entrance driveway and 24 parking spaces associated with the 94th Aero Squadron restaurant would be removed to allow for expansion of the ravine located south of Sawyer Road. The ravine is a small tributary of Big Walnut Creek and the proposed expansion will allow stormwater drainage during construction and operation from the proposed airfield projects. The driveway off Sawyer Road will be relocated in-kind, west of the present location and replacement parking areas will be constructed west of the building resulting in no net loss in parking capacity or access to the restaurant. Because there are two entrance driveways to the restaurant and an abundance of parking, disruption of access and parking for the restaurant would be temporary and minimal.

Mitigation Commitments: Mitigation for this alternative includes providing relocation assistance to the residents of these properties.

Relocation Assistance

In support of the analysis in this EIS, an assessment of the availability of comparable replacement housing was conducted. The CRAA will prepare a formal relocation plan after the FAA issues a Record of Decision on this project. As a result of implementing Alternative C2a, residents eligible for relocation benefits would include those occupying the 35 residential units (one lot is vacant) being acquired for clearing the proposed Runway 10R/28L RPZ. The relocation plan would address any special needs of the residents being relocated, including low income households, concentrations of minority populations, and elderly and disabled persons. Relocation assistance would be provided for residents in full compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24).

Based on the replacement housing assessment, approximately 26 percent of the properties in the acquisition area are owner-occupied properties with the average market price of residential units west of the Airport being $44,580 to $64,000.[1] A real estate market survey showed that sufficient housing exists in Franklin County to accommodate the proposed relocation of the owner-occupied homes. During the summer of 2007 in Franklin County there were approximately 44 two-bedroom/one-bath homes on the market with an average price of $56,400, 158 three-bedroom/one-bath homes on the market with an average price of $67,223, and 15

[1] *Port Columbus International Relocation Plan*, August 2007, THC, Inc.

four-bedroom/one-bath homes on the market with an average price of $73,490. **Table 5.3-1** summarizes this information. The selected communities have housing types that are comparable to that of the housing in the East Columbus area and dwellings that would meet the requirement of 49 CFR Part 24, that replacement housing be decent, safe, and sanitary.[2] For more information on the survey methodologies and results, see Appendix H, *Preliminary Relocation Plan*.

Table 5.3-1
NUMBER OF COMPARABLE SINGLE-FAMILY RESIDENTIAL UNITS AVAILABLE IN SELECT* FRANKLIN COUNTY REAL ESTATE MARKETS
Port Columbus International Airport

Size of Dwelling	4 Bedroom / 1 Bath	3 Bedroom / 1 Bath	2 Bedroom / 1 Bath
Homes available	15	158	44
Avg. Square Feet (Heated)	1,378	1,152	919
Average Listing	$73,490	$67,223	$56,400

* Selected markets included Multiple Listing Service areas 11, 14, 41, and 61 in Franklin County.

Source: *Port Columbus International Relocation Plan*, August 2007, THC, Inc.

Due to the large number of rental properties in the proposed acquisition area, single-family rental properties were also surveyed. The identification of single-family rental properties is more of a challenge than identifying single-family houses for sale because there is much less data available for locations of rental properties as compared to the sales data for single-family homes. However, the survey of replacement housing did identify average rental rates and ranges in the proposed acquisition area and for nearby communities.

Unlike owner-occupied housing where a negotiated purchase program is offered, tenant-occupants would be offered rental assistance payments based on either a comparison of market rents or on an income basis. The first method is based on a calculation of the market rent at comparable replacement dwellings minus the actual rent that the tenants are paying in the acquisition area on East 13th Avenue. Section 204 (a) of the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24) states that "Such payment shall consist of the amount necessary to enable such person to lease or rent for a period not to exceed 42 months, a comparable replacement dwelling." The second method is applied to low income households as defined by the Department of Housing and Urban Development (HUD) Public Housing programs, where rental assistance payments are computed to assure that the replacement dwelling rent does not exceed 30 percent of the household's monthly gross income.

[2] See Appendix I, for more information on what is considered decent, safe, and sanitary as defined in 49 CFR Part 24.

Based on the available information at the time the survey was completed (August 2007), average rental rates for the proposed acquisition area and for comparable areas was prepared. The findings of this analysis are summarized in **Table 5.3-2**. The average rent supplement is expected to range from $6,720 to $9,954, which would exceed the statutory limits for assistance payment under the *Uniform Relocation Assistance and Real Property Acquisition Policies Act*. In general, lower rental rates in the proposed acquisition area are a result of the homes being older and smaller than the majority of other rental properties in nearby areas. It is not uncommon for smaller properties to require higher rent supplement payments because there are no other houses as small as the subject properties.

Table 5.3-2
AVERAGE RENT SUPPLEMENT PAYMENT
Port Columbus International Airport

Size of Comparable Dwelling	4 Bedroom / 1 Bath	3 Bedroom / 1 Bath	2 Bedroom / 1 Bath
Comparable Neighborhoods Average Rent / Month	$1,225	$900	$725
Acquisition Area Average Rent	$988	$716	$565
Difference between Comparable Rents and Acquisition Area Rents	$237	$184	$160
Average Rent Supplement Payment (42 month maximum)*	$9,954	$7,728	$6,720

Source: *Port Columbus International Relocation Plan*, August 2007, THC, Inc.

In cases where tenant-occupied rent supplements are expected to exceed the statutory limits, housing of last resort procedures must be considered and applied as necessary to provide comparable replacement housing. 49 CFR Part 24 § 206 (a) of the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* deals with housing of last resort and states that:

> If a program or project undertaken by a Federal agency or with Federal financial assistance cannot proceed on a timely basis because comparable replacement dwellings are not available, and the head of the displacing agency determines that such dwellings cannot otherwise be made available, the head of the displacing agency may take such action as is necessary or appropriate to provide such dwellings by use of funds authorized for such project. The head of the displacing agency may use this section to exceed the maximum amounts which may be paid under sections 203 and 204 on a case-by-case basis for good cause as determined in accordance with such regulations as the head of the lead agency shall issue.

Therefore, based on the data currently available, it is likely that tenant-occupant rent supplement payments will routinely go into housing of last resort. The CRAA has committed to provide rent supplement payments beyond the maximum allowable amount on a case-by-case basis for eligible residents.

Based on the number of homes being recommended for acquisition and the number of residents being relocated, it is anticipated that the relocation program could be completed in 12 to 24 months. Relocation would be complete prior to opening of the runway for air traffic, which would conform to the requirements of 49 CFR Part 24 that call for an orderly and humane relocation process.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L, 800 feet to the south, as Alternative C2a and, in addition, the implementation of the operational recommendations of the 2007 Part 150 Noise Compatibility Study (2007 Part 150 Study).[3] The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the location of the RPZ. Therefore, the potential impacts would be the same as described for Alternative C2a.

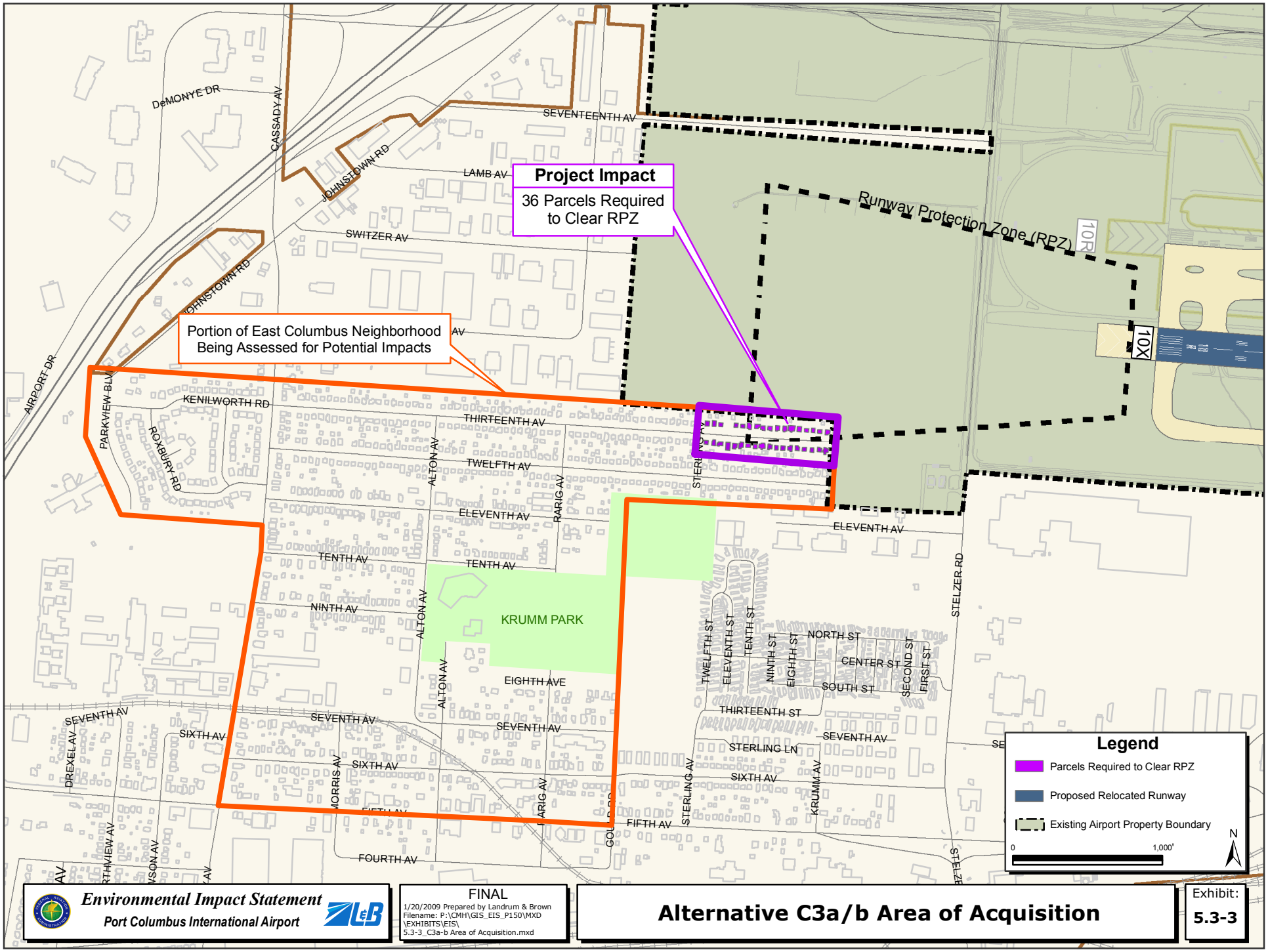
Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would result in the acquisition of the same 36 residential properties for clearing the RPZ and vacating East 13th Avenue, as discussed for Alternative C2a. **Exhibit 5.3-3, *Alternative C3a/b Area of Acquisition*** shows the properties that would be acquired as a result of implementing this alternative. The properties are located east of Sterling Avenue on East 13th Avenue. The acquisition and relocation of the residents from these 36 properties is considered an impact of this alternative. Appendix G, Table G-1, provides a list of all properties that would be acquired for this alternative with the tax parcel number, street address, existing land use, and acreage for each.

A negotiated purchase program would be offered to the 36 properties in this area. A negotiated purchase program is the purchase of real property through negotiation (i.e., the offer of fair market value) and would involve the payment of relocation assistance and moving expenses, consistent with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24). A discussion of the racial and income characteristics of this area are included in Section 5.3.2 *Environmental* Justice. The acquired property would be converted to open space, which is a land use that is compatible with RPZs. If a negotiated purchase agreement can not be reached with a property owner, the CRAA could use eminent domain to gain ownership of the properties.

Mitigation Commitments: Mitigation for this alternative includes providing relocation assistance to the residents of these properties.

[3] 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.


Project Impact
36 Parcels Required to Clear RPZ
Portion of East Columbus Neighborhood Being Assessed for Potential Impacts
Runway Protection Zone (RPZ)
10R
10X
DeMONYE DR
CASSADY AV
JOHNSTOWN RD
SEVENTEENTH AV
LAMB AV
SWITZER AV
AIRPORT DR
PARKVIEW BLVD
KENILWORTH RD
ROXBURY RD
THIRTEENTH AV
TWELFTH AV
ELEVENTH AV
TENTH AV
NINTH AV
EIGHTH AVE
SEVENTH AV
SIXTH AV
FIFTH AV
FOURTH AV
ALTON AV
PARIG AV
KRUMM PARK
STELZER RD
NORTH ST
CENTER ST
SOUTH ST
FIRST ST
SECOND ST
THIRTEENTH ST
STERLING LN
DREXEL AV
MORRIS AV
KRUMM AV
Legend
Parcels Required to Clear RPZ
Proposed Relocated Runway
Existing Airport Property Boundary
0
1,000'
N
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Alternative C3a/b Area of Acquisition
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5.3-3

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Relocation Assistance

Relocation assistance for all residents in the acquisition area would be provided for residents in full compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24). Based on the number of homes being recommended for acquisition and the number of residents being relocated, it is anticipated that the relocation program could be completed in 12 to 24 months.

Relocation would be complete prior to opening of the runway for air traffic, which would conform to the requirements of 49 CFR Part 24 that call for an orderly and humane relocation process.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, and, in addition, the implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the location of the RPZ. Therefore, the potential impacts would be the same as described for Alternative C3a.

5.3.1.1.3 FUTURE CONDITIONS: 2018

The potential environmental impacts as a result of the implementation of the Sponsor's Proposed Project and its alternatives are also provided for 2018, the anticipated opening year of the first phase of the proposed passenger terminal. Because the implementation of the proposed passenger terminal would not change the location of the RPZ and would not result in any additional residential acquisition, the impacts described under Section 5.3.1.1.2, *Future Conditions: 2012*, for each alternative would remain the same for 2018.

5.3.1.2 Relocation of Businesses

Implementation of the Sponsor's Proposed Action or its alternatives would result in impacts to businesses, some of which are located off-Airport. The potentially impacted businesses are located south and east of the Airport and are discussed in Section 5.3.1.2.2, *Future Conditions: 2012*. The following text discusses the existing conditions.

5.3.1.2.1 EXISTING CONDITIONS: 2006

The Airport is surrounded by many different types of land uses, including industrial, commercial, residential, vacant, and interstate transportation infrastructure. The areas to the south, east, and west of the Airport have the greatest potential for being impacted by the project. There are no businesses to the east of the Airport in the area where physical changes would occur as a result of the project. To the south of the Airport, there are two major businesses: Seven-up Bottling Group of

Columbus and the Columbus International Aircenter (which offers direct airfield access to various airline maintenance businesses and warehousing/distribution for businesses not requiring airfield access). To the east of the Airport, there is the Airport Golf Course, a cement plant, a storage facility business, and Hangar #3, which is owned by the CRAA and leased to NetJets. **Exhibit 5.3-4, *Existing Businesses*** shows the location of these businesses in relationship to the Airport.

5.3.1.2.2 FUTURE CONDITIONS: 2012

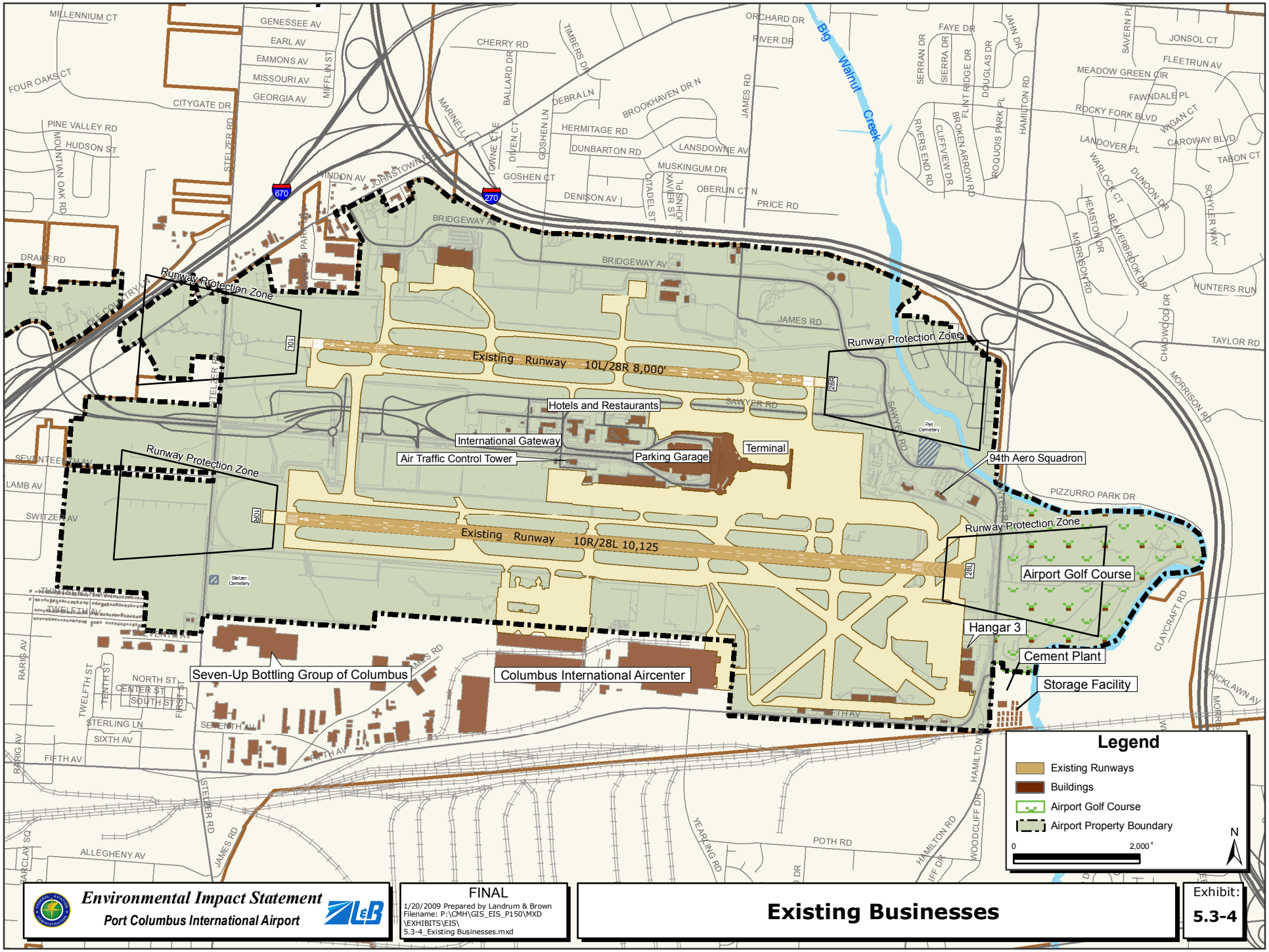
The following sections describe the potential impacts to businesses as a result of implementing the Sponsor's Proposed Project or its alternatives.

Alternative A:
2012 No Action

Because the No Action Alternative would not result in further development, the relocation of businesses would not be required.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

To be in compliance with FAA safety and height restrictions the construction of a replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would require the acquisition and demolition of portions of the Columbus International Aircenter (specifically Building 7 and the northern portion of Building 3). **Exhibit 5.3-5, *Alternative C2a/b Impacts to Existing Businesses*** shows the location of the building acquisition and demolition that would occur as part of this alternative. The tenants of Building 7, which currently include American Eagle Airlines, Chautauqua Airlines, Mesa Airlines, and Million Air, could be relocated to other sites in the south airfield. Building 3, which is primarily leased to Value City Department Stores and Northwest Airlines, would be reduced in size by approximately 250,000 square feet (30 percent of the total).



Environmental Impact Statement
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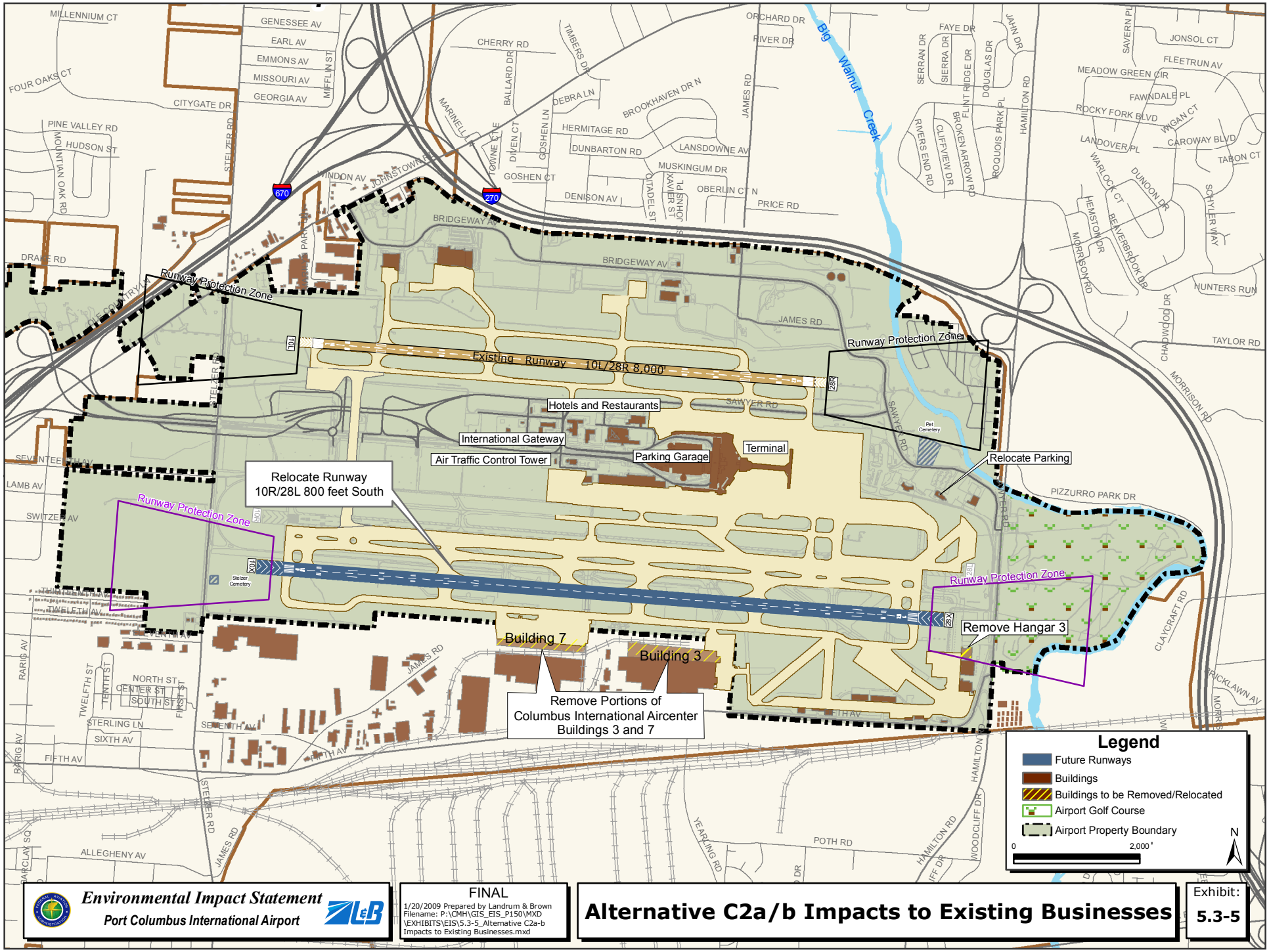
Existing Businesses

Exhibit: 5.3-4



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Port Columbus International Airport

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Impacts to Existing Businesses.mxd

Alternative C2a/b Impacts to Existing Businesses

Exhibit:
5.3-5

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It is likely that the reduction in space would require Value City Department Stores to relocate all or part of the warehouse function to another location. Because warehousing generally relies on centralized sites with maximum space available, it is assumed that the entire warehouse would relocate to a facility of the same size or larger, and not split the operation. A review of the warehousing market in Franklin County finds that there are sufficient replacement warehouses available to accommodate this relocation. Due to the availability of replacement warehouse facilities in Franklin County, it is not anticipated that a significant adverse impact to employment would be expected. The portion of the building that would be removed would include the entire operation for Northwest Airlines. This use could also be accommodated on other areas of the airfield.

The Airport Golf Course, located east of the Airport, would be impacted by the relocation of Runway 10R/28L 800 feet to the south. The approach lighting system to the existing Runway 28L, which currently is located in the golf course, would be shifted 800 feet to the south and cause reconfiguration of at least nine holes due to FAA requirements regarding the location of greens, tees, or fairways in proximity to the approach lights. Specific guidance from FAA states that:

- Golf holes may not be located between the new Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) nor will golf shots be allowed between the new light towers;
- Golf shots will be played away from or toward the lights but not over them; and
- Golf activities should not be closer than 20 feet to the MALSR light lane.[4]

During re-construction of the golf course, it is the desire of both the CRAA and the City of Columbus to maintain a minimum of nine holes. The feasibility of this will be further analyzed and determined during the design phase of the project. The re-construction is anticipated to occur over an 18 month period, and at the end, the golf course would return to an 18-hole facility. It is anticipated that during construction, there would be temporary economic impacts to the golf course due to reduced greens fees. As a result, the golf course may choose to reduce the number of staff employed at the golf course. However, these would be temporary impacts that would be corrected after the full course reopens. Because the Airport Golf Course is a public recreation facility, a Department of Transportation 4(f) evaluation is being completed (see Section 5.7, *Department of Transportation Section 4(f) Lands*).[5]

Mitigation Commitments: Mitigation for this alternative includes offering relocation assistance to displaced businesses and reconfiguring the Airport Golf Course.

[4] See Appendix I, *Airport Golf Course*, for copies of correspondence on this issue.
[5] See Appendix N, *Department of Transportation 4(f) Coordination*, for copies of correspondence on this issue.

Relocation Assistance

As a result of implementing Alternative C2a, a number of businesses would be relocated. Where applicable, impacted businesses would be provided relocation assistance in compliance with the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24).

Airport Golf Course Reconfiguration

The CRAA owns the land where the Airport Golf Course is located and leases it to the City of Columbus, Recreation and Parks Department, to manage the course. As a result of coordination with the City of Columbus, the CRAA has developed a plan for reconfiguring the golf course that would accommodate the approach lighting system in accordance with FAA guidelines and would ultimately return the golf course to an 18-hole facility. The CRAA would reconfigure the Airport Golf Course to insure that it returns to a comparable 18-hole facility. The CRAA and City of Columbus have negotiated an agreement regarding how this process would occur. That agreement has been memorialized in a Memorandum of Understanding, which was fully executed on December 10, 2008 (see Appendix I, *Airport Golf Course*). The anticipated cost of reconfiguring the golf course is estimated to be approximately $2 million, which the CRAA has committed to fund.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, and, in addition, implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the location of the RPZ. Therefore, the potential impacts would be the same as described above for Alternative C2a.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would not require the acquisition or demolition of any businesses. Minor building modifications (removal of an unused tower on the top of Building 7) to the Columbus International Aircenter would occur, but no businesses would be displaced or reduced in size.

The Airport Golf Course, located east of the Airport, would be impacted by the relocation of Runway 10R/28L 702 feet to the south. The impact to the golf course would be generally the same under this alternative as was described for Alternative C2a (see Alternative C2a above for a complete discussion of the impacts).

Mitigation Commitments: Mitigation for this alternative includes reconfiguring the Airport Golf Course.

Airport Golf Course Reconfiguration

As discussed above under Alternative C2a, the CRAA has committed to reconfiguring the Airport Golf Course and to work with the City of Columbus to identify other initiatives that may be put in place during the construction period to help offset the reduction in revenue.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, and, in addition, the implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the location of the RPZ. Therefore, the potential impacts would be the same as described for Alternative C3a.

5.3.1.2.3 FUTURE CONDITIONS: 2018

The environmental consequences of the Sponsor's Proposed Project (Alternative C3b) and its alternatives are provided for 2018. 2018 represents the anticipated opening year of the first phase of the proposed passenger terminal. Because the implementation of the proposed passenger terminal would not change the location of the RPZ and would not result in any additional impacts to existing businesses, the impacts described under Section 5.3.1.2.1, *Future Conditions: 2012*, for each alternative would remain the same for 2018.

5.3.1.3 Disruptions of Local Traffic Patterns

FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures,* states that an Environmental Impact Statement (EIS) should determine if disruptions of local traffic patterns, that would substantially reduce the levels of service of the roads serving the Airport and its surrounding communities, would occur as a result of implementing the Sponsor's Proposed Project or its alternatives. For the project being assessed in this EIS, there is one proposed minor modification to an off-Airport roadway. This modification is the realignment of Stelzer Road south of International Gateway and north of Eleventh Avenue. Stelzer Road would be shifted to the west approximately 50 feet to accommodate the approach lighting system. Both alternatives that include the runway relocation (C2a/b and C3a/b) would

include this modification. The only difference between the two alternatives is the location of the roadway shift. **Exhibit 5.3-6, *Potential Stelzer Road Realignments*** shows the location of the proposed Stelzer Road realignment for both alternatives. This shift in the road would result in occasional disruptions to traffic during construction, which is anticipated to be less than six months. After the realignment, no impacts to traffic service would be expected. Therefore, there would be no significant disruption of local traffic patterns as a result of implementing the Sponsor's Proposed Project or its alternatives in either the 2012 or the 2018 conditions.

5.3.1.4 Substantial Loss in Community Tax Base

FAA Order 1050.1E states that an EIS should determine if a substantial loss in community tax base would occur as a result of implementing the Sponsor's Proposed Project or its alternatives.

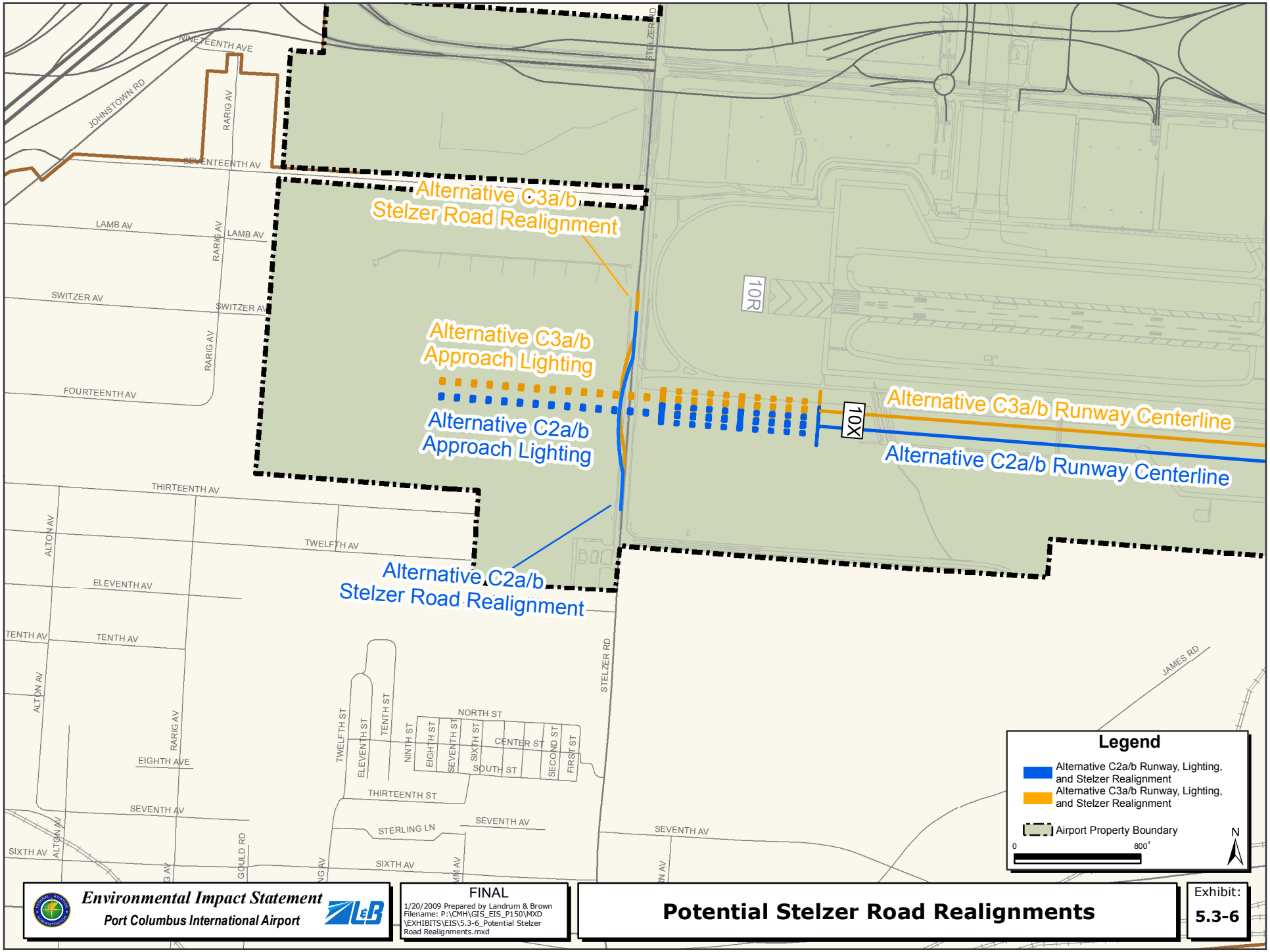
As noted in the preceding sections, the implementation of the Sponsor's Proposed Project or its alternatives would result in the acquisition of property and the temporary disruption and relocation of some local businesses. These impacts would affect the local tax base for Franklin County and the City of Columbus, in some cases causing a reduction in the amount of tax revenue that would be collected. Tax impacts that were assessed included the following:

- Loss of property tax revenue from properties that would be acquired as a result of one of the proposed alternatives;
- Loss of income tax revenue from businesses that are temporarily disrupted as a result of one of the proposed alternatives; and
- Increase in income tax revenue as a result of new jobs created by the project.

In 2006, Franklin County collected approximately $360,173,000 in property taxes[6] and the City of Columbus collected approximately $496,245,000 in income taxes.[7] In order to assess the potential loss of property tax revenue and income tax revenue, it is necessary to understand the elements of each alternative that would remove homes, businesses, or reduce workforce. For the 2012 Alternatives C2a/b, it is estimated that there would be a loss of $127,760 in property tax revenue collected by Franklin County and $4,996 in income tax collected by the City of Columbus due to the acquisition and removal of homes and businesses. The 2012 Alternatives C3a/b do not require the acquisition of businesses, but would result in the same number of homes being acquired as Alternatives C2a/b. Losses in property tax revenues for these alternatives are estimated to be $24,432 and losses in income tax are estimated to be $4,996. In each of these alternatives, the

[6] *Comprehensive Annual Financial Report for the Fiscal Year Ending December 31, 2006,* 2007, Franklin County, Ohio.

[7] *Ohio, Comprehensive Annual Financial Report for the Fiscal Year Ending December 31,* 2006, 2007, City of Columbus.



Environmental Impact Statement
Port Columbus International Airport

FINAL
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Potential Stelzer Road Realignments

Exhibit: **5.3-6**

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Airport Golf Course would be reconfigured as a result of relocating the runway. During re-construction of the golf course, it is the desire of both the CRAA and the City of Columbus to maintain a minimum of nine holes. The feasibility of this will be further analyzed and determined during the design phase of the project.

There would likely be reductions in staff and sales receipts during reconfiguration; however, losses in sales tax or income tax revenue would be minimal and temporary. Increased employment in construction due to the project would likely offset any decrease in income tax revenue. These reductions in tax revenue represent a small percentage of the annual tax revenue for Franklin County and the City of Columbus.

For the 2018 alternatives C2a/b and C3a/b, the impacts associated with the acquisition of homes, businesses, and the Airport Golf Course would remain the same as described for 2012. However, because the 2018 alternatives include a new passenger terminal, these alternatives result in temporary increases in construction related jobs. In addition, permanent new jobs in food service, concessions, parking, and security at the new terminal would be created. It is estimated that in 2018, when Phase 1 of the terminal is anticipated to be operational, an additional $158,400 in annual income tax would be generated for the City of Columbus.

5.3.2 ENVIRONMENTAL JUSTICE

On February 11, 1994, the President of the United States signed Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*. Executive Order 12898 requires all Federal agencies to address disproportionate and adverse human health or environmental effects of its programs, policies, and activities on minority and low-income populations. The Executive Order also directs Federal agencies to incorporate environmental justice as part of their overall mission by conducting their programs and activities in a manner that provides minority and low-income populations an opportunity to participate in agency programs and activities.

The U.S. Department of Transportation and the White House Office of Environmental Justice define minority as “individuals who are Black/African-American, Hispanic, Asian, Pacific Islander, American Indian, Eskimo, Aleut, or other non-white persons”. The Office of Environmental Justice indicates that for populations to be considered as a minority, the minority composition should either exceed 50 percent, or be greater than the minority population percentage in the general population of the geographic area under analysis. The appropriate unit of geographic analysis may be a governing body’s jurisdiction, a neighborhood, a census tract, or other similar unit.

The Executive Order relates to requirements in Title VI of the *Civil Rights Act of 1964* (Title VI), the *National Environmental Policy Act* (NEPA), the *Uniform Relocation Assistance and Real Property Acquisition Policies Act* (49 CFR Part 24), and other applicable statutes and regulations. Title VI provides that no person will, on the grounds of race, color, religion, sex, national origin, marital status, disability, or family composition, be excluded from participation in, be denied the benefits of,

or be otherwise subject to discrimination under any program of the Federal, state, or local government. Title VIII of the *1968 Civil Rights Act* guarantees each person equal opportunity in housing.

FAA Order 1050.1E provides guidance for the preparation of environmental justice analysis in support of an EIS. Section 16.2a (1) of the Order states that EISs should discuss the significant impact that a project would cause, then identify affected populations. If a significant impact would affect low income or minority populations at a disproportionately higher level than it would other population segments, an environmental justice issue is likely. Based on a review of the direct and indirect effects and the population characteristics of the area around the Airport, there was one impact category (noise) where significant impacts would occur. The significant noise impacts will be assessed for disproportionately high impacts to minority and low-income populations. The proposed relocation of residents on East 13th Avenue was also identified as a non-significant impact, but because of the nature of the impact and its location, it will also be assessed for disproportionately high impacts to minority and low-income populations.

For purposes of assessing potential environmental justice issues related to significant noise impacts, the census blocks that generally represent the 65 Day-Night Average Sound Level (DNL) noise contour for the No Action Alternative are used as the base geographical unit for comparison with the 65 DNL noise contours and the area of significant noise increases for each of the alternatives. For purposes of assessing the residential relocation impacts, the census blocks that generally represent the East Columbus Neighborhood[8] are used as the base geographical unit for comparison with the proposed acquisition area.

5.3.2.1 Existing Conditions: 2006

In order to quantify the potential environmental justice impacts associated with the Sponsor's Proposed Project and its alternatives, a demographic breakdown of the potentially affected population was prepared.[9] **Table 5.3-3**, summarizes the percentage of minority residents and the area's income characteristics used for this analysis. The results of the demographic analysis show that within the Columbus Metropolitan Statistical Area (MSA), approximately 83.1 percent of the population is White, 13.1 percent is Black, and the remaining 3.8 percent consists of American Indian, Asian, Hispanic, and other races. According to the 2000 U.S. Census data[10] the median household income for the Columbus MSA is $47,718 per year. For the EIS, a General Study Area (GSA) has been developed for the purposes of identifying

[8] The boundaries of the East Columbus Neighborhood for this EIS were presented earlier in this section (Section 5.3.1.1.1).

[9] The examination of potential impacts on minority used the 2000 U.S. Census. The examination of potential impacts on low income populations used the 2007 Department of Housing and Urban Development poverty guidelines, accessed on-line at http://www.huduser.org/ datasets/il/il2007/2007summary.odb?inputname=METRO18140M18140*Columbus%2C+OH+HUD+Metro+FMR+Area&selection_type=hmfa&year=2007, on October 29, 2007.

[10] http://www.census.gov/hhes/www/poverty/threshld/thresh00.html, accessed August 23, 2007.

potential impacts associated with noise exposure and overflights. Within the GSA, the racial breakdown is 52.8 percent White, 41.8 percent Black, and 5.5 percent other races. The median household income for the GSA is $37,269.

Analysis of noise impacts will be an important element in understanding the potential environmental justice issues because it has been determined that a significant increase in noise would occur as a result of implementing the Sponsor's Proposed Project or its alternatives (see Section 5.1, *Noise*). For the Existing Condition noise contour, it was found that approximately 23.9 percent of the population is White, 70.1 percent is Black, and the remaining six percent consists of other races, such as American Indian, Asian, and Hispanic. Median income for this area is $35,279.

Similarly, the assessment of impacts associated with the proposed acquisition area requires an understanding of the minority population and median income for the East Columbus Neighborhood. Within the East Columbus Neighborhood approximately 21.7 percent of the population is White, 67.7 percent Black, and 10.6 percent American Indian, Asian, Hispanic and other races.[11] Median income for this area is $22,304. Based on the definition provided by the Office of Environmental Justice, the areas exposed to 65 DNL and the East Columbus Neighborhood are minority populations because the minority population exceeds 50 percent of the total population.

Table 5.3-3
PERCENTAGE OF MINORITY RESIDENTS AND AVERAGE MEDIAN HOUSEHOLD INCOME
Port Columbus International Airport

	Columbus Metropolitan Statistical Area[1]	General Study Area	65 DNL Existing Condition	East Columbus Neighborhood[2]
Race	**Percent**	**Percent**	**Percent**	**Percent**
White	83.1	52.8	23.9	21.7
Black	13.1	41.8	70.1	67.7
American Indian	0.3	0.3	0.2	0.4
Asian	2.3	1.5	1.4	0.2
Other	1.2	3.7	4.4	10.0
Total	**100**	**100**	**100**	**100**
Average Median Household Income	$47,718	$37,269	$35,279	$22,304

1 Columbus Metropolitan Statistical Area consists of the following counties: Franklin, Madison, Union, Pickaway, Delaware, Morrow, Fairfield, and Licking.

2 East Columbus Neighborhood refers to the portion of the community that is likely to experience the direct and indirect effects of the project.

Sources: *2000 U.S. Census of Population*, U.S. Census Bureau, 2007.
Landrum & Brown, 2007.

11 *2000 U.S. Census of Population*, U.S. Census Bureau, 2007.

However, according to U.S. Census data the median household income for the 65 DNL noise contour for Existing Conditions is $35,279 per year. The median household income for the census tract representing the East Columbus Neighborhood is $22,304 per year. The U.S. Census Bureau does not release income data at the block or block group level. As a result, a more detailed income analysis is not currently possible. For this EIS, the poverty threshold, as established by the HUD for the Columbus Metro Fair Market Rent Area for 2007,[12] has been used as the low-income threshold. The poverty threshold for a one-person household is $13,500. A household containing four persons would be considered below the poverty level if their household income were less than $19,300. Therefore, no further income analysis will be conducted because neither the area within the 65 DNL noise contour of the Existing Conditions nor the East Columbus Neighborhood would be identified as a low-income community.

5.3.2.2 Future Conditions: 2012

As noted in the preceding section, the area with the greatest potential for being impacted by the Sponsor's Proposed Project or its alternatives is the area exposed to significant increases in noise and the proposed acquisition area in the East Columbus Neighborhood. The following text discusses the potential environmental justice impacts that could result from implementing the Sponsor's Proposed Project or its alternatives.

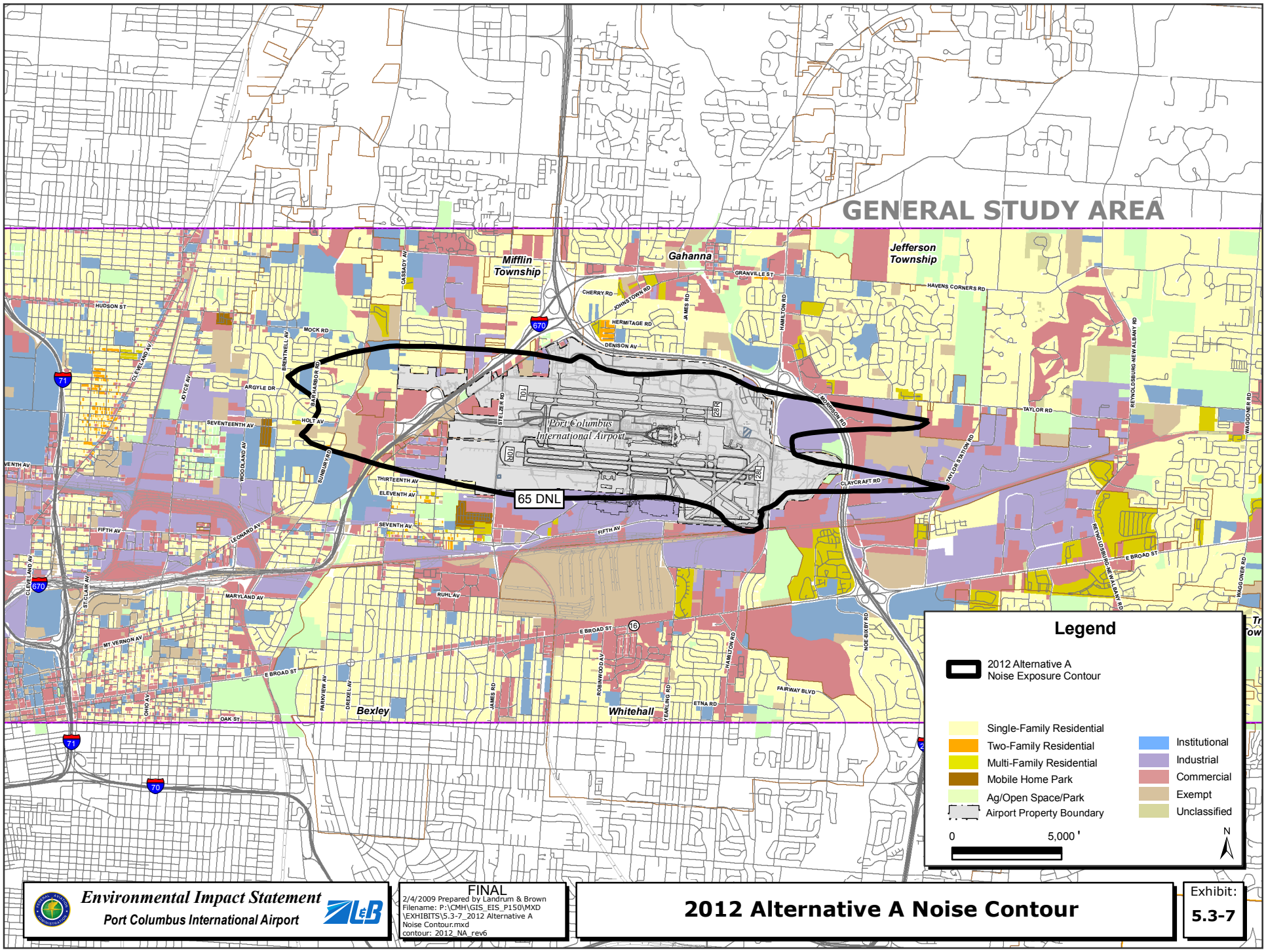
Alternative A:
2012 No Action

The No Action Alternative would result in no airport development. Therefore, there would be no acquisition of residential properties and the noise levels around the Airport would occur as a result of normal airport activity. Within the 65 DNL noise contour of the 2012 Alternative A, approximately 14.8 percent of the population is White, 77.5 percent is Black, and the remaining 7.7 percent consists of other races such as American Indian, Asian, and Hispanic. **Exhibit 5.3-7, *2012 Alternative A Noise Contour*** shows the 65 DNL noise contour for the 2012 Alternative A. **Table 5.3-4** summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would result in changes in noise exposure and the acquisition of residential properties located in the East Columbus Neighborhood. Each of these and the potential environmental justice impacts are discussed below.

[12] http://www.huduser.org/ datasets / il/ il2007/ 2007 summary .odb? inputname = METRO 18140M 18140*Columbus%2C+OH+HUD+Metro+FMR+Area&selection_type=hmfa&year=2007, accessed on October 29, 2007


GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Port Columbus International Airport
65 DNL
Bexley
Whitehall
Legend
2012 Alternative A Noise Exposure Contour
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
Institutional
Industrial
Commercial
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contour: 2012_NA_rev6
2012 Alternative A Noise Contour
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5.3-7

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Table 5.3-4
NOISE IMPACTS TO MINORITY POPULATION HOUSEHOLDS IN 2012 AND 2018
Port Columbus International Airport

Alternative	2012	2018
	Minority[2] Population	Minority[2] Population
A[1] 65 DNL	77.5%	65.2%
C2a 65 DNL	66.6%	63.1%
C2a Area of Significant Noise Increase[3]	57.9%	58.9%
C2b 65 DNL	62.7%	62.5%
C2b Area of Significant Noise Increase[3]	56.7%	57.9%
C3a 65 DNL	67.2%	63.0%
C3a Area of Significant Noise Increase[3]	57.7%	57.0%
C3b 65 DNL	66.1%	62.8%
C3b Area of Significant Noise Increase[3]	59.2%	57.9%

[1] For the purposes of assessing potential environmental justice issues related to significant noise impacts, the census blocks that generally represent the 65 DNL noise contour for the Alternative A: No Action are used as the base geographical unit for comparison with the 65 DNL noise contours and the area of significant increased noise for each of the alternatives.

[2] Based on the definition of minority populations, the Black community is the minority population being assessed for environmental justice impacts because the percentage is above 50 percent.

[3] FAA Order 1050.1E uses a 1.5 DNL increase within the 65 DNL over noise-sensitive land uses (e.g., residential) to identify an area of significant noise increase.

Source: Landrum & Brown, 2007. 2000 U.S. Census, Summary File 3.

Within the 65 DNL noise contour of the 2012 Alternative C2a, approximately 25.8 percent of the population is White, 66.6 percent is Black, and the remaining 7.6 percent consists of other races. As a result of implementing Alternative C2a, significant noise increases would occur. The area of significant noise increase is located east, west, and south of the Airport and is racially distributed with 33.6 percent of the population White, 57.9 percent Black, and the remaining 8.5 percent of other races. **Exhibit 5.3-8, *2012 Alternative C2a Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2012 Alternative C2a. Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

As discussed above in Section 5.3.1.1.2, 24 properties located in the relocated RPZ and an additional 12 properties would be acquired and removed for mitigation purposes for Alternative C2a. All 36 of these properties are located on East 13th Avenue in the East Columbus Neighborhood. As stated above, adequate housing supply exists in Franklin County to accommodate the proposed relocations. The racial makeup of the East Columbus Neighborhood is 21.7 percent White, 67.7 percent Black, and 10.6 percent other races.[13] Census data does not provide

[13] *2000 U.S. Census of Population*, U.S. Census Bureau, 2007.

the refinement necessary to isolate this individual residential block (East 13th Avenue east of Sterling Avenue) to determine the exact percentage of each racial group and no other data source is available that would provide that information.

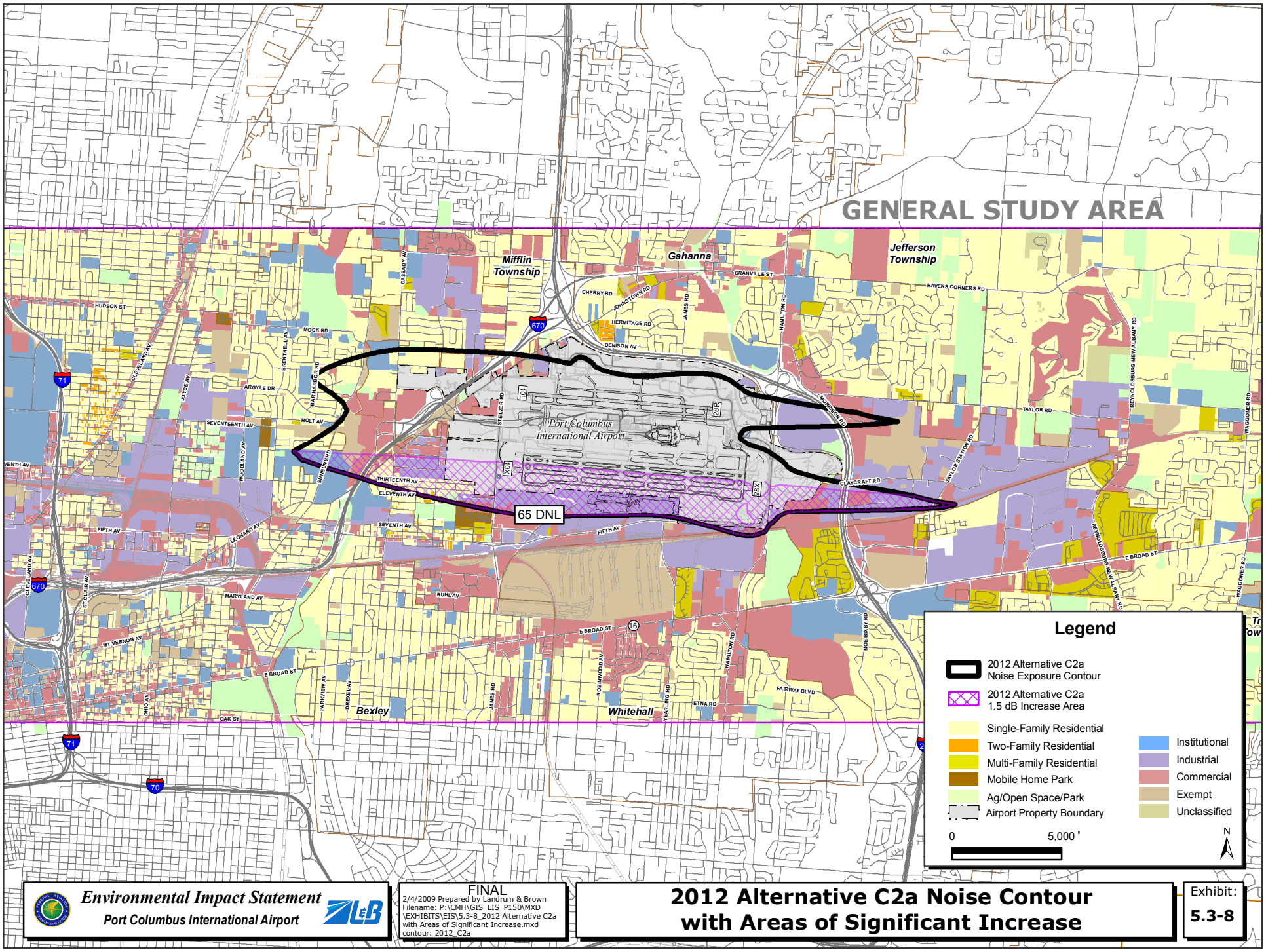
From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action and the 65 DNL noise contour for Alternative C2a. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, Alternative C2a would not disproportionately impact any minority populations within the Airport environs.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, and, in addition, the implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would alter the noise exposure for the communities surrounding the Airport. The location of the proposed RPZ and proposed acquisition area would be the same as Alternative C2a. Therefore, the potential impacts described above for Alternative C2a would also apply to this alternative.

Within the 65 DNL noise contour of the 2012 Alternative C2b, approximately 29.3 percent of the population is White, 62.7 percent is Black, and the remaining 8.0 percent consists of other races. As a result of implementing Alternative C2b, significant noise increases would occur. The area of significant increase is located east, west, and south of the Airport and is racially distributed with 34.5 percent of the population White, 56.7 percent Black, and the remaining 8.8 percent of other races. **Exhibit 5.3-9, *2012 Alternative C2b Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2012 Alternative C2b. Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action Alternative and the 65 DNL noise contour for Alternative C2b. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, Alternative C2b would not disproportionately impact any minority populations within the Airport environs.


GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Port Columbus International Airport
65 DNL
Bexley
Whitehall
Legend
2012 Alternative C2a Noise Exposure Contour
2012 Alternative C2a 1.5 dB Increase Area
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
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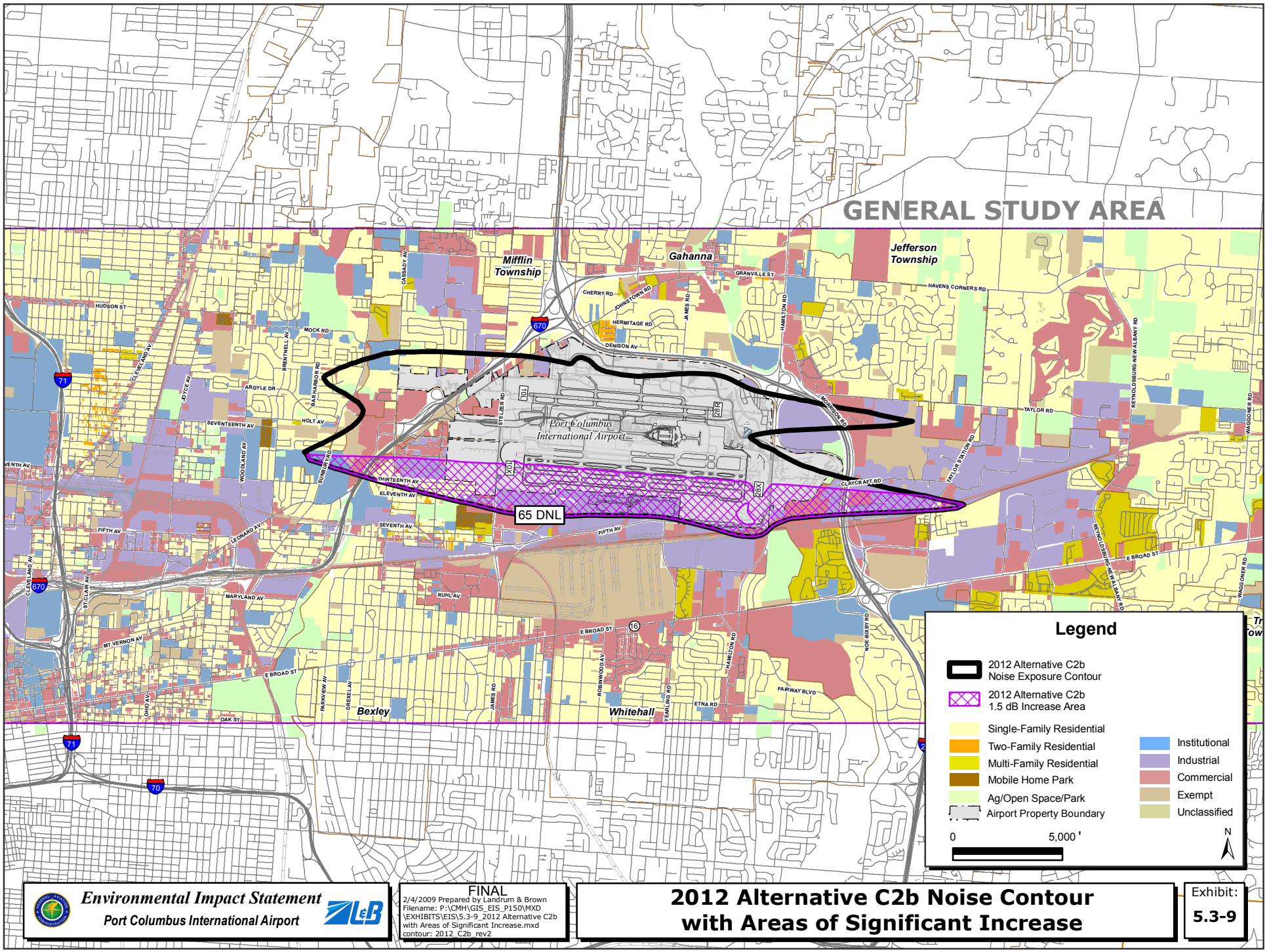
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Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
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2012 Alternative C2b Noise Contour with Areas of Significant Increase
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5.3-9

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Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would result in changes in noise exposure and the acquisition of residential properties located in the East Columbus Neighborhood. Each of these and the potential environmental justice impacts are discussed below.

Within the 65 DNL noise contour of the 2012 Alternative C3a, approximately 25.3 percent of the population is White, 67.2 percent Black, and 7.5 percent other races. As a result of implementing Alternative C3a, significant noise increases would occur. The area of significant noise increase is located east, west, and south of the Airport and is racially distributed with 33.6 percent of the population White, 57.7 percent Black, and the remaining 8.7 percent of other races. **Exhibit 5.3-10, *2012 Alternative C3a Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2012 Alternative C3a.

Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

As discussed above in Section 5.3.1.1.2, 36 properties located in the relocated RPZ would be acquired and removed for Alternative C3a. All 36 of these properties are located on East 13th Avenue, east of Sterling Avenue, in the East Columbus Neighborhood. As stated above, adequate housing supply exists in Franklin County to accommodate the proposed relocations. The racial makeup of the East Columbus Neighborhood is 21.7 percent White, 67.7 percent Black, and 10.6 percent other races.[14] Census data does not provide the refinement necessary to isolate this individual residential block (East 13th Avenue east of Sterling Avenue) to determine the exact percentage of each racial group and no other data source is available that would provide that information.

From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action Alternative and the 65 DNL noise contour for Alternative C3a. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, Alternative C3a would not disproportionately impact any minority populations within the Airport environs.

[14] *2000 U.S. Census of Population*, U.S. Census Bureau, 2007.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, and the implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would alter the noise exposure for the communities surrounding the Airport. The location of the proposed RPZ and proposed acquisition area would be the same as Alternative C3a. Therefore, the potential impacts described above for Alternative C3a would apply to this alternative.

Within the 65 DNL noise contour of the 2012 Alternative C3b, approximately 25.5 percent of the population is White, 66.1 percent is Black, and the remaining 8.4 percent consists of other races. As a result of implementing Alternative C3b, significant noise increases would occur. The area of significant increase is located east, west, and south of the Airport and is racially distributed with 31.1 percent of the population White, 59.2 percent Black, and the remaining 9.7 percent of other races. **Exhibit 5.3-11, *2012 Alternative C3b Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2012 Alternative C3b. Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

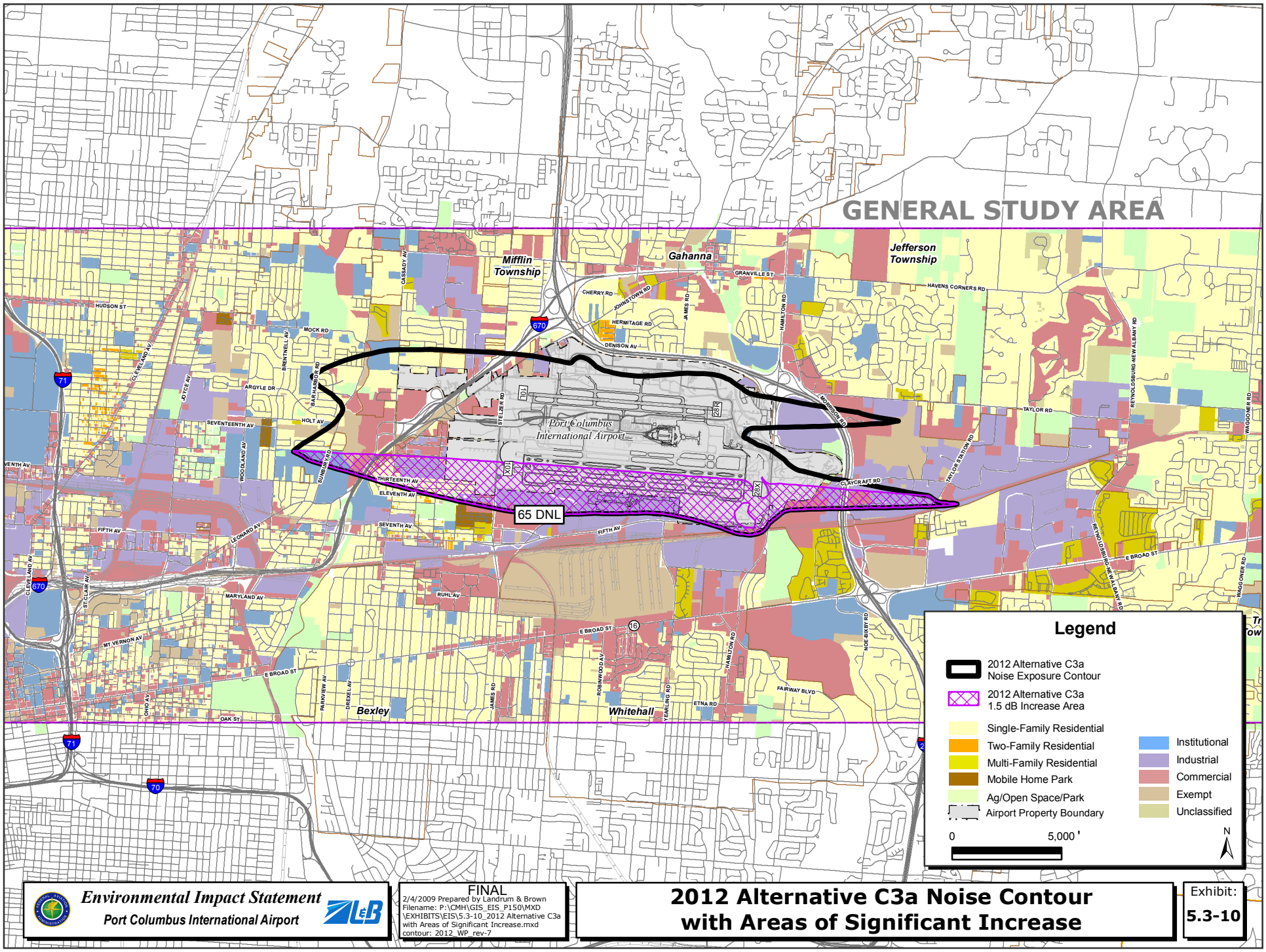
From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action Alternative and the 65 DNL noise contour for Alternative C3b. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, Alternative C3b would not disproportionately impact any minority populations within the Airport environs.

5.3.2.3 Future Conditions: 2018

The following text discusses the potential environmental justice impacts that could result from implementing the Sponsor's Proposed Project or its alternatives.

Alternative A:
2018 No Action

The No Action Alternative would result in no airport development. Therefore, there would be no acquisition of residential properties and the noise levels around the Airport would occur as a result of normal airport activity. Within the 65 DNL noise contour of the 2018 Alternative A, approximately 28.9 percent of the population is White, 65.2 percent is Black, and the remaining 5.9 percent consists of other races such as American Indian, Asian, and Hispanic.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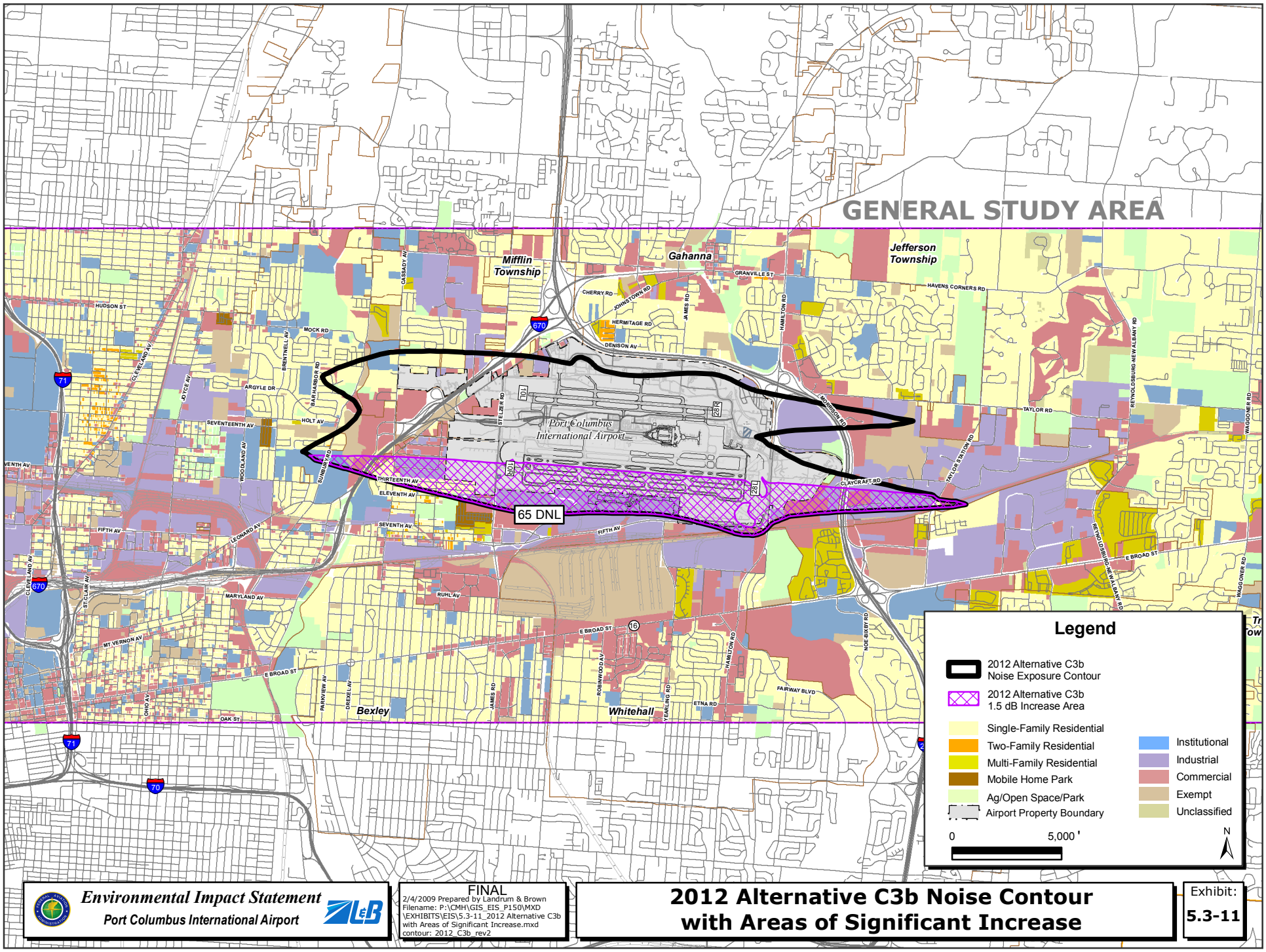
GENERAL STUDY AREA
Mifflin Township
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Single-Family Residential
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Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
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2012 Alternative C3b Noise Contour with Areas of Significant Increase
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Exhibit 5.3-12, *2018 Alternative A Noise Contour* shows the 65 DNL noise contour for the 2018 Alternative A. Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L and the construction of a new passenger terminal would result in changes in noise exposure and the acquisition of residential properties located in the East Columbus Neighborhood. Each of these and the potential environmental justice impacts are discussed below.

Within the 65 DNL noise contour of the 2018 Alternative C2a, approximately 28.9 percent of the population is White, 63.1 percent is Black, and the remaining 8.0 percent consists of other races. As a result of implementing Alternative C2a, significant noise increases would occur. The area of significant noise increase is located east, west, and south of the Airport and is racially distributed with 32.7 percent of the population White, 58.9 percent Black, and the remaining 8.4 percent of other races. **Exhibit 5.3-13, *2018 Alternative C2a Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2018 Alternative C2a.

Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

The 2018 Alternative C2a would require the same acquisition area described under the 2012 Alternative C2a. Therefore, the potential impacts and determination that there would be no environmental justice issue for this area would also apply to the 2018 Alternative C2a.

From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action Alternative and the 65 DNL noise contour for 2018 Alternative C2a. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, 2018 Alternative C2a would not disproportionately impact any minority populations within the Airport environs.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south and a new passenger terminal as Alternative C2a, and the implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would alter the noise exposure for the communities surrounding the Airport. The location of the proposed RPZ and proposed acquisition area would be the same as Alternative C2a. Therefore, the potential impacts described above for Alternative C2a would apply to this alternative.

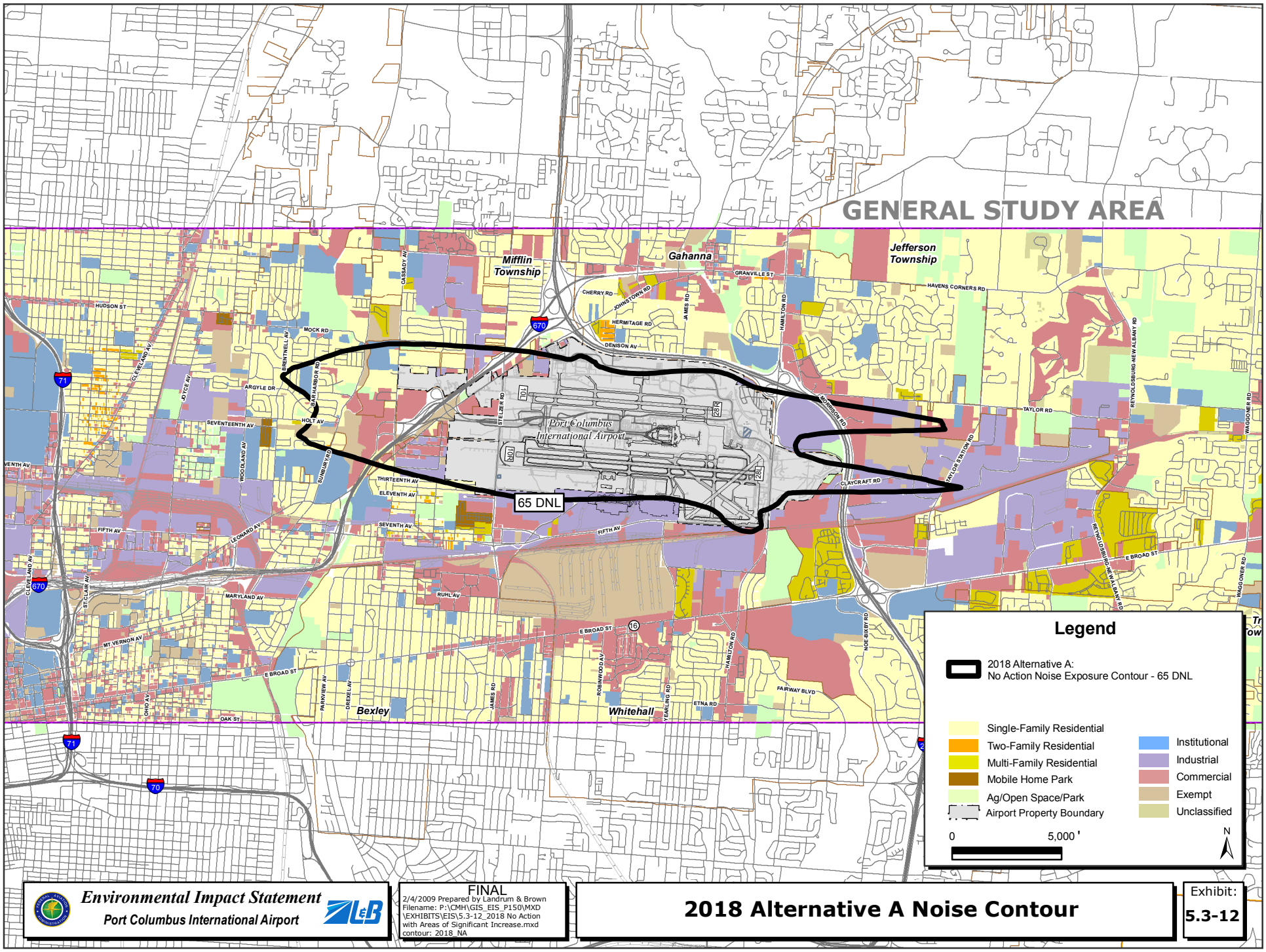
Within the 65 DNL noise contour of the 2018 Alternative C2b, approximately 29.4 percent of the population is White, 62.5 percent is Black, and the remaining 8.1 percent consists of other races. As a result of implementing Alternative C2b, significant noise increases would occur. The area of significant increase is located east, west, and south of the Airport and is racially distributed with 33.5 percent of the population White, 57.9 percent Black, and the remaining 8.6 percent of other races. **Exhibit 5.3-14, *2018 Alternative C2b Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2018 Alternative C2b. Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action Alternative and the 65 DNL noise contour for Alternative C2b. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, Alternative C2b would not disproportionately impact any minority populations within the Airport environs.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L and the construction of a new passenger terminal would result in changes in noise exposure and the acquisition of residential properties located in the East Columbus Neighborhood. Each of these and the potential environmental justice impacts are discussed below.

Within the 65 DNL noise contour of the 2018 Alternative C3a, approximately 29.4 percent of the population is White, 63.0 percent is Black, and the remaining 7.6 percent consists of other races. As a result of implementing Alternative C3a, significant noise increases would occur. The area of significant noise increase is located east, west, and south of the Airport and is racially distributed with 34.5 percent of the population White, 57.0 percent Black, and the remaining


GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Port Columbus International Airport
65 DNL
Bexley
Whitehall
Legend
2018 Alternative A:
No Action Noise Exposure Contour - 65 DNL
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
Institutional
Industrial
Commercial
Exempt
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Environmental Impact Statement
Port Columbus International Airport
FINAL
2/4/2009 Prepared by Landrum & Brown
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contour: 2018 NA
2018 Alternative A Noise Contour
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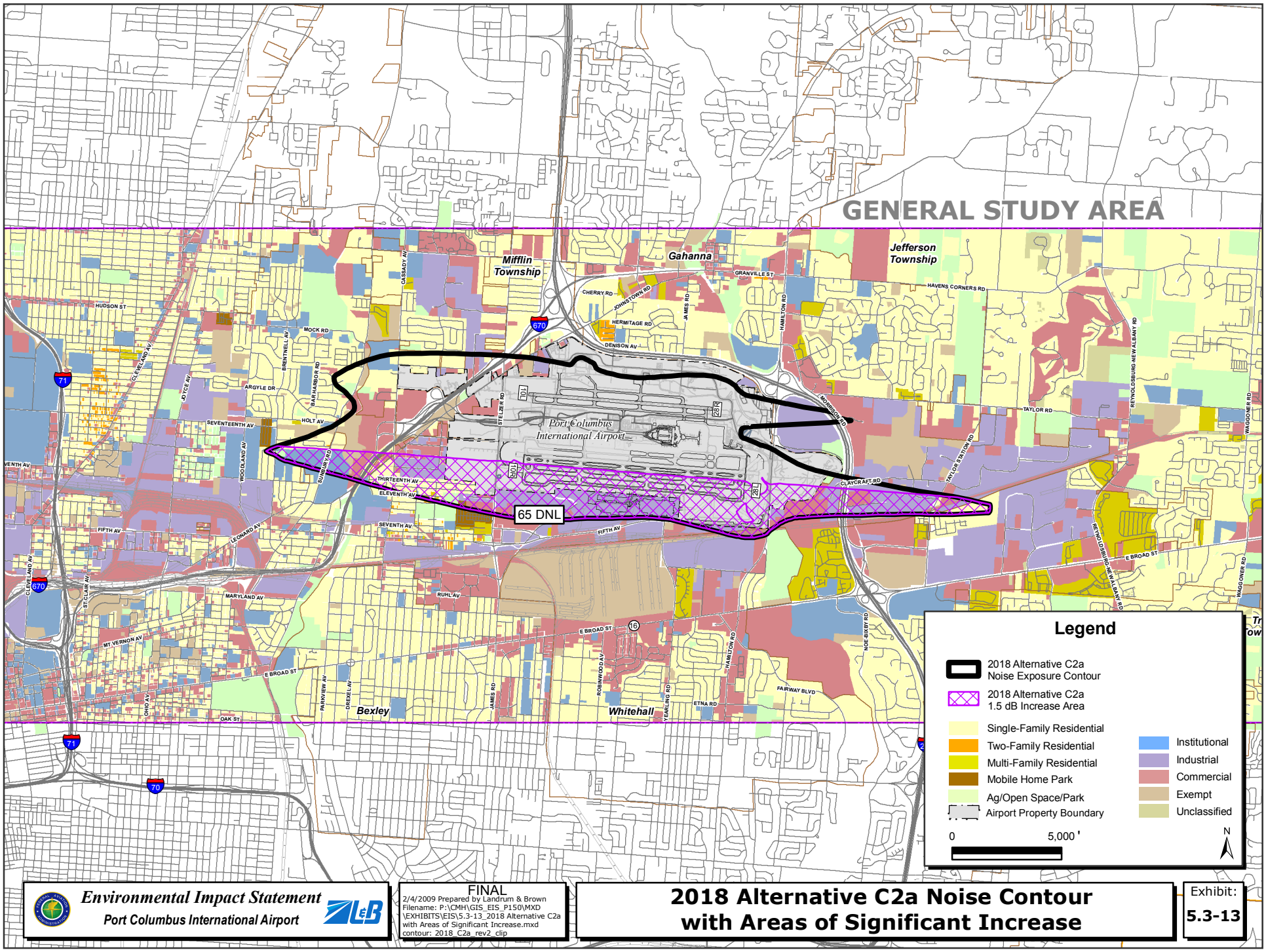
GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Port Columbus International Airport
65 DNL
Bexley
Whitehall
Legend
2018 Alternative C2a Noise Exposure Contour
2018 Alternative C2a 1.5 dB Increase Area
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
Institutional
Industrial
Commercial
Exempt
Unclassified
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Environmental Impact Statement
Port Columbus International Airport
FINAL
2/4/2009 Prepared by Landrum & Brown
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2018 Alternative C2a Noise Contour with Areas of Significant Increase
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5.3-13

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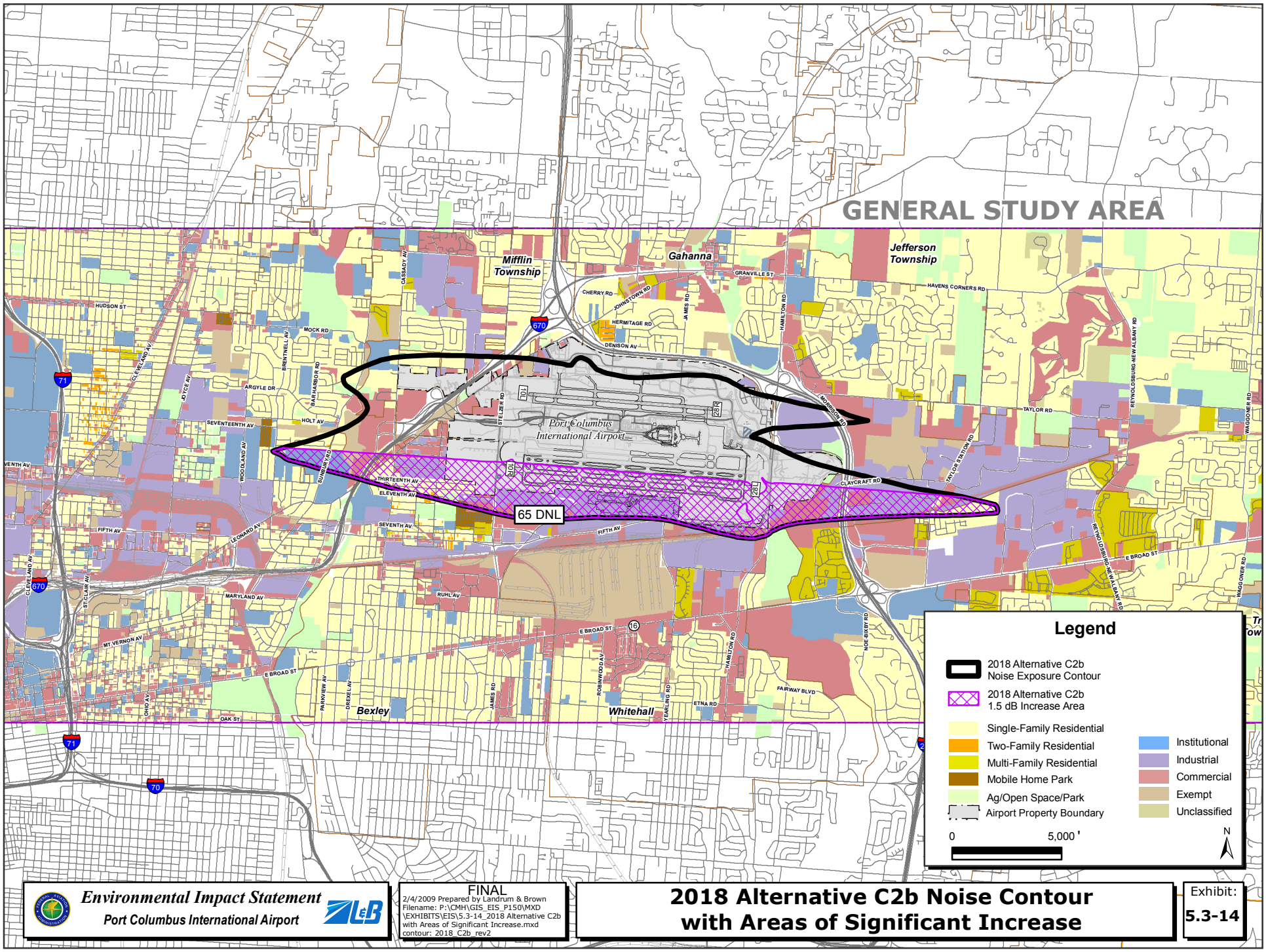
GENERAL STUDY AREA
Mifflin Township
Gahanna
Jefferson Township
Bexley
Whitehall
Port Columbus International Airport
65 DNL
Legend
2018 Alternative C2b Noise Exposure Contour
2018 Alternative C2b 1.5 dB Increase Area
Single-Family Residential
Two-Family Residential
Multi-Family Residential
Mobile Home Park
Ag/Open Space/Park
Airport Property Boundary
Institutional
Industrial
Commercial
Exempt
Unclassified
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2/4/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.3-14_2018 Alternative C2b with Areas of Significant Increase.mxd
contour: 2018_C2b_rev2
2018 Alternative C2b Noise Contour with Areas of Significant Increase
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5.3-14

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8.5 percent of other races. **Exhibit 5.3-15, *2018 Alternative C3a Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2018 Alternative C3a. Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

The 2018 Alternative C3a would require the same acquisition area described under the 2012 Alternative C3a. Therefore, the potential impacts and determination that there would be no environmental justice issue for this area would also apply to the 2018 Alternative C3a.

From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action Alternative and the 65 DNL noise contour for 2018 Alternative C3a. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, 2018 Alternative C3a would not disproportionately impact any minority populations within the Airport environs.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the relocation of Runway 10R/28L 702 feet to the south and the new passenger terminal as Alternative C3a, and, in addition, the implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would alter the noise exposure for the communities surrounding the Airport. The location of the proposed RPZ and proposed acquisition area would be the same as Alternative C3a. Therefore, the potential impacts described for Alternative C3a would apply to this alternative.

Within the 65 DNL noise contour of the 2018 Alternative C3b, approximately 29.2 percent of the population is White, 62.8 percent is Black, and the remaining 8.0 percent consists of other races. As a result of implementing Alternative C3b, significant noise increases would occur. The area of significant increase is located east, west, and south of the Airport and is racially distributed with 33.6 percent of the population White, 57.9 percent Black, and the remaining 8.5 percent other races. **Exhibit 5.3-16, *2018 Alternative C3b Noise Contour with Areas of Significant Increase*** shows the 65 DNL noise contour and the area of significant noise increase for the 2018 Alternative C3b. Table 5.3-4 summarizes the percentage of minority population within the 65 DNL and the areas of significant noise increase for each alternative.

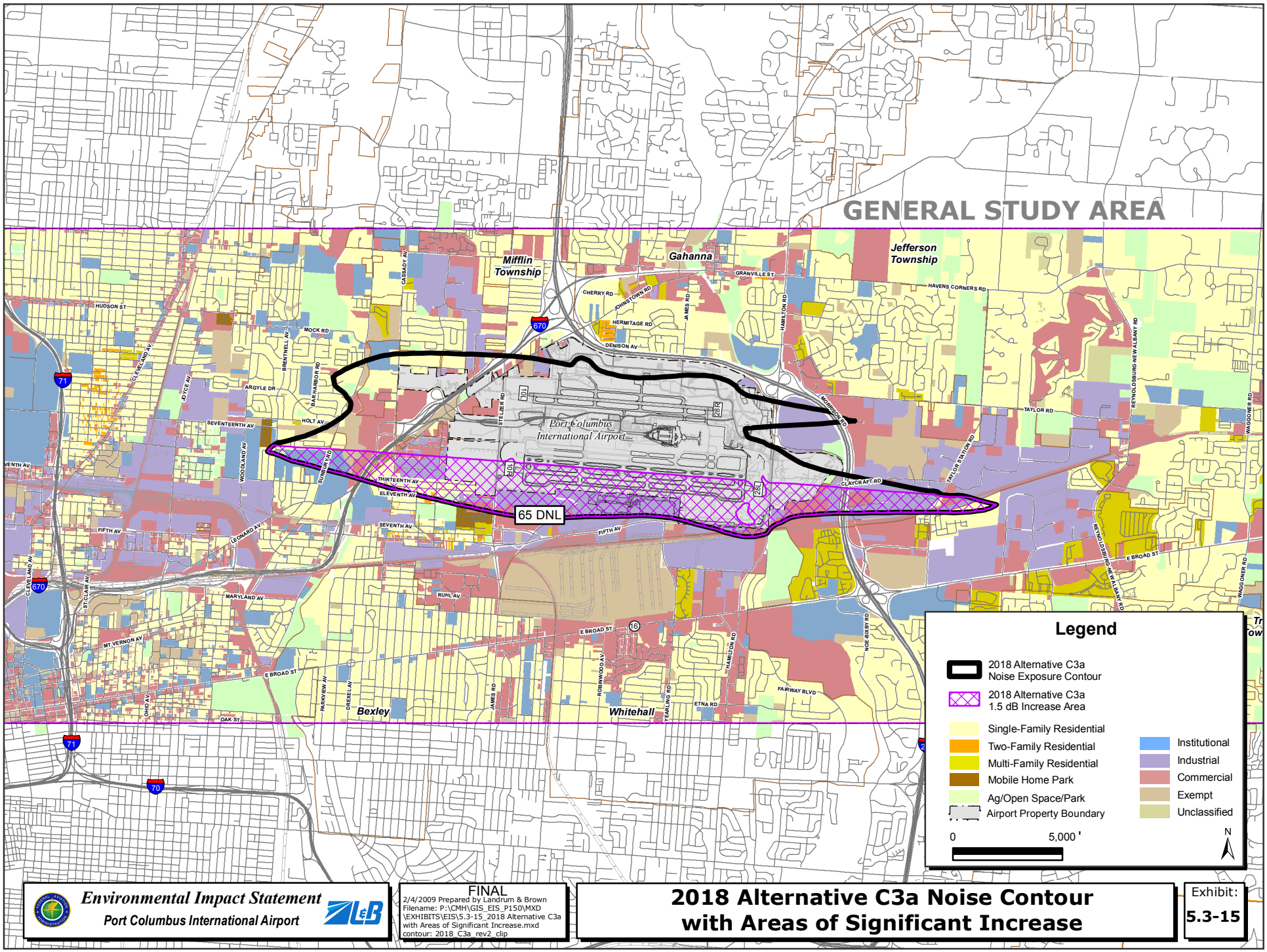
From the analysis above, the significant noise impacts associated with the project would occur over areas that include a smaller percentage of minority population than the No Action Alternative and the 65 DNL noise contour for Alternative C3b. In addition, the proposed area of acquisition is not distinctly different from the racial makeup of the East Columbus Neighborhood. Therefore, Alternative C3b would not disproportionately impact any minority populations within the Airport environs.

5.3.3 CHILDREN'S ENVIRONMENTAL HEALTH AND SAFETY RISKS

Based on a review of available data conducted as part of this EIS, implementation of the Sponsor's Proposed Project or its alternatives would not result in an elevated risk related to health or safety concerns for children. According to the Ohio Department of Health, the primary children's health concern statewide is asthma and related lung disorders.[15] Based on the analysis detailed in Section 5.5*, Air Quality*, none of the alternatives would create air quality conditions that would worsen breathing conditions for children. Based on the analyses detailed in Section 5.6, *Water Quality*, none of the alternatives would result in the release of harmful agents into surface or groundwater resources above levels permitted by the State of Ohio and Federal regulations. Coordination with agencies was conducted throughout the EIS process to review health data and identify specific concerns related to children's health and safety.

Based on the analyses conducted in this EIS, implementation of the runway development alternatives would not result in the release of, or exposure to significant levels of harmful agents in the water, air, or soil that would affect children's health or safety.

[15] Ohio Department of Health, 2006.



Environmental Impact Statement
Port Columbus International Airport

FINAL
2/4/2009 Prepared by Landrum & Brown
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2018 Alternative C3a Noise Contour with Areas of Significant Increase

Exhibit: 5.3-15

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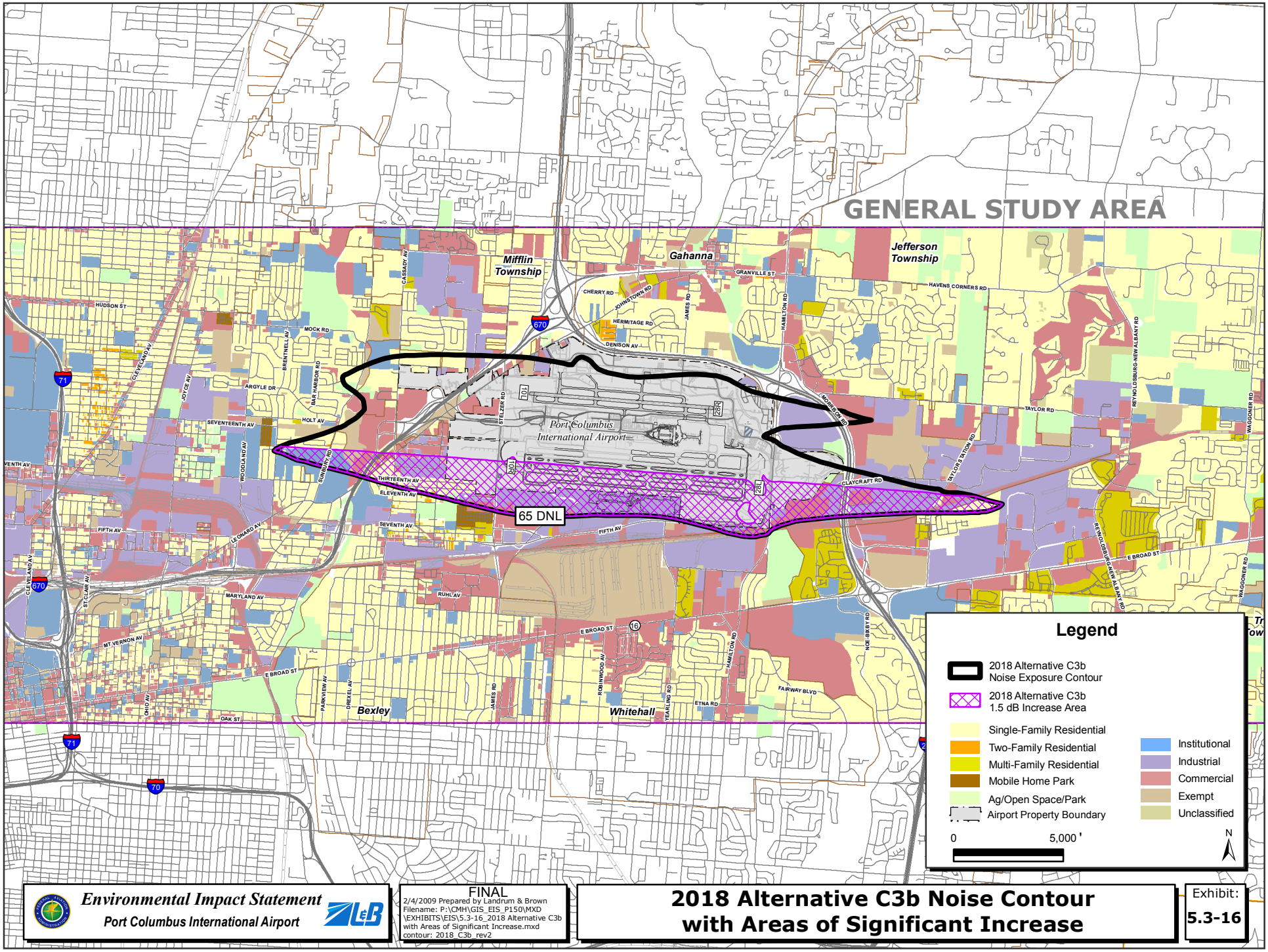

Environmental Impact Statement
Port Columbus International Airport

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2/4/2009 Prepared by Landrum & Brown
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contour: 2018_C3b_rev2

2018 Alternative C3b Noise Contour with Areas of Significant Increase

Exhibit: 5.3-16

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5.4 SECONDARY (INDUCED) IMPACTS

Major development proposals often involve the potential for induced or secondary impacts on surrounding communities. Examples of these impacts include: shifts in patterns of population movement and growth; public service demands; and changes in business and economic activity to the extent influenced by airport development. Induced impacts will normally not be significant except where there are also significant impacts in other categories, especially noise, land use, or direct social impacts.

5.4.1 PATTERNS OF POPULATION AND GROWTH

5.4.1.1 Existing Conditions

Franklin County encompasses approximately 540 square miles. The County had a total estimated population of over 1,090,000 in 2005.[1] The Central Ohio Region[2] is currently experiencing rapid growth that began nearly 20 years ago. Between 1990 and 2000, the population of the Central Ohio Region grew by 15 percent, compared to a growth rate of five percent statewide.[3] The population of Franklin County is projected to grow by an additional 26 percent between 2000 and 2030. Employment in Franklin County is also expected to grow by 43 percent between 2000 and 2030. The jurisdictions within the General Study Area (GSA) are expected to experience population growth at 20 percent and employment growth at nearly 30 percent during the same timeframe. This growth is expected to be highest in the jurisdictions of New Albany and Gahanna, north of Port Columbus International Airport (CMH or Airport).[4] **Table 5.4-1** and **Table 5.4-2** show these estimates for each jurisdiction within the GSA.

1 U.S. Census Bureau, Annual Population Estimates, 2006.

2 The "Central Ohio Region" is defined by the Mid-Ohio Regional Planning Commission as the area contained in the seven counties of Delaware, Fairfield, Franklin, Licking, Madison, Pickaway, and Union. *Regional Fact Book, Regional Growth Strategy, Central Ohio*, August 2004, Mid-Ohio Regional Planning Commission.

3 U.S. Census Bureau, 1990 and 2000 Population Counts.

4 *2030 Population, Household and Employment Forecast*, April 2006, Mid-Ohio Regional Planning Commission.

Table 5.4-1
POPULATION ESTIMATES, 2000 TO 2030
Port Columbus International Airport

PLACE	POPULATION			PERCENT GROWTH, 2000-2030
	2000	2005	2030 (projected)	
Gahanna	33,317	34,675	38,843	16.6%
Reynoldsburg	27,460	29,107	32,275	17.5%
Columbus	693,183	767,274	831,458	19.9%
Whitehall	17,354	17,365	16,955	-2.3%
Bexley	12,152	12,205	11,759	-3.2%
New Albany	4,778	6,827	14,588	205.3%
Mifflin Township	308	315	722	134.4%
General Study Area Total	***788,552***	***867,768***	***946,600***	**20.0%**
Franklin County Total	**1,046,127**	**1,144,479**	**1,316,365**	**25.8%**

Source: *2030 Population, Household and Employment Forecast*, April 2006, Mid-Ohio Regional Planning Commission.

Table 5.4-2
EMPLOYMENT ESTIMATES, 2000 TO 2030
Port Columbus International Airport

PLACE	EMPLOYMENT			PERCENT GROWTH, 2000-2030
	2000	2005	2030 (projected)	
Gahanna	9,492	12,641	15,720	65.6%
Reynoldsburg	10,130	10,554	11,769	16.2%
Columbus	492,671	513,638	622,471	26.3%
Whitehall	14,109	13,759	14,275	1.2%
Bexley	3,291	3,478	4,013	21.9%
New Albany	1,144	4,594	20,711	1710.4%
Mifflin Township	610	600	634	3.9%
General Study Area Total	***531,447***	***559,264***	***689,593***	**29.8%**
Franklin County Total	**689,786**	**735,186**	**984,261**	**42.7%**

Source: *2030 Population, Household and Employment Forecast*, April 2006, Mid-Ohio Regional Planning Commission.

Land use in the Central Ohio Region is changing in response to the growth trend. The amount of agricultural land decreased by ten percent from the early 1980s through the late 1990s. In the Central Ohio region, Franklin County has experienced the largest share of population growth over the past 20 years. However, its share of growth is projected to decline in the coming years as the surrounding counties attract more people. Forty percent of new houses are being built outside of Franklin County in low density residential areas at the outer edge of existing urbanized areas.

5.4.1.2 Future Conditions: 2012

Alternative A:
2012 No Action

Alternative A includes no development. Therefore, Alternative A would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would include the acquisition of 36 residential properties for clearing the Runway Protection Zone (RPZ). The properties that are acquired by the Columbus Regional Airport Authority (CRAA) would be converted to open space and the residents of the properties would be relocated. Based on analysis completed in Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*, comparable housing exists for the residents in nearby communities. Therefore, Alternative C2a would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Stormwater Detention Basin: One entrance driveway and 24 parking spaces associated with the 94th Aero Squadron restaurant would be removed to allow for expansion of the ravine located south of Sawyer Road. The ravine is a small tributary of Big Walnut Creek and the proposed expansion will allow stormwater drainage during construction and operation from the proposed airfield projects. The driveway off Sawyer Road will be relocated in-kind, west of the present location and replacement parking areas will be constructed west of the building resulting in no net loss in parking capacity or access to the restaurant. Because there are two entrance driveways to the restaurant and an abundance of parking, disruption of access and parking for the restaurant would be temporary and minimal.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L, 800 feet to the south, as Alternative C2a along with operational changes proposed in the 2007 Part 150 Noise Compatibility Study (2007 Part 150 Study).[5] The proposed operational changes would not change the RPZ acquisition area described in Alternative C2a. Therefore, Alternative C2b would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Stormwater Detention Basin: The stormwater detention basin would stay the same as described under Alternative C2a.

[5] 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.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would include the acquisition of 36 residential properties for clearing the RPZ. The properties that are acquired by the CRAA would be converted to open space and the residents of the properties would be relocated. Based on analysis completed in Section 5.3, *Socioeconomic Impacts Environmental Justice, and Children's Environmental Health and Safety Risks*, comparable housing exists for the residents in nearby communities. Therefore, Alternative C3a would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Stormwater Detention Basin: The stormwater detention basin would stay the same as described under Alternative C2a.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L, 702 feet to the south, as Alternative C3a along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not change the RPZ acquisition area described in Alternative C3a. Therefore, Alternative C3b would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Stormwater Detention Basin: The stormwater detention basin would stay the same as described under Alternative C2a.

5.4.1.3 Future Conditions: 2018

In addition to 2012, the environmental consequences for 2018 are provided because that is the anticipated year for opening the proposed passenger terminal.

Alternative A:
2018 No Action

Alternative A includes no development. Therefore, Alternative A would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The 2018 Alternative C2a includes relocation of Runway 10R/28L 800 feet to the south as described under 2012 Alternative C2a and the construction of the proposed passenger terminal and parking garage. The proposed terminal and

parking garage would be constructed on Airport property. Therefore, Alternative C2a would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

The 2018 Alternative C2b includes the same construction projects as Alternative C2a (relocation of Runway 10R/28L 800 feet to the south and construction of the proposed passenger terminal and parking garage), along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would have no affect on population movement. Therefore, Alternative C2b would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The 2018 Alternative C3a includes relocation of Runway 10R/28L 702 feet to the south as described under 2012 Alternative C3a and the construction of the proposed passenger terminal and parking garage. The proposed terminal and parking garage would be constructed on Airport property. Therefore, Alternative C3a would not result in significant shifts in patterns of population movement or growth outside of the GSA.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

The 2018 Alternative C3b includes the same construction projects as Alternative C3a (relocation of Runway 10R/28L 702 feet to the south and construction of the proposed passenger terminal and parking garage), along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would have no affect on population movement. Therefore, Alternative C3b would not result in significant shifts in patterns of population movement or growth outside of the GSA.

5.4.2 PUBLIC SERVICE DEMANDS

5.4.2.1 Existing Conditions: 2006

The Rural/Metro Corporation provides on-Airport Aircraft Rescue and Fire Fighting (ARFF) services and security assistance to the Airport. The on-duty ARFF staff consists of a Fire Chief, Captain, three firefighter/paramedics, and three firefighter/Emergency Medical Technicians (EMT). The security component provides guards twenty-four hours a day at two Air Operations Area (AOA) checkpoints and a minimum of two guards providing traffic enforcement on the Arrival and Departure drives leading into the terminal building. The staffing is supplemented with

"reserve" or part-time personnel that maintain identical certifications as the full-time staff members. These "reserve" personnel help fill vacancies.[6] **Table 5.4-3** lists existing fire departments in the GSA. **Table 5.4-4** lists existing police departments in the GSA. **Table 5.4-5** lists existing hospital services in the GSA.

Table 5.4-3
FIRE DEPARTMENTS WITHIN THE GSA
Port Columbus International Airport

FACILITY	ADDRESS	LOCATION TO CMH
Whitehall Fire Department	390 S. Yearling Road, Whitehall, OH	South
Truro Township Fire Department	6900 E. Main St., Reynoldsburg, OH	Southeast
Mifflin Township Fire Department	475 Rocky Fork Blvd., Gahanna, OH	Northeast
Rural Metro Fire Department	4925 Sawyer Rd, Columbus, OH	On Airport
Columbus Division of Fire	2464 E. Fifth Ave., Columbus, OH	Southwest
Jefferson Township Fire Department	6767 Havens Corners Road, Blacklick, OH	Northeast

Source: Landrum & Brown, 2007.

Table 5.4-4
POLICE DEPARTMENTS WITHIN THE GSA
Port Columbus International Airport

FACILITY	ADDRESS	LOCATION TO CMH
Whitehall Police Department	365 Yearling Rd., Whitehall, OH	South
Gahanna Police Department	460 Rocky Fork Blvd., Gahanna, OH	North
CRAA Airport Police	4600 International Gateway, Columbus, OH	On Airport

Source: Landrum & Brown, 2007.

Table 5.4-5
HOSPITALS WITHIN THE GSA
Port Columbus International Airport

FACILITY	ADDRESS	LOCATION TO CMH
University Hospital East	1492 E. Broad Street, Columbus, Ohio	Southwest
Chalmers P. Wylie VA Hospital	420 N. James Road, Columbus, Ohio	South
Mount Carmel Hospital East	6001 E. Broad Street, Columbus, Ohio	Southeast

Source: Landrum & Brown, 2007.

[6] http://www.ruralmetro.com/services/fire_arffprof.htm, accessed August 2007.

5.4.2.2 Future Conditions: 2012

Alternative A:
2012 No Action

Alternative A includes no development. Therefore, Alternative A would not result in significant impacts to public service demands.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would not reduce the level of vehicular access on local roadways by emergency vehicles to the Airport or surrounding developments. In addition, there would be no impact to hospitals in the area. Therefore, Alternative C2a would not result in significant impacts to public service demands.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L, 800 feet to the south, as Alternative C2a along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would have no impact on either emergency vehicles attempting to access the Airport or surrounding areas or hospitals in the area. Therefore, Alternative C2b would not result in significant impacts to public service demands.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would not reduce the level of vehicular access on local roadways by emergency vehicles to the Airport or surrounding developments. In addition, there would be no impact to hospitals in the area. Therefore, Alternative C3a would not result in significant impacts to public service demands.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L, 702 feet to the south, as Alternative C3a along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would have no impact on either emergency vehicles attempting to access the Airport or surrounding areas or hospitals in the area. Therefore, Alternative C3b would not result in significant impacts to public service demands.

5.4.2.3 Future Conditions: 2018

In addition to 2012, the environmental consequences for 2018 are provided because that is the anticipated year for opening the proposed passenger terminal.

Alternative A:
2018 No Action

Alternative A includes no development. Therefore, Alternative A would not result in significant impacts to public service demands.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L and construction of the proposed passenger terminal and parking garage would not reduce the level of vehicular access on local roadways by emergency vehicles to the Airport or surrounding areas. In addition, there would be no impact to hospitals in the area. Therefore, Alternative C2a would not result in significant impacts to public service demands.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L, 800 feet to the south and construction of the proposed passenger terminal and parking garage as Alternative C2a, along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would have no impact on either emergency vehicles attempting to access the Airport or surrounding areas or hospitals in the area. Therefore, Alternative C2b would not result in significant impacts to public service demands.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L and construction of the proposed passenger terminal and parking garage would not reduce the level of vehicular access on local roadways by emergency vehicles to the Airport or surrounding areas. In addition, there would be no impact to hospitals in the area. Therefore, Alternative C3a would not result in significant impacts to public service demands.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L, 702 feet to the south and construction of the proposed passenger terminal and parking garage as Alternative C3a, along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would have no impact on either emergency vehicles attempting to access the Airport or surrounding areas or on hospitals in the area. Therefore, Alternative C3b would not result in significant impacts on public service demands.

5.4.3 BUSINESS AND ECONOMIC ACTIVITY

5.4.3.1 Existing Conditions

In 2006, the Airport transported an estimated 6.7 million passengers and processed over 10,400 metric tons of freight and mail to meet the needs of regional businesses and consumers. The CRAA sponsored a study[7] to quantify the economic benefits that stem from the Airport. The current economic impact of the Airport, which is estimated at nearly $2.2 billion, includes expenditures by 85 on-Airport businesses and government agencies and nearly 1.1 million visitors to the Columbus region that arrive via CMH, as well as the multiplier effect associated with this spending. In addition, the study revealed more than 23,500 residents of the Columbus region are employed, directly or indirectly, at CMH and generated $624.9 million in annual payroll. These employees represent 2.1 percent of all the jobs in Columbus' six-county Metropolitan Statistical Area (MSA). CMH's total economic impact comprises 3.1 percent of the estimated Gross Metropolitan Product (GMP) for the Columbus MSA.

5.4.3.2 Future Conditions: 2012

Alternative A:
2012 No Action

Alternative A includes no new construction or changes in operating procedures. Therefore, this alternative would not result in significant impacts to business and economic activity.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would result in a temporary increase in business and economic activity due to construction of the relocated Runway 10R/28L. Alternative C2a would not result in any permanent increases in economic or business activity.

[7] *Regional Airports Economic Impact Study*, January 2005, Columbus Regional Airport Authority.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L, 800 feet to the south, as Alternative C2a along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not change business or economic impacts on the area.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would have a temporary increase in business and economic activity due to construction of the relocated Runway 10R/28L. Alternative C3a would not result in any permanent increases in economic or business activity.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south, as Alternative C3a along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not change business or economic impacts in the area.

5.4.3.3 Future Conditions: 2018

In addition to 2012, the environmental consequences for 2018 are provided because that is the anticipated year for opening the proposed passenger terminal.

Alternative A:
2018 No Action

Alternative A includes no new construction or changes in operating procedures. Therefore, this alternative would not result in significant impacts to business and economic activity.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L and construction of the proposed passenger terminal and parking garage would result in a temporary increase in business and economic activity. Alternative C2a would also result in permanent increases in economic and business activity due to the additional jobs that would be created at the proposed passenger terminal.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Alternative C2b includes the same construction projects, relocation of Runway 10R/28L 800 feet to the south and proposed passenger terminal, as Alternative C2a along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not result in changes to economic and business activity. Therefore, Alternative C2b would result in the same temporary and permanent impacts to economic and business activity as Alternative C2a.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L and construction of the proposed passenger terminal and parking garage would result in a temporary increase in business and economic activity. Alternative C3a would also result in permanent increases in economic and business activity due to the additional jobs that would be created at the proposed passenger terminal.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same construction projects, relocation of Runway 10R/28L 702 feet to the south and proposed passenger terminal, as Alternative C3a along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not result in changes to economic and business activity. Therefore, Alternative C3b would result in the same temporary and permanent impacts to economic and business activity as Alternative C3a.

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5.5 AIR QUALITY

This section presents an assessment of the potential for significant adverse air quality impacts resulting from construction and implementation of the Sponsor's Proposed Project and its alternatives for Port Columbus International Airport (CMH or Airport). The potential air quality impacts were assessed by conducting a dispersion analysis based on an emission inventory prepared for each of the alternatives considered in this Environmental Impact Statement (EIS). The assessment was prepared according to guidelines established under Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA *Air Quality Procedures for Civilian Airports & Air Force Bases*.[1]

The results of the emission inventory prepared for each alternative were compared to the results of the baseline alternative (Alternative A: No Action or Alternative A) of the same future year to disclose the potential increase in emissions caused by each project alternative. The comparison of the emission inventories, which included an inventory of construction emissions, were used for the evaluation of General Conformity as required under the Clean Air Act (including the 1990 Amendments) (CAA).

The emission inventories were then translated to pollutant concentrations by conducting dispersion analyses for comparison to the National Ambient Air Quality Standards (NAAQS),[2] an evaluation referred to as the National Environmental Policy Act (NEPA) analysis. The results of the NEPA analysis ascertained the potential for significant adverse air quality impacts in Franklin County due to proposed development at the Airport.

The procedures and methodologies used to develop the existing and future emission database, as well as computer modeling input data, are provided in Appendix E, *Air Quality*, which includes Attachment E.1 *Draft Technical Report: Air Quality Assessment Methodology* (Air Quality Technical Report). The Air Quality Technical Report summarizes the status of Ohio's State Implementation Plan (SIP), provides an overview of the requirements under NEPA and the CAA, and documents FAA's coordination with Federal, State, and local air quality agencies. The existing air quality conditions at CMH are described in Chapter Four, *Affected Environment,* Section 4.8, *Air Quality*.

5.5.1 FUTURE CONDITIONS: 2012

A summary of the analyses of emission inventories prepared for the 2012 Alternatives is included in the following sections, including the Sponsor's Proposed Project (Alternative C3b). The inventory of construction equipment emissions includes the development of the stormwater detention basin at the location of the Big Walnut Creek tributary on the east airfield south of Sawyer Road.

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1 FAA, *Order 1050.1E Environmental Impacts: Policies and Procedures*, March 20, 2006, FAA; and *Air Quality Procedures for Civilian Airports & Air Force Bases*, April 1997, and the Addendum dated September 2004,.

2 Background concentrations were added to the modeled results (design concentrations) for the evaluation of future air quality conditions at the Airport and in the surrounding communities.

Refer to **Appendix E**, *Air Quality*, for details relating to the construction equipment emission inventory. The results of the dispersion analysis are summarized following the presentation of the results of the emission inventory for each alternative.

5.5.1.1 2012 Alternative A

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2012 Alternative A and includes the results of dispersion analysis. The emission inventory prepared for the 2012 Alternative A is the baseline against which all other 2012 alternatives are evaluated.

Airfield Configuration: CMH has two east/west parallel runways (10L/28R and 10R/28L) spaced 2,800 feet apart. Chapter Three, *Alternatives*, Exhibit 3-1, *Alternative A: No Action*, shows the existing Airport layout.

Aircraft Activity Levels and Fleet Mix Characteristics: The 2012 aircraft operations and fleet mix are based on the approved aviation forecast, presented in Appendix C, *Aviation Activity Forecast*.

Other Mobile Sources and Stationary Sources: In addition to aircraft, the analysis of this alternative reflects other mobile and stationary sources that contribute to Airport emissions. These include ground support equipment (GSE) and auxiliary power units (APUs) used at the gate areas; all types of motor vehicles, including, passenger and employee vehicles, taxi cabs, parking lot shuttles, consolidated rental car (CRCF) shuttles, hotel and motel shuttle buses, and visitor vehicles accessing Airport roadways and parking lots. Refer to Appendix E, *Air Quality Technical Report*, Exhibit E-6, *2012 and 2018 No Action, and 2012 Project Alternatives – Generalized Roadway Segments*, and Exhibit E-3, *2012 and 2018 No Action, and 2012 Project Alternatives –Parking Lots and Garages*.

The analysis includes emissions from stationary sources, including evaporative emissions from fuel storage tanks and painting operations; emissions from the use of deicing fluid; combustion emissions from boilers at the terminal and concourses; and emissions from the operation of emergency generators. All the 2012 alternatives include the relocation of the CRCF operations that are currently operated from the first two floors of the existing six-level terminal parking garage. Consolidated rental car maintenance would be relocated to an area west of Interstate 670 on Cassady Avenue. The remaining CRCF operations, including customer service, rental car storage, and quick-turn-around (QTA) operations would be relocated to the Airport parking lot on 17th Avenue. Also included are the use of the crossover taxiway under construction in 2007, and the planned realignment of International Gateway. The crossover taxiway and realignment of International Gateway have received prior NEPA approval. Refer to Appendix E, *Air Quality Technical Report,* Exhibit E-9, *2012 and 2018 No Action, and 2012 Project Alternatives – Stationary Sources*.

Computer Modeling: The emission inventories for all the 2012 and 2018 alternatives for criteria and precursor pollutants were prepared using the FAA Emissions and Dispersion Modeling System (EDMS), Version 4.5. The construction emissions inventory was prepared using U.S. Environmental Protection Agency (USEPA)-approved methodology applied through a computer spreadsheet program. The aircraft fleet used for computer-model input for the emission inventory calculations for all the 2012 and 2018 alternatives is as described in Section 5.1, *Noise*. All input data, assumptions, procedures, and methodologies used for all computer and spreadsheet modeling are provided in the *Air Quality Technical Report* in Appendix E. EDMS provides emission inventory calculations for the following pollutants:

- Carbon monoxide (CO);
- Volatile organic compounds (VOCs), a precursor pollutant to ozone development[3] and particulate matter emissions;
- Nitrogen oxides (NO_x) a precursor pollutant to ozone development and particulate matter emissions;
- Sulfur oxides (SO_x), a precursor pollutant to the development of fine particulate matter ($PM_{2.5}$) emissions;
- Coarse particulate matter (PM_{10}); and
- Fine particulate matter ($PM_{2.5}$).

Dispersion analyses for all the 2012 and 2018 alternatives considered in this EIS were conducted using EDMS Version 4.5. EDMS provides calculations for pollutant concentrations for the following pollutants and averaging periods:

- CO – One-hour and eight-hour averages;
- NO_x – Annual average;
- SO_x – Three-hour, 24-hour, and annual averages;
- PM_{10} – 24-hour average; and
- $PM_{2.5}$ – 24-hour and annual averages.

For each of the 2012 and 2018 alternatives, pollutant concentrations were calculated at a total of 67 receptor locations. Of the 67 receptors, 44 are located in the communities surrounding the Airport, around the perimeter of the Airport property line, and at the arrival curb adjacent to the existing passenger terminal, as shown in **Exhibit 5.5-1, *All Years, All Alternatives Airport and Community Sensitive Receptor Locations***. The remaining 23 receptors are located within the

[3] Ozone cannot be calculated directly because ozone formation is a regional phenomenon resulting from the photochemical reaction of NO_x, VOC, and sunlight. Therefore, the USEPA has directed the evaluation of NO_x and VOC will serve as a representation of the potential for ozone development on a project-level basis.

terminal area in parking lots and garages, and along International Gateway, as shown in **Exhibit 5.5-2, *2012 and 2018 No Action, and 2012 Project Alternatives Terminal Area Dispersion Receptor Locations***.[4]

Selection of the receptor locations for inclusion in the dispersion analysis was coordinated with the USEPA, the Ohio Environmental Protection Agency (OEPA) Division of Air Pollution Control (DAPC), and the Mid-Ohio Regional Planning Commission (MORPC). The receptor locations were selected based on the proximity of the receptor to sensitive public areas or facilities, as defined in Section 5.2, *Compatible Land Use*, Table 5.2-2, *Noise-Sensitive Public Facilities*. Further, selection was based on results of preliminary analysis indicating the possibility of impacts in public areas. The selected receptor locations are summarized below:

Arrival Curb: Located at the existing terminal building on the east side of the roadway, situated in front of the passenger-terminal pickup area from which arriving passengers are transported to parking areas, rental car facilities, or other destinations off-Airport. Pollutant concentrations would be expected to be highest at this receptor due to the close proximity to both motor vehicles and GSE at the terminal gate area.

Gahanna East: Located northeast of the Airport near Friendship Park, and near Wonderland Community Church, Shepherd Church of the Nazarene and Christian School, and Christian Center Church.

Gahanna North: Located north of the Airport near Denison Avenue and Goshen Lane near Victory in Pentecost Church and Goshen Lane Elementary School.

Mifflin South: Located southwest of the Airport near Krumm Park, Living Word Church, East Columbus Elementary School, Corinthian Baptist Church, and East Mount Olivet Baptist Church.

Whitehall: Located south of the Airport near Yearling Road, Holy Spirit School and Whitehall Library.

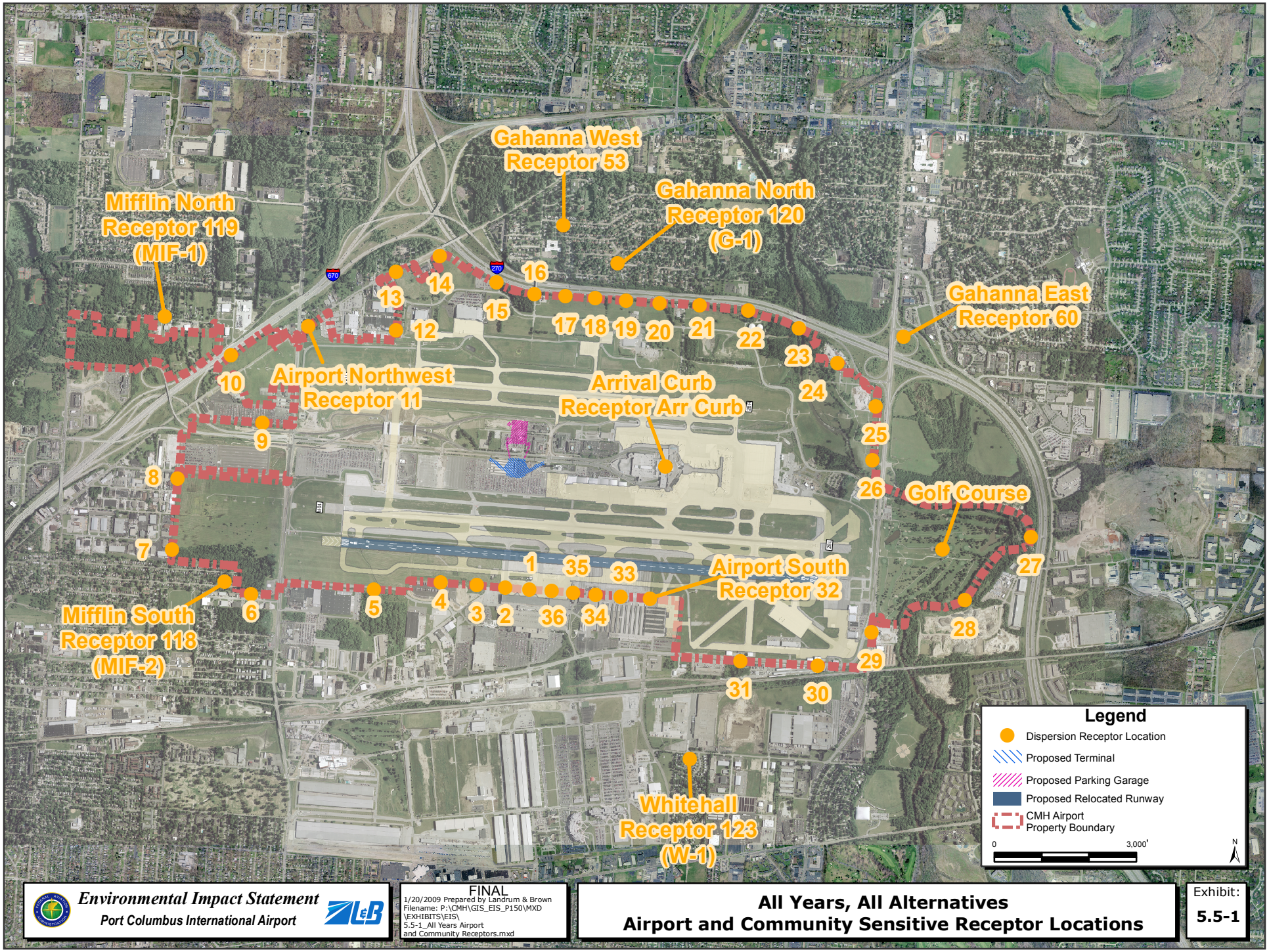
Gahanna West: Also located north of the Airport, near Hermitage Road, Victory in Pentecost Church and Goshen Lane Elementary School.

Airport South: Located south of the Airport. Selected to capture potential impacts in public access areas south of the proposed replacement runway.

Airport Northwest: Located northwest of the Airport. Selected to capture potential impacts in a public access area from pollutants evaluated as a three-hour average concentration.

Mifflin North: Located northwest of the Airport. Selected to capture potential impacts in public access areas due to the one-hour average concentration of pollutants.

[4] Receptors for the long-term parking garage levels, the existing rental car facility garage levels, and the short-term parking levels are stacked in the same location and show only one receptor on the exhibit.



Environmental Impact Statement
Port Columbus International Airport

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5.5-1_All Years Airport
and Community Receptors.mxd

All Years, All Alternatives
Airport and Community Sensitive Receptor Locations

Exhibit:
5.5-1

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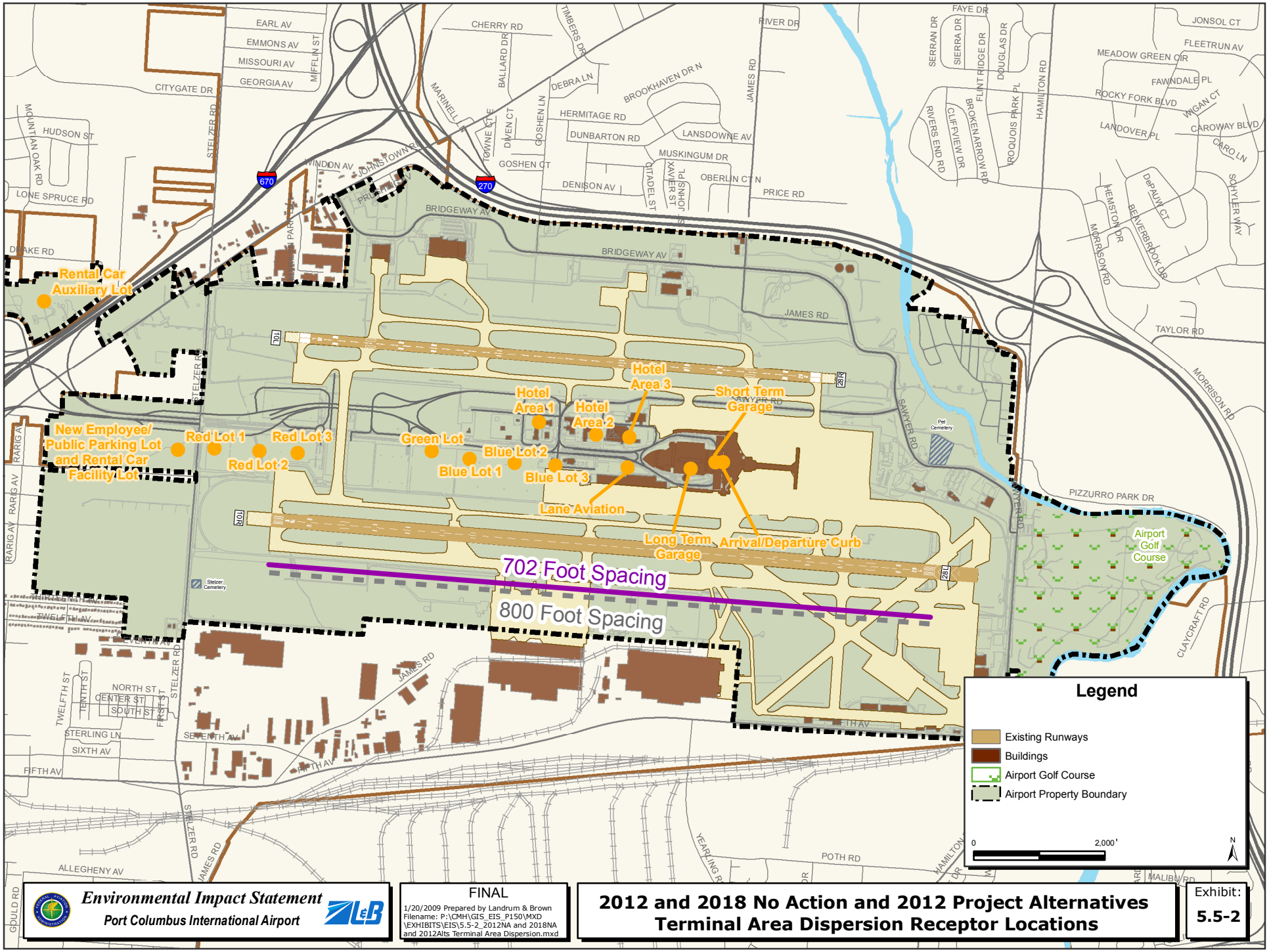

Environmental Impact Statement
Port Columbus International Airport

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2012 and 2018 No Action and 2012 Project Alternatives
Terminal Area Dispersion Receptor Locations

Exhibit:
5.5-2

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Golf Course: Located east of the Airport in the public golf course near Runway 28L.

***2012 Alternative A Emission Inventory*:** The emission inventory is summarized in **Table 5.5-1**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 35.94 percent of total emissions under this alternative. Aircraft sources are second, representing 34.40 percent. The remaining 29.66 percent of total emissions come from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations. The emission inventory summarized in Table 5.5-1 represents the baseline against which each of the other 2012 alternatives were compared. Emissions from GSE, APUs, roadways, parking garages, parking lots, and stationary sources are expected to remain the same for all of the 2012 alternatives.

The emission inventory for this alternative reflects a slight decrease in average aircraft taxi time, as compared to the Existing (2006) Conditions resulting from use of the new crossover taxiway. This includes an increase in average aircraft departure delay time resulting from the increase in aircraft operations that would occur by 2012 regardless of the Sponsor's Proposed Project.

2012 Alternative A Dispersion Analysis: The pollutant concentrations estimated through dispersion analysis are summarized in **Table 5.5-2**. Refer to Exhibit 5.5-1 and Exhibit 5.5-2 for the dispersion receptor locations used for this alternative. For each pollutant-averaging period the maximum concentration was found to occur at the arrival curb. Under this alternative, the maximum values at the arrival curb are caused almost entirely by emissions of CO from GSE concentrated at the terminal gate area. All modeled concentration values summarized in Table 5.5-2 are below the NAAQS.

5.5.1.2 2012 Alternative C2a: Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2012 Alternative C2a, and includes the results of dispersion analysis for this alternative.

Airfield Configuration: Alternative C2a includes a replacement runway located 800 feet south of existing Runway 10R/28L. Chapter Three, *Alternatives*, Exhibit 3-7 shows the airfield layout proposed for the C2 alternatives.

Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as described for 2012 Alternative A.

Table 5.5-1
2012 ALTERNATIVE A EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	812.86	71.37	323.64	29.40	61.75	61.75	**1,360.76**
GSE/APUs	1,279.88	49.61	73.79	10.62	3.91	3.77	**1,421.57**
Roadways[1]	707.77	49.50	69.67	0.54	2.27	1.32	**831.07**
Parking Facilities[1]	194.55	29.02	25.17	0.09	0.40	0.23	**249.46**
Stationary Sources	21.45	14.11	35.76	16.64	2.49	2.20	**92.65**
TOTAL	**3,016.51**	**213.60**	**528.03**	**57.29**	**70.81**	**69.28**	**3,955.52**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

Other Mobile Sources and Stationary Sources: The number of vehicles on Airport access roadways and in parking lots and garages would remain the same for all the 2012 alternatives as those described for 2012 Alternative A. None of the alternatives include modifications to roadways, parking lots, or use of GSE and APUs that would be different than as described for the 2012 Alternative A. Likewise, emissions from stationary sources such as fuel storage tanks, boilers, emergency generators, and painting operations would not change as compared to the 2012 Alternative A.

Table 5.5-2
2012 ALTERNATIVE A EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1,300	365	80	150	35	15
Arrival Curb	Arr Curb	16,053.48	3,433.42	44.48	119.53	49.16	6.91	10.45	9.78	2.00
Gahanna East	60	5,864.27	1,279.16	1.79	25.39	4.10	0.23	2.42	2.24	0.10
Gahanna North	120/G-1	4,663.93	1,330.56	4.23	28.67	6.38	0.52	2.54	2.41	0.23
Mifflin South	118/MIF-2	2,667.21	694.94	2.93	11.29	3.24	0.16	2.51	2.30	0.09
Whitehall	123/W-1	3,951.42	639.23	1.83	18.53	5.76	0.35	1.45	1.39	0.12
Gahanna West	53	4,180.77	926.88	3.51	27.80	5.62	0.43	2.87	2.70	0.19
Airport South	32	4,245.19	1,031.07	5.41	28.23	6.84	0.93	2.78	2.64	0.32
Airport Northwest	11	4,052.61	794.57	6.00	19.47	4.27	0.25	1.50	1.39	0.17
Mifflin North	119/MIF-1	4,769.47	646.07	4.01	16.79	2.79	0.12	1.20	1.05	0.08
Golf Course		7,132.62	1,041.85	1.78	30.78	4.48	0.28	3.50	3.32	0.10

Note: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-2. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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2012 Alternative C2a Emission Inventory: The emission inventory for Alternative C2a is summarized in **Table 5.5-3**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 35.81 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.64 percent. The remaining 29.55 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations.

The emission inventory for this alternative reflects an increase in the average taxi time as compared to the 2012 Alternative A. The increase in average taxi time results from the additional time required for aircraft to traverse the additional 800 feet to reach the replacement runway. Emissions under this alternative increase 0.36 percent over the 2012 Alternative A.

Table 5.5-3
2012 ALTERNATIVE C2a EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	824.26	72.98	324.53	29.63	61.78	61.78	**1,374.96**
GSE/APU	1,279.95	49.60	73.79	10.60	3.91	3.78	**1,421.62**
Roadways[1]	707.77	49.50	69.67	0.54	2.27	1.32	**831.07**
Parking Facilities[1]	194.55	29.02	25.17	0.09	0.40	0.23	**249.46**
Stationary Sources	21.45	14.11	35.76	16.64	2.49	2.20	**92.65**
TOTAL	**3,027.98**	**215.21**	**528.92**	**57.51**	**70.84**	**69.32**	**3,969.77**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

2012 Alternative C2a Construction Emissions: The inventory of construction emissions is summarized in **Table 5.5-4**. The data shows NO_x to be the most prominent pollutant caused by the operation of construction equipment. NO_x emissions reflect 39.31 percent of emissions from the total four-year project.

Emissions of CO would constitute 37.70 percent, VOCs would be 5.70 percent, and $PM_{2.5}$ emissions account for 1.75 percent. The remaining 15.54 percent would consist of SO_x and PM_{10} emissions.

Table 5.5-4
2012 ALTERNATIVE C2a AND C2b CONSTRUCTION EMISSIONS INVENTORY
Port Columbus International Airport

CONSTRUCTION YEARS	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$	TOTAL
2009	11.80	1.92	13.22	4.21	0.70	0.70	**32.54**
2010	15.59	2.32	16.01	5.64	0.92	0.92	**41.40**
2011	27.98	4.18	28.86	10.34	1.65	1.65	**74.66**
2012	25.77	3.85	26.53	9.50	0.50	0.50	**66.64**
TOTAL	**81.15**	**12.26**	**84.62**	**29.69**	**3.76**	**3.76**	**215.25**

Notes: CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Totals may not calculate exactly due to rounding.

Source: *Landrum & Brown analysis*, 2007.

***2012 Alternative C2a Dispersion Analysis*:** The maximum concentrations estimated through dispersion analysis are summarized in **Table 5.5-5**. Refer to Exhibit 5.5-1 and Exhibit 5.5-2 for the dispersion receptor locations used for this alternative. For each pollutant-averaging period the maximum concentration was found to occur at the arrival curb. All modeled concentration values summarized in Table 5.5-5 are below the NAAQS.

5.5.1.3 2012 Alternative C2b: Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2012 Alternative C2b, and includes the results of dispersion analysis.

Airfield Configuration: Alternative C2b includes a replacement runway located 800 feet south of existing Runway 10R/28L. The proposed airfield layout would be the same as described under the 2012 Alternative C2a.

Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as that described for 2012 Alternative A.

Other Mobile Sources and Stationary Sources: Assessment of mobile and stationary sources for this alternative would be the same as described for 2012 Alternative C2a.

Table 5.5-5
2012 ALTERNATIVE C2a EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	14,224.19	3,199.78	45.11	119.78	49.51	7.04	10.45	10.23	2.05
Gahanna East	60	6,193.30	1,244.08	1.73	26.15	4.20	0.23	2.42	2.25	0.10
Gahanna North	120/G-1	4,915.37	1,414.34	4.19	29.46	6.49	0.51	2.54	2.44	0.23
Mifflin South	118/MIF-2	2,566.48	679.80	2.97	16.51	2.73	0.16	2.51	2.30	0.09
Whitehall	123/W-1	4,233.94	678.41	1.91	18.72	5.83	0.37	1.45	1.52	0.13
Gahanna West	53	4,435.36	963.97	3.47	28.47	5.75	0.42	2.87	2.71	0.18
Airport South	32	4,597.40	1,088.52	6.08	29.72	7.19	1.01	2.78	2.96	0.36
Airport Northwest	11	4,069.80	770.96	5.91	19.05	4.13	0.24	1.50	1.31	0.16
Mifflin North	119/MIF-1	4,453.99	606.91	4.00	11.17	3.15	0.12	1.20	0.94	0.08
Golf Course		6,752.23	985.94	1.67	29.92	4.37	0.27	3.50	2.42	0.09

Note: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-2. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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Noise Abatement Scenario B: This alternative includes the noise abatement measures recommended in the 2007 Part 150 Noise Compatibility Study Update (2007 Part 150 Study).[5] These measures would increase aircraft taxi time because the recommendations result in an increase in the use of east flow (Runways 10R/10L).

2012 Alternative C2b Emission Inventory: The emission inventory is summarized in **Table 5.5-6**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 35.77 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.72 percent. The remaining 29.51 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations.

The emission inventory for this alternative reflects an increase in the average taxi time as compared to the 2012 Alternative A. The increase in taxi time results from runway use prescribed under Noise Abatement Scenario B. Emissions under this alternative increase 0.49 percent over the 2012 Alternative A.

[5] 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.

Table 5.5-6
2012 ALTERNATIVE C2b EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	828.48	73.58	324.85	29.72	61.79	61.79	**1,380.19**
GSE/APUs	1,280.03	49.60	73.80	10.62	3.91	3.77	**1,421.72**
Roadways[1]	707.77	49.50	69.67	0.54	2.27	1.32	**831.07**
Parking Facilities[1]	194.55	29.02	25.17	0.09	0.40	0.23	**249.46**
Stationary Sources	21.45	14.11	35.76	16.64	2.49	2.20	**92.65**
TOTAL	**3,032.27**	**215.81**	**529.24**	**57.61**	**70.84**	**69.32**	**3,975.10**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

2012 Alternative C2b Construction Emissions: Construction emissions under this alternative would be the same as the 2012 Alternative C2a.

***2012 Alternative C2b Dispersion Analysis*:** The maximum concentrations estimated through dispersion analysis are summarized in **Table 5.5-7**. Refer to Exhibit 5.5-1 and Exhibit 5.5-2 for the dispersion receptor locations used for this alternative. For each pollutant averaging period, the maximum concentration was found to occur at the arrival curb, as described for 2012 Alternative C2a. All modeled concentration values summarized in Table 5.5-7 are below the NAAQS.

Table 5.5-7
2012 ALTERNATIVE C2b EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	14,183.62	3,185.79	44.34	119.18	49.18	6.86	10.81	10.12	1.94
Gahanna East	60	6,048.80	1,206.71	1.63	24.87	3.97	0.21	2.26	2.07	0.08
Gahanna North	120/G-1	4,779.50	1,375.75	3.97	27.71	6.03	0.47	2.33	2.19	0.20
Mifflin South	118/MIF-2	2,501.88	650.67	2.94	15.85	2.61	0.15	2.17	1.96	0.08
Whitehall	123/W-1	4,087.30	648.07	1.78	17.47	5.44	0.33	1.42	1.36	0.11
Gahanna West	53	4326.37	931.93	3.31	27.30	5.45	0.39	2.61	2.44	0.16
Airport South	32	4471.94	1,060.37	5.68	28.57	6.76	0.91	2.77	2.64	0.31
Airport Northwest	11	3926.79	735.75	5.84	18.20	3.82	0.22	1.28	1.17	0.15
Mifflin North	119/MIF-1	4299.36	586.15	3.96	10.39	2.88	0.11	0.95	0.81	0.07
Golf Course		6629.40	967.74	1.54	28.46	4.13	0.24	2.18	2.00	0.08

Note: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-2. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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5.5.1.4 2012 Alternative C3a: Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2012 Alternative C3a, and includes the results of dispersion analysis.

Airfield Configuration: Alternative C3a includes a replacement runway located 702 feet south of existing Runway 10R/28L. Chapter Three, *Alternatives*, Exhibit 3-9, shows the airfield layout proposed for the C3 alternatives.

Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as those described for 2012 Alternative A.

Other Mobile Sources and Stationary Sources: Assessment of mobile and stationary sources for Alternative C3a would be the same as described for 2012 Alternative C2a.

2012 Alternative C3a Emission Inventory: The emission inventory is summarized in **Table 5.5-8**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 35.84 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.57 percent. The remaining 29.58 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations.

The emission inventory for this alternative reflects the increase in average taxi time as compared to the 2012 Alternative A. However, the average taxi time would be less than that projected for either 2012 Alternative C2a or Alternative C2b because this alternative places the proposed replacement runway 98 feet closer to existing Runway 10R/28L – a 702-foot separation versus the 800-foot separation under the C2 alternatives. The shorter taxi distance accounts for the decrease in average taxi time as compared to 2012 Alternative C2a. Emissions under this alternative increase 0.27 percent over the 2012 Alternative A.

Table 5.5-8
2012 ALTERNATIVE C3a EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	821.29	72.18	324.64	29.58	61.77	61.77	**1,371.23**
GSE/APUs	1,279.95	49.60	73.79	10.60	3.91	3.78	**1,421.62**
Roadways[1]	707.77	49.50	69.67	0.54	2.27	1.32	**831.07**
Parking Facilities[1]	194.55	29.02	25.17	0.09	0.40	0.23	**249.46**
Stationary Sources	21.45	14.11	35.76	16.64	2.49	2.20	**92.65**
TOTAL	**3,025.01**	**214.41**	**529.02**	**57.45**	**70.83**	**69.31**	**3,966.04**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

2012 Alternative C3a Construction Emissions: The inventory of construction emissions is summarized in **Table 5.5-9**. The data shows NO_x to be the most prominent pollutant caused by the operation of construction equipment. NO_x emissions reflect 38.95 percent of emissions from the total four-year project. Emissions of CO would constitute 37.34 percent of total project emissions, 5.65 percent would be VOCs, and 2.20 percent would be $PM_{2.5}$ emissions. The remaining 15.86 percent would consist of SO_x and PM_{10} emissions.

***2012 Alternative C3a Dispersion Analysis*:** The maximum concentrations projected through dispersion analysis are summarized in **Table 5.5-10**. Refer to Exhibit 5.5-1 and Exhibit 5.5-2 for the dispersion receptor locations used for this alternative. For each pollutant-averaging period, the maximum concentration was found to occur at the arrival curb. All modeled concentration values summarized in Table 5.5-10 are below the NAAQS.

Table 5.5-9
2012 ALTERNATIVE C3a AND C3b CONSTRUCTION EMISSIONS INVENTORY
Port Columbus International Airport

CONSTRUCTION YEARS	ANNUAL NET EMISSIONS (tons per year)						
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$	TOTAL
2009	11.77	1.91	13.19	4.20	0.69	0.69	**32.45**
2010	14.89	2.22	15.31	5.39	0.88	0.88	**39.56**
2011	27.70	4.14	28.56	10.23	1.63	1.63	**73.89**
2012	25.51	3.81	26.26	9.40	1.50	1.50	**67.99**
TOTAL	**79.86**	**12.08**	**83.32**	**29.22**	**4.71**	**4.71**	**213.89**

Notes: CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Totals may not calculate exactly due to rounding.

Source: *Landrum & Brown analysis*, 2007.

5.5.1.5 2012 Alternative C3b: Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2012 Alternative C3b, and includes the results of dispersion analysis for this alternative.

Airfield Configuration: Alternative C3b includes a replacement runway located 702 feet south of existing Runway 10R/28L. The proposed airfield layout would be the same as described under the 2012 Alternative C3a.

Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as those described for 2012 Alternative A.

Other Mobile Sources and Stationary Sources: Assessment of mobile and stationary sources for this alternative would be the same as described for 2012 Alternative C2a.

Noise Abatement Scenario B: This alternative includes the noise abatement measures recommended in the 2007 Part 150 Study. These measures would increase aircraft taxi time because the recommendations result in an increase in the use of east flow (Runways 10R/10L).

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Table 5.5-10
2012 ALTERNATIVE C3a EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	14,183.15	3,187.09	44.48	119.20	49.19	6.87	10.81	10.12	1.94
Gahanna East	60	6,051.49	1,210.07	1.66	24.91	3.98	0.21	2.26	2.07	0.08
Gahanna North	120/G-1	4,785.38	1,378.02	4.02	27.88	6.09	0.47	2.34	2.20	0.20
Mifflin South	118/MIF-2	2,492.38	648.08	2.90	15.67	2.56	0.14	2.14	1.94	0.07
Whitehall	123/W-1	4,093.89	650.39	1.80	17.63	5.48	0.33	1.43	1.37	0.11
Gahanna West	53	4,333.58	932.91	3.33	27.41	5.47	0.39	2.62	2.45	0.16
Airport South	32	4,478.00	1,060.81	5.66	28.68	6.78	0.91	2.78	2.66	0.31
Airport Northwest	11	3,932.82	737.06	5.79	18.20	3.82	0.21	1.29	1.18	0.14
Mifflin North	119/MIF-1	4,300.53	586.14	3.94	10.35	2.88	0.11	0.95	0.81	0.07
Golf Course		6,627.98	967.58	1.59	28.38	4.17	0.25	2.34	2.00	0.08

Note: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-2. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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2012 Alternative C3b Emission Inventory: The emission inventory is summarized in **Table 5.5-11**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 35.79 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.67 percent. The remaining 29.54 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations.

Table 5.5-11
2012 ALTERNATIVE C3b EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	825.93	73.21	324.64	29.67	61.78	61.78	**1,377.01**
GSE/APUs	1,280.03	49.60	73.80	10.62	3.91	3.77	**1,421.72**
Roadways[1]	707.77	49.50	69.67	0.54	2.27	1.32	**831.07**
Parking Facilities[1]	194.55	29.02	25.17	0.09	0.40	0.23	**249.46**
Stationary Sources	21.45	14.11	35.76	16.64	2.49	2.20	**92.65**
TOTAL	**3,029.73**	**215.44**	**529.04**	**57.56**	**70.84**	**69.31**	**3,971.92**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

The emission inventory for this alternative reflects a net increase in the average taxi time as compared to the 2012 Alternative A. The net increase in taxi time results from runway use prescribed under Noise Abatement Scenario B. Emissions under this alternative increase 0.41 percent over the 2012 Alternative A.

2012 Alternative C3b Construction Emissions: Construction emissions under this alternative would be the same as the 2012 Alternative C3a.

***2012 Alternative C3b Dispersion Analysis*:** The maximum concentrations projected through dispersion analysis are summarized in **Table 5.5-12**. Refer to Exhibit 5.5-1 and Exhibit 5.5-2 for the dispersion receptor locations used for this alternative. For each pollutant-averaging period, the maximum concentration was found to occur at the arrival curb. All modeled concentration values summarized in Table 5.5-12 are below the NAAQS.

5.5.2 FUTURE CONDITIONS: 2018

A summary of the analysis of the emission inventories prepared for the 2018 alternatives is included in the following sections, including the Sponsor's Proposed Project (Alternative C3b). The results of the dispersion analysis are summarized following the presentation of the results of the emissions inventory for each alternative.

5.5.2.1 2018 Alternative A

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2018 Alternative A and includes the results of dispersion analysis for this alternative. The emission inventory prepared for the 2018 Alternative A is the baseline against which all other 2018 alternatives are evaluated.

Airfield Configuration: The Airport layout would be as described for 2012 Alternative A.

Aircraft Activity Levels and Fleet Mix Characteristics: The 2018 aircraft operations are based on the approved aviation forecast, presented in Appendix C, *Aviation Activity Forecast*.

Other Mobile Sources and Stationary Sources: The type and location of other mobile sources and stationary sources considered in the air quality modeling analysis would be the same as described for the 2012 Alternative A. Fuel and solvent throughput for these sources increase relative to the increase in aircraft operations in 2018, which would occur regardless of the Sponsor's Proposed Project.

Computer Modeling: The procedures and methodologies used for calculation of the criteria and precursor emission inventories under the 2018 alternatives would be the same as described for the 2012 Alternative A. Likewise, the receptors evaluated for the dispersion analysis would be the same for the 2018 alternatives as those given for 2012 Alternative A.

***2018 Alternative A Emission Inventory*:** The emission inventory is summarized in **Table 5.5-13**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 38.75 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft,

Table 5.5-12
2012 ALTERNATIVE C3b EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	14,183.94	3,185.44	44.30	119.19	49.18	6.85	10.81	10.12	1.92
Gahanna East	60	6,042.60	1,205.11	1.62	24.73	3.94	0.21	2.25	2.07	0.08
Gahanna North	120/G-1	4,778.28	1,371.61	3.97	27.68	6.01	0.47	2.32	2.18	0.19
Mifflin South	118/MIF-2	2,497.56	647.60	2.93	15.79	2.59	0.15	2.13	1.93	0.07
Whitehall	123/W-1	4,047.88	641.83	1.76	17.43	5.41	0.33	1.37	1.31	0.10
Gahanna West	53	4,322.62	924.36	3.31	27.29	5.44	0.39	2.60	2.43	0.16
Airport South	32	4,407.13	1,052.13	5.52	28.22	6.61	0.89	2.65	2.53	0.30
Airport Northwest	11	3,928.02	732.15	5.84	18.21	3.79	0.22	1.28	1.17	0.14
Mifflin North	119/MIF-1	4,276.41	583.12	3.95	10.38	2.86	0.11	0.94	0.80	0.07
Golf Course		6,630.14	967.81	1.54	28.33	4.14	0.24	2.13	1.96	0.07

Note: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-2. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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which contributes 33.93 percent. The remaining 27.32 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations. The emission inventory summarized in Table 5.5-13 represents the baseline against which each of the other 2018 alternatives were compared.

Table 5.5-13
2018 ALTERNATIVE A EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	835.89	73.64	377.42	34.08	61.97	61.97	**1,444.97**
GSE/APUs	1,491.13	56.93	79.99	12.15	5.01	4.83	**1,650.05**
Roadways[1]	678.04	36.27	43.72	0.63	2.08	1.04	**761.78**
Parking Facilities[1]	242.77	34.84	30.16	0.12	0.42	0.21	**308.52**
Stationary Sources	21.45	14.67	35.76	16.64	2.49	2.20	**93.21**
TOTAL	**3,269.29**	**216.35**	**567.05**	**63.62**	**71.97**	**70.25**	**4,258.54**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

***2018 Alternative A Dispersion Analysis*:** The maximum concentrations projected through dispersion analysis are summarized in **Table 5.5-14**. For each pollutant-averaging period, the maximum concentration was found to occur at the arrival curb. All modeled concentration values summarized in Table 5.5-14 are below the NAAQS.

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Table 5.5-14
2018 ALTERNATIVE A EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	7,176.38	1,410.20	46.33	125.25	52.29	7.81	13.60	12.83	2.46
Gahanna East	60	5,742.35	1,637.48	1.83	28.88	4.66	0.25	2.92	2.71	0.11
Gahanna North	120/G-1	2,892.36	741.39	4.34	32.60	7.27	0.58	3.06	2.90	0.26
Mifflin South	118/MIF-2	4,867.54	779.90	2.50	17.98	3.09	0.18	2.81	2.58	0.09
Whitehall	123/W-1	5,167.48	1,087.37	1.88	20.78	6.37	0.39	1.82	1.75	0.14
Gahanna West	53	5,276.57	1,244.83	3.56	31.41	6.44	0.47	3.41	3.22	0.21
Airport South	32	4,793.50	823.50	5.52	33.41	7.68	1.02	3.45	3.31	0.37
Airport Northwest	11	4,821.83	655.46	4.92	21.93	4.62	0.28	1.75	1.63	0.16
Mifflin North	119/MIF-1	7,176.38	1,410.20	3.99	13.23	3.66	0.14	1.30	1.14	0.08
Golf Course		7,811.98	1,141.66	1.84	34.69	5.01	0.30	3.77	3.57	0.11

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-3. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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5.5.2.2 2018 Alternative C2a: Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2018 Alternative C2a, and includes the results of dispersion analysis.

Airfield Configuration: Alternative C2a includes a replacement runway located 800 feet south of existing Runway 10R/28L and is as described under 2012 Alternative C2a.

Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as those described for 2018 Alternative A.

Other Mobile Sources and Stationary Sources: All of the 2018 alternatives, except Alternative A, include the proposed midfield passenger terminal and parking garage. In addition, there would be modifications to International Gateway to provide ingress and egress for a proposed parking garage and the development of arrival and departure curbs for the proposed midfield terminal. The alternatives also include changes to the location and use of parking lots. The alternatives include a proposed heating, ventilating, and air conditioning (HVAC) plant adjacent to the proposed garage. The remaining sources of emissions such as fuel storage tanks, emergency generators, and painting operations would not change under the 2018 alternatives as compared to the 2018 Alternative A.

2018 Alternative C2a Emission Inventory: The emission inventory is summarized in **Table 5.5-15**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 38.54 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.29 percent. The remaining 27.17 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations.

The emission inventory for this alternative reflects an increase in the average taxi time as compared to the 2018 Alternative A. The increase in average taxi time results from the additional time required for aircraft to traverse the additional 800 feet to reach the replacement runway. Emissions under this alternative increase 0.55 percent over the 2018 Alternative A.

2018 Alternative C2a Construction Emissions: The inventory of construction emissions is summarized in **Table 5.5-16**. The data shows CO to be the most prominent pollutant caused by the operation of construction equipment. CO emissions reflect 41.08 percent of emissions from the total ten-year project. Emissions of NO_x would constitute 36.35 percent, VOCs would be 5.61 percent, and $PM_{2.5}$ emissions account for 1.56 percent. The remaining 15.39 percent would consist of SO_x and PM_{10} emissions.

Table 5.5-15
2018 ALTERNATIVE C2a EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	854.67	76.14	379.09	34.48	62.01	62.01	**1,468.39**
GSE/APUs	1,491.12	56.91	80.00	12.17	5.01	4.84	**1,650.05**
Roadways[1]	678.04	36.27	43.72	0.63	2.08	1.04	**761.78**
Parking Facilities[1]	242.77	34.84	30.16	0.12	0.42	0.21	**308.52**
Stationary Sources	21.45	14.67	35.76	16.64	2.49	2.20	**93.21**
TOTAL	**3,288.05**	**218.83**	**568.73**	**64.04**	**72.01**	**70.30**	**4,281.95**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

Table 5.5-16
2018 ALTERNATIVE C2a and C2b CONSTRUCTION EMISSIONS INVENTORY
Port Columbus International Airport

CONSTRUCTION YEARS	ANNUAL NET EMISSIONS (tons per year)						
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$	TOTAL
2009	11.80	1.92	13.22	4.21	0.70	0.70	**32.54**
2010	15.59	2.32	16.01	5.64	0.92	0.92	**41.40**
2011	27.98	4.18	28.86	10.34	1.65	1.65	**74.66**
2012	25.77	3.85	26.53	9.50	0.50	0.50	**66.64**
2013	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
2014	0.55	0.09	0.61	0.17	0.03	0.03	**1.49**
2015	3.23	0.31	1.53	0.94	0.06	0.06	**6.13**
2016	4.48	0.65	3.94	1.10	0.14	0.14	**10.45**
2017	17.61	1.86	9.78	5.02	0.37	0.37	**35.00**
2018	17.44	1.84	9.63	4.98	0.36	0.36	**34.60**
TOTAL	**124.45**	**17.01**	**110.12**	**41.90**	**4.73**	**4.73**	**302.93**

Notes: CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Totals may not calculate exactly due to rounding.

Source: *Landrum & Brown analysis*, 2007.

2018 Alternative C2a Dispersion Analysis*:** The maximum concentrations projected through dispersion analysis are summarized in **Table 5.5-17**. The terminal area receptor locations applied for the 2018 alternatives, except Alternative A, are shown in **Exhibit 5.5-3, *2018 Project Alternatives Terminal Area Dispersion Receptor Locations. The Airport and community sensitive receptor locations used for the 2018 alternatives, except Alternative A, would be the same as shown in Exhibit 5.5-1. A total of 65 receptors, including 22 receptors in the terminal area, were applied in dispersion modeling for the 2018 alternatives, except Alternative A. For each pollutant-averaging period, the maximum concentration was found to occur at the existing passenger terminal arrival curb. Although the arrival and departure curbs adjacent to the proposed midfield passenger terminal were included in the modeling, the concentrations at the existing passenger terminal remained the highest. All modeled concentration values summarized in Table 5.5-17 are below the NAAQS.

5.5.2.3 2018 Alternative C2b: Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

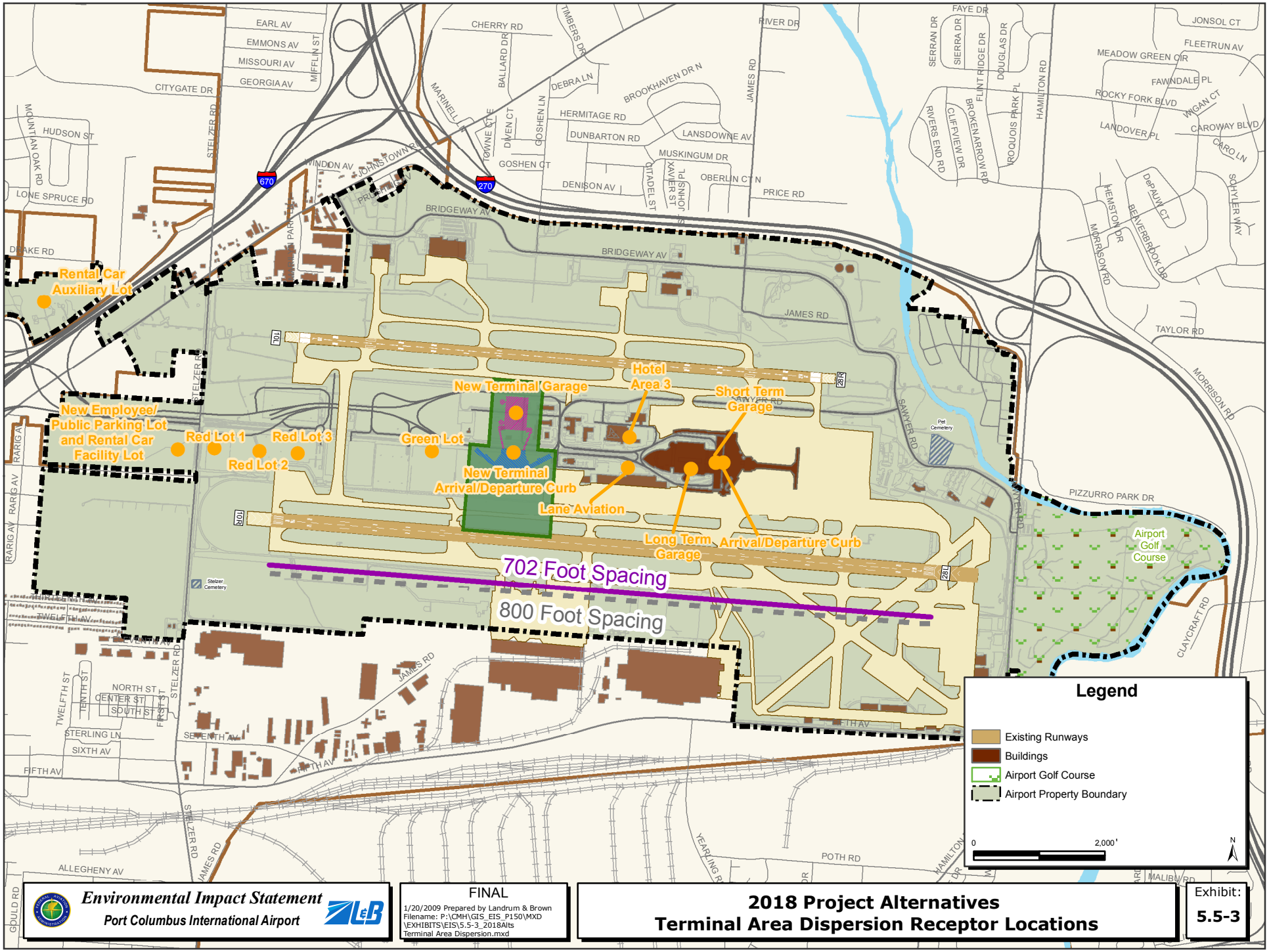
The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2018 Alternative C2b, and includes the results of dispersion analysis.

Airfield Configuration: Alternative C2b includes a replacement runway located 800 feet south of existing Runway 10R/28L. The airfield layout would be the same as that described under the 2018 Alternative C2a.

Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as those described for 2018 Alternative A.

Other Mobile Sources and Stationary Sources: Assessment of mobile and stationary sources for Alternative C2b would be the same as described for 2018 Alternative A.

Noise Abatement Scenario B: This alternative includes the noise abatement measures recommended in the 2007 Part 150 Study. These measures would increase aircraft taxi time because the recommendations result in an increase in the use of east flow (Runways 10R/10L).



Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.5-3_2018Alts Terminal Area Dispersion.mxd

2018 Project Alternatives
Terminal Area Dispersion Receptor Locations

Exhibit:
5.5-3

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Table 5.5-17
2018 ALTERNATIVE C2a EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	15,523.26	3,312.31	38.10	116.44	47.58	6.55	10.82	10.14	2.04
Gahanna East	60	6,168.08	1,279.68	1.64	24.57	3.99	0.23	2.42	2.23	0.10
Gahanna North	120/G-1	4,152.81	1,197.62	3.93	27.28	5.99	0.52	2.53	2.39	0.24
Mifflin South	118/MIF-2	3,215.97	788.35	2.73	18.92	3.68	0.20	3.00	2.78	0.10
Whitehall	123/W-1	3,554.47	580.45	1.94	17.67	5.57	0.38	1.50	1.44	0.13
Gahanna West	53	3,754.43	864.67	3.31	26.43	5.67	0.44	2.91	2.73	0.20
Airport South	32	3,799.58	940.57	6.11	26.08	6.58	1.06	2.94	2.80	0.38
Airport Northwest	11	3,595.05	1,080.91	4.95	17.33	4.14	0.28	1.35	1.24	0.17
Mifflin North	119/MIF-1	4,983.51	685.56	4.14	9.64	3.16	0.15	1.18	1.02	0.08
Golf Course		7,164.27	1,044.22	1.74	28.57	4.29	0.28	3.49	3.27	0.10

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-3. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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2018 Alternative C2b Emission Inventory: The emission inventory is summarized in **Table 5.5.18**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 38.50 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.36 percent. The remaining 27.15 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations. Emissions from roadways, parking garages and parking lots, and stationary sources are expected to remain the same for all of the 2018 alternatives.

The emission inventory for this alternative reflects the increase in the average aircraft taxi time as compared to the 2018 Alternative A. The increase in taxi time results from runway use prescribed under Noise Abatement Scenario B. Emissions under this alternative increase 0.64 percent over the 2018 Alternative A.

2018 Alternative C2b Construction Emissions: Construction emissions under this alternative would be the same as given for 2018 Alternative C2a.

***2018 Alternative C2b Dispersion Analysis*:** The maximum concentrations projected through dispersion analysis are summarized in **Table 5.5-19**. Refer to Exhibit 5.5-1 and Exhibit 5.5-3 for the dispersion receptor locations used for this alternative. For each pollutant-averaging period, the maximum concentration was found to occur at the existing passenger terminal arrival curb. Although the arrival and departure curbs adjacent to the proposed midfield passenger terminal were included in the modeling, the concentrations at the existing passenger terminal remained the highest. All modeled concentration values summarized in Table 5.5-19 are below the NAAQS.

5.5.2.4 2018 Alternative C3a: Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The following paragraphs provide a summary of the results of the computer modeling to estimate air emissions resulting from the operation of the Airport under 2018 Alternative C3a, and includes the results of dispersion analysis for this alternative.

Airfield Configuration: Alternative C3a includes a replacement runway located 702 feet south of existing Runway 10R/28L. The airfield layout would be the same as that described under 2012 Alternative C3a.

Table 5.5-18
2018 ALTERNATIVE C2b EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	857.92	76.58	379.41	34.54	62.02	62.02	**1,472.50**
GSE/APUs	1,491.07	56.91	79.98	12.16	5.01	4.85	**1,649.98**
Roadways[1]	678.04	36.27	43.72	0.63	2.08	1.04	**761.78**
Parking Facilities[1]	242.77	34.84	30.16	0.12	0.42	0.21	**308.52**
Stationary Sources	21.45	14.67	35.76	16.64	2.49	2.20	**93.21**
TOTAL	**3,291.25**	**219.28**	**569.03**	**64.10**	**72.02**	**70.32**	**4,286.00**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as that described for 2018 Alternative A.

Other Mobile Sources and Stationary Sources: Assessment of mobile and stationary sources for Alternative C2b would be the same as described for 2018 Alternative A.

2018 Alternative C3a Emission Inventory: The emission inventory is summarized in **Table 5.5-20**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 38.58 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.22 percent. The remaining 27.20 percent of total emissions comes from sources accessing Airport-related parking lots, garages, roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations. Emissions from roadways, parking garages and parking lots, and stationary sources are expected to remain the same for all of the 2018 alternatives.

Table 5.5-19
2018 ALTERNATIVE C2b EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	15,526.91	3,313.26	38.00	116.43	47.57	6.54	10.81	10.13	2.04
Gahanna East	60	6,157.07	1,277.06	1.61	24.55	3.98	0.23	2.42	2.23	0.10
Gahanna North	120/G-1	4,138.75	1,193.97	3.89	27.07	5.93	0.52	2.51	2.37	0.24
Mifflin South	118/MIF-2	3,227.16	791.45	2.76	19.08	3.72	0.20	3.03	2.80	0.10
Whitehall	123/W-1	3,545.52	577.84	1.91	17.50	5.53	0.38	1.49	1.43	0.13
Gahanna West	53	3,742.40	863.26	3.29	26.29	5.65	0.44	2.88	2.71	0.20
Airport South	32	3,794.43	940.50	6.00	26.01	6.55	1.05	2.93	2.78	0.38
Airport Northwest	11	3,584.60	1,082.81	4.99	17.32	4.13	0.29	1.34	1.23	0.17
Mifflin North	119/MIF-1	4,982.00	686.97	4.15	9.65	3.16	0.15	1.18	1.02	0.08
Golf Course		7,164.50	1,044.22	1.70	28.68	4.30	0.28	3.47	3.25	0.10

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-3. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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Table 5.5-20
2018 ALTERNATIVE C3a EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	851.00	75.66	378.76	34.41	62.00	62.00	**1,463.82**
GSE/APUs	1,491.12	56.91	80.00	12.17	5.01	4.84	**1,650.05**
Roadways[1]	678.04	36.27	43.72	0.63	2.08	1.04	**761.78**
Parking Facilities[1]	242.77	34.84	30.16	0.12	0.42	0.21	**308.52**
Stationary Sources	21.45	14.67	35.76	16.64	2.49	2.20	**93.21**
TOTAL	**3,284.38**	**218.35**	**568.40**	**63.96**	**72.00**	**70.29**	**4,277.38**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

The emission inventory for this alternative reflects a net increase in the average taxi time as compared to the 2018 Alternative A. However, the average taxi and delay time would be less than that projected for either 2018 Alternative C2a or Alternative C2b because this alternative places the proposed new runway 98 feet closer to the existing Runway 10R/28L position – a 702-foot separation versus the 800-foot separation under the C2 alternatives. The shorter taxi distance accounts for the decrease in average taxi time as compared to 2018 Alternative C2a. Emissions under this alternative increase 0.44 percent over the 2018 Alternative A.

2018 Alternative C3a Construction Emissions: The inventory of construction emissions is summarized in **Table 5.5-21**. The data shows CO to be the most prominent pollutant caused by the operation of construction equipment. CO emissions reflect 40.84 percent of emissions from the total ten-year project. Emissions of NO_x would constitute 36.08 percent of total project emissions, 5.58 percent would be VOCs, and 1.88 percent would be $PM_{2.5}$ emissions. The remaining 15.62 percent would consist of SO_x and PM_{10} emissions.

Table 5.5-21
2018 ALTERNATIVE C3a AND C3b CONSTRUCTION EMISSIONS INVENTORY
Port Columbus International Airport

CONSTRUCTION YEARS	ANNUAL NET EMISSIONS (tons per year)						
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$	TOTAL
2009	11.77	1.91	13.19	4.20	0.69	0.69	**32.45**
2010	14.89	2.22	15.31	5.39	0.88	0.88	**39.56**
2011	27.70	4.14	28.56	10.23	1.63	1.63	**73.89**
2012	25.51	3.81	26.26	9.40	1.50	1.50	**67.99**
2013	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
2014	0.55	0.09	0.61	0.17	0.03	0.03	**1.49**
2015	3.23	0.31	1.53	0.94	0.06	0.06	**6.13**
2016	4.48	0.65	3.94	1.10	0.14	0.14	**10.45**
2017	17.61	1.86	9.78	5.02	0.37	0.37	**35.00**
2018	17.44	1.84	9.63	4.98	0.36	0.36	**34.60**
TOTAL	**123.16**	**16.82**	**108.82**	**41.42**	**5.67**	**5.67**	**301.57**

Notes: CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Totals may not calculate exactly due to rounding.

Source: *Landrum & Brown analysis*, 2007.

***2018 Alternative C3a Dispersion Analysis*:** The maximum concentrations projected through dispersion analysis are summarized in **Table 5.5-22**. Refer to Exhibits 5.5-1 and 5.5-3 for the dispersion receptor locations used for this alternative. For each pollutant-averaging period, the maximum concentration was found to occur at the existing passenger terminal arrival curb. Although the arrival and departure curbs adjacent to the proposed midfield passenger terminal were included in the modeling, the concentrations at the existing passenger terminal remained the highest. All modeled concentration values summarized in Table 5.5-22 are below the NAAQS.

5.5.2.5 2018 Alternative C3b: Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

The following paragraphs provide a summary of the results of computer modeling to estimate air emissions resulting from the operation of the Airport under 2018 Alternative C3b, and includes the results of dispersion analysis for this alternative.

Airfield Configuration: Alternative C3b includes a replacement runway located 702 feet south of existing Runway 10R/28L. The airfield layout would be the same as that described under the 2012 Alternative C3a.

Table 5.5-22
2018 ALTERNATIVE C3a EDMS POLLUTANT DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	15,509.61	3,310.79	38.27	116.45	47.58	6.58	10.82	10.14	2.06
Gahanna East	60	6,160.87	1,278.59	1.65	24.89	4.04	0.23	2.43	2.23	0.10
Gahanna North	120/G-1	4,152.38	1,204.81	3.95	27.29	6.04	0.53	2.54	2.40	0.24
Mifflin South	118/MIF-2	3,206.93	789.06	2.73	18.93	3.68	0.20	3.01	2.78	0.10
Whitehall	123/W-1	3,628.51	591.50	1.95	17.70	5.63	0.39	1.58	1.52	0.14
Gahanna West	53	3,759.70	878.98	3.32	26.43	5.67	0.44	2.90	2.73	0.21
Airport South	32	3,914.16	955.89	6.05	26.83	6.86	1.08	3.11	2.97	0.40
Airport Northwest	11	3,598.24	1,086.48	4.97	17.35	4.21	0.28	1.36	1.24	0.17
Mifflin North	119/MIF-1	5,021.41	690.24	4.14	9.65	3.20	0.15	1.20	1.03	0.08
Golf Course		7,167.08	1,044.68	1.77	28.93	4.38	0.28	3.54	3.32	0.11

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-3. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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Aircraft Activity Levels and Fleet Mix Characteristics: The number of annual aircraft operations and fleet mix characteristics would be the same for this alternative as that described for 2018 Alternative A.

Other Mobile Sources and Stationary Sources: Assessment of mobile and stationary sources for this alternative would be the same as described for 2018 Alternative C2a.

Noise Abatement Scenario B: This alternative includes the noise abatement measures recommended in the 2007 Part 150 Study. These measures would increase aircraft taxi time because the recommendations result in an increase in the use of east flow (Runways 10R/10L).

2018 Alternative C3b Emission Inventory: The emission inventory is summarized in **Table 5.5-23**. The data shows the greatest overall emission contribution comes from GSE and APU operations, which represent 38.54 percent of total emissions under this alternative. The second-greatest source of overall emissions is aircraft, which contributes 34.29 percent. The remaining 27.18 percent of total emissions comes from sources accessing Airport-related parking lots, garages, and roadways, and the operation of stationary sources, such as fuel storage tanks, boilers, incinerators, emergency generators, and painting operations.

The emission inventory for this alternative reflects a net increase in average taxi time as compared to the 2018 Alternative A. The net increase in taxi time results from runway use prescribed under Noise Abatement Scenario B. Emissions under this alternative increase 0.54 percent over the 2018 Alternative A.

2018 Alternative C3b Construction Emissions: Construction emissions under this alternative would be the same as those given for 2018 Alternative C3a.

***2018 Alternative C3b Dispersion Analysis*:** The maximum concentrations projected through dispersion analysis are summarized in **Table 5.5-24**. Refer to Exhibits 5.5-1 and 5.5-3 for the dispersion receptor locations used for this alternative. For each pollutant-averaging period, the maximum concentration was found to occur at the existing passenger terminal arrival curb. Although the arrival and departure curbs adjacent to the proposed midfield passenger terminal were included in the modeling, the concentrations at the existing passenger terminal remained the highest. All modeled concentration values summarized in Table 5.5-24 are below the NAAQS.

Table 5.5-23
2018 ALTERNATIVE C3b EDMS EMISSION INVENTORY OF CRITERIA AND PRECURSOR POLLUTANTS
Port Columbus International Airport

EMISSION SOURCES	ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	854.25	76.09	379.08	34.47	62.01	62.01	**1,467.93**
GSE/APUs	1,491.07	56.91	79.98	12.16	5.01	4.85	**1,649.98**
Roadways[1]	678.04	36.27	43.72	0.63	2.08	1.04	**761.78**
Parking Facilities[1]	242.77	34.84	30.16	0.12	0.42	0.21	**308.52**
Stationary Sources	21.45	14.67	35.76	16.64	2.49	2.20	**93.21**
TOTAL	**3,287.58**	**218.79**	**568.71**	**64.03**	**72.01**	**70.31**	**4,281.42**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

Table 5.5-24
2018 ALTERNATIVE C3b EDMS DISPERSION ANALYSIS OF CRITERIA POLLUTANTS
Port Columbus International Airport

AIR QUALITY STANDARDS AND RECEPTORS[1]		MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
USEPA NAAQS ($\mu g/m^3$)		CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
		1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
		40,000	10,000	100	1300	365	80	150	35	15
Arrival Curb	Arr Curb	15,514.24	3,311.87	37.84	116.42	47.56	6.55	10.81	10.13	2.06
Gahanna East	60	6,134.60	1,273.30	1.53	24.75	4.00	0.22	2.42	2.22	0.10
Gahanna North	120/G-1	4,137.18	1,200.71	3.74	26.81	5.89	0.51	2.50	2.36	0.24
Mifflin South	118/MIF-2	3,211.77	790.75	2.65	18.76	3.64	0.20	3.01	2.78	0.10
Whitehall	123/W-1	3,618.51	588.00	1.80	17.30	5.52	0.37	1.57	1.50	0.13
Gahanna West	53	3,746.19	877.32	3.16	26.11	5.59	0.43	2.87	2.69	0.20
Airport South	32	3,905.30	955.19	5.59	26.58	6.76	1.05	3.09	2.94	0.39
Airport Northwest	11	3,585.55	1,087.96	4.86	17.25	4.15	0.28	1.35	1.23	0.17
Mifflin North	119/MIF-1	5,012.71	690.08	4.07	9.52	3.13	0.15	1.19	1.03	0.08
Golf Course		7,166.65	1,044.54	1.60	28.89	4.35	0.27	3.51	3.29	0.10

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

[1] Receptors are identified by descriptive locations indicating position in relation to Airport property, communities surrounding the Airport, and by the receptor identification code names as shown on Exhibit 5.5-1 and Exhibit 5.5-3. If the receptor name used in computer modeling is different, that identification name is also given.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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5.5.3 GENERAL CONFORMITY EVALUATION AND SIP COMPLIANCE EVALUATION

Two evaluations were performed with respect to the emission inventories prepared for the alternatives under 2012 and 2018 conditions. These are the General Conformity Evaluation and the SIP Compliance Evaluation. An airport project is subject to the General Conformity regulations when the project is located within a nonattainment area, such as in the case of Franklin County. An evaluation of the inventory comparison is performed to be certain the project's net emissions would not delay timely attainment of the NAAQS as planned in the SIP.

5.5.3.1 General Conformity Evaluation

According to the General Conformity regulations, when the total of direct and indirect emissions (net emissions, which includes construction emissions) due to the proposed action equal or exceed the applicable General Conformity *de minimis* thresholds, a General Conformity Determination is required to demonstrate compliance with the State SIP. Franklin County is included in an area designated by the USEPA as nonattainment for ozone and $PM_{2.5}$ emissions. As such, the pollutants of concern include $PM_{2.5}$, the precursor pollutants for ozone development, NO_x and VOC, and the $PM_{2.5}$ precursor pollutant, SO_x. These four pollutants are the "pollutants of concern" for the CMH EIS and the applicable *de minimis* threshold is 100 tons per year for each pollutant for each alternative. As such, the net emissions increase under each 2012 and 2018 project alternative would be limited to less than 100 tons per year for each of the four pollutants of concern to be compliant under General Conformity. When net emissions are less than the *de minimis* the project is assumed to conform and there would be no potential for significant adverse air quality impacts.

The data in **Table 5.5-25** show the comparative analysis for purposes of demonstrating General Conformity. The table includes the net emissions increase during construction years and the increase in emissions associated with implementation of each of the 2012 and 2018 project alternatives. The data in Table 5.5-25 show that none of the CMH project alternatives, including the Sponsor's Proposed Project (Alternative C3b), would cause net emissions that would equal or exceed the applicable *de minimis* threshold for NO_x, VOC, SO_x, or $PM_{2.5}$. Therefore, the CMH Sponsor's Proposed Project is assumed to conform to the Ohio SIP and the project would not have the potential to cause significant adverse air quality impacts in Franklin County. Consequently, a General Conformity Determination is not necessary to demonstrate conformity under the CAA, and the project alternatives are assumed to comply under the Ohio SIP, as long as net emissions are not regionally significant.[6]

[6] *Air Quality Procedures for Civilian Airports & Air Force Bases*, Section 2.1.5, *NAAQS Assessment*, April 1997, FAA.

Table 5.5-25
2012 & 2018 GENERAL CONFORMITY COMPARATIVE ANALYSIS FOR PROJECT AND CONSTRUCTION EMISSIONS
Port Columbus International Airport

CONSTRUCTION YEARS AND PROJECT ALTERNATIVE YEARS	ANNUAL NET EMISSIONS (tons per year)					
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
General Conformity Thresholds	**100[1]**	**100**	**100**	**100**	**100[1]**	**100**
2012 C2 ALTERNATIVES						
2009 Construction Emissions	11.80	1.92	13.22	4.21	0.70	0.70
2010 Construction Emissions	15.59	2.32	16.01	5.64	0.92	0.92
2011 Construction Emissions	27.98	4.18	28.86	10.34	1.65	1.65
2012 Construction & Project Emissions						
C2a 2012 Net Emissions	37.25	5.45	27.42	9.71	0.53	0.53
C2b 2012 Net Emissions	41.54	6.05	27.75	9.82	0.53	0.53
2012 C3 ALTERNATIVES						
2009 Construction Emissions	11.77	1.91	13.19	4.20	0.69	0.69
2010 Construction Emissions	14.89	2.22	15.31	5.39	0.88	0.88
2011 Construction Emissions	27.70	4.14	28.56	10.23	1.63	1.63
2012 Construction & Project Emissions						
C3a 2012 Net Emissions	34.01	4.61	27.26	9.56	1.53	1.53
C3b 2012 Net Emissions	38.73	5.65	27.27	9.67	1.53	1.53
2018 C2 ALTERNATIVES						
2009 Construction Emissions	11.80	1.92	13.22	4.21	0.70	0.70
2010 Construction Emissions	15.59	2.32	16.01	5.64	0.92	0.92
2011 Construction Emissions	27.98	4.18	28.86	10.34	1.65	1.65
2012 Construction & Project Emissions						
C2a 2012 Net Emissions	37.25	5.45	27.42	9.71	0.53	0.53
C2b 2012 Net Emissions	41.54	6.05	27.75	9.82	0.53	0.53
2013 Construction Emissions	0.00	0.00	0.00	0.00	0.00	0.00
2014 Construction Emissions	0.55	0.09	0.61	0.17	0.03	0.03
2015 Construction Emissions	3.23	0.31	1.53	0.94	0.06	0.06
2016 Construction Emissions	4.48	0.65	3.94	1.10	0.14	0.14
2017 Construction Emissions	17.61	1.86	9.78	5.02	0.37	0.37
2018 Project Emissions						
C2a 2018 Net Emissions	36.20	4.31	11.31	5.39	0.40	0.41
C2b 2018 Net Emissions	39.40	4.76	11.61	5.45	0.41	0.43

Table 5.5-25, *Continued*
2012 & 2018 GENERAL CONFORMITY COMPARATIVE ANALYSIS FOR PROJECT AND CONSTRUCTION EMISSIONS
Port Columbus International Airport

CONSTRUCTION YEARS AND PROJECT ALTERNATIVE YEARS	ANNUAL NET EMISSIONS (tons per year)					
	CO	VOC	NO_X	SO_X	PM_{10}	$PM_{2.5}$
General Conformity Thresholds	**100[1]**	**100**	**100**	**100**	**100[1]**	**100**
2018 C3 ALTERNATIVES						
2009 Construction Emissions	11.77	1.91	13.19	4.20	0.69	0.69
2010 Construction Emissions	14.89	2.22	15.31	5.39	0.88	0.88
2011 Construction Emissions	27.70	4.14	28.56	10.23	1.63	1.63
2012 Construction & Project Emissions						
C3a 2012 Net Emissions	34.01	4.61	27.26	9.56	1.53	1.53
C3b 2012 Net Emissions	38.73	5.65	27.27	9.67	1.53	1.53
2013 Construction Emissions	0.00	0.00	0.00	0.00	0.00	0.00
2014 Construction Emissions	0.55	0.09	0.61	0.17	0.03	0.03
2015 Construction Emissions	3.23	0.31	1.53	0.94	0.06	0.06
2016 Construction Emissions	4.48	0.65	3.94	1.10	0.14	0.14
2017 Construction Emissions	17.61	1.86	9.78	5.02	0.37	0.37
2018 Construction & Project Emissions						
C3a 2018 Net Emissions	32.53	3.83	10.98	5.32	0.39	0.40
C3b 2018 Net Emissions	35.73	4.27	11.28	5.38	0.40	0.42

Notes: Data is extracted from tables presented in Section 5.5.1 and 5.5.2. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Totals may not calculate exactly due to rounding.

[1] *De minimis* thresholds for CO and PM_{10} are not relevant under General Conformity as Franklin County is designated attainment for these pollutants.

Source: *Landrum & Brown analysis*, 2007.

Under General Conformity, net emissions due to a Federal action are regionally significant when the net emissions exceed 10 percent of the regional total emissions inventory for a particular criteria pollutant in the nonattainment or maintenance area.[7] The regional emissions inventory for the nonattainment area that includes Franklin County is given in **Table 5.5-26**. The table includes the calculation of the 10-percent limit defining regional significance under General Conformity. An evaluation of the data summarized in Table 5.5-25 as compared to Table 5.5-26 shows that net emissions from any of the 2012 and 2018 alternatives would be far less than 10 percent of the emission budget given in the Transportation Improvement Program (TIP). Therefore, the Sponsor's Proposed Project would not be considered regionally significant as defined under General Conformity, and the project complies with the plan included in the Ohio SIP to reduce emissions in Franklin County.

Table 5.5-26
MORPC TRANSPORTATION IMPROVEMENT PROGRAM (TIP) AIR QUALITY ANALYSIS FOR THE COLUMBUS OZONE AND $PM_{2.5}$ NONATTAINMENT AREAS

YEAR	ANNUAL BUDGETED EMISSIONS (tons per year)			
DATA FROM THE MAY 2007 TIP REPORT TABLE 10 AND TABLE 15				
YEAR	OZONE EMISSIONS		$PM_{2.5}$ EMISSIONS	
	VOC	NO_X	NO_X	$PM_{2.5}$
2009	26,338	39,615	36,172	583
2018	15,148	17,808	16,298	347
2020	15,148	15,392	13,947	346
2030	15,148	12,094	10,884	367
TEN PERCENT LIMIT FOR REGIONAL SIGNIFICANCE				
YEAR	OZONE EMISSIONS		$PM_{2.5}$ EMISSIONS	
	VOC	NO_X	NO_X	$PM_{2.5}$
2009	2,634	3,961	3,617	58
2018	1,515	1,781	1,630	35
2020	1,515	1,539	1,395	35
2030	1,515	1,209	1,088	37

Note: MORPC is Mid-Ohio Regional Planning Commission.

Source: Mid-Ohio Regional Planning Commission (MORPC), *Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the: Franklin, Delaware, Licking, Fairfield, Madison and Knox County Ozone Non-Attainment Area and the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County $PM_{2.5}$ Non-Attainment Area*, Table 10 and Table 15, VOC and NO_x data for ozone converted to tons per year, May 10, 2007.

[7] *Air Quality Procedures for Civilian Airports & Air Force Bases*, p. xxii, *NAAQS Assessment*, April 1997, FAA.

5.5.3.2 SIP Compliance Evaluation

The nonattainment status of Franklin County required MORPC to prepare an air quality General Conformity Determination for ozone and $PM_{2.5}$ emissions. Data from that report, dated May 2007,[8] is referenced in this discussion. According to the MORPC document, the eight-hour ozone attainment year is 2009, and the one-hour ozone budget (milestone) year is 2010. The 2009 budgets for the ozone and $PM_{2.5}$ nonattainment areas presented in the document are given in Table 5.5-26. There is no emission budget for the 2010 milestone year in the TIP.

During scoping coordination meetings, OEPA DAPC requested that an inventory for the 2009 attainment year and the 2010 budget year be included in the air quality assessment. This data is presented in **Table 5.5-27**. OEPA DAPC also requested the identification of the year where emissions due to the Sponsor's Proposed Project are expected to be the greatest on an annual basis.

Although construction is expected to begin in 2009, the first year of full operation of the CMH Sponsor's Proposed Project is 2012. The year of greatest emissions, calculated as the combination of construction emissions and net emissions from the Sponsor's Proposed Project, is expected to be 2012 under the C2b Alternative, as shown in Table 5.5-25. Emissions estimated for 2012 would not have the potential to exceed the applicable *de minimis* threshold for the pollutants of concern.

5.5.4 NEPA ANALYSIS

For a Federal action, an air quality NEPA analysis is needed to determine the proposed action's potential impact on air quality. Therefore, emission inventories were prepared for each reasonable alternative being considered in this EIS, including Alternative A. The inventories were then compared to the Alternative A emissions to discern the net emissions from the action. Refer to Section 5.5.3, *CAA General Conformity Evaluation and SIP Compliance Evaluation*, for the net emissions for each 2012 and 2018 alternative and emissions during each proposed construction year.[9] The evaluation showed that the net emissions increase for each project alternative would be below the General Conformity thresholds.

[8] *Central Ohio Air Quality Analysis: Air Quality Conformity Determination Documentation for the: Franklin, Delaware, Licking, Fairfield, Madison and Knox County Ozone Non-Attainment Area and the Franklin, Delaware, Licking, Fairfield, and Coshocton (Franklin Twp) County PM2.5 Non-Attainment Area*, Table 10 and Table 15, May 10, 2007, Mid-Ohio Regional Planning Commission (MORPC).

[9] Construction emissions would be considered entirely as net emissions.

Table 5.5-27
2009 & 2010 EDMS AIRPORT EMISSIONS INVENTORY AND CONSTRUCTION EMISSIONS INVENTORY
Port Columbus International Airport

EMISSION SOURCES	2009 ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	741.34	65.94	300.94	27.10	54.11	54.11	**1,243.55**
GSE/APUs	1,097.09	43.21	69.38	9.27	3.14	3.03	**1,225.14**
Roadways[1]	690.99	48.41	68.03	0.53	2.21	1.29	**811.48**
Parking Facilities[1]	170.88	25.32	22.17	0.08	0.35	0.20	**219.02**
Stationary Sources	21.45	14.11	35.76	16.64	2.49	2.20	**92.65**
Construction Emissions[2]	11.80	1.92	13.22	4.21	0.70	0.70	**32.54**
TOTAL	**2,733.55**	**198.94**	**509.52**	**57.84**	**63.00**	**61.54**	**3,624.39**

EMISSION SOURCES	2010 ANNUAL EMISSIONS (tons per year)						
	CO	VOC	NO_x	SO_x	PM_{10}	$PM_{2.5}$	TOTAL
Aircraft	765.83	67.84	309.04	27.91	56.72	56.72	**1,284.07**
GSE/APUs	1,111.58	43.83	70.86	9.50	3.20	3.09	**1,242.06**
Roadways[1]	690.99	48.42	68.03	0.53	2.22	1.29	**811.48**
Parking Facilities[1]	170.88	25.33	22.18	0.08	0.35	0.20	**219.02**
Stationary Sources	21.45	14.11	35.76	16.64	2.49	2.20	**92.65**
Construction Emissions[2]	15.59	2.32	16.01	5.64	0.92	0.92	**41.40**
TOTAL	**2,776.33**	**201.85**	**521.87**	**60.31**	**65.89**	**64.43**	**3,690.67**

Notes: GSE is ground support equipment. APUs are auxiliary power units. CO is carbon monoxide, VOC are volatile organic compounds, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter. Emissions values of $PM_{2.5}$ for aircraft were supplemented by using $PM_{2.5}$ emission data from the USEPA AP-42. Totals may not calculate exactly due to rounding.

[1] Emissions from surface vehicles on roadways and in parking lots from the Draft EIS have been revised to reflect the updated plans for a Consolidated Rental Car Facility (CRCF), west of the passenger terminal. The updated plan for the CRCF includes heavy maintenance facilities at the location west of Interstate 670 on Cassady Avenue and customer service, vehicle storage, and quick-turn-around (QTA) operations on the existing parking lot on 17th Avenue. Emissions reported in the Draft EIS assumed the relocation of all CRCF operations to a single location on Cassady Avenue.

[2] Construction emissions for Alternative C2 were used for the SIP year inventories. Construction emissions under Alternative 2 are greater than for Alternative C3 for either the 2012 or 2018 alternatives. Therefore construction emissions for Alternative C2 are the most conservative.

Sources: *EDMS Version 4.5*, 2006, FAA.
Compilation of Air Pollutant Emission Factors, Volume II: Mobile Sources (AP-42), Table II-1-9, January 1991, USEPA.
Landrum & Brown analysis, 2007.

Usually no further analysis is required where the action's emissions do not exceed the General Conformity threshold levels as such an action would be unlikely to cause significant adverse air quality impacts or exceed the NAAQS.[10] However, when deemed appropriate due to the size of the airport and after consultation with regional, State, and local air quality agencies, a dispersion analysis may be conducted. When local-area dispersion modeling is conducted and the modeled concentrations do not result in projected exceedances of the NAAQS, then the analysis is complete.[11]

A dispersion analysis was conducted for the CMH EIS due to the size of the Airport and consultation with air agencies including USEPA Region 5, OEPA DAPC, and MORPC. The results of the dispersion analysis are given in Section 5.5.1 and Section 5.5.2. To determine whether any of the modeled concentrations would exceed the NAAQS, the maximum modeled concentration for each pollutant-averaging period under each project alternative was extracted from the tables presented in this section and summarized in **Table 5.5-28**. Pollutant concentrations for all the 2012 and 2018 alternatives were highest at the arrival curb adjacent to the existing passenger terminal and parking garage. The NEPA analysis demonstrated that none of the modeled[12] pollutant concentrations under the 2012 and 2018 project alternatives would have the potential to exceed the NAAQS, as shown in Table 5.5-28.

Regional background concentrations were added to the modeled concentrations to reflect the "design concentrations." These were compared to the NAAQS to discern the air quality conditions within public access areas in and around the Airport as a result of the Sponsor's Proposed Project. A discussion of the background concentrations used for the CMH EIS is given in the *Draft Air Quality Technical Report*, Appendix E. The background concentrations are summarized below in **Table 5.5-29**.

The Airport is located in a county with background concentrations of $PM_{2.5}$ that exceed the NAAQS. Therefore, regardless of the Sponsor's Proposed Project, the area is in violation of the average 24-hour and average annual $PM_{2.5}$ standards. As such, the $PM_{2.5}$ NAAQS are also exceeded under the 2012 and 2018 Alternative A conditions, as well as under the Existing (2006) Conditions. The design concentrations are given in **Table 5.5-30**.

Concentrations of $PM_{2.5}$ emissions are projected to increase slightly under the 2012 Sponsor's Proposed Project as compared to the 2012 Alternative A, particularly for the 24-hour average concentration. However, the Sponsor's Proposed Project would cause $PM_{2.5}$ concentrations to decrease under the 2018 alternatives for both the 24-hour and annual average concentrations.

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[10] *FAA Order 1050.1E Environmental Impacts: Policies and Procedures*, March 20, 2006, FAA; and *Air Quality Procedures for Civilian Airports & Air Force Bases*, Section 2.1.5, *NAAQS Assessment*, April 1997 and Addendum dated September 2004, FAA.

[11] *FAA Order 1050.1E*, Appendix A, Paragraph 2.1c, March 20, 2006, FAA.

[12] Modeled concentrations are the computed concentration results using EDMS. Modeled concentrations would not include background concentrations, which would have to be added to the modeled concentrations before comparing the results to the NAAQS to determine compliance.

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Table 5.5-28
MAXIMUM MODELED POLLUTANT CONCENTRATIONS
Port Columbus International Airport

USEPA STANDARDS AND ALTERNATIVES	MODELED POLLUTANT CONCENTRATIONS BY NAAQS AVERAGING PERIODS ($\mu g/m^3$)								
	CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
USEPA NAAQS ($\mu g/m^3$)	1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
	40,000	10,000	100	1,300	365	80	150	35	15
2012 ALTERNATIVES									
Alternative A	16,053.48	3,433.42	44.48	119.53	49.16	6.91	10.45	9.78	2.00
Alternative C2a	14,224.19	3,199.78	45.11	119.78	49.51	7.04	10.45	10.23	2.05
Alternative C2b	14,183.62	3,185.79	44.34	119.18	49.18	6.86	10.81	10.12	1.94
Alternative C3a	14,183.15	3,187.09	44.48	119.20	49.19	6.87	10.81	10.12	1.94
Alternative C3b	14,183.94	3,185.44	44.30	119.19	49.18	6.85	10.81	10.12	1.92
2018 ALTERNATIVES									
Alternative A	17,126.14	3,781.22	46.33	125.25	52.29	7.81	13.60	12.83	2.46
Alternative C2a	15,523.26	3,312.31	38.10	116.44	47.58	6.55	10.82	10.14	2.04
Alternative C2b	15,526.91	3,313.26	38.00	116.43	47.57	6.54	10.81	10.13	2.04
Alternative C3a	15,509.61	3,310.79	38.27	116.45	47.58	6.58	10.82	10.14	2.06
Alternative C3b	15,514.24	3,311.87	37.84	116.42	47.56	6.55	10.81	10.13	2.06

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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Table 5.5-29
BACKGROUND CONCENTRATIONS FOR FRANKLIN COUNTY

CRITERIA POLLUTANT	AVERAGING PEROD	USEPA NAAQS STANDARDS ($\mu g/m^3$)	REGIONAL BACKGROUND CONCENTRATION ($\mu g/m^3$)
CO	1-Hour	40,000	4,796.40
	8-Hour	10,000	2,284
NO_x	Annual	100	39.0
SO_x	3-Hour	1,300	138.86
	24-Hour	365	73.36
	Annual	80	10.74
PM_{10}	24-Hour	150	85
$PM_{2.5}$	24-Hour	35	52.1
	Annual	15	16.67

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

Source: Background concentration data were provided to Landrum & Brown, via e-mail transmissions from Ms. Sarah Hedlund, Ohio EPA, September 28, 2006, May 21, 2007, and May 29, 2007. These values are valid for 2006 Existing Conditions and all the project alternative and no-action alternatives for 2012 and 2018.

The relatively low increase in concentrations of $PM_{2.5}$ emissions caused by the Sponsor's Proposed Project would not constitute a new violation. Neither would the project make an existing violation worse or impede the timely attainment of $PM_{2.5}$ emissions as required by the Ohio SIP. Therefore, the Sponsor's Proposed Project would not have the potential to cause significant adverse air quality impacts and the project complies under CAA Section 176(c)(1) and would not:

- Cause or contribute to any new violation of any standard; or
- Increase the frequency or severity of any existing violation of any standard.[13]

While emissions from the Airport are not causing the exceedance of the $PM_{2.5}$ standards, the Airport contributes to the emissions of $PM_{2.5}$ in Franklin County due mainly to the operation of gasoline- and diesel-powered GSE in the gate area. The Airport may want to consider converting a portion of the GSE to electric units or alternative fuels, which would decrease the pollutant concentrations at the Airport and assist in the reductions of $PM_{2.5}$ emissions in Franklin County.

[13] 40 CFR Part 93.158(b).

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Table 5.5-30
MAXIMUM DESIGN CONCENTRATIONS
Port Columbus International Airport

STANDARDS AND ALTERNATIVES	DESIGN CONCENTRATIONS ($\mu g/m^3$)								
	CO		NO_x	SO_x			PM_{10}	$PM_{2.5}$	
	1-HR	8-HR	ANNUAL	3-HR	24-HR	ANNUAL	24-HR	24-HR	ANNUAL
USEPA NAAQS	**40,000**	**10,000**	**100**	**1,300**	**365**	**80**	**150**	**35**	**15**
2012 ALTERNATIVES									
Alternative A	20,849.88	5,717.42	83.48	258.39	122.52	17.65	95.45	61.88	18.67
Alternative C2a	19,020.59	5,483.78	84.11	258.64	122.87	17.78	95.45	62.33	18.72
Alternative C2b	18,980.02	5,469.79	83.34	258.04	122.54	17.60	95.81	62.22	18.61
Alternative C3a	18,979.55	5,471.09	83.48	258.06	122.55	17.61	95.81	62.22	18.61
Alternative C3b	18,980.34	5,469.44	83.30	258.05	122.54	17.59	95.81	62.22	18.59
2018 ALTERNATIVES									
Alternative A	21,922.54	6,065.22	85.33	264.11	125.65	18.55	98.60	64.93	19.13
Alternative C2a	20,319.66	5,596.31	77.10	255.30	120.94	17.29	95.82	62.24	18.71
Alternative C2b	20,323.31	5,597.26	77.00	255.29	120.93	17.28	95.81	62.23	18.71
Alternative C3a	20,306.01	5,594.79	77.27	255.31	120.94	17.32	95.82	62.24	18.73
Alternative C3b	20,310.64	5,595.87	76.84	255.28	120.92	17.29	95.81	62.23	18.73

Notes: Pollutant concentrations are given in micrograms per cubic meter, $\mu g/m^3$. USEPA is the U.S. Environmental Protection Agency. NAAQS are the National Ambient Air Quality Standards. CO is carbon monoxide, NO_x is nitrogen oxides, SO_x is sulfur oxides, PM_{10} is coarse particulate matter, and $PM_{2.5}$ is fine particulate matter.

Data in this table includes the background concentrations given in Table 5.5-29.

Sources: *EDMS Version 4.5*, 2006, FAA.
Landrum & Brown analysis, 2007.

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5.6 WATER QUALITY

Pursuant to the Council on Environmental Quality (CEQ), 40 CFR §1502.16, this Environmental Impact Statement (EIS) discloses specific and potential impacts to various environmental resource categories as defined in Appendix A of Federal Aviation Administration (FAA) Order 1050.1E and Chapter 7 of FAA Order 5050.4B. This section describes the existing conditions of drainage basins; land characteristics; airport operations and Best Management Practices (BMPs); and regulatory requirements that are related to water quantity and quality at Port Columbus International Airport (CMH or Airport).

5.6.1 EXISTING CONDITIONS: 2006

5.6.1.1 Drainage Basins [1, 2]

CMH is located within the Big Walnut Creek drainage basin. Stormwater drainage from CMH discharges into four receiving streams: Turkey Run, Mason Run, Big Walnut Creek, and Alum Creek. Approximately five miles downgradient of CMH, Turkey Run flows into Mason Run, which ultimately discharges into Big Walnut Creek.

Big Walnut Creek, which originates north of CMH, is located on the eastern boundary of CMH and flows in a southerly direction. It receives flow from a series of internal outfalls and open channels on the north and southeast sides of the Airport.

The drainage network discharging to the lower reach of Turkey Run originates at Stelzer Road, west of Runway 10L/28R. It flows southward under International Gateway, then enters a box culvert underneath existing Runway 10R/28L. South of Runway 10R/28L, the box culvert drains into an open channel. Additional drainage from the western portion of CMH enters the open channel south of the box culvert.

The drainage network discharging to the lower reach of Mason Run originates on the south side of Runway 10L/28R. Mason Run flows southeast under International Gateway to a series of box culverts passing under Runway 10R/28L and under former Air Force Plant 85 (currently the Columbus International Aircenter Complex (CIAC)). Mason Run is enclosed for approximately 2,000 feet under former Air Force Plant 85 until it leaves the Air Force Plant 85 location on the southern boundary.[3]

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1 Information obtained from the 2007 Stormwater Management Master Plan for the Port Columbus International Airport, unless otherwise noted.

2 Resource International, Inc., *Port Columbus International Airport, Stormwater Management Master Plan*. Columbus, Ohio. Resource International, Inc. 2005.

3 Earth Tech, Inc., *Environmental Baseline Survey for Air Force Plant 85*, Alexandria, VA. Earth Tech, Inc., 1996.

Approximately 50 acres of CMH property on the southwest corner of the Airport drains through a series of off-site storm sewers into Alum Creek. Alum Creek is located west of the Airport and flows in a southerly direction. Included in this area are residences that may be purchased by the Airport.

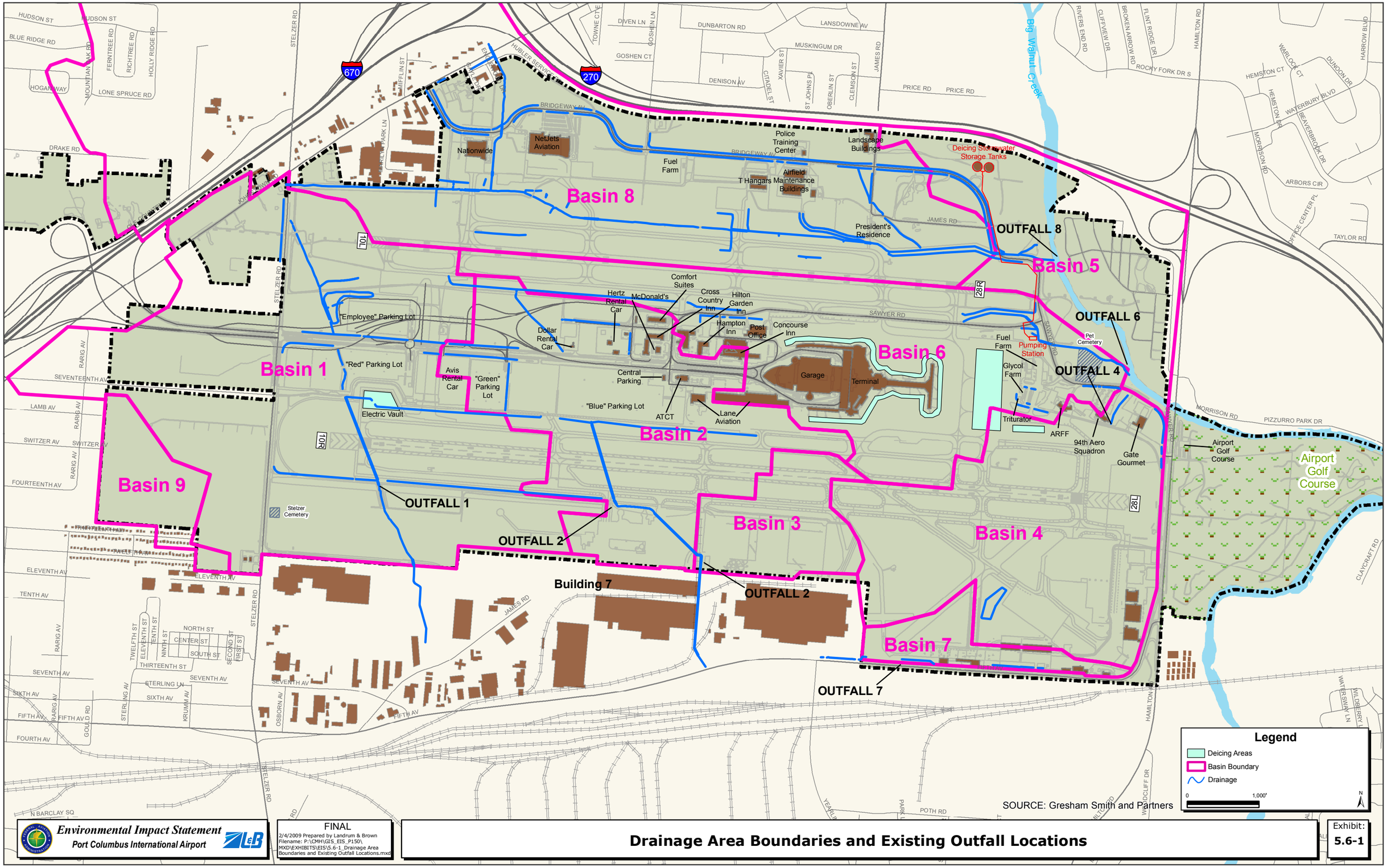
The CMH property is divided into nine drainage areas. **Exhibit 5.6-1, *Drainage Area Boundaries and Existing Outfall Locations,*** identifies the drainage area boundaries and existing outfall locations. **Exhibit 5.6-2, *Subwatershed Boundaries for the CMH Receiving Streams,*** identifies subwatershed boundaries for the receiving streams. Airport drainage basins and outfalls are described in more detail below. Outfall locations are defined by the coordinates specified in the CMH National Pollutant Discharge Elimination System (NPDES) permit. The NPDES permit was issued on July 15, 2002 and became effective August 1, 2002. The NPDES permit expired on July 31, 2007. In order to receive authorization by the Ohio Environmental Protection Agency (Ohio EPA) to discharge beyond the expiration date of the permit, a permit application renewal was submitted in January 2007 and the Columbus Regional Airport Authority (CRAA) continues to perform operations in accordance with the requirements set forth in the expired permit until a new permit is issued. Additional discussions regarding the facility NPDES permit and other applicable regulatory requirements are included in the section titled *Regulatory History and Framework*.

DRAINAGE BASIN 1

This basin includes areas that drain into the lower reach of Turkey Run. The northernmost areas flow through storm sewers into the box culvert under Runway 10R/28L. The point where the box culvert discharges into Turkey Run south of the runway is designated as Outfall 001. The southernmost areas of Basin 1 flow via overland flow into Turkey Run south of Outfall 001. The area is located on the western boundary of CMH and is bisected by Stelzer Road. The total drainage area of Drainage Basin 1 is approximately 546 acres, of which 29 percent is impervious. The area includes the intersection of International Gateway and Stelzer Road, rental car agency buildings, parking lots, and the Runway Protection Zone (RPZ) for Runway 10R/28L.

DRAINAGE BASINS 2 AND 3

These basins include the areas that drain into the segment of Mason Run on the south side of the Airport. Drainage Basin 2 is located on the south central portion of CMH and drains runoff from International Gateway, rental car facilities, parking lots, hotels, and service buildings. The basin also includes portions of Runway 10R/28L, Taxiways B and C, and the former Air Force Plant 85. The total drainage area of Basin 2 is approximately 263 acres, of which 58 percent is impervious. Stormwater from upper portions of Basin 2 discharges through Outfall 002 into an open ditch south of Taxiway B. The stormwater collected in the open ditch and the remainder of Basin 2 discharges into a storm sewer that also receives the drainage from Basin 3.


Basin 1
Basin 2
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Basin 4
Basin 5
Basin 6
Basin 7
Basin 8
Basin 9
OUTFALL 1
OUTFALL 2
OUTFALL 2
OUTFALL 4
OUTFALL 6
OUTFALL 7
OUTFALL 8
Building 7
Deicing Stormwater Storage Tanks
Police Training Center
Landscape Buildings
Fuel Farm
Airfield Maintenance Buildings
T Hangars
President's Residence
NetJets Aviation
Nationwide
Comfort Suites
Hertz Rental Car
McDonald's
Cross Country Inn
Hilton Garden Inn
Hampton Inn
Post Office
Concourse Inn
Dollar Rental Car
"Employee" Parking Lot
"Red" Parking Lot
"Green" Parking Lot
"Blue" Parking Lot
Avis Rental Car
Central Parking
Garage
Terminal
ATCT
Lane Aviation
Electric Vault
Stelzer Cemetery
Pet Cemetery
Pumping Station
Glycol Farm
Triturator
ARFF
94th Aero Squadron
Gate Gourmet
Airport Golf Course
Big Walnut Creek
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Deicing Areas
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Environmental Impact Statement
Port Columbus International Airport
FINAL
2/4/2009 Prepared by Landrum & Brown
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Drainage Area Boundaries and Existing Outfall Locations
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5.6-1

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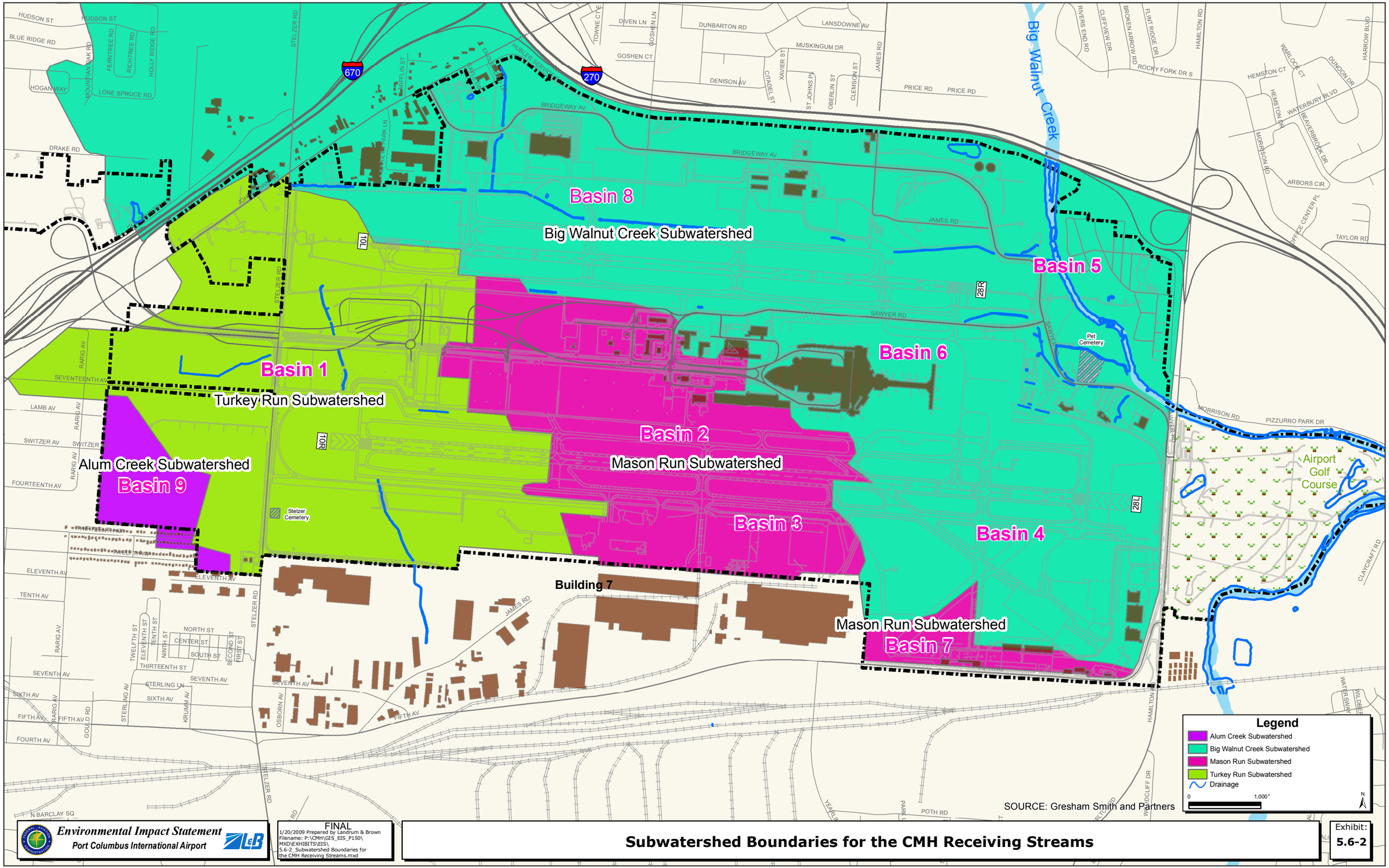

Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
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Subwatershed Boundaries for the CMH Receiving Streams

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Drainage Basin 3, located southeast of Basin 2, drains runoff from portions of Runway 10R/28L, Taxiway B, and the former Air Force Plant 85. Drainage piping conveys flow under Runway 10R/28L and former Air Force Plant 85 to the storm sewer conveying the drainage from Basin 2. The total drainage area of Basin 3 is approximately 69 acres, of which 72 percent is impervious.

Historically, there has been a problem with flooding in the City of Whitehall (south of CMH and Drainage Basins 1, 2, and 3). The actual flood problems have not been well documented, but it is known that flooding occurs at the confluence of Turkey Run and Mason Run, and upstream of a Mason Run culvert on the southern boundary of Whitehall. Additional stormwater controls could be imposed on the Airport to reduce the potential for flooding in this area, if determined necessary by the City of Columbus.

DRAINAGE BASIN 4

This basin includes areas that drain into Big Walnut Creek through Outfall 004. The area is located on the southeastern portion of CMH property and drains runoff from Runway 10R/28L, aprons, maintenance facilities, and tenant hangars. The total drainage area of Basin 4 is approximately 274 acres, of which 51 percent is impervious.

DRAINAGE BASIN 5

This basin is an area located in the northeast corner of the Airport, and includes primarily grass surfaces that drain into Big Walnut Creek via overland flow. The total drainage area of Basin 5 is approximately 172 acres, of which eight percent is impervious.

DRAINAGE BASIN 6

This basin includes areas that drain into Big Walnut Creek through Outfall 006 and via overland flow. Drainage Basin 6 is located on the eastern portion of CMH and drains runoff from Runway 10L/28R, the terminal building, terminal apron areas, parking garage, Lane Aviation facilities, hotels, and the post office. Drainage piping conveys flow under Sawyer Road and into an open channel, where flow discharges into Big Walnut Creek through Outfall 006. The total drainage area of Basin 6 is approximately 299 acres, of which 60 percent is impervious.

DRAINAGE BASIN 7

This basin is located on the southeastern portion of CMH and drains runoff from hangars, maintenance facilities, the old terminal building, and portions of the original airfield. Drainage piping in Basin 7 conveys flow to the CMH boundary at Outfall 007. The flow ultimately discharges into Mason Run. The total drainage area of Drainage Basin 7 is approximately 38 acres, of which 50 percent is impervious.

DRAINAGE BASIN 8

This basin includes areas on the north side of the Airport that drain into open ditches and storm sewers discharging into Big Walnut Creek through Outfall 008. Portions of the drainage basin, including approximately 2,041 acres and nine percent of the total amount of impervious surfaces in Drainage Basin 8 are not located on CMH property. The total drainage area of Drainage Basin 8 is approximately 2,482 acres, of which 15 percent is impervious.

DRAINAGE BASIN 9

This basin is located in the southwest corner of the Airport, and incorporates the portion of Airport property that drains via overland flow into the City of Columbus stormwater sewer system. The total drainage area of Drainage Basin 9 is approximately 50 acres, of which two percent is impervious.

5.6.1.2 Water Supply

Potable water is supplied to CMH by the Hap Cremean Water Plant, operated by the City of Columbus. Raw water for the three City of Columbus drinking water plants is drawn from surface water from the Scioto River, Big Walnut Creek, and Hoover and Alum Creek reservoirs. Raw water is supplemented by ground water from a south wellfield area in southeastern Franklin County.[4]

A report provided by Environmental Data Resources, Inc. (EDR) identified water wells located on CMH property. Two of these wells are located near the Nationwide hangar and one well is located near Outfall 008. There are also five water wells located south of the CMH property, on the former Air Force Plant 85 property and south of East 5th Avenue. There are nine water wells located north of CMH near Johnstown Road and I-270. These wells are not located within the vicinity of the proposed Airport development (i.e., Runway 10R/28L and proposed passenger terminal).[5]

5.6.1.3 Ground Water Hydrology

CMH lies within the Till Plains of the Central Lowland Physiographic Province. Ground water is present in three major aquifer systems that are present in Franklin County: Devonian limestone aquifers, Mississippian sandstone aquifers, and glacial outwash aquifers.[6] The Airport is located above Devonian limestone and glacial outwash aquifers.

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4 Ohio State University Extension Fact Sheet, 2006, retrieved November 20, 2006, from The Ohio State University. http://ohioline.osu.edu/aex-fact/0480_25.html

5 Environmental Data Resources, Inc. The EDR Radius Map with GeoCheck. Port Columbus International Airport. Columbus, Ohio, 2006.

6 United States Geological Survey. *Results of Soil, Ground-Water, Surface-Water, and Streambed-Sediment Sampling at Air Force Plant 85*, Columbus, Ohio. Columbus, OH: USGS, 1997.

The Ohio Department of Natural Resources, Division of Water Inventory provides data from ground water monitoring stations in Franklin County. Typically, the depth of the ground water table at CMH is 15 to 30 feet. Ground water recharge at the facility occurs from adjacent streams and rivers and from precipitation events. Based on the information identified in the previous surface water and ground water investigations conducted at former Air Force Plant 85, ground water generally flows in a southeasterly direction.[7]

The soils present along CMH's southern boundary belong to the Bennington-Pewamo (generally wet to ponded and poorly permeable soils) and Urban Land-Bennington Complex (poorly permeable soils) Associations. The area between Mason Run and Big Walnut Creek, on the eastern side of CMH, is comprised of soils belonging to the Bennington-Urban Land Complex Association and lies over relatively impermeable shale bedrock. This shale is rarely used for water supply except in limited weathered zones where it serves as an effective confining layer separating the limestone aquifers from the more permeable overlying deposits.[8, 9]

A study at the former Air Force Plant 85 identified isolated water-bearing zones located at the soil-shale interface. The remaining portion of former Air Force Plant 85 is underlain by sand and gravel outwash deposits. The content of clays, sands, and gravels in soil samples varies from area to area at the former Air Force Plant 85 facility.[10]

5.6.1.4 Airport Operations that May Affect Water Quality and Applicable Best Management Practices (BMPs)

The following activities have the potential to generate pollutants that could enter the stormwater drainage system and subsequently affect the water quality of Turkey Run, Mason Run, Alum Creek, and Big Walnut Creek. **Table 5.6-1** provides information regarding airport drainage areas and the current operations within these areas that have the potential to generate stormwater pollutants.

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7 United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base. *Environmental Baseline Survey Update*. Columbus, OH: 2002

8 Web Soil Survey. 2007. Retrieved 22 August, 2007, from United States Department of Agriculture, Natural Resources Conservation Service. http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx

9 United States Geological Survey. *Results of Soil, Ground-Water, Surface-Water, and Streambed - Sediment Sampling at Air Force Plant 85*, Columbus, Ohio. Columbus, OH: USGS, 1997.

10 United States Geological Survey. *Results of Soil, Ground-Water, Surface-Water, and Streambed - Sediment Sampling at Air Force Plant 85*, Columbus, Ohio. Columbus, OH: USGS, 1997.

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Table 5.6-1
AIRPORT DRAINAGE AND OPERATIONS THAT MAY IMPACT WATER QUALITY
Port Columbus International Airport

Receiving Stream	Outfall	Areas Drained	Current Operations	Potential Stormwater Pollutants
Turkey Run	001	Chemical storage areas, former Air Force Plant 85, infield areas, parking lots, rental car facilities, roadways, runway/taxiway pavement	Chemical storage, equipment storage, fuel storage, pavement deicing, vehicle fueling, vehicle maintenance, vehicle washing	Cleaning solutions, pavement deicers, petroleum hydrocarbons, rubber particles, solvents
Mason Run	002	Chemical storage areas, food services, hotels, infield areas, maintenance facilities, parking lots, rental car facilities, roadways, runway/taxiway pavement	Aircraft fueling, building and grounds maintenance, chemical storage, equipment maintenance, equipment storage, floor washdown, fuel storage, pavement deicing, pesticide and herbicide storage/usage, vehicle fueling, vehicle maintenance, vehicle washing	Cleaning solutions, herbicides, pavement deicers, pesticides, petroleum hydrocarbons, rubber particles, solvents
	003	Infield areas, parking lots, roadways, runway/taxiway pavement	Equipment storage	Petroleum hydrocarbons, pavement deicers, rubber particles, solvents
	007	Chemical storage areas, infield areas, maintenance areas, parking lots, roadways, runway/taxiway pavement, tenant hangars	Aircraft deicing/anti-icing, aircraft fueling, aircraft maintenance, chemical handling, chemical storage, equipment maintenance, equipment storage, floor washdown, fuel storage, pavement deicing, vehicle fueling, vehicle maintenance, vehicle washing	Cleaning solutions, glycol, pavement deicers, petroleum hydrocarbons, rubber particles, solvents

Table 5.6-1, *Continued*
AIRPORT DRAINAGE AND OPERATIONS THAT MAY IMPACT WATER QUALITY
Port Columbus International Airport

Receiving Stream	Outfall	Areas Drained	Current Operations	Potential Stormwater Pollutants
Big Walnut Creek	004	Airport Rescue and Fire Fighting, chemical storage areas, food services, infield areas, parking lots, roadways, runway/taxiway pavement, tenant hangars	Chemical storage, equipment storage, fire fighting equipment testing/flushing, floor washdown, fuel storage, pavement deicing, vehicle washing	Aircraft fire fighting foam, cleaning solutions, pavement deicers, petroleum hydrocarbons, rubber particles, solvents
	006	Chemical storage areas, Concourses A, B, and C, food services, fuel farm, grassed areas, hotels, infield areas, maintenance areas, parking lots, roadways, runway/taxiway pavement	Aircraft deicing/anti-icing, aircraft fueling, aircraft maintenance, aircraft lavatory service, aircraft painting/stripping, aircraft washing, building and grounds maintenance, chemical handling, chemical storage, equipment degreasing/washing, equipment fueling, equipment maintenance, equipment storage, floor washdown, fuel storage, outdoor apron washdown, pesticide and herbicide storage/usage, pavement deicing, steam cleaning, vehicle fueling, vehicle maintenance, vehicle painting/stripping, vehicle washing	Cleaning solutions, glycol, herbicides, lavatory waste, paint, pesticides, pavement deicers, petroleum hydrocarbons, rubber particles, solvents
	008	Apron areas, fuel farm, grassed areas, infield areas, maintenance areas, parking lots, roadways, runway/taxiway pavement	Aircraft deicing/anti-icing, aircraft fueling, aircraft maintenance, aircraft lavatory service, aircraft painting/stripping, aircraft washing, building and grounds maintenance, chemical storage, equipment fueling, equipment maintenance, equipment storage, floor washdown, fuel storage, pesticide and herbicide storage/usage, pavement deicing, runway rubber removal, vehicle fueling, vehicle maintenance, vehicle painting/stripping, vehicle washing	Cleaning solutions, glycol, herbicides, lavatory waste, paint, pesticides, pavement deicers, petroleum hydrocarbons, rubber particles, solvents
Alum Creek	N/A	Grassed areas, roadways	Building and grounds maintenance	Herbicides, pesticides

N/A: Stormwater drains into Alum Creek via overland flow.

SEWAGE AND WASTEWATER

Sewage and wastewater generated at CMH are managed by the City of Columbus, Division of Sewerage and Drainage via the Southerly Wastewater Treatment Plant (SWWTP). The SWWTP is located approximately 20 miles southeast of CMH. Sanitary sewage and deicing stormwater collected from the gate areas at CMH are discharged to City of Columbus sanitary sewers. According to the City of Columbus, Division of Sewerage and Drainage, the average hydraulic capacity of this treatment plant is approximately 114 million gallons per day (MGD). The treatment plant currently treats an average of 96 MGD of municipal sewage and industrial/commercial wastewater.

AIRCRAFT DEICING/ANTI-ICING

Aircraft deicing and anti-icing fluids are applied by the airlines and Fixed-Base Operators (FBOs) at terminal gate areas, aprons, and taxiway hold areas following FAA guidelines. The CRAA operates a gate and hold apron collection system during the deicing season (October 1st to April 30th). Collected deicing stormwater runoff is discharged into the sanitary sewer. All stormwater discharged, including the uncollected aircraft deicing stormwater, is discharged from the Airport in accordance with the facility's NPDES stormwater discharge permit through Outfalls 002 and 006. The final NPDES permit limitations for these Outfalls have been designed to ensure compliance with State water quality standards applicable to the use designations of the receiving streams. The CRAA evaluates the impact of aircraft deicing/anti-icing on stormwater discharges via regular discharge sampling and the annual comprehensive site compliance evaluations, in accordance with permit conditions. The stormwater volume and deicer loadings discharged to sanitary sewers, as well as the volume and loadings discharged to surface waters, vary greatly by season due to changes in weather conditions.

Aircraft deicing fluids are currently applied at aircraft gates within Drainage Basins 2 and 6, and have the potential to affect the stormwater discharges from Outfalls 002 and 006. A portion of the deicing fluids applied to aircraft surfaces fall to the ramp where it is mixed with falling or melting precipitation on paved airport surfaces. The deicing stormwater drains into trench drains and catch basins that are part of a stormwater and deicing fluid collection facility at the Airport. Deicing areas, catch basins, and associated infrastructure are identified on Exhibit 5.6-1.

Deicing fluids from the terminal building area are collected through the stormwater drainage system and diverted to a pumping facility. The pumping facility is designed to pump stormwater flows that are less than the peak flow rate from a 10-year recurrence winter storm event to the deicer processing areas.[11] Additionally, snow accumulation from the terminal building and east Remain Overnight (RON) aircraft parking area is plowed and transported to a snowmelt collection area east of the terminal. Melted snow from this area is diverted to the

[11] Camp Dresser and McKee. *Port Columbus International Airport, Glycol Collection System, Operations and Maintenance Manual*. Columbus, Ohio, 2005.

spent deicer pumping facility. A portion of the deicers applied to aircraft drip and shear from the aircraft surfaces during taxi and takeoff. This may occur in Drainage Basins 1, 2, 3, 4, 6, 7, and 8, resulting in discharge to surface waters through Outfalls 001, 002, 004, 006, 007, and 008.

The collected deicing stormwater is monitored for Biochemical Oxygen Demand (BOD)[12] upstream of the spent deicer pumping facility to determine if stormwater can be discharged directly to the surface waters under the terms of the CMH NPDES permit. If the measured BOD concentrations exceed 1,000 milligrams per liter (mg/L), the stormwater is directed to one of two four-million gallon aboveground storage tanks (ASTs) for controlled/monitored release to the sanitary sewer system. Deicing stormwater is released in accordance with the conditions specified in the CRAA's Wastewater Discharge Permit from the City of Columbus into the sanitary sewer system for treatment at the SWWTP.

The primary stormwater pollutants associated with aircraft deicing and anti-icing activities are BOD and propylene glycol. BOD is the amount of oxygen consumed by micro-organisms when decomposing carbonaceous and nitrogenous organic materials and is usually performed in a five-day period (i.e., 5-day BOD or BOD_5). Currently, CMH tenants do not utilize ethylene glycol for deicing operations at the Airport. CMH tenants performing aircraft deicing/anti-icing activities seek to apply the amount of fluid necessary for safe operation of the aircraft while minimizing excess application, in order to reduce the impact on stormwater discharges.

A deicer application, storage, discharge, and treatment simulation tool has been used to estimate the quantities of aircraft deicing fluid, and aircraft anti-icing fluid applied at CMH. The simulation tool was used to evaluate whether the changes from the proposed development could adversely affect water quality. Unique to the characteristics of CMH, airport-specific features that were integrated into the simulation included:

- Stormwater/Deicer Collection Areas;
- Flight Landing and Departure Schedules;
- Deicer Runoff Criteria;
- Snow Management;
- Sanitary Sewer Load Restrictions; and
- Existing CMH Deicer Collection System.

A simulation of deicer and anti-icer applications were conducted to estimate the characteristics at CMH during the 2005-2006 deicing season. Hourly weather data from the local weather station at CMH for 2005-2006 was incorporated to simulate the hourly volumes of aircraft deicer/anti-icer applied, considering the available flight schedule. The total simulated volume of deicer was then compared to the

[12] The collected deicing stormwater is monitored for Total Organic Carbon, which is converted to a BOD value.

total quantity of deicer at CMH for the year, which was obtained from the airlines' deicer reports and other comparable industry information. The airlines' deicer reports are compiled and summarized by the CRAA and maintained in a computer database. Parameters, such as the rates of deicer applied to aircraft under various winter weather conditions, were also reviewed. Flow rates, BOD_5 loads, BOD_5 concentrations, and propylene glycol concentrations were calculated on an hourly basis for the existing conditions using 56 years of weather data, deicing areas, and collection areas.

The performance of the CMH deicer collection system under the 2006 existing conditions was simulated. An annual average of 326,000 gallons of mixed aircraft deicing fluid (ADF) and 13,000 gallons of aircraft anti-icing fluid (AAF) applied were identified through the simulation. The results of the simulation for the existing conditions concluded that 4.7 million gallons of storage is required to contain the 10-year recurrence interval season and 5.8 million gallons for the worst case season (reflecting a 57-year recurrence interval season) on record. The existing storage tanks have eight million gallons of capacity. Therefore, the CMH deicer collection system and ASTs did not overflow in the 56 seasons simulated for the existing conditions.

The existing CMH deicer collection system equalization pump station was sized to handle a 10-year winter design storm. The pump station was designed so that overflows would only occur during events where the receiving streams had high flow rates due to the large storm event and could assimilate discharges from the system above the NPDES permitted limits. Simulating all 56 seasons at 2006 operating conditions indicated that the pump station would have overflowed at least one hour during 5 of the 56 seasons reviewed. Although overflows were seen in the results of the simulation, the occurrence of overflows is permitted if it exceeds a 10-year winter design storm condition.

AIRCRAFT FUELING

Mobile refuelers are currently utilized at CMH as the means to provide fuel to all commercial aircraft. Fueling of the commercial aircraft takes place at the gates while general aviation aircraft are fueled at their respective hangars or tiedowns. Routine and primary aircraft fueling activities have the potential to cause small leaks and spills that may enter the stormwater drainage system for Drainage Basin 2 (Outfall 002), Basin 6 (Outfall 006), Basin 7 (Outfall 007), and Basin 8 (Outfall 008). Minor spills can occur when fuel tanks are overfilled or when disposing of aircraft sump fuel. These minor spills can become entrained in stormwater runoff and transported into the stormwater drainage system.

The likely stormwater pollutants associated with aircraft fueling are petroleum hydrocarbons. CMH tenants performing aircraft fueling are required to follow the aircraft fueling BMPs and applicable Spill Prevention, Control, and Countermeasure (SPCC) plans. CMH tenants performing aircraft fueling, promptly clean up spills and leaks to minimize the impact on stormwater discharges.

AIRCRAFT LAVATORY SERVICE

Lavatory service operations involve connecting a hose from a lavatory cart to an aircraft and emptying lavatory waste into the cart. After lavatory waste is emptied, the aircraft lavatory system is washed and disinfected and the waste is collected in the cart. The lavatory waste and wash water is then disposed of into the sanitary sewer system at the triturator building located east of the existing terminal near the fuel farm (see Exhibit 5.6-1).

Minor spills can occur from leaky carts; from connection and disconnection of the hoses; from transportation and disposal of waste fluids; and from the use of surfactant and disinfectant chemicals. When operations are not correctly performed, pollutants from these minor spills can potentially enter the stormwater drainage system and discharge (primarily through Outfall 006). The likely stormwater pollutants associated with lavatory service operations are lavatory waste (fecal coliform bacteria), chemicals (some of which contribute to BODs and phosphate loading), and wash water. CMH tenants performing aircraft lavatory service promptly clean up spills and leaks to minimize the impact on stormwater discharges.

AIRCRAFT WASHING

Typical contaminants associated with aircraft washing include oil and grease, solvents, petroleum hydrocarbons, sediment (resulting in increased suspended solids), and surfactants (some of which contribute to BODs and phosphates). When the washing activities are performed outdoors, these pollutants must be contained to prevent discharges into the stormwater drainage system. Therefore, the CRAA prohibits tenants from washing in a manner that allows wash water to enter the stormwater drainage system. If wash water were to exit the Lane Aviation, Nationwide, and NetJets buildings, pollutants associated with this activity would primarily be discharged through Outfalls 002 and 004.

FUEL STORAGE

Fuels are stored outdoors in underground storage tanks (USTs), ASTs, and mobile refuelers. Most USTs storing fuel are equipped with leak detection equipment to minimize releases and potential fuel leaks from entering the stormwater drainage system. ASTs storing fuel are required to be located within secondary containment. Mobile refuelers, used for aircraft fueling, include uncovered outdoor fuel storage with secondary containment when in a non-operational or non-standby mode. The CRAA and CMH tenants handling fuel are required to follow the fueling BMPs and applicable SPCC plans. Pollutants from fuel storage areas have the potential to discharge through Outfalls 002, 006, and 008.

PAVEMENT DEICING

The CRAA is responsible for deicing common airfield pavement surfaces (i.e., taxiways, runways, and aprons) using potassium acetate and sodium formate. Tenants at CMH are responsible for pavement deicing in their leasehold areas and are instructed by CRAA not to utilize urea-based deicing materials. Deicing materials have the potential to runoff directly into the CMH storm sewer system, mix with active precipitation, and discharge into the storm sewers or become entrained in snowpiles where they eventually will discharge into the storm sewers during the snowmelt process.

Pavement deicing may occur in Drainage Basins 1, 2, 3, 4, 5, 6, 7, and 8. Pavement deicing stormwater may discharge through Outfalls 001, 002, 003, 004, 006, 007, and 008.

The primary stormwater pollutant of concern associated with pavement deicing activities is BODs. CMH tenants performing pavement deicing activities apply only the minimum amount of deicing material that allows for safe operation of aircraft and to minimize the impact on stormwater discharges.

RUNWAY RUBBER REMOVAL

Runway rubber removal activities reduce the accumulated rubber on runways, thereby increasing traction during aircraft takeoff and touchdown. The CRAA contracts with an outside contractor to perform runway rubber removal at CMH. The likely stormwater pollutants associated with runway rubber removal are caustic chemicals such as potassium hydroxide or sodium hydroxide and/or the rubber residue produced from the removal process. These materials can potentially enter the stormwater drainage system if improperly applied, contained, or removed.

The CRAA requires its contractor to apply these chemicals according to the manufacturers' instructions; safely to contain the chemicals and residue on the pavement; and safely to remove the chemicals, residue, and rinse water to ensure that these products will not enter the stormwater drainage system. Pollutants associated with this activity have the potential to be discharged through Outfalls 001, 002, 003, 004, 006, 007, and 008.

GROUND VEHICLE FUELING

Routine ground vehicle fueling activities have the potential to cause small leaks and spills that could enter the stormwater drainage system if managed improperly. Minor spills can occur when fueling or when fuel tanks are overfilled. These minor spills could become entrained in stormwater runoff, be transported through the stormwater drainage system, and discharged primarily at Outfalls 002, 006, and 008. The likely stormwater pollutants associated with ground vehicle fueling are petroleum hydrocarbons. CMH tenants performing ground vehicle fueling are required to follow vehicle fueling BMPs and applicable SPCC plans. CRAA personnel and CMH tenants performing vehicle fueling promptly clean up spills and leaks to minimize the impact on stormwater discharges. A shut-off valve was installed

within the stormwater catch basin draining the area near the Airfield Maintenance Building ASTs. This valve can be closed to prevent fuel spills in this area from entering the stormwater drainage system. The Airfield Maintenance Building is located along Bridgeway Avenue and is within Drainage Basin 8.

5.6.1.5 History of Water Quality Data Collection at CMH

Water quality studies of surface waters in this region were performed by the Ohio EPA in 1996,[13, 14, 15] and 2000.[16] These studies evaluated fish and macro-invertebrate communities under the biocriteria promulgated by the Ohio EPA both upstream and downstream of CMH. The results of these studies were then used to assess the attainment of standards that have been established for different stream habitat types in the different ecoregions within Ohio. These studies also collected information about the physical properties of the receiving waters such as pH, temperature, and dissolved oxygen. The Ohio EPA also sampled for other pollutants in the receiving waters, such as metals and nutrients, as part of these studies.

In addition to the Ohio EPA water quality studies, significant water quality data has been collected by the CRAA from its NPDES-regulated outfalls, from an internal monitoring station (601) on CMH property that is near the fuel farm, and from monitoring points upstream and downstream of CMH (801 and 901, respectively). Water samples are taken at various frequencies in compliance with the facility's NPDES stormwater discharge permit. The paragraphs below provide a brief synopsis of the water quality data collected since 2004.

A review of the 2004 analytical data indicates that stormwater discharges were in compliance with NPDES permit limits with the exception of the following: Monthly discharge limitation for oil and grease of 15 mg/L and maximum limit of 20 mg/L was exceeded in March (75 mg/L) and December (30.5 mg/L) at the internal monitoring station (Outfall 601). In December, the samples collected at Outfalls 002, 006, 008, and 801 exceeded their holding times for five-day Carbonaceous BOD ($CBOD_5$). Weekly analytical flow data was not available for Outfall 002 in February 2004 and was not valid for Outfall 008 from March to December.

A review of the 2005 analytical data indicates that stormwater discharges were in compliance with NPDES permit limits with the exception of the following: Monthly oil and grease was exceeded in January (45 mg/L), March (68.1 mg/L), and December (43.8 mg/L) from the internal monitoring station (Outfall 601). Samples were not collected at Outfall 002 in August due to channel maintenance. Samples collected at Outfall 006 and 008 exceeded their hold times for the weekly total dissolved solids analysis. Outfall 008 had invalid monthly analytical flow data from January through December. There was no monthly flow data from the internal

[13] Ohio EPA. *Biological and Water Quality Study of the Lower Big Walnut Creek and Walnut Creek Tributaries*. Columbus, OH: Ohio EPA, 1996.
[14] Ohio EPA. *Biological and Water Quality Study of Mason Run*. Columbus, OH: Ohio EPA, 1996.
[15] Ohio EPA. *Biological and Water Quality Study of the Big Walnut Creek Basin*. Columbus, OH: Ohio EPA, 1996.
[16] Ohio EPA. *Biological and Water Quality Study of the Big Walnut Creek Basin*. Columbus, OH: Ohio EPA, 2000.

monitoring station (Outfall 601) from January to August and non-valid analytical flow and benzene, toluene, ethylbenzene, and xylene (BTEX) results for December.

A review of the 2006 analytical data indicates stormwater discharges were in compliance with NPDES limits with the exception of the following: Monthly oil and grease was exceeded in February (44.3 mg/L) and March (26.1 mg/L) from the internal monitoring station (Outfall 601).

REGULATORY HISTORY AND FRAMEWORK

Stormwater is discharged from CMH in accordance with the NPDES stormwater discharge permit that was issued July 15, 2002 and became effective August 1, 2002. The NPDES permit expired on July 31, 2007. CRAA applied for a renewal of its permit in January 2007 and continues to perform operations in accordance with the requirements set forth in the expired permit until a new permit is issued.

The NPDES permit (4II00007*BD) includes interim and final effluent limitations and monitoring requirements for Outfalls 001, 002, 003, 004, 006, 007, 008, an internal monitoring station (601), an upstream monitoring station (801), and a downstream monitoring station (901). The interim limitations were effective from August 1, 2002 to January 15, 2007.

The interim permit requirements had effluent limitations for pH and oil and grease, but only specified monitoring for other parameters at particular Outfalls. The final permit requirements became more stringent when the final effluent limitations for other parameters became effective on January 16, 2007 for discharges from Outfalls 001, 002, 003, 004, 006, 007, and 008. Final permit limitations are presented in **Table 5.6-2**.[17]

The final NPDES permit requires monitoring at Outfalls 001, 003, 004, and 007 only when stormwater is discharged from the facility, while Outfalls 002, 006, 008, 601, 801, and 901 are monitored at particular timeframes established in the permit.

[17] Ohio EPA. National Pollutant Discharge Elimination System Permit No. 4II00007*BD for Columbus Municipal Airport Authority: Ohio EPA, 2002.

Table 5.6-2
FINAL NPDES PERMIT REQUIREMENTS
Port Columbus International Airport

Outfall	Parameter (units)	Discharge Limitation (Maximum)	Discharge Limitation (Minimum)	Monthly Discharge Limitation	Monitoring Frequency
001, 003, 007	Dissolved Oxygen (mg/L)	-	4.0	-	When Discharging
002	Dissolved Oxygen (mg/L)	-	4.0	-	1/Week (Winter); 1/Month (Summer)
006	Dissolved Oxygen (mg/L)	-	5.0	-	1/Week (Winter); 1/Month (Summer)
008	Dissolved Oxygen (mg/L)	-	5.0	-	1/Month (Winter); 1/Month (Summer)
801, 901	Dissolved Oxygen (mg/L)	N/A	N/A	N/A	1/Quarter
001, 003, 004, 007	pH (Standard Units)	9.0	6.5	-	When Discharging
002, 006	pH (Standard Units)	9.0	6.5	-	1/Month (Summer); 1/Week (Winter)
008	pH (Standard Units)	9.0	6.5	-	1/Month (Winter); 1/Month (Summer)
601	pH (Standard Units)	9.0	6.5	-	1/Month
801, 901	pH (Standard Units)	N/A	N/A	N/A	1/Quarter
001, 003, 004, 007	Oil and Grease (mg/L)	20	-	15	When Discharging
002, 006, 008, 601	Oil and Grease (mg/L)	20	-	15	1/Month
001, 003, 007	Nitrogen, Ammonia (mg/L)	3.1	-	1.9	When Discharging (Winter)
001, 003, 007	Nitrogen, Ammonia (mg/L)	5.6	-	2.0	When Discharging (Summer)
002	Nitrogen, Ammonia (mg/L)	3.1	-	1.9	1/Week (Winter)
002	Nitrogen, Ammonia (mg/L)	5.6	-	2.0	1/Week (Summer)

Table 5.6-2, *Continued*
FINAL NPDES PERMIT REQUIREMENTS
Port Columbus International Airport

Outfall	Parameter (units)	Discharge Limitation (Maximum)	Discharge Limitation (Minimum)	Monthly Discharge Limitation	Monitoring Frequency
004	Nitrogen, Ammonia (mg/L)	6.8	-	-	When Discharging (Summer)
004	Nitrogen, Ammonia (mg/L)	6.1	-	-	When Discharging (Winter)
006, 008	Nitrogen, Ammonia (mg/L)	6.8	-	-	1/Month (Summer)
006, 008	Nitrogen, Ammonia (mg/L)	6.1	-	-	1/Month (Winter)
801, 901	Nitrogen, Ammonia (mg/L)	N/A	N/A	N/A	1/Quarter
001, 003, 007	Propylene Glycol (µg/L)	640,000	-	71,000	When Discharging
002	Propylene Glycol (µg/L)	640,000	-	71,000	1/Month
006	Propylene Glycol (µg/L)	1,300,000	-	950,000	1/Month
008	Propylene Glycol (µg/L)	N/A	N/A	N/A	1/Month
001, 003, 007	Ethylene Glycol (µg/L)	1,300,000	-	140,000	When Discharging
002	Ethylene Glycol (µg/L)	1,300,000	-	140,000	1/Month
006	Ethylene Glycol (µg/L)	2,600,000	-	1,874,000	1/Month
008	Ethylene Glycol (µg/L)	N/A	N/A	N/A	1/Month
001, 003, 007	CBOD 5 day (mg/L)	-	-	200	When Discharging
002	CBOD 5 day (mg/L)	-	-	200	1/Week (Winter); 1/Month (Summer)
006	CBOD 5 day (mg/L)	-	-	1,300	1/Week (Winter); 1/Month (Summer)

Table 5.6-2, *Continued*
FINAL NPDES PERMIT REQUIREMENTS
Port Columbus International Airport

Outfall	Parameter (units)	Discharge Limitation (Maximum)	Discharge Limitation (Minimum)	Monthly Discharge Limitation	Monitoring Frequency
008	CBOD 5 day (mg/L)	N/A	N/A	N/A	1/Month
801, 901	CBOD 5 day (mg/L)	N/A	N/A	N/A	1/Quarter
002, 006	Chemical Oxygen Demand (Low Level) (mg/L)	N/A	N/A	N/A	1/Week (Winter); 1/Month (Summer)
008	Chemical Oxygen Demand (Low Level) (mg/L)	N/A	N/A	N/A	1/Month
801, 901	Chemical Oxygen Demand (Low Level) (mg/L)	N/A	N/A	N/A	1/Quarter
002, 006, 008	Total Suspended Solids (mg/L)	N/A	N/A	N/A	1/Month
002, 006, 008	BTEX (µg/L)	N/A	N/A	N/A	1/Quarter
601	BTEX (µg/L)	N/A	N/A	N/A	1/Month
002, 006	Flow Rate (MGD)	N/A	N/A	N/A	1/Month (Summer); 1/Week (Winter)
008, 601	Flow Rate (MGD)	N/A	N/A	N/A	1/Month
002, 006	Dissolved Solids, Sum of (mg/L)	N/A	N/A	N/A	1/Month (Summer); 1/Week (Winter)
008	Dissolved Solids, Sum of (mg/L)	N/A	N/A	N/A	1/Month
801, 901	Dissolved Solids, Sum of (mg/L)	N/A	N/A	N/A	1/Quarter
002, 006, 008	1,2,4-Trimethylbenzene (ug/L)	N/A	N/A	N/A	1/Quarter
801, 901	Water Temperature (°C)	N/A	N/A	N/A	1/Quarter

N/A: No Specified discharge limitation for this parameter.

- : A maximum/minimum discharge limitation has not been specified for this parameter.

The final NPDES permit includes specific discharge limitations for $CBOD_5$ at Outfalls 001, 002, 003, 006, and 007. $CBOD_5$ is the amount of oxygen consumed by micro-organisms when decomposing carbonaceous organic materials (i.e., excludes nitrogenous organic materials) and is usually performed in a 5-day period (i.e., 5-day CBOD or $CBOD_5$). The $CBOD_5$ requirements were developed to address discharges associated with deicing activities that utilize aircraft deicing fluids and the organic components of pavement deicing chemicals. The final permit also includes specific discharge limitations for ethylene glycol and propylene glycol for Outfalls 001, 002, 003, 006, and 007.

As described under *Aircraft Deicing/Anti-icing*, deicing stormwater is primarily discharged through Outfalls 002 and 006. The final permit limitations for these Outfalls have been designed to ensure compliance with State water quality standards applicable to the use designations of the receiving streams.

Use designations are goals that are set for specific surface water bodies in the State of Ohio.[18] River segments of Big Walnut Creek, Mason Run, and Turkey Run flow adjacent to or through the eastern portion of CMH property (via the stormwater drainage system). Stormwater exiting the Airport discharges between river miles 28 to 25 of Big Walnut Creek, which is designated by the Ohio EPA as a Warm Water Habitat for aquatic life.[19] Warm Water Habitat streams are waters that are capable of supporting a balanced, integrated, and adaptive community of warm water aquatic organisms.[20] Stormwater also drains through a series of offsite storm sewers into river segments of Alum Creek on the western portion of CMH property. Stormwater exiting the Airport discharges to Alum Creek at approximately river mile 9, which is also designated by the Ohio EPA as a Warm Water Habitat.[21]

The segments of Mason Run and Turkey Run on Airport property have been designated by the Ohio EPA as Limited Resource Waters, which are those waters that are incapable of supporting even a modified aquatic community due to irreversible effects such as periodically dry stream beds or severe habitat alterations. These Limited Resource Waters are identified as those which have been altered to the extent that no appreciable assemblage of aquatic life can be supported.[22] The Limited Resource Waters near the Airport have been the subject of a use attainability analysis (multi-step scientific assessment of the water's use designation).

The segments of Big Walnut Creek, Mason Run, Turkey Run, and Alum Creek receiving discharges from the Airport are also designated by the Ohio EPA as Agricultural and Industrial Water Supplies. In addition, the segments of Big Walnut Creek, Mason Run, and Alum Creek receiving water from the Airport are designated as Primary Contact Recreation Areas, which include waters that have a depth of at least one meter over an area of 100 feet or where canoeing is a feasible activity.

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18 Ohio EPA. *Biological and Water Quality Study of Mason Run*. Columbus, OH: Ohio EPA, 1996.

19 United States. Ohio EPA. *Biological and Water Quality Study of the Lower Big Walnut Creek and Walnut Creek Tributaries*. Columbus, OH: Ohio EPA, 1996.

20 Ohio EPA. *Understanding Ohio's Surface Water Quality Standards*. Columbus, OH: Ohio EPA, 1995.

21 River Mile System of Ohio. 2007. Retrieved 22 August, 2007, from the Ohio EPA. http://www.epa.state.oh.us/dsw/gis/RiverMileSystem.htm

22 Ohio EPA. *Biological and Water Quality Study of Mason Run*. Columbus, OH: Ohio EPA, 1996.

Turkey Run is a Secondary Contact Recreation Area where the water is less than one meter over an area of 100 feet and where canoeing is not a feasible activity.[23] **Table 5.6-3** identifies the use designations for segments of these streams as identified by the Ohio EPA. It is important to note that use designations vary for different segments of each stream.

[23] Ohio EPA. *Biological and Water Quality Study of Mason Run*. Columbus, OH: Ohio EPA, 1996.

Table 5.6-3
OHIO EPA USE DESIGNATIONS FOR SEGMENTS OF BIG WALNUT CREEK, MASON RUN, TURKEY RUN, AND ALUM CREEK
Port Columbus International Airport

		Aquatic Life Habitat Designation						Water Supply Use Designation			Recreation Use Designation			
Water Body Segment	**CMH Outfalls Discharging into Segment**	**Warmwater Habitat**	**Exceptional Warmwater Habitat**	**Modified Warmwater Habitat**	**Seasonal Salmoid Habitat**	**Coldwater Habitat**	**Limited Resources Water**	**Public Water Supply**	**Agricultural Water Supply**	**Industrial Water Supply**	**Bathing Waters**	**Primary Contact Waters**	**Secondary Contact Waters**	**State Resource Waters**
Big Walnut Creek- Williams Road (River Mile 15.8 to mouth)			X	X					X	X		X		
Hoover Reservoir			X					X	X	X		X		
At River Mile 32.64		X						X	X	X		X		
At River Mile 51.4		X						X	X	X		X		
Headwaters to Hoover Reservoir		X							X	X		X		
Airport Tributary (River Mile 28 to 25)	**004 006 008**	X							X	X		X		
Mason Run- headwaters to Fifth Ave. (River Mile 6.1)	**002 003 007**						X		X	X		X		
Fifth Ave to I-70 (River Mile 1.9)				X					X	X		X		
I-70 to mouth		X							X	X		X		
Turkey Run- headwaters to River Mile 1.6	**001**						X		X	X			X	
River Mile 1.6 to mouth				X					X	X			X	
Alum Creek-at River Miles 26.74 and 21.20		X						X	X	X		X		
All other segments		X							X	X		X		

X= Use designation identified in Ohio Administrative Code 3745-1-09 (Finalized 01/23/08) for specified water body segments in the Scioto River Drainage Basin.

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The CRAA has developed and implemented a Stormwater Pollution Prevention Plan (SWPPP) for Airport industrial activities, as required by the CMH NPDES permit. The SWPPP includes descriptions of BMPs that the Airport and its tenants incorporate into regular activities to minimize the potential for contamination of stormwater discharges. Similarly, CRAA has developed and implemented a SPCC program to address the control and containment of unanticipated spills of petroleum products at the facility. Airport tenants are required to prepare and implement their own SPCC plans.

In addition to the CRAA's NPDES permit, the City of Columbus, Department of Public Utilities issued a Wastewater Discharge Permit No. 010154-1 to CRAA for discharges of spent deicing fluid and deicing stormwater to the sanitary sewer system. The Wastewater Discharge Permit became effective on March 29, 2004 and expires on March 29, 2009. An applicable renewal application will be submitted to the City of Columbus 90 days before the expiration date of the permit. The Wastewater Discharge Permit includes self-monitoring and reporting requirements for daily flow, daily average $CBOD_5$, Total Kjeldahl Nitrogen (TKN), and pH. The self-monitoring station is located downstream of the deicing fluid effluent control vault. The self-monitoring requirements are presented in **Table 5.6-4**. CRAA is required to comply with the City of Columbus Sewer Use and Regulations and pursuant to the Director's Regulations in the Columbus City Codes Chapter 1145. CRAA is also required to comply with the standards, specifications, and guidance of FAA Advisory Circular (AC) 150/5300-14B, *Design of Aircraft Deicing Facilities*.

Table 5.6-4
WASTEWATER DISCHARGE PERMIT
Port Columbus International Airport

Parameter (units)	Daily Discharge Limitation (Maximum)	Monthly Average Discharge Limitation
Daily Flow (MGD)	1,000,000	N.S.
Daily Average	N.S.	N.S.
BOD_5[1] (lbs/day)	15,000	6,000
pH (Standard Units)	N.S.	N.S.
TKN (lbs/day)	3,000	2,000

N.S. Not Specified

[1] To protect against operational problems at the SWWTP, discharge series must be ramped up at a rate not to exceed 3,000 lbs/day. A discharge series shall be defined as subsequent discharges that occur each day after an initial discharge to SWWTP, and include the initial discharge. Any discharge that occurs after a day without a discharge shall constitute a new series. The first day of a discharge series may not exceed 3,000 lbs/day. No discharge shall exceed the previous day's BOD_5 discharge by 3,000 lbs/day.

Concurrent with the National Environmental Policy Act (NEPA) process and independent of the NPDES permit, the CRAA may have to pursue State and Federal authorization for construction projects pursuant to the requirements of the Clean Water Act (CWA). A Water Quality Certification under Section 401 of the CWA is required from the Ohio EPA to obtain a permit under the CWA 404 from the U.S. Army Corps of Engineers (USACOE). In order for the Ohio EPA to issue a Section 401 Water Quality Certification, the project must comply with Ohio's Water Quality Standards, defined in Ohio Administrative Code (OAC) Chapter 3745-1. If the proposed actions result in increased loadings to streams, the Ohio Anti-Degradation Rule (OAC 3745-1-05) will be triggered, requiring an anti-degradation review.

For construction and development-related activities, the CRAA and CMH tenants must meet requirements imposed by both the Ohio EPA and the City of Columbus. The Ohio EPA requires that a Notice of Intent be submitted and a construction SWPPP prepared for any construction activities that disturb more than one acre of land at the airport. The SWPPP must incorporate water quality-based construction stormwater management requirements, as described in the Ohio General Stormwater NPDES Permit for Discharges Associated with Construction Activity.

The City of Columbus Division of Sewerage and Drainage (DOSD) Manual was released in March 2006 and describes the construction design criteria and permit requirements developers must meet for management of stormwater in order to obtain approval of the development by DOSD. The DOSD Manual added water quality control requirements and provided design criteria for specific BMPs (i.e., detention and infiltration).

The FAA has also developed construction requirements for airport drainage systems and detention basin design. The FAA AC 150/5320-5C, *Surface Drainage Design*, provides guidelines for effective airport drainage and stresses the importance of considering stormwater impacts on critical airport operations when selecting appropriate controls. FAA AC 150/5200-33B, *Hazardous Wildlife Attractants on or Near Airports*, provides criteria for minimizing open water surfaces to reduce the attraction of large waterfowl, which can pose a safety risk to aircraft. Additionally, FAA AC 150/5200-33B identifies recommended detention requirements and criteria (e.g., 10,000-foot separation distance from runway, drawdown timing, etc.).

Additionally, if a proposed Federal action will impound, divert, drain, control, or otherwise modify the waters of any stream or other body of water, the Fish and Wildlife Coordination Act (16 U.S.C. §§ 661-667e) applies, unless the project is for the impoundment of water covering an area of less than 10 acres. The FAA is consulting with the United States Fish and Wildlife Service and the Ohio Department of Natural Resources to identify means to prevent loss or damage to wildlife resources resulting from the proposal (see Appendix K, *Biological Resources*).

The 2008 Stormwater Management Master Plan (2008 SWMMP) was created for the CRAA to provide guidance on the phased implementation of stormwater BMP controls associated with the long-term development plans for the Airport. Regulatory criteria, including requirements from the City of Columbus DOSD Manual, FAA AC 150/5320-5C, FAA AC 150/5200-33B, and NPDES Permit conditions were used to identify and assess applicable modifications to the stormwater system as required for new development.

The development of the 2008 SWMMP was facilitated by development and use of a Stormwater Management Model (SWMM) to characterize existing stormwater discharges and evaluate BMP options for multiple phases of future development. The 2008 SWMMP assessed the existing stormwater runoff and analyzed existing under capacity and flooding issues at CMH.

A pipe capacity assessment was performed as part of the SWMMP analysis to identify key points in the CMH drainage system where flooding has the potential to occur. Flooding elevations were monitored at infield areas, parking lots, and other locations that offered on-site detention under existing conditions. The Airport drainage system was also analyzed for areas where drainage is inefficient or flooding is a problem. The most significant finding of the SWMM analysis was the limited capacity of a 30-inch storm sewer that drains a portion of Basin 1. This analysis was repeated with a 100-year storm to identify detention and flooding elevations under more extreme conditions. This analysis indicated that there are several locations in the existing drainage system where flooding is likely to occur under 100-year storm conditions (i.e., Basin 7; Basins 4, 6, and 8; Taxiway B and West End of Runway 10R/28L).

5.6.2 FUTURE CONDITIONS: 2012[24]

This section presents the potential impacts from the Sponsor's Proposed Project and its alternatives to the existing water quantity and quality at CMH and surrounding properties.

Alternative A:
2012 No Action

The 2012 Alternative A does not include Airport development activities identified by the Sponsor's Proposed Project evaluated in this EIS. However, the CRAA is planning non-EIS related development between 2006 and 2012 that includes a crossover taxiway, parking lots, and roadway improvements. The following section provides a discussion and details the potential water quantity and quality impacts that are expected to occur from these actions. The proposed actions identified in this section were evaluated and cleared under independent NEPA evaluations and have independent utility from the projects being evaluated in this EIS.

[24] Information obtained from the 2007 Stormwater Management Master Plan for the Port Columbus International Airport, unless otherwise noted.

WATER QUANTITY IMPACTS

The 2008 SWMMP was used to assess the existing under capacity and flooding issues at the Airport. The under capacity issues identified under the existing conditions SWWM model are expected to coincide with Alternative A. The most significant finding of the SWMM analysis was the limited capacity of a 30-inch storm sewer that drains a portion of Basin 1. Also, there are several locations in the existing drainage system where flooding is likely to occur under 100-year storm conditions (i.e., Basins 4, 6, 7, and 8; Taxiway B and West End of Runway 10R/28L).

Basin 1

Development in Basin 1 includes the parking lots on the north side of 17th Avenue, the west lane of the Crossover Taxiway, the first phase of the International Gateway Loop, and the Stelzer Road interchange. This development is expected to disturb approximately 122 acres of land. As a result, the runoff volume is expected to increase by 7.6 percent for the 1-year storm when compared to pre-development conditions. The volume of runoff is expected to increase by 5.5 percent for the 100-year storm when compared to pre-development conditions.

Basins 2 and 3

Development that will occur within Basin 2 will be associated with the International Gateway Loop project, which will disturb approximately 59.6 acres of land in Basin 2. No new development will occur within Basin 3. The runoff volume is expected to increase by 0.7 percent for the 1-year storm when compared to pre-development conditions. The volume of runoff is also expected to increase by 0.4 percent for the 100-year storm when compared to pre-development conditions.

Basin 4

Development occurring within Basin 4 is the rehabilitation of the East Apron in the southeast corner of the airfield. This project will involve the removal and replacement of existing pavement and is not expected to affect the overall percent of imperviousness within Basin 4. Therefore, no increase in runoff is expected in this area.

Basin 6

Developments occurring within Basin 6 are the placement of a 1,300-foot structural wall on the south side of Taxiway E and a portion of the International Gateway Loop project. The structural wall is not expected to significantly impact the drainage pattern or percent of imperviousness for Basin 6. The International Gateway Loop project overlies the existing location of International Gateway. Therefore, this development is also not expected to increase the percent of imperviousness within Basin 6 and no increase in runoff is expected in this area.

Basin 7

Development occurring within Basin 7 is the rehabilitation of the East Apron in the southeast corner of the airfield. This project will involve the removal and replacement of existing pavement, and is not expected to affect the overall percent of imperviousness within Basin 7 and no increase in runoff is expected.

Basin 8

Development that will take place within Basin 8 is a new perimeter road north of the Runway 10L/28R. It is not anticipated the road will have a significant impact on the drainage pattern or percent of imperviousness and no increase in runoff is expected in this area.

WATER QUALITY IMPACTS

Increased runoff in Drainage Basins may lead to increased suspended and dissolved solid loads from lack of infiltration into pervious areas. Also, projected increases in flights and passenger levels are expected to occur in 2012. The increase in flights will require fueling and aircraft maintenance operations to increase commensurately. Specific Airport operations, such as aircraft deicing/anti-icing, and pavement deicing have also been determined to cause potential water quality impacts. However, if the requirements of both the NPDES permit and the City of Columbus, Department of Public Utilities Wastewater Discharge Permit are met and stormwater BMPs are implemented, the existing water quality at CMH is not expected to be impacted. A description of the potential water quality impacts from increased deicing operations is presented below.

Flow rates, BOD_5 loads, BOD_5 concentrations, and propylene glycol concentrations were calculated on an hourly basis for each alternative using 56 years of weather data, forecasted operations, deicing areas, and collection areas. The collection, storage, and discharge processes in the existing system were simulated to determine potential impacts from the implementation of each alternative.

The performance of the existing CMH deicer collection system, including an additional collection area of 7.16 acres that is currently being constructed under the 2012 conditions was simulated. An annual average of 468,000 gallons of mixed ADF and 17,000 gallons of AAF applied were identified to be used for deicing. The results of the simulations concluded the existing CMH deicer collection system ASTs had the potential to overflow in 3 of the 56 seasons or have a 5.3 percent chance of overflowing in any given year.

The existing CMH deicer collection system equalization pump station potentially overflowed at least one hour during 10 of the 56 seasons simulated. The simulated volume of potential overflows increased 201 percent from the existing conditions. Additional overflows in 2012 compared to existing conditions could negatively affect water quality.

The simulated results also indicated an increase of 44 percent of ADF and 31 percent of AAF from the existing conditions would occur due to the increase in operations. Subsequently, the increase in deicer dripped or tracked into uncollected areas would also occur. These increases of uncollected deicer could cause violations of the ethylene glycol, propylene glycol, dissolved oxygen, and BOD_5 NPDES permit limits at the Outfalls. Therefore, additional collected area or revised application conditions need to be established by the Airport.

RECOMMENDED IMPROVEMENTS

Independent development projects are currently under development in Basins 1 - 3 and are expected to be complete by 2009, including a crossover taxiway, parking lots, and roadway improvements. These non-EIS-related projects were evaluated and cleared under independent NEPA evaluations and have independent utility from the projects being evaluated in this EIS. Infrastructure improvements were recommended as necessary based on conveyance size to meet the 5 and 10-year storms, which also meet the requirements of the DOSD Manual. The following provides the recommended stormwater management improvements associated with development under 2012 Alternative A conditions.

Basin 1

The independent projects described above for Basins 1 - 3 are already constructed or are currently under development. The development of these projects included local stormwater management controls in accordance with DOSD and Ohio EPA construction and post-construction stormwater management requirements. Local stormwater improvements constructed for these developments include a pump station, collection system, and detention basin for the Crossover Taxiway and International Gateway projects, and a local detention basin for the parking lots north of 17th Avenue. A local detention basin was constructed for the parking lots north of 17th Avenue in the northeast corner of the parking lot, which required the forfeiture of approximately 540 potential parking spaces.

It is recommended that all drainage in Basin 1 be routed through the existing box culvert underneath Runway 10R/28L. Under the 2012 Alternative A conditions, the existing runway box culvert does not have sufficient capacity to convey runoff from the appropriate design storm (10-year) and 1-year storm without surcharging. While the box culvert will surcharge under relative low-intensity storm events, the culvert does have the capacity to convey the drainage from all of the development that is anticipated in 2012 Alternative A to a regional detention basin at Aircenter Drive without significantly increasing the existing flooding occurring in the open channels at the Airport. A detention basin size of 6.41 acre-feet was determined to meet regulatory requirements for all developments in Basin 1. It would be necessary to install a new storm sewer (a 54-inch diameter or equivalent pipe is recommended) to convey unrestricted drainage from the parking lots to the box culvert under Runway 10R/28L, and ultimately to a regional detention basin.

Basins 2 and 3

The independent project described above for Basin 2 and 3, the International Gateway project, is currently under development. The development of this project included local stormwater management controls in accordance with DOSD and Ohio EPA construction and post-construction stormwater management requirements. Local stormwater improvements constructed included a pump station, collection system, and detention basin.

Deicing Collection System

The simulation of the existing deicer collection system identified potential storage and overflow issues. The recommended improvements to the system include incorporating 1.4-million gallons of additional AST storage and 100,000-gallons of equalization storage to prevent overflows. Additionally, the collection areas or revised application conditions need to be established by the Airport to prevent potential NPDES violations.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 feet to the South – Noise Abatement Scenario A

The relocation of Runway 10R/28L 800 feet to the south of its existing location was analyzed to determine potential impacts to water quantity and quality.

WATER QUANTITY IMPACTS

The development projects for Alternative C2a will primarily require modifications of stormwater management in Basins 1, 2, 3, 4, and 6. Runway 10R/28L currently drains into several large conveyance box culverts that carry tributary flows to Turkey Run (Outfall 001), Mason Run (Outfalls 002 and 003), and Big Walnut Creek (Outfalls 004 and 006). The relocation of Runway 10R/28L would require a relocated runway collection system and would also impact flow routing from upstream areas of CMH. A more detailed description of the area disturbed from this action that will affect water quantity and quality is described below:

Basin 1

The proposed development in Basin 1 includes the relocation of Runway 10R/28L and associated taxiways. The development is expected to disturb approximately 157 acres more than 2012 Alternative A conditions. As a result of this development, the percent imperviousness of Basin 1 would increase, while the total area tributary to Outfall 001 would decrease due to a shift in drainage basin boundaries. This would result in an increase in the runoff volume by 2.3 percent for the 1-year storm when compared to 2012 Alternative A conditions. The volume of runoff is expected to decrease by 0.5 percent for the 100-year storm when compared to 2012 Alternative A conditions.

Basins 2 and 3

The proposed development in Basins 2 and 3 includes the relocation of Runway 10R/28L and associated taxiways and is expected to disturb approximately 107 acres more than 2012 Alternative A conditions. The construction of the runway and taxiways would cause an increase in impervious surfaces in Basin 2, but a decrease in impervious surfaces in Basin 3. The decrease in impervious surfaces in Basin 3 is due to the removal of parking lot areas which would be replaced with infield areas. This would result in an overall decrease in the runoff volume by 1.3 percent for the 1-year storm when compared to 2012 Alternative A conditions. The volume of runoff is also expected to decrease by 1.2 percent for the 100-year storm when compared to 2012 Alternative A conditions.

Basin 4

The 2012 Alternative C2a development projects in Basin 4 include the relocation of Runway 10R/28L and associated taxiways, as well as the expansion of the ravine downstream of Outfall 004 into a stormwater detention basin. The development would disturb approximately 143 acres and runoff volume would increase by 0.4 percent for the 1-year storm when compared to the 2012 Alternative A. The volume of runoff would decrease by 0.5 percent for the 100-year storm when compared to 2012 Alternative A.

The proposed detention basin within the ravine downstream of Outfall 004 was sized to address ultimate stormwater management requirements for Basin 4, associated with the Airport's long-term development plan. Under the proposed development project, the existing ravine, which has an approximate storage capacity of 9.1 acre-feet, will be expanded to provide 29.2 acre-feet of detention capacity in order to meet DOSD flow restriction and water quality volume requirements. This represents an increase in the ravine capacity by 20.1 acre-feet or 220 percent. The proposed basin development would also include the installation of outlet restrictions on the existing 42-inch discharge pipe to meet flow restriction requirements.

Basin 6

The proposed development in Basin 6 is the development of the northernmost taxiway associated with the relocated runway. The location of the proposed taxiway within Basin 6 overlays the current location of Runway 10R/28L; however, existing pavement may be replaced or resurfaced. The proposed development area is already paved under the existing conditions; therefore, the project is not expected to affect the overall percent of imperviousness and water quantity of Basin 6.

WATER QUALITY IMPACTS

The implementation of this alternative has the same runoff impacts and aircraft deicer application impacts as the 2012 Alternative A. Pavement deicer application is not expected to increase with the relocation of Runway 10R/28L, although it would be applied in different areas. The same deicer collection and management techniques employed at the Airport today would be used for the relocated runway.

MITIGATION COMMITMENTS

The following provides the stormwater management mitigation commitments associated with development under the 2012 Alternative C2a. A summary of recommended mitigation techniques for each Basin is presented in **Table 5.6-5**.

Basin 1

The relocation of Runway 10R/28L would require changes or enhancements to the storm sewer infrastructure discussed under the 2012 Alternative A. The 48-inch diameter storm sewer (discussed in 2012 Alternative A) will need to be connected to a new 10-foot by 6-foot runway box culvert running from the south end of the existing Red Lot to the existing 12-foot by 5-foot culvert under Aircenter Drive. This box culvert replaces the existing box culvert described in the 2012 Alternative A.

In addition, the detention basin at Aircenter Drive would need to be constructed with a total capacity of 107.5 acre-feet (65.67 for Basin 1) to meet the regulatory requirements for management of water quantity and quality associated with the development.

Basins 2 and 3

Development in Basins 2 and 3 would require restrictions on discharges to Mason Run according to the City of Columbus DOSD Manual. Flow restriction orifices would be placed within a drainage structure downstream of the drainage confluence for Basins 2 and 3. This restriction would meet the limits described within the DOSD Manual for discharges to Mason Run for the critical storm and 100-year storm. All excess stormwater that cannot be discharged to Mason Run would be diverted through a gravity sewer to the detention basin at Aircenter Drive (42 acre-feet for Basin 2 and 3). Flows up to 140 cubic feet per second (cfs) could be diverted to the detention basin at Aircenter Drive, which meets the regulatory requirements for management of water quantity and quality associated with the development.

Basin 4

The U.S Army Corps of Engineers (USACOE) has approved the jurisdictional wetland and stream delineation completed for the Detailed Study Area for this EIS.[25] The determination identified the ravine at Outfall 004 as a jurisdictional stream (Stream 2). Therefore, development of the detention basin, including installation of an outlet restriction, would be subject to Section 404 of the Clean Water Act (CWA). A Water Quality Certification under Section 401 of the CWA would be required from the Ohio EPA to obtain a permit under the CWA 404 from the USACOE. The project would have to comply with Ohio's Water Quality Standards, defined in OAC Chapter 3745-1. Additionally, if it is determined that the runway development would result in increased loadings to the stream, the Ohio Anti-Degradation Rule (OAC 3745-1-05) would be triggered, requiring an anti-degradation review.

REGULATORY COMMITMENTS

In addition to the water quantity and quality mitigation measures described above, all construction activities will be regulated under the Ohio EPA. A Notice of Intent must be submitted and a construction SWPPP prepared for the development activities. The development must also coincide with the City of Columbus DOSD Manual design criteria and permit requirements for management of stormwater. Because the developments at the Airport will modify areas greater than 10 acres and are associated with waters of Big Walnut Creek, Mason Run, and/or Turkey Run, the regulations of the Fish and Wildlife Coordination Act will apply. The FAA is consulting with the Ohio EPA, Ohio Department of Natural Resources, U.S. EPA, U.S. Fish and Wildlife Service, and Natural Resources Conservation Service regarding potential additional analyses from the developments (see Appendix K).

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, along with implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted and therefore would not change the potential impacts described above for Alternative C2a.

[25] See Appendix K, *Biological Resources*, for a copy of the report and letter from the USACOE.

Table 5.6-5
SUMMARY OF WATER QUANTITY INFRASTRUCTURE MITIGATION COMMITMENTS
Port Columbus International Airport

Drainage Basin	Time Period	Infrastructure	Detention Location	Detention Basin Capacity (ac-ft)
Basins 1, 2 & 3	2012	Replace existing box culvert with new 10-ft x 6-ft box culvert as part of relocated runway drainage system 17th Avenue Parking Lots: 48-in Pipe (1,300 ft) Diversion from Basins 2 and 3 to Turkey Run: 4,125 ft of 7-ft x 5-ft Box Culvert, Diversion Structure Basin Outlet Structure	Aircenter Drive Site Basin	107.50
Basins 1, 2 & 3	2018	Replace existing box culvert with new 13-ft x 6-ft box culvert as part of relocated runway drainage system; 17th Avenue Parking Lots: Two 54-in Pipes (1,300 ft); Diversion from Basins 2 and 3 to Turkey Run: 4,125 ft of 7-ft x 5-ft Box Culvert, Diversion Structure; Diversion to Big Walnut Creek: 3,200 ft of 8-ft x 5-ft box culvert; 2,750 ft of 10-ft x 6-ft box culvert; 1,790 ft of 13-ft x 6-ft box culvert Basin Outlet Structure	Aircenter Drive Site Basin	103.25

Notes: The recommended mitigation requirements presented in this table assume the Aircenter Drive detention basin maximum capacity is approximately 115 ac-ft.

These recommendations have not been finalized by the CRAA.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The relocation of Runway 10R/28L 702 feet south of the existing location was analyzed to determine potential impacts to water quantity and quality. 2012 Alternative C3a would result in an area of imperviousness that would be slightly less, but essentially the same as 2012 Alternative C2a. Therefore, 2012 Alternative C3a would include the same potential impacts to water quantity and quality as described for 2012 Alternative C2a. The mitigation commitments discussed for 2012 Alternative C2a would be the same for 2012 Alternative C3a.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the relocation of Runway 10R/28L 702 feet to the south along with implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted. Therefore, Alternative C3b would include the same potential impacts to water quantity and quality as specified in Alternative C2a with the exception that slightly less impervious surface would be constructed. The water quantity and quality affected from the difference in impervious surface from Alternative C3b is not expected to be significantly different from Alternative C2a. The mitigation commitments discussed for 2012 Alternative C2a would be the same for 2012 Alternative C3b.

5.6.3 FUTURE CONDITIONS: 2018

This section presents potential water quantity and quality impacts from the Sponsor's Proposed Project and its alternatives for 2018 conditions.

Alternative A:
2018 No Action

The 2018 Alternative A does not include Airport development activities being evaluated in this EIS. However, the CRAA is planning on non-EIS related development between 2012 and 2019 that includes new and relocated parking lots. The following section provides a discussion of the potential water quantity and quality impacts that are expected to occur from these non-EIS actions. Additionally, increased operations at the Airport would result in potential increases in water quality impacts. The non-EIS projects and increased operations would occur in all of the development alternatives.

WATER QUANTITY IMPACTS

The non-EIS development projects for 2018 Alternative A will require modifications of stormwater management in Basin 1. The new developments will require new stormwater collection systems, as well as water quality controls to address increased and relocated vehicle activity. A more detailed description of the area disturbed from this action that will affect water quantity and quality is described below:

Basin 1

Anticipated development in Basin 1 includes expansion of the 17th Avenue parking lot, southern expansion of the Red Lot, and construction of a new Green Lot. These non-EIS development projects will disturb approximately 53 acres. The runoff volume in Basin 1 is expected to increase by 2.5 percent for the 1 year storm and by 0.8 percent for the 100-year storm due to the non-EIS projects.

WATER QUALITY IMPACTS

Alternative 2018 would include increased runoff impacts due to an increase in impervious surfaces. Increased operations are expected to occur by the year 2018 independent of the proposed development described in this EIS. Therefore, Airport operations that may affect water quality are also expected to increase, such as aircraft deicing/anti-icing, pavement deicing, and fueling. Under the 2018 Alternative A, the collection area for the deicing activities will be the same as the existing conditions.

The performance of the existing CMH deicer collection system under the 2018 conditions was simulated. An annual average of 533,000 gallons of mixed ADF and 20,000 gallons of AAF applied were identified to be used for deicing. The results of the simulations concluded that existing CMH deicer collection system ASTs had the potential to overflow in 5 of the 56 seasons or have a 8.9 percent chance of overflowing in any given year. An additional 2.4-million gallons of storage would be needed to prevent overflows in all 56 seasons.

The existing CMH deicer collection system equalization pump station potentially overflowed at least one hour during 10 of the 56 seasons simulated. The simulated volume of potential overflows increased 196 percent from existing conditions. Additional overflows in 2018 compared to existing conditions could negatively affect the water quality. An additional 100,000 gallons of equalization storage would be required to reduce overflows to the volumes of the existing conditions.

The simulated results also indicated that an increase of 63 percent of ADF and 54 percent of AAF from the existing conditions would occur due to the increase in operations. Subsequently, the increase in deicer dripped or tracked into uncollected areas would also occur. These increases of uncollected deicer could cause violations of the ethylene glycol, propylene glycol, dissolved oxygen, and BOD_5 NPDES permit limits at the Outfalls. Therefore, additional collected area or revised application conditions need to be established by the Airport.

RECOMMENDED IMPROVEMENTS

The following provides stormwater management mitigation recommendations associated with the non-EIS development projects that would occur under the 2018 Alternative A.

Basin 1

Improvements within Basin 1 include two 54-inch pipes to route flow from the expanded 17th Avenue parking lot to the South Runway box culvert, provided that regional detention is required for the 17th Avenue parking lots. If one 54-inch pipe is installed by 2012 to address the full build-out of the parking lots north of 17th Avenue, one additional 54-inch pipe would need to be installed to address this expansion south of 17th Avenue. The box culvert under the runway may need to be increased in size to pass the 10 year runoff without surcharging. This will ensure the runway culvert has the necessary capacity for runoff to reach the proposed regional detention basin and allow flow to be routed to meet regulatory requirements. The regional detention basin will also need to be expanded to provide detention for these new developments, in order to meet DOSD water quantity and quality requirements.

Deicing Collection System

The simulation of the existing deicer collection system identified potential storage and overflow issues. The recommended improvements to the system include incorporating 2.4-million gallons of additional AST storage and 100,000-gallons of equalization storage to prevent overflows. Additionally, the collection areas or revised application conditions need to be established by the Airport to prevent potential NPDES violations.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The 2018 Alternative C2a, which includes the proposed passenger terminal, was analyzed to determine potential impacts to water quantity and quality. The following provides a discussion of the potential water quantity and quality impacts from the proposed terminal and assumes the construction of the relocated runway as described in 2012 Alternative C2a is complete and in use.

WATER QUANTITY IMPACTS

In addition to the modifications to the Basins described under 2012 Alternative C2a and the non-EIS development discussed under 2018 Alternative A, the proposed passenger terminal included in 2018 Alternative C2a will require further modifications of stormwater management in Basins 2, 3, and 4. A more detailed description of the area disturbed from this action that will affect water quantity and quality is described below:

Basins 2 and 3

Proposed developments that are expected to impact Basins 2 and 3 include the first phase of terminal construction, including the initial construction of the terminal and new parking facilities. The proposed development projects will disturb approximately 79.46 acres. As a result, runoff volume is expected to decrease by 19.3 percent for the 1-year storm. The volume of runoff is also expected to decrease by 19.5 percent for the 100 year storm when compared to 2012 Alternative C2a conditions.

Basin 4

None of the 2018 development projects will occur within Basin 4; however, the recommended stormwater management in Basins 2 and 3 involves the diversion of additional flows from Basin 2 to Basin 4. With the additional flow, stormwater controls will be required at Outfall 004 to restrict peak discharges. The runoff volume in Basin 4 is expected to increase by 23.1 percent for the 1-year storm when compared to 2012 Alternative C2a. The volume of runoff is also expected to increase by 22.4 percent for the 100-year storm when compared to 2012 Alternative C2a conditions.

The development of a detention basin in Basin 4, described under 2012 Alternative C2a), would meet the detention requirements for 2018 Alternative C2a. It would not be necessary to expand the detention basin beyond what is described under 2012 Alternative C2a; however, it would be necessary to modify the basin outlet structure to ensure that 2018 flow restriction requirements are met.

WATER QUALITY IMPACTS

The implementation of this alternative has the same runoff and aircraft deicer application impacts as described for 2018 Alternative A. However, although aircraft application will remain the same as 2018 Alternative A, an additional 31.25 acres will be added to the collection area for the deicing activities.

The results of the simulations for 2018 Alternative C2a concluded that the existing CMH deicer collection system ASTs had the potential to overflow in 22 of the 56 seasons or have a 39.3 percent chance of overflowing in any given year. An additional six million gallons of storage would be needed to prevent overflows in all 56 seasons.

The existing CMH deicer collection system equalization pump station potentially overflowed at least one hour during 26 of the 56 seasons simulated. The simulated total overflow volume for all seasons when overflows occurred increased from 363,000 gallons for existing conditions to over 6,749,000 gallons for Alternative C2a. The additional area collected at the new terminal will require additional capacity at the pump station to collect the 10-year winter design storm. Additional overflows in 2018 compared to existing conditions could negatively affect

the water quality. In order to prevent overflows it is expected that a new glycol collection system will be added for the new terminal area. In order to contain overflows similar to the existing conditions it is expected that a new equalization pump station would also need to be added. Additional pump capacity on the order of 12,000 gallons per minute and an additional 450,000 gallons of equalization storage would be required to reduce overflows to the volumes of the existing conditions.

Pavement deicer application is not expected to increase significantly with this alternative, although it would be applied in different areas. The same deicer collection and management techniques employed at the Airport today would be used for this condition.

MITIGATION COMMITMENTS

The following provides the stormwater management mitigation commitments associated with development under 2018 Alternative C2a. A summary of recommended mitigation techniques is presented in Table 5.6-5.

Basins 2 and 3

Developments in Basins 2 and 3 include the diversion of flows to the proposed Aircenter Drive detention basin described in 2012 Alternative C2a. As described in the 2012 Alternative C2a, developments in Basins 1, 2, and 3 will exhaust the detention capacity at Aircenter Drive for the 100-year design storm. At lesser storms, the entire basin capacity will not be used.

Rerouting stormwater drainage from the proposed terminal area in Basin 2 to Outfall 004 (Big Walnut Creek) via a dedicated box culvert reduces the tributary area draining to Mason Run. This would create capacity within the detention basin for discharges occurring under this development. The detention basin capacity needed would be 103.25 acre-feet. An 8-foot by 5-foot box culvert would convey stormwater runoff from a minimum of 61.9 acres surrounding the proposed terminal to Big Walnut Creek at Outfall 004. Drainage that is rerouted to Big Walnut Creek would be subject to flow restrictions at Outfall 004 based on the Basin 4 development through 2018. The detention associated with this rerouted flow is described for Basin 4 in this section.

This development would require a variance from DOSD to allow diversion of stormwater from Mason Run to Big Walnut Creek. Also, discharging terminal area drainage to Big Walnut Creek would decrease the likelihood of non-compliance with existing BOD and glycol effluent limits for Outfall 002. Furthermore, this mitigation will help provide the maximum amount of control over Airport discharges to Mason Run and Turkey Run.

Basin 4

The mitigation for Basin 4 includes those also described under 2012 Alternative C2a. A Water Quality Certification under Section 401 of the CWA would be required from the Ohio EPA to obtain a permit under the CWA 404 from the USACOE. The project would have to comply with Ohio's Water Quality Standards, defined in OAC Chapter 3745-1. Additionally, if it is determined the runway development would result in increased loadings to the stream, the Ohio Anti-Degradation Rule (OAC 3745-1-05) would be triggered, requiring an anti-degradation review.

Deicing Collection System

The simulation of the existing deicer collection system identified potential storage and overflow issues. The recommended improvements to the system include incorporating 6.0-million gallons of additional AST storage. The additional area collected at the proposed terminal would require additional capacity at the pump station to collect the 10-year winter design storm. In order to prevent overflows it is expected that a new glycol collection system will be added for the new terminal area. In order to contain overflows similar to the existing conditions it is expected that a new equalization pump station would need to be added. Pump capacity with an additional 12,000 gallons per minute and 450,000 gallons of equalization storage would be required to reduce overflows to the volumes of the existing conditions.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Alternative C2b assumes the proposed passenger terminal is complete and in use as described in Alternative C2a. This alternative also includes the implementation of the operational recommendations of the 2007 Part 150 Study. The impacts and mitigation discussed for Alternative C2a related to the terminal would be the same for Alternative C2b. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted. Therefore, the impacts and mitigation for Alternative C2b would not change from those described for Alternative C2a.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The 2018 Alternative C3a includes the same proposed passenger terminal as 2018 Alternative C2a. Therefore, the impacts and mitigation commitments described under 2018 Alternative C2a would remain the same for 2018 Alternative C3a.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b assumes the proposed passenger terminal is complete and in use as described in Alternative C2a. This alternative also includes the implementation of the operational recommendations of the 2007 Part 150 Study. The impacts and mitigation discussed for Alternative C2a related to the terminal would be the same for Alternative C3b. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted. Therefore, the impacts and mitigation for Alternative C3b would not change from those described for Alternative C2a.

5.7 DEPARTMENT OF TRANSPORTATION SECTION 4(f) LANDS[1]

This Environmental Impact Statement (EIS) includes an investigation of impacts due to the proposed development (Federal action) upon areas such as parks, recreation areas, or wildlife and waterfowl refuges. Historic structures are also included if they are on or are eligible for listing on the National Register of Historic Places (NRHP). Areas such as these are considered significant and are protected under Section 4(f) of the Department of Transportation (DOT) Act.[2]

5.7.1 FEDERAL REGULATIONS

The DOT Act of 1966 was one of the earliest and most significant pieces of transportation legislation relative to environmental protection. Pursuant to the Act, it is stated that:

> The Secretary shall not approve any program or project which requires the use of any publicly-owned land from a public park, recreation area, or wildlife and waterfowl refuge of national, state, or local significance as determined by the Federal, State, or local officials having jurisdiction thereof, or any land from an historic structure of national, state, or local significance as so determined by such officials unless:
>
> - There is no feasible and prudent alternative to the use of such land; and,
> - The project includes all possible planning to minimize harm to the land resulting from such use.[3]

Based on the analysis presented in this section and in Appendix N, *Department of Transportation 4(f) Coordination*, the Federal Aviation Administration (FAA) has made the following determinations:

- There are Section 4(f) resources that will be directly impacted as a result of Sponsor's Proposed Project (which is also the FAA's preferred alternative). These resources include the Airport Golf Course and portions of Air Force Plant 85, which is a property that is eligible for the National Register of Historic Places (NRHP).
- The only alternative that does not impact these Section 4(f) resources is Alternative A: No Action. However, this alternative does not meet the purpose and need for the project.
- As a result, there is no feasible and prudent alternative to the use of such land.

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1 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).

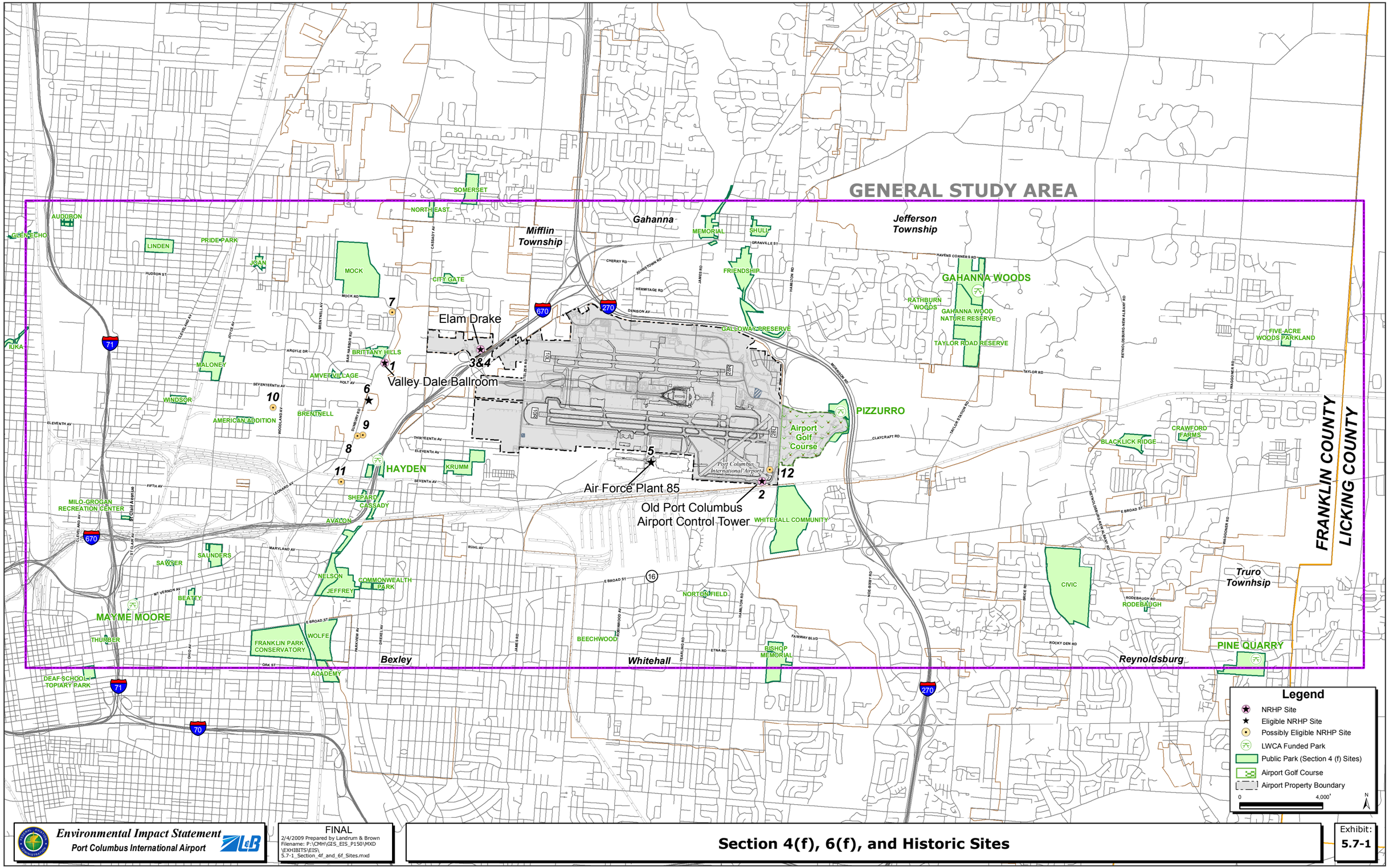
2 There has been no Statement of Insignificance issued by any Federal, State, or local official with jurisdiction regarding the historic sites, per 49 U.S.C. § 303.

3 Federal Aviation Administration Order 1050.1E, Environmental Impacts: Policies and Procedures, 2006 (FAA Order 1050.1E), Appendix A, paragraph 6.1a

- The Sponsor's Proposed Project (which is also the FAA's preferred alternative) includes the fewest impacts to Section 4(f) resources, thus satisfying the requirement that the project includes all possible planning to minimize harm to the land resulting from such use.

5.7.1.1 National Historic Preservation Act of 1966, Section 106

Coordination in accordance with the National Historic Preservation Act of 1966 (NHPA), Section 106 is on-going with regard to the historic and archaeological studies being conducted for the project. Where historic sites are determined to be eligible for inclusion in the NRHP, the Columbus Regional Airport Authority (CRAA) and the FAA are required to comply with all requirements of the NHPA prior to disturbance of a structure or site. There are 12 sites in the General Study Area (GSA) that are on or eligible for listing on the NRHP. These sites are listed in **Table 5.7-1** and shown on **Exhibit 5.7-1, *Section 4(f), 6(f), and Historic Sites***. Two sites, Old Airport Control Tower – on the NRHP and Former Air Force Plant 85 – eligible for listing on the NRHP, are within the Detailed Study Area (DSA). Refer to Section 5.8, *Historic, Architectural, Archaeological, and Cultural Resources*, for further discussion regarding NHPA Section 106. See Appendix J, *Historic Resources,* for copies of coordination between the FAA and the Ohio Historic Preservation Office regarding this project.



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Section 4(f), 6(f), and Historic Sites

Exhibit: **5.7-1**

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Table 5.7-1
HISTORIC RESOURCES IDENTIFIED IN THE AREA OF POTENTIAL EFFECT
Port Columbus International Airport

Map No.	OHI/Site No.	Name/Address of Property	APE
Listed on the National Register of Historic Places			
1	n/a	Valley Dale Ballroom, 1590 Sunbury Road	Indirect
2	FRA-1793-12	Old Port Columbus Airport Control Tower, 4920 E. Fifth Ave. west of Hamilton	Direct
3	FRA-2605-12	Elam-Drake Residence, 2738 Ole Country Lane	Indirect
4	FRA-2606-12	Elam-Drake Residence (barn), 2738 Ole Country Lane	Indirect
Eligible for Listing on the National Register of Historic Places			
5	FRA-8366-12	Air Force Plant 85, 4300 E. Fifth Ave. (multiple structures)	Direct
6	FRA-2063-14	House at 1388 Sunbury Road – Ohio Dominican University	Indirect
Possibly Eligible for Listing on the National Register of Historic Places			
7	FRA-2052-14	1891 Sunbury Road	Indirect
8	FRA-2068-14	Wehrle Hall – Ohio Dominican University, Sunbury Road	Indirect
9	FRA-2069-14	Erskine Hall – Ohio Dominican University, Sunbury Road	Indirect
10	n/a	Evergreen Cemetery, 1401 Woodland Ave.	Indirect
11	FRA-2054-14	873 Walcutt Avenue – Shepard School	Indirect
12	n/a	Hangar 1 (Transcontinental Air Transport Hangar), 575 N. Hamilton Road north of Fifth Avenue at southeast corner of Airport	Direct

Note: "n/a" denotes no OHI/Site No. assigned.

Source: ASC Group, 2007.

5.7.1.2 Land and Water Conservation Act, Section 6(f)

Section 6(f) of the Land and Water Conservation Act (LWCA) is also pertinent to Section 4(f) lands. Section 6(f) prohibits recreational facilities funded under the LWCA from being converted to non-recreational use unless approval is received from the director of the grantor agency.

Five parks or recreational facilities in the GSA were funded under the LWCA: Gahanna Woods City Park, Hayden Falls Park, Mayme Moore Park, Pine Quarry Park, and Pizzurro Park.[4] None of these sites would be converted to non-recreational use as a result of the project. Of the five facilities within the GSA, only a portion of the Pizzurro Park, located east of the Port Columbus International Airport (CMH or Airport), is currently and would be potentially exposed to noise levels greater than 65 DNL resulting from proposed development at the Airport. None of the alternatives under consideration in this EIS would result in noise levels at Pizzurro Park exceeding 75 DNL. Therefore no constructive use taking or conversion of land would occur.

[4] Ohio Department of Natural Resources Office of Real Estate and Land Management, *Federal Land and Water Conservation Fund Projects: Franklin County*. 2007.

5.7.2 APPLICABILITY OF SECTION 4(f)

The development alternatives proposed at CMH that include replacing Runway 10R/28L, as well as constructing a new passenger terminal, would not require the physical acquisition of any LWCA funded park or recreation area. However, the Airport Golf Course located east of the Airport on Hamilton Road, would be reconfigured due to the relocation of the approach lighting system to Runway 28L. It has been determined that Section 4(f) is applicable to the impact to the Airport Golf Course.

In addition, 51 public parks which are not under the jurisdiction of the LWCA were assessed for airport-generated noise impacts. Section 4(f) may be applicable to these parks and therefore are included in the assessment of impacts. **Table 5.7-2**, identifies both the LWCA and non-LWCA funded parks assessed in this EIS. These locations are shown on Exhibit 5.7-1, *Section 4(f), 6(f), and Historic Sites*.

There are 12 structures in the GSA that are either listed on the NRHP, eligible for listing on the NRHP, or potentially eligible for listing on the NRHP. All 12 of these sites may be indirectly impacted as a result of increased noise levels. Three of these sites are located within the DSA and may be directly impacted as a result of this project. Because Section 4(f) requires that any program or project that includes the use of any publicly-owned land from an historic structure of national, state, or local significance, the FAA has determined that Section 4(f) is applicable to the 12 historic or potentially historic properties in the GSA and therefore are included in the assessment of impacts.

Consultation with the City of Columbus and the Department of Interior regarding the potential impacts to Section 4(f), 6(f), and historic sites has concluded. Appendix I, *Airport Golf Course,* Appendix J, *Historic Resources*, and Appendix N, *Department of Transportation 4(f) Consultation,* includes documentation of the FAA's findings and consultation.

Table 5.7-2
SECTION 4(f) AND SECTION 6(f) PARKS AND RECREATION AREAS IN THE GENERAL STUDY AREA
Port Columbus International Airport

Name of Park	LWCA Grant Funded	Park Operator
Academy		Gahanna
American Addition		Columbus
Amvet		Columbus
Airport Golf Course		Columbus
Audubon		Columbus
Avalon		Columbus
Beatty		Columbus
Beechwold		Columbus
Bishop Memorial		Whitehall
Blacklick Ridge		Columbus
Brentnell		Columbus
Brittany Hills		Columbus
Cassady		Columbus
City Gate		Columbus
Civic		Reynoldsburg
Commonwealth park		Bexley
Crawford Farms		Columbus
Creekside		Gahanna
Deaf School / topiary park		Columbus
Five acre woods parkland		Jefferson Township
Franklin Park		Columbus
Franklin Park Conservatory		Columbus
Friendship		Gahanna
Gahanna wood nature reserve		Gahanna
Gahanna Woods	**Yes**	Gahanna
Galloway preserve		Gahanna
Glen Echo		Columbus
Hayden	**Yes**	Columbus
Iuka		Columbus
Jeffrey		Bexely
Joan		Columbus
Krumm		Columbus
Linden		Columbus
Maloney		Columbus
Mayme Moore	**Yes**	Columbus
Memorial		Gahanna
Milo-Grogan		Columbus
Milo-Grogan Recreation Center		Columbus
Mock		Columbus
Nelson		Columbus
North East		Columbus
Norton field		Whitehall
Pine quarry	**Yes**	Reynoldsburg
Pizzurro	**Yes**	Gahanna
Pride		Columbus
Rathburn woods		Gahanna
Rodebaugh		Reynoldsburg
Saunders		Columbus
Sawyer		Columbus
Shepard		Columbus
Shull		Gahanna
Somerset		Columbus
Taylor road reserve		Gahanna
Thurber		Columbus
Whitehall Community		Whitehall
Windsor		Columbus
Wolfe		Columbus

Source: Landrum & Brown, 2007.

5.7.3 EXISTING CONDITIONS: 2006

According to the FAA land use compatibility guidelines, most parks and recreation areas exposed to noise levels below 70 DNL are compatible and not significantly impacted. Only those parks and recreation areas where natural quiet or performances occur on a regular basis are considered non-compatible with noise levels between 65 and 70 DNL. Parks and recreation areas exposed to noise levels below 65 DNL are considered to be compatible unless there is some extenuating circumstance related to its use, such as a national park. Of the 57 parks and recreation areas identified in the GSA, 52 are exposed to noise levels below 65 DNL in the existing condition and all of the future alternative conditions assessed in this EIS. None of those 52 parks contain uses that would require a threshold of noise lower than 65 DNL.

The existing noise exposure for the LWCA-funded parks and other public parks that receive noise in excess of 65 DNL under any of the project alternatives is presented in **Table 5.7-3**. Portions of the LWCA-funded Pizzurro Park and portions of the Airport Golf Course are located within the 65-70 DNL existing condition noise contour. Pizzurro Park, located east of the Airport, on the east side of Big Walnut Creek has a fenced dog park area, canoe launch, fishing, basketball court, softball fields, and picnic area. These uses are compatible with the noise levels and the value of the park is not diminished as a result of the noise levels present under existing conditions. The Airport Golf Course, located east of the Airport on Hamilton Road, is an 18-hole public use golf course. The golf course was constructed in 1966 after the existing Runway 10R/28L was constructed. The layout of the golf course was significantly influenced by the location of approach lights extending east from the runway. The golf course has proven to be a popular destination for golfers over the years. Noise levels of 65 – 70 DNL are considered compatible with golf courses and therefore, neither the use nor the value of the course is affected by the existing noise from the Airport.

Existing noise levels at the historic sites is presented in **Table 5.7-4**. Three of the 10 historic sites are located within the 65 - 70 DNL noise contour.

Table 5.7-3
SUMMARY OF NOISE IMPACTS TO SECTION 4(f) and 6(f) SITES
Port Columbus International Airport

Name of Park	LWCA Grant Funded	2006 Baseline	2012 Alt A: No Action	2012 Alt C2a	2012 Alt C2b	2012 Alt C3a	2012 Alt C3b	2018 Alt A: No Action	2018 Alt C2a	2018 Alt C2b	2018 Alt C3a	2018 Alt C3b
Airport Golf Course	no	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70
Brentnell	no	-	-	-	-	-	-	-	65-70	65-70	-	65-70
Brittany Hills	no	-	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70
Krumm	no	-	-	65-70	65-70	65-70	65-70	-	65-70	65-70	65-70	65-70
Pizzurro	**yes**	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70

Note: Parks not listed in table receive noise levels less than 65 DNL in all alternatives.
"-" denotes where the noise levels would be less than 65 DNL for that alternative.

Source: Landrum & Brown, 2007.

Table 5.7-4
SUMMARY OF NOISE IMPACTS TO SECTION 4(f) AND HISTORIC STRUCTURES
Port Columbus International Airport

Map Number	OHI Number	Description	2006 Baseline	2012 Alt A: No Action	2012 Alt C2a	2012 Alt C2b	2012 Alt C3a	2012 Alt C3b	2018 Alt A: No Action	2018 Alt C2a	2018 Alt C2b	2018 Alt C3a	2018 Alt C3b
1	n/a	Valley Dale Ballroom	-	65-70	65-70	-	65-70	-	65-70	65-70	-	65-70	-
2	FRA-1793-12	Old Port Columbus Airport Control Tower	65-70	65-70	70-75	70-75	65-70	65-70	65-70	70-75	70-75	70-75	70-75
3	FRA-260512, FRA-2606-12	Elam Drake House	65-70	70-75	70-75	70-75	70-75	70-75	70-75	70-75	65-70	70-75	65-70
4	FRA-260512, FRA-2606-12	Elam Drake Barn	65-70	70-75	70-75	70-75	70-75	70-75	70-75	70-75	65-70	70-75	65-70
5	FRA-8366-12	Air Force Plant 85, 4300 E. Fifth Ave. (multiple structures)	-	-	65-75	65-75	65-75	65-75	65-70	65-75	65-75	65-75	65-75
6	FRA-2063-14	House at 1388 Sunbury Rd	-	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70
7	FRA-2052-14	1891 Sunbury Rd	-	-	-	-	-	-	-	-	-	-	-
8	FRA-2068-14	Wehrle Hall – Ohio Dominican University, Sunbury Rd	-	-	-	-	-	-	-	-	-	-	-
9	FRA-2069-14	Erskine Hall – Ohio Dominican University, Sunbury Rd	-	-	-	-	-	-	-	-	-	-	-
10	n/a	Evergreen Cemetery	-	-	-	-	-	-	-	-	-	-	-
11	FRA-2054-12	Shepard School	-	-	-	-	-	-	-	-	-	-	-
12	n/a	Hangar 1 (Transcontinental Air Transport Hangar), 575 N. Hamilton Road	-	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70	65-70

Note: "-" denotes where noise levels would be less than 65 DNL for that alternative.

Source: Landrum & Brown, 2007.

5.7.4 FUTURE CONDITIONS: 2012

Alternative A:
2012 No Action

Under 2012 Alternative A, no Section 4(f), 6(f), or historic sites would be directly impacted because there would be no construction activities. Three parks, including LWCA-funded Pizzurro Park, Airport Golf Course, and Brittany Hills Park, are located within the 65 – 70 DNL noise contour for 2012 Alternative A. Noise impacts to parks from 2012 Alternative A are listed in Table 5.7-3. The relationship of airport noise and the value and uses at Pizzurro Park and the Airport Golf Course are described under Section 5.7.3. That discussion concludes that due to the uses at Pizzurro Park and Airport Golf Course, it is determined that neither the use nor the value of the parks would be diminished by noise levels of 65 – 70 DNL. Brittany Hills Park has a recreation center, a playground, and basketball courts. These uses are compatible with the noise levels and the value of the park is not diminished as a result of the noise levels that would be present for the 2012 Alternative A condition.

Six historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Noise impacts to historic structures from 2012 Alternative A are listed in Table 5.7-4. 2012 Alternative A represents the No Action Alternative and provides a baseline to compare impacts from other alternatives.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

The analysis of Alternative C2a includes the potential for both direct (physical taking) and indirect (noise) impacts. The following sections describe the direct and indirect impacts.

DIRECT IMPACTS

Background

Airport Golf Course

Under 2012 Alternative C2a, the Airport Golf Course located east of the Airport on Hamilton Road, would be impacted by the relocation of Runway 10R/28L 800 feet to the south. The following provides more information on the golf course and the potential impacts. The Airport Golf Course opened in 1966 on land owned by the City of Columbus. The CRAA now owns the golf course property and leases it to the City of Columbus to manage the golf course. The golf course was opened after the construction of Runway 10R/28L at the Airport. As a result, the original design of the golf course was heavily influenced by the requirements to maintain setbacks and clear zones around the approach lighting system to Runway 28L. **Exhibit 5.7-2, *Existing Airport Golf Course Layout***, shows the existing Airport Golf Course layout.

Historic Structures

Several structures that are either historic on their own or part of an historic district are located on the south side of the Airport in the DSA. These include: the Old Port Columbus Airport Control Tower (NRHP listed); Buildings 3 and 7 of Air Force Plant 85, now referred to as the Columbus International Aircenter (CIAC) (NRHP eligible); and Hangar 1, known as the Transcontinental Air Transport Hangar (potentially eligible for NRHP). See Exhibit 5.7-1 for the location of each of these sites.

Impacts

As a result of the 800-foot relocation of Runway 10R/28L included in the 2012 Alternative C2a, there would be direct impacts to the Airport Golf Course and two historic structures.

Airport Golf Course

Implementation of Alternative C2a would result in the approach lighting system to existing Runway 28L to be shifted 800 feet to the south. This would result in the reconfiguration of at least nine holes to meet FAA requirements regarding the location of greens, tees, or fairways in proximity to the approach lights. Specific guidance from FAA states that:

- Golf holes may not be located between the new Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR) nor will golf shots be allowed between the new light towers;
- Golf shots will be played away from or toward the lights but not over them; and
- Golf activities should not be closer than 20 feet to the MALSR light lane.

During re-construction of the golf course, it is the desire of both the CRAA and the City of Columbus to maintain a minimum of nine holes. The feasibility of this will be further analyzed and determined during the design phase of the project. The re-construction is anticipated to occur over an 18-month period, and at the end of construction, the golf course would return to an 18-hole facility. It is anticipated that during construction, there would be temporary economic impacts to the golf course due to reduced greens fees. However, these would be temporary impacts that would be corrected after the full course reopens.

Historic Structures

Implementation of Alternative C2a would result in the removal of Building 7 and a portion of Building 3 of the former Air Force Plant 85, which is eligible for listing on the NRHP. This would constitute a physical taking of these resources.

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Existing Airport Golf Course Layout

Exhibit:
5.7-2

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Consultation

Airport Golf Course

The Airport Golf Course is a public recreation facility and as such, consultation with the City of Columbus and the Department of Interior occurred throughout the study process. To date, a proposed reconfigured golf course layout has been developed in coordination with the City of Columbus that will allow the relocation of the light lane to occur while maintaining at least nine holes of play on the course at all times. **Exhibit 5.7-3**, ***Redesigned Airport Golf Course,*** shows the reconfigured golf course layout. In addition, the CRAA and the City of Columbus have negotiated an agreement on financial terms to assist in offsetting the anticipated reduction in revenue during the construction period. This agreement between the City of Columbus and the CRAA is memorialized in a Memorandum of Understanding which was executed on December 12, 2008.[5]

Historic Structures

The FAA has conducted consultation in accordance with Section 106 of the NHPA with the OHPO regarding this project. Specifically, that consultation has included the determination of historic properties and potential adverse impacts. The OHPO has concurred with the FAA's determination of historic properties in the APE and the determination of potential adverse impacts. Appendix J, *Historic Resources*, includes copies of technical reports and consultation between the FAA and the OHPO regarding this matter.

INDIRECT IMPACTS

Four parks, including LWCA-funded Pizzurro Park, Airport Golf Course, Brittany Hills Park, and Krumm Park, are located within the 65 - 70 DNL noise contour for 2012 Alternative C2a. As described previously in this section, due to the uses at Pizzurro Park, Airport Golf Course, and Brittany Hills Park, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2012 Alternative A. Krumm Park is the only one of the four where the noise levels would increase from below 65 DNL to 65 – 70 DNL. The park features athletic fields for soccer and football, a basketball court, parking lot, picnic areas, playground, a pond, recreation center, a lighted tennis court, and walking trails. These uses are not noise-sensitive and therefore neither the use nor the value of the park would be diminished by the noise levels under 2012 Alternative C2a. Noise impacts to parks from the 2012 Alternative C2a are listed in Table 5.7-3.

Seven historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the seven is residential and has already received sound insulation through the CRAA's previous sound insulation program. None of the structures would receive noise levels at or above 75 DNL.

[5] Letter from Alan McKnight, Director of Columbus Parks and Recreation, City of Columbus, December 12, 2008. See Appendix I, *Airport Golf Course*.

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Redesigned Airport Golf Course

Exhibit:
5.7-3

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Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

DIRECT IMPACTS

The direct impacts discussed under the 2012 Alternative C2a would remain the same for the 2012 Alternative C2b.

INDIRECT IMPACTS

There would be changes to the noise levels associated with 2012 Alternative C2b due to the implementation of the recommended measures from the Airport's updated Noise Compatibility Program (NCP). However, the same four parks listed for Alternative C2a, including LWCA-funded Pizzurro Park, Airport Golf Course, Brittany Hills Park, and Krumm Park, are located within the 65 – 70 DNL noise contour for 2012 Alternative C2b. Due to the uses at these parks, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2012 Alternative C2b. Noise impacts to parks from the 2012 Alternative C2b are listed in Table 5.7-3.

Six historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the six is residential and has already received sound insulation through the CRAA's previous sound insulation program. None of the structures would receive noise levels at or above 75 DNL. Noise impacts to historic structures from the 2012 Alternative C2b are listed in Table 5.7-4.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

DIRECT IMPACTS

The direct impacts discussed under the 2012 Alternative C2a for the Airport Golf Course would remain the same for the 2012 Alternative C3a. However, there would be a difference in the impacts to historic structures.

Under the 2012 Alternative C3a, one historic structure would be directly impacted due to the relocation of Runway 10R/28L 702 feet to the south. A ramp tower located on the top of Building 7 of the former Air Force Plant 85 would be removed to comply with FAA airport design standards. Air Force Plant 85 is eligible for listing on the NRHP due to the aircraft manufacturing activities that occurred at the site and the architectural significance of the original structures, which were designed by Albert Kahn. Since its original construction in 1943, Building 7 has undergone a number of improvements and additions, one of which was the addition of a ramp tower in 1953. The FAA has determined that removal of the ramp tower would constitute an adverse impact because it would modify the existing structure which is a contributing building to the Air Force Plant 85 historic district. However, the

ramp tower was not part of Albert Kahn's original work and was built after the time when the Air Force Plant 85 was being used for the manufacturing activities that made it eligible for the NRHP. Based on these facts, the FAA has determined that removal of the structure is not a significant impact and would actually return the site to a condition where it is closer to its original layout and architecture.

INDIRECT IMPACTS

There would be changes to the noise levels associated with the 2012 Alternative C3a due to the relocation of Runway 10R/28L 702 feet to the south. However, the same four parks listed for Alternative C2a, including LWCA-funded Pizzurro Park, Airport Golf Course, Brittany Hills Park, and Krumm Park, are located within the 65 – 70 DNL noise contour for 2012 Alternative C3a. Due to the uses at these parks, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2018 Alternative C3a. Noise impacts to parks from the 2012 Alternative C3a are listed in Table 5.7-3.

Seven historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the seven potentially significant historic structures, one is residential and has already received sound insulation through the CRAA's previous sound insulation program. None of the structures would receive noise levels at or above 75 DNL. Noise impacts to historic structures from the 2012 Alternative C3a are listed in Table 5.7-4.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

DIRECT IMPACTS

The direct impacts discussed under the 2012 Alternative C3a would remain the same for the 2012 Alternative C3b.

INDIRECT IMPACTS

There would be changes to the noise levels associated with the 2012 Alternative C3b due to implementation of the recommended measures from the Airport's updated NCP. However, the same four parks listed for Alternative C2a, including LWCA-funded Pizzurro Park, Airport Golf Course, Brittany Hills Park, and Krumm Park, are located within the 65 – 70 DNL noise contour for 2012 Alternative C3b. Due to the uses at these parks, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2018 Alternative C3b. Noise impacts to parks from the 2012 Alternative C3b are listed in Table 5.7-3.

Six historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the six is residential and has already received sound insulation through the CRAA's previous sound insulation program. None of the structures would receive noise levels at or above 75 DNL. Noise impacts to historic structures from the 2012 Alternative C3b are listed in Table 5.7-4.

5.7.5 FUTURE CONDITIONS: 2018

In addition to 2012, the environmental consequences of the Sponsor's Proposed Project and its alternatives are provided for 2018. The 2018 alternatives include the addition of the proposed passenger terminal and parking garage in the midfield area. There are no parks, recreation areas, wildlife refuges, or historic structures located in the area where the proposed passenger terminal would be constructed. However, there are potential changes in the noise impacts associated with each alternative. These potential changes in the noise impacts are described below.

Alternative A:
2018 No Action

DIRECT IMPACTS

Under the 2018 Alternative A, no Section 4(f), 6(f), or historic sites would be directly impacted because there would be no construction activities.

INDIRECT IMPACTS

Three parks, including LWCA-funded Pizzurro Park, Airport Golf Course, and Brittany Hills Park, are located within the 65 – 70 DNL noise contour for the 2018 Alternative A. Noise impacts to parks from the 2018 Alternative A are listed in Table 5.7-3. Due to the uses at these parks, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2018 Alternative C2b. The relationship of airport noise and the value and uses at Pizzurro Park and the Airport Golf Course, are described under Section 5.7.3. A similar discussion for Brittany Hills Park is provided under Section 5.7.4.

Seven historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the seven is residential and has already received sound insulation through the CRAA's previous sound insulation program. Noise impacts to historic structures from the 2018 Alternative A are listed in Table 5.7-4. The 2018 Alternative A represents the No Action Alternative and provides a baseline to compare impacts from other alternatives.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

DIRECT IMPACTS

Under the 2018 Alternative C2a, no Section 4(f), 6(f), or historic sites would be directly impacted because there are no such properties in the area where the proposed terminal would be built.

INDIRECT IMPACTS

Five parks, including LWCA-funded Pizzurro Park, Airport Golf Course, Brentnell Park, Brittany Hills Park, and Krumm Park are located within the 65 – 70 DNL noise contour for 2018 Alternative C2a. The determination that the value and uses at Pizzurro Park, the Airport Golf Course, Brittany Hills Park, and Krumm Park would not be diminished with this level of noise is described under Sections 5.7.3 and 5.7.4. Brentnell Park is the only one of the five where the noise levels would increase from below 65 DNL to 65 - 70 DNL with implementation of the alternative. Brentnell Park consists of a basketball court, parking lot, picnic areas, recreation center, and a lit tennis court. These uses are not noise-sensitive and therefore neither the use nor the value of the park would be diminished by the noise levels under 2018 Alternative C2a. Noise impacts to parks from the 2018 Alternative C2a are listed in Table 5.7-3.

Seven historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the seven is residential and has already received sound insulation through the CRAA's previous sound insulation program. Noise impacts to historic structures from the 2018 Alternative C2a are listed in Table 5.7-4.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

DIRECT IMPACTS

As discussed under the 2018 Alternative C2a, there would be no direct impacts to Section 4(f), 6(f), or historic sites.

INDIRECT IMPACTS

There would be changes to the noise levels associated with the 2018 Alternative C2b due to the implementation of the recommended measures from the Airport's updated NCP. However, the same five parks listed for Alternative C2a, including LWCA-funded Pizzurro Park, Airport Golf Course, Brentnell Park, Brittany Hills Park, and Krumm Park, are located within the 65 – 70 DNL noise contour for 2018 Alternative C2b. Due to the uses at these parks, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2018 Alternative C2b. Noise impacts to parks from the 2018 Alternative C2b are listed in Table 5.7-3.

Six historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the six is residential and has already received sound insulation through the CRAA's previous sound insulation program. None of the structures would receive noise levels at or above 75 DNL. Noise impacts to historic structures from the 2018 Alternative C2b are listed in Table 5.7-4.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

DIRECT IMPACTS

As discussed under the 2018 Alternative C2a, there would be no direct impacts to Section 4(f), 6(f), or historic sites.

INDIRECT IMPACTS

There would be changes to the noise levels associated with the 2018 Alternative C3a. However, the same five parks listed for Alternative C2a, including LWCA-funded Pizzurro Park, Airport Golf Course, Brentnell Park, Brittany Hills Park, and Krumm Park, are located within the 65 – 70 DNL noise contour for 2018 Alternative C3a. Due to the uses at these parks, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2018 Alternative C3a. Noise impacts to parks from the 2018 Alternative C3a are listed in Table 5.7-3.

Seven historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the seven is residential and has already received sound insulation through the CRAA's previous sound insulation program. None of the structures would receive noise levels at or above 75 DNL. Noise impacts to historic structures from the 2018 Alternative C3a are listed in Table 5.7-4.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

DIRECT IMPACTS

As discussed under the 2018 Alternative C2a, there would be no direct impacts to Section 4(f), 6(f), or historic sites.

INDIRECT IMPACTS

There would be changes to the noise levels associated with the 2018 Alternative C3b due to the implementation of the recommended measures from the Airport's updated NCP. However, the same five parks listed for Alternative C2a, including LWCA-funded Pizzurro Park, Airport Golf Course, Brentnell Park, Brittany Hills Park, and Krumm Park, are located within the 65 – 70 DNL noise contour for 2018 Alternative C3a. Due to the uses at these parks, it is determined that neither the use nor the value of the parks would be diminished by the level of noise under 2018 Alternative C3b. Noise impacts to parks from the 2018 Alternative C3b are listed in Table 5.7-3.

Six historic structures that are listed, eligible for listing, or possibly eligible for listing in the NRHP would be located within the 65 DNL noise contour. Of the potentially significant historic structures, one of the six is residential and has already received sound insulation through the CRAA's previous sound insulation program. None of the structures would receive noise levels at or above 75 DNL. Noise impacts to historic structures from the 2018 Alternative C3b are listed in Table 5.7-4.

5.7.6 SECTION 6(f) EVALUATION

As stated earlier in this section, five recreational facilities that were funded under the LWCA are located within the GSA. These locations are shown on Exhibit 5.7-1, *Section 4(f), 6(f), and Historic Sites*. Of these five LWCA-funded recreational facilities, only the Pizzurro Park, located east of the Airport, would be potentially impacted by the Sponsor's Proposed Project or its alternatives. This section provides an evaluation of the potential impacts resulting from the Sponsor's Proposed Project on Section 6(f) lands.

5.7.6.1 Noise

Pizzurro Park is located east of the Airport near Big Walnut Creek and encompasses 18.57 acres. Under existing conditions, 4.35 total acres of Pizzurro Park are impacted by noise levels over 65 DNL. The 2012 Alternative A would result in 4.63 total acres impacted by noise levels above 65 DNL with no impacts over 75 DNL. Each of the development alternatives would decrease the total acreage of Pizzurro Park impacted by noise levels greater than 65 DNL over the 2012 Alternative A. The Alternative C3b, the Sponsor's Proposed Project, would impact approximately 3.92 acres by noise levels of 65 DNL or greater. **Exhibit 5.7-4**, ***2012 No Action and 2012 Alternative C3b 65 DNL Noise Contours,*** shows the location of the 65 DNL of both the 2012 Alternative A and the 2012 Alternative C3b. Because the area exposed to significant noise levels (-0.43 acres) would decrease as a result of implementing the Sponsor's Proposed Project, it was determined that the noise impacts resulting from the Sponsor's Proposed Project do not constitute a constructive use taking or conversion of land subject to Section 6(f) of the LWCA or Section 4(f) of the DOT Act. Therefore, there would not be an impact to a Section 6(f) resource due to noise from the Sponsor's Proposed Project.

5.7.6.2 Other Potential Impacts

Due to the location of the Pizzurro Park in relationship to the project area, there would be no other impacts to the park related to water resources, wetlands, floodplains, or light emissions.

5.7.7 CONCLUSION

All the proposed alternatives were considered in an effort to determine ways to avoid or minimize impacts to the Section 4(f) and 6(f) lands near CMH.

Alternative C2a/b and C3a/b include the construction of a replacement Runway 10R/28L 800 and 702 feet south of existing Runway 10R/28L, respectively, and represent the greatest impacts to Section 4(f) lands. These alternatives would require reconfiguration, a "physical taking," of the Airport Golf Course due to the relocation of the approach lighting system for Runway 28L. There would be no prudent or feasible alternative to its reconfiguration if these development plans are implemented. However, there has been agreement among the CRAA and the City of Columbus regarding the layout of the golf course and negotiations have concluded regarding the financial terms for reducing the economic impact of the construction.[6] These agreements would make the Airport Golf Course equal to its existing conditions.

The total area of Pizzurro Park exposed to noise levels greater than 65 DNL decreased for Alternative C3b (Sponsor's Proposed Project) from the 2012 Alternative A condition. None of the alternatives would result in noise levels exceeding 75 DNL in the Pizzurro Park. Therefore, the Sponsor's Proposed Project would not constitute a constructive use taking or conversion of Section 4(f) or 6(f) land.

Alternative C3a/b would require the removal of the Ramp Tower on Building 7 of Air Force Plant 85 historic district. However, consultation with the OHPO and the CRAA are negotiating a Memorandum of Agreement, which outlines the methods by which the Ramp Tower may be removed. Refer to Chapter Five, Section 5.8, *Historic, Architectural, Archaeological, and Cultural Resources*, for further discussion relating to historic structures.

[6] The CRAA and City of Columbus entered into a Memorandum of Understanding (MOU) on December 12, 2008 regarding the reconfiguration of the Airport Golf Course (see Appendix I for a copy of the signed MOU).

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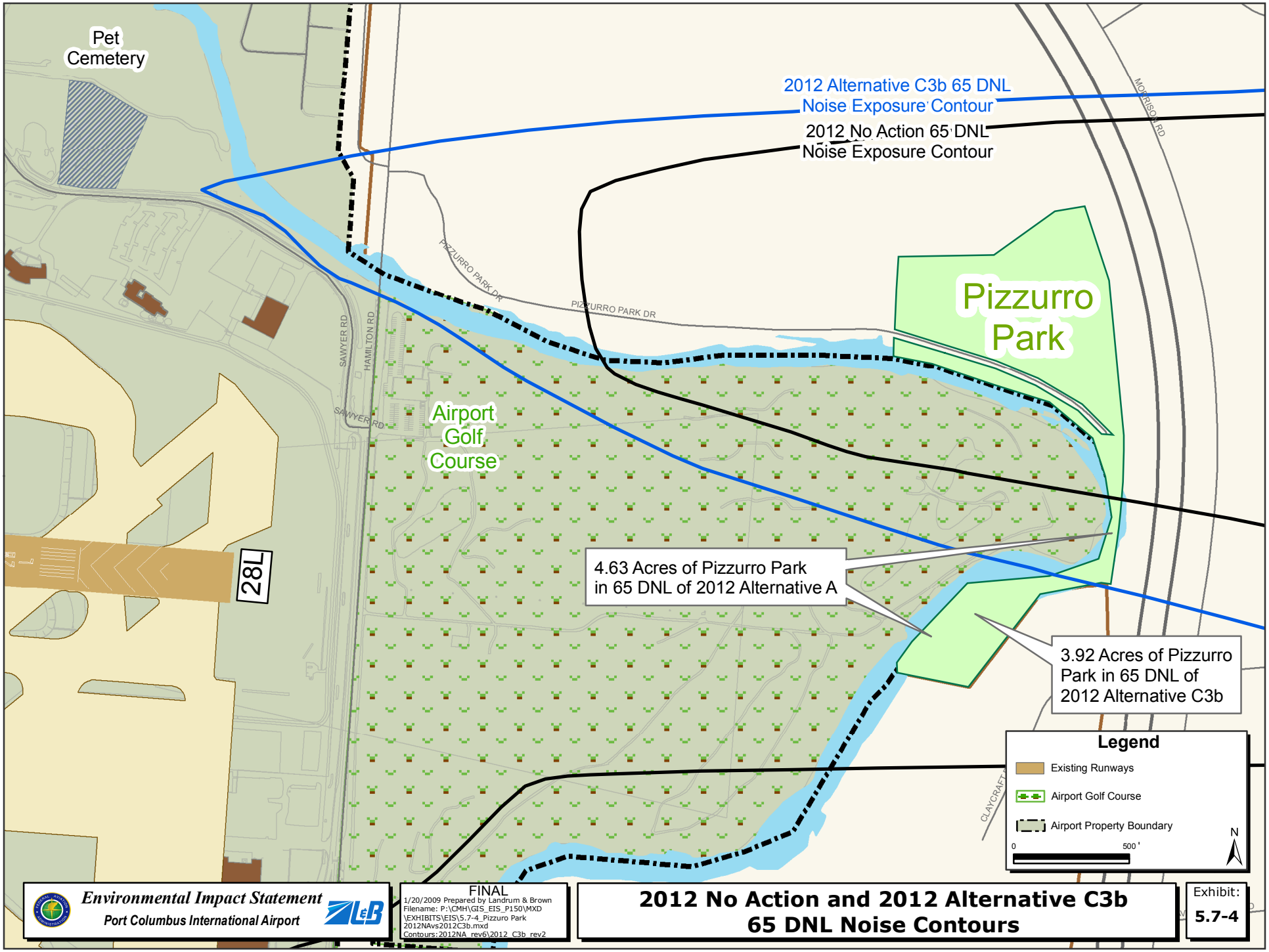
Pet Cemetery
2012 Alternative C3b 65 DNL Noise Exposure Contour
2012 No Action 65 DNL Noise Exposure Contour
MORRISON RD
PIZZURRO PARK DR
PIZZURRO PARK DR
Pizzurro Park
SAWYER RD
HAMILTON RD
SAWYER RD
Airport Golf Course
28L
4.63 Acres of Pizzurro Park in 65 DNL of 2012 Alternative A
3.92 Acres of Pizzurro Park in 65 DNL of 2012 Alternative C3b
CLAYCRAFT
Legend
Existing Runways
Airport Golf Course
Airport Property Boundary
0
500 '
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.7-4_Pizzuro Park 2012NAvs2012C3b.mxd
Contours:2012NA_rev6\2012_C3b_rev2
2012 No Action and 2012 Alternative C3b
65 DNL Noise Contours
Exhibit:
5.7-4

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5.8 HISTORIC, ARCHITECTURAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended (16 U.S.C. § 470(f)), protects properties that are listed in or determined eligible for inclusion in the National Register of Historic Places (NRHP). The NHPA requires Federal agencies to take into account the effects of their undertakings on historic properties, and to consult with the State Historic Preservation Officer (SHPO), Tribal Historic Preservation Officers (THPO), and other parties to develop and evaluate alternatives or modifications to the undertaking that could avoid, minimize, or mitigate adverse effects on historic properties. The Advisory Council on Historic Preservation (ACHP) is afforded a reasonable opportunity to comment on such undertakings. The requirements of Section 106 are implemented under 36 CFR Part 800, *Protection of Historic Properties*. Compliance with the National Environmental Policy Act of 1969 (NEPA), (42 U.S.C. § 4321), Section 101(b) is being undertaken concurrently with the Section 106 process. 36 CFR Part 800.8, *Coordination With the National Environmental Policy Act,* allows for the use of the NEPA process for Section 106 purposes. This allows the public to provide comments regarding the eligibility of historic properties and any resolution of adverse effects. Archaeological sites are protected under the NHPA, and the Section 106 process is applied in a similar fashion when a project involves excavation of any kind.

Section 4(f) of the Department of Transportation Act of 1966, as amended, and currently codified as 49 U.S.C. § 303 (c), protects historic and/or cultural resources of national, State, or local significance and other natural public features from conversion to transportation use unless there is no prudent or feasible alternative. It will be referred to as Section 4(f) in this section.

A series of historic, architectural, archaeological, and cultural resource assessment surveys were prepared in accordance with NEPA, Section 106, and Section 4(f) (see Appendix J, *Historic Resources*, Attachments 1 - 5). These surveys provided information to assist in the identification of NRHP-listed, determined NRHP-eligible, potentially NRHP-eligible, and National Register Landmark properties potentially affected by the improvements proposed for implementation at Port Columbus International Airport (CMH or Airport).

In accordance with the NHPA (particularly Section 106), direct and indirect impacts from Federal actions on historic, architectural, archaeological, and other cultural resources must be considered. Per the NHPA, the Federal Aviation Administration (FAA) has consulted with the Ohio SHPO (see correspondence in Appendix J). A literature search and field investigation was conducted to identify historic, architectural, archaeological, or cultural resources within the Area of Potential Effect (APE).

5.8.1 AREA OF POTENTIAL EFFECT (APE)

The geographic area of potential impact to historic and archaeological resources is referred to as the APE, as established pursuant to the NHPA. The resources identified within the APE include historic or archaeological properties potentially impacted by a proposed project. The determination of the APE considers the character of a project area and the potential for cultural resources to be found. The APE is defined on two levels: one level for the potential direct (physical) impacts and the second level for the potential indirect (non-physical) impacts.[1] Direct impacts include areas located within the current and potential future Airport boundary that could be potentially affected by the Sponsor's Proposed Project or its alternatives. Such development and construction activities could result in the disturbance of historic properties. **Exhibit 5.8-1, *Area of Potential Effect – Direct Impacts***, shows this area.

The area of indirect impact within the APE was determined by combining the 2018 60+ Day-Night Average Sound Level (DNL) noise exposure contours for the Sponsor's Proposed Project or its alternatives. This composite contour was based on the latest forecast[2] of operations in order to encompass the largest area of potential impact. **Exhibit 5.8-2, *Area of Potential Effect – Indirect Impacts***, shows this area.

5.8.2 HISTORIC AND ARCHITECTURAL RESOURCES

Background research, historic and current aerial photograph analyses, and a reconnaissance field survey were conducted to identify NRHP-listed, determined NRHP-eligible, or possibly NRHP-eligible historic resources located within the direct impact APE. The historic resources field surveys were conducted in February, August, and September 2007. These surveys included both "windshield" and pedestrian surveys to confirm that historic resources, initially identified through background research and analyses of aerial photographs, were visually verified and properly mapped. Historic resources within the APE of direct impact were given a preliminary visual reconnaissance, photographed, and identified on current aerial photographs. The significance of each resource was evaluated for its potential eligibility for listing in the NRHP. Historic physical integrity was determined from site observations, field data, and photographic documentation.

The historic resources identified within the airport boundary and in areas immediately surrounding the Airport, where direct or indirect effects may occur, are identified in **Table 5.8-1**. Of the 39 resources identified, four are currently listed in the NRHP, two are eligible for listing in the NRHP, five are possibly eligible for listing in the NRHP, and the remaining do not appear to be eligible for inclusion in the NRHP.

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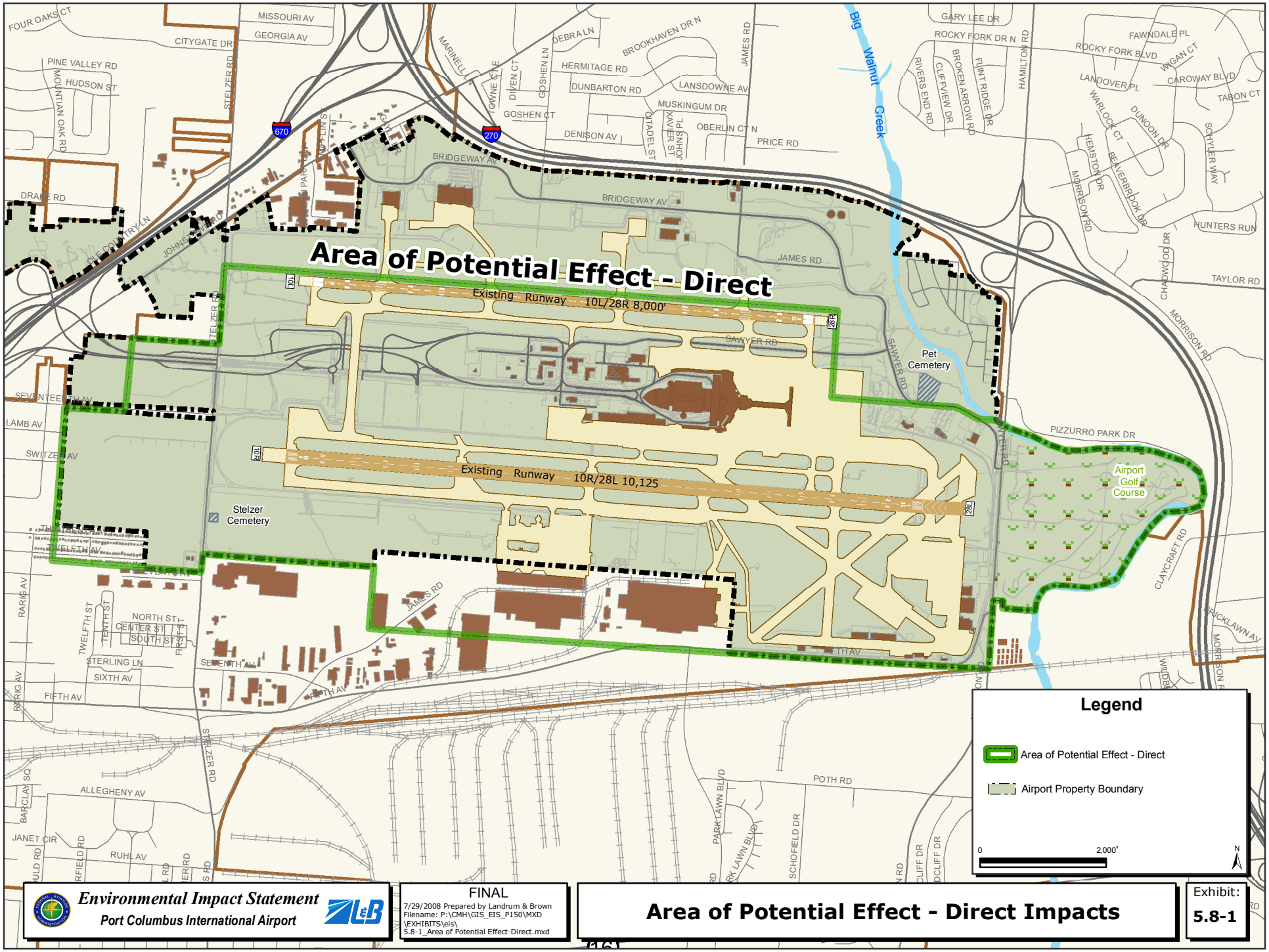
1 Direct and indirect impacts may be referred to as primary and secondary impacts, respectively.
2 *Aviation Forecasts – Port Columbus International Airport*, May 2006, Landrum & Brown.



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7/29/2008 Prepared by Landrum & Brown
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Area of Potential Effect - Direct Impacts

Exhibit: **5.8-1**

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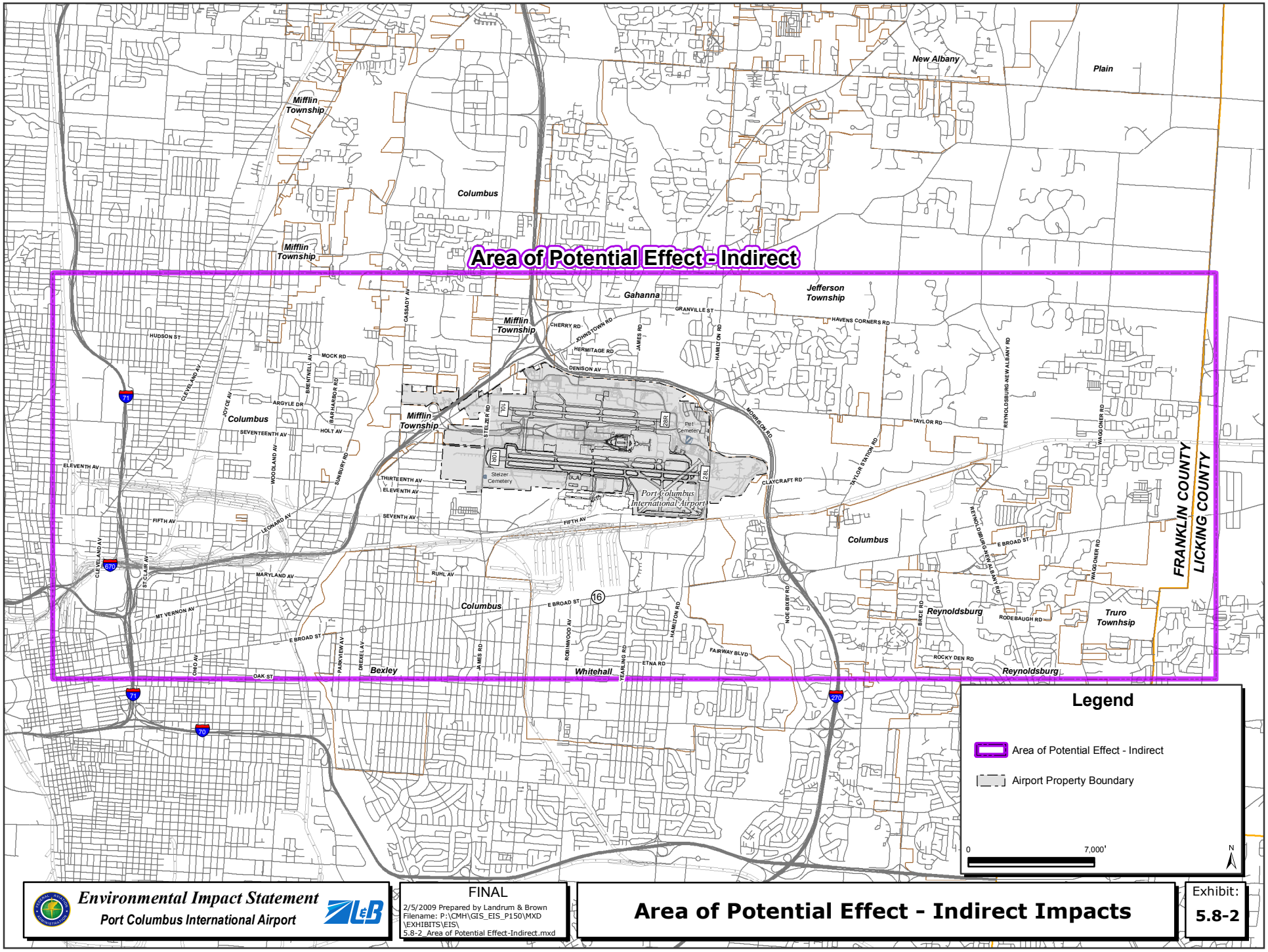
Area of Potential Effect - Indirect
Mifflin Township
Columbus
New Albany
Plain
Jefferson Township
Gahanna
Port Columbus International Airport
Stelzer Cemetery
Pet Cemetery
Bexley
Whitehall
Reynoldsburg
Truro Townhsip
FRANKLIN COUNTY
LICKING COUNTY
Legend
Area of Potential Effect - Indirect
Airport Property Boundary
0
7,000'
N
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Port Columbus International Airport
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5.8-2_Area of Potential Effect-Indirect.mxd
Area of Potential Effect - Indirect Impacts
Exhibit:
5.8-2

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Table 5.8-1
HISTORIC RESOURCES IDENTIFIED IN THE AREA OF POTENTIAL EFFECT
Port Columbus International Airport

Map No.	OHI / Site No.	Name / Address of Property	APE
Listed on the National Register of Historic Places			
1	n/a	Valley Dale Ballroom, 1590 Sunbury Road	Indirect
2	FRA-1793-12	Old Port Columbus Airport Control Tower, 4920 E. Fifth Ave. west of Hamilton	Direct
3	FRA-2605-12	Elam-Drake Residence, 2738 Ole Country Lane	Indirect
4	FRA-2606-12	Elam-Drake Residence (barn), 2738 Ole Country Lane	Indirect
Eligible for Listing on the National Register of Historic Places			
5	FRA-8366-12	Air Force Plant 85, 4300 E. Fifth Ave. (multiple structures)	Direct
6	FRA-2063-14	House at 1388 Sunbury Road – Ohio Dominican University	Indirect
Possibly Eligible for Listing on the National Register of Historic Places			
7	FRA-2052-14	1891 Sunbury Road	Indirect
8	FRA-2068-14	Wehrle Hall – Ohio Dominican University, Sunbury Road	Indirect
9	FRA-2069-14	Erskine Hall – Ohio Dominican University, Sunbury Road	Indirect
10	n/a	Evergreen Cemetery, 1401 Woodland Ave.	Indirect
11	FRA-2054-14	873 Walcutt Avenue – Shepard School	Indirect
12	n/a	Hangar 1 (Transcontinental Air Transport Hangar), 575 N. Hamilton Road north of Fifth Avenue at southeast corner of Airport	Direct
Not Eligible for Listing on the National Register of Historic Places			
13	n/a	Eastlawn Cemetery, 1340 Woodlawn Ave.	Indirect
14	n/a	Dominican Sisters Cemetery, Ohio Dominican University	Indirect
15	n/a	Stelzer Cemetery, between 13th and 17th Avenues	Direct
16	n/a	Brown Pet Cemetery, between Big Walnut Creek and Port Columbus International Airport	Direct
17	FRA-1800-12	1955 Sunbury Road	Indirect
18	FRA-2051-14	1773 Joyce Road	Indirect
19	FRA-2057-14	887 Taylor Avenue	Indirect
20	FRA-2058-14	2260 East Fifth Avenue	Indirect
21	FRA-2059-14	800 Nelson Road	Indirect
22	FRA-2062-14	1458 Sunbury Road	Indirect
23	FRA-2063-14	1386 Sunbury Road	Indirect
24	FRA-3091-14	2209-2211 East Fifth Avenue	Indirect
25	FRA-2323-6	Second House on south side of Claycraft Road west of Taylor Station Road, Gahanna	Indirect
26	FRA-2534-14	1705 Sunbury Road	Indirect
27	FRA-4829-14	1942 Stelzer Road	Indirect
28	FRA-4830-14	1968 Stelzer Road	Indirect
29	FRA-4831-14	1990 Stelzer Road	Indirect

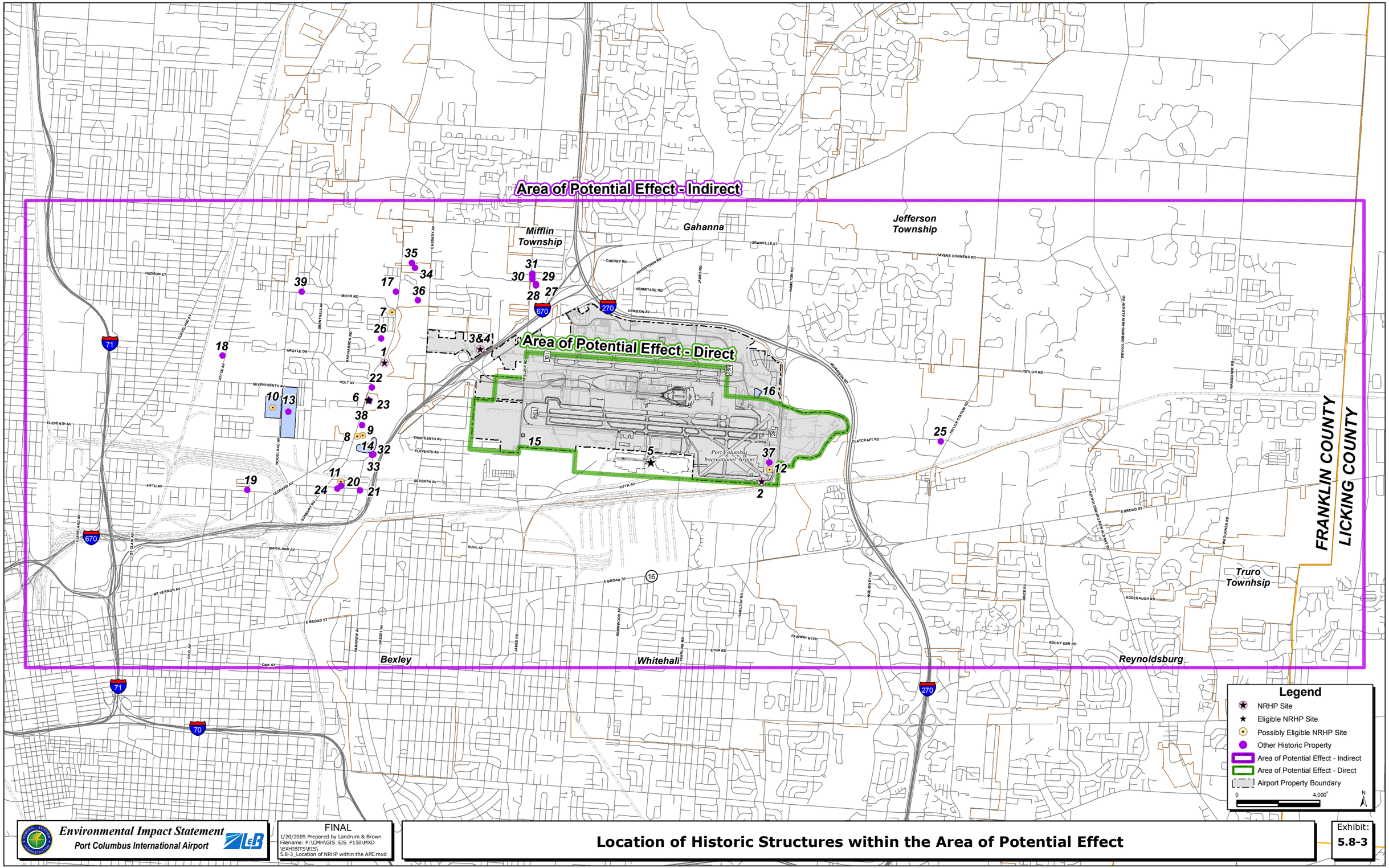
Table 5.8-1, *Continued*
HISTORIC RESOURCES IDENTIFIED IN THE AREA OF POTENTIAL EFFECT
Port Columbus International Airport

Map No.	OHI / Site No.	Name / Address of Property	APE
30	FRA-4832-14	2010 Stelzer Road	Indirect
31	FRA-4833-14	2020 Stelzer Road	Indirect
32	FRA-8424-14	2451 Airport Drive	Indirect
33	FRA-8425-14	2445 Airport Drive	Indirect
34	FRA-8390-12	2090 Sunbury Road	Indirect
35	FRA-8392-12	Vicinity of 2090 Sunbury Road	Indirect
36	FRA-8391-12	Vicinity of 2090 Sunbury Road, Mifflin Township	Indirect
37	n/a	Hangar 3 (Nationwide Hangar), 645 N. Hamilton Road north of Fifth Avenue at southeast corner of Airport	Direct
38	n/a	Sansbury Hall, Sunbury Road, Ohio Dominican University	Indirect
39	n/a	Kingry Cemetery, vicinity of 2142 Mock Road	Indirect

Note: "n/a" denotes no OHI/Site No. assigned.
Source: ASC Group, 2007.

5.8.2.1 Existing Conditions: 2006

The historic architectural inventory identified 12 historic resources that are listed, eligible for listing, or possibly eligible for listing in the NRHP. The Elam-Drake Residence was listed on the NRHP in 1978. This property will either be removed or demolished in an independent project being conducted by the Columbus Regional Airport Authority (CRAA). As such, the Sponsor's Proposed Project will have no impact on the Elam-Drake Residence. Two other structures listed on the NRHP include the Old Port Columbus Airport Control Tower and the Valley Dale Ballroom listed in the NRHP in 1979 and 1982, respectively. The Air Force Plant 85 complex (currently referenced as the Columbus International Aircenter) has several buildings constructed between 1940 and 1944. Air Force Plant 85 is eligible for the NRHP as a historic district. A house located at 1388 Sunbury Road is also eligible for the NRHP. Five historic structures are located within the 65 DNL of the 2006 Baseline noise contour (See Chapter Four, *Affected Environment*, Section 4.7, *Noise*). Table 5.8-1 lists all structures within the APE identified as listed in, eligible for listing, or possibly eligible for listing in the *NRHP.* **Exhibit 5.8-3, *Location of Historic Structures within the Area of Potential Effect*,** shows the location of these structures within the APE.



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Location of Historic Structures within the Area of Potential Effect

Exhibit: **5.8-3**

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Three structures that are listed, eligible for listing, or possibly eligible for listing in the *NRHP*, are commercial or public buildings. Pursuant to current FAA regulations, these structures are considered ineligible for Federally-sponsored sound insulation because they are neither residential nor are they a noise-sensitive public facility. These structures, while existing within the 65 DNL noise contour, do not qualify for designation as noise-impacted due to their non-residential use. As such, they would not be impacted by the proposed expansion project. These structures include:

- Valley Dale Ball Room – Commercial;
- Old Port Columbus Airport Tower – Airport Use; and
- Air Force Plant 85 – Commercial/Warehousing.

Three types of historic structure impacts would occur due to the project: physical taking for construction-related activities, newly impacted by the 65 DNL noise contour, and a 1.5 decibel (dB) increase in noise within the 65 DNL noise contour. These project impacts would be mitigated through environmental mitigation.

The subsequent sections detail structures potentially impacted under each of the alternatives. **Table 5.8-2** provides summary information on the degree of impact to each historic structure identified during the survey.

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Table 5.8-2
SUMMARY OF IMPACTS TO HISTORIC STRUCTURES
Port Columbus International Airport

Map Number	OHI Number	Description	2006 Baseline	2012 Alt A: No Action	2012 Alt C2a	2012 Alt C2b	2012 Alt C3a	2012 Alt C3b	2018 Alt A: No Action	2018 Alt C2a	2018 Alt C2b	2018 Alt C3a	2018 Alt C3b
1	n/a	Valley Dale Ballroom	-	65-70 DNL	65-70 DNL	-	65-70 DNL	-	65-70 DNL	65-70 DNL	-	65-70 DNL	-
2	FRA-1793-12	Old Port Columbus Airport Control Tower	65-70 DNL	65-70 DNL	70-75 DNL	70-75 DNL	65-70 DNL	65-70 DNL	65-70 DNL	70-75 DNL	70-75 DNL	70-75 DNL L	70-75 DNL
3	FRA-260512, FRA-2606-12	Elam Drake House	65-70 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	65-70 DNL	70-75 DNL	65-70 DNL
4	FRA-260512, FRA-2606-12	Elam Drake Barn	65-70 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	65-70 DNL	70-75 DNL	65-70 DNL
5	FRA-8366-12	Air Force Plant 85, 4300 E. Fifth Ave. (multiple structures)	-	-	65-75 DNL	65-75 DNL	65-75 DNL	65-75 DNL	65-70 DNL	65-75 DNL	65-75 DNL	65-75 DNL	65-75 DNL
6	FRA-2063-14	House at 1388 Sunbury Rd	-	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL
7	FRA-2052-14	1891 Sunbury Road	-	-	-	-	-	-	-	-	-	-	-
8	FRA-2068-14	Wehrle Hall – Ohio Dominican University, Sunbury Road	-	-	-	-	-	-	-	-	-	-	-
9	FRA-2069-14	Erskine Hall – Ohio Dominican University, Sunbury Road	-	-	-	-	-	-	-	-	-	-	-
10	n/a	Evergreen Cemetery, 1401 Woodland Ave.	-	-	-	-	-	-	-	-	-	-	-
11	FRA-2054-12	Shepard School	-	-	-	-	-	-	-	-	-	-	-
12	n/a	Hangar 1 (Transcontinental Air Transport Hangar) 575 N. Hamilton Rd.	-	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL

Table 5.8-2, *Continued*
SUMMARY OF IMPACTS TO HISTORIC STRUCTURES
Port Columbus International Airport

Map Number	OHI Number	Description	2006 Baseline	2012 Alt A: No Action	2012 Alt C2a	2012 Alt C2b	2012 Alt C3a	2012 Alt C3b	2018 Alt A: No Action	2018 Alt C2a	2018 Alt C2b	2018 Alt C3a	2018 Alt C3b
13	n/a	Eastlawn Cemetery, 1340 Woodlawn Ave.	-	-	-	-	-	-	-	-	-	-	-
14	n/a	Dominican Sisters Cemetery, Ohio Dominican University	-	-	-	-	-	-	-	-	-	-	-
15	n/a	Stelzer Cemetery	65-70 DNL	65-70 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL	65-70 DNL	70-75 DNL	70-75 DNL	70-75 DNL	70-75 DNL
16	n/a	Brown Pet Cemetery	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL
17	FRA-1800-12	1955 Sunbury Road	-	-	-	-	-	-	-	-	-	-	-
18	FRA-2051-12	1773 Joyce Road	-	-	-	-	-	-	-	-	-	-	-
19	FRA-2057-12	887 Taylor Avenue	-	-	-	-	-	-	-	-	-	-	-
20	FRA-2058-12	2260 East Fifth Avenue	-	-	-	-	-	-	-	-	-	-	-
21	FRA-2059-12	800 Nelson Road	-	-	-	-	-	-	-	-	-	-	-
22	FRA-2062-14	1458 Sunbury Road	-	65-70 DNL	65-70 DNL	-	65-70 DNL	-	65-70 DNL	-	-	-	-
23	FRA-2063-14	1386 Sunbury Road	-	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL
24	FRA-3091-12	2209-2211 East Fifth Avenue	-	-	-	-	-	-	-	-	-	-	-
25	FRA-2323-6	Second House on south side of Claycraft Road west of Taylor Station Road, Gahanna	-	-	-	-	-	-	65-70 DNL	-	-	-	-
26	FRA-2534-14	1705 Sunbury Road	-	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL

Table 5.8-2, *Continued*
SUMMARY OF IMPACTS TO HISTORIC STRUCTURES
Port Columbus International Airport

Map Number	OHI Number	Description	2006 Baseline	2012 Alt A: No Action	2012 Alt C2a	2012 Alt C2b	2012 Alt C3a	2012 Alt C3b	2018 Alt A: No Action	2018 Alt C2a	2018 Alt C2b	2018 Alt C3a	2018 Alt C3b
27	FRA-4829-12	1942 Stelzer Road	-	-	-	-	-	-	-	-	-	-	-
28	FRA-4830-12	1968 Stelzer Road	-	-	-	-	-	-	-	-	-	-	-
29	FRA-4831-12	1990 Stelzer Road	-	-	-	-	-	-	-	-	-	-	-
30	FRA-4832-12	2010 Stelzer Road	-	-	-	-	-	-	-	-	-	-	-
31	FRA-4833-12	2020 Stelzer Road	-	-	-	-	-	-	-	-	-	-	-
32	FRA-8424-12	2451 Airport Drive	-	-	-	-	-	-	-	-	-	-	-
33	FRA-8425-12	2445 Airport Drive	-	-	-	-	-	-	-	-	-	-	-
34	FRA-8390-12	2090 Sunbury Road	-	-	-	-	-	-	-	-	-	-	-
35	FRA-8392-12	Vicinity of 2090 Sunbury Road	-	-	-	-	-	-	-	-	-	-	-
36	FRA-8391-12	Vicinity of 2090 Sunbury Road, Mifflin Township	-	-	-	-	-	-	-	-	-	-	-
37	n/a	Hangar 3 (Nationwide Hangar), 645 N. Hamilton Road	-	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL	65-70 DNL
38	n/a	Sansbury Hall, Sunbury Road, Ohio Dominican University	-	-	-	-	-	-	-	-	-	-	-
39	n/a	Kingry Cemetery, vicinity of 2142 Mock Road	-	-	-	-	-	-	-	-	-	-	-

Note: "-"denotes sound levels less than 65 DNL.

Note: "n/a"denotes no OHI/Site No. assigned.

Source: ASC Group, 2007, Landrum & Brown, 2007.

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5.8.2.2 Future Conditions: 2012

Alternative A:
2012 No Action

Under the 2012 Alternative A, no historic structures would be directly impacted because there would be no construction activities. Twelve historic structures would be located within the 65+ DNL noise contour (six of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Impacts to historic structures from 2012 Alternative A are listed in Table 5.8-2. The 2012 Alternative A represents the No Action Alternative and provides a baseline to compare impacts from other alternatives.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Under the 2012 Alternative C2a, three historic structures would be directly impacted due to the relocation of Runway 10R/28L 800 feet to the south. Two of the structures to be removed, Building 7 and a portion of Building 3 of the former Air Force Plant 85, are eligible for listing on the NRHP. Removal of Building 7 and portions of Building 3 would constitute an adverse impact to Air Force Plant 85, significantly diminishing its historic value. The third structure, Hangar 3 (Nationwide Hangar) in the southeastern portion of the Airport, is neither currently eligible nor considered possibly eligible for the NRHP.

Thirteen historic structures would be located within the 65+ DNL noise contour (seven of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the seven is residential and has already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2012 Alternative C2a are listed in Table 5.8-2.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Under the 2012 Alternative C2b, three historic structures would be directly impacted due to the relocation of Runway 10R/28L 800 feet to the south. Two of the structures to be removed, Building 7 and a portion of Building 3 of the former Air Force Plant 85, are eligible for listing on the NRHP. Removal of Building 7 and portions of Building 3 would constitute an adverse impact to Air Force Plant 85, significantly diminishing its historic value. The third structure, Hangar 3 (Nationwide Hangar) along Hamilton Road in the southeastern portion of the Airport, is not currently eligible nor considered possibly eligible for the NRHP.

Eleven historic structures would be located within the 65+ DNL noise contour (six of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the six is residential and has

already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2012 Alternative C2b are listed in Table 5.8-2.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Under the 2012 Alternative C3a, two historic structures would be directly impacted due to the relocation of Runway 10R/28L 702 feet to the south. A ramp tower located on the top of Building 7 of the former Air Force Plant 85 would be removed to comply with FAA airport design standards. Air Force Plant 85 is eligible for listing on the NRHP due to the aircraft manufacturing activities that occurred at the site and the architectural significance of the original structures, which were designed by Albert Kahn. Since its original construction in 1943, Building 7 has undergone a number of improvements and additions, one of which was the addition of a ramp tower in 1953. The FAA has determined that removal of the ramp tower would constitute an adverse impact because it would modify the existing structure which is a contributing building to the Air Force Plant 85 historic district. However, the ramp tower was not part of Albert Kahn's original work and was built after the time when the Air Force Plant 85 was being used for the manufacturing activities that made it eligible for the NRHP. Based on these facts, the FAA has determined that removal of the structure is not a significant impact and would actually return the site to a condition where it is closer to its original layout and architecture. The FAA and CRAA are consulting with the Ohio SHPO to develop a Memorandum of Agreement, which will outline the findings and methods to be used if the Ramp Tower is removed. The second structure, Hangar 3 (Nationwide Hangar) along Hamilton Road in the southeastern portion of the Airport, is neither currently eligible nor considered possibly eligible for the NRHP at this time.

Thirteen historic structures would be located within the 65+ DNL noise contour (seven of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the seven is residential and has already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2012 Alternative C3a are listed in Table 5.8-2.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Under the 2012 Alternative C3b, two historic structures would be directly impacted due to the relocation of Runway 10R/28L 702 feet to the south. A ramp tower located on the top of Building 7, not the building itself, of the former Air Force Plant 85 would be removed to comply with FAA airport design standards. Air Force Plant 85 is eligible for listing on the NRHP due to the aircraft manufacturing activities that occurred at the site and the architectural significance of the original structures, which were designed by Albert Kahn. Since its original construction in 1943, Building 7 has undergone a number of improvements and additions, one of which was the addition of a ramp tower in 1953. The FAA has determined that removal of

the ramp tower would constitute an adverse impact because it would modify the existing structure which is a contributing building to the Air Force Plant 85 historic district. However, the ramp tower was not part of Albert Kahn's original work and was built after the time when the Air Force Plant 85 was being used for the manufacturing activities that made it eligible for the NRHP. Based on these facts, the FAA has determined that removal of the structure is not a significant impact and would actually return the site to a condition where it is closer to its original layout and architecture. The FAA and CRAA are consulting with the Ohio SHPO to develop a Memorandum of Agreement, which will outline the findings and methods to be used if the Ramp Tower is removed. The second structure, Hangar 3 (Nationwide Hangar) along Hamilton Road in the southeastern portion of the Airport, is not currently eligible nor considered possibly eligible for the NRHP at this time.

Eleven historic structures would be located within the 65+ DNL noise contour (six of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the six is residential and has already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2012 Alternative C3b are listed in Table 5.8-2.

5.8.2.3 Future Conditions: 2018

In addition to 2012, the environmental consequences of the Sponsor's Proposed Project and its alternatives are provided for 2018. The 2018 alternatives include the addition of the proposed passenger terminal in the midfield area. There are no historic structures located in the area where the proposed passenger terminal would be constructed. However, there are potential changes in the noise impacts associated with each alternative, as described below.

Alternative A:
2018 No Action

Under the 2018 Alternative A, no historic structures would be directly impacted because there would be no construction activities. Fourteen historic structures would be located within the 65+ DNL noise contour (seven of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Impacts to historic structures from the 2018 Alternative A are listed in Table 5.8-2. The 2018 Alternative A represents the No Action Alternative and provides a baseline to compare impacts from other alternatives.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Twelve historic structures would be located within the 65+ DNL noise contour (seven of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the seven is

residential and has already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2018 Alternative C2a are listed in Table 5.8-2.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Eleven historic structures would be located within the 65+ DNL noise contour (six of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the six is residential and has already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2018 Alternative C2b are listed in Table 5.8-2.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Twelve historic structures would be located within the 65+ DNL noise contour (seven of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the seven is residential and has already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2018 Alternative C3a are listed in Table 5.8-2.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Eleven historic structures would be located within the 65+ DNL noise contour (six of which are listed, eligible for listing, or possibly eligible for listing in the NRHP). Of the potentially significant historic structures, one of the six is residential and has already received sound insulation through the CRAA's previous sound insulation program. Impacts to historic structures from the 2018 Alternative C3b are listed in Table 5.8-2.

5.8.3 ARCHAEOLOGICAL RESOURCES

Archaeological resources are material remains, such as graves, tools, pottery, and remnant foundations, left by past human life and cultures. The importance of most archaeological sites lies in the data they contain that may help expand knowledge of history or prehistory. The APE for archaeological resources is limited to those areas that would be directly impacted due to construction activities. The following subsections identify archaeological resources present within the APE and discusses the impacts to those resources as a result of the proposed alternatives.

5.8.3.1 Existing Conditions: 2006

Two archaeological sites were identified within the Detailed Study Area (DSA) during the Archaeology Survey. See Chapter Four, *Affected Environment*, Exhibit 4-3 for a graphic of the DSA. Based on the distribution of artifacts, the lack of intact cultural context associated with these artifacts, and the paucity of diagnostic artifacts, none of these archaeological sites or isolated finds has been recommended as potentially eligible for inclusion in the NRHP.[3] Therefore, no further archaeological study has been recommended at these locations.

Additional field work was conducted on the east side of the Airport Golf Course, in the brushy wooded area west of Stelzer Road, and on the east side of Stelzer Road including the Stelzer Cemetery site. **Exhibit 5.8-4, *Archaeological Field Work*,** shows the location of the areas where archaeological field work was conducted for this EIS. The survey indicated that no significant or potentially significant archaeological sites are located within any of the sites.

Field work was also conducted at the site where the Stelzer Cemetery was thought to exist (east side of Stelzer Road, south of existing Runway 10R/28L). In the course of this investigation, a headstone with the family name of Stelzer and three grave shafts with a small amount of remains were located. The location and size of the grave shafts, along with the items found at the site make it reasonably certain that these items were part of the Stelzer Cemetery. Further research found that the human remains from the Stelzer Cemetery were relocated to the Mifflin Township Cemetery in 1930. Therefore, it is concluded that the items found at the site were inadvertently left at this site when the cemetery was relocated. Originally, it was believed that this site may be disturbed due to the proposed runway and taxiway construction. However, through planning the CRAA has determined that the site will not be disturbed with the exception of a small amount of fill being placed over the site. The CRAA has corresponded with the living descendants of the Stelzer family and developed a plan for addressing the site. This plan includes relocating the headstone to the Mifflin Township Cemetery with the other Stelzer family graves, placing the small amount of artifacts found at the site back into the grave shafts, placing a ground plaque on the site to identify it as the location of the Stelzer Cemetery, and providing access to the site for Stelzer family members. A copy of the correspondence between the CRAA and the Stelzer family is located in Appendix J, *Historic Resources*. Through consultation with the Ohio SHPO, the FAA has determined that the cemetery is not considered historically significant because no persons of historical significance are buried at the site.

5.8.3.2 Future Conditions: 2012

As mentioned above, only those areas where physical disturbance is expected to occur have the potential to contain archaeological resources that may be impacted. The following paragraphs provide a summary of potential impacts from the various alternatives.

[3] *Cultural Resources Existing Conditions and Survey Methodology Report for the Port Columbus International Airport*, February 1, 2007, ASC Group.

Alternative A:
2012 No Action

Alternative A includes no new construction. Therefore, this alternative would not result in the disturbance of any identified archaeological sites.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Alternative C2a includes relocation of Runway 10R/28L 800 feet to the south. This alternative would not result in the disturbance of any identified archaeological sites.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

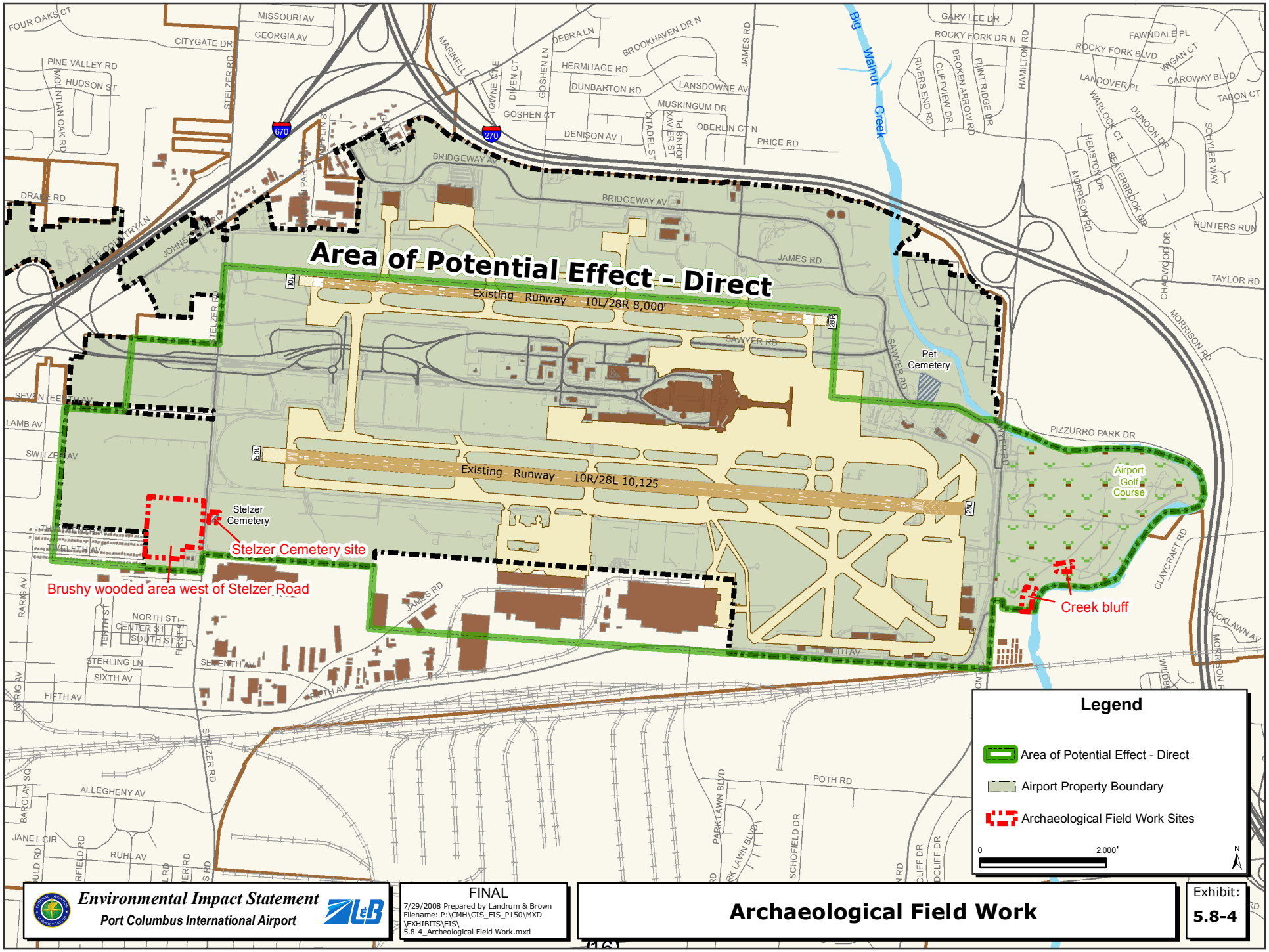
Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, along with operational changes proposed in the 2007 Part 150 Noise Compatibility Study (2007 Part 150 Study). This alternative would not result in the disturbance of any identified archaeological sites.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Alternative C3a includes relocation of Runway 10R/28L 702 feet to the south. This alternative would not result in the disturbance of any identified archaeological sites.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, along with operational changes proposed in the 2007 Part 150 Study. This alternative would not result in the disturbance of any identified archaeological sites.



Environmental Impact Statement
Port Columbus International Airport

FINAL
7/29/2008 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.8-4_Archeological Field Work.mxd

Archaeological Field Work

Exhibit: 5.8-4

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5.8.3.3 Future Conditions: 2018

In addition to 2012, the environmental consequences for 2018 are provided because that is the anticipated year of the opening of the proposed passenger terminal.

Alternative A:
2018 No Action

Alternative A includes no new construction or changes in operating procedures. Therefore, this alternative would not result in the disturbance of any identified archaeological sites.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Alternative C2a includes the construction of the proposed passenger terminal and parking garage. This alternative would not result in the disturbance of any identified archaeological sites.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Alternative C2b includes the same construction of the proposed passenger terminal and parking garage as Alternative C2a, along with operational changes proposed in the 2007 Part 150 Study. This alternative would not result in the disturbance of any identified archaeological sites.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Alternative C3a includes the construction of the proposed passenger terminal and parking garage. This alternative would not result in the disturbance of any identified archaeological sites.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same construction of the proposed passenger terminal and parking garage as Alternative C3a, along with operational changes proposed in the 2007 Part 150 Study. This alternative would not result in the disturbance of any identified archaeological sites.

5.8.4 MITIGATION COMMITMENTS

Since the preparation of the Draft EIS, the FAA has continued to work with the Ohio SHPO regarding the determination of adverse impacts (see Appendix J, *Historic Resources*). The FAA and CRAA are consulting with the Ohio SHPO to develop a Memorandum of Agreement, which will outline the findings and methods to be used if the Ramp Tower is removed. As noted above, while the removal of the ramp tower is considered an adverse impact, it actually brings the building closer to the original architecture that contributed to its historic significance.

Noise impacts associated with the alternatives included up to seven structures located within the 65 DNL of the various alternatives that are either on the NRHP, eligible for listing on the NRHP, or are possibly eligible for listing on the NRHP. Of these, one receives an increase in noise (Air Force Plant 85) under Alternative C2a/b and Alternative C3a/b. However, because Air Force Plant 85 is a compatible land use, no mitigation would be required for increases in noise levels. One structure (1388 Sunbury Road) is a noise-sensitive residential land use. This house received sound insulation in 1995-1996 through the CRAA's previous sound insulation program.

5.9 FISH, WILDLIFE, AND PLANTS

Section 7 of the Endangered Species Act (ESA), as amended, applies to Federal agency actions and sets forth requirements for consultation to determine if a proposed action could potentially affect a Federally-endangered or threatened species. If an agency determines that an action may affect a Federally-threatened or endangered species or critical habitat, Section 7(a)(2) of the ESA requires consultation with the U.S. Fish and Wildlife Service (USFWS) or the National Marine Fisheries Service (NMFS), as appropriate, to ensure that any action the agency authorizes, funds, or carries out is not likely to jeopardize the continued existence of any Federally-listed endangered or threatened species, or result in the destruction or adverse modification of critical habitat.

A Biological Assessment is to be prepared to determine whether a proposed action is likely to adversely affect listed species or designated critical habitat, jeopardize the continued existence of species that are proposed for listing, or adversely modify a proposed Critical Habitat. The preparation of a Biological Assessment is mandatory for major construction activities.

In compliance with the ESA and Ohio Revised Code Chapter 1518, as amended, agencies overseeing Federally-funded projects are required to obtain from the USFWS and the Ohio Department of Natural Resources (ODNR) information concerning any species listed, or proposed to be listed on the Endangered Species List, which may be present in the area of the proposed development. The impact of the project on any such species must be evaluated and appropriate measures to avoid or compensate for these impacts must be enacted. The Detailed Study Area (DSA) was evaluated for the potential for existence of Federal and State of Ohio protected plant or animal species, and their respective habitats.

5.9.1 EXISTING CONDITIONS: 2006

The Port Columbus International Airport (CMH or Airport) is located in Franklin County within a highly urbanized area. Although this part of the County has been largely altered by development, many species of native plants continue to exist in remnant habitats on or around the Airport. Within the DSA, many of the existing biotic communities, defined as vegetative associations and their associated wildlife, are limited man-made habitats, such as previously disturbed fields and ditches used for stormwater conveyance.

Information was requested from the USFWS and the ODNR concerning rare, threatened, or endangered species that might be present within the proposed project area. The proposed project area occurs within the range of the following Federal and state threatened or endangered species: Scioto madtom (*Noturus trautmani*), northern riffleshell mussel (*Epioblasma torulosa rangiana*), clubshell mussel (*Pleurobema clava*), Indiana bat (*Myotis sodalis*), bald eagle (*Haliaeetus leucocephalus*), snuffbox mussel (*Epioblasma triqutra*), elephant-ear mussel (*Elliptio crassidens*), northern brook lamprey (*Ichthyomyzon fossor*), blacknose shiner (*Notropis heterolepis*), golden-winged warbler (*Vermivora chrysoptera*), spotted darter (*Etheostoma maculatrum*), one Federal candidate, rayed bean mussel (*Villosa fabalis*), and two state species of concern, the four-toed salamander

(*Hemidactylium scutatum*) and the smooth green snake (*Opheodrys vernalis*). The ODNR has no records of any rare or endangered species in the project area or within a one mile radius of the project area.[1]

5.9.1.1 Vegetation

As part of the Biological Assessment, information was gathered for biotic habitats/communities. Within the DSA, there were four types of vegetative communities identified: open water, forests, old-field, and wasteground. Each of these habitats are briefly described below and the locations shown on **Exhibit 5.9-1**, ***Existing Biotic Habitat*.**

OPEN WATER HABITATS

There are three ponds located in the DSA. These ponds (Ponds 1, 2, and 3) are water hazards on the Airport Golf Course, which is located east of the Airport on Hamilton Road. They are classified as palustrine, excavated, unconsolidated bottom systems with an intermittently exposed hydrologic regime (PUBGx). The ponds appear to be hydrologically isolated from Big Walnut Creek. Pond 1 has a few small patches of cattails (*Typha* sp.) and willows (*Salix* sp.) around its edge. Ponds 2 and 3 are completely unvegetated with gravel and riprap along the banks. Ponds 1, 2, and 3 have areas of 1.13, 1.40, and 0.45 acres respectively.

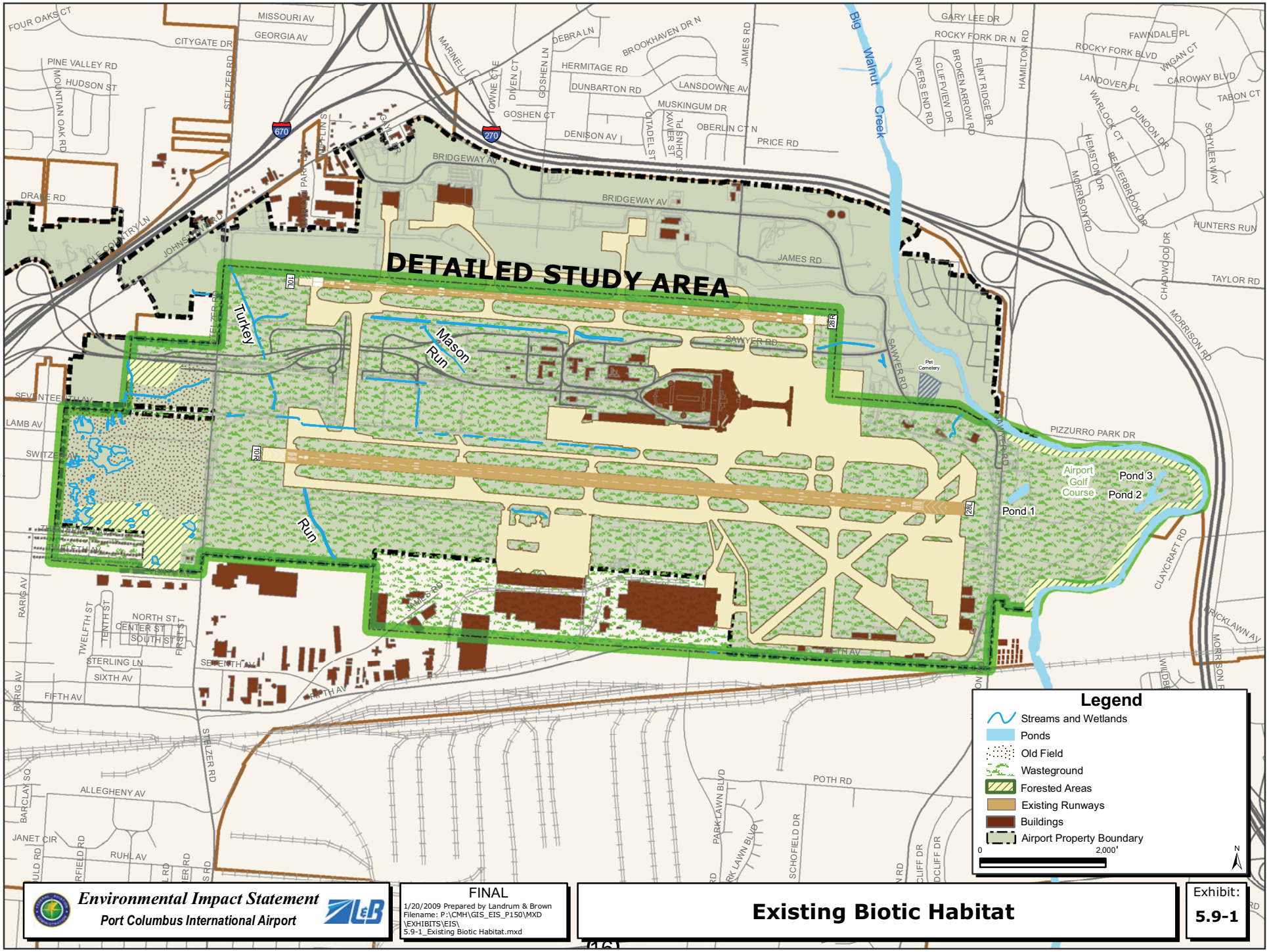
FORESTS

There are three main forested areas within the DSA. Two are located west of Stelzer Road and are dominated by silver maple (*Acer saccharinum*), sugar maple (*Acer saccharum*), common privet (*Ligustrum vulgare*), arrow-wood (*Viburnum dentatum*), and European buckthorn (*Rhamnus frangula*). The third area borders the Airport Golf Course and Big Walnut Creek, east of the Airport. The upper slopes are dominated by sugar maple (*Acer saccharum*) and northern red oak (*Quercus rubra*) while the lower slopes are dominated by sycamore (*Platanus occidentalis*) and green ash (*Fraxinus pennsylvanica*). Understory plants included common privet (*Ligustrum vulgare*), bush honeysuckle (*Lonicera maacki*), and in some places, pawpaw (*Asimina triloba*). The forested areas located to the west of Stelzer Road have areas of approximately 29 acres. The area bordering the Airport Golf Course has an area of approximately 17 acres.

OLD-FIELD

An old-field community occurs on the west side of Stelzer Road. Dominants varied but included redtop (*Agrostis gigantean*), Canada thistle (*Cirsium arvense*), tall fescue (*Festuca elatior*), birdsfoot trefoil (*Lotus corniculatus*), everlasting pea (*Lathyrus latifolius*), old-field panic grass (*Panicum accuminatum* var. *fasciculatum*), and common goldenrod (*Solidago canadensis*). A total of approximately 90 acres of old-field exists on the west side of Stelzer Road.

[1] Letter dated August 10, 2006 from Debbie Woischke of the Ohio Department of Natural Resources. (See Appendix K).



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Existing Biotic Habitat

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WASTEGROUND

Much of the DSA is mowed and consists of maintained right-of-ways and fields in and around residential, industrial, and commercial properties. These areas are collectively referred to as wasteground.

The wasteground in the project area is dominated by a variety of weedy species including oxeye daisy (*Chrysanthemum leucanthemum*), chicory (*Cichorium intybus*), wild carrot (*Daucus carota*), northern crabgrass (*Digitaria sanguinalis*), quack grass (*Elytrigia repens*), tall fescue (*Festuca elatior*), English plantain (*Plantago lanceolata*), Kentucky Bluegrass (*Poa pratensis*), yellow foxtail grass (*Setaria glauca*), birdsfoot trefoil (*Lotus corniculatus*), red clover (*Trifolium pratensis*), and white clover (*Trifolium repens*). There is a total of approximately 1,592 acres of wasteground within the DSA.

5.9.1.2 Wildlife

The project area and the immediate surrounding areas offer relatively limited habitat to a number of animal species due to the heavily urbanized nature of the region. The majority of these species are typical for urban areas. A complete list of current and previously observed fauna and those expected to occur within the project area are provided in Appendix K, *Biological Resources.* Below is a list of the species observed during the field survey:

- raccoon (*Procyon lotor*);
- groundhog (*Marmota monax*);
- house sparrow (*Passer domesticus*);
- starling (*Sturnus vulgaris*);
- northern cardinal (*Cardinalis cardinalis*); and
- blue jay (*Cyanocitta cristata*)

5.9.1.3 Threatened and Endangered Species

A biological assessment was initiated in accordance with Section 7(c) of the ESA, as amended, to evaluate the potential presence of these species within the proposed Airport expansion areas. Extensive field surveys conducted in 2006 found no State or Federally-listed plant or animal species in the project area. During that survey, approximately 21 suitable roost trees and foraging habitat for the Indiana bat were present within the second-growth forest areas of the project area along Big Walnut Creek. However, no individuals were observed during the survey. It is not anticipated that the trees along Big Walnut Creek will be removed for the proposed project. Should there be a need to trim the trees located in this area, further coordination will be conducted with the USFWS, in order to determine if potential impacts to the Indiana bat would occur as a result of this activity. In order to verify that there would be no impacts to the bald eagle, the CRAA will contact the ODNR, prior to construction to obtain an updated status of the bald eagle's activity in the area. Concerning the clubshell mussel, northern riffleshell mussel, rayed bean mussel, and Scioto madtom individuals or habitats, the USFWS determined that, "Due to the project type, size, and location, the project should not impact these species or their habitat.[2]" The ODNR also believes that because of the location of

[2] Letter dated September 18, 2006 from Mary Knapp of the US Fish and Wildlife Service. (See Appendix K)

the project, it is unlikely that there will be an impact on the snuffbox mussel, elephant-ear mussel, golden-winged warbler, spotted darter, the four-toed salamander, and the smooth green snake. Due to the mobility of the northern brook lamprey and blacknose shiner, the ODNR also believes there will be no impact to these species due to the Proposed Project. The report detailing the methodologies and findings of the survey is provided in Appendix K. Consultation under Section 7(c) of the ESA is complete with the USFWS.

5.9.2 FUTURE CONDITIONS: 2012

The survey of potential rare, threatened, or endangered species identified in Section 5.10.1, *Existing Conditions*, provides baseline data to compare impacts between all of the future alternatives. **Table 5.9-1** summarizes the potential habitat impacts for each 2012 alternative.

Table 5.9-1
2012 VEGETATION TYPES AND APPROXIMATE IMPACTS
Port Columbus International Airport

Vegetation Type	2012 Alternative A	2012 Alternative C2a	2012 Alternative C2b	2012 Alternative C3a	2012 Alternative C3b
Open Water	0.0 acres	0.0 acres	0.0 acres	0.0 acres	0.0 acres
Forests	0.0 acres	17 acres*	17 acres*	15 acres*	15 acres*
Old-Field	0.0 acres	7 acres	7 acres	7 acres	7 acres
Wasteground	0.0 acres	465 acres	465 acres	465 acres	465 acres
Wetlands	0.00 acres	0.33 acres	0.33 acres	0.33 acres	0.33 acres
Streams	0.0 linear ft.	1,005 linear ft.	1,005 linear ft.	1,005 linear	1,005 linear
TOTAL	0.0 acres 0.0 linear ft.	488.33 acres 1,005 linear ft.	488.33 acres 1,005 linear ft.	486.33 acres 1,005 linear	486.33 acres 1,005 linear

Note *: Trees would not be cleared, only trimmed.
Source: ASC Group, 2007.

Alternative A:
2012 No Action

Alternative A includes no new construction or changes in operating procedures. Therefore, this alternative would not result in the loss of any biotic or critical habitat supporting a Federal or State endangered or threatened species or conversion of wetlands, open waters, or streams.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Alternative C2a would not impact any State or Federally-threatened or endangered species or critical habitat because none have been identified in the project area. This alternative would require the removal of 0.33 acres of wetlands and 1,005 linear feet of intermittent streams. However, these areas showed no signs of being suitable habitat for any of the endangered or threatened species that could be present in the area. Impacts to other habitats include clearing approximately 464 acres of wasteground and seven acres of old-field. Due to height restrictions required by 14 Code of Federal Regulations (CFR) Part 77 for the proposed replacement runway, 17 acres of trees may need to be trimmed or removed in the southern forested area west of Stelzer Road. As necessary, trees along Big Walnut Creek on or near the Airport Golf Course would be trimmed to comply with 14 CFR Part 77 requirements. No trees along Big Walnut Creek would be removed. In response to the USFWS request, if tree trimming/removal is required, the work would be done in accordance with the most recent guidelines to minimize impacts to potential Indiana bat habitat.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, along with operational changes proposed in the 2007 Part 150 Noise Compatibility Study update (2007 Part 150 Study).[3] The proposed operational changes would not change the area of physical impact. Therefore, the potential impacts to threatened and endangered species and critical habitat will remain the same as discussed for Alternative C2a.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Alternative C3a would not impact any State or Federally-threatened or endangered species or critical habitat because none have been identified in the project area. This alternative would require the removal of 0.33 acres of wetlands and 1,005 linear feet of intermittent streams. However, these areas showed no signs of being suitable habitat for any of the endangered or threatened species that could be present in the area. Impacts to other habitats include clearing approximately 464 acres of wasteground and seven acres of old-field. Due to height restrictions required by 14 CFR Part 77 for the proposed replacement runway, 15 acres of trees may need to be trimmed or removed in the southern forested area west of Stelzer Road. As necessary, trees along Big Walnut Creek on or near the Airport Golf Course would be trimmed to comply with 14 CFR Part 77 requirements. No trees along Big Walnut Creek would be removed. In response to the USFWS request, if

[3] 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.

tree trimming/removal is required, the work would be done in accordance with the most recent guidelines to minimize impacts to potential Indiana bat habitat.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not change the area of physical impact. Therefore, the potential impacts to threatened and endangered species and critical habitat will remain the same as discussed for Alternative C3a.

5.9.3 FUTURE CONDITIONS: 2018

In addition to 2012, the environmental consequences for 2018 are provided because that is the anticipated year for opening of the proposed passenger terminal. **Table 5.9-2** summarizes the potential habitat impacts for each 2018 alternative.

Table 5.9-2
2018 VEGETATION TYPES AND APPROXIMATE IMPACTS
Port Columbus International Airport

Vegetation Type	2018 Alternative A	2018 Alternative C2a	2018 Alternative C2b	2018 Alternative C3a	2018 Alternative C3b
Open Water	0.0 acres	0.0 acres	0.0 acres	0.0 acres	0.0 acres
Forests	0.0 acres	0.0 acres	0.0 acres	0.0 acres	0.0 acres
Old-Field	0.0 acres	0.0 acres	0.0 acres	0.0 acres	0.0 acres
Wasteground	0.0 acres	0.0 acres	0.0 acres	0.0 acres	0.0 acres
Wetlands	0.00 acres	0.32 acres	0.32 acres	0.32 acres	0.32 acres
Streams	0 linear ft.	0 linear ft.	0 linear ft.	0 linear ft.	0 linear ft.
TOTAL	0.0 acres 0 linear ft.	0.32 acres 0 linear ft.	0.32 acres 0 linear ft.	0.32 acres 0 linear ft.	0.32 acres 0 linear ft.

Source: ASC Group, 2007.

Alternative A:
2018 No Action

Alternative A includes no new construction or changes in operating procedures. Therefore, this alternative would not result in the loss of any biotic or critical habitat supporting a Federal or State endangered or threatened species or conversion of wetlands, open waters, or streams.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Alternative C2a would not impact any State or Federally-threatened or endangered species or habitat because none have been identified in the project area. In addition to the 0.33 acres of wetlands for the relocation of Runway 10R/28L in 2012, this alternative would require the removal of 0.32 acres of wetlands for the construction of a proposed passenger terminal and parking garage (0.65 acre total). No additional intermittent streams would be removed for the construction of a proposed passenger terminal and garage.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Alternative C2b includes the same construction projects (relocation of Runway 10R/28L 800 feet to the south and a proposed passenger terminal) as Alternative C2a, along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not change the area of physical impact. Therefore, the potential impacts to threatened and endangered species and critical habitat will remain the same as discussed for Alternative C2a.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Alternative C3a would not impact any State or Federally-threatened or endangered species or habitat because none have been identified in the project area. In addition to the 0.33 acres of wetlands for the relocation of Runway 10R/28L in 2012, this alternative would require the removal 0.32 acres of wetlands for the construction of a proposed passenger terminal and garage (0.65 acre total). No additional intermittent streams would be removed for the construction of a proposed passenger terminal and garage.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same construction projects (relocation of Runway 10R/28L 702 feet to the south and a proposed passenger terminal) as Alternative C3a, along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not change the area of physical impact. Therefore, the potential impacts to threatened and endangered species and critical habitat will remain the same as discussed for Alternative C3a.

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5.10 WETLANDS AND STREAMS

5.10.1 METHODOLOGY

The U.S. Army Corps of Engineers (USACOE) and the U.S. Environmental Protection Agency (USEPA) define wetlands as:

> Those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas. (USACOE Waterways Experiment Station, Environmental Laboratory, 1987).

Three criterion are required for an area to be considered a wetland: hydrophytic vegetation, hydric soils, and wetland hydrology. The hydrophytic vegetation criterion is satisfied when the dominant vegetation in an area is composed of 50 percent or more species that are specifically adapted to living under waterlogged conditions. Hydric soils are soils that exhibit characteristics indicative of long-term saturated or inundated conditions. Wetland hydrology is present if an area sustains a level of soil saturation or inundation sufficient in duration to result in the dominance of hydrophytic vegetation.

5.10.2 EXISTING CONDITIONS: 2006

Wetlands

Wetlands located on the entire Port Columbus International Airport (CMH or Airport) were delineated and classified in 2003. In 2006 the Detailed Study Area (DSA) (approximately 1,750 acres as shown in **Exhibit 5.10-1, *Existing Wetlands in the Detailed Study Area***) was re-delineated through field verification. Wetland communities in the DSA included palustrine broad-leaf deciduous forests and palustrine emergent wetlands. A report detailing the methodologies and findings of the delineation is provided in Appendix K, *Biological Resources*. Approximately 20 percent (1.95 acres) of the delineated wetlands are palustrine forests and 80 percent (8.00 acres) are palustrine emergent. **Table 5.10-1** summarizes these wetland classes and acreages. Descriptions of the plant communities are provided in Section 5.9, *Fish, Wildlife, and Plants,* and further detailed in Appendix K.

Forested wetlands typically occurred as isolated depressions within upland forest areas. Emergent wetlands occurred along stream and ditch margins or in isolated depressions. According to Ohio EPA's Rapid Assessment Method (Ohio Administrative Code Rule 3745-1-54), 8.00 acres (80 percent) were determined to be Category 1 wetlands and 1.95 acres (20 percent) were Category 2 wetlands.

Table 5.10-1
WETLAND VEGETATION TYPES AND OHIO EPA CLASSIFIED WETLANDS
Port Columbus International Airport

WETLAND TYPE	TOTAL ACREAGE	PERCENTAGE OF TOTAL AREA
Broad-leaved Deciduous Forest Wetlands	1.95	19.60
Palustrine Emergent Wetlands	8.00	80.40
TOTAL	**9.95**	**100.00**
OHIO EPA WETLAND CLASSIFICATION		
Category 3 Wetland (High Quality)	0.00	0.00
Category 2 Wetland (Good Quality)	8.00	80.40
Category 1 Wetland (Poor Quality)	1.95	19.60
TOTAL	**9.95**	**100.00**

Note: The acreage of wetlands was updated from the Draft EIS to reflect permitted impacts to wetlands that occurred during and after the wetland delineation. Appendix K includes the original wetland delineation, as well as correspondence with the USACOE rectifying the acreage of wetlands due to permitted impacts.

Source: ASC Group, 2007.

Streamcourses

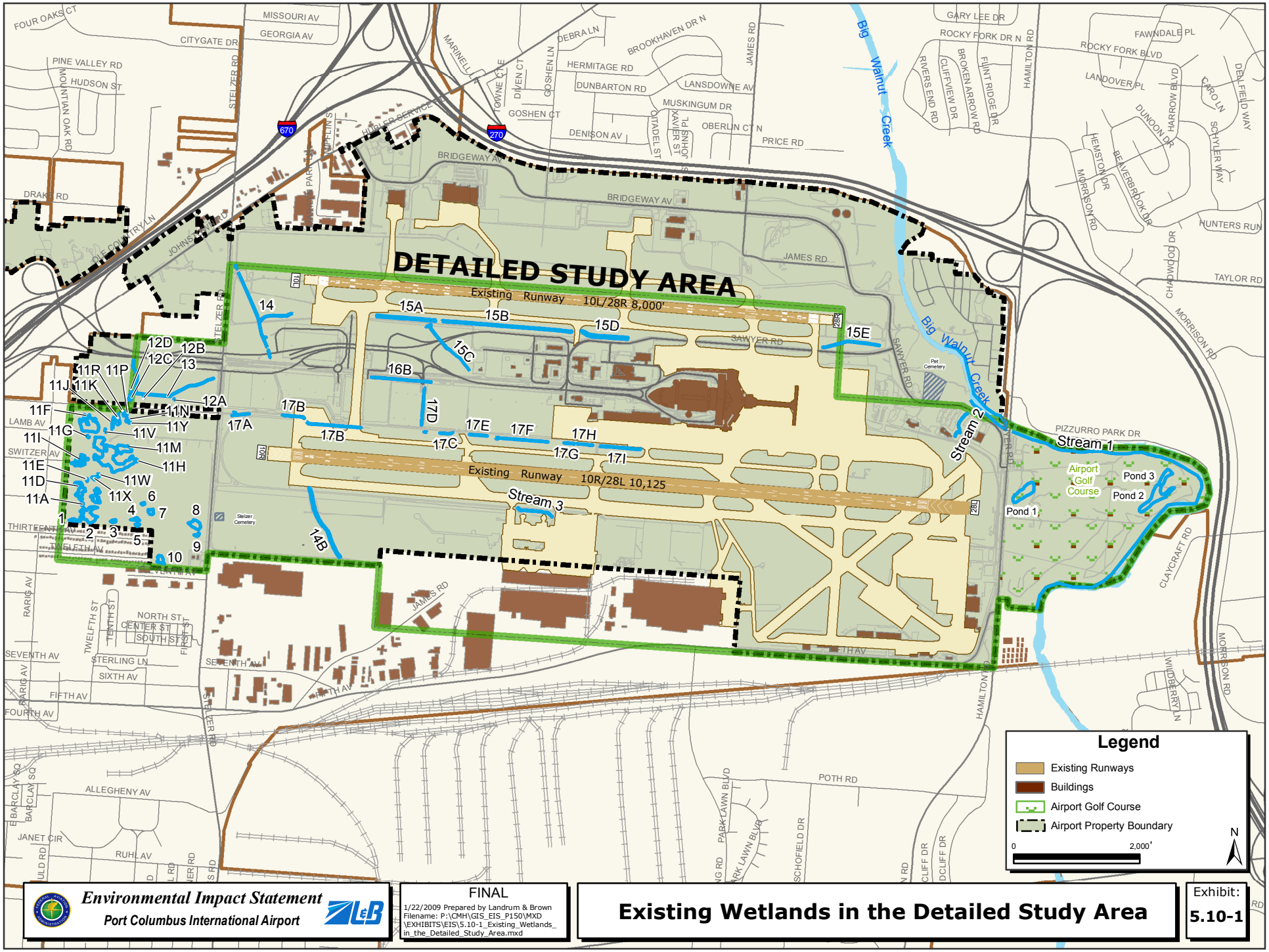
Three jurisdictional waterways, totaling approximately 8,292 linear feet, were identified in the DSA. Two streams are considered headwater streams, while the Big Walnut Creek is considered a non-headwater stream.

Big Walnut Creek had an average width of 75 feet within the DSA and approximately 7,287 linear feet of the Creek extends through the DSA. A second stream is a tributary to the Big Walnut Creek draining under Sawyer Road into Big Walnut Creek. The stream had an average width of 11 feet and a length of approximately 413 feet. The third stream is an unvegetated ditch located south of Runway 10R/28L and originates and discharges into an underground pipe. This stream had an average width of 8.5 feet and a length of approximately 592 feet in the DSA.

Areas of 100-year floodplain are located in the eastern portion of the Airport surrounding Big Walnut Creek. However, most of the DSA is outside of the 100-year floodplain (see Section 5.11, *Floodplains* for further discussion).

5.10.3 FUTURE CONDITIONS: 2012

Wetland and streamcourse impacts of the proposed alternatives in the DSA are listed in **Table 5.10-2**. **Exhibit 5.10-2**, ***Wetland and Stream Impacts*****,** identifies the wetland and stream impacts associated with the Sponsor's Proposed Project and its alternatives.



Environmental Impact Statement
Port Columbus International Airport

FINAL
1/22/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.10-1_Existing_Wetlands_in_the_Detailed_Study_Area.mxd

Existing Wetlands in the Detailed Study Area

Exhibit: **5.10-1**

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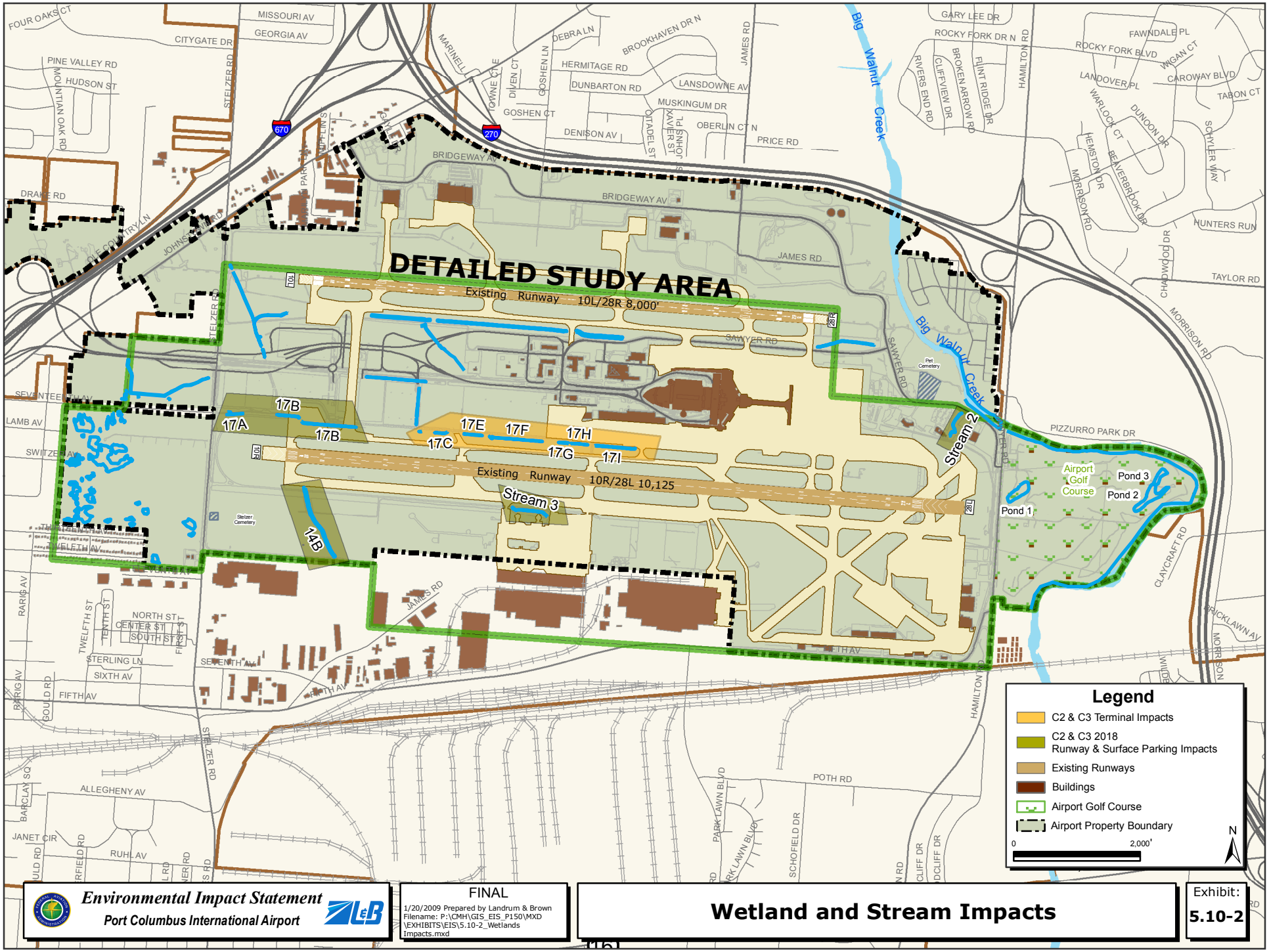
DETAILED STUDY AREA
Existing Runway 10L/28R 8,000'
Existing Runway 10R/28L 10,125
17A
17B
17B
17C
17E
17F
17H
17G
17I
14B
Stream 2
Stream 3
Big Walnut Creek
Pond 1
Pond 2
Pond 3
Airport Golf Course
Legend
C2 & C3 Terminal Impacts
C2 & C3 2018 Runway & Surface Parking Impacts
Existing Runways
Buildings
Airport Golf Course
Airport Property Boundary
0
2,000'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.10-2_Wetlands Impacts.mxd
Wetland and Stream Impacts
Exhibit:
5.10-2

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Table 5.10-2
2012 IMPACTS TO WETLANDS AND JURISDICTIONAL WATERS OF THE U.S. IN THE DSA
Port Columbus International Airport

Alternative	Wetlands	Streams
2006 Existing Conditions	8.00 acres forest 1.95 acres emergent	1,005 ft. intermittent 7,287 ft. permanent
Impacts		
Alternative A	No Change	No Change
Alternative C2a	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent
Alternative C2b	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent
Alternative C3a	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent
Alternative C3b	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent

Note: The acreage of wetlands was updated from the Draft EIS to reflect permitted impacts to wetlands that occurred during and after the wetland delineation. Appendix K includes the original wetland delineation, as well as correspondence with the USACOE rectifying the acreage of wetlands due to permitted impacts.

Source: ASC Group, 2007.

All impacts to streams or wetlands are associated with development in the southern portion of the Airport. The stream that is a tributary to the Big Walnut Creek, which drains under Sawyer Road into Big Walnut Creek, would be expanded into a stormwater detention basin. The basin would reroute stormwater drainage from the proposed development areas to Big Walnut Creek and reduce the tributary area draining to Mason Run. Impacts are realized through the physical location of the runways, taxiways, parking, and the maintenance requirements of the associated Federal Aviation Administration (FAA) airport design standards. During the Environmental Impact Statement (EIS) alternatives selection process, it was determined that no prudent, feasible, reasonable, or practicable alternatives were available that would both satisfy the project's purpose and need and simultaneously avoid, or substantially minimize, impacts to wetlands. Additional information detailing the alternatives selection process as related to wetlands and streams is located in Chapter Three, *Alternatives*.

Alternative A:
2012 No Action

Alternative A would not result in the loss or conversion of any wetlands, open waters, or streams. No new construction or changes in flight procedures would occur under this alternative. Existing conditions of wetlands and streams would be expected to continue.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Alternative C2a includes the relocation of Runway 10R/28L 800 feet to the south of its current location. The 800-foot relocation of Runway 10R/28L would result in the filling and culverting of 592 linear feet of an unvegetated ditch south of existing Runway 10R/28L (Stream 3). Further, the ravine south of Sawyer Road that is 413 linear feet in length will be modified to create a stormwater basin, for a total of 1,005 linear feet. In addition, approximately 0.33 acres of emergent wetlands (14B, 17A, and 17B) would be graded and filled as a result of implementation of this alternative.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the relocation of Runway 10R/28L 800 feet to the south of its current location, along with the implementation of proposed operational procedures from the 2007 Part 150 Noise Compatibility Study Update (2007 Part 150 Study). The proposed operational procedures would not result in physical changes and therefore would not impact wetlands or streams. The impacts listed for Alternative C2a would remain the same for Alternative C2b.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Alternative C3a includes the relocation of Runway 10R/28L 702 feet to the south of its current location. The 702-foot relocation of Runway 10R/28L would result in the filling and culverting of 592 linear feet of an unvegetated ditch south of existing Runway 10R/28L (Stream 3). Further, the ravine south of Sawyer Road that is 413 linear feet in length will be modified to create a stormwater basin, for a total of 1,005 linear feet. In addition, approximately 0.33 acres of emergent wetlands (14B, 17A, and 17B) would be graded and filled as a result of implementation of this alternative.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the relocation of Runway 10R/28L 702 feet to the south of its current location, along with the implementation of proposed operational procedures from the 2007 Part 150 Study. The proposed operational procedures would not result in physical changes and therefore would not impact wetlands or streams. The impacts listed for Alternative C3a would remain the same for Alternative C3b.

5.10.4 FUTURE CONDITIONS: 2018

In addition to 2012, the environmental consequences for 2018 are provided because that is the anticipated year of opening the proposed terminal. Wetland and streamcourse impacts of the proposed alternatives are listed in **Table 5.10-3**.

All impacts to streams or wetlands are associated with development in the central and southern portion of the Airport. The stream that is a tributary to the Big Walnut Creek, which drains under Bridgeway Avenue into Big Walnut Creek, would be expanded into a stormwater detention basin. The basin would reroute stormwater drainage from the proposed development areas to Big Walnut Creek and reduce the tributary area draining to Mason Run. Impacts are realized through the physical location of the runways, taxiways, surface parking, development of a new midfield terminal, and the maintenance requirements of the associated FAA airport design standards. During the EIS alternatives selection process, it was determined that no prudent, feasible, reasonable, or practicable alternatives were available that would both satisfy the project's purpose and need and simultaneously avoid, or substantially minimize, impacts to wetlands. Additional information detailing the alternatives selection process, as related to wetlands and streams, is located in Chapter Three, *Alternatives*.

Table 5.10-3
2018 IMPACTS TO WETLANDS AND JURISDICTIONAL WATERS OF THE U.S. IN THE DSA
Port Columbus International Airport

Alternative	Wetlands	Streams
2006 Existing Conditions	10.57 acres	1,005 ft. int. 7,287 ft. perm.
Impacts		
2012 Alternative A	No Change	No Change
2012 Alternative C2a	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent
2012 Alternative C2b	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent
2012 Alternative C3a	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent
2012 Alternative C3b	0.00 acres forest 0.33 acres emergent	1,005 ft. intermittent 0 ft. permanent
2018 Alternative A	No Change	No Change
2018 Alternative C2a	0.00 acres forest 0.65 acres emergent	1,005 ft. intermittent 0 ft. permanent
2018 Alternative C2b	0.00 acres forest 0.65 acres emergent	1,005 ft. intermittent 0 ft. permanent
2018 Alternative C3a	0.00 acres forest 0.65 acres emergent	1,005 ft. intermittent 0 ft. permanent
2018 Alternative C3b	0.00 acres forest 0.65 acres emergent	1,005 ft. intermittent 0 ft. permanent

Source: ASC Group, 2007.

Alternative A:
2018 No Action

Alternative A would not result in the loss or conversion of any wetlands, open waters, or streams. No new construction or changes in flight procedures would occur under this alternative. Existing conditions of wetlands and streams would be expected to continue.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Alternative C2a includes the relocation of Runway 10R/28L 800 feet to the south of its current location and the construction of a new midfield terminal. The 800-foot relocation of Runway 10R/28L would result in the filling and culverting of 592 linear feet of an unvegetated ditch south of existing Runway 10R/28L (Stream 3). Further, the ravine south of Sawyer Road that is 413 linear feet in length will be modified to create a stormwater basin, for a total of 1,005 linear feet. The relocated runway would result in 0.33 acres of wetlands (14A, 17A, and 17B) being graded and filled and the construction of the midfield terminal would result in an additional 0.32 acres of wetlands (17C, 17E, 17F, 17G, 17H, and 17I) being graded and filled. Therefore, approximately 0.65 acres of wetlands would be graded and filled as a result of implementation of this alternative.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Alternative C2b includes the relocation of Runway 10R/28L 800 feet to the south of its current location, construction of a new midfield terminal, and the implementation of proposed operational procedures from the 2007 Part 150 Study. The proposed operational procedures would not result in additional physical changes and therefore would not impact wetlands or streams. The impacts listed for Alternative C2a would remain the same for Alternative C2b.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Alternative C3a includes the relocation of Runway 10R/28L 702 feet to the south of its current location and the construction of a new midfield terminal. The 702-foot relocation of Runway 10R/28L would result in the filling and culverting of 592 linear feet of an unvegetated ditch south of existing Runway 10R/28L (Stream 3). Further, the ravine south of Sawyer Road that is 413 linear feet in length will be modified to create a stormwater basin, for a total of 1,005 linear feet. The relocated runway would result in 0.33 acres of wetlands (14B, 17A, and 17B) being graded and filled and the construction of the midfield terminal would result in 0.32 acres of wetlands (17C, 17E, 17F, 17G, 17H, and 17I) being graded and filled. Therefore, approximately 0.65 acres of wetlands would be graded and filled as a result of implementation of this alternative.

Alternative C3b:

2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the relocation of Runway 10R/28L 702 feet to the south of its current location, construction of a new midfield terminal, and the implementation of proposed operational procedures from the 2007 Part 150 Study. The proposed operational procedures would not result in additional physical changes and therefore would not impact wetlands or streams. The impacts listed for Alternative C3a would remain the same for Alternative C3b.

5.10.5 PERMITTING AND MITIGATION ACTIVITIES

Coordination with the USACOE has determined that an Individual Permit under Section 404 of the Clean Water Act (CWA) would be required for construction of any build alternatives. Permitting under Section 401 of the CWA, including compliance with the Ohio EPA's Anti-Degradation Rules, would also be required for the build alternatives. Both agencies require, in general, that if a practicable alternative does not exist that meets the purpose and need of the project and avoids or minimizes impacts to wetlands and/or streams, compensatory mitigation in the form of preservation and/or restoration may be required.

Regarding wetland and stream compensatory mitigation requirements, the USACOE relies on district offices to review proposed compensatory mitigation plans on a case-by-case basis with consideration given to "guidelines" developed and utilized for permit applications within the district. In summary, the USACOE has not set a policy for acceptable wetland or stream mitigation plans.

The Ohio EPA Anti Degradation Rules[1] require different replacement ratios for the different wetland categories impacted (1, 2, or 3 and forested versus non-forested), and for the location of mitigation areas (on-site or off-site mitigation). The Ohio EPA requires replacement wetlands to generally be of a higher category than the affected wetlands. Additional coordination with the USACE and Ohio EPA will be conducted to determine the ratios and acreages by wetland type for off-site mitigation of each of the alternatives. FAA AC 150/5200-33A, *Hazardous Wildlife Attractants on or Near Airports,* recommends off-site mitigation for impacts to wetlands, since flooded areas are known to attract waterfowl and other animals considered incompatible with and hazardous to aviation.

In addition, the Ohio Department of Natural Resources has recommended that if stream impacts are proposed, that no in-water work be conducted between April 15th and June 30th to reduce the impacts to aquatic species and habitats.[2]

[1] http://www.epa.state.oh.us/dsw/rules/antidegguide_2003.html, accessed on line February 7, 2008.
[2] *Comment Letter from Ohio Department of Natural Resources to Katherine Jones*, July 1, 2008.

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5.11 FLOODPLAINS

Floodplains are included in the Environmental Impact Statement (EIS) as an assessment category identified in Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures*. Floodplain areas have been identified on Port Columbus International Airport (CMH or Airport) property. This section provides an overview of what is known about the existing floodplain conditions and discusses the potential impacts caused by the proposed alternatives of the EIS.

5.11.1 METHODOLOGY

Floodplains are defined by Executive Order 11988, *Floodplain Management*, as "the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, that area subject to a one percent or greater chance of flooding in any given year" (i.e., area inundated by a 100-year flood). Department of Transportation (DOT) Order 5650.2, *Floodplain Management and Protection,* defines the values served by floodplains to include "natural moderation of floods, water quality maintenance, groundwater recharge, fish, wildlife, plants, open space, natural beauty, scientific study, outdoor recreation, agriculture, aquaculture, and forestry".

FAA Order 1050.1E, stresses that impacts to floodplains due to development are to be avoided and minimized by all means practicable. The Order also outlines the options to be considered if encroachment into a floodplain cannot be avoided. These options include: consideration of proposed action and alternatives, mitigation measures (such as elevations, special designs, and minimal fill requirements), determination of a significant encroachment, and the determination of location in a special flood hazard area.

5.11.2 EXISTING CONDITIONS: 2006

Floodplains in the project area occur in narrow strips of lowland parallel to Big Walnut Creek (**Exhibit 5.11-1, *100-Year Floodplains***). According to Flood Insurance Rate Maps (FIRMs), published by the Federal Emergency Management Agency (FEMA), floodplains on CMH property and in the project area occur along the eastern edge of Airport property.[1] Big Walnut Creek fulfills the criteria for an area of special flood hazard with flood elevation data, and is denoted as Zone AE. Floodplains classified as Zone AE include floodways and flood hazard areas inundated by 100-year floods, for which base flood elevations have been determined. No other mapped floodplains exist on CMH property or within the project area.

[1] FIRM Panels 169, 170, 188, 260, and 276, August 2, 1995.

5.11.3 FUTURE CONDITIONS: 2012

This section addresses the effects of future operations and construction on existing floodplains in the vicinity of CMH. During the EIS alternatives selection process, it was determined that prudent, feasible, reasonable, or practicable alternatives were available that would both satisfy the project's purpose and need and simultaneously avoid impacts to floodplains. None of the evaluated alternatives would increase the risk of human hazards or property damage from flood waters.

Alternative A:
2012 No Action

Under Alternative A, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. No change would occur because there would be no construction to directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Under Alternative C2a, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. The relocation of Runway 10R/28L 800 feet to the south would not directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Under Alternative C2b, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. Neither the relocation of Runway 10R/28L 800 feet to the south nor the implementation of the recommendations of the 2007 Part 150 Noise Compatibility Study Update (2007 Part 150 Study) measures would directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Under Alternative C3a, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. The relocation of Runway 10R/28L 702 feet to the south would not directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

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100-Year Floodplains

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5.11-1

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Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Under Alternative C3b, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. Neither the relocation of Runway 10R/28L 702 feet to the south nor the implementation of the 2007 Part 150 Study measures would directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

5.11.4 FUTURE CONDITIONS: 2018

In addition to 2012, the environmental consequences of the Sponsor's Proposed Project (Alternative C3b) and its alternatives are provided for 2018. The year 2018 represents the anticipated opening year of the first phase of the proposed terminal.

Alternative A:
2018 No Action

Under Alternative A, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. No change would occur because there would be no construction to directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Under Alternative C2a, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. Neither the relocation of Runway 10R/28L 800 feet to the south nor the construction and operation of the proposed terminal would directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

Under Alternative C2b, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. Neither the relocation of Runway 10R/28L 800 feet to the south, the construction and operation of the proposed terminal, nor the implementation of the 2007 Part 150 Study measures would directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Under Alternative C3a, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. Neither the relocation of Runway 10R/28L 702 feet to the south nor the construction and operation of the proposed terminal would directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

Under Alternative C3b, the floodplains within the project area would not be impacted. Floodplains would continue to exist in a narrow band along Big Walnut Creek. Neither the relocation of Runway 10R/28L 702 feet to the south, the construction and operation of the proposed terminal, nor the implementation of the 2007 Part 150 Study measures would directly alter the existing floodplain or cause secondary impacts or changes in hydrology.

5.12 COASTAL RESOURCES

The Coastal Zone Management Act (CZMA), as amended (16 U.S.C. § 1451-1464) provides for preservation, protection, development, and where feasible, restoration or enhancement of the resources within the nation's coastal zones and barriers. Through the CZMA, a Coastal Zone Management Program was established in each coastal state. Based on a review of the Ohio Coastal Management Program,[1] administered by the State of Ohio, Port Columbus International Airport (CMH or Airport) is not located within any defined coastal management area[2] and development of the Sponsor's Proposed Project or its alternatives would not impact coastal resources. The Ohio Coastal Management Program only applies to the shoreline of the Great Lakes located in Northern Ohio.

The Coastal Barriers Act of 1982, as amended (16 U.S.C. § 3501-3510) prohibits, with some exceptions, Federal financial assistance for development within the Coastal Barrier Resource System. Based on a review of the Great Lakes Coastal Barrier Act of 1988 and the Coastal Barrier Improvement Act of 1990, no officially-designated or proposed coastal barriers exist in the vicinity of the area of disturbance for any of the alternatives. Therefore, no coastal zones or barriers would be impacted by the Sponsor's Proposed Project or its alternatives.

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1 *Combined Coastal Management Program and Final Environmental Impact Statement for the State of Ohio.* Volume 1, April 2007, National Oceanic and Atmospheric Administration (NOAA) and Ohio Department of Natural Resources. Date accessed, February 19, 2008, *http://ohiodnr.com/Portals/13/pdf/envirimpact.pdf*.

2 *Ohio's Lake Erie Coast,* accessed August 2007, Ohio Department of Natural Resources, Date accessed, February 19, 2008, *http://www.dnr.state.oh.us/coastal/gis/desigcmarea/tabid/9352/Default.aspx*.

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5.13 WILD AND SCENIC RIVERS

The Wild and Scenic Rivers Act, as amended (16 U.S.C. § 1271-1287), provides protection for free-flowing river areas that "possess outstandingly remarkable scenic, recreational, geologic, fish and wildlife, historic, cultural or other similar values". The U.S. Department of the Interior is charged with the responsibility of identifying and inventorying rivers or river segments that could be potential candidates for inclusion in the National Wild and Scenic Rivers System. In addition to the National Wild and Scenic Rivers System, the National Park Service has compiled and maintains the Nationwide Rivers Inventory (NRI). The NRI is a register of rivers that may be eligible for inclusion in the National Wild and Scenic Rivers System. The intent of the NRI is to provide information to assist in making balanced decisions regarding the use of the nation's river resources.

A review of the National Park Service's Wild and Scenic Rivers System list[1] and the NRI register[2] indicated that Big and Little Darby Creeks are the closest waterway systems to Port Columbus International Airport (CMH or Airport) that are designated as a State and National Scenic River. Big and Little Darby Creeks run south along the western border of Franklin County. However, they are located approximately 30 miles west of CMH and are not considered within close proximity to the Airport. Therefore, no wild and scenic rivers would be impacted by the Sponsor's Proposed Project or its alternatives and the Act would not apply.

1 *National Wild and Scenic Rivers System,* accessed on line November 2007, National Park Service, http://www.rivers.gov/wildriverslist.html#oh.

2 *Trails & Conservation Program: National River Inventory,* accessed on line August 2006, National Park Service, http://www.nps.gov/ncrc/programs/rtca/nri/states/oh.html.

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5.14 FARMLAND

The *Farmland Protection Policy Act* (FPPA) of 1981 (7 U.S.C § 4201-4209) was enacted to minimize the extent to which Federal programs contribute to unnecessary and irreversible conversion of farmland to non-agricultural uses. Prime farmland is defined as land that possesses the best combination of physical and chemical characteristics for producing food, feed, fiber, forage, oilseed, and other agricultural crops with minimum inputs of fuel, fertilizer, pesticides, and labor, without intolerable soil erosion. Unique farmland is considered land other than prime farmland that is used for the production of specific high-value food and fiber crops.

5.14.1 EXISTING CONDITIONS: 2006

The Detailed Study Area contains approximately 126 acres of undeveloped land located to the southwest of existing Runway 10R/28L (see **Exhibit 5.14-1, *Undeveloped Land in the Detailed Study Area***). The undeveloped land is bisected by Stelzer Road. The United States Geological Survey (USGS) identifies a portion of this area as former Air Force Plant 85. The area is currently not being used for agricultural purposes.

5.14.2 FUTURE CONDITIONS: 2012 AND 2018

The environmental consequences of implementing the Sponsor's Proposed Project or its alternatives are provided for both 2012 and 2018 conditions.

The proposed development alternatives would have an impact on soils by converting undeveloped land. However, there is a general absence of farms and farmland in the area due to the urbanization present in the vicinity of the Port Columbus International Airport (CMH or Airport), as well as the zoning and land use ordinances enacted by the local units of government. Local development plans, in conjunction with city and county zoning ordinances, have already committed the areas for airport and other urban development.

In accordance with the FPPA, a request was made to determine whether the land that would potentially be impacted by the Sponsor's Proposed Project or its alternatives were considered to be prime or unique farmlands. The Federal Aviation Administration (FAA) initiated coordination on August 10, 2007 with the Natural Resources Conservation Service (NRCS) regarding the runway development alternatives at CMH. See Appendix L, *Farmlands*. The NRCS responded on September 28, 2007 with the determination that "there are no Prime, Unique or Locally Important Farmland soils within the project area because the area is considered, by definition, to be urbanized."[1]

[1] Appendix L, United States Department of Agriculture, Farmland Conversion Impact Rating, Form AD-1006.

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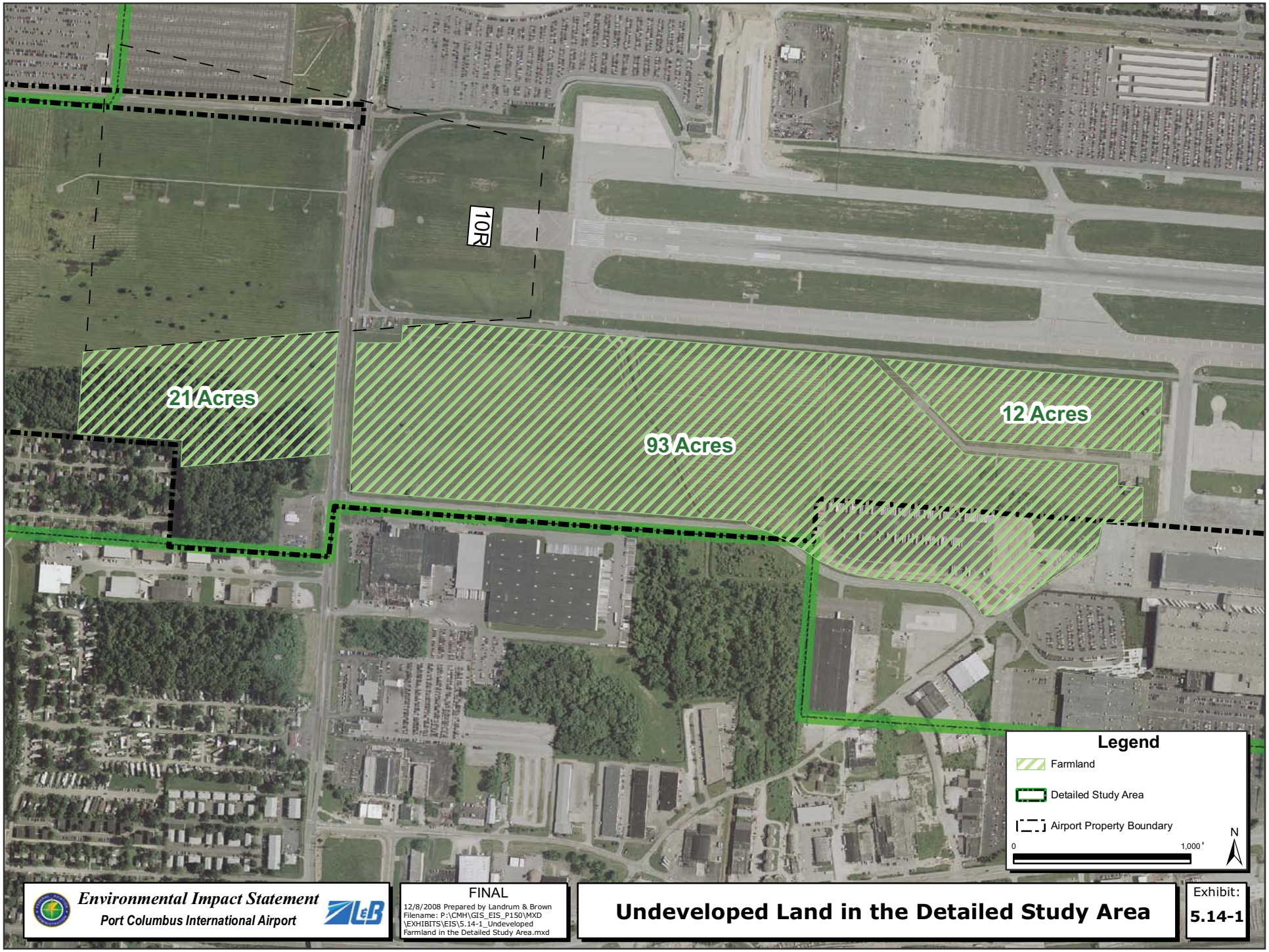

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Undeveloped Land in the Detailed Study Area

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5.14-1

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5.15 NATURAL RESOURCES AND ENERGY SUPPLY

The operation of an airport requires energy in the form of electricity, natural gas, aviation fuel, diesel fuel, and gasoline. There are two primary sources of energy consumption at an airport – stationary facilities and aircraft operations. Stationary facilities use utility energy (electric energy and natural gas) to provide lighting, cooling, heat, and hot water to buildings, the airfield, and parking areas. Aircraft operations consume fuel energy (Jet fuel (Jet A), low-lead aviation gasoline (AvGas), unleaded gasoline, and diesel fuel) to operate the aircraft and power ground support equipment (GSE) that service the aircraft.

Airport improvements may require additional electric energy and natural gas to cool, heat, or provide lighting to new buildings, runways, or taxiways. Furthermore, the supply of natural resources could be affected by construction activities related to an airport improvement project. A construction project may increase the demand for energy or require the acquisition of land or the removal of dirt, rock, or gravel that could destroy or deplete the supply of natural resources such as oil, coal, minerals, or trees.

5.15.1 REGULATORY SETTING

As directed by Federal Aviation Administration (FAA) Order 1050.1E, Environmental Impacts: Policies and Procedures, "…the proposed action will be examined to identify any proposed major changes in stationary facilities or the movement of aircraft and ground vehicles that would have a measurable effect on local supplies of energy or natural resources." FAA Order 1050.1E further states, "(t)he use of natural resources other than for fuel need be examined only if the action involves a need for unusual materials or those in short supply."[1] Accordingly, this natural resources and energy assessment considered the demand for electricity and natural gas for the terminal buildings and concourses, the demand for fuel due to the operation of aircraft, and the use of natural resources during construction or the reduction in the supply of natural resources due to implementation of the Sponsor's Proposed Project and its alternatives.

The remainder of this section provides an evaluation of the use of energy and consumption of natural resources under the 2006 Existing Conditions and the future 2012 and 2018 No Action Alternative A, and impacts due to construction and implementation of the Sponsor's Proposed Project and its alternatives. The information provided in this evaluation is supported by the procedures and methodology described in Appendix M, *Natural Resources and Energy Supply*.

[1] FAA Order 1050.1E: *Environmental Impacts: Policies and Procedures*, Appendix A, paragraph 13.2a, 2006.

5.15.2 EXISTING CONDITIONS: 2006

Electrical power is provided to the Port Columbus International Airport (CMH or Airport) by Columbus Southern Power (CSP) and natural gas is provided by Columbia Gas of Ohio, Inc.[2] and by the City of Columbus. Fuel, including Jet A, AvGas, unleaded gasoline, and diesel are provided to the Airport users through airport and airline contracts, and through the fixed-base operator (FBO) contracts with various suppliers, such as Air BP and Englefield Oil.

Stationary Facilities: The primary sources of electrical and natural gas energy consumption at CMH include the terminal building, followed by airfield lighting, and lighting in the parking lots and garage. The terminal complex has a total floor area of approximately 879,500 square feet and is heated by natural gas boilers and cooled by electric chillers. The requirement for electrical energy far surpasses the need for natural gas power.

The airfield consists of two runways and the associated taxiways and apron areas, all requiring edge lighting and centerline lighting on the runways. The runways also are operated with approach lighting systems. High intensity lighting is provided in the parking areas. The total annual use of electric and natural gas energy was provided by the Airport and converted to British Thermal Units (BTU) for ease in comparing the current levels to future levels evaluated under the project alternatives.

Electricity: Electricity is provided to CMH by CSP, which is a subsidiary of American Electric Power Ohio (AEP Ohio). CSP provides electricity to over 743,000 residential, commercial, and industrial customers in central Ohio. AEP Ohio currently serves nearly 1.5 million total customers in Ohio and West Virginia. AEP Ohio currently has over 11,700 mega-watts (MW) of generating capacity available, including over 3,200 MW within the CSP system. Power is delivered throughout the system from 14 power-generating plants (six of which are wholly-or partially- owned by CSP) located throughout Ohio and West Virginia.[3] Coal-fired plants account for 74 percent of the electricity generated by these 14 plants. The remaining electricity is generated from natural gas (15 percent); nuclear (8 percent); and wind, hydroelectric, pumped storage, and other sources (3 percent).[4] Data on electricity usage at CMH was obtained for the period from April 2004 through March 2005. During that period, 116,425 Million BTUs (MBTUs)[5] of electricity were consumed at CMH. The demand for electrical energy is over three times higher than the demand for natural gas at the Airport. Because no major changes in stationary facilities occurred between April 2004 and 2006 that

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2 Information retrieved from the Public Utilities Commission of Ohio Web site, accessed on January 8, 2008, *http://www.puco.ohio.gov/*.

3 American Electric Power (AEP), *AEP Ohio Fact Sheets, May 2006*, https://www.aepohio.com/about/serviceTerritory/, accessed on October 24, 2006.

4 American Electric Power (AEP), *About Us,* https://www.aepohio.com/about/, accessed on October 24, 2006.

5 MBTU is million BTU (British thermal unit). One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

could affect electricity consumption at CMH, this data was presumed to be representative of the Existing (2006) Baseline conditions. **Table 5.15-1** shows electricity usage at CMH for the Existing (2006) Baseline.

Natural Gas: Natural gas is provided to CMH through several sources. CMH participates in the City of Columbus natural gas self help program, which acts as a cooperative to buy and distribute natural gas from several providers. In addition to the terminal, CMH has several out buildings that are provided with natural gas directly from the local provider, Columbia Gas of Ohio, Inc. Columbia Gas is Ohio's largest natural gas provider, serving more than 1.3 million customers.[6] Data on natural gas usage at CMH was obtained for the period from April 2004 through March 2005. During that time, 38,474 MBTUs of natural gas were consumed at CMH. Because no major changes in stationary facilities occurred between April 2004 and December 2006 that could affect natural gas consumption at CMH, this data was presumed to be representative of the Existing (2006) Baseline conditions. Table 5.15-1 shows natural gas usage at CMH for the Existing (2006) Baseline.

Aircraft Operations: The annual aircraft landing and takeoff cycles (LTO) at CMH represent only a fraction of the aviation fuel demand at the Airport. The total amount of fuel required for annual aircraft operations is a function of the type of aircraft operating at the Airport, the number of engines on each aircraft, the number of annual aircraft operations of each aircraft type, the length of time the aircraft are operating while on the ground and during takeoff and climb out, and the fuel required for the aircraft to reach the flight destination after departure from CMH. The total requirement for aircraft fuel was determined by the Jet A and AvGas fuel throughput to the storage tanks at the Airport. Refer to Chapter Four, *Affected Environment*, Section 4.8, *Air Quality,* for details of fuel throughput for the on-airport fuel storage tanks.

Ground Support Equipment (GSE): The fuel requirement for GSE depends on the type of aircraft operating at the Airport, type of GSE used to service the aircraft, the GSE fuel type, and the length of time required to provide service for each aircraft.[7] For example, large passenger jets may require several types of GSE including catering trucks, cabin service trucks, belt loaders, cargo loaders, and an aircraft tractor, whereas, smaller air taxi aircraft may only require a ground power unit and a fuel truck. GSE require unleaded gasoline and diesel fuel. The total requirement for unleaded gasoline and diesel fuel was determined by the fuel throughput to the storage tanks at the Airport. In addition, the fuel throughput for the unleaded gasoline and diesel fuel storage tanks includes the requirements to fuel other ground access vehicles at the Airport including staff cars, shuttles, and maintenance equipment. Refer to Chapter Four, *Affected Environment*, Section 4.8, *Air Quality,* for details of fuel throughput for the on-airport fuel storage tanks.

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6 Information obtained from the Columbia Gas of Ohio, Inc., http://www.columbiagasohio.com/community/about/, accessed on October 24, 2006.

7 Specialized ground handling equipment (ground support equipment, GSE) is used to provide service to aircraft at the gate. Between arrival and departure, GSE are used to unload, clean, refuel, and load baggage, food, water, and cargo.

Fuel Sources: Aviation fuel (Jet-A and AvGas), unleaded gasoline, and diesel fuel are provided to the Airport from several sources. Generally, unleaded gasoline and diesel fuel are obtained from local providers to be used for rental cars, GSE and other ground access vehicles and equipment. The fuel farm stores Jet-A and AvGas for use by the commercial carriers operating at CMH. The FBOs at CMH provide Jet-A and AvGas for general aviation. The Jet-A fuel used by the scheduled commercial service airlines is stored at the CMH fuel farm. Data on fuel usage at CMH was obtained from the CRAA and the individual users for the most recent period available. The most recent data available is presumed to be representative of the Existing (2006) Baseline conditions. Table 5.15-1 shows fuel usage by fuel type at CMH during the Existing (2006) Baseline. The requirement for Jet A (over 61 million gallons) is much higher than the demand for AvGas. The Jet A requirement includes fueling commercial aircraft for flights, whereas AvGas is used primarily for local non-commercial general aviation flights.

Table 5.15-1
ANNUAL UTILITY POWER AND FUEL DEMAND – EXISTING (2006) BASELINE
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	116,425 MBTU	38,474 MBTU	61,248,061 gallons	857,616 gallons	206,822 gallons	1,714,959 gallons
Monthly Average	9,702 MBTU	3,206 MBTU	5,104,005 gallons	71,468 gallons	17,235 gallons	142,913 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU (British thermal unit). One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Natural Resources: There would be no requirement for construction or use of natural resources of any kind under the existing conditions. Therefore, there would be no affect on local supplies of natural resources.

5.15.3 FUTURE CONDITIONS: 2012

When planning airport improvement projects, FAA policy recommends that facility development include principles of sustainability in design. The FAA encourages the consideration of energy reduction measures in the planning and design of airport improvement projects. These principles are consistent with the governmental

policy[8] and NEPA regulations that require all agencies to, "utilize a systematic interdisciplinary approach, which will ensure the integrated use of the natural and social sciences and the environmental design arts in planning and in decision-making."[9]

Construction and implementation of the Sponsor's Proposed Project and alternatives would not require the use of unusual natural materials or result in the depletion of natural resources in short supply. Therefore, there would be no impact to the use of any natural resources for construction.

Alternative A:
2012 No-Action

The following section assesses the energy needs for CMH under the Alternative A conditions in 2012. The methodologies used in the calculations of future projected energy demand at CMH are included in Appendix M, *Natural Resources and Energy Supply*.

Electricity: The 2012 Alternative A would not increase demand for electricity. No new terminal facilities or airfield lighting would be constructed under this alternative. However, the projected usage of electricity for the 2012 Alternative A, shown in **Table 5.15-2**, increases from 116,425 MBTUs (2006 usage) to 145,326 MBTUs due to the increase in passengers projected by 2012 and the reconfiguration of the terminal facilities completed in April 2007 to accommodate other ongoing projects at CMH.

Natural Gas: The 2012 Alternative A would not increase demand for natural gas. No new terminal facilities would be constructed under this alternative; therefore there would be no additional need for heating. The projected usage of natural gas for the 2012 Alternative A, shown in Table 5.15-2, increases from 38,474 MBTUs (2006 usage) to 38,885 MBTUs due to the reconfiguration of the terminal facilities completed in April 2007 to accommodate other ongoing projects at CMH.

Aircraft Operations: Current forecasts project growth in aircraft operations at CMH and additional aircraft movements will likely increase average taxi times. Consequently, there would be an increase in fuel consumption at CMH. The projected fuel consumption at CMH is a function of the direct relationship between fuel demand, aircraft operations, and taxi time. The projected fuel demand at CMH under the 2012 Alternative A is shown in Table 5.15-2.

[8] Executive Order 13123, *Greening the Government Through Efficient Energy Management*, published at Federal Register Volume 64, Page 30851 (64 FR 30851), dated June 8, 1999, as stated in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures (including Change 1)*, Appendix A, Section 13, *Natural Resources and Energy Supply*, March 20, 2006.

[9] FAA, Order 1050.1E, *Environmental Impacts: Policies and Procedures* (including Change 1), Appendix A, Section 13, *Natural Resources and Energy Supply*, March 20, 2006.

Table 5.15-2
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2012
ALTERNATIVE A: NO ACTION
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	145,326 MBTU	38,885 MBTU	75,324,811 gallons	1,054,201 gallons	254,174 gallons	2,107,584 gallons
Monthly Average	12,110 MBTU	3,240 MBTU	6,277,068 gallons	87,850 gallons	21,418 gallons	175,632 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.

MBTU is million BTU (British thermal units). One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

The increase in electricity and natural gas consumption is estimated as a result of the reconfiguration of the terminal in April 2007 to accommodate other ongoing projects at CMH. Fuel consumption is projected to increase in proportion to the increase in operations at the Airport.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Alternative C2a includes the relocation of Runway 10R/28L 800 feet to the south of existing Runway 10R/28L. There would also be additional taxiways, which increase the demand for electricity above baseline conditions. This additional electricity demand is estimated to be 1,744 MBTUs to light an estimated 12,200 feet of additional taxiway for a total of 147,070 MBTUs. The replacement runway would not create any additional demand for natural gas. The project is not expected to increase the number of operations at the Airport, however Jet-A and AvGas usage would increase compared to the 2012 Alternative A due to changes in average taxi time under this alternative. The projected energy demand at CMH under the 2012 Alternative C2a is shown in **Table 5.15-3**.

Table 5.15-3
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2012
ALTERNATIVE C2a
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	147,070 MBTU	38,885 MBTU	75,400,637 gallons	1,054,537 gallons	254,174 gallons	2,107,584 gallons
Monthly Average	12,256 MBTU	3,240 MBTU	6,283,386 gallons	87,878 gallons	21,418 gallons	175,632 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU (British thermal units). One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, along with implementation of the operational recommendations of the 2007 Part 150 Study.[10] The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the electricity and natural gas demands discussed for the 2012 Alternative C2a. However, Jet-A and AvGas usage would increase due to changes in average taxi time as a result of the operational changes. The projected energy demand at CMH under the 2012 Alternative C2b is shown in **Table 5.15-4**.

[10] 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.

Table 5.15-4
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2012
ALTERNATIVE C2b
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	147,070 MBTU	38,885 MBTU	75,429,728 gallons	1,054,666 gallons	254,174 gallons	2,107,584 gallons
Monthly Average	12,256 MBTU	3,240 MBTU	6,285,811 gallons	87,889 gallons	21,418 gallons	175,632 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Alternative C3a includes the relocation of Runway 10R/28L 702 feet to the south of existing Runway 10R/28L. There would be additional taxiways, which increase the demand for electricity above baseline conditions. This additional electricity demand is estimated to be 1,695 MBTUs to light an estimated 11,800 feet of additional taxiway for a total of 147,021 MBTUs. While this represents an increase compared to the 2012 Alternative A, the increase is not as high as is projected for Alternative C2a because under alternative C2a the proposed runway would be relocated by 800 feet (98 feet more than Alternative C3a) and additional taxiway lighting would be required. The replacement runway would not create any additional demand for natural gas. The project is not expected to increase the number of operations at the Airport, however Jet-A and AvGas usage would increase compared to the 2012 Alternative A due to changes in average taxi time under this alternative. The projected fuel demand at CMH under the 2012 Alternative C3a is shown in **Table 5.15-5**.

Table 5.15-5
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2012
ALTERNATIVE C3a
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	147,021 MBTU	38,885 MBTU	75,381,581 gallons	1,054,453 gallons	254,174 gallons	2,107,584 gallons
Monthly Average	12,252 MBTU	3,240 MBTU	6,281,798 gallons	87,871 gallons	21,418 Gallons	175,632 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, along with implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the electricity and natural gas demands discussed for the 2012 Alternative C3a. However, Jet-A and AvGas usage would increase due to changes in average taxi time as a result of the operational changes. The projected fuel demand at CMH under the 2012 Alternative C3b is shown in **Table 5.15-6**.

Table 5.15-6
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2012
ALTERNATIVE C3b
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	147,021 MBTU	38,885 MBTU	75,409,448 gallons	1,054,576 gallons	254,174 gallons	2,107,584 gallons
Monthly Average	12,252 MBTU	3,240 MBTU	6,284,121 gallons	87,881 gallons	21,181 gallons	175,632 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

5.15.4 ENERGY SUPPLY IMPACT ANALYSIS – 2018 CONDITIONS

This section provides an evaluation of the use of energy and consumption of natural resources under the 2018 No Action Alternative A, and impacts due to construction and implementation of the 2018 Sponsor's Proposed Project and its alternatives.

Construction and implementation of the Sponsor's Proposed Project and alternatives would not require the use of unusual natural materials or result in the depletion of natural resources in short supply. Therefore, there would be no impact to the use of any natural resources for construction.

Alternative A:
2018 No-Action

The following section assesses the energy needs for CMH under the Alternative A conditions in 2018. The methodologies used in the calculations of future projected energy demand at CMH are included in Appendix M.

Electricity: The 2018 Alternative A would not increase demand for electricity. No new terminal facilities or airfield lighting would be constructed under this alternative. However, the projected usage of electricity for the 2018 Alternative A increases from 145,326 MBTUs (from the 2012 Alternative A) to 171,916 MBTUs due to the increase in passengers projected by 2018. The projected usage of electricity for the 2018 Alternative A is shown in **Table 5.15-7**.

Natural Gas: The 2018 Alternative A would not increase demand for natural gas. No new terminal facilities would be constructed under this alternative so there would be no additional need for heating. The projected usage of natural gas for the 2018 Alternative A is shown in Table 5.15-7.

Aircraft Operations: Current forecasts project growth in aircraft operations at CMH and additional aircraft movements will likely increase average taxi times. Consequently there would be an increase in fuel consumption at CMH. The projected fuel demand at CMH under the 2018 Alternative A is shown in Table 5.15-7.

Table 5.15-7
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2018
ALTERNATIVE A: NO ACTION
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	171,916 MBTU	38,885 MBTU	84,682,607 gallons	1,184,557 gallons	285,575 gallons	2,367,979 gallons
Monthly Average	14,326 MBTU	3,240 MBTU	7,056,884 gallons	98,713 gallons	24,035 gallons	197,332 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

Alternative C2a includes the relocation of Runway 10R/28L 800 feet to the south of existing Runway 10R/28L. There would be additional taxiways, which increase the demand for electricity above baseline conditions. This increase is described for the 2012 Alternative C2a conditions. It is anticipated that Phase 1 of the proposed passenger terminal and apron will be in operation by 2018, which will require additional electricity and natural gas for lighting, cooling, and heating. The increased electricity and natural gas requirements are assumed to be a function of the additional square footage of the new terminal and apron area. The total electricity usage is projected to be 274,367 MBTUs and the total natural gas consumption is projected to be 67,284 MBTUs under this alternative. The project is not expected to increase the number of operations at the Airport but Jet-A and AvGas usage would increase compared to the 2018 Alternative A due to changes in average taxi time under this alternative. The projected energy demand at CMH under the 2018 Alternative C2a is shown in **Table 5.15-8**.

Table 5.15-8
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2018
ALTERNATIVE C2a
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	274,367 MBTU	67,284 MBTU	84,832,729 gallons	1,185,064 gallons	285,575 gallons	2,367,979 gallons
Monthly Average	22,864 MBTU	5,607 MBTU	7,069,394 gallons	98,755 gallons	23,798 gallons	197,332 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2)– Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, along with implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the electricity and natural gas demands discussed for the 2018 Alternative C2a. However, Jet-A and AvGas usage would change due to changes in average taxi time as a result of the operational changes. The projected fuel demand at CMH under the 2018 Alternative C3b is shown in **Table 5.15-9**.

Table 5.15-9
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2018
ALTERNATIVE C2b
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	274,367 MBTU	67,284 MBTU	84,849,560 gallons	1,185,121 gallons	285,575 gallons	2,367,979 gallons
Monthly Average	22,864 MBTU	5,607 MBTU	7,070,797 gallons	98,760 gallons	23,798 gallons	197,332 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 feet to the South and Construct Midfield Terminal (T2)– Noise Abatement Scenario A

Alternative C3a includes the relocation of Runway 10R/28L 702 feet to the south of existing Runway 10R/28L. There would be additional taxiways, which would increase the demand for electricity above baseline conditions under this alternative. It is anticipated that Phase 1 of the proposed passenger terminal and apron will be in operation by 2018, which will require additional electricity and natural gas for lighting, cooling, and heating. The increased electricity and natural gas requirements are assumed to be a function of the additional square footage of the new terminal and apron area. The total electricity usage is projected to be 274,318 MBTUs and the total natural gas consumption is projected to be 67,284 MBTUs under this alternative. While this represents an increase in electricity consumption compared to the 2018 Alternative A, the increase is not as high as is projected for Alternatives C2a and C2b because under alternatives C2a and C2b, the proposed runway would be relocated by 800 feet (98 feet more than Alternative C3a) and additional taxiway length would be required. The project is not expected to increase the number of operations at the Airport, but Jet-A and AvGas usage would increase compared to the 2018 Alternative A due to changes in average taxi time under this alternative. The projected fuel demand at CMH under the 2018 Alternative C3a is shown in **Table 5.15-10**.

Table 5.15-10
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2018
ALTERNATIVE C3a
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	274,318 MBTU	67,284 MBTU	84,802,071 gallons	1,184,961 gallons	285,575 gallons	2,367,979 gallons
Monthly Average	22,860 MBTU	5,607 MBTU	7,066,839 gallons	98,747 gallons	23,798 gallons	197,332 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2)– Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, along with implementation of the operational recommendations of the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the electricity and natural gas demands discussed for the 2018 Alternative C3a. However, Jet-A and AvGas usage would change due to changes in average taxi time as a result of the operational changes. The projected fuel demand at CMH under the 2018 Alternative C3b is shown in **Table 5.15-11**.

Table 5.15-11
PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND – 2018
ALTERNATIVE C3b
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity	Natural Gas	Jet A Fuel	AvGas	Diesel	Gasoline
Annual	274,318 MBTU	67,284 MBTU	84,819,270 gallons	1,185,019 gallons	285,575 gallons	2,367,979 gallons
Monthly Average	22,860 MBTU	5,607 MBTU	7,068,272 gallons	98,752 gallons	23,798 gallons	197,332 gallons

Note: AvGas is low-lead aviation gasoline for general aviation aircraft.
MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

Table 5.15-12 shows a comparison of energy demands for each alternative in 2012 and 2018.

5.15.5 LOCAL COORDINATION

The inventory of existing stationary facilities and aircraft operations at CMH did not identify any unusual energy uses that would indicate that the power companies or fuel suppliers would have difficulty providing adequate capacity to meet the demand of airport facilities, or that any natural resources that would be used during construction were in short supply.

The electricity and natural gas providers were contacted to determine the capability to meet the future projected energy demands under the proposed alternatives. The energy providers stated that there would be no problem in delivering the energy requirements of the proposed alternatives. Copies of coordination letters and the responses are provided in Appendix M.

Table 5.15-12
SUMMARY OF ACTUAL AND PROJECTED ANNUAL UTILITY POWER AND FUEL DEMAND
Port Columbus International Airport

	Energy Type					
	UTILITY energy		FUEL energy			
	Electricity (MBTUs)	Natural Gas (MBTUs)	Jet A Fuel (Gallons)	AvGas (Gallons)	Diesel (Gallons)	Gasoline (Gallons)
2006 Baseline	116,425	38,474	61,248,061	857,616	206,822	1,714,959
2012 No Action	145,326	38,885	75,324,811	1,054,201	254,174	2,107,584
2012 C2a	147,070	38,885	75,400,637	1,054,537	254,174	2,107,584
2012 C2b	147,070	38,885	75,429,728	1,054,666	254,174	2,107,584
2012 C3a	147,021	38,885	75,381,581	1,054,453	254,174	2,107,584
2012 C3b	147,021	38,885	75,409,448	1,054,576	254,174	2,107,584
2018 No Action	171,916	38,885	84,682,607	1,184,557	285,575	2,367,979
2018 C2a	274,367	67,284	84,832,729	1,185,064	285,575	2,367,979
2018 C2b	274,367	67,284	84,849,560	1,185,121	285,575	2,367,979
2018 C3a	274,318	67,284	84,802,071	1,184,961	285,575	2,367,979
2018 C3b	274,318	67,284	84,819,270	1,185,019	285,575	2,367,979

Notes:

* AvGas is low-lead aviation gasoline for general aviation aircraft.

MBTU is million BTU. One BTU of heat is equal to 1/180 of the heat required to raise the temperature of one pound of water from 32 degrees Fahrenheit to 212 degrees Fahrenheit at a constant pressure of one atmosphere.

Source: Comprehensive Program Analysis, Burns & McDonald, 2005; CRAA, 2007, Landrum & Brown Analysis, 2007.

5.16 LIGHT EMISSIONS

Airports have high-intensity lights to illuminate runways, taxiways, and gate areas, and to supply visual approach navigational aids, which are critical to the safe operation of an airport.

This section presents the analysis of the impact of airport-related light emissions upon the residential areas surrounding Port Columbus International Airport (CMH or Airport) resulting from the project alternatives under consideration in this Environmental Impact Statement (EIS).[1]

5.16.1 REGULATORY SETTING

Only in unusual circumstances (e.g., when high-intensity strobe lights would shine directly into people's homes) would the impact of light emissions be considered sufficient to warrant special study and a more detailed examination of alternatives in an EIS. Light emissions are assessed to the "extent to which any lighting associated with an action will create an annoyance among people in the vicinity or interfere with their normal activities". Airport facilities at CMH are illuminated by various types of lighting emanating from any of the following sources:

- Airfield lighting on runways, runway thresholds, taxiways, and ramps (runway lighting);
- Visual approach aids;
- Obstruction lights;
- Terminal and facilities lighting; and
- Roadway and parking lot lighting.

Generally, lights located at the runway thresholds and in the approach area pose the greatest concern for potential impact. Therefore, the following light systems were evaluated:

- Approach lighting system;
- Visual glideslope indicators;
- Runway end lights;
- In-runway lighting;
- Runway edge lights; and
- Taxiway edge lights.

[1] The light emissions analysis considered only airfield lighting, which would not include light emissions from restaurants, commercial office buildings, etc.

The following information is provided in the assessment for each lighting system:

- Location of existing and future runway threshold lights, and approach light systems;
- Descriptions of each airfield lighting system as to its purpose, intensity, color, flashing sequence, and beam angle; and
- Assessment of the extent of annoyance caused by the CMH airfield lighting systems.

5.16.2 EXISTING CONDITIONS: 2006

This section describes conditions at the Airport as they existed during the preparation of this environmental document. The following paragraphs discuss the existing lighting systems in use at CMH. A summary of the existing lighting systems is presented in **Table 5.16-1**.

Approach Lighting Systems (ALS)

Approach lighting systems (ALS) provide the basic means to transition from instrument flight to visual flight for landing. It is a configuration of steady-burning sequenced flashing signal lights that appear to the pilot as a ball of light traveling toward the runway at high speed (twice a second). Operational requirements dictate the type and configuration of the approach light system for a particular runway.

All four runway ends include a Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights (MALSR). This system uses medium-intensity lights to guide a pilot to the runway centerline as a flight progresses through the transition from instrument flight to visual flight during landing. The MALSR lighting system provides early runway lineup and lead-in guidance, runway end identification, and to a degree, roll guidance. The lights are helpful during some periods of restricted visibility. The MALSR system is beneficial where extraneous lighting prevents the pilot from lining up with the runway centerline or where the surrounding terrain is devoid of lighting and does not provide the cues necessary for proper aircraft attitude control.[2] A diagram of a typical MALSR lighting system is shown in **Exhibit 5.16-*1, MALSR Lighting System.***

[2] Spence, C.F. (Ed). 2006. AIM/FAR Aeronautical Information Manual/Federal Aviation Regulations. McGraw Hill: New York.

Table 5.16-1
EXISTING AIRFIELD LIGHTING SYSTEMS
Port Columbus International Airport

LIGHTING SYSTEM	Runway End			
	10R	28L	10L	28R
Approach Lighting System	MALSR	MALSR	MALSR	MALSR
Visual Glideslope Indicators	PAPI	none	PAPI	PAPI
Runway End Identifier Lights	none	none	none	none
In-Runway Lighting	none	none	none	none
Runway Edge Lights	HIRL	HIRL	HIRL	HIRL

Notes: MALSR - Medium-intensity Approach Lighting System with Runway Alignment Indicator Lights
PAPI - Precision Approach Path Indicator
HIRL - High Intensity Runway Lights
Source: AirNav website, accessed on August 16, 2007. http://www.airnav.com/airport/KCMH.

The runway threshold lights start 200 feet from the landing threshold and extend at 200-foot intervals into the approach area at a distance of 2,400 to 3,000 feet for precision instrument runways and 1,400 to 1,500 feet for non-precision instrument runways. There are generally seven light bars with five steady-burning lights for each bar. At the light bar 1,000 feet from the runway threshold, there are two additional bars (one on each side of the centerline bar) each with five steady-burning lights.[3]

Runway threshold lights consist of a line of green lights located perpendicular to the extended runway centerline not more than two feet or less than 100 feet from the designated threshold of the runway.

The lights of the MALSR lighting system are medium-intensity lights with intensity control provided. The lights are white and steady-burning, with green lights closest to the runway threshold. The MALSR lighting system does not use flashing lights. The lights are mounted on poles and aimed with their beam axis parallel to the runway centerline and intercepting an assumed 3-degree slope at a horizontal distance of 1,600 feet in advance of the light.

A MALSR lighting system is installed on Runway ends 10L, 10R, 28L, and 28R at CMH. The MALSR starts at the landing threshold and extends into the approach area a distance of 2,000 to 2,300 feet, depending on the runway end. **Table 5.16-2** shows the nearest homes to each of the MALSR light bars.

[3] FAA AC 150/5340-30B, *Design and Installation Details for Airport Visual Aids*, August 1, 2006.

Table 5.16-2
DISTANCES FROM MALSR LIGHTS TO NEAREST HOMES BY RUNWAY END – EXISTING CONDITIONS
Port Columbus International Airport

Runway	Distance to Nearest Home (in feet)
10R	1,400
28L	2,600
10L	1,300
28R	2,500

Source: Landrum & Brown, 2007.

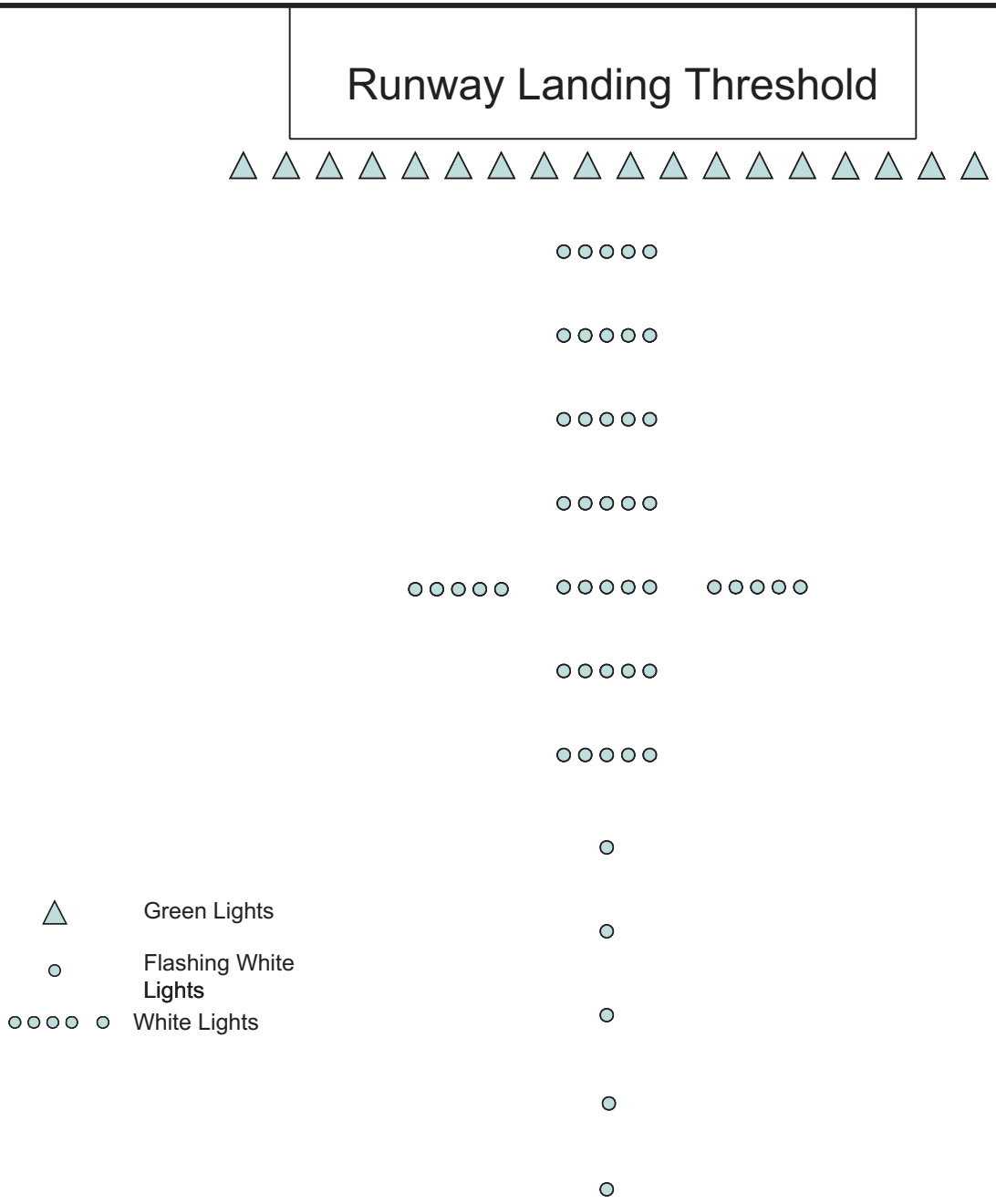
Visual Glideslope Indicator: The Visual Glideslope Indicator is a system of lights arranged to provide visual descent guidance information during the approach to a runway.[4] One such system, a Precision Approach Path Indicator (PAPI), provides a specific light pattern when the aircraft is on the desired descent path to the touchdown point. A diagram of a PAPI lighting system is shown in **Exhibit 5.16-2, *PAPI Lighting System***.

The PAPI system includes four identical light units normally placed 50 feet from the left side of the runway providing visual approach slope information. The PAPI is a single horizontal bar with four sharp transition lamps installed on the left side of the runway. The system is located perpendicular to the runway centerline, at a distance from the threshold that provides the proper threshold crossing height and obstacle clearance.

Each lamp projects a split beam of light. The upper segment is white, and the lower segment is red. The transition from white to red, or vice versa, occurs within a vertical angle of five minutes of arc at the beam center and results in a well-defined corridor of light consisting of white (top) and red (bottom) beams. These systems have an effective visual range of about five miles during the day and up to 20 miles at night.

The PAPI lights are high-intensity lights that are red and white and are not sequenced flashing lights. The lights are installed on poles and the light beam is positioned to project 20 feet above the most critical obstruction in the area. At CMH, PAPI lights are installed at the ends of Runways 10L, 10R, and 28R. There is no PAPI at Runway End 28L.

[4] FAA AC 150/5345-52, *Generic Visual Glideslope Indicators (GVGI),* 9/5/2007.


Runway Landing Threshold
Green Lights
Flashing White Lights
White Lights

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PAPI

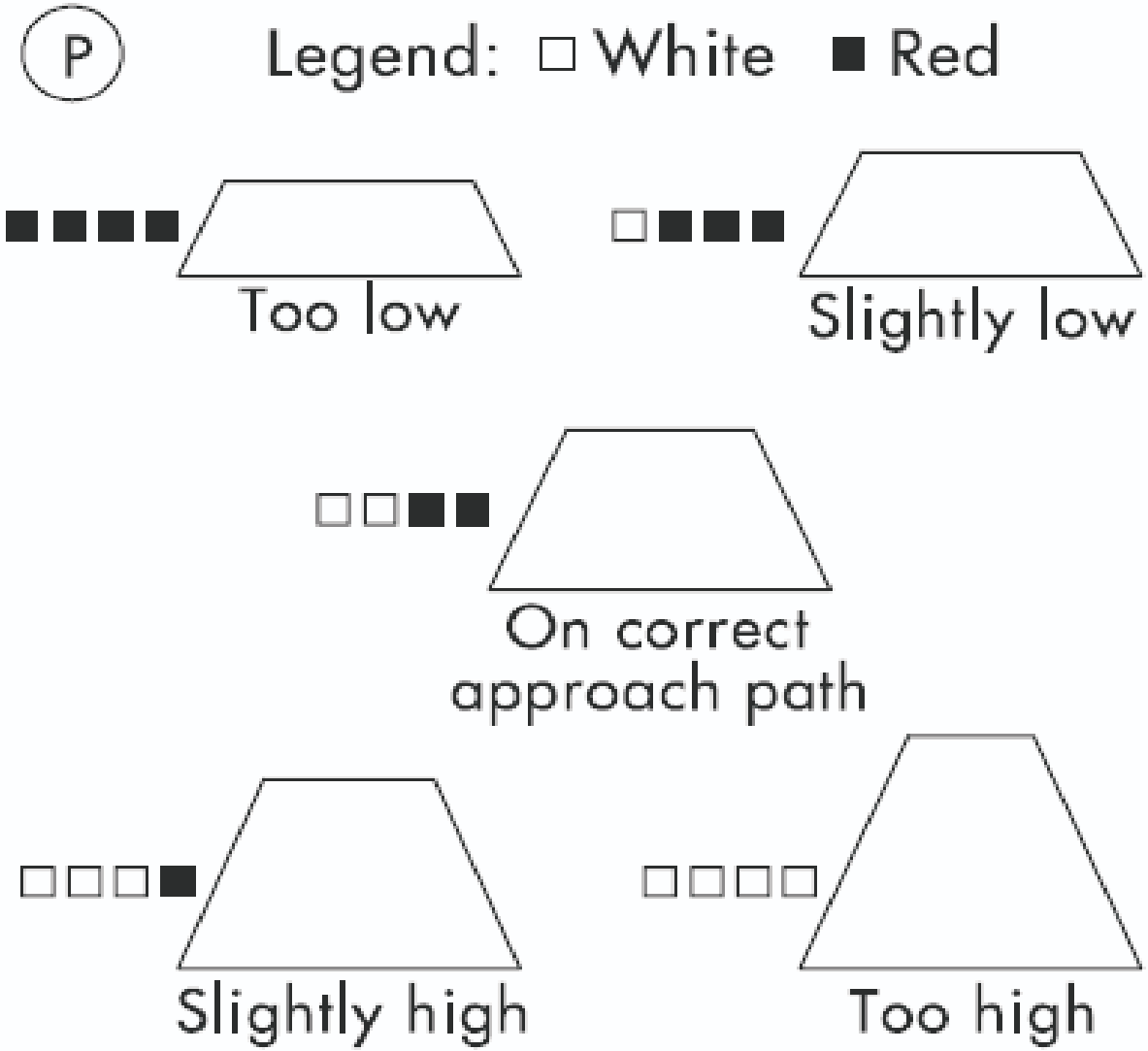
P
Legend: □ White ■ Red
Too low
Slightly low
On correct approach path
Slightly high
Too high

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Table 5.16-3 shows the nearest home to each of the PAPI lighting systems. The lights are projected at such a steep upward angle that the light beam is above all surrounding buildings. Residences beyond each of these runway ends would not be impacted by the light emissions from the PAPI lighting systems at CMH.

Exhibits 5.16-3 through 5.16-6 show the lighting equipment installed at each of the four runway ends at CMH.

Table 5.16-3
DISTANCES FROM PAPI TO NEAREST HOMES BY RUNWAY END – EXISTING CONDITIONS
Port Columbus International Airport

Runway	Distance to Nearest Home (in feet)
10R	2,800
28L	n/a
10L	2,300
28R	2,300

Source: Landrum & Brown, 2007.

Runway Edge Light Systems

HIRL are used to outline the edges of a runway during periods of darkness and low visibility weather conditions. They are used on runways having precision Instrument Flight Rules (IFR) approach procedures and for runways utilizing Runway Visual Range (RVR). The lights are located approximately 200 feet apart with a maximum height of 24 inches above the pavement elevation.

The light emitted from HIRLs is white, except that yellow light is substituted for white light on the last 2,000 feet of an instrument runway, or one-half the runway length, whichever is less. The yellow lights indicate the caution zone for landing. The lights in the caution zone emit yellow light in the direction facing the instrument approach threshold and white light in the opposite direction.

The lights marking the ends of the runway emit red light toward the runway to indicate the end of the runway to a departing aircraft and emit green outward from the runway end to indicate the threshold to landing aircraft.[5] HIRLs do not use sequenced flashing lights. The yellow and green lights are directed facing the instrument approach threshold. The white and red lights are directed toward the runway.

[5] FAA AC 150/5340-30B, *Design and Installation Details for Airport Visual Aids*, August 1, 2006.

Other Airport Lighting

A rotating beacon identifies the location of the Airport at night and is identified by projecting a green and white beam of light 180 degrees apart.

Obstructions in the vicinity of the Airport are also marked or lighted to warn pilots of their presence. These obstructions may be identified by a steady-red, flashing-red, or white strobe light. These obstructions are identified for pilots on approach and sectional Visual Flight Rules (VFR) charts and on the official Airport Obstruction Chart, published by the National Oceanic and Atmospheric Administration (NOAA).

Other lighting exists along the taxiways and ramps for low visibility purposes and to assist aircraft movement on the airfield, such as hold position lights, stop bar lights, and runway and taxiway signage. Each of these additional light systems is located within the Airport complex and represent no impact upon neighboring communities.

5.16.3 FUTURE CONDITIONS: 2012

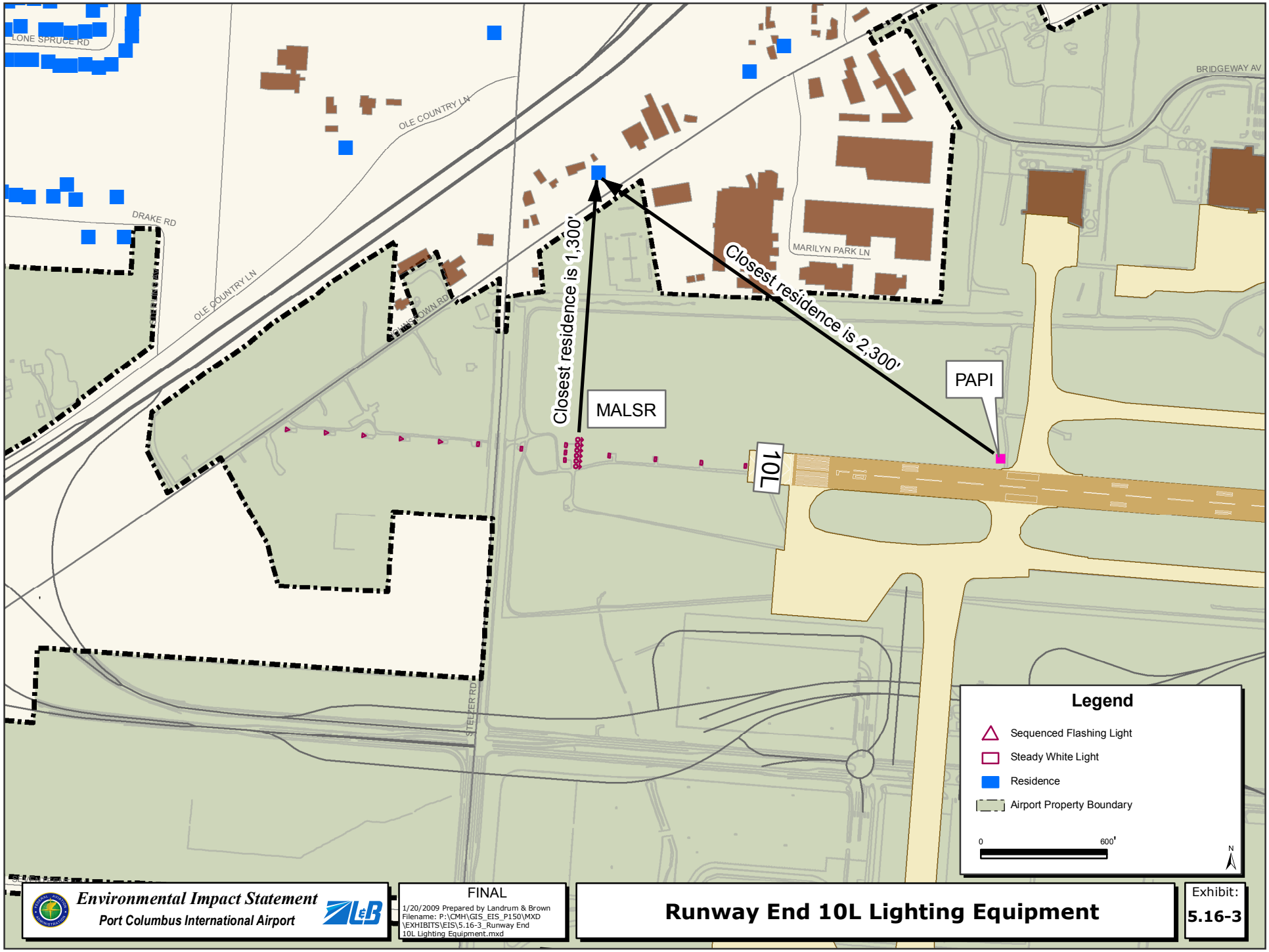
The following section describes the conditions that would result from the lighting required by each of the proposed runway alternatives during the first full year in which the proposed relocated runway is anticipated to be operational. While the same types of lighting systems described for the existing conditions are expected to be used for each of the proposed runway alternatives, the location of lighting equipment in relation to homes will change due to the proposed relocation of Runway 10R/28L.

Alternative A:
No Action

Under this Alternative, Runway 10R/28L would remain in its current location and therefore no changes to the existing lighting equipment or locations would occur.

Alternative C2a:
Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Alternative C2a includes the relocation of Runway 10R/28L 800 feet to the south. The relocated runway would include MALSR and PAPI lighting on both ends. These lights would move 800 feet south of the current location. In addition, the relocated runway would include a CAT-II approach to Runway 10R, which would increase the number of light stands in the MALSR system from 8 to 15. The MALSR lights would not extend farther west than they currently do today; however, the lights would be spaced closer together. **Exhibit 5.16-7, *Runway 10X (Alternative C2) MALSR and PAPI Locations,*** and **Exhibit 5.16-8, *Runway 28X (Alternative C2) MALSR Location,*** show the location of the proposed lighting equipment for Alternative C2a. **Table 5.16-4** and **Table 5.16-5** show the distances from the MALSR and PAPI equipment to the nearest homes under this alternative.



Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.16-3_Runway End 10L Lighting Equipment.mxd

Runway End 10L Lighting Equipment

Exhibit:
5.16-3

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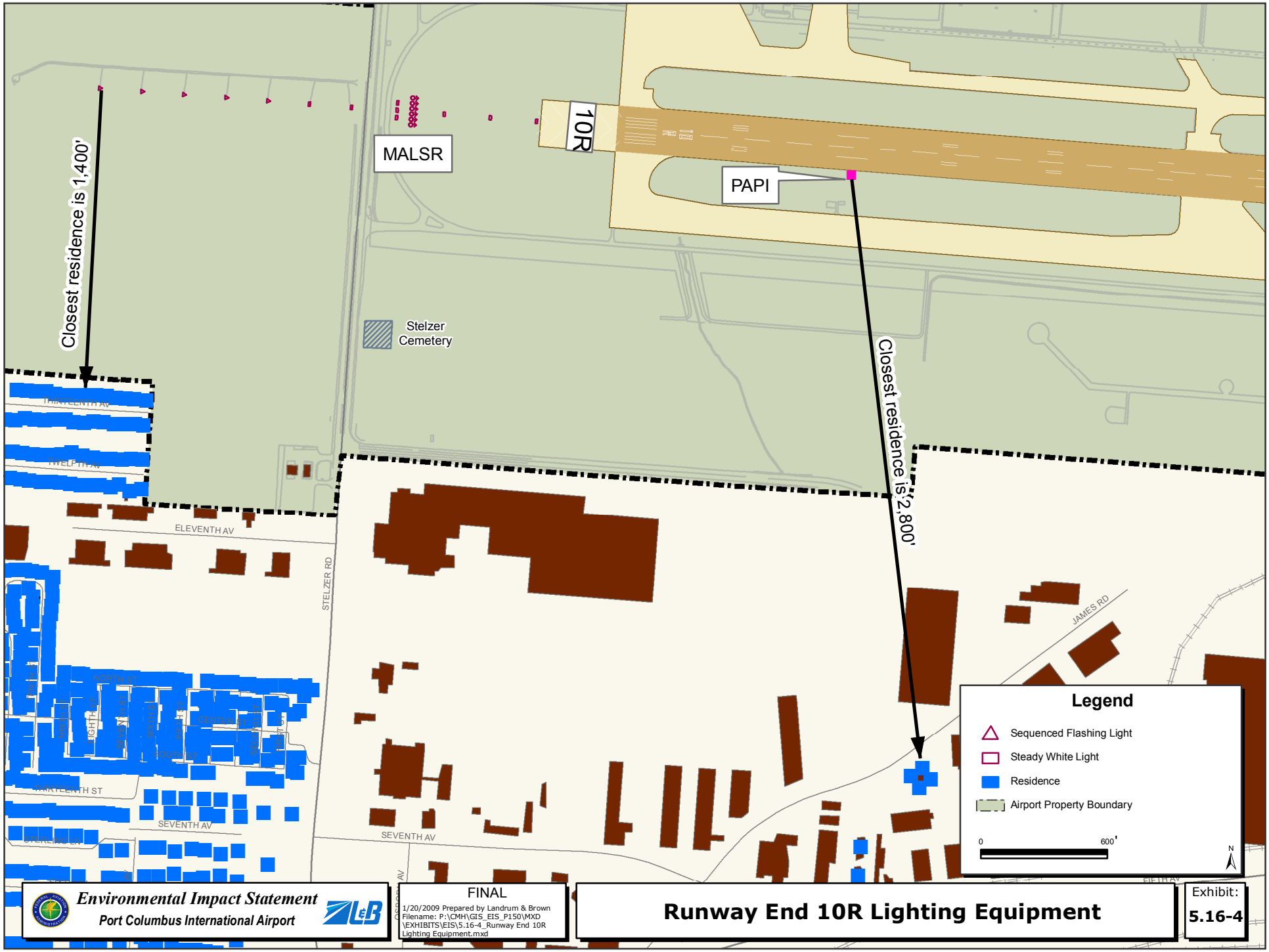
MALSR
10R
PAPI
Closest residence is 1,400'
Closest residence is 2,800'
Stelzer Cemetery
THIRTEENTH AV
TWELFTH AV
ELEVENTH AV
STELZER RD
THIRTEENTH ST
SEVENTH AV
JAMES RD
Legend
Sequenced Flashing Light
Steady White Light
Residence
Airport Property Boundary
0
600'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD
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Lighting Equipment.mxd
Runway End 10R Lighting Equipment
Exhibit:
5.16-4

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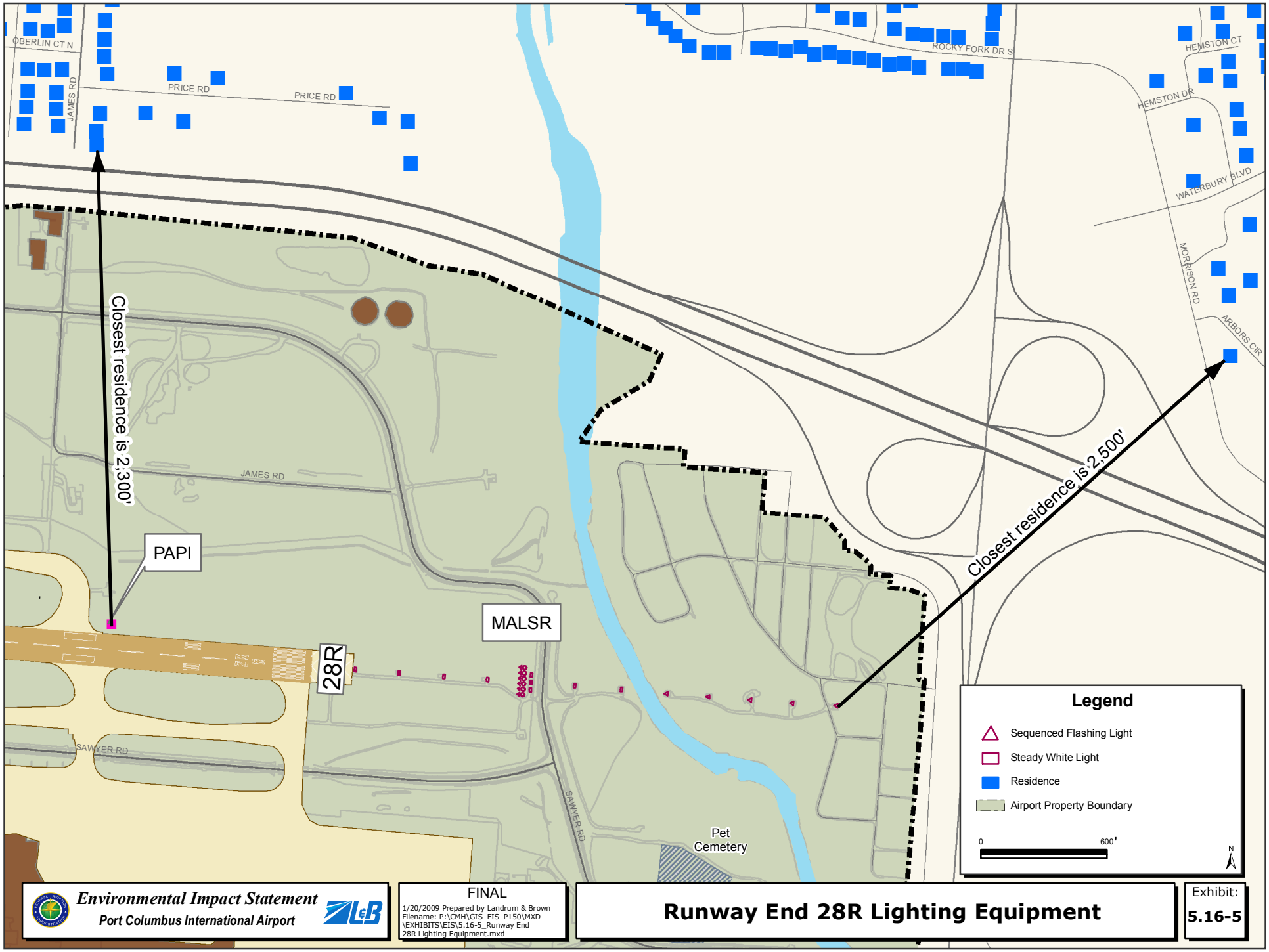
OBERLIN CT N
JAMES RD
PRICE RD
PRICE RD
ROCKY FORK DR S
HEMSTON CT
HEMSTON DR
WATERBURY BLVD
MORRISON RD
ARBORS CIR
Closest residence is 2,300'
JAMES RD
PAPI
MALSR
28R
Closest residence is 2,500'
SAWYER RD
SAWYER RD
Pet Cemetery
Legend
Sequenced Flashing Light
Steady White Light
Residence
Airport Property Boundary
0
600'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
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28R Lighting Equipment.mxd
Runway End 28R Lighting Equipment
Exhibit:
5.16-5

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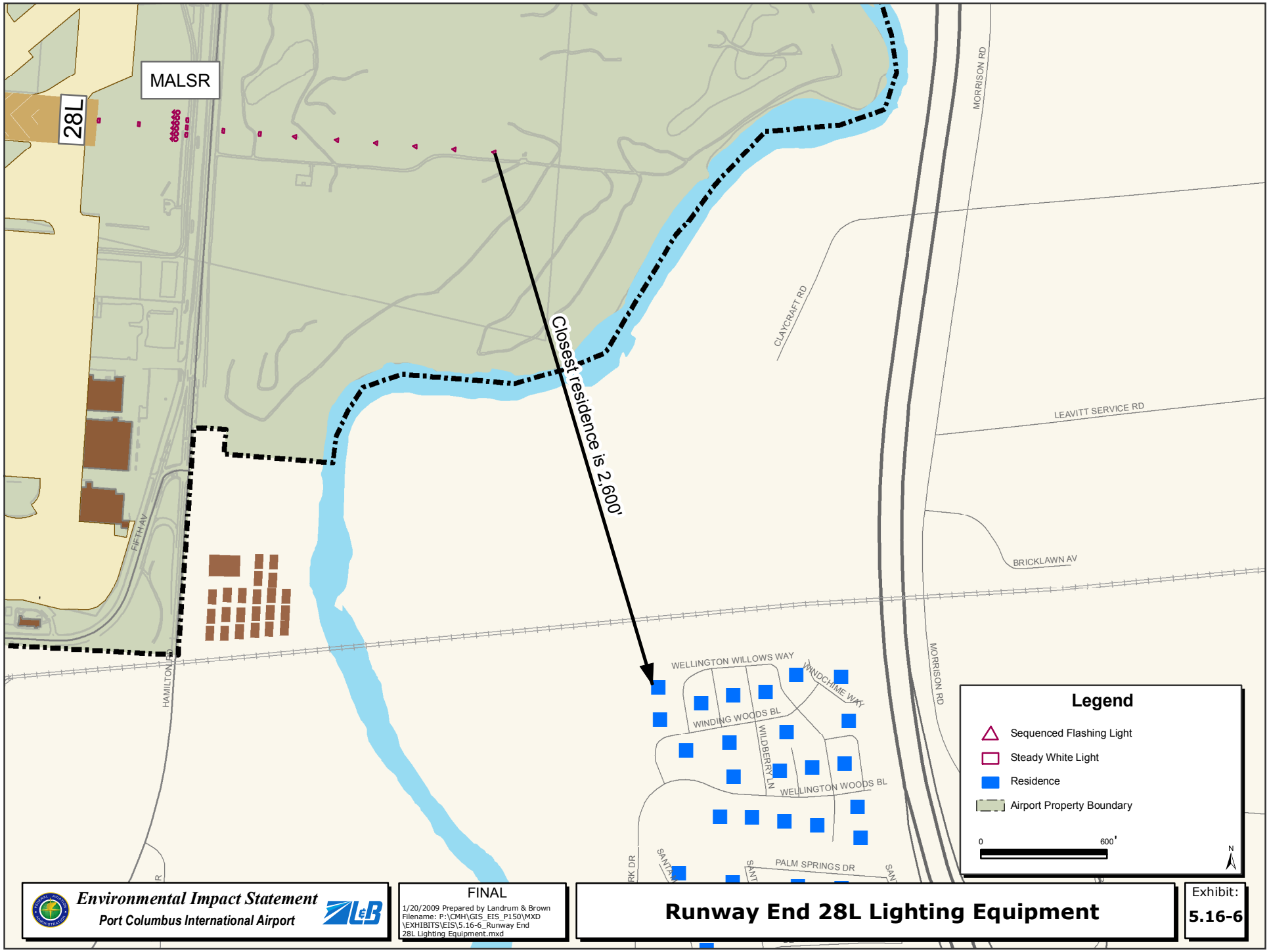
MALSR
28L
Closest residence is 2,600'
MORRISON RD
CLAYCRAFT RD
LEAVITT SERVICE RD
BRICKLAWN AV
FIFTH AV
HAMILTON RD
WELLINGTON WILLOWS WAY
WINDCHIME WAY
WINDING WOODS BL
WILDBERRY LN
WELLINGTON WOODS BL
PALM SPRINGS DR
Legend
Sequenced Flashing Light
Steady White Light
Residence
Airport Property Boundary
0
600'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
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\EXHIBITS\EIS\5.16-6_Runway End
28L Lighting Equipment.mxd
Runway End 28L Lighting Equipment
Exhibit:
5.16-6

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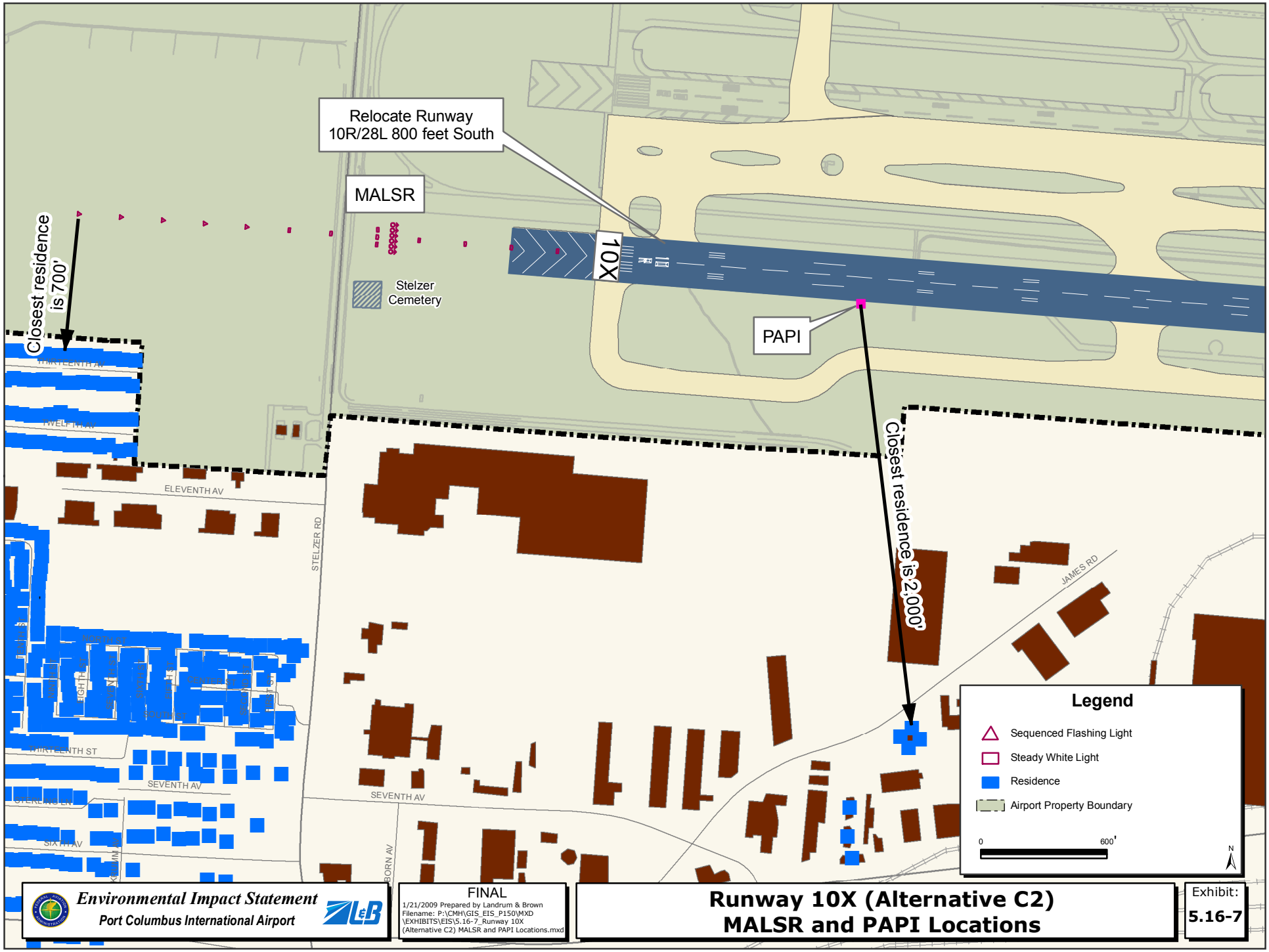
Relocate Runway
10R/28L 800 feet South
MALSR
10X
Stelzer
Cemetery
PAPI
Closest residence
is 700'
Closest residence is 2,000'
ELEVENTH AV
STELZER RD
JAMES RD
THIRTEENTH ST
SEVENTH AV
SIXTH AV
Legend
Sequenced Flashing Light
Steady White Light
Residence
Airport Property Boundary
0
600'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/21/2009 Prepared by Landrum & Brown
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(Alternative C2) MALSR and PAPI Locations.mxd
Runway 10X (Alternative C2)
MALSR and PAPI Locations
Exhibit:
5.16-7

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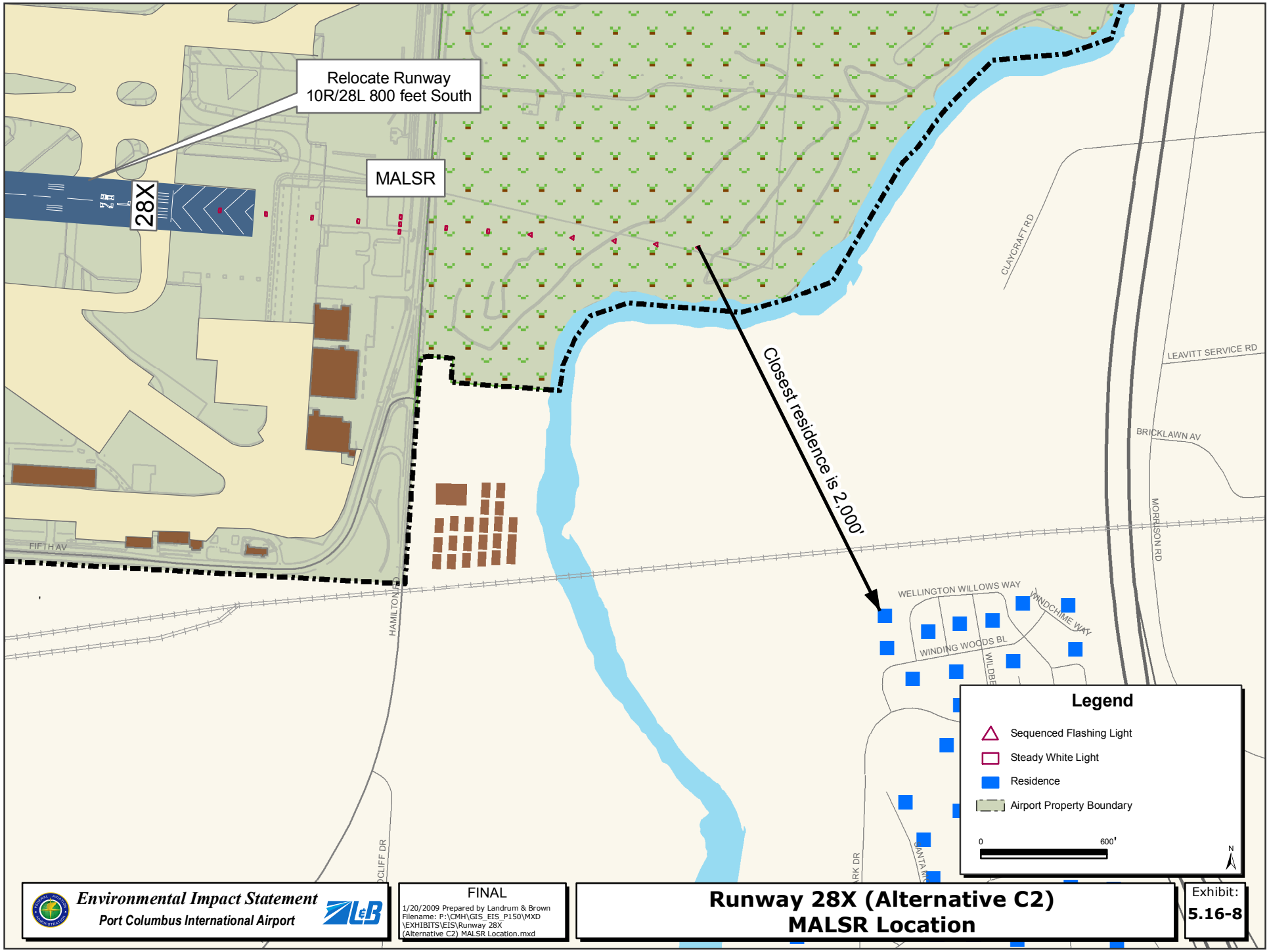
Relocate Runway
10R/28L 800 feet South
MALSR
28X
Closest residence is 2,000'
CLAYCRAFT RD
LEAVITT SERVICE RD
BRICKLAWN AV
MORRISON RD
FIFTH AV
HAMILTON RD
WELLINGTON WILLOWS WAY
WINDCHIME WAY
WINDING WOODS BL
Legend
Sequenced Flashing Light
Steady White Light
Residence
Airport Property Boundary
0
600'
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD
\EXHIBITS\EIS\Runway 28X
(Alternative C2) MALSR Location.mxd
Runway 28X (Alternative C2)
MALSR Location
Exhibit:
5.16-8

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Table 5.16-4
DISTANCES FROM MALSR LIGHTS TO NEAREST HOMES BY RUNWAY END – 2012 ALTERNATIVE C2A CONDITIONS
Port Columbus International Airport

Runway	Distance to Nearest Home (in feet)
10X	700*
28X	2,000
10L	1,300
28R	2,500

* Note: This assumes the removal of the 35 homes located on East 13th Avenue, east of Sterling Avenue for the purposes of clearing the Runway Protection Zone. See Section 5.2, *Land Use,* for more information on acquisition.

Source: Landrum & Brown, 2007.

Table 5.16-5
DISTANCES FROM PAPI LIGHTS TO NEAREST HOMES BY RUNWAY END – 2012 ALTERNATIVE C2A CONDITIONS
Port Columbus International Airport

Runway	Distance to Nearest Home (in feet)
10X	2,000
28X	n/a
10L	2,300
28R	2,300

Source: Landrum & Brown, 2007.

Alternative C2b: Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, along with operational changes proposed in the 2007 Part 150 Noise Compatibility Study Update (2007 Part 150 Study). The proposed operational changes would not change the number, type, or location of lights on the airfield. Therefore, the location of runway approach lighting and visual slope indicators will remain the same as discussed for Alternative C2a and shown on Exhibits 5.16-7 and 5.16-8 and in Tables 5.16-4 and 5.16-5.

Alternative C3a: Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Alternative C3a includes the relocation of Runway 10R/28L 702 feet to the south. The relocated runway would include MALSR and PAPI lighting on both ends. These lights would move 702 feet south of the current location. In addition, the relocated runway would include a CAT-II approach to Runway 10R, which would increase the number of light stands in the MALSR system from 8 to 15. The MALSR lights would not extend farther west than they currently do today; however, the lights would be spaced closer together. **Exhibit 5.16-9, *Runway 10X (Alternative C3) MALSR and PAPI Locations,*** and **Exhibit 5.16-10, *Runway 28X (Alternative C3) MALSR Location,*** show the location of the proposed lighting equipment for Alternative C3a. **Table 5.16-6** and **Table 5.16-7** show the distances from the MALSR and PAPI equipment to the nearest homes under this alternative.

Table 5.16-6
DISTANCES FROM MALSR LIGHTS TO NEAREST HOMES BY RUNWAY END – 2012 ALTERNATIVE C3A CONDITIONS
Port Columbus International Airport

Runway	Distance to Nearest Home (in feet)
10X	700*
28X	2,100
10L	1,300
28R	2,500

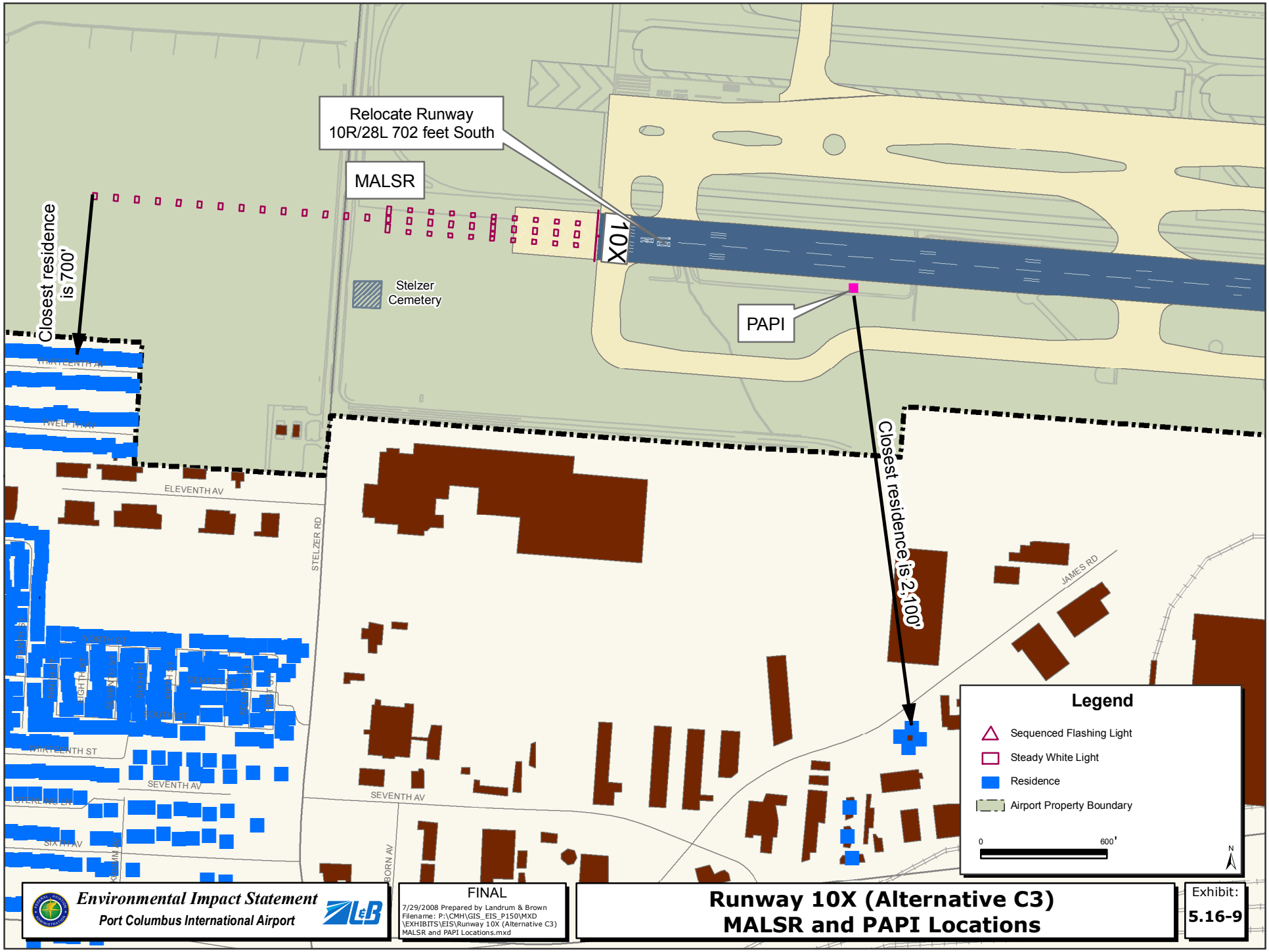
* Note: This assumes the removal of the 35 homes located on East 13th Avenue, east of Sterling Avenue for the purposes of clearing the Runway Protection Zone. See Section 5.2, *Land Use,* for more information on acquisition.

Source: Landrum & Brown, 2007.

Table 5.16-7
DISTANCES FROM PAPI LIGHTS TO NEAREST HOMES BY RUNWAY END – 2012 ALTERNATIVE C3A CONDITIONS
Port Columbus International Airport

Runway	Distance to Nearest Home (in feet)
10X	2,100
28X	n/a
10L	2,300
28R	2,300

Source: Landrum & Brown, 2007.


Relocate Runway
10R/28L 702 feet South
MALSR
10X
PAPI
Closest residence
is 700'
Stelzer
Cemetery
Closest residence is 2,100'
ELEVENTH AV
STELZER RD
JAMES RD
THIRTEENTH ST
SEVENTH AV
SIXTH AV
Legend
Sequenced Flashing Light
Steady White Light
Residence
Airport Property Boundary
0
600'
N
Environmental Impact Statement
Port Columbus International Airport
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Filename: P:\CMH\GIS_EIS_P150\MXD
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MALSR and PAPI Locations.mxd
Runway 10X (Alternative C3)
MALSR and PAPI Locations
Exhibit:
5.16-9

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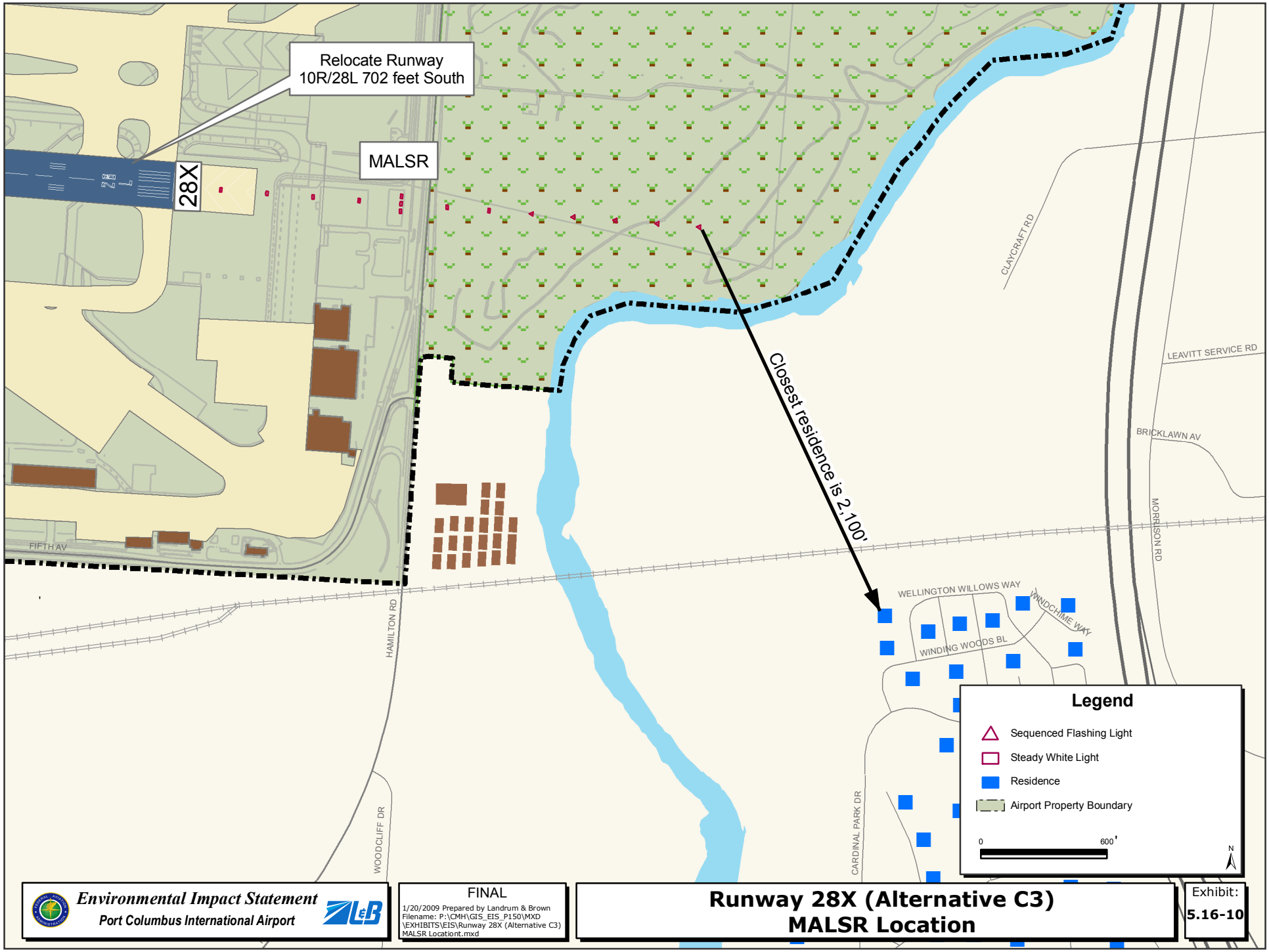
Relocate Runway
10R/28L 702 feet South
MALSR
28X
Closest residence is 2,100'
CLAYCRAFT RD
LEAVITT SERVICE RD
BRICKLAWN AV
MORRISON RD
FIFTH AV
HAMILTON RD
WOODCLIFF DR
WELLINGTON WILLOWS WAY
WINDCHIME WAY
WINDING WOODS BL
CARDINAL PARK DR
Legend
Sequenced Flashing Light
Steady White Light
Residence
Airport Property Boundary
0
600'
N
Environmental Impact Statement
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Filename: P:\CMH\GIS_EIS_P150\MXD
\EXHIBITS\EIS\Runway 28X (Alternative C3)
MALSR Locationt.mxd
Runway 28X (Alternative C3)
MALSR Location
Exhibit:
5.16-10

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Alternative C3b: 2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, along with operational changes proposed in the 2007 Part 150 Study. The proposed operational changes would not change the number, type, or location of lights on the airfield. Therefore, the location of runway approach lighting and visual slope indicators will remain the same as discussed for Alternative C3a and shown on Exhibit 5.16-9 and Exhibit 5.16-10 and in Table 5.16-6 and Table 5.16-7.

5.16.4 FUTURE CONDITIONS: 2018

Alternatives C2a, C2b, C3a, and C3b assume that by 2018, Phase 1 of the proposed passenger terminal will be constructed and in operation. However, any new lighting associated with the proposed passenger terminal would be located in the middle of Airport property and therefore would not affect any residences. No additional changes to the airfield lighting are anticipated to occur between 2012 and 2018. Therefore, the conditions and potential impacts described for the 2012 Alternatives would remain the same for each of the 2018 Alternatives.

5.16.5 VISUAL IMPACTS

According to FAA Order 1050.1E, "Visual or aesthetic impacts are inherently more difficult to define because of the subjectivity involved". Analysis of visual impacts refers to "…the extent that the development contrasts with the existing environment…"[6] Because the location of the proposed development would occur entirely on Airport property, surrounded by existing commercial and industrial development, no adverse visual or aesthetic impacts are anticipated.

[6] FAA Order 1050.1E: *Environmental Impacts: Policies and Procedures,* Appendix A, paragraph 12.2b. .

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5.17 HAZARDOUS MATERIALS, POLLUTION PREVENTION, AND SOLID WASTE

This section assesses the potential exposure to hazardous materials, pollution prevention measures, and solid waste that would occur as a result of implementing the Sponsor's Proposed Project or its alternatives. Appendix Q, *Hazardous Materials*, includes supplemental information regarding the analysis of hazardous materials.

5.17.1 HAZARDOUS MATERIALS

A waste is considered hazardous if it exhibits hazardous characteristics, such as corrosivity, reactivity, ignitibility, or is specifically listed as such by the U.S. Environmental Protection Agency (USEPA). Wastes excluded from regulation as hazardous waste include household wastes, animal wastes, flyash, slag, and wastes from ore processing. There are several Federal acts that regulate the handling of hazardous materials.

The Resource Conservation and Recovery Act of 1976 (RCRA) is intended to provide "cradle to grave" management of hazardous and solid wastes and regulation of underground storage tanks (USTs) containing chemical and petroleum products. The RCRA allows the USEPA to set standards for entities producing, storing, handling, transporting, and disposing of hazardous waste. The RCRA was amended with the Hazardous and Solid Waste Amendments of 1984 (HSWA) that addressed corrective actions and permitting of hazardous waste issues.

The Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) provides the authority with which the Federal government can compel people or companies responsible for creating hazardous waste sites to clean them up. Nicknamed "Superfund," it created a public trust fund to assist with the cleanup of inactive and abandoned hazardous waste sites and accidentally spilled or illegally dumped hazardous materials. Only sites listed on the National Priorities List (NPL) are eligible for funding from the "Superfund."

The Toxic Substances Control Act of 1976 (TSCA) was enacted by Congress to give the USEPA the ability to track the 75,000 industrial chemicals currently produced or imported into the United States. The USEPA repeatedly screens for these chemicals and can require reporting or testing of those that may pose an environmental or human-health hazard. In addition, the USEPA can ban the manufacture and import of those chemicals that pose an unreasonable risk.

The Pollution Prevention Act of 1990 (PPA) established the national policy that pollution should be prevented or reduced at the source whenever feasible. The PPA was established to reduce or eliminate waste at the source by modifying production processes, promoting the use of non-toxic or less-toxic substances, implementing conservation techniques, and re-using materials rather than putting them into waste streams.

In addition, Executive Orders (E.O.) associated with the PPA include E.O.s 12088 (*Federal Compliance with Pollution Control Standards*), 13101 (*Greening the Government through Waste Prevention, Recycling, and Federal Acquisition*), and 13148 (*Greening the Government through Leadership in Environmental Management*) and were created to support methods to prevent and control pollution in the environment. Additionally, the Federal Aviation Administration (FAA) must comply with applicable pollution control statutes and requirements that may include, but are not limited to those listed in Appendix 2 of FAA Order 1050.10B (*Prevention, Control, and Abatement of Environmental Pollution at FAA Facilities*), FAA Order 1050.14A (*Polychlorinated Biphenyls in the National Airspace System*), FAA Order 1050.15A (*Underground Storage Tanks at FAA Facilities*), and FAA Order 1050.18 (*Chlorofluorocarbons and Halon Use at FAA Facilities*).

Finally, the Ohio Voluntary Action Program (OVAP) was created in September 1994 and was implemented as a State environmental program in 1997. The OVAP program was created to provide methods to investigate environmental contamination and remediate it, if determined necessary. It also provides an assurance from the State of Ohio that no more environmental remediation of a site is needed when final actions are confirmed. Final actions are determined when soils, surface water, and ground water are compared to OVAP cleanup standards (Ohio Administrative Code (OAC) Chapter 3745-300-008). The standards reflect contaminant levels that are not shown to affect human health in residential, industrial, and/or commercial settings.[1]

5.17.1.1 Existing Conditions: 2006

Nine areas located on or near Port Columbus International Airport (CMH or Airport) were considered relative to the proposed action or its alternatives and were reviewed for hazardous materials. These areas were selected based on their inclusion in future plans for Airport expansion and were named according to past or current land use or by location. The nine sites are: Airport Golf Course Area, Southeast Airport Area, Former Air Force Plant 85 Area, Western Runway Protection Zone Area, Hertz Rental Car Facility Area, FAA Area, Blue Lot Area, the Former Fire Training Pit Area, and the Hotel Area (see **Exhibit 5.17-1, *Hazardous Materials Survey Areas***). A summary of the potential hazardous materials or possible environmental contamination that may be encountered at CMH is presented in **Table 5.17-1,** on page 5.17-21.

The existing conditions of the nine listed property areas were prepared using a variety of different research techniques and sources available that followed the guidance of FAA Order 1050.19 (*Environmental Due Diligence Audits (EDDA) in the Conduct of FAA Real Property Transactions*).

[1] *Ohio EPA. Ohio's Voluntary Action Program Fact Sheet, Columbus, OH*, 2001, Ohio EPA.

Table 5.17-1
SUMMARY OF HAZARDOUS MATERIALS CONCERNS
Port Columbus International Airport

	Hazardous Materials Concerns							
	ACM	**Pb**	**PCB**	**AST**	**UST**	**Drum**	**Carcinogenic Risk**	**Other**
Airport Gold Course Area								
Southeast Airport Area								
Vacant Hangar	X				X			
Flight Safety Hangar	X	X			X			
Cargo Building								
FAA-owned Antenna	X	X	X					X
Former Air Force Plant 85								
Building 144		X		X				
Building 26		X		X	X	X		
Cargo Truck Area								
Canopy Area								
Former Buildings 5 and 13								
Jet Engine Test Cell		X						
Building 25	X	X	X					
Mason Run				X				
Ammunition Storage Bunker		X						
Waste Water Treatment Plant	X	X		X				
Taxiway B3						X		
CIAC (Buildings 3 and 7)	X	X	X				X	
Western Runway Protection Zone	X	X				X		X
Hertz Rental Car Facility Area				X	X			
FAA Area				X				X
Blue Lot Area			X	X				X
Former Fire Pit Training Area								
Hotel Area								

Notes: **ACM** - Asbestos Containing Materials; **Pb** - Lead-based Paint/Dust; **PCB** - Polychlorinated Biphenyl; **AST** - Aboveground Storage Tank; **UST** - Underground Storage Tank

Source: Gresham, Smith and Partners, 2007.

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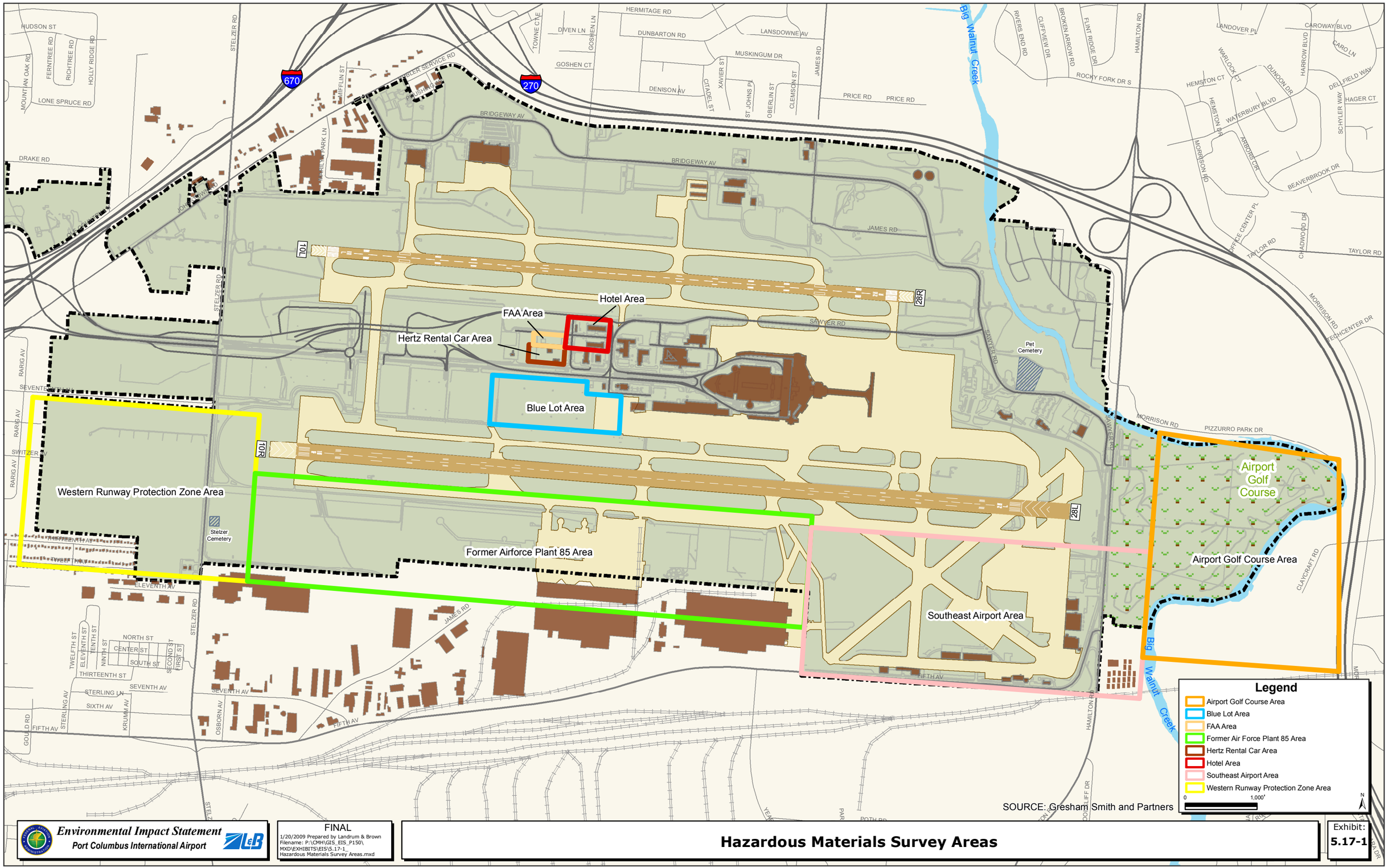

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Hazardous Materials Survey Areas

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An EDDA is conducted in order to minimize and manage the FAA's environmental liabilities associated with the acquisition, disposal, or other property transfer. EDDAs serve a two-fold purpose under CERCLA. First, they allow the FAA to fulfill its legal responsibilities under Section 120(h) of CERCLA, to report hazardous waste activities when selling or transferring FAA-owned property. Second, because current owners and operators of facilities are liable under CERCLA, EDDAs minimize the FAA's and the Airport's potential liability for remediating contaminated property.

EDDAs are also used to implement the Community Environmental Response Facilitation Act of 1982 (CERFA). The CERFA was enacted to expedite deed transfers by requiring Federal agencies to identify uncontaminated property at facilities slated for closure. The CERFA act details specific steps taken to certify that a property is free from contamination which is consistent with the activities specified in the EDDA process.

The following methods were utilized, following the guidance of the EDDA, to gather information to determine the potential for existing hazardous materials at CMH: landowner data review/interviews, computer database search, local government agency review, State regulatory review, Federal government records review, property inspections, chain of title search, and historical aerial photograph review. In addition, a walk-through was conducted in November 2006.

A review of various databases revealed a number of sites involving past, present, and potential releases of hazardous materials into the surrounding environment. **Exhibit 5.17-2, *Hazardous Materials Sites,*** identifies the potential locations where hazardous materials may still be of concern. These concerns include aboveground storage tanks (ASTs), USTs, transformers, lead-based paint, asbestos containing materials, organic and/or inorganic chemicals, buried drums, etc.

AIRPORT GOLF COURSE AREA

The Airport Golf Course Area is located at 900 North Hamilton Road and bordered by Big Walnut Creek to the north and east, Big Walnut Creek and the Anderson Concrete Plant to the south, and Hamilton Road and CMH to the west. The property is a public golf course managed by the City of Columbus since 1966. The Columbus Regional Airport Authority (CRAA) has installed runway approach lighting for Runway 10R/28L on portions of the golf course fairways in order to provide adequate navigational safety for approaching aircraft. During the November 2006 walk-through at the Airport Golf Course Area, no hazardous materials were found to be produced or stored.

SOUTHEAST AIRPORT AREA

The Southeast Airport Area is located southeast of Runway 10R/28L on Airport property. This area includes a former runway and associated taxiways. The majority of the area is paved and includes hangars and a cargo building.

Hangar 3, located at 645 North Hamilton Road, is owned by the CRAA. This hangar was investigated in August 1991 during a Phase I Environmental Assessment (EA).[2] The results of the assessment identified that insulation, floor tiles, and/or ceiling tiles may contain asbestos. A Phase II EA was also completed for this building in November 1991.[3] During the assessment, this area was investigated to determine areas of abandoned or unknown USTs. Soil analyses indicated that concentrations (62 ppm) of Total Petroleum Hydrocarbon (TPH) exceeded the Ohio EPA (OEPA) TPH clean level criteria of 40 ppm. As a result, the assessment identified that USTs may be present in this area.

The Flight Safety Hangar (also known as Hangar 2) is located at 625 North Hamilton Road and is south of Hangar 3. A phone interview was conducted to identify information on the presence of hazardous materials. The interviewee indicated that current activities within the Flight Safety Hangar include aircraft maintenance and storage and that lead-based paint may be present. A Phase I EA was completed at the Flight Safety Hangar in 1991.[4] This investigation identified that two USTs associated with boilers were present at the site and the insulation, floor tiles, and/or ceiling tiles may contain asbestos.[5]

The cargo building is located west of Hangars 2 and 3 and contains ramp equipment such as taxiway signs, fencing, and lighting that is used by CMH personnel on the existing runways and property. There appeared to be no hazardous materials in the cargo building during the November 2006 walk-through.

An FAA-owned antenna and three oil-filled transformers (approximately 50 gallons each) are currently located within the Southeast Airport Area. These transformers were identified to contain Polychlorinated Biphenyls (PCBs). Additionally, a building is located adjacent to the FAA-owned antenna and transformers. The building has signage indicating that asbestos materials and lead-based paint are present. There is also signage that identifies the building as a chemical battery storage area.[6]

FORMER AIR FORCE PLANT 85 AREA

Former Air Force Plant 85 is located south of Runway 10R/28L. Approximately 96 acres of Air Force Plant 85 property was transferred to CRAA on December 31, 2002. The transferred site was formerly involved with the generation, storage, and release of hazardous materials from the United States Department of Defense operations and is currently listed on the USEPA NPL. Several environmental investigations for this area were conducted between 1984 and 2005. The results of many of these investigations concluded soil and/or

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2 *Phase I Environmental Audit Report, Port Columbus International Airport and Bolton Field, Columbus Ohio,* 1991, Metcalf & Eddy, Inc.

3 *Phase I Environmental Audit Report, Port Columbus International Airport and Bolton Field, Columbus Ohio,* 1991, Metcalf & Eddy, Inc.

4 *Ibid*.

5 Interview between GS&P and Michelle Eckles of Resource International, Inc. was conducted on November 21, 2006.

6 October 29, 2007, GS&P received information from Mr. Paul Kennedy, Environmental Safety and Health Supervisor, CRAA.

Investigations for the presence of hazardous materials have been conducted for various areas at the airport. The hazardous materials identified are those that may be potentially present at the facility. Investigations which identified concentrations of hazardous materials less than OVAP standards or those areas recommended for no further action by Ohio EPS are not included on this exhibit

Western Runway Protection Zone Area A L D O

Jet Engine Test Cell L

Former Building 5 A L

Mason Run AST

Taxiway 3B D

Cargo Truck Area

Former Building 13 A L

Building 26 L AST D UST

FAA Antenna PCB

Ammunition Storage Bunker L

Building 25 A L AST PCB

Building 7

Wastewater Treatment Plant A L AST

Former Building 3 A L PCB R

Building 144 L AST

Columbus International Aircenter A L O PCB

FAA Area O

AST UST

A UST

A L UST

Legend

- A Asbestos Containing Materials
- AST Aboveground Storage Tank
- D Drum
- L Lead Paint/Dust
- O Other
- PCB Polychlorinated Biphenyls
- R Carcinogenic and/or Non-Carcinogenic Risk
- UST Underground Storage Tank

0 1,000' N

SOURCE: Gresham Smith and Partners

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Hazardous Material Sites

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ground water contamination was present. As a result, remediation for identified areas took place and currently most contaminated sites have been identified by OEPA for No Further Action or are below OVAP industrial land use action standards. The following summaries describe areas and buildings that may be impacted by one or more of the alternatives. Most of the buildings are owned by the CRAA with the exception of Buildings 3 and 7. Based on the agreement between the Air Force and the CRAA regarding the transfer of this property, any future remediation of hazardous materials is the responsibility of the Air Force, except for issues related to asbestos containing materials and lead-based paint.

Building 144

Building 144 is a small building, built in 1953, located on the eastern portion of the former Air Force Plant 85 area. A review of the 1996 Environmental Baseline Survey and 2002 Updated Environmental Baseline Survey indicated there are three ASTs, two 250-gallon Jet A tanks (144-103, 144-104) and one 250-gallon fuel oil tank (144-105) in this area that are potentially still in use and have not been closed.[7,8] It could not be verified during the November 2006 walk-through if the three ASTs were present because there was no access into Building 144.

On January 11, 2007 Mr. Paul Kennedy, the CRAA Environmental Safety and Health Supervisor, and Mr. Kelly Kaletsky, the CRAA Environmental Coordinator, entered and inspected Building 144 for the presence of the three ASTs. Mr. Kennedy indicated there were three fuel filtering vessels with drains going directly into floor drains and supply lines coming from underground. Mr. Kennedy also indicated that the floor drains are most likely connected to the storm sewer system. The ASTs have not been closed and likely still contain fuel.[9]

Soil investigations were conducted for the area where a former UST was located (UST 3-105 was removed prior to 1988)[10] near Building 144. The results of the analyses identified organics, Polycyclic Aromatic Hydrocarbons (PAHs), Semi-Volatile Compounds (SVOCs), and TPHs were present in soil samples but did not exceed OVAP Generic Soil Standards. Ground water analyses concluded organics, PAHs, SVOCs, and TPHs were also present in samples. The results concluded OVAP Generic Unrestricted Potable Use Standards were not exceeded for PAHs but were exceeded for organics.[11] In an attempt to identify if the organics exceedance remained, the CRAA and personnel at Wright Patterson Air Force Base who might have additional insight or documentation for this area were contacted. At the time this document was prepared, there had been no response regarding organics in ground water for this area.

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7 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

8 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.

9 January 12, 2007, GS&P received information from Mr. Paul Kennedy.

10 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

11 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.

During the November 2006 walk-through, the paint on the interior walls within the building was chipping. The 1996 Environmental Baseline Survey confirmed the presence of lead-based paint for this building.[12] There are no records that indicate this building has asbestos containing materials.

Building 26

Building 26, built in 1943 as the eastern pump house, has been taken off-line. The building houses fire pumps, controls, and piping. West of Building 26 is a large AST that contained water to feed the fire pumps and is no longer in service.[13] During the November 2006 walk-through, two 55-gallon tanks were located adjacent to the AST.

During the November 2006 walk-through, two ASTs were identified outside the building. The ASTs were approximately three-fourths full of what appeared to be a petroleum product. On January 10, 2007, Mr. Kennedy indicated these two tanks would be pumped dry of their contents at a future date.[14] Additionally, Mr. Kennedy and Mr. Kaletsky identified the presence of a UST located east of Building 26.[15] This UST was not documented in the 1996 Environmental Baseline Survey and potentially stored a petroleum product.[16, 17] The CRAA has informed the Air Force of the presence of this UST and potential undiscovered contamination within the vicinity. The Air Force is responsible for pumping and removing the contents from these tanks and the building. At this time the removal date is unknown, but it would be done prior to construction of the runway project.

The November 2006 walk-through identified that paint on the interior walls of the building was chipping. The 1996 Environmental Baseline Survey confirmed the presence of lead-based paint for this building.[18] There are no records that indicate this building has asbestos containing materials.

Cargo Truck Area

The Cargo Truck Area is south of Runway 10R/28L and is a paved parking lot for cargo trucks. No hazardous materials were found to be produced or stored on the existing paved Cargo Truck Area.

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12 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
13 November 16, 2007, GS&P received information from Mr. Paul Kennedy, CRAA.
14 January 10, 2007, GS&P received information from Mr. Paul Kennedy, CRAA.
15 January 12, 2007, GS&P received information from Mr. Paul Kennedy, CRAA.
16 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
17 November 16, 2007, GS&P received information from Mr. Paul Kennedy, CRAA.
18 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

Canopy Area

The Canopy Area is located west of the Cargo Truck Area and has a metal canopy over electrical equipment. During the November 2006 walk-through, there was no fueling island currently on the site, no indication of a previous fueling island, and no ASTs or signs of USTs in the area. A former transformer and a transformer switch were identified in the 1996 Environmental Baseline Survey and were located west of the Canopy Area near Building 13.[19] The transformer and switch were removed in October 1994.

Former Buildings 5 and 13

Building 5, formerly used as a paint shop, has been demolished and the area is now paved and used for aircraft parking. It was identified in the 1996 Environmental Baseline Survey that two transformers and three transformer switches were located within the building, but had been removed in October 1994.[20] Two USTs (5-159, 5-160) located north of Building 5 containing lacquer and solvents, were removed prior to 1988.[21] Soil investigations were conducted for the area around USTs 5-159 and 5-160. The results of the analyses identified PAHs, SVOCs, and Volatile Organic Compounds (VOCs) present in soil samples, but did not exceed OVAP Generic Soil Standards (industrial land use). Ground water was not investigated because it was not encountered during soil borings. The investigation concluded that the potential for ground water contamination was unlikely.[22]

The paint stripping shop, Building 13, was demolished between December 1997 and January 1998 and is now paved and used for aircraft parking. Investigation of the soil in this area found no elevated concentrations of hazardous materials exist compared to OVAP industrial land use standards and no further action was recommended.[23] The OEPA concurred with the results.[24]

Jet Engine Test Cell

The Jet Engine Test Cell, built in 1961, was used to test aircraft engines and equipment. The 1996 Environmental Baseline Survey confirmed the presence of lead-based paint in this building.[25] There are no records that indicate this building has asbestos containing materials. Soil and ground water in this area was investigated and results identified that SVOCs, TPHs, and VOCs were detected in samples but no elevated concentrations of hazardous materials exist compared to

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19 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
20 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
21 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
22 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.
23 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.
24 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.
25 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

OVAP industrial land use standards and Generic Unrestricted Potable Use Standards.[26] The 2002 Environmental Baseline Survey Update documents that the OEPA concurred with the results.[27]

A fenced concrete pad is located north of the Jet Engine Test Cell. The November 2006 walk-through identified that this area was used to store propane tanks. Valves and abandoned piping were present outside of the fencing. Nothing indicates that ASTs or USTs were ever located in this area.

A UST (270-289) located northeast of the Jet Engine Test Cell containing fuel oil was removed prior to 1988.[28] Soil investigations were conducted for the area around the former location of UST 270-289. The results of the analyses identified organics, SVOCs, and TPHs present in soil samples but did not exceed OVAP industrial land use standards. Ground water analyses for the area around the former location of UST 270-289 identified Diesel Range Organics (DRO) and SVOCs present in samples, but these also did not exceed OVAP Generic Unrestricted Potable Use Standards and no further action was recommended.[29] The 2002 Environmental Baseline Survey Update documents that the OEPA concurred with the results.[30]

A transformer was identified in the 1996 Environmental Baseline Survey that was located east of the Jet Engine Test Cell. This transformer was removed in October 1994.[31]

Building 25

Building 25, built in 1943 as the western pump house, has been taken off-line. The building houses fire pumps, controls, and piping. Three ASTs, two 250-gallon diesel fuel tanks (25-UNK1, 25-UNK2), and one 550-gallon oil fuel tank (49-UNK1) were identified in the 1996 Environmental Baseline Survey.[32] The 1996 records indicated that the 250-gallon tanks are active and the 550-gallon tank is inactive. The 1996 Environmental Baseline Survey identified that a transformer and two transformer switches were located northwest of Building 25, but were removed in October 1994. The transformer contained Pyranol and one of the transformer switches had a PCB label. There are records that document the removal of the

[26] *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.
[27] *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.
[28] *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
[29] *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.
[30] *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.
[31] *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
[32] *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

transformer and the transformer switch with the PCB label. However, there are no records that indicate the second transformer switch was removed. During the November 2006 walk-through, the second transformer switch was not found and most likely was removed at the same time the transformer was removed.

The walk-through did identify that paint on the interior walls within the building was chipping. The 1996 Environmental Baseline Survey confirmed the presence of lead-based paint for this building. Also, the walk-through identified the building has been tested and that piping within the pump house contains asbestos materials.

As a result of vandalism on December 27, 2006, a fuel spill in Turkey Run located near the existing Columbus International Aircenter (CIAC) property was reported to the OEPA.[33] OEPA and the City of Columbus responded to the area and took proper emergency measures to contain the spill. OEPA determined the source of the spill was on Airport property, originating from one of the diesel ASTs in Building 25. FeeCorp, an environmental remediation company, was immediately notified to contain and remediate areas that were impacted by the spill. The spill resulted in a sheen on the surface waters of Turkey Run but did not penetrate into the soil. The three ASTs at Building 25 were pumped dry of their contents and FeeCorp power washed the area around the pump house. Remediation activities were completed by FeeCorp in January 2007 and the OEPA was consulted throughout the remediation process. Although no confirmation sampling of the remediation activities were completed, the OEPA indicated they were satisfied with the remediation activities and cleanup of the area was complete.[34]

Mason Run

Mason Run enters the former Air Force Plant 85 property from the north, flows in a southerly direction to a series of box culverts passing under Runway 10R/28L and under former Air Force Plant 85 (currently the CIAC). Mason Run is enclosed for approximately 2,000 feet under former Air Force Plant 85 until it leaves the Plant 85 location on the southern boundary. Several ASTs and USTs have been located at the northern portion of Mason Run on the former Air Force Plant 85 property and have been closed in accordance with OEPA guidelines. There were two 250-gallon fuel oil (141-UNK1, 141-UNK2) ASTs identified in the 1996 Environmental Baseline Survey.[35] During the November 2006 walk-through, the ASTs were not found. There are no records that indicate the ASTs were removed. The CRAA and Wright Patterson Air Force Base have been contacted for further information on these ASTs.

[33] January 3, 2007, GS&P was notified by Mr. Paul Kennedy, CRAA.
[34] August 27, 2007, GS&P was notified by Mr. Paul Kennedy, CRAA.
[35] *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

Ammunition Storage Bunker

The Ammunition Storage Bunker, built in 1959, is an empty concrete bunker overlain with soil and vegetation. The 1996 Environmental Baseline Survey confirmed the presence of lead-based paint in this building.[36] Additionally, lead-based dust from ammunition may be present in this area. There are no records that indicate this building has asbestos-containing materials.

Waste Water Treatment Plant

The former Air Force Plant 85 Waste Water Treatment Plant (WWTP) was an on-site water treatment facility built in 1965. The 1996 and 2002 Environmental Surveys indicated three ASTs (282-282D, 282-282F, and 282-282G) at the facility. [37, 38] The November 2006 walk-through verified that all three tanks were present. Records indicate these tanks may still contain waste chrome, a lime slurry solution, and coal pile leachate. Three ASTs (282-282A, 282-282B, 282-282C) contained process water at the WWTP and are currently inactive.[39] Additionally, soil in this area was investigated and results identified that mercury, numerous inorganics, and VOCs were detected in samples but no elevated concentrations of hazardous materials exist compared to OVAP industrial land use standards.[40] The 2002 Environmental Baseline Survey Update provides information that the OEPA concurred with the results.[41] Also, the 1996 Environmental Baseline Survey confirmed the presence of lead-based paint and asbestos-containing materials for this building.[42]

Taxiway B3

After portions of former Air Force Plant 85 were acquired by the CRAA, relocation and straightening construction activities took place on Taxiway B in 1992.[43] Soil contamination, particularly trichloroethylene (TCE) and 1, 2-dichloroethane (1,2-DCA), and several buried drums were discovered by CRAA personnel during excavation of the soil southeast of Taxiway B3. TCE and 1,2-DCA are common solvents and were used in the aircraft manufacturing business. This portion of land was owned by the Air Force, but was leased to Rockwell International, an aircraft manufacturer, from 1950 to 1988 when McDonnell-Douglas took over operations at

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36 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
37 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
38 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.
39 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.
40 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.
41 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.
42 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
43 Interview between GS&P and CRAA personnel, Dave Gotchall, CRAA Senior Project Manager, and Paul Kennedy, was conducted on December 12, 2006.

Air Force Plant 85. Aircraft manufacturing continued to take place until 1995.[44] Paper documentation on the drums indicated they were buried during the 1950s. The CRAA has excavated the contaminated soil within the area. No formal documentation about the official conclusions/closure requirements from the OEPA exists.

Camp Dresser & McKee (CDM) performed an extensive soil and ground water monitoring regime that was published in a 2002 report for a 90-acre portion of former Air Force Plant 85.[45] Samples were taken at approximately 23 sites, arranged in east-west rows at 230-foot intervals in the general vicinity of Taxiway B3. The samples were analyzed and compared against OVAP standards. Specifically, samples were compared to the construction/excavation OVAP standards because the expected exposure scenario is that of a construction/excavation worker. A cancer risk ratio and non-cancer hazard ratio were calculated to identify a cumulative cancer risk or non-cancer hazard for future construction/excavation workers in association with soil contamination at the site. The results from the study concluded there was no cumulative cancer or non-cancer hazard risk based on the samples analyzed from the sample sites. Ground water analyses identified arsenic and barium in samples. Although detected, it is unlikely that ground water at the site will be used for potable purposes. In the unlikely event that ground water would be consumed at the site, the ground water data was compared to OVAP standards. The results indicate the ground water would not represent a health hazard or cancer risk if consumed. The report concludes there is no extensive contamination within the area surveyed.

Columbus International Aircenter (Buildings 3 and 7)

Most of the aircraft production processes that occurred at the former Air Force Plant 85 were in the Defense Construction Supply Center, Building 3. The property is owned by the CIAC. All information provided in this section, except as noted, was included in the 1996 Environmental Baseline Survey.[46]

Building 3

Building 3 was primarily used for manufacturing operations, which generated hazardous materials (i.e., petroleum fuels/oil, paint refuse, metal etching and finishing byproducts, etc.) and included hazardous material storage within and adjacent to the building. The building was built in 1941 and is identified to contain asbestos materials and lead-based paint. The building is currently the Schottenstein/Value City Building.

Past releases of petroleum products and hazardous wastes are documented for this area. Most of the hazardous materials generated were stored until licensed waste haulers could remove and transport the waste to permitted waste disposal facilities.

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[44] *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.
[45] *Columbus Airport Authority, Additional Site Investigation of Plant 85: 90-Acre Investigated Parcel and Future Runway Project,* 2002, Camp Dresser and McKee.
[46] *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

Tanks and equipment containing hazardous materials (i.e., ASTs, USTs, transformers, transformer switches, and capacitors) were also located within and adjacent to Building 3. The areas of potential concern within Building 3 that required further investigation are described below.

The 2002 Environmental Baseline Survey Update indicated that before the construction of the on-site WWTP (1965), industrial wastewater was discharged into the sanitary sewer system.[47] Sanitary sewer investigations identified metals, PCBs, SVOCs, TPHs, and VOCs were detected in soil samples but no elevated concentrations of analytes exist compared to OVAP industrial land use standards. No further action was recommended.[48] The 2002 Environmental Baseline Survey Update provides information that the OEPA concurred with the results.[49] Also, the process lines that connected Building 3 to the on-site Waste Water Treatment Plant have been investigated. The investigation identified metals were detected in ground water samples but no elevated concentrations of analytes exist compared to OVAP Generic Unrestricted Potable Use Standards.[50] The 2002 Environmental Baseline Survey Update provides information that the OEPA concurred with the results.[51] The process and sanitary sewer lines were cut and capped in 1997.[52]

The 2002 Environmental Baseline Survey Update identified further investigation or remediation was required for an equipment pit (3-HTA) and the Detail Paint Shop (3-DPSHOP) within Building 3.[53] The results of the investigations are presented below.

The equipment pit area contained four quench tank pits within Building 3. This area was investigated in 2001.[54] The results of the assessment identified OVAP Generic Unrestricted Potable Use Standards were exceeded for arsenic, TCE, and chloroform in soil and TCE in ground water. A risk assessment was also conducted in December 2002 to estimate the risk to humans in this area and to determine if additional corrective actions are necessary.[55] This risk assessment included selecting chemicals of potential concern, an exposure assessment, toxicity assessment, risk characterization, and an uncertainty analysis. The results of the

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47 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.

48 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.

49 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.

50 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.

51 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.

52 *Environmental Baseline Survey for Air Force Plant 85,* 1996, Earth Tech, Inc.

53 *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.

54 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.

55 *Phase II Property Assessment Report, Air Force Plant 85,* March 2001, Earth Tech, Inc.

study indicated that concentrations of VOCs in soil posed unacceptable carcinogenic risk to future on-site construction workers and on-site indoor workers. The results of this study also identified that concentrations of VOCs in the ground water posed unacceptable carcinogenic and non-carcinogenic risk to future on-site construction workers.

The 3-DPSHOP was investigated in 2001 and 2002.[56] The results of these studies identified OVAP Generic Unrestricted Potable Use Standards were exceeded for TCE and the potential for ground water contamination existed. Therefore, further investigation was conducted to determine the extent of TCE contamination in soil and potential ground water fouling. The results of the study detected arsenic, benzene, TCE, and vinyl chloride in soil samples that exceeded site-adjusted OVAP industrial land use soil standards. In addition benzene, cis-1, 2-DCA, methylene chloride, and TCE in ground water samples exceeded OVAP Generic Unrestricted Potable Use Standards. A baseline risk assessment was conducted to determine the potential for exposure to these chemicals of concern. The results of this study identified the concentrations of VOCs in the subsurface soil posed unacceptable carcinogenic risk to future on-site construction workers and unacceptable carcinogenic and non-carcinogenic risk to future on-site indoor workers. In addition, the study also identified that concentrations of VOCs in the ground water posed unacceptable carcinogenic and non-carcinogenic risk to future on-site construction workers and future on-site indoor workers. Additional research did not identify records that indicated VOCs in soil and ground water have been remediated. If this structure is demolished, the CRAA would be required to re-assess the concentrations of VOCs in ground water and, if still present, the Air Force would be required to remediate the site.

Building 7

The former Building 7 is west of the CIAC and now Million Air is a tenant. The building was constructed in 1943 and is identified as containing asbestos materials and lead-based paint. The 2002 Environmental Baseline Update provided information that a 20,000-gallon JP-4 UST (7-257) was located near the building.[57] The UST was removed in 1993 and several investigations were conducted to determine soil contamination. The results of the studies indicated that BTEX (benzene, toluene, ethylbezene, and xylenes), PAHs, and TPHs were present at the site. Although these analytes were present, the site assessments indicated that soil contamination was limited to the fill material that was excavated and disposed during tank removal and that ground water had not been impacted. The Bureau of Underground Storage Tanks Regulations (BUSTR) issued a determination of no further action for this area.[58]

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[56] *Phase II Property Assessment Report, Air Force Plant 85,* September 2002, Earth Tech, Inc.

[57] *Environmental Baseline Survey Update,* 2002, United States Air Force, Air Force Materiel Command, Aeronautical Systems Center, Engineering Directorate, Environmental, Safety and Health Division, Wright-Patterson Air Force Base.

[58] Ohio Department of Commerce, Division of the State Fire Marshal, Bureau of Underground Storage Tank Regulations Letter (Kelly Gill) to 4300 East Fifth Avenue LLC (William Kugel), 11 July 2001 (revised 20 August 2002). Release #25002069-N00001, Old Inc #2531387-00.

The 1996 Environmental Baseline Survey identified 16 oil-filled transformers and 11 transformer switches in use at Building 3 and six oil-filled transformers and 10 transformer switches in use at Building 7. Several of the transformers and transformer switches contained PCBs. In February 1997, S.D. Myers, Inc. was contracted to remove transformers at the former Air Force Plant 85 area.[59] One transformer located within Building 3 and one switch located within Building 7 were removed during these activities. The remaining transformers and transformer switches may still potentially remain within and outside of the CIAC.

Portions of the former Air Force Plant 85 (specifically Buildings 3 and 7) that were not acquired by the CRAA are south of the future runway construction area, listed on the NPL, and may contain hazardous materials. Surface and ground water flow in a southerly direction into Turkey Run located on the western portion of the facility and to Mason Run located on the central portion of the facility. Both creeks flow in a southerly direction until they reach Big Walnut Creek. Therefore, pollutant migration toward Airport property (i.e., northerly direction) via surface and ground water flow is unlikely.

Western Runway Protection Zone Area

The western runway protection zone for Runway 10R/28L encompasses a grassed and forested lot that is located west of Stelzer Road and south of 17th Avenue. Currently, the area is vacant except for lighting associated with Runway 10R/28L. During the November 2006 walk-through of the Western Runway Protection Zone, no hazardous materials were found to be produced or stored in the area. A review of the historical aerial photos from the site indicates that in April 1961 this area was used for farmland. The aerial photograph from July 1979 indicates the farmland became fallow.[60]

The CRAA may need to acquire up to 36 properties located west of CMH as part of the proposed construction activities. A limited Phase I EDDA has been conducted for these areas to evaluate the presence or absence of an existing release, past release, or a material threat of a release of hazardous substances or petroleum products into structures on the properties or into the soil, ground water, or surface water of the property. The results of the assessment identified the potential presence of recognized environmental conditions for the area.[61] Specifically, equipment, miscellaneous materials, drums and/or storage containers, piles of debris stored outside; stained pavement; and solid waste disposal areas were identified. In addition, based on the age of the structures, asbestos containing materials and lead-based paint may be present. Based on a report provided by Environmental Data Resources, Inc. (EDR), radon gas may be present in this area and spills of potentially hazardous materials have occurred in the vicinity.[62]

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59 *Certification of Destruction / Recycle: Tallmadge, OH,* February 1997, SD Myers.

60 The EDR Aerial Photo Decade Package, 13th Avenue Homes, Columbus, OH: Environmental Data Resources, Inc., August 2007.

61 *Environmental Review of East 13th Avenue Homes, Columbus Ohio*, September 2007, Gresham, Smith and Partners.

62 The EDR Radius Map with GeoCheck, 13th Avenue Homes, Columbus, OH: Environmental Data Resources, Inc., August 2007.

Hertz Rental Car Facility Area

The Hertz Rental Car Facility Area is located at 4200 International Gateway and is on CMH property. The facility contains a fenced parking lot, car wash, vehicle maintenance building, rental office, and fuel island.

A review of the facility indicates there is one 10,000-gallon gasoline UST that is currently in use. A release from this tank (Release No. 25003048-N00001) occurred on February 12, 1990.[63] The site was remediated and is currently not an active release site. Review of the BUSTR records from March 18, 2004 indicate no further action status was issued for this site.[64] A review of historical aerial photographs indicates the Hertz facility was constructed subsequent to 1980, after the Consumer Product Safety Commission banned lead-based paint.[65] Therefore, the paint on the interior walls within the building is not suspected to be lead-based. There are no records that indicate this building has asbestos containing materials.

Several ASTs outside of the car wash were identified during the November 2006 walk-through. The products within the tanks were identified as soap, windshield washer fluid, and motor oil.

FAA Area

The FAA Area is a small fenced area located north of International Gateway adjacent to the Hertz Rental Car Facility. The area is slightly less than one acre. The November 2006 walk-through identified a storage cabinet within the area. The contents of the cabinet could not be verified during the walk-through. This cabinet potentially contains paints or petroleum products in association with the operations occurring in the area.[66]

Blue Lot Area

The Blue Lot Area is located south of International Gateway. Currently, the Blue Lot is one of three long-term parking lots for Airport passengers.

During the November 2006 walk-through, two drums containing windshield washer fluid and two gasoline cans were observed. A generator tank was also located within a fenced area inside the Blue Lot Area. Additionally, there were smaller five-gallon pails containing unknown materials. A transformer was also present within the area and was determined to be oil-filled. It is unknown whether the transformer contains PCBs.

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63 The EDR Radius Map with GeoCheck, Port Columbus International Airport, Columbus, OH: Environmental Data Resources, Inc., November 2006.

64 Corrective Actions Database Search. Retrieved November, 2006, from The Bureau of Underground Storage Tanks. https://www.com.state.oh.us/sfm/bustr/CorrectiveActions.asp

65 The EDR Aerial Photo Decade Package, Port Columbus International Airport, Columbus, OH: Environmental Data Resources, Inc., November 2006.

66 November 16, 2007, GS&P received information from Mr. Paul Kennedy, CRAA.

Former Fire Training Pit Area

The Former Fire Training Pit Area is located west of the Gate Gourmet facility at CMH and is bordered by Sawyer Road to the north, Gate Gourmet facilities to the east, an access road to the south, and the Outfall 004 ravine to the west. The City of Columbus operated a fire training pit at CMH from the 1960's to the early 1980's. Waste aviation fuel was used in the training exercises at the site. This area would be physically disturbed for the creation of a stormwater detention basin as a result of implementing the Sponsor's Proposed Action, and Alternatives C2a/b and C3a. Gresham Smith & Partners contacted the OEPA on October 17, 2007 and spoke with Mr. Randy Sheldon of the Division of Hazardous Waste Management.[67] According to Mr. Sheldon, the fire pit was closed without any restrictions. No hazardous materials are known to be present at the site and based on the correspondence with OEPA, hazardous materials are not expected to be present in the area. Therefore, it is assumed that no hazardous material impacts would occur in this area as a result of implementing the Sponsor's Proposed Action or any of its alternatives.

Hotel Area

Comfort Suites is a hotel located at 4270 Sawyer Road. Currently, the Comfort Suites area includes a hotel and parking lot. During the November 2006 walk-through, no hazardous materials were found to be produced or stored in the area. Baymont Inn and Suites is a hotel located at 4240 International Gateway. Currently, the Baymont Inn and Suites area includes a hotel and parking lot. During the November 2006 walk-through, no hazardous materials were found to be produced or stored in the area.

A review of historical aerial photographs indicated the Comfort Suites and Baymont Inn and Suites were constructed subsequent to 1980.[68] The paint on the interior walls within the building is not suspected to be lead-based. There are no records that indicate this building has asbestos containing materials.

[67] Interview between GS&P and Randy Sheldon of the Ohio EPA Division of Hazardous Waste Management was conducted on October 17, 2007.

[68] The EDR Aerial Photo Decade Package, Port Columbus International Airport, Columbus, OH: Environmental Data Resources, Inc., November 2006.

5.17.1.2 Future Conditions: 2012

This section presents the impacts from the Sponsor's Proposed Project and its alternatives to the existing or potential hazardous materials at CMH and surrounding properties.

Alternative A:
2012 No Action

Because the 2012 No Action Alternative would not result in further development, this alternative would have no impacts on the existing hazardous materials at CMH.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would have hazardous material impacts in the Southeast Airport Area, Former Air Force Plant 85 Area, and the Western Runway Protection Zone Area. Although there are hazardous material impacts, long-term runway operations could be beneficial because the runway/taxiways and the associated underdrain systems would reduce the amount of storm water infiltration, thereby acting as a cap for any potentially impacted soils (i.e., lowers groundwater elevation/hinders contaminant transport). Additionally, long-term runway operations could be beneficial because the Taxiway/Runway Object Free Areas (TOFA/ROFA) must remain free of "fixed or movable objects." Because this area is restricted, it limits the type of buildings and infrastructure that can be constructed. Therefore, it is expected that limited numbers of individuals will be present in the area, thereby reducing exposure to hazardous materials. The impacts for hazardous materials for 2012 Alternative C2a are outlined for each area below.

Southeast Airport Area

The relocation of Runway 10R/28L 800-feet to the south would impact two buildings in the Southeast Airport Area. These buildings include Hangar 3 and the Flight Safety Hangar (also known as Hangar 2). Both hangars would be removed by the CRAA to provide adequate clearance for the eastern Runway Protection Zone. Each hangar is suspected to contain asbestos materials within the building's insulation, floor tiles, and/or ceiling tiles. Also, lead-based paint is likely to be present within the Flight Safety Hangar. There is evidence that suggests two USTs are located near Hangar 3 and the Flight Safety Hangar that would have to be removed. The removal of these hangars is not expected to result in a release of hazardous materials.

It is also expected that removal of the FAA-owned antenna will be required due to its location near the Runway Safety Area (RSA). Demolition of the building and removal of the transformers will be required.

The most current standards regarding the handling and disposal of asbestos-containing materials, lead-based paint, and USTs would be followed to minimize impact to the environment and workers.

Former Air Force Plant 85 Area

Two building areas (a portion of Building 3 and Building 7) would need to be demolished in order to allow CAT II/III operations on Runway 10R/28L. These buildings include portions of the CIAC property, specifically the Schottenstein/Value City building and Million Air facilities. Currently, the eastern building (Building 3) is comprised of a series of bays that would need to be removed. The north section of the building contains a long open bay, which would require removal. The entire western building (Building 7) would need to be demolished.

Building 3 (Schottenstein/Value City building) and 7 (Million Air facilities) are not currently owned by the CRAA. Implementation of 2012 Alternative C2a would require modification and/or demolition of these buildings, which are located on an NPL site. According to historical documents, the equipment pit area (3-HTA) and 3-DPSHOP located in Building 3, pose unacceptable carcinogenic and/or non-carcinogenic risks to future on-site construction workers and on-site indoor workers. Based on the review of these documents, there is insufficient data related to the horizontal and vertical extent of contamination for Building 3. Buildings 3 and 7 have also been documented to contain asbestos materials and lead-based paint. Also, several transformers and transformer switches are present and in use at Buildings 3 and 7. In accordance with Appendix A, Section 10 of FAA Order 1050.1E (*Environmental Impacts: Policies and Procedures*), FAA action involving the acquisition of property located at an NPL site is considered a major action with significant impacts, in most circumstances. However, the majority of the former Plant 85 Area has been remediated to criteria set forth by the OEPA. Therefore, if any remaining areas impacted with hazardous materials are appropriately mitigated (i.e., mitigated below regulatory thresholds) before acquisition of the land, this action would not be considered a major action with significant impacts. The Air Force would be responsible for remediation of any areas formerly located in Air Force Plant 85, except for issues related to asbestos containing materials and lead-based paint.

In addition to Buildings 3 and 7, there are a number of other structures, remnants of structures, or sites located between the existing Runway 10R/28L and Buildings 3 and 7 that would have to be removed. These include the ammunition storage bunker, jet engine test cell, Mason Run, Taxiway B3, Building 25, former Building 5, former Building 13, cargo truck area, Building 26, and Building 144. The potential for the presence of hazardous materials for each of these sites is described above in Section 5.17.1.1.

Western Runway Protection Zone Area

For 2012 Alternative C2a, the Airport would have to acquire 36 properties currently located on East 13th Avenue in the City of Columbus, Ohio. Current land use consists of privately-owned homes and yards. Hazardous material concerns identified in this area include: equipment, miscellaneous materials, drums and/or storage containers, piles of debris stored outside, stained pavement, solid waste disposal areas, potential asbestos containing materials, potential lead-based paint, potential radon gas, potential controlled substances, and potential spills. Additionally, because the investigation of this area did not include a site walkthrough inside the residences, the presence of additional hazardous materials indoors could not be fully assessed. The more complete assessment would occur as part of the implementation of the acquisition program after the FAA issues a Record of Decision on the project.

Mitigation Commitments

For 2012 Alternative C2a, the presence of asbestos-containing materials and lead-based paint would need to be confirmed for Hangar 2, the Flight Safety Hangar, Buildings 3 and 7, and houses located on East 13th Avenue. If present, the hazardous materials from demolition activities would be removed in accordance with 40 CFR Parts 260-280 and 49 CFR Parts 171-199. The OAC Chapter 3745-20 includes State regulations for asbestos removal and cleanup. Lead-based paint from households, such as those located on East 13th Avenue, are exempt from lead-based abatement under OAC Chapter 3745-51-04(B)(1). However, lead-based paint from the other identified areas would be considered demolition debris. The CRAA would be responsible for insuring that all laws and guidelines are followed concerning the demolition and removal of the debris.

If 2012 Alternative C2a is implemented, a comprehensive investigation for the presence of USTs at Hangar 2 and the Flight Safety Hangar would take place before demolition activities commence. If USTs are present, their contents would be characterized and disposed of as part of their closure in accordance with BUSTR regulations (OAC Chapter 1301-7).

The soil and ground water around Building 3 have been determined to pose unacceptable carcinogenic and/or non-carcinogenic risks to future on-site construction workers and on-site indoor workers. Building 3 is constructed with a thick concrete slab floor and is currently occupied by personnel associated with CIAC operations. The concrete slab limits exposure to contaminated soil and/or ground water. Demolition of Building 3 may be completed so that the concrete slab is not removed or disturbed. However, if the concrete slab becomes removed or disturbed during demolition, personnel associated with demolition activities may be exposed to soil and ground water contamination. Specifically, arsenic, benzene, chloroform, TCE, and vinyl chloride may be present in soil and benzene,

dichloroethene, methylene chloride, and TCE may be present in ground water. A Health and Safety Plan for the abovementioned chemicals would be completed to supplement the awareness of potential environmental contamination in this area and would be implemented before and during demolition activities.

Removal and destruction of the oil-filled equipment at the FAA-owned antenna and in Buildings 3 and 7 would be completed in accordance with TSCA requirements before demolition activities commence. Specifically, 40 CFR Part 761 identifies the applicable regulatory requirements such as marking, disposal, storage, remediation waste, cleanup requirements, etc. for transformers. Special consideration would be taken to minimize the number of workers and further contaminant releases associated with the remediation of the antenna and Buildings 3 and 7.

The majority of the former Air Force Plant 85 Area has been remediated to criteria set forth by the OEPA, however due to the nature of the Air Force operations, there may be areas of localized contamination that remain. To reduce the potential for exposure to hazardous materials and minimize contaminant releases, the CRAA would commit to using pollution prevention design methods to limit soil excavation and other ground disturbance to the extent practical. Personnel involved in the implementation of 2012 Alternative C2a would be made aware of known site conditions and informed to remain cognizant of potential changes in those conditions.

If the CRAA were to acquire the properties located on East 13th Avenue to implement 2012 Alternative C2a, a comprehensive Phase I EDDA would be prepared to identify hazardous materials potentially used or stored in the area, particularly indoor areas. If the release or the presence of hazardous materials were identified, remediation of the site would take place for materials found before demolition activities commence.

The wastes generated from abatement and/or demolition may be required to be evaluated or characterized to determine if they are hazardous, pursuant to OAC Chapter 3745-52-11. Hazardous waste construction debris is regulated under Ohio Revised Code (Title 37 Chapters 3734 and 3745) and OAC Chapters 3754-49-57, 205, 266, 65, 66, 67, 68, 69, 256, and 270. Other hazardous wastes, if encountered during demolition activities would also have to be managed and disposed of in accordance with 40 CFR Parts 260-280 and 49 CFR Parts 171-199. The demolition and construction activities must also include appropriate safety precautions and training for construction personnel, especially at Building 3. These activities would be performed or overseen by individuals trained to monitor and identify the presence of hazardous materials. Specifically, Occupational Safety and Health Administration (OSHA) regulations 29 CFR § 1926.62 and 29 CFR § 1926.1101 applies to the demolition and cleanup of lead-based and asbestos areas. FAA requirements include those identified in AC 150/5370-2E, *Operational Safety on Airports During Construction*.

Construction activities associated with this action would also be regulated under the Pollution Prevention Act (42 U.S.C. §§ 13101,13102) for hazardous materials, hazardous wastes, and hazardous substances that are used, generated, or disturbed; in accordance with Executive Orders 12088, 13101, and 13148; and in accordance with FAA Orders 1050.10B, 1050.14A, and 1050.15A, and 1050.18. Additionally, in the event unknown contaminants are discovered or a spill occurs during construction, work in that area would stop until the National Response Center (NRC) is notified at (1-800-424-8802).

The mitigation measures previously described are intended to meet the most stringent applicable local, State, or Federal laws for hazardous waste management. Additionally, the mitigation commitments would be managed so as not to impede current Airport operations. A summary of the mitigation costs associated with 2012 Alternative C2a is provided in **Table 5.17-2**. The approximate cost for mitigation commitments for this alternative is $288,000. These costs include unavoidable actions that must take place and feasible measures for the removal and mitigation of hazardous materials. The costs identified are based on existing available data and may be greater or less than identified. Additionally, due to the uncertainty of hazardous materials in areas at the Airport and adjacent sites, a 50 percent contingency has been included in the total cost for mitigation.

Table 5.17-2
SUMMARY OF MITIGATION COSTS FOR 2012 ALTERNATIVE C2a
Port Columbus International Airport

Mitigation Activity	Cost Estimate
Asbestos and Lead-based Paint Survey	$135,000[1]
UST Investigation and Removal	$27,000[2]
Transformer Removal	$10,000[3]
Phase I Environmental Assessment of Residential Area	$20,000[3]
Total Cost for Mitigation (including 50% contingency)	$288,000

[1] Cost estimate provided by Astar Abatement, Inc.

[2] Cost estimate provided by Flynn Environmental, Inc.

[3] Cost estimate provided by Gresham, Smith and Partners.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

The 2012 Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as the 2012 Alternative C2a, along with implementation of the operational recommendations of the 2007 Part 150 Noise Compatibility Study (2007 Part 150 Study). The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted, and therefore would not change the potential impacts as described above for 2012 Alternative C2a.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 702 feet to the south of existing Runway 10R/28L would have hazardous material impacts in the Southeast Airport Area, Former Air Force Plant 85 Area, and the Western Runway Protection Zone Area. As with the 2012 Alternative C2a, although there are hazardous material impacts, long-term runway operation could be beneficial because the runway/taxiways and the associated under drain systems would reduce the amount of storm water infiltration, thereby acting as a cap for any potentially impacted soils (i.e., lowers groundwater elevation/hinders contaminant transport). Additionally, long-term runway operations could be beneficial because the TOFA/ROFA must remain free of "fixed or movable objects." Because this area is restricted, it limits the type of buildings and infrastructure that can be constructed. Therefore, it is expected that limited numbers of individuals will be present in the area, thereby reducing exposure to hazardous materials. The impacts on hazardous materials for 2012 Alternative C3a are outlined for each area below.

Southeast Airport Area

The relocation of Runway 10R/28L 702 feet to the south would impact Hangar 3 in the Southeast Airport Area. The hangar would be removed to provide adequate clearance for the eastern Runway Protection Zone. The hangar is suspected to contain asbestos material within the building insulation, floor tiles, and/or ceiling tiles. There is also evidence that suggests USTs were historically operated at the hangar; however their current status is unknown.

It is also expected that removal of the FAA-owned antenna will be required due to its location near the RSA. Demolition of the building and removal of the transformers will be required.

Former Air Force Plant 85 Area

For the 2012 Alternative C3a, the ramp tower on Building 7 would need to be removed in order to comply with the building height restrictions (35 feet) for 14 CFR Part 77. This building is a part of the Million Air facility. Building 7 is not currently owned by the CRAA. Implementation of the 2012 Alternative C3a would include removing the ramp tower, which is located on an NPL site. The building has been documented to contain asbestos materials and lead-based paint. Although there is no documentation that identifies the ramp tower having asbestos materials or lead-based paint, a detailed search would be conducted prior to demolition. Records indicate there are no transformers or transformer switches located within the tower. The majority of the former Air Force Plant 85 Area has been remediated to criteria set forth by the OEPA. Therefore, if any remaining areas impacted with hazardous materials are appropriately mitigated (i.e., mitigated below regulatory thresholds) before demolition, this action would not be considered a major action

with significant impacts. The Air Force would be responsible for remediation of any areas formerly located on Air Force Plant 85, except for issues related to asbestos containing materials and lead-based paint.

In addition to Buildings 3 and 7, there are a number of other structures, remnants of structures, or sites located between the existing Runway 10R/28L and Buildings 3 and 7 that would have to be removed. These include the ammunition storage bunker, jet engine test cell, Mason Run, Taxiway B3, Building 25, former Building 5, former Building 13, cargo truck area, Building 26, and Building 144. The potential for the presence of hazardous materials for each of these sites is described above in Section 5.17.1.1.

Western Runway Protection Zone Area

For 2012 Alternative C3a, the Airport would have to acquire 36 properties currently located on East 13th Avenue in the City of Columbus, Ohio. The current status for this area has been included in the description under 2012 Alternative C2a.

Mitigation Commitments

For 2012 Alternative C3a, the presence of asbestos-containing materials and lead-based paint would need to be confirmed for Hangar 3, Building 7, and houses located on East 13th Avenue. If present, the hazardous materials from demolition activities would be removed in accordance with 40 CFR Parts 260-280, 49 CFR Parts 171-199, and OAC Chapter 3745-20.

If the 2012 Alternative C3a is implemented, a comprehensive investigation for the presence of USTs at the vacant hangar would take place before demolition activities commence. If USTs are present, their contents would be characterized and disposed of as part of their closure in accordance with BUSTR regulations (OAC Chapter 1301-7). Other hazardous wastes, if encountered during demolition activities, would also have to be managed and disposed of in accordance with 40 CFR Parts 260-280 and 49 CFR Parts 171-199. Transformers were identified for the FAA-owned antenna. Special care would be taken to minimize the number of workers and further contaminant releases associated with the demolition of this facility.

The majority of former Air Force Plant 85 Area has been remediated to criteria set forth by the OEPA. However, due to the nature of Air Force operations, there may be areas of localized contamination that still remain. To reduce the potential for exposure to hazardous materials and minimize contaminant releases, the CRAA is committed to using pollution prevention design methods to limit soil excavation and other ground disturbance for the proposed project to the extent practical. Personnel involved in the implementation of 2012 Alternative C3a would be made aware of known site conditions and informed to remain cognizant of potential changes in those conditions.

As previously described, if the CRAA were to acquire the properties located on East 13th Avenue, a comprehensive Phase I EDDA would be prepared to identify hazardous materials potentially used or stored in the area, particularly indoor areas. If releases or the presence of hazardous materials were identified, remediation of the site would take place for materials found before demolition activities commence.

The wastes generated from abatement and/or demolition may be required to be evaluated or characterized to determine if they are hazardous, pursuant to OAC Chapter 3745-52-11. Hazardous waste construction debris is regulated under ORC Title 37 Chapters 3734 and 3745 and OAC Chapters 3754-49-57, 205, 266, 65, 66, 67, 68, 69, 256, and 270. Other hazardous wastes, if encountered during demolition activities would be managed and disposed of in accordance with 40 CFR Parts 260-280 and 49 CFR Parts 171-199. The demolition and construction activities would also include appropriate safety precautions and training for construction personnel. These activities would be performed or overseen by individuals trained to monitor and identify the presence of hazardous materials. Specifically, OSHA regulations 29 CFR § 1926.62 and 29 CFR § 1926.1101 applies to the demolition and cleanup of lead-based and asbestos areas. FAA requirements include those identified in FAA AC 150/5370-2E.

Construction activities associated with this action would also be regulated under the 42 U.S.C. §§ 13101, 13102) for hazardous materials, hazardous wastes, and hazardous substances that are used, generated, or disturbed; in accordance with Executive Orders 12088, 13101, and 13148; and in accordance with FAA Orders 1050.10B, 1050.14A, and 1050.15A, and 1050.18. Additionally, in the event unknown contaminants are discovered during construction, or a spill occurs during construction, work in that area would stop until the NRC is notified (1-800-424-8802).

The mitigation measures previously described are intended to meet the most stringent applicable local, State, or Federal laws for hazardous waste management. Additionally, the mitigation commitments would be managed so as not to impede current Airport operations. A summary of the mitigation costs associated with the 2012 Alternative C3a are provided in **Table 5.17-3**. The estimate includes conservative costs associated with the action. The total approximate cost for mitigation commitments for this alternative is $145,500. These costs include unavoidable actions that must take place and feasible measures for the removal and mitigation of hazardous materials. The costs are estimates based on existing available data and may be greater or lesser than identified. If the asbestos and lead-based surveys result in the presence of these materials, removal costs may vary depending on the extent of their presence. Costs may also increase if additional contamination is found within these areas which require mitigation. Additionally, due to the uncertainty of hazardous materials in areas at the Airport and adjacent sites, a 50 percent contingency has been included in the total cost for mitigation.

Table 5.17-3
SUMMARY OF MITIGATION COSTS FOR 2012 ALTERNATIVE C3a
Port Columbus International Airport

Mitigation Activity	Cost Estimate
Asbestos and Lead-based Survey	$61,000[1]
UST Investigation and Removal	$14,000[2]
Transformer Removal and Destruction	$2,000[3]
Phase I Environmental Assessment of Residential Area	$20,000[3]
Total Cost for Mitigation (including 50% contingency)	**$145,500**

1 Cost estimate provided by Astar Abatement, Inc.

2 Cost estimate provided by Flynn Environmental, Inc.

3 Cost estimate provided by Gresham, Smith and Partners.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

The 2012 Alternative C3b includes the same proposed actions as the 2012 Alternative C3a described above, as well as the implementation of operational recommendations from the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted. Therefore, implementation of this proposed action would have the same potential impacts described above for 2012 Alternative C3a.

5.17.1.3 Future Conditions: 2018

Alternative A:
2018 No Action

Because the 2018 No Action Alternative would not result in further Airport development, this alternative will have no impacts on the existing hazardous materials at CMH.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The construction of replacement Runway 10R/28L 800 feet to the south of existing Runway 10R/28L would have hazardous material impacts in the Southeast Airport, Former Air Force Plant 85, and the Western Runway Protection Zone Areas. Because a portion of the property to be acquired is listed on the NPL, this action would typically be considered a major action with significant impacts. However, if appropriately mitigated before land acquisition, the action would not be considered a major action with significant impacts. These impacts and mitigation alternatives associated with the runway development are described above in detail in the 2012 Alternative C2a section. The 2018 Alternative C2a includes the terminal development envelope and would have additional hazardous material impacts in the Hertz Rental Car, FAA, and Blue Lot Areas. The potential presence of hazardous

materials and mitigation commitments for the terminal development is not expected to include significant impacts for hazardous materials. Although there are hazardous material impacts, terminal construction could be beneficial because the impervious building foundation would reduce the amount of storm water infiltration by acting as a cap for any potentially impacted soils, thereby reducing exposure to hazardous materials. The potential impacts for hazardous materials for 2018 Alternative C2a are outlined for each area below.

Hertz Rental Car Area

The Hertz Rental Car Facility Area is located within the terminal development envelope and includes a fenced parking lot, car wash, vehicle maintenance building, rental office, and fuel island. These facilities would have to be demolished to allow for terminal building development. Also, several ASTs located on the site would be removed.

FAA Area

The FAA Area is also located within the terminal development envelope and is adjacent to the Hertz Rental Car facility. A storage cabinet in the area potentially contains paints or petroleum storage containers. The storage cabinet and its contents would be removed prior to demolition of the building.

Blue Lot Area

A portion of the Blue Lot Area (current parking facility for Airport passengers) is located within the terminal development envelope. There were several ASTs, a generator tank, and 5-gallon pails containing unknown materials observed in this area. Also, an oil-filled transformer was present. It is unknown whether the transformer contains PCBs. The storage containers and transformer would be removed to facilitate terminal development. The parking lot pavement and associated infrastructure would also be demolished and removed as part of the terminal development.

Mitigation Commitments

The primary mitigation necessary for the Hertz Rental Car Area would include removal of the fuel island, a UST, and associated appurtenances that are currently located at the site.[69] The UST removal would be regulated under the BUSTR closure requirements (OAC Chapter 1301-7). As a result of the release of oil that occurred at the facility, a soil investigation was conducted by BUSTR that resulted in a NFA status. NFA status is established when the area investigated does not exceed BUSTR action levels. Therefore, the presence of soil or groundwater contamination is not expected in this area. However, because of ongoing fuel island operations, pavement within this area may be stained due to minor gasoline drips from fueling operations. The Blue Lot Area may also potentially have oil stained pavement from

[69] The facility is located on CRAA property and leased to the Hertz Corporation (Hertz). Any required mitigation for this area would be the responsibility of Hertz and should be completed in accordance with applicable regulatory requirements before demolition and construction activities commence.

leaky parked vehicles. Fuel and oil stained pavement may be removed during construction and demolition activities.

Several ASTs and storage containers were identified at the Hertz Rental Car Area, FAA Area, and Blue Lot Area. The containers would be removed and disposed of during construction and demolition activities. The Hertz Rental Car Area is expected to have ASTs associated with their operations that contain used oil. Used oil that is not intended to be recycled would be managed in accordance with the requirements of 40 CFR Part 279.

The transformer present in the Blue Lot Area would require the implementation of an Investigation and Sampling Plan to determine whether PCBs are present. If PCB-containing equipment is identified, decommissioning, removal, and destruction of the equipment would be completed in accordance with TSCA requirements (40 CFR Part 761) before other demolition activities commence.

The above-mentioned areas are not expected to result in significant releases of hazardous materials, however there may be areas of localized contamination. Additionally, the CRAA is committed to limiting soil excavation for the proposed terminal to the extent practicable. Personnel involved in the implementation of the 2018 Alternative C2a would be made aware of known site conditions and informed to remain cognizant of potential changes in those conditions.

Hazardous waste construction debris is regulated under ORC (3734 and 3745) and OAC Chapters 3754-49-57, 205, 266, 65, 66, 67, 68, 69, 256, and 270. Other hazardous wastes, if encountered during demolition activities would be managed and disposed of in accordance with 40 CFR Parts 260-280 and 49 CFR Parts 171-199. Special care would be taken to minimize the number of workers and further contaminant releases associated with the mitigation of these areas. Demolition and construction activities would also include appropriate safety precautions and training for construction personnel. These activities are described above in detail for 2012 Alternative C2a section. FAA requirements for this action include those identified in AC 150/5370-2E.

Construction activities associated with this action would be regulated under 42 U.S.C. §§ 13101, 13102) for hazardous materials, hazardous wastes, and hazardous substances that are used, generated, or disturbed; in accordance with Executive Orders 12088, 13101, and 13148; and in accordance with FAA Orders 1050.10B, 1050.14A, and 1050.15A, and 1050.18. Additionally, in the event unknown contaminants are discovered or a spill occurs during construction, work in that area would stop until the National Response Center is notified (1-800-444-8502).

The mitigation measures previously described are intended to meet the most stringent applicable local, State, or Federal laws for hazardous waste management. Additionally, the mitigation commitments would be managed so as not to impede current Airport operations. A summary of the potential mitigation costs associated with the 2018 Alternative C2a is provided in **Table 5.17-4**. The total cost for mitigation commitments for this alternative is $441,000, which includes the $288,000 for the runway relocation project described under 2012 Alternative C2a. These costs include unavoidable actions that must take place and feasible measures for the removal and mitigation of hazardous materials. The costs identified are estimates based on existing available data and may be greater or lesser than identified. Costs may also increase if additional contamination is found within the area that requires mitigation. Additionally, due to the uncertainty of hazardous materials in areas at the airport and adjacent sites, a 50 percent contingency has been included in the total cost for mitigation.

Table 5.17-4
SUMMARY OF MITIGATION COSTS FOR 2018 ALTERNATIVE C2a
Port Columbus International Airport

Mitigation Activity	Cost Estimate
UST Removal and Disposal	$6,000[1]
Runway Replacement (previously described under 2012 Alternative C2a)	$288,000
Total Cost for Mitigation (including 50% contingency)	$441,000

[1] Cost estimate provided by Flynn Environmental, Inc.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

The 2018 Alternative C2b includes the same proposed action as the 2018 Alternative C2a described above, as well as the implementation of the operational recommendations from the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted. Therefore, implementation of this proposed action would have the same potential impacts as those described above for the 2018 Alternative C2a.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The 2018 Alternative C3a includes the same terminal development envelope and potential impacts as described in 2018 Alternative C2a. A summary of potential mitigation costs associated with the 2018 Alternative C3a is provided in **Table 5.17-5**. The approximate cost for mitigation commitments for this alternative, including the relocation of the runway, is $158,000. These costs include unavoidable actions that must take place and feasible measures for the removal and mitigation of hazardous materials. The costs identified are estimates based on existing available data and may be greater or lesser than identified. Costs

may also increase if additional contamination is found within the area that requires mitigation. Additionally, due to the uncertainty of hazardous materials in areas at the Airport and adjacent sites, a 50 percent contingency has been included in the total cost for mitigation.

Table 5.17-5
SUMMARY OF MITIGATION COSTS FOR 2018 ALTERNATIVE C3a
Port Columbus International Airport

Mitigation Activity	Cost Estimate
UST Removal and Disposal	$6,000[1]
Transformer Removal	$2,000[2]
Runway Replacement (previously described)	$146,000
Total Cost for Mitigation (including 50% contingency)	**$158,000**

[1] Cost estimate provided by Flynn Environmental, Inc.

[2] Cost estimate provided by Gresham, Smith and Partners.

Alternative C3b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

The 2018 Alternative C3b includes the same terminal development envelope and potential impacts as described in 2018 Alternative C2a, as well as the implementation of operational recommendations from the 2007 Part 150 Study. The implementation of the operational recommendations of the 2007 Part 150 Study would not alter the areas potentially impacted. Therefore, implementation of this proposed action would have the same potential impacts as those described for 2018 Alternative C2a.

5.17.2 POLLUTION PREVENTION

FAA Order 1050.1E (Appendix A, Section 10) states that the RCRA, as amended by the Federal Facilities Compliance Act of 1992, governs the generation, treatment, storage, and disposal of hazardous wastes. The CERCLA, as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA or Superfund) and the Community Environmental Response Facilitation Act of 1992 provide for consultation with Natural Resources Trustees and cleanup of any release of hazardous substances (excluding petroleum) into the environment.

Executive Order 12088, *Federal Compliance with Pollution Control Standards*, as amended, directs Federal agencies to comply with applicable pollution control standards in the prevention, control, and abatement of environmental pollution; and consult with the USEPA, State, interstate, and local agencies concerning the best techniques and methods available for the prevention, control, and abatement of environmental pollution.

Executive Order 12856, *Federal Compliance with Right-to-Know Laws and Pollution Prevention*, requires Federal agencies to report, in a public manner, toxic chemicals entering any waste-stream from their facilities, including any releases to the environment. This is required to ensure that generated waste is recycled to the maximum extent practicable, as well as to ensure that any remaining wastes are stored, treated, or disposed of in a manner protective of public health and the environment. This is further required in an effort to improve local emergency planning, response, and accident notification. Finally, the requirement is designed to encourage clean technologies and safe alternatives to extremely hazardous substances or toxic chemicals. This is to be accomplished through revisions to specifications and standards, the acquisition and procurement process, and the testing of innovative pollution prevention technologies at Federal facilities.

The Pollution Prevention Act of 1990, encourages looking at waste more broadly with a view towards reducing pollution. All pollutants are to be minimized and waste creation is to be controlled, not just during the production process, but also in the design of products that will have less impact on the environment while in use and after disposal. Section 10.2a of FAA Order 1050.1E, Appendix A, states that, with regard to pollution prevention with proposed actions, the FAA must comply with the applicable pollution control statutes and requirements, as listed in Appendices A, B, and C of FAA Order 1050.10B, as amended by FAA Order 1050.10C. There would be no changes to the existing airfield configuration and Airport facilities with the No Action Alternative. It is expected that Franklin County would continue its current pollution prevention control through waste minimization with the implementation of any of the alternatives. The FAA would ensure that the CRAA would continue to comply with all applicable pollution control statutes to assure the operational compliance of their CMH facilities. No additional information or analysis is required with respect to Franklin County or the FAA meeting the applicable local, State, Tribal, or Federal laws and regulations on hazardous or solid waste management with implementation of any of the runway and terminal development alternatives.

5.17.3 SOLID WASTE

In accordance with 42 U.S.C. § 6901, a solid waste is considered to be any garbage, sludge from a wastewater treatment plant, water supply treatment plant, or air pollution control facility and other discarded material, including solid, liquid, semisolid, or contained gaseous material resulting from industrial, commercial, mining, and agricultural operations, and from community activities. Solid waste does not include solid or dissolved material in domestic sewage or irrigation return flows, or industrial discharges that are point sources subject to permits under 33 U.S.C. § 1342, or source, special nuclear, or by-product material as defined by the Atomic Energy Act of 1954, as amended.[70]

[70] 42 U.S.C. § 6903

The RCRA of 1976, which amended the Solid Waste Disposal Act, addresses non-hazardous (Subtitle D) and hazardous (Subtitle C) waste management activities. RCRA established an Interagency Coordinating Committee on Federal Resource Conservation and Recovery Activities which has the responsibility for coordinating all activities dealing with resource conservation and recovery from solid waste carried out by the USEPA, the Department of Energy, the Department of Commerce, and all other Federal agencies which conduct such activities pursuant to this chapter or any other act. The term "resource conservation and recovery activities" includes, but is not limited to, all research development and demonstration projects on resource conservation or energy; material recovery from solid waste; and all technical or financial assistance for State or local planning for, or implementation of, projects related to resource conservation, energy, or material recovery from solid waste.[71]

In 1988, Ohio's legislature passed House Bill 592, an ambitious piece of legislation that significantly strengthened Ohio's 20 year old Solid Waste Law, and set in motion a planning process at both the local and State government levels. The main goals of this planning process are to ensure adequate and environmentally sound management capacity for Ohio's solid waste and increase the efforts of Ohio's communities, businesses and industries to reduce and recycle solid wastes. House Bill 592 required the Director of the OEPA, with the advice of the Solid Waste Management Advisory Council (SWAC), to prepare a State Solid Waste Management Plan (State Plan) to meet specific requirements established in the statute. It also required all counties in Ohio to establish Solid Waste Management Districts (SWMDs), either independently or jointly with other counties. All SWMDs, in turn, were required to develop and implement their own solid waste management plans that comply with the goals established in the State Plan. The OEPA Division of Solid Wastes and Infectious Waste Management currently administers the Ohio Administrative Code Rules on Solid and Infectious Waste.

5.17.3.1 Existing Conditions

Municipal waste, the largest component of the solid-waste stream, includes garbage, refuse, and similar solid-waste material discarded from residential, commercial, institutional, and industrial sources. The Solid Waste Authority of Central Ohio (SWACO) submitted a fifteen year solid waste plan in 2004 that will be updated in 2009. This plan includes projections for Franklin County, and the Cities of Columbus, Dublin, Reynoldsburg, Canal Winchester, Lithopolis Village, Harrisburg, Westerville, and Pickerington. The plan projected that approximately 2,072,333 tons of solid waste would be generated in 2006. SWACO-generated solid waste and exempt waste (construction and demolition debris) is disposed of in 14 landfills. In 2002, the 14 landfills managed approximately 1.3 million tons of waste with 68 percent (885,430 tons) managed at the SWACO Landfill in Franklin

[71] 42 U.S.C. § 6911

County.[72] **Table 5.17-6** provides a list of the landfills, their location, and the number of years left at each landfill based on landfill receipts from 2002. As shown, the 14 landfills have a combined 503 years of capacity left.

Solid waste collection at CMH is contracted out to Rumpke Consolidated Companies. In 2005, an estimated 2,005 tons of solid waste was hauled from CMH of which approximately ten percent was recycled. [73] There are currently no open sanitary landfills within 10,000 feet of the existing runways or development areas.

Table 5.17-6
EXISTING DISPOSAL FACILITIES AND CAPACITY
Port Columbus International Airport

Name	County	SWACO District Tons	Total Tons	Years Remaining
SWACO Landfill	Franklin	885,430	885,430	32
American Landfill	Stark	61	1,430,995	5
Athens Hocking Reclamation Center Landfill	Athens	5,537	141,870	94
Beech Hollow Landfill	Jackson	120	218,750	64
Carbon Limestone Landfill	Mahoning	14	1,518,714	22
Evergreen Recycling and Disposal Facility Landfill	Wood	2,739	571,250	14
Hocking Environmental Co. Landfill	Seneca	103	97,894	74
Logan County Cherokee Run Landfill	Logan	431	348,504	9
Pike Sanitation Landfill	Pike	190	254,257	56
Pine Grove Regional Facility Landfill 1	Fairfield	134,595	300,550	41
Rumpke Waste Inc. Landfill	Hamilton	17	1,959,622	2
Stony Hollow Recycling and Disposal Facility Landfill	Montgomery	10	841,462	6
Suburban South Recycling and Disposal Facility Landfill 2	Perry	272,239	646,125	20
Wyandot Sanitary Landfill	Wyandot	23	285,856	64
Total		***1,301,509***	***9,501,279***	***503***

Source: *Solid Waste Authority of Central Ohio Solid Waste Management Plan,* Approved July 18, 2005.

5.17.3.2 Future Conditions: 2012

The volume of solid waste, especially food and container wastes, depends largely upon the Airport's primary measure of activity -- the number of passengers accommodated. Annual enplanements would increase in the future regardless of whether the proposed development is implemented, and a proportional increase in the amount of solid waste generated would be expected. Enplanements are

[72] *Solid Waste Authority of Central Ohio Solid Waste Management Plan*, Approved July 18, 2005, Solid Waste Authority of Central Ohio.
[73] Email from Dave Wall, Capital Program Manager, Columbus Regional Airport Authority, dated November 3, 2006.

projected to increase from approximately 3.3 million in 2005 to 4.2 million in 2012 and 5.0 million in 2018. A similar growth rate in solid waste generation would result in 2,552 tons per year by 2012, and 3,038 tons per year by 2018 compared to 2,005 tons in 2005.

The runway relocation proposed for the Airport would create solid waste from construction debris during construction and operation. Modifications to existing structures would have to be coordinated appropriately to avoid any impacts from asbestos, lead-based paint, or other hazardous materials. The contractor would have the responsibility of arranging transportation and disposal of waste generated during the remodeling of existing structures, as well as waste generated during construction. Waste generated by runway construction is discussed in Section 5.18, *Construction*.

Alternative A:
2012 No Action

The amount of solid waste generated by CMH is expected to increase from 2,005 tons in 2005 to 2,552 tons in 2012. The increase in solid waste would result from the annual increase in the number of passengers accommodated throughout the Airport. However, the additional waste produced by the Airport would not have a significant impact on the City's ability to transport and dispose of solid waste.

Alternative C2a:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

According to forecasted operational activity at CMH, increased activity would occur at the same levels with or without the development proposed under Alternative C2a. As such, the increased volume of solid waste to be generated at CMH is neither an impact nor a result of proposed development. The volume of solid waste generated at CMH would continue to increase with or without the Alternative C2a development.

Alternative C2b:
2012 Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

According to forecasted operational activity at CMH, increased activity would occur at the same levels with or without the development proposed under Alternative C2b. As such, the increased volume of solid waste to be generated at CMH is neither an impact to nor a result of proposed development. The volume of solid waste generated at CMH would continue to increase with or without the Alternative C2b development.

Alternative C3a:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

According to forecasted operational activity at CMH, increased activity would occur at the same levels with or without the development proposed under Alternative C3a. As such, the increased volume of solid waste to be generated at CMH is neither an impact to nor a result of proposed development. The volume of solid waste generated at CMH would continue to increase with or without the Alternative C3a development.

Alternative C3b:
2012 Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

According to forecasted operational activity at CMH, increased activity would occur at the same levels with or without the development proposed under Alternative C3b. As such, the increased volume of solid waste to be generated at CMH is neither an impact to nor a result of proposed development. The volume of solid waste generated at CMH would continue to increase with or without the Alternative C3b development.

5.17.3.3 Future Conditions: 2018

In addition to 2012, the environmental consequences for 2018 are provided because of the anticipated opening of the proposed passenger terminal.

Alternative A:
2018 No Action

The volume of solid waste generated at CMH would increase as the level of activity increases. Activity levels in aircraft operations and passenger throughput are forecasted to increase through the year 2018, with or without any development at CMH. Under the 2018 No Action Alternative, the volume of solid waste generated would increase to approximately 3,038 tons per year due to the forecasted increase in enplanements.

Alternative C2a:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

The terminal developments proposed for the Airport would create solid waste from debris during their construction and operation. Modifications to existing structures would have to be coordinated appropriately to avoid any impacts from asbestos, lead, or other hazardous materials that may be present. The contractor would have

the responsibility of arranging transportation and disposal of waste generated during their remodeling of existing structures as well as waste generated during construction of new structures. Waste generated by terminal construction is discussed in Section 5.18, *Construction*.

Solid waste would not be generated during the operation of parking garages and roadways, but solid waste would be generated during their construction. Waste generated as a result of landside construction, such as parking garages and roadways, is discussed in Section 5.18, *Construction*.

Enplanements in 2018 are projected to increase to five million, resulting in 3,038 tons of solid waste generated per year. Additionally, construction is scheduled to be completed before 2018, so no temporary impacts from construction would occur.

According to forecasts of operational activity at CMH, Alternative C2a would not stimulate increased activity at CMH, but would only serve to better accommodate this growth. As such, the increased volume of solid waste generated at CMH through 2018 would not be an impact of Alternative C2a, but rather a condition that would occur with or without the project.

Alternative C2b:
2018 Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

The discussion of the solid waste related to the construction and operation of the terminal under Alternative C2a would be the same for Alternative C2b. According to forecasted operational activity at CMH, increased activity would occur at the same levels with or without the development proposed under Alternative C2b. As such, the increased volume of solid waste to be generated at CMH is not an impact to or result of proposed development. The volume of solid waste generated at CMH would continue to increase with or without the Alternative C2b development.

Alternative C3a:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2)– Noise Abatement Scenario A

The discussion of the solid waste related to the construction and operation of the terminal under Alternative C2a would be the same for Alternative C3a. According to forecasted operational activity at CMH, increased activity would occur at the same levels with or without the development proposed under Alternative C3a. As such, the increased volume of solid waste to be generated at CMH is not an impact to or result of proposed development. The volume of solid waste generated at CMH would continue to increase with or without the Alternative C3a development.

Alternative C3b:
2018 Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

The discussion of the solid waste related to the construction and operation of the terminal under Alternative C2a would be the same for Alternative C3b. According to forecasted operational activity at CMH, increased activity would occur at the same levels with or without the development proposed under Alternative C3b. As such, the increased volume of solid waste to be generated at CMH is not an impact to or result of proposed development. The volume of solid waste generated at CMH would continue to increase with or without the Alternative C3b development.

5.18 CONSTRUCTION IMPACTS

In accordance with Federal Aviation Administration (FAA) Order 1050.1E, *Environmental Impacts: Policies and Procedures*, the impacts to the environment due to construction activities must be assessed when preparing an Environmental Impact Statement (EIS). Construction impacts are commonly short-term and temporary in nature. Typical impacts resulting from airport construction include air, water, and noise pollution. In addition, surface transportation traffic patterns may be altered during construction. Impacts resulting from the construction of the proposed developments are not anticipated to be permanent and would occur primarily during the construction season. In order to prevent possible long-term impacts as a result of construction by maintaining quality habitats, it is critical to prevent the establishment of non-native, invasive plants; therefore, all disturbed areas as a result of construction would be mulched and re-vegetated with native plants.

Construction impacts are the short-term effects of the construction process that can usually be mitigated with proper construction management and the use of Best Management Practices (BMPs), as outlined in FAA Advisory Circular (AC) 150/5370-10C, *Standards for Specifying Construction of Airports*, Item P-156, "Temporary Air and Water Pollution, Soil Erosion, and Siltation Control." These control measures would be incorporated into all temporary erosion and sedimentation controls, as well as air and water pollution control measures during all proposed construction projects at Port Columbus International Airport (CMH or Airport) described in this EIS.

5.18.1 EXISTING CONDITIONS: 2006

This scenario describes conditions at CMH as they existed during the preparation of this EIS. There are several ongoing or recently completed construction projects at and around CMH. These projects include the construction of the crossover taxiway bridge over International Gateway (completed), improvements to the Stelzer Road/International Gateway Interchange (on-going), the extension of Loop Road (completed), and new employee and public parking lots to the southwest of the intersection of Stelzer Road and International Gateway (completed). These projects are anticipated to be completed before construction begins on the proposed relocated runway and midfield terminal, and are not expected to interfere with the proposed project. **Exhibit 5.18-1**, ***Existing Construction Activities***, shows the current and recently completed construction projects at CMH.

5.18.2 FUTURE CONDITIONS: 2012

This section describes the construction activity that is anticipated to take place through 2012, which represents the first year that the proposed relocated runway would be operational. Construction tasks expected under the 2012 runway development alternatives include:

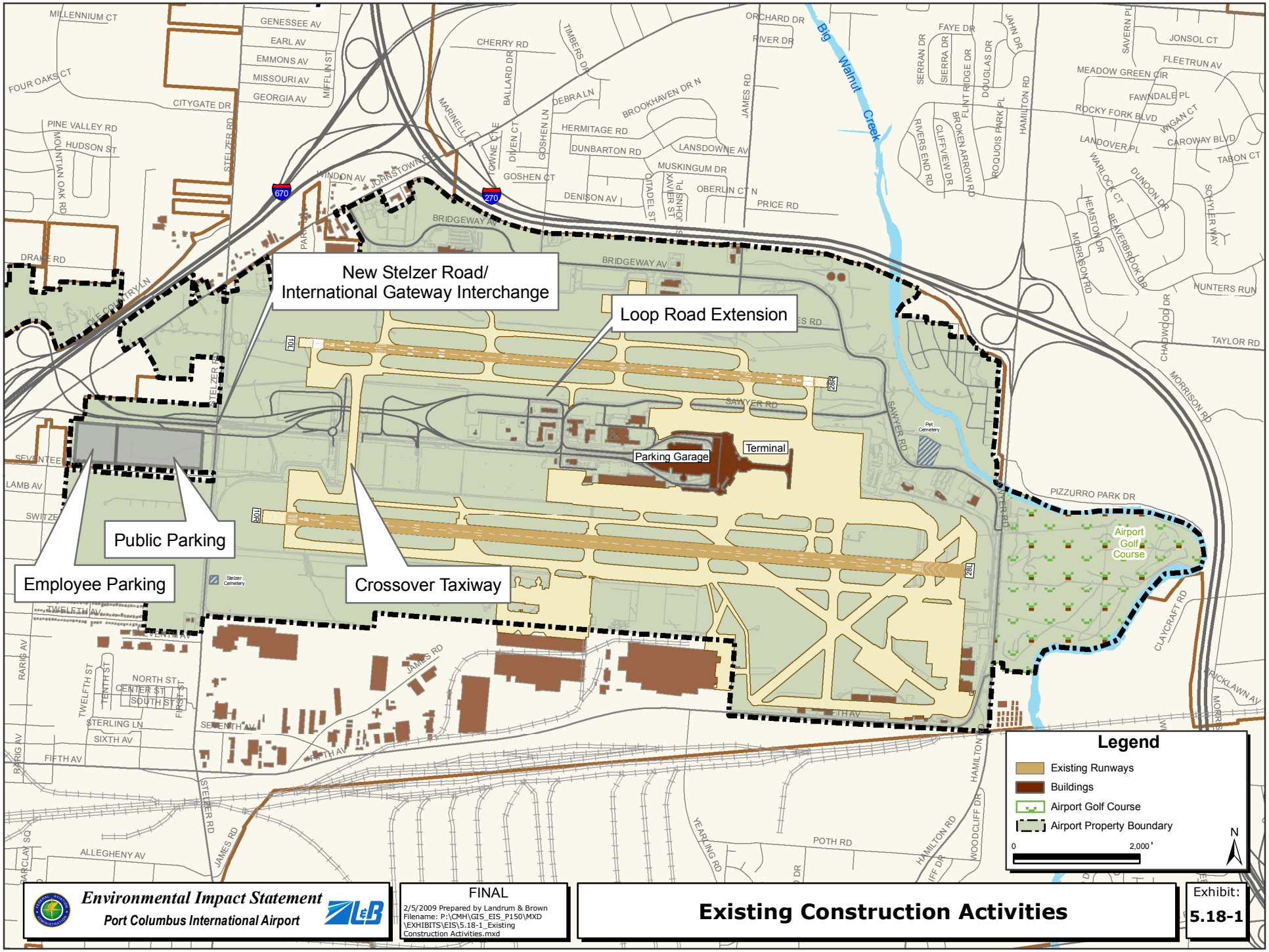
- Expansion of the glycol storage facility;
- Development of a stormwater detention basin at the location of the small tributary to Big Walnut Creek south of Sawyer Road;
- Construction of the proposed replacement runway;
- Construction of taxiways;
- Realignment of Stelzer Road;
- Removal of portions of the Columbus International Aircenter, including Control Tower Building #7;
- Demolition of hangars;
- Realignment of Perimeter road;
- Demolition of acquired homes;
- Removal of various structures on the airfield;
- Installation of the Instrument Landing System (ILS); and,
- Reconfiguration of the golf course.

2012 Alternative A: No-Action

Under this alternative no construction activities would occur; therefore, there would be no construction-related impacts.

2012 Alternative C2a: Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario A

Under this alternative, Runway 10R/28L would be relocated 800 feet to the south of existing Runway 10R/28L. The relocated runway would be constructed on existing Airport-owned property on ground that is of similar elevation as existing Runway 10R/28L. Therefore, extensive fill or excavation will not be necessary. Once the construction of the proposed relocated runway begins, it is expected to last approximately 21 months. Construction activity would occur during "seasons," avoiding the winter weather, and would consist of a series of smaller projects that include earthwork, grading, subbase construction, asphalt paving, concrete paving, underdrain installation, drainage system installation, and electrical work. **Exhibit 5.18-2**, ***2012 and 2018 Alternative C2, Proposed Construction Activities***, shows the construction proposed under Alternative C2a.


New Stelzer Road/
International Gateway Interchange
Loop Road Extension
Public Parking
Employee Parking
Crossover Taxiway
Terminal
Parking Garage
Airport Golf Course
Big Walnut Creek
Legend
Existing Runways
Buildings
Airport Golf Course
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Environmental Impact Statement
Port Columbus International Airport
FINAL
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Construction Activities.mxd
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5.18-1

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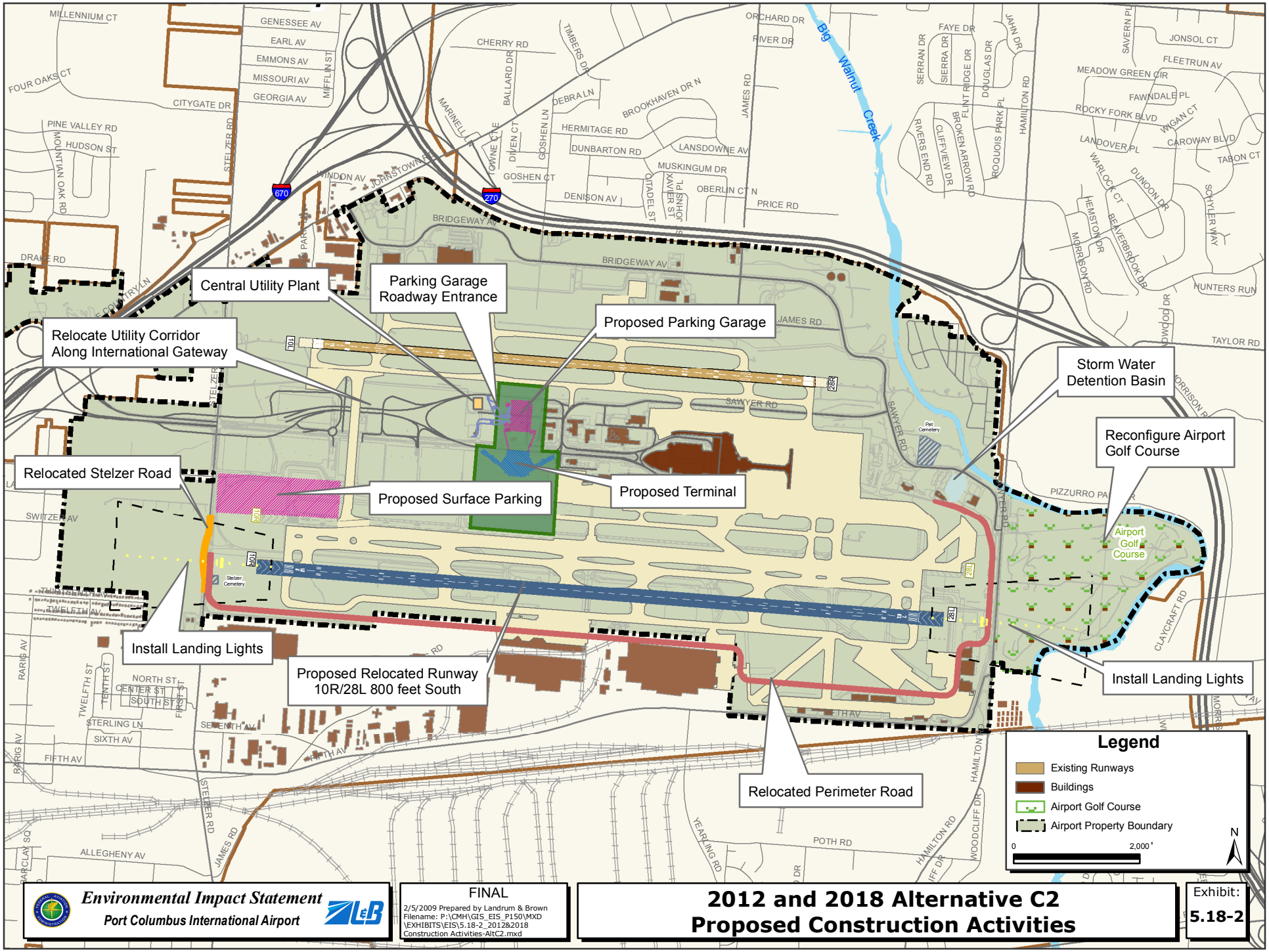
Central Utility Plant
Parking Garage Roadway Entrance
Proposed Parking Garage
Relocate Utility Corridor Along International Gateway
Storm Water Detention Basin
Reconfigure Airport Golf Course
Relocated Stelzer Road
Proposed Surface Parking
Proposed Terminal
Install Landing Lights
Proposed Relocated Runway 10R/28L 800 feet South
Relocated Perimeter Road
Install Landing Lights
Big Walnut Creek
Airport Golf Course
Legend
Existing Runways
Buildings
Airport Golf Course
Airport Property Boundary
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2,000 '
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
2/5/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.18-2_2012&2018 Construction Activities-AltC2.mxd
2012 and 2018 Alternative C2
Proposed Construction Activities
Exhibit:
5.18-2

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Exhibit 5.18-3, *2012 and 2018 Alternative C2 Proposed Demolition and Relocation Activities,* shows the structures proposed for demolition under Alternative C2a. Portions of the Columbus International Aircenter (CIAC) would be acquired and removed for height restrictions. Removal of these portions of the CIAC would also allow the installation of a CAT II/III ILS on the east end of the runway. In addition, two aircraft hangars would have to be removed for the construction of this alternative. 36 properties (35 homes) located in the relocated Runway Protection Zone (RPZ) would be acquired and removed for Alternative C2a. Demolition of these structures would be accomplished with minimal impact to the surrounding area. Several underground utility lines will need to be relocated or reconstructed to allow for construction of the proposed replacement runway.

These construction and demolition activities could cause impacts to soil erosion, water quality, air quality, noise, solid/hazardous waste, surface transportation, socioeconomic conditions, Airport operations, and construction resources. The impacts to each of these categories are described for each alternative in the following sections.

SOIL EROSION

Soil erosion is a primary concern as a possible serious adverse impact of construction. During the site-preparation phase, existing land would be cleared and excavation would occur to remove any existing pavement, trees, vegetation, utility lines, and other structures. Specific permanent erosion control measures would accompany the temporary measures to effectively minimize the potential for long-term as well as short-term construction-related environmental impacts.

This alternative would increase the potential for the erosion of soils during construction of the proposed relocated runway.

Temporary control measures would be specifically identified through the application of an erosion control plan prepared during the project's design stage as identified in FAA AC 150/5370-10C, *Standards for Specifying Construction of Airports*, Item P-156, "*Temporary Air and Water Pollution, Soil Erosion, and Siltation Control,*" to ensure that there are no long-term impacts to the existing drainage systems or water quality in the area. These provisions would require the development of plans and schedules for control of erosion, dust, and waste disposal. Temporary and permanent erosion controls include, but are not limited to: exposing the minimum area of erodible earth; applying temporary mulch with or without seeding; use of temporary crossing protection of watercourses; and temporary slope drains, benches, dikes, dams, sediment basins, and filter fabric/silt fencing.

In the case of any conflict between standard requirements and other regulatory standards, the pollution control regulations and laws that are the most stringent would be applied. Additionally, temporary and permanent erosion and pollution control measures may be instituted during construction activities if they become necessary.

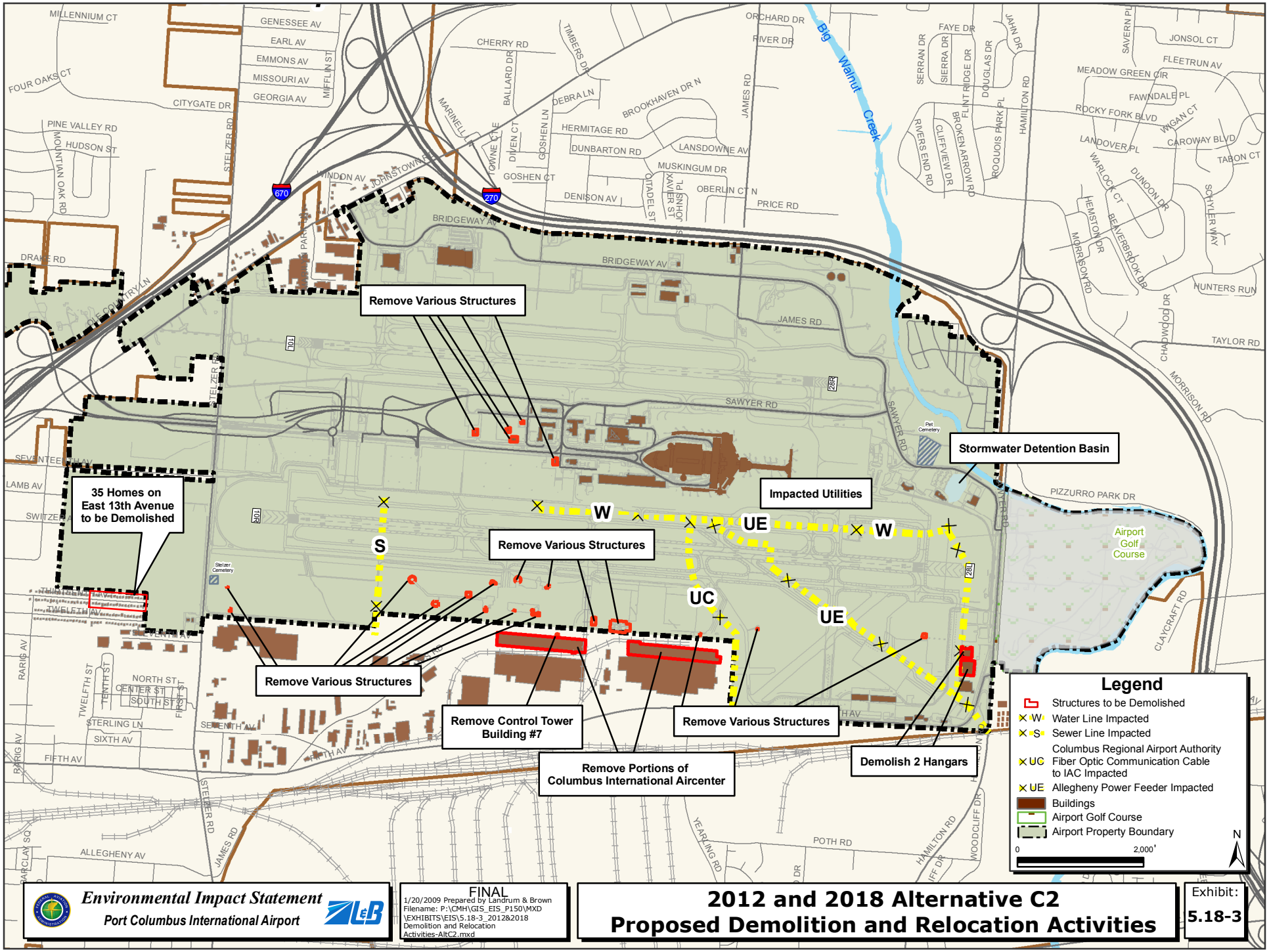
WATER QUALITY

Adverse impacts to water quality due to erosion and subsequent sedimentation are primary concerns during an airport construction project. The increase in suspended sediment concentrations, caused by an increase of eroded materials entering waterways, could induce impacts on aquatic life within the Airport environs. Impacts could also result from pollutants released from construction materials and equipment, such as fuels, lubricants, bitumen, concrete, and wash water from concrete mixing. To prevent discharge of these materials into surface water and groundwater, all materials would be confined to the work area. Additionally, precautions would be taken to limit and minimize the potential for spills.

The primary mechanism for delivery of sediment from construction and borrow sources is in stormwater runoff. Sediment yields and temporary increases in total suspended solids (TSS) from construction activities would depend on the effectiveness of erosion and sediment controls, fillslope and cutslope lengths, widths of existing buffers of vegetation, topographic benches and depressions that act as sinks for eroded material, and available sediment delivery pathways (e.g., ditches and culverts).

A National Pollutant Discharge Elimination System (NPDES) for stormwater discharge and a Storm Water Pollution Prevention Plan would be required for project construction. Under the National Stormwater Program, the U.S. Environmental Protection Agency (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 Columbus Regional Airport Authority (CRAA) would have to file a "Notice of Intent" (NOI) form with the OEPA. 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 as Ohio Administrative Code (OAC) 3745-38-06 (see also *EPA Final NPDES General Permits for Stormwater Discharges From Construction Sites Notice*).

Potential construction impacts would be reduced through the implementation of an erosion and sediment control plan. Elements of an erosion and sediment control plan would include an interconnected system of erosion and stormwater runoff controls, including BMPs and structural erosion control methods, such as phased clearing and grading, confining construction to the dry season whenever possible, sediment traps and ponds, interceptor dikes and swales, mulching, filter fabric fencing, hydroseeding, and terracing. Although implementation of an effective erosion and sediment control plan would not remove all TSS, it is expected to successfully mitigate potential TSS loading and temporary construction impacts on the water quality within the Airport environs.


Remove Various Structures
35 Homes on East 13th Avenue to be Demolished
Impacted Utilities
Stormwater Detention Basin
Remove Various Structures
Remove Various Structures
Remove Control Tower Building #7
Remove Various Structures
Remove Portions of Columbus International Aircenter
Demolish 2 Hangars
W
S
UE
UC
Big Walnut Creek
Airport Golf Course
Legend
Structures to be Demolished
Water Line Impacted
Sewer Line Impacted
Columbus Regional Airport Authority Fiber Optic Communication Cable to IAC Impacted
Allegheny Power Feeder Impacted
Buildings
Airport Golf Course
Airport Property Boundary
0
2,000'
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Environmental Impact Statement
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FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.18-3_2012&2018 Demolition and Relocation Activities-AltC2.mxd
2012 and 2018 Alternative C2
Proposed Demolition and Relocation Activities
Exhibit:
5.18-3

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AIR QUALITY

Construction activities would have a short-term impact on local air quality. Air pollution during the construction period would be a consequence of one or more of the following activities:

- Vehicular activity in support of construction operations;
- Wind erosion of soils;
- The movement of construction vehicles along haul roads;
- Excavation; and
- Cement and aggregate handling.

Air pollutants from construction activities would be similar to those of automobiles and aircraft. The same National Ambient Air Quality Standards (NAAQS) set forth for vehicles and aircraft must also be met for construction activities. NAAQS has set specific limits for the following criteria air pollutants: carbon monoxide (CO), lead (Pb), ozone (O_3), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), and particulate matter 10 microns (one micron = 10^{-6} m) in diameter (PM_{10}). See Section 5.5, *Air Quality,* for a detailed discussion of the pollutants and air quality regulations.

Pb and O_3 are two pollutants that are not normally assessed when considering construction activities. Pb is traditionally not a pollutant associated with construction vehicles or activities and, as such, the impact would be negligible. O_3 is not an emitted pollutant; therefore, it can not be assessed with respect to direct emissions from construction vehicles or activities.

Vehicle Emissions

Construction vehicles would emit various amounts of PM_{10}, CO, NO_2, and SO_2 dependent upon the total number of vehicles used for the project. A detailed air quality analysis of construction vehicle emissions is provided in Section 5.5, *Air Quality*. Emissions from construction vehicles would be temporary in nature and would be localized to the construction area and immediate surrounding vicinity. Emissions would be mitigated through the use of construction BMPs, and pollutant inventories and concentrations would be subject to all local, State of Ohio, and Federal regulations.

Fugitive Dust

Fugitive dust would be generated by two physical occurrences: pulverization and abrasion of surface materials by application of mechanical force and entrapment of dust particles by the action of turbulent air currents created by wind or construction vehicle activity. The air pollution impact potential of fugitive dust sources would depend on the quantity and drift potential of the dust injected into the atmosphere.

Control measures for fugitive dust on paved roads focuses on either preventing material from being deposited on roads, or removal of any material from the lanes of travels. Methods commonly used to prevent the deposit of dust include: covering of loads in trucks or wetting of material being hauled; cleaning vehicles before they

leave the construction site; using 'bump strips' or grates to shake dust from the vehicles; and paving the construction site access roads nearest to the paved roads. To minimize the stirring or entrapment of fugitive dust already on roads, mitigation measures would 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 would 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 fugitive dust will be determined by specific conditions at the construction site. Another measure frequently used in the suppression of dust is placement of seeding and mulching as construction areas are completed.

NOISE

Noise impacts may occur in the vicinity of the construction sites. Earthwork and site preparation activities would result in elevated levels of noise generated by the types of equipment used on most construction sites. Noise from this equipment would vary from model to model, and would change according to the operation involved. Any noise generated by runway construction activities would be localized and would be overshadowed by aircraft noise. In the event that construction would occur during nighttime hours, the CRAA will make efforts to minimize noise impacts as much as possible. Since existing Runway 10R/28L will remain operational during most stages of construction, there would be little to no effect on aircraft noise impacts within the Airport environs. Additional information on aircraft noise is included in Section 5.1, *Noise*.

Table 5.18-1 depicts an estimate of the typical sound level energy from each item of construction equipment. The total sound energy is essentially a product of a machine's sound level, the number of such machines in service, and the average time they operate. Although pile drivers and rock drills produce the highest sound levels, dump trucks, air compressors, and concrete mixers, due to their greater number or longer operating times, produce the most total sound energy.[1] Noise levels resulting from operation of construction equipment are generally higher than those generated by normal traffic flows.

However, with few exceptions, there would be limited off-Airport construction-related noise impacts because of the distance of the residential areas from the sound sources at the various construction sites.

[1] *Handbook of Noise Assessments*, May 1978, D. N. Editor, Van Nostrand Reinhold Company, New York.

Table 5.18-1
CONSTRUCTION EQUIPMENT NOISE
Port Columbus International Airport

Equipment Type	Typical Sound Level dB(A) at 50 Feet	Est. Total Sound Energy kWh/Day
Dump Truck	88	296
Portable Air Compressor	81	147
Concrete Mixer (truck)	85	111
Jackhammer	88	84
Scraper	88	79
Dozer	87	78
Paver	89	75
Generator	76	65
Pile Driver	101	62
Rock Drill	98	53
Pump	76	47
Pneumatic Tools	85	36
Backhoe	85	33

Source: *Handbook of Noise Assessments*, 1978, May, D. N., Editor, Van Nostrand Reinhold Company, New York.

SOLID/HAZARDOUS WASTE

It is expected that only a small amount of demolition and construction waste would be generated from the proposed project through 2018. The majority of waste material would result from the removal of any structures to accommodate the new runway. At least 58 structures would be demolished to allow construction of the proposed relocated runway under Alternative C2a, including portions of the CIAC, two aircraft hangars, 35 homes along East 13th Avenue, and approximately 19 other small structures on Airport property. Demolition of these structures would be accomplished with minimal impacts to the surrounding area. Additional information on known or potential hazardous waste located in and around the construction sites is included in Section 5.17, *Hazardous Materials, Pollution Prevention, and Solid Waste*.

Prior to demolition and removal of any building, each structure would be assessed to determine the presence of asbestos or any other hazardous material. All necessary precautions for the removal of such materials would be coordinated with the appropriate State and local permitting agencies.

All construction waste would be disposed of in accordance with all applicable State and Federal regulations. Clean construction debris (concrete, asphalt, etc.) would be used as fill at the Airport and off-site, as needed, in accordance with present BMPs and all applicable laws. The disposal of demolition and construction debris would be arranged through a licensed waste hauler.

In the event of a release of hazardous waste or a hazardous substance (including petroleum products) in an amount greater than the reportable quantity (RQ) as established by the USEPA, the National Response Center (NRC) would be contacted (1-800-424-8802) and provided details of the incident and measures taken to reduce the effects of the release. In the event that hazardous substances and/or waste are identified within the project area, consultation with the appropriate State agency or USEPA would be initiated by the CRAA.

SURFACE TRANSPORTATION

The construction of the proposed development would also result in increased construction-related traffic in the vicinity of the Airport. Temporary construction impacts could include increased noise, dust, vibration, congestion, and truck traffic along roadways. BMPs for construction will be incorporated into a construction management plan that would be included in bid documents and contracts. The construction management plan will be prepared based on the haul plan of the selected contractor, specifying hours of operation, haul routes, and other controls regarding activity during periods of extreme congestion and severe weather.

Because most of the construction activity will occur on existing Airport-owned property, with convenient access to I-670 and I-270, it is anticipated that construction vehicles would not disrupt residential neighborhoods or local businesses. If it becomes necessary for large numbers of construction vehicles to travel through local streets, standard traffic engineering techniques would be used to maintain traffic during construction.

Completion of the construction projects would involve using typical construction vehicles. The number of vehicles would vary due to project timing, funding, budget constraints, weather, scope of work, and other unforeseen factors, but the types of equipment would remain relatively constant. Equipment common to all of the projects would be backhoes, bulldozers, dump trucks, excavators, graders, loaders, rollers, and scrapers. Some equipment may have a unique purpose suited only to a specific element of the project.

SOCIOECONOMIC IMPACTS

Socioeconomic impacts are the direct and indirect consequences of construction projects. Direct impacts associated with the proposed project could include the employment and payroll of construction workers and other personnel associated with the project, as well as related capital expenditures for materials and equipment. Indirect impacts are those impacts that support project construction. Increased employment, payroll, and expenditures of local building supply companies are examples of such indirect impacts.

Induced socioeconomic impacts would also be caused by construction. These are increased activity in the service sectors of the local economy such as gas stations, restaurants, and supermarkets. The higher levels of employment and greater amounts of disposable income spent by construction related workers in the local economy would generate more employment and activity in these service sectors. Socioeconomic impacts of construction are generally short-term and temporary in

nature, as is the case for most other construction impacts. Additional information regarding socioeconomic impacts is included in Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*.

AIRPORT OPERATIONS DURING CONSTRUCTION

Construction of the proposed developments would be phased between 2009 and 2018. Construction related operational impacts are not expected to result in significant changes in runway usage or taxi patterns. A detailed construction phasing plan would be developed to allow the construction activities to proceed without causing substantial airfield delays and congestion. The plan would identify work areas which would require closure or restrictions on existing runway operations (e.g., limiting construction activities to nighttime or requiring displaced runway thresholds) versus areas where work could continue without impacting airport and aircraft operations.

CONSTRUCTION RESOURCES

Materials used to construct the proposed development represent an irretrievable and irreversible commitment of resources. At the present time, the design plans have not been finalized, so specific types and exact quantities of materials are unknown. It is anticipated that the construction would require common materials such as steel, concrete, wood, etc. These materials are generally available locally and are not expected to be needed in such a magnitude as to adversely affect supplies locally or in the surrounding areas. A beneficial impact of the use of these local materials would be the large financial expenditures for materials and labor required for construction.

2012 Alternative C2b:
Relocate Runway 10R/28L 800 Feet to the South – Noise Abatement Scenario B

Alternative C2b includes the same relocation of Runway 10R/28L 800 feet to the south as Alternative C2a, along with implementation of the operational recommendations of the 2007 Part 150 Noise Compatibility Study Update (2007 Part 150 Study). Therefore, impacts due to construction activities under the 2012 Alternative C2b would remain the same as described for the 2012 Alternative C2a.

2012 Alternative C3a:
Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario A

Under this alternative, Runway 10R/28L would be relocated 702 feet to the south of existing Runway 10R/28L. The relocated runway would be constructed on existing Airport-owned property on ground that is of similar elevation as existing Runway 10R/28L, therefore extensive fill or excavation will not be necessary. Once the construction of the proposed relocated runway begins, it is expected to last approximately 18 months. Construction activity would occur during "seasons," avoiding the winter weather, and would consist of a series of smaller projects that include earthwork, grading, subbase construction, asphalt paving, concrete paving,

underdrain installation, drainage system installation, and electrical work. **Exhibit 5.18-4**, ***2012 and 2018 Alternative C3 Proposed Construction Activities,*** shows the construction proposed under Alternative C3a.

One aircraft hangar would have to be removed for the construction of this alternative. In addition, 36 properties (35 homes) located in the relocated RPZ would need to be acquired and removed for Alternative C3a. Demolition of these structures would be accomplished with minimal impacts to the surrounding area. Several underground utility lines will need to be relocated or reconstructed to allow for construction of the proposed replacement runway. **Exhibit 5.18-5**, ***2012 and 2018 Alternative C3 Proposed Demolition and Relocation Activities,*** shows the structures proposed for demolition under Alternative C3a.

SOIL EROSION

The impacts to soil erosion and mitigation control measures discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3a.

WATER QUALITY

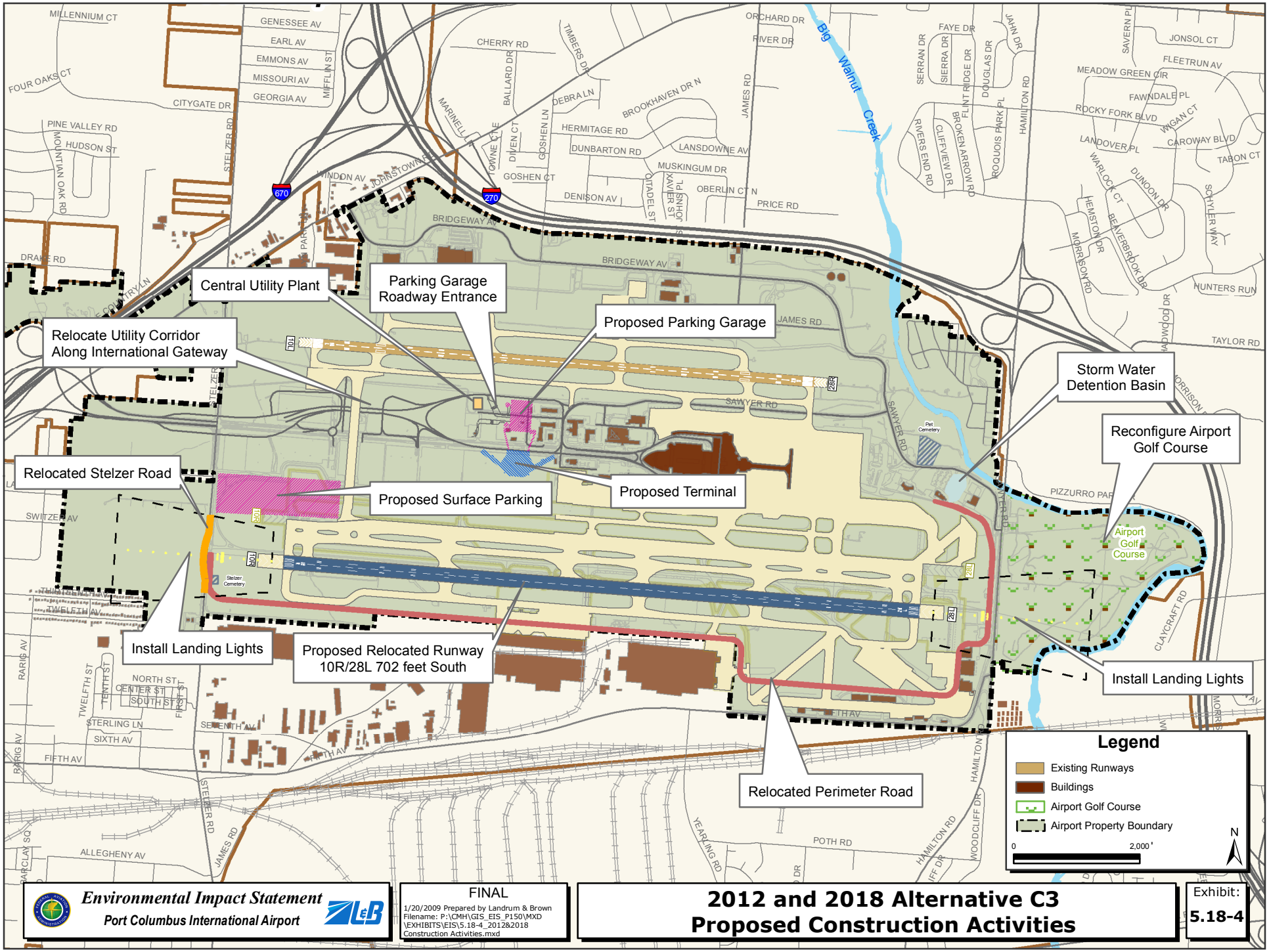
The impacts to water quality and mitigation control measures discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3a.

AIR QUALITY

The impacts to air quality due to construction and mitigation control measures discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3a. However, this alternative requires less demolition and therefore, fewer construction vehicles will be needed to complete the project and lower vehicle emission will be produced.

NOISE

The impacts to construction noise discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3a. However, this alternative requires less demolition and therefore, fewer construction vehicles will be needed to complete the project and lower construction noise will be produced.


Central Utility Plant
Parking Garage Roadway Entrance
Proposed Parking Garage
Relocate Utility Corridor Along International Gateway
Storm Water Detention Basin
Reconfigure Airport Golf Course
Relocated Stelzer Road
Proposed Surface Parking
Proposed Terminal
Install Landing Lights
Proposed Relocated Runway 10R/28L 702 feet South
Relocated Perimeter Road
Install Landing Lights
Legend
Existing Runways
Buildings
Airport Golf Course
Airport Property Boundary
0
2,000 '
N
Environmental Impact Statement
Port Columbus International Airport
FINAL
1/20/2009 Prepared by Landrum & Brown
Filename: P:\CMH\GIS_EIS_P150\MXD\EXHIBITS\EIS\5.18-4_2012&2018 Construction Activities.mxd
2012 and 2018 Alternative C3
Proposed Construction Activities
Exhibit:
5.18-4

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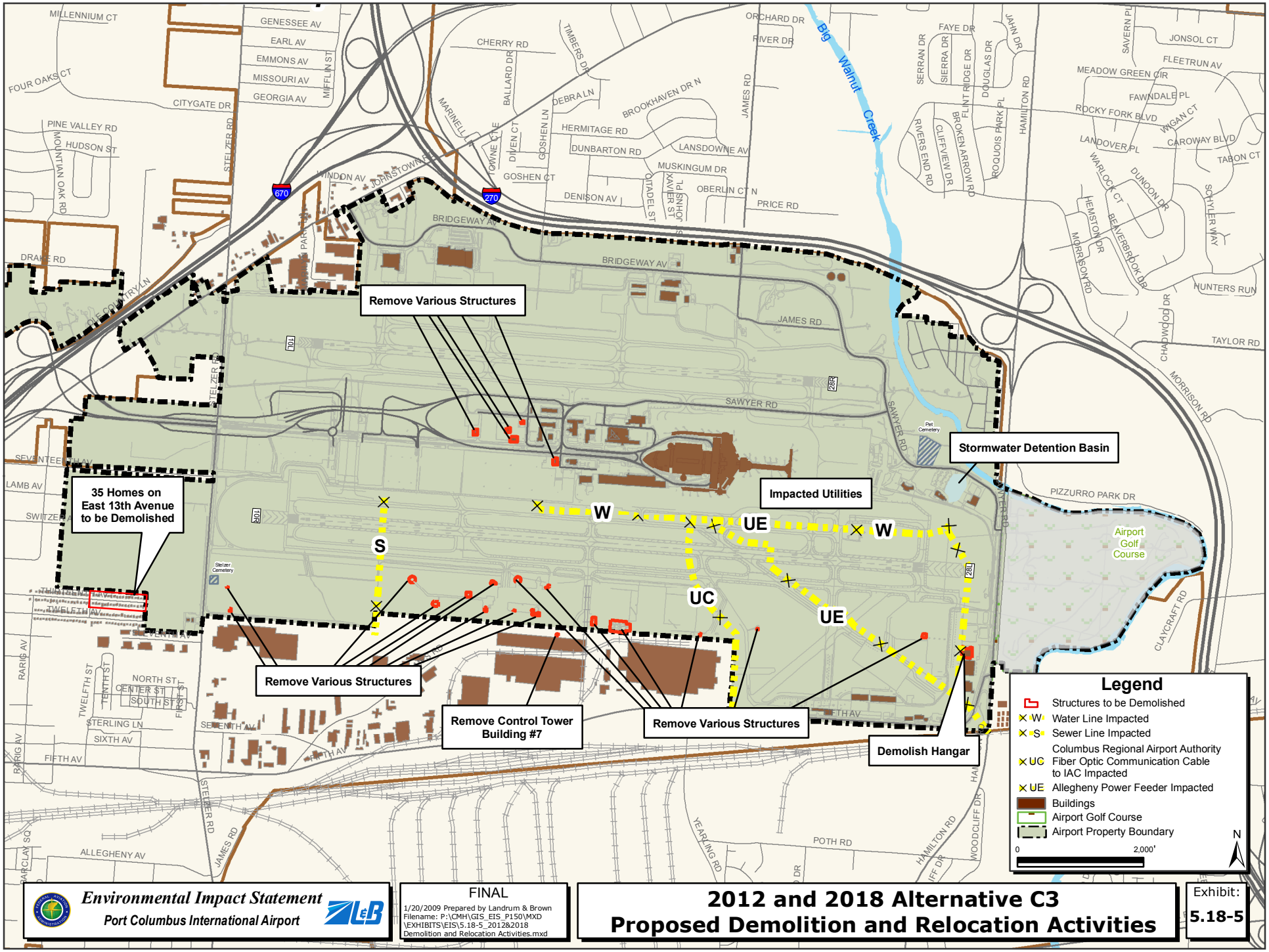

Environmental Impact Statement
Port Columbus International Airport

FINAL
1/20/2009 Prepared by Landrum & Brown
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2012 and 2018 Alternative C3
Proposed Demolition and Relocation Activities

Exhibit:
5.18-5

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SOLID/HAZARDOUS WASTE

The impacts to solid and hazardous waste and mitigation control measures discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3a. However, this alternative will require less demolition and therefore less waste will be produced. At least 55 structures would be demolished to allow construction of the proposed relocated runway, including one aircraft hangar, 35 homes along East 13th Avenue, and approximately 19 other small structures on Airport property. Demolition of these structures would be accomplished with minimal impacts to the surrounding area. Additional information on known or potential hazardous waste located in and around the construction sites is included in Section 5.17, *Hazardous Materials, Pollution Prevention, and Solid Waste.*

SURFACE TRANSPORTATION

The impacts to surface transportation and mitigation control measures discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3a. However, this alternative will require less demolition and therefore fewer construction vehicles will be needed to complete the project resulting in less construction traffic.

SOCIOECONOMIC IMPACTS

The socioeconomic impacts caused by construction discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3a. However, this alternative will require less demolition and therefore less construction employment will be created causing a lesser socioeconomic impact.

AIRPORT OPERATIONS DURING CONSTRUCTION

The impacts to Airport operations during construction discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3a.

CONSTRUCTION RESOURCES

The impacts to construction resources discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3a.

2012 Alternative C3b:
Relocate Runway 10R/28L 702 Feet to the South – Noise Abatement Scenario B (Sponsor's Proposed Project)

Alternative C3b includes the same relocation of Runway 10R/28L 702 feet to the south as Alternative C3a, along with implementation of the operational recommendations of the 2007 Part 150 Study.

SOIL EROSION

The impacts to soil erosion and mitigation control measures discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3b.

WATER QUALITY

The impacts to water quality and mitigation control measures discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3b.

AIR QUALITY

The impacts to air quality due to construction and mitigation control measures discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3b. However, this alternative will require less demolition and therefore, fewer construction vehicles will be needed to complete the project and lower vehicle emission will be produced.

NOISE

The impacts to construction noise discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3b. However, this alternative will require less demolition and therefore, fewer construction vehicles will be needed to complete the project and less construction noise will be produced.

SOLID / HAZARDOUS WASTE

The impacts to solid and hazardous waste and mitigation control measures discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3b. However, this alternative will require less demolition and therefore less waste will be produced. At least 55 structures would be demolished to allow construction of the proposed relocated runway, including one aircraft hangar, a minimum of 15 homes along East 13th Avenue, and approximately 19 other small structures on Airport property. Demolition of these structures would be accomplished with minimal impacts to the surrounding area. Additional information on known or potential hazardous waste located in and around the construction sites is included in Section 5.17, *Hazardous Materials, Pollution Prevention, and Solid Waste*.

SURFACE TRANSPORTATION

The impacts to surface transportation and mitigation control measures discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3b. However, this alternative will require less demolition and therefore fewer construction vehicles will be needed to complete the project resulting in less construction traffic.

SOCIOECONOMIC IMPACTS

The socioeconomic impacts caused by construction discussed for the 2012 Alternative C2a are similar for the 2012 Alternative C3b. However, this alternative will require less demolition and therefore less construction employment will be created causing a lesser socioeconomic impact.

AIRPORT OPERATIONS DURING CONSTRUCTION

The impacts to airport operations during construction discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3b.

CONSTRUCTION RESOURCES

The impacts to construction resources discussed for the 2012 Alternative C2a remain the same for the 2012 Alternative C3b.

5.18.3 FUTURE CONDITIONS: 2018

This section describes the construction activity that is anticipated to take place from 2012 through 2018, which represents the first year that the proposed passenger terminal would be operational. Construction tasks would include:

- Relocation of the utility corridor along International Gateway;
- Expansion of parking areas;
- Installation of the underground aircraft fuel hydrant system;
- Construction of the Central Utility Plant (heating, ventilation, and air conditioning plant);
- Construction of the proposed new midfield passenger terminal;
- Construction of the apron area adjacent to the new midfield passenger terminal;
- Construction of the parking garage connectors; and,
- Construction of the proposed new midfield parking garage.

2018 Alternative A: <u>No-Action</u>

Under this alternative no construction activities would occur. Therefore, there would be no construction related impacts.

2018 Alternative C2a: <u>Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A</u>

Under this alternative, a new midfield terminal, parking garage and aircraft apron would be constructed to the west of the existing main terminal on the south side of International Gateway. The current layout of the proposed terminal includes a central terminal facility with four departure halls. Phase 1 of the proposed terminal, which includes the central terminal facility and two departure halls, is anticipated to be operational by 2018. The construction would consist of concrete removal, utility installation, paving the apron area, and construction of the new terminal building and parking garage. The Concourse Construction Project is anticipated to begin after 2012 and Phase 1 is expected to be completed before 2018.

SOIL EROSION

Soil erosion is a primary concern as a possible serious adverse impact of construction. During the site-preparation phase, existing land would be cleared and excavation would occur to remove any existing pavement, trees, vegetation, utility lines, and other structures. Specific permanent erosion control measures would accompany the temporary measures to effectively minimize the potential for long-term as well as short-term construction-related environmental impacts.

This alternative would increase potential for the erosion of soils during construction of the proposed midfield terminal, parking garage, and aircraft apron. Temporary control measures would be specifically identified through the application of an erosion control plan prepared during the project's design stage as identified in FAA AC 150/5370-10C, *Standards for Specifying Construction of Airports*, Item P-156, "*Temporary Air and Water Pollution, Soil Erosion, and Siltation Control,*" to ensure that there are no long-term impacts to the existing drainage systems or water quality in the area. These provisions would require the development of plans and schedules for control of erosion, dust, and waste disposal. Temporary and permanent erosion controls include, but are not limited to, exposing the minimum area of erodible earth; applying temporary mulch with or without seeding; use of temporary crossing protection of watercourses; and temporary slope drains, benches, dikes, dams, and sediment basins.

In the case of any conflict between standard requirements and other regulatory standards, the pollution control regulations and laws that are the most stringent would be applied. Additionally, temporary and permanent erosion and pollution control measures may be instituted during construction activities if they become necessary.

WATER QUALITY

Adverse impacts to water quality due to erosion and subsequent sedimentation are primary concerns during an airport construction project. The increase in suspended sediment concentrations, caused by an increase of eroded materials entering waterways, could induce impacts on aquatic life within the Airport environs. Impacts could also result from pollutants released from construction materials and equipment, such as fuels, lubricants, bitumen, concrete, and wash water from concrete mixing. To prevent discharge of these materials into surface water and groundwater, all materials would be confined to the work area. Additionally, precautions would be taken to limit and minimize the potential for spills.

The primary mechanism for delivery of sediment from construction and borrow sources is in stormwater runoff. Sediment yields and temporary increases in TSS from construction activities would depend on the effectiveness of erosion and sediment controls; fillslope and cutslope lengths; widths of existing buffers of vegetation; topographic benches and depressions that act as sinks for eroded material; and available sediment delivery pathways (e.g., ditches and culverts).

A NPDES permit for stormwater discharge and a Storm Water Pollution Prevention Plan would be required for project construction. 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 USEPA regulations, the CRAA would have to file a NOI form with the OEPA. 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 OAC 3745-38-06 (see also *EPA Final NPDES General Permits for Stormwater Discharges From Construction Sites Notice).*

Potential construction impacts from the proposed midfield terminal, short-term parking garage, and aircraft apron would be reduced through the implementation of an erosion and sediment control plan. Elements of an erosion and sediment control plan would include an interconnected system of erosion and stormwater runoff controls including BMPs, and structural erosion control methods such as phased clearing and grading, confining construction to the dry season whenever possible, sediment traps and ponds, interceptor dikes and swales, mulching, filter fabric fence, hydroseeding, and terracing. Although implementation of an effective erosion and sediment control plan would not remove all TSS, it is expected to successfully mitigate potential TSS loading and temporary construction impacts on the water quality within the Airport environs.

AIR QUALITY

Construction activities for the proposed midfield terminal, short-term parking garage, and aircraft apron would have a short-term impact on local air quality. Air pollution during the construction period would be a consequence of one or more of the following activities:

- Vehicular activity in support of construction operations;
- Wind erosion of soils;
- The movement of construction vehicles along haul roads;
- Excavation; and
- Cement and aggregate handling.

Air pollutants from construction activities would be similar to those of automobiles and aircraft. The same NAAQS set forth for vehicles and aircraft must also be met for construction activities. NAAQS has set specific limits for the following criteria air pollutants: CO, Pb, O_3, NO_2, SO_2, and PM_{10}. See Section 5.5, *Air Quality,* for a detailed discussion of the pollutants and air quality regulations.

Pb and O_3 are two pollutants that are not normally assessed when considering construction activities. Pb is traditionally not a pollutant associated with construction vehicles or activities and, as such, the impact would be negligible. Ozone is not an emitted pollutant. Therefore, it can not be assessed with respect to direct emissions from construction vehicles or activities.

VEHICLE EMISSIONS

Construction vehicles would emit various amounts of PM_{10}, CO, NO_2, and SO_2 dependent upon the total number of vehicles used for the project. A detailed air quality analysis of construction vehicle emissions is provided in Section 5.5, *Air Quality*. Emissions from construction vehicles would be temporary in nature and would be localized to the construction area and immediate surrounding vicinity. Emissions would be mitigated through the use of best construction practices and pollutant inventories and concentrations would be subject to all local, State, and Federal regulations.

FUGITIVE DUST

Fugitive dust would be generated by two physical occurrences: pulverization and abrasion of surface materials by application of mechanical force and entrapment of dust particles by the action of turbulent air currents created by wind or construction vehicle activity. The air pollution impact potential of fugitive dust sources would depend on the quantity and drift potential of the dust injected into the atmosphere. Control measures for fugitive dust on paved roads focus on either preventing material from being deposited on roads, or removal of any material from the lanes of travels. Methods commonly used to prevent the deposit of dust include: covering of loads in trucks or wetting of material being hauled; cleaning vehicles before they leave the construction site; using 'bump strips' or grates to shake dust from the vehicles; and paving the construction site access roads nearest to the paved roads. To minimize the stirring or entrapment of fugitive dust already on roads, mitigation measures would 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 would 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. Another measure frequently used in the suppression of dust is placement of seeding and mulching as construction areas are completed.

NOISE

Noise impacts from construction of the proposed midfield terminal, short-term parking garage, and aircraft apron may occur in the vicinity of the construction sites. Earthwork and site preparation activities would result in elevated levels of noise generated by the types of equipment used on most construction sites. Noise from this equipment would vary from model to model, and would change according to the operation involved. Any noise generated by runway construction activities would be localized and would be overshadowed by aircraft noise. In the event that construction would occur during nighttime hours, the CRAA will make efforts to minimize noise impacts as much as possible. Since existing Runway 10R/28L will remain operational during most of the stages of construction, there would be little or no effect on aircraft noise impacts within the Airport environs. Additional information on aircraft noise is included in Section 5.1, *Noise*.

Table 5.18-2 depicts an estimate of the typical sound level energy from each item of construction equipment. The total sound energy is essentially a product of a machine's sound level, the number of such machines in service, and the average time they operate. Although pile drivers and rock drills produce the highest sound levels, dump trucks, air compressors, and concrete mixers, due to their greater number or longer operating times, produce the most total sound energy.[2] Noise levels resulting from operation of construction equipment are generally higher than those generated by normal traffic flows. However, with few exceptions, there would be limited off-Airport construction-related noise impacts because of the distance of the residential areas from the sound sources at the various construction sites.

Table 5.18-2
CONSTRUCTION EQUIPMENT NOISE
Port Columbus International Airport

Equipment Type	Typical Sound Level dB(A) at 50 Feet	Est. Total Sound Energy kWh/Day
Dump Truck	88	296
Portable Air Compressor	81	147
Concrete Mixer (truck)	85	111
Jackhammer	88	84
Scraper	88	79
Dozer	87	78
Paver	89	75
Generator	76	65
Pile Driver	101	62
Rock Drill	98	53
Pump	76	47
Pneumatic Tools	85	36
Backhoe	85	33

Source: *Handbook of Noise Assessments*, 1978, May, D. N., Editor, Van Nostrand Reinhold Company, New York.

SOLID/HAZARDOUS WASTE

It is expected that only a small amount of demolition and construction waste would be generated from the Sponsor's Proposed Project and it's alternatives through 2018. Prior to demolition and removal of any building, each structure would be assessed to determine the presence of asbestos or any other hazardous material. All necessary precautions for the removal of such materials would be coordinated with the appropriate State and local permitting agencies.

[2] *Handbook of Noise Assessments*, 1978, May, D. N., Editor, Van Nostrand Reinhold Company, New York.

All construction waste would be disposed of in accordance with all applicable State and Federal regulations. Clean construction debris (concrete, asphalt, etc.) would be used as fill at the Airport and off-site, as needed, in accordance with present practices. The disposal of demolition and construction debris would be arranged through a licensed waste hauler.

In the event of a release of hazardous waste or a hazardous substance (including petroleum products) in an amount greater than the RQ, as established by the USEPA, the NRC would be contacted (1-800-424-8802) and provided details of the incident and measures taken to reduce the effects of the release. In the event that hazardous substances and/or waste are identified within the project area, consultation with the appropriate State agency or USEPA would be initiated by the CRAA.

SURFACE TRANSPORTATION

The construction of the proposed midfield terminal, parking garage, and aircraft apron would also result in increased construction-related traffic in the vicinity of the Airport. Temporary construction impacts could include increased noise, dust, vibration, congestion, and truck traffic along roadways. A construction management plan would be prepared which, based on the selected contractor(s) haul plan, would specify hours of operation, haul routes, and similar controls.

It is expected that such a plan would be consistent with normal contracting practices, because it is not likely that a contractor would schedule haul activities during extreme congestion periods or severe weather conditions because it could increase costs to the contractor and affect the schedule.

Because most of the construction activity will occur on existing Airport-owned property, with convenient access to I-670 and I-270, it is anticipated that construction vehicles would not disrupt residential neighborhoods or local businesses. If it becomes necessary for large numbers of construction vehicles to travel through local streets, standard traffic engineering techniques would be used to maintain traffic during construction.

Completion of the construction projects would involve using typical construction vehicles. The number of vehicles would vary due to project timing, funding, budget constraints, weather, scope of work, and other unforeseen factors, but the types of equipment would remain relatively constant. Equipment common to all of the projects would be backhoes, bulldozers, dump trucks, excavators, graders, loaders, rollers, and scrapers. Some equipment may have a unique purpose suited only to the specific element of the project.

SOCIOECONOMIC IMPACTS

Socioeconomic impacts are the direct and indirect consequences of construction projects. Direct impacts associated with the proposed project could include the employment and payroll of construction workers and other personnel associated with the project, as well as related capital expenditures for materials and equipment. Indirect impacts are those impacts that support project construction.

Increased employment, payroll, and expenditures of local building supply companies are examples of such indirect impacts.

Induced socioeconomic impacts would also be caused by construction. These impacts are increased activity in the service sectors of the local economy such as gas stations, restaurants, and supermarkets. The higher levels of employment and greater amounts of disposable income spent by construction related workers in the local economy would generate more employment and activity in these service sectors. Socioeconomic impacts of construction are generally short-term and temporary in nature, as is the case for most other construction impacts. Additional information regarding socioeconomic impacts is included in Section 5.3, *Socioeconomic Impacts, Environmental Justice, and Children's Environmental Health and Safety Risks*.

AIRPORT OPERATIONS DURING CONSTRUCTION

Construction of the proposed developments would be phased between 2009 and 2018. Construction related operational impacts are not expected to result in significant changes in runway usage or taxi patterns. A detailed construction phasing plan would be developed to allow the construction activities to proceed without causing substantial airfield delays and congestion. The plan would identify work areas that would require closure or restrictions on existing runway operations (e.g., limiting construction activities to nighttime or requiring displaced runway thresholds) versus areas where work could continue without impacting airport and aircraft operations.

CONSTRUCTION RESOURCES

Materials used to construct the proposed development represent an irretrievable and irreversible commitment of resources. At the present time, the design plans have not been finalized, so specific types and exact quantities of materials are unknown. It is anticipated that the construction would require common materials such as steel, concrete, wood, etc. These materials are generally available locally and are not expected to be needed in such a magnitude as to adversely affect supplies locally or in the surrounding areas. A beneficial impact of the use of these local materials would be the large financial expenditures for materials and labor required for construction.

2018 Alternative C2b:
Relocate Runway 10R/28L 800 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B

2018 Alternative C2b includes the same construction projects as 2018 Alternative C2a (proposed passenger terminal), along with implementation of the operational recommendations of the 2007 Part 150 Study. Therefore, impacts due to construction activities under the 2018 Alternative C2b would remain the same as described for the 2018 Alternative C2a.

2018 Alternative C3a:
Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario A

2018 Alternative C3a includes the same construction projects as 2018 Alternative C2a (proposed passenger terminal). Therefore, impacts due to construction activities under the 2018 Alternative C3a would remain the same as described for the 2018 Alternative C2a.

2018 Alternative C3b:
Relocate Runway 10R/28L 702 Feet to the South and Construct Midfield Terminal (T2) – Noise Abatement Scenario B (Sponsor's Proposed Project)

2018 Alternative C3b includes the same construction projects as 2018 Alternative C2a (proposed passenger terminal), along with implementation of the operational recommendations of the 2007 Part 150 Study. Therefore, impacts due to construction activities under the 2018 Alternative C3b would remain the same as described for the 2018 Alternative C2a.