

**RECORD OF DECISION**  
**FOR**  
**CAPACITY ENHANCEMENT PROGRAM**  
**AT**  
**PHILADELPHIA INTERNATIONAL AIRPORT**  
**PHILADELPHIA, PENNSYLVANIA**

**December 2010**



**DEPARTMENT OF TRANSPORTATION**  
**FEDERAL AVATION ADMINISTRATION**  
**EASTERN REGION**  
**NEW YORK, NEW YORK**

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## Errata to the Final Environmental Impact Statement

The following errors were identified in the Final Environmental Impact Statement (FEIS), subsequent to printing and distribution of the document.

1. On the Executive Summary Figure S-2, *Alternative A*, and Figure S-3, *Alternative B*, the lower left-hand corner showing the state border should say New Jersey, not Delaware.
2. In the Executive Summary, on pages S-7 and S-10 and in Table S-3 *Summary of EIS Alternatives*, on page S-8, the construction cost for Alternative A should be \$5.2 billion (not \$5.35 billion).
3. In the Executive Summary, on page S-8 and in Table S-3 *Summary of EIS Alternatives*, on page S-8, the construction cost for Alternative B should be \$5.4 billion (not \$5.59 billion).
4. In the Executive Summary, on page S-6 the construction cost for Alternative C should be \$7.0 billion (not \$7.2 billion).
5. Executive Summary Section S.8.2, page S-11 should say:

“This would result in community disruption, as the entire neighborhood east of 4th Avenue would be relocated.”
6. Executive Summary Table S-5, *Comparison of the Environmental Consequences of the No-Action Alternative, Alternative A, and Alternative B*, page S-23, should be identical to the information presented in FEIS Table 5.21-1, *Summary Comparison of the Environmental Consequences of the Alternatives in 2030*, page 5-235.
7. Executive Summary Section S.8.8, page S-18, second paragraph should say:

“The FAA has analyzed and believes the Build Alternatives and their connected actions are consistent with both states’ Coastal Zone programs. Therefore, neither of the Build Alternatives would result in significant coastal zone impacts.”
8. FEIS Table 1-5, *Permits or Approvals*, page 1-13, should include the following Pennsylvania Department of Environmental Protection (PA DEP) permit - Submerged Lands License Agreement (for runway fill).
9. FEIS Table 3-14, *Preliminary Alternatives Screening Criteria Results – Operational Delay and Project Costs*, page 3-43, the Preliminary Construction Cost Estimates for each alternative should be listed as follows: Alternative A should be \$5.2 billion (not \$5.35 billion), Alternative B should be \$5.4 billion (not \$5.59 billion) and Alternative C should be \$7.0 billion (not \$7.2 billion).
10. In the following FEIS sections, the estimated cost for Alternative A should be \$5.2 billion (not \$5.35 billion): Section 3.4.2 on page 3-42, Section 3.6.2 on page 3-73, Section 3.7 on page 3-75, and Section 5.21.2 on page 5-227 and on page 5-228.

11. In the following FEIS sections, the estimated cost for Alternative B should be \$5.4 billion (not \$5.59 billion): Section 3.4.2 on page 3-45, Section 3.6.3 on page 3-73, and Section 5.21.3 twice on page 5-231.
12. FEIS Section 2.4.2, the estimated cost for Alternative C should be \$7.0 billion (not \$7.17 billion).
13. FEIS Table 3-22, *Summary of EIS Alternatives*, page 3-74, should report forecast annual aircraft operations for Alternative A and B in 2025 to be 686,000 (not 643,100). The cost for each alternative should be listed as follows: Alternative A should be \$5.2 billion (not \$5.35 billion), Alternative B should be \$5.4 billion (not \$5.59 billion).
14. FEIS, Volume 1, Chapter 5, Section 5.3, in discussion of both Alternatives A (page 5-52) and B (page 5-55), should say:

“This would result in community disruption, as the entire neighborhood east of 4th Avenue would be relocated.”
15. FEIS Section 5.7.5 states that “PHL would be expected to represent less than 1 percent of U.S.-based greenhouse gases.” This statement is correct; however, it is more accurate to state that PHL would be expected to represent 1 percent of the 3 percent of U.S.-based greenhouse gases generated by aviation.
16. FEIS Section 5.8.7, page 5-149 should say:

“The City, during the final design and permitting of the CEP, must apply for a Submerged Lands License Agreement from the PA DEP for the runway fill.”
17. FEIS text on page 5-156 reads:

“The FAA has analyzed and believes the Build Alternatives and their connected actions are consistent with both states’ programs, and have submitted this consistency determination to the PA DEP and NJ DEP.”

This text should say:

“The FAA has analyzed and believes the Build Alternatives and their connected actions are consistent with both states’ Coastal Zone programs. Therefore, neither of the Build Alternatives would result in significant coastal zone impacts.”
18. The reference to Act 2 in FEIS Section 6.7.2 (page 6-22) should reference “Title 25, Chapter 93 of the Pennsylvania Code.”
19. On the following FEIS figures, the lower left-hand corner showing the state border should say New Jersey, not Delaware:
  - Chapter 3: 3-8, 3-9, 3-10 and 3-12
  - Chapter 4: 4.18-1
  - Chapter 5: 5.2-19, 5.2-21, 5.3-2, 5.8-1, 5.8-2, 5.11-1, 5.11-2, 5.12-1, 5.12-2, 5.13-1, 5.13-2, 5.19-1, 5.19-2

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**Acronyms and Abbreviations**

AAD	Annualized Average Delay per Aircraft Operation	CFC	Chlorofluorocarbon
AAQS	Ambient Air Quality Standards	CFR	Code of Federal Regulations
AC	Advisory Circular	CH <sub>4</sub>	Methane
ACAIS	Air Carrier Activity Information System Database	CMP	Coastal Management Program
ACHP	Advisory Council for Historic Preservation	Conrail	Consolidated Rail Corporation
ACT 1	Pennsylvania Taxpayer Relief Act	CO	Carbon Monoxide
AERC	Airport Emission Reduction Credit	CO <sub>2</sub>	Carbon Dioxide
AFTIL	Airways Facilities Tower Integration Laboratory	CWA	Clean Water Act
ALP	Airport Layout Plan		
AOC	Administrative Order by Consent	dB	Decibel
APM	Automated People Mover	DCMP	Delaware Coastal Management Program
APU	Auxiliary Power Unit	DE	Delaware
ARFF	Airport Rescue and Fire Fighting	DEIS	Draft Environmental Impact Statement
ARTCC	Air Route Traffic Control Center	DE SHPO	Delaware State Historic Preservation Office
ASR-9	Airport Surveillance Radar	DEP	Department of Environmental Protection
ATADS	Air Traffic Activity System	DNL	Day-Night Average Sound Level
ATC	Air Traffic Control	DO	Dissolved Oxygen
ATCT	Air Traffic Control Tower	DOT	United States Department of Transportation
		DVRPC	Delaware Valley Regional Planning Commission
BMP	Best Management Practice		
BOD	Biochemical Oxygen Demand	EDMS	Emissions and Dispersion Modeling System
CARB	California Air Resources Board	EIS	Environmental Impact Statement
CEP	Capacity Enhancement Program		
CEQ	Council on Environmental Quality		

EMAS	Engineered Materials Arresting System	LOS	Level of Service
EO	Executive Order	MOA	Memorandum of Agreement
ERC	Emission Reduction Credit	MPO	Metropolitan Planning Organization
ESA	Endangered Species Act	MPU	Master Plan Update
FAA	Federal Aviation Administration	NAAQS	National Ambient Air Quality Standards
FACT	FAA's Airport Capacity Benchmark Report	NAS	National Airspace System
FBO	Fixed-base Operator	NCP	Noise Compatibility Program
FEIS	Final Environmental Impact Statement	NEPA	National Environmental Policy Act
FEMA	Federal Emergency Management Agency	NJ	New Jersey
FHWA	Federal Highway Administration	NJ DEP	New Jersey Department of Environmental Protection
ft	Feet	NJ SHPO	New Jersey State Historic Presentation Office
GHG	Greenhouse Gas	NMFS	National Marine Fisheries Service
GSE	Ground Support Equipment	NO <sub>x</sub>	Nitrogen Oxide
H <sub>2</sub> O	Water Vapor	NO <sub>2</sub>	Nitrogen Dioxide
HCFC	Hydrochlorofluorocarbon	NOA	Notice of Availability
I	Interstate	NOAA	National Oceanic and Atmospheric Administration
IMC	Instrument Meteorological Conditions	NPDES	National Pollutant Discharge Elimination System
IPCC	Intergovernmental Panel on Climate Change	NPIAS	National Plan of Integrated Airport Systems
JFK	John F. Kennedy International Airport	NRHP	National Register of Historic Places
JPA	Joint Permit Application	NSR	New Source Review
		N <sub>2</sub> O	Nitrous Oxide
		OEP	Operational Evolution Plan

OPSNET	Air Traffic Operations Network Database	SR	State Route
O <sub>3</sub>	Ozone	TAAM	Total Airspace and Airport Modeler
PA	Pennsylvania	tpy	Tons per year
PA DCNR	Pennsylvania Department of Conservation and Natural Resources	TRACON	Terminal Radar Approach Control
PA DEP	Pennsylvania Department of Environmental Protection	U.S.	United States of America
PCB	Polychlorinated Biphenyl	U.S.C.	United States Code
PennDOT	Pennsylvania Department of Transportation	UPS	United Parcel Service
PFBC	Pennsylvania Fish and Boat Commission	USACE	United States Army Corps of Engineers
PGC	Pennsylvania Game Commission	USCG	United States Coast Guard
PHL	Philadelphia International Airport	USDOJ	United States Department of the Interior
PHMC	Pennsylvania Historical and Museum Commission	USEPA	United States Environmental Protection Agency
PM	Particulate Matter	USFWS	United States Fish and Wildlife Service
PM <sub>10</sub>	Particulate Matter of 10 microns and smaller	USPS	United States Postal Service
PM <sub>2.5</sub>	Particulate Matter of 2.5 microns and smaller	VALE	Voluntary Airport Low Emissions
ppm	Parts per million	VHB	Vanasse Hangen Brustlin, Inc.
PRM	Precision Runway Monitor	VHT	Vehicle-Hours Traveled
		VMT	Vehicle-Miles Traveled
		VOC	Volatile Organic Compound
ROD	Record of Decision		
RSIP	Residential Sound Insulation Program		
SEPTA	Southeastern Pennsylvania Transportation Authority		
SHPO	State Historic Preservation Office		
SO <sub>2</sub>	Sulfur Dioxide		

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## 1. Introduction

This Record of Decision (ROD) sets forth the Federal Aviation Administration's (FAA) final determinations and environmental approvals for the federal actions necessary to implement the Capacity Enhancement Program (CEP) at the Philadelphia International Airport.

The FAA has long identified the Philadelphia International Airport (PHL or the Airport) as one of the airports contributing to delays throughout the National Airspace System (NAS). Knowing this and realizing its regional and local importance, the City of Philadelphia (the Sponsor) began preparing a Master Plan Update (MPU) in the fall of 2000 to study the Airport's facility needs relative to future operational and passenger demand.<sup>1</sup> One of the specific objectives of the study was to evaluate the cause(s) of delay at the Airport.

Airport capacity enhancement planning at PHL continued through 2003. During the planning process, the Sponsor examined existing and forecasted passenger and aircraft activity levels and measured both against the capacity of the existing facilities to handle these levels efficiently. The analyses of the forecasted passenger and aircraft activity levels determined that the numbers and durations of delayed operations at PHL would continue to increase from an average level of over 10 minutes<sup>2</sup> per operation in 2003 to over 19 minutes per operation in 2025 and 2030.<sup>3</sup> When an airport reaches 20 minutes of AAD, airport users (passengers and airlines) will curtail planned activity, and growth in airport operations will largely cease.<sup>4</sup> The simulations indicate that PHL will reach this point before 2025.

Average delay per operation of ten minutes or more is considered severe, and "for larger airports, it appears that the onset of the more rapid growth in delay often occurs when delay reaches between 4 and 6 minutes per aircraft operation."<sup>5,6</sup> As a result, the Sponsor proposed the CEP development projects that would increase the capacity of PHL.

After receiving the Sponsor's proposal for the CEP, the FAA determined that proposed projects identified by the Sponsor would require the preparation of an Environmental Impact Statement (EIS) pursuant to the National Environmental Policy Act (NEPA) of 1969. The FAA commenced the EIS for the project in 2003. Therefore, the

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1 According to the Federal Aviation Administration's *OPSNET Ranking Report*, PHL was ranked as the 7th most delayed airport in 2000, when the MPU was initiated.

2 *Philadelphia International Airport, Master Plan Update, Final Technical Report 2004.17, Runway 17-35 Extension Capacity/Delay Simulation Analysis*, Table D-2, DMJM Aviation, August 23, 2004.

3 *Philadelphia International Airport Capacity Enhancement Program Capacity/Delay Simulation Analysis (TAAM) Report*, Harris Miller Miller and Hanson, Inc., April 2008; the delay forecast for year 2020 applies to the 2025 EIS forecast year and the delay forecast for 2025 applies to the 2030 EIS forecast.

4 *FAA Airport Benefit-Cost Analysis Guidance*, U.S. Department of Transportation, Federal Aviation Administration, Office of Aviation Policy and Plans, U.S. Government Printing Office, Washington, DC, December 15, 1999, p. 39.

5 *FAA Airport Benefit-Cost Analysis Guidance*, U.S. Department of Transportation, Federal Aviation Administration, Office of Aviation Policy and Plans, U.S. Government Printing Office, Washington, DC, December 15, 1999, p. 39.

6 Report to Congress – *National Plan of Integrated Airport Systems (NPIAS) 2009-2013*, U.S. Department of Transportation, Federal Aviation Administration, September 30, 2008, p. 17.

“baseline” conditions reported in the EIS reflect either calendar year 2003 or 2004 aircraft operational levels; the most recent available at the time of the analysis.

During its analysis, the FAA determined that one of the major causes of the delay is inadequate all-weather airfield capacity due to the airfield’s current configuration. Specifically, the Airport suffers its most severe delays during poor weather conditions, with low visibility, due primarily to the airfield configuration, including the spacing between runways, a limited number of runways, limited runway length, and the inability to conduct simultaneous operations.

On September 18, 2002, President Bush signed Executive Order (EO) 13274, Environmental Stewardship and Transportation Infrastructure Project Review. It directed the U.S. Secretary of Transportation to designate high priority transportation projects that were subject to expedited environmental review. The EO implicitly acknowledged that these high priority transportation projects were “essential to the well-being of the American people and a strong American economy.” The CEP, and the Runway 17-35 Extension Project at PHL which was completed in 2009, were selected by the Secretary as two of nineteen high-priority transportation projects. In 2003, Congress enacted Vision 100 - The Century of Aviation Reauthorization Act. Title III of the Act is the Aviation Streamlining Approval Process Act, 49 United States Code (U.S.C.) Sections 47171-47175. Similar to the EO, Title III directs the Secretary of Transportation to develop and carry out an expedited and coordinated environmental review process for airport capacity projects at congested airports, as well as for certain other important aviation projects. Title III directs the Secretary, through the FAA, to give priority review to such projects, to manage timelines during the review process and to improve and expedite interagency coordination. It stresses quality, accountability and the promotion of public review and comment.

The CEP is an airport capacity enhancement project at a congested airport. A congested airport is defined as one that accounted for at least one percent of all delays in the United States and is an airport listed on Table 1 of the FAA’s Airport Capacity Benchmark Report 2001 (FACT 1).<sup>7</sup> In 2009, PHL accounted for upwards of 8 percent of the delays in the Nation.<sup>8</sup> PHL was listed on Table 1 of the 2001 and 2004 FACT reports.<sup>9</sup> In 2007, FAA updated and published a new version of the FACT reports, called FACT 2. In the FACT 2 report, the PHL airport and the metropolitan area were identified as needing additional capacity in 2015 and 2025.<sup>10</sup> It is clear that PHL has capacity limitations and those limitations contribute to delays throughout the Nation.

In order to address these issues, FAA expedited the NEPA process for the CEP and carried it out in close coordination with federal, state, and local government agencies. It developed a streamlining agreement with the City of Philadelphia, and 16 other federal and state agencies that have an interest in the CEP. The streamlining agreement included milestone dates for FAA and other agency actions, a dispute resolution process and short, clear explanations of each signatory’s roles and responsibilities.

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7 49 U.S.C. Section 47175(2), FAA Order 5050.4B, par. 1503(a).

8 FAA, OPSNET database. <http://www.apo.data.faa.gov/opsnet/>, 2009 Delays Ranking Report, accessed 01 December 2010.

9 The FAA interprets 49 U.S.C. §47175(2) to refer to FAA’s Airport Capacity Benchmark Reports of 2001 and 2004.

10 Capacity Needs in the National Airspace System 2007-2025, An Analysis of Airport and Metropolitan Demands and Operational Capacity in the Future (FACT 2), Tables 2 and 4. May 2007.

The Draft Environmental Impact Statement (DEIS) for the CEP was published in September 2008. Comments on the DEIS were accepted through November 2008, and the Final EIS (FEIS) was published in August 2010.

The federal actions associated with the CEP are described in Section 3 of this ROD. This ROD completes a thorough and careful environmental decision making process, including the FAA's public disclosure and review by the FAA decision maker of the analysis of impacts described in the August 2010 FEIS. This ROD has been prepared and issued by the FAA in compliance with NEPA (42 U.S.C. Section 4321, *et seq.*), its implementing regulations (40 Code of Federal Regulations (C.F.R.) Parts 1500-1508), and FAA directives (Order 1050.1E<sup>11</sup> and 5050.4B<sup>12</sup>). This ROD demonstrates and documents FAA's compliance with the procedural and substantive requirements for runway development and airport expansion projects. The FAA arrived at the determinations and approvals presented in this ROD by considering public comments and reviewing the environmental analysis in the FEIS and all other relevant documents that comprise the administrative record for the EIS.

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## 2. Overview of the Project

The FAA has selected Alternative A for implementation (the Project). Alternative A, shown in Figure 2-1 (when fully implemented in 2025), includes the following:

- An extension of Runway 8-26 by 2,000 feet to the east, for a total length of 7,000 feet, with an Engineered Materials Arresting System (EMAS) constructed at the east end of the runway and associated taxiway improvements and relocated approach lighting system on the Runway 26 end;
- An extension of Runway 9R-27L (which would be renamed Runway 9C-27C) to the east by 1,500 feet, to a total length of 12,000 feet, and associated taxiway improvements and relocated approach lighting system on the Runway 27C end;
- A new Runway 9R-27L, 1,600 feet south of renamed Runway 9C-27C, constructed to a length of 9,103 feet and a width of 150 feet with an EMAS installed on its west end to reduce impacts to the Delaware River, and associated taxiway improvements and runway lighting;
- Upgrade and reconfigure the existing terminal complex in its existing location, including:
  - Reconstruction of Terminals B/C and F
  - Expansion of Terminals D and E
  - Construction of new Terminal G and Commuter Terminal
- Construction of a new Automated People Mover (APM) to transport people between terminals and parking facilities;

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11 United States Department of Transportation, Federal Aviation Administration Order 1050.1E, Change 1, Environmental Impacts: Policies and Procedures, March 20, 2006.

12 United States Department of Transportation, Federal Aviation Administration Order 5050.4B, National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions, April 28, 2006.

- Enlargement of existing parking garages A, C, and D, reconfiguration of the economy parking lot, and construction of a new centralized ground transportation center and consolidated rental car facilities;
- Upgrade of approach lighting systems for Runways 9R and 9L to meet Category II/III approach requirements (the approach lighting system for Runway 9R would be in the Delaware River);
- Relocation of all existing navigational aids as necessary or installation of new navigational aids as required to meet the approach criteria for the particular runway end;
- Relocation of the Airport Surveillance Radar (ASR-9) and the Precision Runway Monitor (PRM) south of Runway 9R-27L;
- The following airport support facilities would be constructed or expanded:
  - A new main Aircraft Rescue and Firefighting (ARFF) facility south of the proposed Commuter Terminal and a new supplemental ARFF station at the west end of the airfield, north of Runway 9C-27C;
  - A new ARFF training facility south of Runway 9R-27L;
  - New corporate hangars south of Runway 8-26;
  - A relocated and expanded fuel farm south of Runway 9R-27L;
  - A new supplemental deicing facility located between Runway 9L and Runway 8, immediately west of the new corporate hangar facilities;
  - Relocation of the FAA's Air Traffic Control Tower (ATCT);
  - A new centralized airport maintenance facility, housing east of the Commuter Terminal;
  - A new Cargo City facility with seven cargo buildings, a maintenance hangar, and a relocated US Airways Express hangar in the northwest corner of the Airport; and,
  - A new airport service road along the south side of the Airport and around the east end of Runway 8-26 and 9R-27L.
- The following public roads and railway facilities would require relocation or closure:
  - Relocation and extension of Tinicum Island Road from the State Road (SR) 291/Scott Way intersection west along the railroad tracks, and terminated at 4th Avenue in Tinicum;
  - Closure of Hog Island Road from Tinicum Island Road to the Sunoco Logistics Fort Mifflin Pier (where it becomes Fort Mifflin Road);
  - Reconstruction of Fort Mifflin Road and the rail tunnel under the Runway Safety Area of Runway 8-26;
  - Relocation of Island Avenue between the Penrose Avenue intersection and Enterprise Avenue, and closure of Escort Street and Executive Drive;
  - Relocation of Cargo Access Road, Recirculation Road, and Airport Exit Road;

- Closure of Seminole Street, Manhattan Street, Iroquois Street, and Stevens Drive in Tinicum;
  - Closure of the former SR 291, south of Interstate-95 (I-95) between Scott Way and Ramp F; and,
  - Termination of the Consolidated Rail Corporation (Conrail) freight tracks south of the Airport (the 60th Street Industrial Track) along Hog Island Road/Fort Mifflin Road between Tinicum Island Road and the United States Army Corps of Engineers (USACE) Dredge Disposal Facility, and construction of an approximately 1.8-mile replacement track from the USACE facility north to the Conrail Main Line.
- Removal of the Sunoco Logistics Hog Island Wharf complex, and extension of the Sunoco Logistics Fort Mifflin complex;
  - Relocation of the United Parcel Service (UPS) facility to the west end of the Airport, requiring acquisition of approximately 200 acres of private lands with multiple owners between the existing Tinicum Island Road and 4th Avenue in Tinicum;
  - Acquisition and demolition of the International Plaza parcel;
  - Acquisition and demolition of approximately 106.5 acres of privately owned land east of the Airport from 13 different owners;
  - Acquisition of part of the USACE Fort Mifflin Dredge Disposal Facility (approximately 118 acres) to extend Runway 8-26 to the east; and
  - Acquisition and demolition of the National Guard Pier and a portion of the National Guard facilities at the Fort Mifflin USACE area.

This is a major and complex project that involves multiple steps over the course of thirteen years. Prior to Project construction, it is anticipated that two to three years will be required to allow for design and permitting activities, including land acquisition. The preliminary construction schedule indicates that once construction is initiated, the first stage includes: fill in the Delaware River; constructing portions of the automated people mover (APM); extending runway 9R-27L and associated taxiways; reconstructing and reconfiguring the on-airport roadway system; and constructing and relocating the consolidated rental car facility, expanded auto parking and associated parking garages, and baggage claim buildings. In the preliminary schedule, the second stage of construction includes: demolishing and reconstructing sections of the terminal complex; reconstructing and lengthening Runway 8-26; complete construction of the APM; and relocating the existing airfield facilities on the southern side of the airfield along the Delaware River to prepare for construction of the new Runway 9R-27L. During the third and final stage, the new Runway 9R-27L and associated taxiways will be constructed, the remaining terminal and airfield facilities will be reconstructed and the automated people mover will be completed. Additional detail regarding construction phasing for the Project is provided in Section 3.5.3 of the FEIS.

Detail pertaining to the FAA's rationale for selecting Alternative A can be found in Section 7 of this ROD. The environmental impacts of the Project are described in Section 9. Mitigation requirements are described in Section 10 and other conditions of project approval, including environmental permits required, are discussed in Section 11 of this ROD.

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### 3. Necessary Federal Actions

The FAA's actions, relative to the Project, include approval of the revised Airport Layout Plan (ALP) and funding and grant approval processes. The federal actions required of the FAA are:

- The approval of the ALP that depicts the CEP and incorporates all the physical elements associated with the Project (listed in full in Chapter 3 of the FEIS and Section 2 of this ROD);
- The environmental approval necessary to proceed with the processing of an application for Federal funding for those development items qualifying under the Airport Improvement Program, 49 U.S.C. Sections 47101, et seq., as well as Passenger Facility Charges, 49 U.S.C. Section 40117; and
- The approval for relocation, installation and/or upgrade of various navigational aids.

The FAA reviewed those portions of the ALP that depict the proposed action and connected actions to:

- Determine effects upon safe and efficient use of airspace (49 U.S.C. Section 40103(b));
- Designate controlled airspace and revised routing, including navigational aids and flight procedures (14 C.F.R. Part 71);
- Determine compliance with Council on Environmental Quality (CEQ) regulations (40 C.F.R. Parts 1500-1508), and other applicable federal environmental requirements and approvals under various EOs discussed in this ROD; and
- Establish conformance with FAA design criteria (including the siting of a relocated ATCT per FAA Order 6480.4A), federal regulations, and grant agreements (14 C.F.R. Parts 77, 139, 150, 152, 157, and 169).

In addition to the FAA's approvals, several federal permits and approvals will be required to implement the Project and will be addressed by the appropriate agencies. These approvals are discussed in Section 11 of this ROD.

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### 4. Background

PHL is owned and operated by the City of Philadelphia. PHL is a large hub airport that plays a major role in the national air transportation network. Large hub airports are defined as facilities that individually account for greater than one percent of total U.S. passenger enplanements. A domestic connecting hub for US Airways, PHL also serves as US Airways' international gateway, and is a cargo hub for UPS. PHL serves both origin-destination traffic and connecting passengers, with an estimated 63 percent of the annual enplaned passengers starting or ending their journey at the Airport and 37 percent connecting to another flight.

PHL serves 30 scheduled passenger airlines, six cargo airlines, and general aviation.<sup>13</sup> In 2009, PHL handled 472,668 aircraft operations<sup>14</sup> and approximately 30 million passengers.<sup>15</sup> In 2008, when the DEIS was issued, PHL was the tenth busiest airport in the U.S. in terms of operations. In 2009, PHL moved up to be the ninth busiest airport in the U.S. but was the fourth most delayed.<sup>16</sup> As of September 30, 2010, PHL still remains the ninth busiest airport in the U.S. in terms of aircraft operations, and was the seventh most delayed airport.<sup>17</sup>

PHL occupies approximately 2,300 acres of land, as shown in Figure 3-1, which provides limited opportunities for development. This is a very small amount of acreage when compared to the level of operations at PHL. Airports with comparable levels of aircraft operations include Houston-George Bush Intercontinental Airport (more than 10,000 acres of land), Detroit Metropolitan Wayne County Airport (6,400 acres), and Charlotte-Douglas International Airport (5,000 acres). Even New York-JFK International Airport, which is well known for having very limited acreage, has more than double the acreage of PHL (4,930 acres). PHL is approximately seven miles southwest of downtown Philadelphia, within the boundaries of both Tinicum Township (Delaware County) and the City of Philadelphia (Philadelphia County). The Airport is south of I-95, west of Island Avenue, north of Hog Island Road, and east of Tinicum Island Road. Although not currently part of the Airport, the Division of Aviation also owns a portion of the land between Hog Island Road and the Delaware River.

PHL (shown in Figure 3-1) consists of seven terminals with 2.5 million square feet of passenger handling facilities, 107 domestic gates, and 13 international gates. There are two primary runways (the 10,500-foot long Runway 9R-27L and the 9,500-foot long Runway 9L-27R) and two secondary runways (the 6,500-foot long Runway 17-35 and the 5,000-foot long Runway 8-26). In addition to the terminals, airport facilities include hangars, a deicing facility, fuel facilities, aircraft rescue and fire fighting facilities, an 11,300-space parking garage, surface parking lots, rental car facilities, and the Southeastern Pennsylvania Transportation Authority (SEPTA) rail line with four regional rail stations. All of these assets are on property owned by the City of Philadelphia.

The Airport has been incrementally expanded and improved since it was originally opened as the Philadelphia Municipal Airport in 1940. Since 2000, improvements at PHL include:

- The addition of Terminal F, including 185,000 square feet of terminal space, 38 new gates for regional and commuter aircraft, and a 3,400-space parking garage (2001).
- A new deicing facility (2002).
- Expansion of Concourse D and Terminal D baggage claim (2003).
- The construction of Terminal A-West, including 800,000 square feet of terminal space, 13 international gates, and 1,500 parking spaces (2003).
- An Aircraft Fire Fighting Training Center (2003).

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13 Philadelphia International Airport website, (<http://www.phl.org/activityreports/ar0712.html>) accessed 18 May 2010.

14 Federal Aviation Administration, Air Traffic Activity System (ATADS), accessed October 18, 2010.

15 Federal Aviation Administration, Air Carrier Activity Information System Database (ACAIS), Calendar Year 2009.

16 Federal Aviation Administration, OPSNET database, <http://www.apo.data.faa.gov/opsnet>, 2009 OEP data, accessed May 3, 2010.

17 Federal Aviation Administration, OPSNET database, <http://www.apo.data.faa.gov/opsnet>, 2009 OEP data, accessed November 15, 2010.

- Runway 17-35 Extension (2009).
- The new Terminal D/E Connector, which includes combined 14 security checkpoints opened in December 2008, and 3 new gates in Concourse E and a combined 9,000-square foot baggage claim connector for Terminals D/E were completed in February 2010. Additionally, 23 ticket counter positions will come on line in phases beginning in the summer of 2011.

Facilities adjacent to the Airport include the U.S. Postal Service (USPS), UPS buildings and cargo facilities, Cargo City, International Plaza office buildings, the U.S. Army Corps of Engineers (USACE) Fort Mifflin Dredge Disposal Facility, Fort Mifflin, and Sunoco oil storage tanks and docks.

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## 5. Purpose and Need

**The purpose of the CEP is to enhance airport capacity in order to accommodate current and future aviation demand in the Philadelphia Metropolitan Area during all weather conditions.<sup>18</sup>**

The CEP will reduce the total delays at PHL, reduce the total cost of delays, and reduce the Airport's contribution to delays in the region and across the nation.

The CEP is needed because PHL is currently one of the most delay-prone airports in the NAS, and delays are predicted to worsen in the future as aviation demand at PHL increases. Currently, the Airport suffers its most severe delays during poor weather with low visibility as a result of the configuration of the existing airfield. Delays also occur at peak travel hours of the day, peak days of the week, and during heavy travel periods (holidays and summer vacation months) when scheduled aircraft operations exceed PHL's total capacity even in good weather. Delays impose substantial costs in time and money for passengers and airlines, cargo shippers, and for other users of the air transportation system, as these delays spread throughout the NAS.

Table 5-1 presents a 20-year history of PHL's U.S. airport rank for delayed operations using the FAA's Operations Network (OPSNET) database. Since 1999, the Airport has been one of the top 10 most delayed airports in the U.S.

The capacity of an airport is defined as the number of passengers or aircraft operations that can be accommodated in a specified time period. The aircraft operational capacity, which is typically defined as the number of aircraft operations that can land or take off in an hour, is usually determined by the capacity of the runways, or airfield system. Airfield capacity is a function of the design of the airfield (especially the runways, but also the taxiways and instrumentation), local weather conditions, aircraft types, and the FAA Air Traffic Control (ATC) procedures. For any airfield layout, capacity is a dynamic factor that varies with changes in wind direction, weather conditions, and the fleet mix of arriving and departing aircraft.

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<sup>18</sup> Under Title III of Vision 100, all agencies in a streamlined review process are bound by the project purpose and need that is defined by the Secretary of Transportation (Secretary), notwithstanding any other provision of law. Title III requires the Secretary to request and consider comments on project purpose and need from interested people and governmental entities according to the NEPA process, but does not change FAA's responsibilities, described in Order 5050.4B, for determining a project's purpose and need.

**Table 5-1 PHL's Delay Rank among U.S. Airports (1 = Most Delayed)**

<b>Year</b>	<b>Rank by Total Delays</b>
1990	8
1991	14
1992	11
1993	11
1994	11
1995	16
1996	11
1997	10
1998	10
1999	8
2000	7
2001	5
2002	5
2003	6
2004	4
2005	6
2006	5
2007	6 <sup>1</sup>
2008	6 <sup>1</sup>
2009	4 <sup>1</sup>
2010	7 <sup>1,2</sup>

Source: FAA, OPSNET database, <http://www.apo.data.faa.gov/opsnet>, 2009 OEP Data, accessed 03 May 2010.

1 This ranking excludes the New York Terminal Radar Approach Control (TRACON) facility N90 and ATC Center ZNY, which the OPSNET database includes in the airport rankings. The Washington Air Route Traffic Control Center (ARTCC) ZDC is also excluded from the 2010 rankings.

2 As of September 30, 2010.

The aircraft operational capacity of PHL is constrained by the layout of the existing airfield system. The primary capacity deficiencies of the existing airfield system occur because:

- The close spacing of the two primary runways (Runways 9R-27L and 9L-27R) prevents simultaneous arrivals or departures during poor weather conditions.
- Runways 17-35 (even with its recent extension to 6,500 feet) and 8-26 are currently not of an adequate length to accommodate the larger aircraft that typically use PHL (such as Boeing 747, Boeing 767, or Airbus 340 aircraft); therefore, they cannot be fully used by all aircraft using PHL while the primary runways are congested.
- Runway 8-26 can only be used in one direction because aircraft are not allowed to fly over the Passenger Terminal Complex, due to safety.
- Runways 17-35 and 9L-27R intersect, which prevents simultaneous operations on both runways. Operations on one runway must be halted while the other runway clears, creating delay and reducing the capacity of both runways.

- The aircraft operational capacity during the East Flow is considerably lower than during the West Flow. Under optimal weather conditions, which allows for use of all four runways and standard separation between arriving and departing aircraft, PHL operates in West Flow. West Flow is the preferred overall operating mode at PHL and generally occurs about 75 percent of the time. The operational capacity of PHL during East Flow, when winds are strong and from the east and/or visibility is poor, is lower than during West Flow because greater separation (greater than standard) is required between aircraft in low visibility weather conditions or in Instrument Meteorological Conditions (IMC) than in high visibility conditions. Additionally, the number of active runways is reduced in IMC weather conditions, which occurs approximately eight percent of the time.
- The taxiway system creates bottlenecks that delay taxiing aircraft and frequently create long queues.

Delays occur when aircraft operations approach or exceed the physical capacity of the airfield. At PHL, this happens when the airfield capacity is reduced by poor weather conditions. It can also occur when the number of aircraft operations increases, or when the fleet mix changes. Delays also occur due to external factors, such as the weather conditions at other airports, but airfield capacity at PHL plays a much larger role in causing delays, and is a cause of delay that the Sponsor and the FAA have the ability to change.

In 2007, the FAA completed an EIS and Record of Decision for the New York/New Jersey/Philadelphia Metropolitan Airspace Redesign project (Airspace Redesign project). The purpose of that project was to increase the efficiency and reliability of the airspace structure. It does not alleviate all weather-related delays at PHL, nor does it increase airport capacity. The Airspace Redesign project complements the CEP but it does not replace it. Even with the airspace efficiency gains, additional airfield capacity is needed at PHL to operate efficiently under all weather conditions.

The cumulative effects of the Airspace Redesign project on PHL were taken into consideration for the CEP EIS analysis. The CEP EIS analysis assumed full implementation of the Airspace Redesign project because, based on Airspace Redesign project phasing plans, changes to the airspace around PHL will be in place by the time CEP construction is complete.

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## 6. Alternatives Analysis

Alternatives with the potential to meet the CEP purpose and need were identified and evaluated in a step-wise screening process.

### 6.1. Candidate Alternatives

The first step of the alternatives process identified a range of candidate alternatives. A total of 74 candidate alternatives were identified in the Sponsor's Master Plan Update, during the NEPA scoping process and by the FAA. These were screened based on their potential to meet the project purpose and need. Seven different types of Candidate Alternatives were evaluated:

- Other Airports: More extensive use of other airports in the PHL service region or construction of a new airport in the region.
- Other Modes of Transportation: Greater passenger use of surface roadways, rail, and/or intercity buses.

- Congestion Management: Various market-based approaches that reduce demand by raising the price of using the airfield, or administrative approaches that limit the number of flights.
- Operational Improvements and Flight Technology Improvements: Technological improvements in communications, navigation, and safety that have the potential to reduce delays.
- On-airport Alternatives: Physical improvements to PHL that would enhance capacity and reduce delays. These alternatives included 29 options identified during the Master Plan process conducted by the Sponsor.
- A “Blended Alternative”: On- and off-airport alternatives having incremental capacity enhancing benefits.

After analysis of the candidate alternatives (detailed in Section 3.3 of the FEIS), more extensive use of other airports, greater passenger use of other modes of transportation, technology improvements, congestion management, and the blended alternative were determined to be not reasonable alternatives, because they did not meet the purpose and need of enhancing airport capacity at PHL during all weather conditions.

## 6.2. Preliminary Alternatives

The second step of the alternatives screening process evaluated those candidate alternatives that were not eliminated in the first step. Airport infrastructure improvements were retained for analysis at the second level of the alternatives evaluation. Preliminary alternatives included:

- Alternative A – Parallel 8-26 East (retention of Runway 17-35)
- Alternative B – Parallel 8-26 West (elimination of Runway 17-35)
- Alternative C – Midfield Terminal

These alternatives were evaluated to determine if they were “reasonable and feasible” which was defined as whether the alternative could be constructed and implemented while maintaining airport operations. Alternative C was not reasonable in terms of implementation issues, operational delay during construction, and estimated project costs of approximately \$7.0 billion. Therefore, this alternative was not advanced for further analysis in the EIS.

Alternatives A and B were reasonable and feasible, and met the purpose and need; therefore, these alternatives were retained for detailed analysis in the EIS and are described in detail in the section below.

## 6.3. EIS Alternatives

The EIS evaluated the environmental impacts of three alternatives: the No-Action Alternative, Alternative A, and Alternative B, which are described below and summarized in Table 6-1.

Table 6-1 Summary of EIS Alternatives

	No-Action Alternative	Alternative A	Alternative B
Runways	17-35 – 6,500 ft 8-26 – 5,000 ft 9L-27R – 9,500 ft 9R-27L – 10,500 ft	17-35 – 6,500 ft 8-26 – 7,000 ft 9L-27R – 9,500 ft 9C-27C – 12,000 ft 9R-27L – 9,103 ft	8-26 – 7,000 ft 9L-27R – 9,500 ft 9C-27C – 12,000 ft 9R-27L – 9,103 ft
Terminals	7 terminals 2.5 million square feet	7 terminals 3.6 million square feet	4 terminals 3.8 million square feet
Air Traffic Control Tower	Remains in current location south of the airfield	Relocated <sup>2</sup>	Relocated <sup>2</sup>
Gates	120	145 to 150	152 to 157
Parking	5 garages	3 garages Ground Transportation Center	2 garages Central Head house
Automated People Mover	None	Above and below ground	Below ground
SEPTA	No change	No change	Ends at Terminal A
Tinicum Island Road	No change	Relocated	Relocated
Hog Island Road	No change	Closed	Closed
Island Avenue	No change	Relocated	Relocated
USACE Dredge Disposal Facility	No change	Partially relocated	No change
Sunoco Logistics	No change	Close Hog Island Pier Extend Fort Mifflin Pier	Close Hog Island Pier Extend Fort Mifflin Pier
Freight Rail Track	No change <sup>1</sup>	Close Conrail line south of the Airport and construct new rail line northeast of the Airport	Close Conrail line south of the Airport and construct new rail line northeast of the Airport
Estimated Construction Cost <sup>3</sup>	No new costs	\$5.2 Billion	\$5.4 Billion

<sup>1</sup> Constructing a railroad spur off Conrail's existing freight line within USACE facility has already been completed.

<sup>2</sup> FAA's Airways Facilities Tower Integration Laboratory (AFTIL) has conducted an ATCT site selection study in accordance with FAA Order 6480.4, Air Traffic Control Tower Siting Criteria. The study identified several potential sites for the ATCT for each alternative within the proposed limits of disturbance. During final design FAA will determine the exact location of the relocated Air Traffic Control Tower.

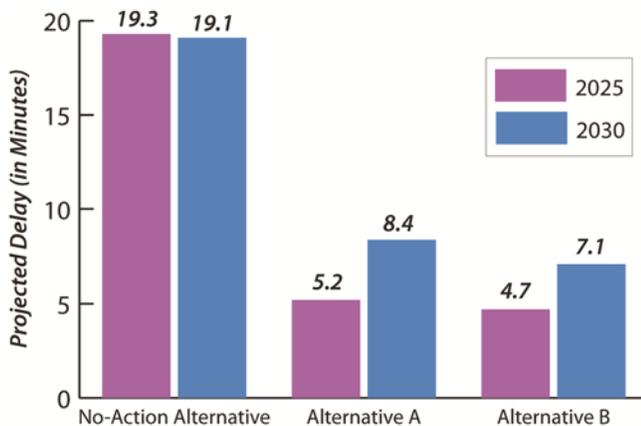
<sup>3</sup> Estimate includes full real estate values of taxable parcels but does not include costs associated with the acquisition of non-taxable parcels, relocation costs or environmental mitigation requirements.

### No-Action Alternative

Under NEPA, the FAA is required to develop and describe not only alternatives capable of achieving the purpose and need, but also the No-Action Alternative. The No-Action Alternative involves only the periodic maintenance and minor enhancements needed to maintain safe operations at PHL. These maintenance activities and enhancements would occur without the CEP. The No-Action Alternative includes the 2009 Runway 17-35 extension to 6,500 feet and the Airspace Redesign project procedures. The No-Action Alternative serves as the basis for assessing the impacts of the other alternatives being considered.

Based on a delay simulation model, under the No-Action Alternative by 2022,<sup>19</sup> the airport will be approaching maximum capacity, with almost 20 minutes of annualized average delay per operation (AAD).<sup>20</sup> Figure 6-1 shows the projected AAD for the No-Action Alternative and for Alternatives A and B. When an airport experiences 20 minutes of AAD, airport users (passengers and airlines) will curtail planned activity and growth in airport operations will largely cease.<sup>21</sup> Therefore, for modeling and analysis purposes, the numbers of aircraft operations and passenger enplanements for the No-Action Alternative were constrained to a level at which the average delay per operation did not exceed 20 minutes. The result of the No-Action Alternative constraint in the future is that the Airport would be unable to accommodate approximately 1.2 million passenger enplanements in 2025 and 2.9 million annual passenger enplanements in 2030. The level of delay in the No-Action Alternative (even with a constrained forecast of operations and enplanements) would result in an estimated cost of \$688 million (as compared to \$217 million in 2003). Delays impose substantial costs in time and money for passengers, airlines, cargo shippers, and other users at PHL and other airports, because delays at PHL spread throughout the NAS.

Figure 6-1: Comparison of Delay by Alternative



**Alternative A (the Selected Alternative and the Project)**

Alternative A (Figure 6-2) will have five runways connected by a redesigned and more efficient taxiway system.

This alternative is estimated to cost \$5.2 billion (in 2006 dollars) to construct. Runway 17-35 will remain as a 6,500-foot crosswind runway. This alternative extends Runway 8-26 by 2,000 feet to the east, for a total length of 7,000 feet. This runway will continue to be unidirectional, serving westbound arrivals and eastbound departures. Runway 8-26 will have an EMAS constructed at the east end of the runway. It is estimated that

19 Philadelphia International Airport Capacity Enhancement Program Capacity/Delay Simulation Analysis (TAAM) Report, Harris Miller Miller and Hanson, Inc., April 2008; the delay forecast for year 2020 applies to the 2025 EIS forecast year and the delay forecast for 2025 applies to the 2030 EIS forecast.  
 20 Annualized average delay per operation is computed as a weighted average of the simulated delay for a single day of operations of each of the four primary runway configuration/weather conditions modes. For each aircraft operation, delay can range from zero for on-time performance to several hours during poor weather or peak operating periods.  
 21 FAA Airport Benefit-Cost Analysis Guidance, U.S. Department of Transportation, Federal Aviation Administration, Office of Aviation Policy and Plans, U.S. Government Printing Office, Washington, DC, December 15, 1999, p. 39.

Alternative A will require approximately 8.9 million cubic yards of fill material (see Attachment H). The FAA identified potential sources of fill material, and concluded that the most likely source of fill material would be from Delaware River navigation projects, including the proposed channel maintenance dredging and channel deepening projects.<sup>22</sup>

Runway 9L-27R remains at its current length (9,500 feet) and location. It will support westbound departures in West Flow, and eastbound arrivals in East Flow. This alternative extends Runway 9R-27L to the east by 1,500 feet, to a total length of 12,000 feet. This runway will be renamed Runway 9C-27C. It will function primarily as an arrival runway during West Flow operations and a departure runway during East Flow. A new runway, Runway 9R-27L, will be constructed 1,600 feet south of Runway 9C-27C. This runway will be 9,103 feet long by 150 feet wide and serve primarily as a departure runway in West Flow and an arrival runway in East Flow. Runway 9R-27L will have EMAS installed on its west end to reduce impacts to the Delaware River.

Alternative A upgrades and reconfigures the existing terminal complex in its existing location. This alternative adds a new commuter terminal east of Runway 17-35. The total terminal complex will consist of eight concourses with 145 to 150 gates and approximately 3.6 million square feet. An APM will be constructed to transport passengers between terminals and parking facilities. The APM will have both elevated and below-grade sections, with the system elevated along the face of the terminals and below-grade under the Runway 17-35 safety area. The existing SEPTA rail line will continue to provide access to the terminals from outside the Airport and interface directly with the APM system.

Alternative A also includes several off-airport relocations to accommodate the new and extended runways. The UPS facility south of the Airport will be relocated to a new site in Tinicum. Hog Island Road will be closed, and the freight railroad serving the USACE Fort Mifflin Dredge Disposal Facility will be relocated. Part of the Dredge Disposal Facility will be relocated to the north. The Sunoco Hog Island Wharf will be closed and its functions replaced by extending the existing Sunoco Fort Mifflin Pier to the west of its current location.

Alternative A, based on a delay simulation model, results in considerable delay reductions compared to taking no action. Average delay decreases to 5.2 minutes in 2025, and 8.4 minutes in 2030 (Figure 6-1).

### **Alternative B**

Alternative B (Figure 6-3) would have four runways connected by a redesigned and more efficient taxiway system. Alternative B is estimated to cost \$5.4 billion to construct.

This alternative would extend Runway 8-26 by 2,000 feet to the west, for a total length of 7,000 feet. This runway would remain unidirectional, serving westbound arrivals and eastbound departures. Runway 9L-27R would remain at its current length (9,500 feet) and location. It would support departures in West Flow and arrivals in East Flow. This alternative would extend Runway 9R-27L to the east by 1,500 feet, to a total length of 12,000 feet. This runway would be renamed Runway 9C-27C. It would function primarily as an arrival runway during West Flow operations and a departure runway during East Flow. As in Alternative A, a new runway,

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<sup>22</sup> Technical Memorandum – *Preliminary Evaluation of Potential Material Borrow Sources*, Philadelphia International Airport Capacity Enhancement Program, Moffatt & Nichol, November 2005.

Runway 9R-27L would be constructed 1,600 feet south of Runway 9C-27C. This runway would be 9,103 feet long by 150 feet wide, and would serve primarily as a departure runway in West Flow and an arrival runway in East Flow. An EMAS would be installed on the west end of this runway to reduce impacts to the Delaware River. Alternative B would eliminate Runway 17-35. It is estimated that Alternative B will require approximately 1.3 million cubic yards of fill material (see Attachment H); like Alternative A, the most likely source of fill material would be from Delaware River navigation projects.

Alternative B would partially replace and relocate the existing terminal complex. Existing Terminal A (East and West) would remain in its current location. The total terminal complex would consist of Terminal A and three remote concourses totaling 152 to 157 gates and approximately 3.8 million square feet. This alternative would construct an underground APM to transport passengers between terminals and a centralized headhouse. The headhouse would include drop-off and pick-up functions, rental car facilities, ticketing and baggage operations, and security. The existing SEPTA rail line would continue to provide access to the Airport, terminating at Terminal A and interfacing directly with the APM system.

Similarly to Alternative A, Alternative B would also include several off-airport relocations to accommodate the new and extended runways. The UPS facility south of the Airport would be relocated to a new site in Tinicum. Hog Island Road would be closed, and the freight railroad serving the USACE Fort Mifflin Dredge Disposal Facility would be relocated. The Sunoco Hog Island Pier would be closed and its functions replaced by extending the existing Sunoco Fort Mifflin facility's pier to the west of its current location.

Alternative B, based on a delay simulation model, results in considerable delay reductions compared to taking no action. Average delay per operation decreases to 4.7 minutes in 2025, and 7.1 minutes in 2030. Figure 6-1 compares the predicted delay for each alternative in 2025 and 2030.

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## 7. The Environmentally Preferred Alternative and FAA's Preferred Alternative

As required by CEQ (40 C.F.R. § 1502.14(e)), a lead agency must identify its Preferred Alternative in the FEIS and must identify the environmentally preferred alternative (40 C.F.R. § 1505.2(b)) at the time of its decision. The environmentally preferred alternative is the alternative which best promotes the national environmental policy as expressed in Section 101 of NEPA. In general, this would be the alternative resulting in the least damage to the biological and physical environment, and which best protects, preserves, and enhances historic, cultural, and natural resources.

FAA has completed the appropriate environmental review and the necessary steps in the NEPA process, including:

- Careful consideration of the alternatives and the ability of the alternatives to satisfy the identified purpose and need for the project;
- Evaluation of the potential impacts of the alternatives carried forward; and
- Review and consideration of public testimony, comments submitted in response to the DEIS and FEIS, and coordination with federal, state, and local agencies.

FAA Order 5050.4B states that the FAA Preferred Alternative may be the environmentally preferred alternative, but it need not be. The preferred alternative is identified “after reviewing each alternative’s ability to fulfill the agency’s mission while considering their economic and environmental impacts, and technical factors.”<sup>23</sup> The FAA’s mission is to provide for the safe and efficient use of the national airspace.<sup>24</sup> Alternatives A and B would fulfill FAA’s mission by improving the capacity of PHL.

### 7.1. Sponsor’s Preferred Alternative

Alternative A is the Sponsor’s preferred alternative. In a letter dated July 12, 2010 (included in Appendix C of the FEIS), the Sponsor notified the FAA of its reasons for preferring Alternative A, including Alternative B’s impacts to the new terminals, the availability of Runway 17-35 in Alternative A (but not in Alternative B), and more difficult construction phasing of Alternative B.

### 7.2. The Environmentally Preferred Alternative

In general, the environmentally preferred alternative is the alternative resulting in the least adverse impact to the biological and physical environment and which best protects natural and cultural resources. The environmentally preferred alternative is often found to be the No-Action Alternative; that is true in this case as well. Although this ROD finds that Alternative A (selected by FAA) will include all reasonable steps to minimize harm from significant adverse environmental impacts, the FAA recognizes that the No-Action Alternative would impose the least environmental impact (see Table 5.21-1 of the FEIS). Therefore, the No-Action Alternative is the environmentally preferred alternative. Notably, the No-Action Alternative would avoid the impacts of land acquisition and relocation of homes and businesses, and impacts on wetlands, floodplains, biotic communities, threatened and endangered species, and water quality.

The No-Action Alternative is not without its environmental impacts. For example, the No Action will result in long taxi delays and engine idling, causing increases over existing levels of all criteria pollutants except carbon monoxide (CO). In the No-Action alternative in 2030, approximately 3,321 more residents, 1,555 more housing units, and three schools would experience noise levels above 65 decibel (dB) day-night average sound level (DNL) than for the Preferred Alternative. Although the No-Action Alternative results in fewer overall environmental impacts, it is not considered a reasonable alternative. The No-Action Alternative is not capable of accommodating the current and forecasted demand for PHL nor will it reduce delays in less than optimal weather conditions. It thus does not meet the purpose and need of the CEP: to enhance airport capacity in order to accommodate current and future aviation demand in the Philadelphia Metropolitan Area during all weather conditions. Without the CEP, the AAD at PHL would increase from 10.3 minutes per operation in 2003 to approximately 19.3 minutes per operation by 2025. The Airport would be unable to accommodate the estimated 1.2 million passenger enplanements forecasted in 2025. By 2030, it is projected that PHL would be unable to accommodate an estimated 2.9 million annual passenger enplanements.

### 7.3. FAA’s Selected Alternative

Based on review of the comments and information presented in the EIS, FAA has selected Alternative A for implementation. Alternative A (shown on Figure 2-1 and Figure 6-2, and described in Section 6.3 and Table 6-1

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23 FAA Order 5050.4B, Paragraph 1007(e)(7), p. 10-11, April 28, 2006.

24 49 U.S.C. Section 40103.

of this ROD), accommodates all forecast aviation demand with annualized average delays per aircraft operation of 5.2 minutes in 2025 and 8.4 minutes in 2030, and is estimated to cost approximately \$5.2 billion.

The FAA has selected Alternative A because:

- Alternative A meets the purpose and need by enhancing airport capacity in order to accommodate current and future aviation demand in the Philadelphia Metropolitan Area during all weather conditions.
- Alternative A allows for greater flexibility of construction phasing, or scheduling.
  - Although the City of Philadelphia has planned for adequate funding for construction of the CEP, the potential for unforeseen financial difficulties exists for a project of this magnitude. Therefore, FAA believes it is prudent to consider the ability to adjust construction staging or scheduling due to financial concerns, or for other reasons. Alternative B would require complete demolition of most of the terminals and much more extensive taxiway and terminal reconstruction than Alternative A. As a result, there would be very limited opportunity to stop, suspend, or restage construction of Alternative B while also allowing for the Airport to operate under 20 minutes of average delay per aircraft operation.
- The construction of the underground portion of the APM, which would connect the existing passenger terminal area to the proposed commuter terminal facility east of Runway 17-35, offers one example of the funding and schedule flexibility offered by Alternative A. Construction of the underground portion of the APM could be delayed from the first phase to later in the construction period and replaced with secure buses either for a short time or for a longer period, if required. Alternative A maintains a crosswind runway (Runway 17-35).
  - The primary flow of air traffic at PHL is east-west. Runway 17-35 is oriented in a north-south direction, and is considered a “crosswind” runway. A crosswind runway is typically provided in addition to a primary runway(s) for wind coverage not adequately provided by the primary runway(s). Alternative B would close Runway 17-35 during the first year of construction, and would require its demolition. While the primary runways at PHL (which are oriented in an east-west direction) would provide adequate wind coverage, per FAA guidance, without a crosswind runway, the benefits of a crosswind runway remain. Runway 17-35 would still be operational in Alternative A and could be used during extreme crosswind conditions.
  - In addition, with Alternative A, Runway 17-35 would still be used during off-peak periods for the following reasons:
    - ATC situational preference / flexibility.
    - Convenience / proximity to particular terminals and fixed-base operators (FBOs).
    - Pilot preference due to direction of flight.
- Alternative A minimizes disruption of local surface transportation, and does not result in construction impacts to I-95.
  - Alternative A would not modify the ramp system connecting the Airport with I-95 northbound or southbound. Alternative B would require the construction of a new ramp over I-95 to provide access to the Airport from I-95 southbound. Alternative B would also require modifying the ramps and access to I-95 at several locations disrupting traffic on this important freeway.

- On the average, Alternative A has lower average annualized delays during the prolonged construction period.
  - Over the course of the 13 calendar year construction period, average annualized delay per aircraft operation would be slightly lower for Alternative A (16.28 minutes)<sup>25</sup> compared to Alternative B (16.92 minutes). In addition, there would be fewer construction years above 20 minutes of average delay per operation in Alternative A than Alternative B.<sup>26</sup>
- With mitigation, significant environmental impacts can be avoided or minimized.
  - Chapter 6 of the FEIS and Section 10 of this ROD describe the mitigation efforts that will be undertaken to avoid or minimize significant environmental impacts associated with the construction and implementation of Alternative A. Significant impacts would occur as a result of the implementation of Alternative A, all of which can be avoided or minimized.

Neither Alternative A nor Alternative B is clearly environmentally preferable because neither clearly has greater impacts in all, or a majority, of resource categories. Additionally, Alternative A is the City's Preferred Alternative.

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## 8. Public and Agency Involvement

The FAA has committed to public involvement and sought agency input throughout the EIS process. The FAA *Community Involvement Policy Statement*, dated April 17, 1995, clearly affirms:

*The FAA is committed to complete, open, and effective participation in agency actions. The agency regards community involvement as an essential element in the development of programs and decisions that affect the public.*

In addition, Chapter 2, Paragraph 208b. of FAA Order 1050.1E states: *At the earliest appropriate stage of the action and early in the process of preparing NEPA documentation, the responsible FAA official, or when applicable, the project proponent, must provide pertinent information to the affected community and agencies and consider the affected communities' opinions* (40 C.F.R. 1501.2). The extent of early coordination will depend on the complexity, sensitivity, degree of federal involvement, and anticipated environmental impacts of the proposed action.

In Chapter 7, paragraph 74 of FAA Order 5050.4A, as a part of public involvement, the lead agency is encouraged to invite federal or state agencies that have "jurisdiction by law in areas that may be affected by

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25 Final construction of the APM underground off the Runway 17 end would require closure of Runway 17-35 in Years 11 and 12 of the construction period (after Runway 8-26 would be re-opened); however detailed airfield simulation analysis revealed that average delay per aircraft operation would reach 32.1 minutes with the north-south runway closed during the two years. Although air quality analyses were performed using the more conservative average delay per aircraft operation level of 32.1 minutes, additional years above 20 minutes of average delay per aircraft operation would not be reasonable. Therefore, the average delay calculations provided in this section consider Runway 17-35 open during Years 11 and 12.

26 According to FAA's Airport Benefit-Cost Analysis Guidance, 20 minutes of average delay per aircraft operation is widely considered to represent a "constrained" scenario that would discourage further growth from occurring at an airport, however temporary increases in average delay per aircraft operation somewhat above this threshold would be considered reasonable during construction years.

airport development” to serve as cooperating agencies. These agencies may have expertise in a given area, or assure that the proper permits, licenses, or other requirements are met throughout the development of the EIS. In an effort to meet and exceed this guidance, the FAA implemented a comprehensive and proactive public and agency involvement program. The facets of the program included:

- Public and Agency Scoping at three separate locations over three days;
- A Public Involvement Program consisting of meetings, workshops and newsletters
- Agency Coordination process
- Public Hearings on the DEIS at four separate locations over four days.
- A public website that was updated throughout the EIS process: ([www.phl-cep-eis.com](http://www.phl-cep-eis.com)), on which project news and documents were shared, including pre-scoping information, the results of the scoping, the DEIS and FEIS and Draft General Conformity Determination.
- A project mailing that included 43 public libraries in Pennsylvania (PA), New Jersey (NJ), and Delaware (DE); 24 state and federal resource agencies; 88 federal and state officials; approximately 1,800 hundred elected and appointed officials in 12 counties and 230 municipalities in the three states; and 1,250 individuals. Individuals signed up for the mailing list at the scoping meetings, public information meetings, DEIS hearings, and on the public website.
- Public meeting and hearing notices, four newsletters, an announcement of the Preferred Alternative, and a notice of the publication of this ROD were distributed to the public libraries, federal and state officials, county and municipal elected and appointed officials, and individuals.
- The Executive Summary and CD of the DEIS and FEIS were distributed to federal, state, county, and municipal elected and appointed officials, and individuals. Hard copies and CDs of the DEIS and FEIS were provided to public libraries and state and federal resource agencies.
- Notice of Availability of the Draft General Conformity Determination was announced in local newspapers and the Federal Register and the Draft General Conformity Determination was distributed to the U.S. Environmental Protection Agency (USEPA), Pennsylvania Department of Environmental Protection (PA DEP), New Jersey Department of Environmental Protection (NJ DEP), and local libraries on April 27, 2010. The Final General Conformity Determination was published with the FEIS (as Appendix E) on August 27, 2010. Notice of Availability of the Final General Conformity Determination was provided in local newspapers and the Federal Register on August 27, 2010, concurrent with the FEIS notices.
- A notice identifying the Preferred Alternative was published in the Federal Register distributed to the mailing list on April 23, 2010.

### **8.1. Public Involvement**

From the outset, the public has been provided opportunities for input, and their concerns have been considered throughout the process. Both the City of Philadelphia and the FAA have been forthcoming about the project through extensive opportunities for public involvement. The interests of communities have been considered throughout the environmental review and decision-making process regarding the project.

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

The public involvement program included the following:

- An agency scoping meeting was held on August 19, 2003 at the Philadelphia Airport Marriott; federal and state agencies were in attendance.
- Three public scoping meetings were held, one on August 18, 2003 at the Candlelight Music Dinner Theatre in Arden, Delaware; one on August 19, 2003 at the Holiday Inn in Runnemede, New Jersey; and one on August 20, 2003 at Sheraton Suites and Four Points in Philadelphia, Pennsylvania. The three meetings were attended by a total of 535 people.
- A public website dedicated to the EIS was launched in August 2003. The website address is [www.phl-cep-eis.com](http://www.phl-cep-eis.com). The website was updated throughout the EIS process; project news and documents were shared, including pre-scoping information, the results of the scoping, the DEIS and FEIS and Draft General Conformity Determination. The website included a feature whereby individuals could request to be added to the project mailing list. The public website featured the ability to pose questions to the FAA throughout the EIS process and receive an answer.
- Public Workshops/Information Meetings were conducted on April 13, 14, and 15, 2004 to provide a base of knowledge for individuals to participate in the EIS process, including information about the EIS process, the possible environmental impacts and how airports in general, and the Philadelphia International Airport, in particular, operate. A total of 286 people attended the April 13 meeting at Paulsboro High School in Paulsboro, NJ, the April 14 meeting at the Claymont Community Center in Claymont, DE and the April 15 meeting at the Ridley Community Center in Folsom, PA.
- Public Workshops/Information Meetings were conducted on September 21, 22, 27, 28, and 29, 2005 to discuss the purpose and need and the alternatives screening process. A total of 293 people attended the September 21 meeting at Brandywine High School in Wilmington, DE, the September 22 meeting at Ridley Community Center in Folsom, PA, the September 27 meeting at Paulsboro High School in Paulsboro, NJ, the September 28 meeting at the Tincum School in Essington, PA and the September 29 meeting at Eastwick at the Meadows in Philadelphia, PA.
- Public Open House Sessions were conducted on October 18, 19, 25 (2 sessions), and 26, 2006 to give the public another opportunity to review existing project material, review new detailed plans for each on-airport alternative, and to speak informally with FAA representatives and their consultant team about the CEP. A total of 126 people attended the October 18 meeting at the Tincum School in Essington, PA, the October 19 meeting at Hanby Middle School in Wilmington, DE, the October 25 meeting at the Atwater Kent Museum in Philadelphia, PA, the October 25 meeting at Eastwick at the Meadows in Philadelphia, PA and the October 26 meeting at Paulsboro High School in Paulsboro, NJ.
- Public Workshops/Information Meetings were conducted on September 8, 9, 10, and 11, 2008 just before the release of the DEIS, to present the results of the environmental impacts analyses. A total of 124 people attended the September 8 meeting at the Tincum School in Essington, PA, the September 9 meeting at the

Hanby Middle School in Wilmington, DE, the September 10 meeting at Eastwick at the Meadows in Philadelphia, PA and the September 11 meeting at the Paulsboro High School in Paulsboro, NJ.

- A Federal Register Notice for the Availability of the DEIS was published by the USEPA on September 26, 2008. The publication of the DEIS was also announced on the PHL CEP website.
- The DEIS was distributed to local libraries, federal and state resource agencies and officials; elected and appointed officials in counties and municipalities in Pennsylvania, New Jersey and Delaware; and individuals on the EIS mailing list.
- The DEIS was made available for review for 45 days, required by CEQ regulations, from September 26, 2008 through November 10, 2008.
- Four Public Hearing Sessions/Information Sessions were held on October 20, 21, 22, and 23, 2008, at least 20 days following the September 2008 release of the DEIS, to receive comments on the DEIS. A total of 201 people attended the October 20 meeting at the Hanby Middle School in Wilmington, DE, the October 21 meeting at the Paulsboro High School in Paulsboro, NJ, the October 22 meeting at the Tinicum School in Essington, PA, and the October 23 meeting at Eastwick at the Meadows in Philadelphia, PA. Approximately 41 people provided testimony over the course of the four hearings.
- Approximately 120 comment documents were received from the public and agencies in response to the DEIS. Each document contained more than one comment and the number and nature of the comments are shown in Table 8-1. The comments were reviewed and considered by the FAA in the preparation of the FEIS. Comments received were responded to in Volume 3 of the FEIS.
- The FEIS was published on August 20, 2010, and a Notice of Availability (NOA) was listed in the Federal Register on August 27, 2010.
- The FEIS was distributed to local libraries, federal and state resource agencies and officials; elected and appointed officials in counties and municipalities in Pennsylvania, New Jersey and Delaware; and individuals on the EIS mailing list.
- The FAA received six comment letters and emails on the FEIS from state and federal agencies and residents of the Pennsylvania-New Jersey-Delaware region. Overall, most of the comments on the FEIS were submitted by the USEPA and the PA DEP. The major topics were adequacy of mitigation for impacts on wetlands and to the Delaware River, nature and significance of impacts on biotic communities, essential fish habitat, and air and water quality. These comments were carefully evaluated and addressed in the detailed responses in Attachment A of this ROD.
- The FAA provided extensive opportunities for the public to comment throughout the EIS process. In addition to public hearing testimony, the FAA received comments in the following formats: written, email, and through the public website. Overall, the FAA received approximately 700 comments on the DEIS and FEIS and related documentation (Draft General Conformity Determination). Every comment has been considered and substantive comments are addressed in the FEIS and/or this ROD. Most of the comments from the general public and from local officials focused on social and economic effects, particular property acquisitions and tax revenue impacts. Public comments also focused on noise and on alternatives. Approximately half of the public comments on alternatives were form letters in favor of Alternative A and the other half recommended various other alternatives, particular the expansion and use of other airports. The majority of comments from federal and state agencies focused on wetlands impacts.

**Table 8-1 Summary of Comment Categories on the PHL CEP DEIS**

Topics	Congressional	Federal Agencies	State Agencies and Officials	Local Agencies and Officials	NGOs	Public	Total
Agency Coordination	0	0	5	0	0	5	10
Air Quality	1	12	12	2	2	12	41
Airspace	4	0	0	4	0	11	19
Alternatives	9	6	16	19	4	31	85
Coastal Resources	0	0	3	0	4	2	9
Construction Impacts, General	0	0	0	0	1	2	3
Cultural Resources	0	3	0	2	0	2	7
Cumulative Impacts	0	2	1	0	0	1	4
Current Airport Capacity	0	0	0	2	0	0	2
Environmental Justice	0	4	1	0	0	2	7
Finance – cost consideration	3	1	2	2	3	4	15
Fish, Wildlife, and Plants	0	8	18	0	0	4	30
Floodplains	0	0	1	0	0	1	2
General EIS/NEPA	1	4	0	3	0	2	10
Hazardous Materials and Solid Waste	0	2	6	0	0	1	9
Land Use	0	0	0	0	3	9	12
Light Emissions	0	1	0	0	0	1	2
Generally against CEP	0	0	0	1	0	5	6
Generally in favor of CEP	0	0	0	1	1	44 <sup>1</sup>	46
Noise	5	3	5	6	0	34	53
Runway 17-35	0	0	0	0	0	1	1
Public Coordination	1	2	0	8	0	9	20
Purpose and Need	1	1	1	8	1	7	19
Quality of Life	1	0	4	2	0	11	18
Safety	1	0	0	0	0	10	11
Section 4(f)	0	0	0	0	1	1	2
Social and Economic Impacts	2	1	0	22	0	44	69
Surface Transportation	1	0	0	0	0	13	14
Water Quality	0	11	14	3	2	0	30
Wetlands and Waterways	0	19	30	3	1	1	54
<b>Total</b>	<b>30</b>	<b>80</b>	<b>119</b>	<b>88</b>	<b>23</b>	<b>270</b>	<b>610</b>

<sup>1</sup> Forty-three form letters were received in favor of Alternative A.

In addition, there were comments from the public and agencies related to environmental impacts including, among others, air quality; fish wildlife and plants; water quality; surface transportation; and safety.

## 8.2. Agency Coordination

The FAA acknowledges the significant roles played by the USEPA and the PA DEP by serving as cooperating agencies. In addition, the FAA acknowledges the significant roles played by the agencies that participated in the Environmental Streamlining Agreement and process required by *EO 13274 Environmental Stewardship and Transportation Infrastructure Project Reviews* and by *Vision 100*. Title III is the *Aviation Streamlining Approval*

*Process Act of 2003*. The EO and Title III are described in Section 1 of this ROD. These agencies included: FAA, Advisory Council on Historic Preservation (ACHP), Federal Highway Administration – Pennsylvania Division (FHWA), National Marine Fisheries Service – Northeast Region (NMFS), U.S. Army Corps of Engineers – Philadelphia District (USACE), U.S. Fish and Wildlife Service – Northeast Region (USFWS), U.S. Coast Guard (USCG), U.S. Department of the Interior – Philadelphia Region (USDOJ), USEPA – Region 3, PA DEP, Pennsylvania Department of Transportation – District 6 (PennDOT), Pennsylvania Fish and Boat Commission (PFBC), Pennsylvania Game Commission (PGC), NJ DEP, New Jersey Historic Preservation Office (NJ SHPO), Delaware Division of Historical and Cultural Affairs (DE SHPO), Delaware Coastal Management Program (DCMP), and the City of Philadelphia.

An Environmental Streamlining Agreement was signed between the FAA, the Sponsor and these agencies in September, 2003. The participation of these agencies in a series of meetings, and review of detailed technical reports over the course of the EIS process, greatly benefited the FAA and expedited the EIS process in accordance with the EO and Title III, by giving a substantial amount of information and perspective on the proposed development from the viewpoint of the other agencies. These meetings and early reports were intended to both enhance the ability of those entities to comment meaningfully and to expedite the environmental review process during the development of the DEIS, in the formal comment period thereafter, and in the preparation of the FEIS. Agencies were provided with the opportunity to review technical reports on the purpose and need, alternatives analysis, methods for evaluating environmental impacts and environmental impacts, and to discuss the results with the FAA and each other at meetings on each report.

In addition, meetings were held with individual agencies to address particular issues. For example, the FAA coordinated with the USEPA and PA DEP extensively during the development of the EIS air quality analysis. In addition to the *Air Quality Assessment Protocol* prepared and circulated in February, 2006, the FAA held a series of coordination meetings and conference calls with the USEPA Region III and PA DEP on June 9th, July 23rd, and August 27th in 2008; September 30th and November 17th in 2009; and February 23rd, March 24th, and June 4th in 2010. The 2008 pre-DEIS meetings previewed the EIS and General Conformity analysis methods and results. The 2008, 2009, and 2010 sessions were all used to provide the USEPA and PA DEP with (a) recurrent opportunities to review and comment on updates to the study, any technical adjustments to the analyses, and the preliminary results of the work; (b) reach inter-agency consensus on the approaches and issues; (c) and allow the FAA to complete the EIS Air Quality analyses and the General Conformity Determination in a manner mutually acceptable to the FAA, USEPA, and the PA DEP.

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## 9. Environmental Impacts

This section of the ROD summarizes the comparison of alternatives in terms of environmental consequences. More information can be found in Chapters 4 and 5 of the FEIS. Chapter 4 of the EIS (*Affected Environment*) describes the baseline environmental conditions within the study area, the area potentially affected by the Project. Chapter 5 of the EIS (*Environmental Consequences*) describes the environmental impacts of the No-Action Alternative and of Alternatives A and B. Section 6.3 of this ROD describes each alternative. After the comparative overview, this section of the ROD then provides more detailed information concerning the FAA's Preferred Alternative (Alternative A), which is hereafter referred to as "the Project."

### 9.1. Summary Comparison of Environmental Consequences

For each resource category in the FEIS the FAA compared the Build Alternatives to the No-Action Alternative to determine potential effects (beneficial or adverse). Where the Alternative would result in an adverse environmental impact, the FAA determined whether that impact would be significant, based on FAA impact thresholds and guidelines in FAA Order 1050.1E, Change 1, Appendix A and the Environmental Desk Reference for Airport Actions (FAA, October 2007).

Below are the key findings of the environmental consequences analysis regarding both the Project and Alternative B, with respect to whether they would result in a significant impact to the natural or human environment.

- Both Build Alternatives would result in significant noise impacts but would have a net reduction in the number of residents and housing units exposed to noise levels above 65 dB DNL when compared to the No-Action Alternative. Of the two build alternatives, Alternative A would create slightly greater impacts, both in 2025 and in 2030, with significant impacts to 839 residents (2025) and 1,115 residents (2030). Alternative B would result in significant impacts to 745 residents in 2025 and 964 residents in 2030. By 2030, the No-Action Alternative would expose 4,633 residents to aircraft noise levels above 65 dB DNL, while both Alternatives A and B each would expose fewer than 1,200 residents to such levels.
- In general, both of the Build Alternatives (without mitigation) would result in increased noncompatible land use due to increased noise. Both alternatives would result in significant noise impacts not compatible with existing land uses. The Build Alternatives are reasonably consistent with plans of the metropolitan planning organization for the area in which the Airport is located; however, the significant noise impacts that would be experienced in portions of Tinicum Township would not be consistent with the current residential zoning.
- Both Build Alternatives would result in socioeconomic impacts; however the relocation and traffic pattern impacts would not be considered significant and there is no threshold of significance for the loss of tax revenue to communities. The Build Alternatives both require relocation of residents in Tinicum Township with consequent community disruption, but adequate replacement housing is available within the Township and surrounding area. There would be no significant disruption of traffic patterns. While a number of businesses would be relocated, adequate land is available within the local area to accommodate these relocations and maintain the existing number of jobs. Business relocation could, however, result in a substantial tax reduction in Tinicum Township should the businesses choose not to relocate to available sites in Tinicum Township. Potential loss in community tax base could substantially impact Tinicum Township and the Interboro School District due to the relatively small size of both entities tax base. On a regional level, there are expected to be substantial increases in on-airport employment as a result of the expanded airport terminal and increased airport operations, which are also anticipated to result in a regional economic benefit and increased annual taxes throughout the Delaware Valley region.
- Emissions for most air quality pollutants would decrease from the No-Action Alternative to the Build Alternatives in 2025 and 2030 as a result of decreased taxi/queue times and more efficient operations, except for increases in nitrogen oxide (NO<sub>x</sub>), sulfur dioxide (SO<sub>2</sub>), particulate matter of 10 microns and smaller

(PM<sub>10</sub>), and particulate matter of 2.5 microns and smaller (PM<sub>2.5</sub>) for Alternative A and SO<sub>2</sub> for Alternative B in 2030 due to increased aircraft operations. Exceedances of *de minimis* pollutant thresholds would occur during certain construction years for both Build Alternatives. The FAA has issued a General Conformity Determination, which indicates that the Project conforms to the state air quality implementation plan.

- Both Build Alternatives would have adverse effects to wetlands and waterways. Alternative A would result in the loss of 81.7 acres of wetlands, of which 35 acres would be required for airport improvements and 46.7 acres for an off-airport connected action (primarily relocating the Corps of Engineers USACE Fort Mifflin Dredge Disposal Facility). Alternative B would result in the loss of 50.7 acres of wetlands for airport improvements. Both Alternatives would impact waterways (mostly on-airport drainage ditches) with 23.1 lost from Alternative A and 33.4 acres lost from Alternative B. Both Alternatives would require filling 24.5 acres of the Delaware River to construct the new Runway 9R-27L.
- Both Build Alternatives would have a negligible adverse effect, but not a significant impact, on surface water quality as a result of increasing the amount of pavement for runways and associated taxiways. The Alternatives have been designed with stormwater Best Management Practices (BMPs) to mitigate these effects and meet Pennsylvania water quality standards.
- Although both Build Alternatives would require construction within the Federal Emergency Management Agency (FEMA)-mapped 100-year floodplain, there would be only minor impacts to natural and beneficial floodplain values, if any. Additionally, neither would create a barrier or restriction to flood flows in the Delaware River.
- Neither Build Alternative would result in an adverse effect to species protected by the Federal Endangered Species Act of 1973 (ESA) (shortnose sturgeon) or to the American bald eagle, which is protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act. Both Build Alternatives would result in the unavoidable loss of upland grassland, upland woodland, wetlands, and waterways in the project area and would significantly impact state-listed bird, fish, and reptile species. The Project would have a moderate to substantial impact on 8 state listed species and a significant impact on 4 state-listed species. As explained in Section 9.12 of the ROD, FAA and the NMFS disagree about whether the loss of 24.5 acres of freshwater intertidal and subtidal habitat within the Delaware River is a substantial indirect impact to essential fish habitat located 78.5 miles downriver. FAA believes the impact is not significant because the filled areas of the river provide poor quality habitat. In any event, the National Oceanic and Atmospheric Administration (NOAA) and FAA will identify and FAA will require the City to implement mitigation measures needed to replace any loss of functionality.
- Neither Build Alternative would result in an adverse effect to any historic, architectural, archaeological, or cultural property as a result of direct or indirect (noise or visual changes) impacts. For both Build Alternatives, some areas of potential archaeological sensitivity would require additional investigation prior to construction, as stipulated in a Memorandum of Agreement developed by the FAA.
- Several potential sources of soil or groundwater contamination are located within or adjacent to the project area for either alternative. Both Build Alternatives would affect the on-going remediation of the Enterprise Avenue Landfill, to different degrees. Alternative A would place approximately 55 feet of material over the

capped landfill, likely requiring that the cap be reconstructed and the groundwater monitoring system be relocated. Alternative B would have a lesser effect, as it would require approximately 5 feet of new fill material.

## 9.2. Environmental Consequences of the Project

This ROD summarizes in more depth the potential direct, indirect, and temporary (construction) significant adverse impacts that would be caused by the Project in the following categories:

- Noise and Compatible Land Use
- Social and Economic Environment
- Surface Transportation
- Air Quality
- Wetlands and Waterways
- Coastal Zone
- Water Quality
- Floodplains
- Biotic Communities
- Federally Threatened, Endangered, and Protected Species
- Historical, Architectural, Archaeological, and Cultural Resources
- Hazardous Materials and Solid Waste
- Light Emissions and Visual Impacts
- Construction Impacts
- Cumulative Impacts

Some environmental impact categories discussed in Chapters 4 and 5 of the FEIS, are not addressed in this ROD because the Project does not result in impacts to these categories. Wild and scenic rivers and farmlands are not present in the project area and therefore, there are no impacts to these resources. Although present within the project area, there is no disproportionately high and adverse impact to environmental justice populations. Additionally, the Project will not result in impacts to Section 4(f) resources or energy supply. Cumulative effects are considered for each impact category in Section 9.18 of this ROD.

## 9.3. Noise

Project related changes in noise were assessed using the Integrated Noise Model to model noise impacts of the Project as required by FAA Order 1050.1E. The FAA also applied its criteria of significance for noise impacts, an increase of 1.5 dB DNL<sup>27</sup> or more on any noise sensitive area within the 65 dB DNL area to determine whether

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<sup>27</sup> DNL is the day-night average sound level. It is the required metric for analyzing aircraft noise for FAA projects.

the Project will result in a significant noise impact.<sup>28</sup> Additionally, the EIS provided information about slight to moderate noise impacts. A slight to moderate impacts is an increase of 3.0 dB or more in areas within the 60 to 65 dB DNL area, or a 5.0 dB or more increase in an area within the 45 to 60 dB DNL area. Figure 5.2-13 in the FEIS show the change in aircraft noise exposure above 60 dB DNL by comparing the No-Action Alternative to the Project in 2030. Tables 5.2-15 and 16 in the FEIS summarize the noise impacts of the Project.

The total population and number of housing units exposed to 65 dB DNL and greater will decrease substantially with the Project when compared to the No-Action Alternative in 2025 and 2030. In 2025, the Project will decrease the number of housing units exposed to 65 dB DNL by 820 housing units (1,204 housing units under the No-Action Alternative versus 384 with the Project). Again, in 2030, the Project will reduce the number of housing units exposed to 65 dB DNL by 1,555 (2,106 housing units under the No-Action versus 551 with the Project). These decreases will primarily occur north of the Airport in Philadelphia County, Pennsylvania as a result of the reduced use of Runway 17-35 (see Figures 5.2-10 and 5.2-11 in the FEIS).

In 2025, the Project will result in approximately 319 housing units located in Delaware County, Pennsylvania being exposed to significant noise impacts, which the City will confirm through noise modeling and public participation. This represents approximately 839 residents. An estimated 105 housing units (approximately 276 residents), also in Delaware County, will experience significant noise impacts with the Project in 2030 (Figure 9-1). These numbers have been refined since publication of the FEIS to be consistent with the Airport's Residential Sound Insulation Program (RSIP) by conducting parcel-level research for all residential housing units within the significantly impacted areas.

One non-residential noise-sensitive site will experience significant noise impacts in 2030 as a result of the Project: the Navy Chapel of the Four Chaplains at the Philadelphia Naval Shipyard in Philadelphia County.

Mitigation is warranted as a reasonable step to minimize harm for the properties subjected to significant noise impacts as a result of the Project. FAA notes that the City of Philadelphia has an existing Part 150 Noise Compatibility Study (Final Report - June 2002; approved by FAA in May 2003). Although the Part 150 Study was completed without consideration of the CEP, it identified noise impacted residential parcels within the 65 dB DNL and developed the RSIP to mitigate noise impacts. Many of the residential parcels significantly impacted by the Project are also included in the City's ongoing RSIP and have been sound attenuated. This is discussed further in Section 10.1 of this ROD.

#### **9.4. Compatible Land Use**

Land use compatibility is defined by the FAA in Part 150 of Code of Federal Regulations, *Airport Noise Compatibility Planning*, (14 C.F.R. Part 150) as the "use of land that is identified as normally compatible with the outdoor noise environment." The outdoor noise environment, in relation to airport noise compatibility, is measured in terms of yearly DNL. Part 150 includes a matrix (included as Attachment E of this ROD) that identifies what types of land uses are incompatible with certain levels of noise exposure.

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28 FAA Order 1050.1E.

The Project will result in an increase in incompatible residential land (at or above 65 dB DNL) in Tinicum Township, and a decrease in Philadelphia (see Figure 5.4.-3 and 5.4-4 in the FEIS). Land use and zoning in the portion of Greenwich Township, New Jersey that is at or above 65 dB DNL is compatible with airport use. The Project will result in a total of 50.0 acres of incompatible residential land in Tinicum Township in 2025, which is an increase of 40.2 acres over the No-Action Alternative. In 2030, the Project will result in 66.8 acres of incompatible residential land in Tinicum Township, which represents an increase of 52.3 acres over the No-Action Alternative. As a result of the Project, there would be no incompatible residential land in the Eastwick section of Philadelphia, as compared to 36.8 acres in 2025 and 161.6 acres in 2030 with the No-Action Alternative.

When compared to the No-Action Alternative, the Project will reduce noise levels at three schools (George Wharton Pepper Middle School, George Wolf School, and John Bartram Communications/Motivation School) and one place of worship (Greenhill Congregation of Jehovah's Witnesses) to below 65 dB DNL. When compared to the No-Action Alternative, the Project will result in one place of worship newly exposed to noise levels or above 65 dB DNL, the Navy Chapel of the Four Chaplains in the Philadelphia Naval Shipyard.

The Project will result in incompatible land uses relative to noise, and will result in significant compatible land use impacts. FAA has determined that mitigation is appropriate to address these impacts. Mitigation is discussed further in Section 10.1 of this ROD.

#### **9.5. Social and Economic Environment**

The FAA defines social impacts (FAA Order 5050.4B) as those that involve the relocation of a residence or business, the alteration of surface transportation patterns, the disruption of established communities, or any appreciable change in employment.

##### **Residential Impacts**

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The Project will require acquisition of 72 housing units west of PHL in Tinicum Township (Figures 9-2 and 9-3). This area is primarily needed in order to relocate the current UPS facility at PHL. The entire neighborhood east of 4<sup>th</sup> Avenue will be relocated, resulting in community disruption. Figure 9-2 shows a close-up view of the West Side Acquisition Area. Figure 9-3 shows all land acquisition areas near PHL. As detailed in Section 5.3.1 of the FEIS, this is not anticipated to result in a significant impact, as there is sufficient replacement housing available in Tinicum.

##### **Business and Employment Impacts**

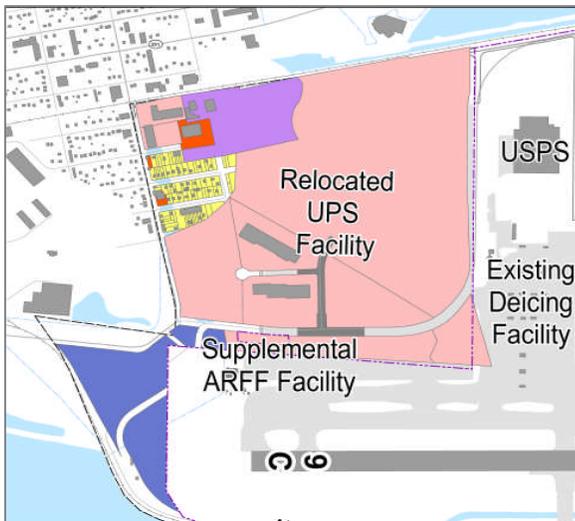
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The Project will displace 80 businesses, with an estimated 3,300 employees. Because many of the displaced businesses are airport-dependent, it is likely that most will choose to relocate in the immediate area, most likely in Tinicum or Eastwick. This is not likely to result in a significant economic impact because it will not create severe economic hardship for affected communities. Additionally, as a result of the Project, on-airport employment is expected to increase by 2,880 jobs over the No-Action Alternative.

The Project will also relocate the UPS facility currently located on Hog Island Road in Tinicum Township, Delaware County. The current location of the UPS facility is needed to construct the new Runway 9R-27L. UPS has indicated that it intends to relocate to a new location west of the Airport that is also in Tinicum Township

(Figure 9-2), with no loss of jobs. If the City is unable to acquire sufficient property to relocate UPS at PHL, UPS may decide to relocate elsewhere. Should that occur, the FAA will conduct additional analysis to determine the impacts of that decision prior to moving forward with the Project.

**Figure 9-2 West Side Acquisition Area**



Note: Yellow denotes existing residential areas.

### Tax Impacts

The Project will result in the loss of real estate taxes to Tincicum Township, Delaware County, the Interboro School District, and the City of Philadelphia. Specifically, the Project will result in a real estate tax loss of \$1.14 million per year to the City of Philadelphia (approximately 0.1 percent of the total tax levy), and \$216,000 per year to Tincicum (13 percent of the total tax levy). The Interboro School district will lose approximately \$1.8 million annually in real estate taxes (6 percent of the total tax levy); while Delaware County will lose approximately \$283,000 annually in real estate taxes (0.3 percent of the total tax levy).<sup>29</sup> The Interboro School District commented on this tax loss and provided information about a Pennsylvania state law that limits tax increases (letter set forth in Attachment A to the ROD). In response, the FAA has revisited the issue of tax impacts to Tincicum and the school district. This loss of tax revenue in combination with the limitations on raising taxes imposed by the Pennsylvania Taxpayer Relief Act (Act 1)<sup>30</sup> substantially impacts Tincicum Township and the Interboro School District.

The acquisition of three privately-owned parking facilities will also reduce parking tax revenues to the City of Philadelphia by approximately \$550,000 per year, to Tincicum Township by approximately \$226,000 per year, and to the Interboro School District by approximately \$348,000 per year. For the City of Philadelphia, these

<sup>29</sup> Although Tincicum Township is located within Delaware County, it is a separate taxing body.

<sup>30</sup> Pennsylvania's Taxpayer Relief Act (Act 1), Act 1 of the Special Session 2005-2006. Act 1 requires that if districts covered by the Act exceed set tax increase limits, they must ask voters for approval. Information on the Pennsylvania Department of Education website ([www.pde.state.pa.us](http://www.pde.state.pa.us), accessed October 27, 2010) states that the tax limit for the Interboro School District for fiscal year 2011-2012 is 1.9%.

losses will be partially offset by employment taxes generated by the new jobs at PHL, as well as increased retail sales activity at the Airport. This is not true in Tincum Township or for the Interboro School District.

The potential loss of tax revenues will not result in a severe economic hardship to the City of Philadelphia or Delaware County, because of the size of the City's and County's economy and tax base. However, Tincum Township could experience an economic hardship due to the loss of taxes, if businesses do not relocate within the community. The FAA also acknowledges that the Interboro School District will suffer a substantial tax loss as a result of property acquisitions in Tincum Township associated with the Project.

### **Construction Impacts**

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Construction of the Project will create new construction-related employment in the Delaware Valley region, with substantial direct and indirect economic benefits. The estimated total direct employment for the 13-calendar year construction timeframe ranges from 44,700 to 46,400 jobs, with 3,700 to 3,900 jobs per year. For each \$1 spent on construction, an additional \$1.27 will be spent throughout the region.

### **Regional and Secondary Impacts**

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The Project will result in an increased number of passenger enplanements, and will result in increased economic activity at the Airport and for local non-airport businesses, with increases in employment and investment. Specifically, with the Project, PHL will be able to accommodate an additional 1.2 million passenger enplanements in 2025, and 2.9 million passenger enplanements in 2030. The cost to the regional economy if these passengers cannot be accommodated is estimated to be greater than \$20 billion over 10 years.<sup>31</sup>

### **9.6. Surface Transportation**

Surface transportation considers the effects of the Project on local roads and highways as a result of changes to the roadway systems and changes in traffic volumes as a result of future growth at PHL.

The No-Action Alternative includes all planned or on-going physical and operational changes that would occur to the transportation infrastructure from the baseline conditions to 2025 or 2030.

The Project requires closing Hog Island Road from Tincum Island Road to the Sunoco Logistics Fort Mifflin Facility (where it becomes Fort Mifflin Road). Visitors will still have access to Fort Mifflin via Fort Mifflin Road. A new intersection will be created along the former SR 291 (Industrial Highway) for access to the Cargo City area.

The following six existing intersections will be modified:

- Industrial Highway and International Plaza Drive/Jughandle;
- Ramp F and Economy Parking/Recirculation;
- Industrial Highway/Penrose Avenue and Island Avenue;
- Tincum Island Road and Scott Way;

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<sup>31</sup> The Economic Impact of Philadelphia International Airport – Final Report, prepared by Econsult Corporation, Philadelphia, Pennsylvania; submitted to DMJM Aviation and dated March 2006. page ii.

- Tincicum Island Road and 4th Avenue/2nd Street; and
- Enterprise Avenue and Fort Mifflin Road.

In comparison to the No-Action Alternative, the Project will increase traffic on Essington Avenue/Industrial Highway eastbound, east of 4th Avenue, due primarily to relocating the UPS facility and its access points. Traffic is expected to decrease on Bartram Avenue, SR 291 west of Bartram Avenue, SR 291 westbound east of 4th Avenue, and on I-95 due to airport roadway access changes in this area. The off-airport roadway relocations (Tincicum Island Road and Island Avenue) and the road closures (Hog Island Road) are not expected to impact emergency services because these roads are not part of a regional corridor that will make them critical arterials for emergency responders.

The Project will result in changes in overall intersection operations. The No-Action Alternative would result in four failing (Level of Service (LOS) E/F) intersections during either the morning or evening peak hours in 2030. Surface Transportation modeling conducted prior to completion of transportation improvements associated with Runway 17-35 showed that without improvements, the Project will result in three failing intersections and will improve operations at four locations compared to the No-Action Alternative. However, since the analysis was completed, the improvements to the failing intersections that would have been needed to mitigate for the impacts of the Project were completed as part of the Runway 17-35 extension project and therefore, no significant impacts are anticipated.

Compared to the No-Action Alternative, the Project will beneficially reduce vehicle miles traveled (VMT) and vehicle hours traveled (VHT) in the study area by reducing the roadway miles in the study area and shifting traffic patterns away from longer congested routes to uninterrupted or more direct connections.

The Project will also require closing Conrail's 60th Street Industrial Track along Hog Island Road. A replacement track will be constructed so that freight rail access is provided for current and potential customers along the 60th Street Industrial Track. A replacement track would be constructed from the USACE facility to the SEPTA R1 line (Conrail maintains trackage rights on this segment of SEPTA's R1 line as shown on Figure 6-2). The replacement track would be provided along a previously abandoned segment of this track which would be reactivated and reconstructed. If required, coordination with the Surface Transportation Board will be conducted prior to reactivation of the abandoned track segment.

The design of the Project considered impacts to the existing and potential future bicycle facilities and minimized or avoided impacts to the extent possible. Closing Hog Island Road will eliminate the short roadway segment designated *Bicycle Friendly* by the Bicycle Coalition of Greater Philadelphia and will eliminate the possibility, identified by the Bicycle Coalition, of developing a bike trail routed on or along Hog Island Road; however there is no formal plan or funding identified for such a trail. A section of the short-term (on-road) facility will be moved by relocating Island Avenue. These impacts are not significant.

No significant surface transportation impacts will occur as a result of the Project.

### 9.7. Air Quality

The air quality analysis evaluated the emissions of air pollutants from the Project, the resulting concentrations of pollutants in the regional area, and CO concentrations at intersections affected by changes in traffic patterns. Air quality was also evaluated for the 13-year construction period associated with the Project.

As compared to the No-Action Alternative, emissions for each of the criteria pollutants will decrease under the Project once construction is completed in 2025. This is a result of decreased taxi/queue times and more efficient operations airport-wide. In 2030, volatile organic compounds (VOC) and CO emissions will decrease below the level of the No-Action Alternative, but emissions of NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub> will increase. The emission increases occur because the Project will be able to accommodate a greater number of operations than the No-Action Alternative. This increase in operations will begin to outweigh the benefits achieved by lower taxi/queue times. The Project will result in operational-related emissions well within (below) the appropriate *de minimis* levels after construction is completed. The General Conformity Rule does not apply to the operational aspects of the Project once construction is completed.

During the construction period, the Project will not result in SO<sub>2</sub> and PM<sub>2.5</sub> levels above the *de minimis* threshold of 100 tons per year (tpy).

The *de minimis* threshold for VOC, at 50 tpy, will be exceeded during construction calendar years 5, 6, and 8. Emissions resulting from aircraft delay during construction will be the principal contributor to construction-related VOC emissions. The *de minimis* threshold for NO<sub>x</sub>, at 100 tpy, will be exceeded during construction calendar years 2, 5, and 6. Construction activity emissions will be the largest contributor to construction-related NO<sub>x</sub> emissions.

For the construction-related emissions<sup>32</sup> of NO<sub>x</sub> and VOCs, the FAA has met the General Conformity Rule requirements for the Project by offsetting the emissions with the application of Airport Emission Reduction Airport Emission Reduction Credits (AERCs) which the City is earning through its current Voluntary Airport Low Emissions (VALE) Program. Additionally, the City will purchase Emission Reduction Credits (ERCs), supplementing the AERCs to achieve General Conformity during construction. See Section 10.7 of this ROD for more details on the application of the AERCs and ERCs for demonstrating General Conformity for the CEP.

In addition to the application for AERCs and the purchase of ERCs, the City of Philadelphia will implement the following construction-related emission reduction measures to achieve conformity during the construction period:

- In accordance with City of Philadelphia EO 1-07 (Climate Protection, Environmental Stewardship and the Office of Sustainability and Environment – Diesel Vehicle Emission Control Requirements), the CEP will require the use of clean diesel specifications<sup>33</sup> for any diesel engine that has a horsepower greater than 50;

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<sup>32</sup> Construction-related emissions include aircraft operations emissions occurring during the construction period.

<sup>33</sup> These clean diesel specification include the use ultra low sulfur diesel fuel, and a listed clean diesel technology for reducing the emission of pollutants for diesel-powered non-road vehicles. Listed technologies include: diesel retrofits or vehicles listed by the EPA as meeting “Tier 4” emissions requirements. Retrofit emission control devices consist of: diesel oxidation catalysts, diesel particulate filters, closed crankcase technologies, flow-through filters, emissions upgrade groups, selective catalytic reduction, or similar retrofit equipment control technology that: (a) is included on the EPA Verified Retrofit Technology List or the California Air Resources Board (CARB) Currently Verified Technologies List, and (b) is listed by EPA or CARB as providing a minimum emissions reduction of twenty percent of PM<sub>10</sub> in the application for which it is verified. Engine repowers may also be used if the contractor can

and is on the site or is anticipated to be on the site for a period in excess of seven consecutive or non-consecutive days.

- Prohibit truck idling and require idle-time limiters on construction equipment.<sup>34</sup>
- Establish a ride-share program for construction crew with incentives such as preferential parking and the use of mass transportation.
- Use warm mix asphalt for taxiway projects, as feasible.

The Project will not create a new violation of the National Ambient Air Quality Standards (NAAQS), increase the severity of any existing violations, or delay the attainment of the NAAQS.

The topics of greenhouse gas (GHG) emissions and climate change are emerging. Of growing concern is the impact of proposed projects on climate change. Greenhouse gases are those that trap heat in the earth's atmosphere. Research has shown that there is a direct link between fuel combustion and greenhouse gas emissions. Therefore, sources that require fuel or power at an airport are the primary sources that would generate greenhouse gases. Aircraft are probably the most often cited air pollutant source, but they produce the same types of emissions as motor vehicles.

The Intergovernmental Panel on Climate Change (IPCC) estimates that global aircraft emissions account for approximately 3.5 percent of the total quantity of greenhouse gas from human activities<sup>35</sup> and the U.S. General Accounting Office reports that aviation accounts "for about 3 percent of total U.S. greenhouse gas emissions from human sources".<sup>36</sup> Based on FAA data, operations activity at PHL represents less than 1 percent of U.S. aviation activity.<sup>37</sup> Therefore, assuming that greenhouse gases occur in proportion to the level of activity, greenhouse gas emissions associated with existing and future aviation activity at PHL would be expected to represent less than 1 percent of U.S.-based aviation-generated greenhouse gases or 0.3 percent of total U.S. greenhouse gas emissions from human sources. For the above reasons, greenhouse gas emissions were not quantified for this project. Under current FAA and USEPA guidance there is no threshold of significance that pertains specifically to airports.

### 9.8. Wetlands and Waterways

Wetlands and waterways occur throughout the Airport, in areas adjacent to the Delaware River, and within the project area both east and west of the Airport. Direct impacts to wetlands and waterways would include filling or grading the wetlands and/or waterways, replacing and adding culverts within waterways, and dewatering and discharge activities.

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provide documentation from the technology vendor that the new equipment reduced PM<sub>10</sub> emissions by 20 percent or more.

- 34 Diesel powered engines shall not be allowed to idle for more than five consecutive minutes in a 60-minute period when the equipment is; not in use, occupied by an operator, or otherwise in motion, with the following exceptions:
- a. When equipment is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,
  - b. When it is necessary to operate auxiliary systems installed on the equipment, only when such system operation is necessary to accomplish the intended use of the equipment,
  - c. To bring the equipment to the manufacturers recommended operating temperature,
  - d. When the ambient temperature is below 40 degrees Fahrenheit or above 80 degrees Fahrenheit, or
  - e. When equipment is being repaired.
- 35 IPCC Report as referenced in U.S. General Accounting Office Environment: Aviation's Effects on the Global Atmosphere Are Potentially Significant and Expected to Grow; GAO/RCED-00-57, February 2000, p. 4.
- 36 Ibid, p. 14; GAO cites available EPA data from 1997.
- 37 FAA ATADS; In 2009, FAA's ATADS reported 52,208,896 total aircraft operations at towered airports in the U.S. PHL accounted for 472,668 aircraft operations, or 0.91 percent of the total aircraft operations at towered airports in the U.S., in 2009.

The Project will result in the unavoidable loss of 81.7 acres of wetlands, including 35 acres of wetlands (primarily marshes and open water areas) on Airport property. These impacts are required to construct the runway, taxiway, and airport facilities. An additional 46.7 acres of wetlands within the former Philadelphia Water Department sludge lagoons will be altered to relocate part of the USACE Fort Mifflin Dredge Disposal Facility.

The Project will also impact 23.1 acres of waterways, and will place 24.5 acres of fill in the Delaware River to construct new Runway 9R-27L, shown in Figure 9-4. The Project includes constructing the new Runway 9R-27L and relocating the Sunoco Hog Island offloading facility, both of which encroach into the Delaware River. Filling for Runway 9R-27L will result in minor or negligible secondary impacts from changes to river currents and sediment scour and deposition. Deposition of sediment could expand the size of intertidal mudflats and increase the available habitat for intertidal wetland communities in the project area.

Although the Project will impact wetlands and waterways in the project area and local study area, based on the criteria established in FAA Order 1050.1E (below), these impacts are not considered to be significant. The impacts to wetlands and waterways will, however, require mitigation measures to comply with federal and state permitting requirements.

In particular, the Project will not:

- Adversely affect the function of a wetland to protect municipal water supplies or sole source aquifers;
- Substantially alter the hydrology needed to maintain wetlands;
- Threaten public health, safety, or welfare by substantially reducing a wetland's ability to retain floodwaters;
- Adversely affect the maintenance of natural systems that support wildlife and fish habitat or economically important timber, food, or fiber resources;
- Promote development of secondary activities or services that would affect wetland resources; or
- Be inconsistent with state wetlands strategies, and would comply with PA DEP's "Wetland Net Gain" policy by creating and restoring riverine wetlands within the coastal zone.

Impacts to wetlands resources as a result of the Project have been coordinated with the PA DEP and the USACE for permitting under the Joint Permitting Application (JPA), which combines the state PA DEP Water Obstruction & Encroachment Permit and the federal USACE Section 404 Permit into one document. The Airport will apply for these permits at the appropriate final design level.

In accordance with EO 11990, Protection of Wetlands, federal agencies are to avoid destruction and modification of, or construction within, existing wetlands where there is a practicable alternative.<sup>38</sup> New construction within wetlands is to be avoided unless there is no practicable alternative and all efforts to minimize potential harm have been taken. Similarly, Section 404(b)(1) Guidelines (40 C.F.R. 230.10(a)) state that no discharge of dredged or fill

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38 Executive Order 11990, Protection of Wetlands, May 24, 1997.

material shall be permitted if there is a practicable alternative to the proposed discharge that would have less of an adverse impact on the aquatic ecosystem or a special aquatic site, and require that appropriate and practicable steps be taken to minimize potential adverse impacts on the aquatic ecosystem. FAA has determined that there is no practicable alternative that would achieve the purpose and need, meet FAA design standards, and avoid impacts to wetlands and waterways. Impacts to waterways were minimized during the EIS process from 67.2 acres to the 47.6-acre loss identified for the Project. Minimizing wetland and waterways impacts will be further evaluated by the Airport during the final design process, and will consider actions such as steepened side slopes, reconfiguring the relocated UPS facility, and reducing the area of the fire training facility.

Relocating the Sunoco Pier (extending the existing Fort Mifflin Pier to the west and associated dredging) will also require permitting under these state and federal wetlands programs, and would require that the Sunoco Submerged Lands License Agreement and other relevant permits be updated. A Submerged Lands License Agreement will also be required for the fill in the Delaware River associated with construction of the new runway.

### 9.9. Coastal Zone

The Airport is entirely within the Delaware River Estuary Coastal Zone; as a result, the Project is located within the Pennsylvania Coastal Zone and near-shore areas of the Delaware River in Pennsylvania. In 2007, NOAA approved New Jersey's request to expand the geographic area for the New Jersey Coastal Management Program (CMP) consistency review (for projects that require a USACE Section 10 or Section 404 Permit) to include the Delaware River in Pennsylvania.

As detailed in Section 5.10 of the FEIS, the Pennsylvania and New Jersey CMPs will not make consistency determinations on the Project until the Section 404 permitting process occurs. However, the FAA has reviewed both the Pennsylvania and New Jersey coastal zone programs and believes that it has demonstrated in the FEIS that the Project and its connected actions are consistent with both states' coastal zone programs. Therefore, the FAA has concluded that the Project will not result in significant coastal zone impacts.

### 9.10. Water Quality

PHL is within the watershed of the Schuylkill River and the Delaware River and within the review area of the New Jersey Coastal Plain Sole Source Aquifer. PA DEP considers the Delaware River impaired by PCBs and the Schuylkill River impaired by metals, Dissolved Oxygen (DO), Biological Oxygen Demand (BOD), and PCBs.<sup>39</sup>

The Project will have a negligible adverse effect on surface water quality as a result of increasing the amount of pavement for runways and associated taxiways. This will slightly increase the Airport's use of deicing compounds on the runways and taxiways, which could result in low oxygen concentrations in winter in the on-airport waterways. Additional deicing of runways and taxiways is expected to have a negligible effect on groundwater quality. The increased pavement area will also reduce groundwater recharge at the Airport. However, because the relatively impervious fill materials result in low recharge under baseline conditions, the Project is not anticipated to affect the Sole Source Aquifer. The proposed new fill materials will be similar in composition and permeability characteristics to the existing surface materials which overlay the aquifer and restrict recharge.

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39 Pennsylvania Department of Environmental Protection, 2006 *Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, 1 January 2007.

The Project can be designed to meet state water quality standards, and would improve water quality in stormwater discharged from the airport with the addition of appropriate stormwater management and treatment BMPs. The Airport's current National Pollutant Discharge Elimination System (NPDES) permit will be revised to incorporate the new stormwater conveyance and treatment systems, as well as the updated glycol capture systems, and would ensure that discharges from the Airport complied with state water quality standards. The FAA has concluded that the Project will not result in significant impacts to water quality.

### **9.11. Floodplains**

The entire PHL property is within the 100- or 500-year tidal floodplains of the Delaware River, which covers extensive areas in Pennsylvania, New Jersey, and Delaware. This broad floodplain includes industrial, commercial, transportation, and agricultural land uses. Although the Airport is within the mapped floodplain, it has never been flooded, as a result of tide gates and other barriers between the airfield and the Delaware River.

The Project will impact 347 acres within the 100-year floodplain, with a net loss of 277 acre-feet of flood storage (see Figure 5.12-1 of the FEIS). Analysis cannot be done on the 500-year flood plain because the upper limit of the 500-year flood elevation is not known.

These impacts are unavoidable, as the entire runway system of the Airport is within the floodplain. However, because the project area is subject only to tidal flooding of the Delaware River, development in the project area would not increase the 100-year flood elevation because tidal flooding occurs over a wide, unconstrained area. The Project will not result in a significant encroachment on the Delaware River floodplain, and there will be only minor impacts to natural and beneficial floodplain values, if any. Additionally, the Project will not create a barrier or restriction to flood flows in the Delaware River.

### **9.12. Biotic Communities**

Biological diversity (biodiversity) is an assessment of the numbers, types, and relative abundance of plant and animal species in natural communities. Biodiversity encompasses species richness as well as the genetic differences among individuals, abundance or rarity of species in a landscape, and the variety of habitats, communities, ecosystems, and landscapes where species occur. The concept of biodiversity is a combination of the connections within, between, and among these levels, and how the interrelated elements sustain the system as a whole. For the EIS, biodiversity is described primarily in terms of important wildlife and vegetation communities and state-listed threatened and endangered species that are known to occur in the PHL project area.

PHL contains primarily filled and altered land developed for airport use. In addition to paved areas, this includes upland mowed grassland, brushland/shrubland, uplands and wetlands dominated by common reed, and drainage ditches. Most habitat types within the project area are well-represented locally and regionally, and have low wildlife habitat value because of the lack of cover, low water quality, and active airport wildlife management practices.

The Project will result in the loss of approximately 82 acres of wetlands in the project area, which will have a minor impact on common mammal, bird, reptile, amphibian, and fish species using these habitats. These species will likely disperse to other suitable wetland habitat in the area. These species are opportunistic and highly

adaptable, and the incidental loss of these species from the project area would not cause a detrimental loss of these species from the region. The loss of intertidal emergent wetlands in the project area will not result in a severe loss of this critical habitat given the close proximity and abundance of similar habitat in the John Heinz National Wildlife Refuge.

The Project would affect 24.5 acres of freshwater intertidal and subtidal habitat within the Delaware River. In accordance with the Magnuson-Stevens Fishery Conservation and Management Act (16 U.S.C. Section 1855(b)(2)), as amended, the FAA coordinated with the NMFS during the preparation of the PHL CEP EIS. The NMFS has advised FAA that they consider the loss of more than 0.5 acres of such habitat within this reach of the Delaware River to be a substantial indirect impact to the Essential Fish Habitat located 78.5 river-miles downriver, and to cumulatively affect the ability of the River to support habitat for fish that live in the Delaware River or migrate through the project area to upriver spawning areas.<sup>40</sup> Loss of this riverine habitat is not a significant adverse effect because the filled areas of the river provide poor quality habitat for these fish species, but FAA has agreed to work with NOAA to identify any potential loss of functionality and potential mitigation to replace any loss of functionality.

Several wetlands and waterways affected by the Project provide habitat for state-listed bird species and amphibian and reptile species (particularly the red-bellied turtle). The Project will have a significant impact at the state level on six of these protected species because it will substantially reduce or eliminate the breeding and forage habitat available in the project area for these species.

Additionally, intertidal mudflats located along the Delaware River contain numerous state-listed threatened and endangered plant species. The Project will impact approximately 6.8 acres of mudflat habitat (approximately 12.6 percent of the total habitat). Because some of these populations are already small and may be eliminated from the project area, there will be a significant impact to these species, at the state level.

FAA has determined that there would be a moderate to substantial impact to eight state-listed species, and a significant impact to four state-listed species (red-bellied turtle, eastern mud-minnow, sedge wren, and least bittern). Mitigation, in the form of habitat creation or restoration, will reduce the magnitude of these impacts.

Impacts to biotic communities associated with the Project are illustrated in Figures 5.13-1, 5.13-3, 5.13-4, 5.13-5, and 5.13-6 of the FEIS.

### **9.13. Federally Threatened, Endangered, and Protected Species**

The ESA provides for the conservation of ecosystems upon which threatened and endangered species of fish, wildlife, and plants depend, both through the federal action and by encouraging the establishment of state programs.<sup>41</sup> Section 7 of the ESA requires federal agencies to ensure that any action authorized, funded, or carried out by a federal agency is not likely to jeopardize the continued existence of listed species or modify their critical habitat. The American bald eagle is currently protected under the Bald and Golden Eagle Protection Act and the Migratory Bird Treaty Act.

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<sup>40</sup> Meeting notes, call between FAA and NMFS to discuss essential fish habitat in the Delaware River, 13 September 2010.

<sup>41</sup> 16 U.S.C. Sections 1531-1544

The federally-listed shortnose sturgeon and the protected American bald eagle are potentially present in the vicinity of the Airport. The NMFS concurred that the Project will not adversely affect the shortnose sturgeon. The USFWS has concurred that bald eagle nests will not be affected by changes in the frequency, altitude, routing, and type of aircraft traveling in proximity to nests. Thus the Project will not have a significant impact on threatened, endangered, and protected species.

#### **9.14. Historical, Architectural, Archaeological, and Cultural Resources**

Section 106 of the National Historic Preservation Act of 1966, as amended, requires federal agencies to consider the effects of their undertakings on properties listed, or eligible for listing, in the National Register of Historic Places (NRHP).

The FAA finds that the Project will have no adverse effect on historic resources. The Project will not result in any direct physical impacts to historic resources, because it will not destroy, damage, alter, or remove any property, nor will it change the physical features within the physical setting of any property that contributes to its historic significance. Although the Project will result in noise increases at several historic resources in Pennsylvania (Marine Barracks - Philadelphia, The Lazaretto, Governor Printz Park and Landing [The Printzhof], Corinthian Yacht Club, and Reading Railroad's Chester Branch, Philadelphia Naval Shipyard Historic District, and Westinghouse Electric and Manufacturing Company's South Philadelphia Works) and a noise increase at part of one historic resource in New Jersey (Soupy Island Sanitarium Playgrounds) (see Figures 5.16-2 and 5.16-3 of the FEIS) these properties are not noise-sensitive and changes will not alter the character-defining features of these properties. The State Historic Preservation Officers (SHPOs) of Pennsylvania (May 2, 2008) and New Jersey (February 8, 2008) agreed with this finding. One historic resource in the study area is a noise-sensitive area, the Arden Historic District in Delaware. Because the Ardens are primarily residential, FAA applies the 65 dB DNL residential compatibility level. Noise will decrease from less than 53 db DNL to less than 51 db DNL in the Ardens as a result of the Project. The Delaware SHPO disagrees with the use of 65 dB DNL as a threshold of impact on a historic property, but acknowledged that noise levels over the historic Ardens district will decrease under the Project.

The Project will affect areas potentially containing archaeological resources in some upland areas, and potentially in the Delaware River for the relocated Sunoco Pier. These areas were not accessible for survey during the EIS and consultation processes. By Memorandum of Agreement with the Pennsylvania Historic and Museum Commission (the director of which is the Pennsylvania State Historic Preservation Officer), City of Philadelphia, and the FAA,<sup>42</sup> additional archaeological surveys will be conducted in these areas prior to construction, to further evaluate impacts to archaeological resources and to determine appropriate mitigation measures if archaeological resources are encountered.

The Project will not cause a significant impact on historic, archeological, architectural, and cultural resources.

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<sup>42</sup> The New Jersey and Delaware SHPOs were invited to be party to this MOU but declined.

#### 9.15. Hazardous Materials and Solid Waste

This section identifies the potential impacts that may occur as the result of existing or potential releases and regulated materials in the project area. Impacts were characterized by comparing the Project with known locations and nature of the areas of concern (potential and confirmed sources of subsurface contamination and/or waste materials) in the vicinity of the project area. Known release areas of concern in the project area are identified on Figure 5.18-1 of the FEIS.

Several potential sources of soil or groundwater contamination are located within or adjacent to the project area, such as the former Hog Island Shipyard; dredge sediment and fill materials; known releases of petroleum products; existing and former aboveground and underground storage tanks; underground pipelines; and asbestos-containing asphalt. Construction activities associated with the Project may encounter contaminated soils, sediments, or groundwater, or may generate regulated and hazardous wastes. If contaminated soils are discovered during construction, the FAA will take the appropriate steps to ensure proper treatment of those soils. The Project will place additional fill materials above the capped Enterprise Avenue Landfill, which may compromise the integrity of the remediation, including the landfill cap and the groundwater monitoring system, and could cause the release of hazardous substances to groundwater. There is currently a USEPA Administrative Consent Order in place covering the Enterprise Avenue Landfill and any activity that could affect the integrity of the remedy requires USEPA review and approval. The City will work with USEPA to ensure that integrity of the landfill cap and the monitoring system are maintained.

#### 9.16. Light Emissions and Visual Impacts

According to FAA Order 1050.1E, FAA must consider the extent to which any lighting associated with any action will create an annoyance among people in the vicinity or interfere with their normal activities.

The relocated UPS facility associated with the Project will have general lighting provided by exterior wall-mounted flood lights on both the landside and airside at the loading dock areas. Task lighting will be provided, as needed, with portable fixtures. The employee parking lot will have pole-mounted area lighting, with one to four fixtures each, at an approximate height of 30 feet. The proposed facility will be approximately 500 feet south and east of existing residential developments in Tinicum Township. FAA encourages UPS to appropriately screen its facilities from surrounding residences.

The lighting fixtures will include downcast hoods to avoid light propagation to the neighboring areas. Impacts to surrounding areas will be minimal due to the nature of the facility and its proximity to existing airport facilities with similar functions. The use of low-glare lights angled downward for access roads and parking will also reduce any impacts. The relocated lighting systems for the Project will not cause annoyance or interfere with normal activities; therefore, the Project will not result in significant light emissions impacts.

#### 9.17. Construction Impacts

Upon approval of this ROD, the City will initiate pre-construction activities, including land acquisition, permitting, and final design, prior to initiating construction in 2013. The total period for the phased construction is approximately 13 calendar years, between 2013 and 2025.

Anticipated temporary/transient project-related impacts during construction are summarized below.

- Due to changes in aircraft operations during construction, the Project will result in a net decrease of approximately 1,000 to 1,500 people (373 to 678 housing units) exposed to aircraft noise above 65 dB DNL at the midpoint of construction (in the 8<sup>th</sup> calendar year of construction).<sup>43</sup>
- Temporary construction-related noise impacts are expected to occur in the closest communities to the Airport during various periods throughout the construction period. Increases in noise exposure greater than 1.5 dB DNL above 65 dB DNL are expected at the closest residential areas in Tinicum Township, Pennsylvania, west of the Airport. These increases will be limited to the second calendar year of construction, when construction activities are expected to occur in the areas closest to these homes. The potential for outdoor speech interference may occur periodically at these same locations, as well as in portions of Philadelphia north of the Airport, at the Fort Mifflin Historic Site, and in Paulsboro, New Jersey, throughout the construction project.
- Temporary construction-related air quality impacts will result from direct emissions from on site construction equipment, over-road construction equipment, construction worker commuting vehicles, and asphalt paving, as well as from additional aircraft emissions associated with delays that will result from the airfield being constrained by construction activity. The aircraft delay emissions also include emissions from auxiliary power units (APUs) used by aircraft delayed at gates while waiting for departure clearance, and emissions from aircraft delayed on taxiways while waiting for runway clearance. Construction-related emissions will exceed the *de minimis* thresholds for VOC and NO<sub>x</sub> for the Project, as discussed in Section 9.7, these emissions will be offset so that the Project conforms with the state air quality implementation plan pursuant to Section 176(c) of the Clean Air Act. Purchased emissions credits will ensure that the Project does not create a significant impact to air quality during construction.
- Water quality impacts during construction (soil erosion, deposition of sediment in airport waterways, discharge of iron-contaminated water) will be minimized by implementing sediment and erosion controls and appropriately designed dewatering measures during construction phases of the CEP.
- Subsurface contamination or waste materials encountered during construction in the Delaware River or dredging for the Sunoco Fort Mifflin Pier extension will be first identified and then mitigated (see Section 10.10 of this ROD).
- Construction may result in temporary, short-term impacts to the habitat of state-listed wildlife species (red-bellied turtles) due to temporary changes to water quality caused by increased erosion and sedimentation and operation of construction equipment.
- No temporary impacts due to additional or rerouted traffic resulting from construction activities are expected. Minor construction impacts are expected to occur during implementation of intersection improvements. These impacts would be short-term.

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<sup>43</sup> Construction year 8 was evaluated because it was assumed to be the most disruptive construction period because the fewest runways would be operational, airfield delays would be greatest, and the maximum amount of construction equipment would be in use.

### **9.18. Cumulative Impacts**

Under NEPA regulations (40 C.F.R. § 1508.7), cumulative impacts are defined as “the impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions.” In analyzing cumulative effects in the EIS, a time span from approximately 1980 through 2030 in an appropriate geographic scope was considered for each resource. The analysis for each affected resource examined whether the incremental effect of the Project will result in a serious deterioration of the resource, cause the cumulative effect to exceed any regulatory threshold or threshold of significance, or affect the structure or function of the human community within the study area.

In 2007, the FAA completed an EIS and ROD for the New York/New Jersey/Philadelphia Metropolitan Airspace Redesign project (Airspace Redesign project). The purpose of the project is to increase the efficiency and reliability of the airspace structure. It will not alleviate all weather-related delays at PHL, nor will it increase airport capacity or efficiency. The airspace redesign project complements the CEP but it does not replace it. Even with the airspace efficiency gains, additional airfield capacity is needed at PHL to operate under all weather conditions.

After the FEIS was published, but prior to the publication of the ROD, the FAA announced a proposed modification to Class B airspace in the Philadelphia-area (75 Federal Register 74127, November 30, 2010). The proposed modification to the Class B Airspace in the PHL area pertains to the requirements for air to ground communications and the requirement for transponders. If implemented, this modification will not affect the CEP.

As noted in Section 2.2.2 of the FEIS, the cumulative effects of the Airspace Redesign project on PHL were taken into consideration for the CEP EIS analysis. The CEP EIS analysis assumed full implementation of Airspace Redesign project because, based on Airspace Redesign project phasing plans, any changes to the airspace around PHL will be in place by the time CEP construction is complete. For more detail, see Section 5.2.2 of the FEIS.

The FEIS Chapter 5 contains a discussion of the cumulative impacts for each of the impact categories analyzed in the FEIS. The Project will not have any significant cumulative impacts.

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## 10. Mitigation

Mitigation measures are included in this section for all significant adverse impacts that would result from the Project. Mitigation necessary to address permitting requirements for some impacts that are not significant, is also included. The mitigation measures address impacts that are both temporary in nature (occurring during construction) and permanent. The City of Philadelphia has agreed to implement the mitigation measures described herein.

As discussed in detail in Section 11 of this ROD, Conditions of Project Approval, the FAA is conditioning approval of the Project upon these measures through the airport layout plan and any future federal funding. The FAA may also take appropriate steps through contract plans and specifications to ensure these measures are undertaken. FAA will further monitor the implementation of these mitigation measures as necessary to assure they are carried out as Project commitments. These measures constitute all reasonable steps to minimize harm and constitute all practicable means to avoid or minimize environmental harm from the Project and proposed federal actions, as required by 49 U.S.C. Section 47106(c)(1)(B). Table 10-1 summarizes the mitigation requirements. More detailed information on mitigation can be found in Chapter 6 of the FEIS.

The mitigation requirements discussed in this section of the ROD and in Chapter 6 of the FEIS were developed in accordance with applicable federal and state requirements and in consideration of state and local guidelines. The concerns of the public and government agencies were also considered. Mitigation measures for the Project include design measures to avoid or reduce impacts, and measures to replace or restore lost resources and their functions.

**Table 10-1 Summary of Mitigation Measures Required for Significant and Other Impacts**

<b>Resource</b>	<b>Reason Proposed<sup>1</sup></b>	<b>Mitigation Measure</b>
<b>Noise</b>	A	Sound attenuate eligible residential housing units and one non-residential receptor.
<b>Compatible Land Use</b>	A	In areas newly within the 65 dB DNL contour, the Sponsor will adopt appropriate land use and development controls to protect against the development of incompatible land uses in the City of Philadelphia and will encourage Tinicum Township/Delaware County, Pennsylvania to adopt appropriate land use controls and development controls to protect against the development of incompatible land uses.
<b>Social and Economic Environment</b>	B	The relocation of businesses and homes will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. Sections 4601-4655).
<b>Surface Transportation</b>	B	In coordination with state and local highway officials, implement roadway design refinements to reasonably minimize possible UPS traffic through Tinicum Township.  If required, conduct coordination with the Surface Transportation Board prior to reactivation of the abandoned track segment.
<b>Air Quality</b>	B	Implement the following measures to reduce or offset air emissions to achieve General Conformity: <ul style="list-style-type: none"> <li>■ Construction Period Emissions: <ul style="list-style-type: none"> <li>Use AERCs to offset NO<sub>x</sub> emissions during the construction period.</li> <li>Purchase necessary ERCs to offset emissions during the construction period.</li> <li>Require the use of clean diesel specifications in accordance with the City of Philadelphia EO 1-07.</li> <li>Prohibit truck idling and require idle-time limiters on construction equipment.</li> <li>Establish incentives for construction crews to encourage the use of mass transportation and establish a ride-share program for construction crews with incentives such as preferential parking.</li> <li>Use warm mix asphalt for taxiway projects, as feasible.</li> <li>Incorporate measures to reduce fugitive dust.</li> </ul> </li> <li>■ Operational Emissions: <ul style="list-style-type: none"> <li>Reduce aircraft auxiliary power unit use at gates by providing pre-conditioned air and 400Hz electric power for aircraft.</li> <li>Improve new taxiway designs that facilitate aircraft circulation.</li> <li>Incorporate energy efficiency features to help reduce electricity and heating fuel use.</li> <li>Reduce the use of conventional ground support equipment (GSE) by facilitating the use of electric GSE.</li> </ul> </li> </ul>

<sup>1</sup> A = Impact would be significant in the absence of mitigation; B = Mitigation required for regulatory compliance.

**Table 10-1 Summary of Mitigation Measures for Significant and Other Impacts (continued)**

<b>Resource</b>	<b>Reason Proposed<sup>1</sup></b>	<b>Mitigation Measure</b>
<b>Wetlands and Waterways</b>	B	<p>Implement design modifications to minimize unavoidable impacts (81.7 acres of jurisdictional and non-jurisdictional wetlands, 23.1 acres of waterways, and 24.5 acres of the Delaware River).</p> <p>Provide compensatory mitigation through restoration, enhancement, or replacement of lost functions with the goal of restoring or creating at least 81.7 acres of wetlands providing state-listed species habitat, wildlife habitat, floodflow alteration, and sediment/toxicant retention.</p> <p>If possible, while also maintaining safety and security measures, incorporate public access to the Delaware River at mitigation sites.</p>
<b>Water Quality</b>	B	<p>Meet PA DEP water quality standards for waterbodies in the study area during and after construction.</p> <p>Meet the requirements of the Pennsylvania Stormwater Management Act during and after construction.</p> <p>Meet the requirements of the Philadelphia Water Department design requirements.</p> <p>Repair the tidegates that control flow to the Delaware River.</p> <p>Implement BMPs during construction as part of a Stormwater Pollution Prevention Plan. Incorporate water quality measures into design of the Project, including:</p> <ul style="list-style-type: none"> <li>■ Vegetated swales and other detention/infiltration measures,</li> <li>■ Oil/water separators,</li> <li>■ Glycol capture/recycling facility,</li> <li>■ Hoods and deep sumps in catch basins, and</li> <li>■ Controlled discharge through outfalls and tide gates.</li> </ul>
<b>Biotic Communities</b>	A	<p>Implement design modifications to minimize unavoidable impacts (loss of 60.7 acres of state-listed fish habitat, 72.7 acres of state-listed turtle habitat, and 0.4 acres of state-listed bird nesting habitat).</p> <p>Develop and implement mitigation plans for affected species (Three-spined stickleback, Eastern mudminnow, sedge wren, least bittern, red-bellied turtle, and intertidal mud flat plant species) including:</p> <ul style="list-style-type: none"> <li>■ Conducting pre-construction survey (including updated information on the distribution and abundance of protected species),</li> <li>■ Identifying suitable habitat for relocation,</li> <li>■ Relocation/transplant protocols,</li> <li>■ Long-term monitoring and management program, and</li> <li>■ Permanent protection mechanisms.</li> </ul> <p>Develop and implement a mitigation program for significant impacts to state-listed plant species by a qualified botanist in consultation with the appropriate natural resource agencies.</p> <p>Replace lost fisheries habitat functions associated with approximately 24.5 acres of Delaware River intertidal and subtidal habitats.</p>

<sup>1</sup> A = Impact would be significant in the absence of mitigation; B = Mitigation required for regulatory compliance.

**Table 10-1 Summary of Mitigation Measures for Significant and Other Impacts (continued)**

Resource	Reason Proposed <sup>1</sup>	Mitigation Measure
Archaeological Resources	B	<p>Adhere to the project-specific Memorandum of Agreement requirements to conduct necessary archaeological investigations, and if required conduct mitigation, prior to construction.</p> <p>Monitor construction activities for previously-undiscovered resources or sites.</p>
Hazardous Materials and Solid Waste	B	<p>In accordance with the requirements of the Administrative Order by Consent (AOC), coordinate with USEPA during the preliminary and final design with regard to impacts to the Enterprise Avenue Landfill. Seek and obtain the USEPA's approval before initiating construction activities that would impact the remedy and on-going groundwater monitoring at the Enterprise Avenue Landfill.</p> <p>Maintain the effectiveness of the Enterprise Avenue Landfill remediation (cover) and groundwater monitoring systems throughout and after construction, in accordance with PA DEP permitting requirements and the USEPA AOC.</p> <p>If contaminated soils are discovered during construction, undertake appropriate steps to ensure proper treatment of those soils.</p>
Construction Impacts <sup>2</sup>	See note <sup>3</sup>	<p>Reduce temporary noise impacts from construction vehicle operations, vehicle loading/unloading, and routing construction vehicles on non-residential streets.</p>
	A	<p>To reduce human exposure to hazardous materials during construction, implement BMPs, conduct preliminary investigations and implement erosion and sedimentation controls, to mitigate subsurface contamination or waste materials encountered during construction in the Delaware River.</p>
	A	<p>To reduce impacts to state-listed wildlife species (red-bellied turtles), implement BMPs such as sediment traps and silt fences, monitoring during construction, and temporarily relocating turtles.</p>

<sup>1</sup> A = Impact would be significant in the absence of mitigation; B = Mitigation required for regulatory compliance.

<sup>2</sup> Air quality impacts during construction are listed under air quality (Section 9.7 of this ROD).

<sup>3</sup> Required by FAA Advisory Circular (AC) 150/5370-10E, *Standards for Specifying Construction of Airports*.

### 10.1. Noise

The Airport currently has an established Residential Sound Insulation Program (RSIP). Initiated by the Airport following the FAA's approval of the PHL *Part 150 Noise Compatibility Program* in 2003, the RSIP has provided sound attenuation treatments to 291 housing units primarily in Tinicum Township, Pennsylvania.<sup>44</sup>

The Project will result in significant noise impacts to residential housing units and one place of worship. Mitigation for noise impacts consists of providing sound attenuation for those that experience a significant noise impact as a result of the CEP. Figure 10-1 identifies housing units that will experience significant impacts under the Project and, therefore, will be eligible for mitigation.

Residential housing units that will experience significant impacts resulting from development and operation of the Project that have not already received sound attenuation treatments under the City's existing RSIP, will be sound attenuated. The Sponsor will ensure sound attenuation through either the FAA-approved Part 150 Study or an independent program. The number of residential housing units requiring sound attenuation in each future forecast year takes into account the location and number of housing units that have already been sound attenuated in the existing RSIP. The development and operation of the Project will result in a total of 319 housing units significantly impacted by noise in 2025 (207 of which have already been sound attenuated in the existing RSIP), and an additional 105 housing units (31 of which have already been sound attenuated in the existing RSIP) for a total of 186 units eligible for sound attenuation in 2030, which the City will confirm through noise modeling and public participation. The Navy Chapel of the Four Chaplains at the Philadelphia Naval Shipyard in Philadelphia County is also eligible for sound attenuation. Avigation easements will be required on all properties that receive sound attenuation as a result of the CEP or the RSIP.

Table 10-2 and Figure 10-1 detail the housing units significantly impacted by the CEP and those which have already been sound attenuated as part of the existing RSIP.

Residences that fall within the 65 dB DNL contour under the Project, that will not experience an increase of 1.5 dB DNL or greater, are not considered to be significantly impacted; therefore, mitigation in the form of sound attenuation is not required.

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<sup>44</sup> *Philadelphia International Airport: Federal Aviation Regulations Final Part 150 Noise Compatibility Study*, Landrum & Brown Team, June 2002 (approved by FAA on May 20, 2003), Exhibit 4-4, Option LU-1A. The City of Philadelphia is currently updating its Part 150 Study to reexamine the boundaries of its RSIP to accommodate recent operational changes such as the extension of Runway 17-35 and the implementation of the New York-New Jersey-Philadelphia Airspace Redesign project fanned departure headings. However, revisions to the RSIP boundary based on the Part 150 Study Update have not been approved yet by FAA.

**Table 10-2 Summary of Estimated Housing Units Eligible for Mitigation due to Significant Noise Impacts<sup>1</sup>**

<b>2025</b>	<b>Total</b>	
Number of housing units significantly impacted.	319	
Less number of housing units that have already been sound attenuated as part of existing RSIP within CEP areas of significant impact. <sup>2</sup>	207	
Net number of housing units eligible for sound attenuation with CEP.	112	

<b>2030</b>	<b>Incremental</b>	<b>Total</b>
Number of housing units significantly impacted.	105	424
Less number of housing units that have already been sound attenuated as part of existing RSIP within CEP areas of significant impact. <sup>2</sup>	31	238
Net number of housing units eligible for sound attenuation with CEP.	74	186

Source: Philadelphia International Airport, Capacity Enhancement Program, Environmental Impact Statement, Noise Technical Report, September 2008.

1 The City of Philadelphia will confirm the housing units eligible for mitigation through noise modeling and public participation.

2 Philadelphia International Airport Part 150 Noise Compatibility Study, Landrum & Brown Team, June 2002 (approved May 20, 2003), Exhibit 4-4, Option LU-1A. 2 The number of housing units already sound attenuated in the existing RSIP at PHL (approved by FAA in 2003) and also exposed to significant noise impacts as a result of the Project was subtracted from the total number of housing units that would experience significant noise impacts to yield the net number of residences eligible for sound insulation with the CEP.

## 10.2. Land Use Compatibility

Changes in the noise contours associated with the Project will result in noise levels in some areas, particularly west of the Airport, that are not compatible with residential use. The Division of Aviation, in the 2003 *Part 150 Noise Compatibility Study*, developed a Noise Compatibility Program (NCP) that included recommendations for noise mitigation measures that could be undertaken for incompatible land uses. The Airport is currently updating its *Part 150 Noise Compatibility Study*. As part of that update, the Airport will be required to examine noise abatement alternatives for which the implementation authority is a local or state agency. Under Pennsylvania State Planning laws, municipalities have the primary responsibility to regulate land use activities within their jurisdiction through zoning code and subdivision regulations.

Currently, neither the City of Philadelphia nor Tincum Township has specific requirements related to aircraft noise in their zoning or subdivision regulations. However, the City of Philadelphia is required to work with Tincum Township to the best of its ability to advocate compatible land use with the Airport in Delaware County. Additionally, in a letter dated August 10, 2010 (see Appendix C of the FEIS), the City of Philadelphia certified that it will, to the extent reasonable, restrict by zoning or other means, the use of land adjacent to or in the immediate vicinity of the airport (in Philadelphia County) to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. A small portion of the 65 db DNL contour is within Greenwich

Township, New Jersey, however this land is currently zoned Manufacturing District and the existing land use is compatible with those noise levels.

These municipalities may choose to implement several measures to prevent future development of incompatible land uses within areas that will be exposed to noise levels greater than 65 dB DNL. Potential measures include:

- Zoning or rezoning undeveloped areas to prevent development of future incompatible land uses;
- Subdivision controls to prevent future incompatible development;
- Local regulations that require mandatory disclosure to potential developers, real estate agencies, and home purchasers within the 65 dB DNL contour that the property is or will be impacted by aircraft noise; and
- Amending building codes to require noise reduction measures in constructing new buildings or renovating existing buildings.

### **10.3. Social and Economic Impacts**

The Project will require acquisition of 72 existing housing units, in Tinicum Township and 80 existing businesses in Tinicum Township and Philadelphia. The relocation of the businesses and the residents of the housing units will be conducted in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended (42 U.S.C. Sections 4601-4655).

### **10.4. Surface Transportation**

Although development and operation of the Project will not result in significant impacts to surface transportation, changes to the surface transportation network associated with the Project are required to ensure safe and efficient accommodation of surface transportation. The mitigation measures identified in this section will be coordinated with the appropriate local, state, and federal agencies.

To minimize the impact of UPS trucks through residential areas of Tinicum, the access design for the relocated UPS facility will direct UPS trucks leaving the facility to use the relocated Tinicum Island Road toward Scott Way (away from 4th Avenue) and then to SR 291 for regional access. Roadway design refinements will continue to reassess ways to minimize possible UPS traffic impacts through Tinicum, which could include, for example, posting truck restrictions on residential roadways.

The City will conduct any coordination that is required with the Surface Transportation Board prior to reactivation of the abandoned track segment that will replace Conrail's 60th Street Industrial Track along Hog Island Road.

### **10.5. Air Quality**

The emission inventories and dispersion modeling for future-year conditions indicate that total emissions and ambient concentrations will be affected somewhat by the Project improvements when compared to the future No-Action Alternative. However, these changes represent both increases and decreases in emissions and concentrations that vary based on year, pollutant, and location. The demonstrated compliance with the General Conformity Rules ensures that these changes in emissions and concentrations associated with the Project are consistent with the future clean air goals of the area and do not constitute significant adverse affects to air

quality. The City will assist the FAA in demonstrating General Conformity of the Project construction period VOC emissions by using Airport Emissions Reduction Credits (Airport ERCs) they have earned, by purchasing emission offsets in the form of Emissions Reduction Credits (ERCs) and by implementing construction emission mitigation measures.

PHL has been proactively working to reduce emissions at the Airport, and many of these reductions can be applied as mitigation measures through the use of Airport ERCs. These measures include:

- Reducing aircraft auxiliary power unit usage at gates by providing pre-conditioned air and 400Hz electric power for aircraft;
- Improving new taxiway designs that facilitate aircraft circulation;
- Incorporating energy efficiency features to help reduce electricity and heating fuel usage; and
- Reducing the use of conventional GSE by facilitating the use of electric GSE.

Based on conceptual construction phasing plans, the baseline construction emissions of VOC and NO<sub>x</sub> exceed the *de minimis* threshold for General Conformity for a portion of the proposed 13-year construction period. The VOC emissions would exceed the *de minimis* level (50 tons per year or tpy) in construction years 5, 6, and 8. The NO<sub>x</sub> emissions would exceed *de minimis* levels (100 tpy) in construction years 2, 5, and 6. The Draft General Conformity Determination was published on April 27, 2010 and the Final General Conformity Determination was published with the FEIS (as Appendix E) on August 27, 2010.

Through the actions described above to reduce emissions at the Airport, the City has earned VOC and NO<sub>x</sub> AERCs. These AERCs would be applied to the construction years in which the *de minimis* thresholds would be exceeded. Thus, AERCs will be applied for years 5, 6, and 8 for VOC emissions and years 2, 5, and 6 for NO<sub>x</sub> emissions, as show in Table 10-3. With the application of AERCs, VOC emissions in year 8 and NO<sub>x</sub> emissions in years 2, 5 and 8 would be below the respective *de minimis* levels of 50 and 100 tpy and therefore, demonstrate conformity.

As shown in Table 10-3, even with the application of AERCs, VOC emissions in years 5 and 6 would continue to exceed the *de minimis* threshold by 67.0 and 71.5 tpy, respectively. Therefore further measures would be required to demonstrate conformity, such as the purchase of emission offsets, mitigation measures, and/or other conformity options. The City will purchase emissions offsets (emissions reduction credits, or ERCs) to demonstrate conformity. In accordance with applicable New Source Review (NSR) ratios for the area, a 1.3 to 1 emission offset ratio is applied.<sup>45</sup> Therefore, to meet conformity in years 5 and 6, the City has committed to purchase at least 87.2 and 92.9 tons of VOC emission offsets that are valid for construction years 5 and 6, respectively.

In the event that fewer VOC or NO<sub>x</sub> AERCs or are available, or for any reason a different quantity of VOC or NO<sub>x</sub> ERCs are needed to achieve General Conformity, the City will either find ways to ensure conformity or will purchase the necessary quantity of ERCs.<sup>46</sup>

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<sup>45</sup> 25 PA Code Section 127.201(f)

<sup>46</sup> The City of Philadelphia Letter of Commitment to Obtain Airport Emission Reduction Credits and Emission Offsets is included in Appendix B of the General

**Table 10-3 Application of AERCS and ERCS to Demonstrate General Conformity During Construction**

Pollutant	Condition	Construction Year <sup>1</sup>			
		2	5	6	8
VOC	Baseline (Project-Related)	7.7	72.9	77.5	54.5
	AERCs Required? <sup>2</sup>	No	Yes	Yes	Yes
	AERCs to be Applied		5.90	5.95	4.60
	Emissions with AERCs		67.0	71.5	49.9
	Emission Offset Required? <sup>2</sup>	No	Yes	Yes	No
	Emission Offsets to be Purchased <sup>3</sup>		87.2	92.9	
NO <sub>x</sub>	Baseline (Project-Related)	107.3	131.9	134.8	78.2
	AERCs Required? <sup>2</sup>	Yes	Yes	Yes	No
	AERCs to be Applied	7.4	32.0	34.9	
	Emissions with AERCs	99.9	99.9	99.9	
	Emission Offset Required? <sup>2</sup>	No	No	No	No

<sup>1</sup> Based on conceptual construction phasing plans, General Conformity would be achieved without Airport Emissions Reduction Credits (AERCs) or Emissions Reduction Credits (ERCs) in construction years 1, 3, 4, 7 and 9-13.

<sup>2</sup> AERCs and/or ERCs are required if the project-related emissions exceed the *de minimis* level of 50 tons per year of VOC or 100 tons per year of NO<sub>x</sub>.

<sup>3</sup> In accordance with applicable New Source Review (NSR) ratios for the area. The 1.3 to 1 emission offset ratio is the applicable NSR offset ratio for the five-county Philadelphia area (25 Pa. Code Section 127.201(f)).

Source: KB Environmental Sciences, Inc., 2010.

In addition to the application for Airport ERCs and the purchase of emission offsets, the City will implement City-imposed and voluntary construction-related emission reduction measures as noted in the Environmental Stewardship Plan<sup>47</sup> and discussed in more detail in Chapter 6 of the FEIS. These include:

- In accordance with City of Philadelphia EO 1-07 (Climate Protection, Environmental Stewardship and the Office of Sustainability and Environment – Diesel Vehicle Emission Control Requirements), the City will require the use of clean diesel specifications<sup>48</sup> for any diesel engine that has a horsepower greater than 50; and is on the site or is anticipated to be on the site for a period in excess of seven consecutive or non-consecutive days.
- Prohibit truck idling and require idle-time limiters on construction equipment.<sup>49</sup>

Conformity Determination, which is included in the FEIS (Appendix E).

<sup>47</sup> *Philadelphia International Airport, Environmental Stewardship Plan*, Vanasse Hangen Brustlin, Inc., July 2008: pp. 6-22 – 26.

<sup>48</sup> These clean diesel specification include the use ultra low sulfur diesel fuel, and a listed clean diesel technology for reducing the emission of pollutants for diesel-powered non-road vehicles. Listed technologies include: diesel retrofits or vehicles listed by the USEPA as meeting “Tier 4” emissions requirements. Retrofit emission control devices consist of: diesel oxidation catalysts, diesel particulate filters, closed crankcase technologies, flow-through filters, emissions upgrade groups, selective catalytic reduction, or similar retrofit equipment control technology that: (a) is included on the USEPA Verified Retrofit Technology List or the CARB Currently Verified Technologies List, and (b) is listed by USEPA or CARB as providing a minimum emissions reduction of twenty percent of PM<sub>10</sub> in the application for which it is verified. Engine repowers may also be used if the contractor can provide documentation from the technology vendor that the new equipment reduced PM<sub>10</sub> emissions by 20 percent or more.

<sup>49</sup> Diesel powered engines shall not be allowed to idle for more than five consecutive minutes in a 60-minute period when the equipment is; not in use, occupied by an operator, or otherwise in motion, with the following exceptions:

- Establish incentives for construction crews to encourage the use of mass transportation and establish a ride-share program with incentives such as preferential parking.
- Use warm mix asphalt for taxiway projects, as feasible.

The Sponsor will also implement the following mitigation measures to reduce fugitive dust emissions during construction of the Project:

- Pave construction access roads to minimize fugitive dust emissions from construction traffic.
- Use dust suppression agents/techniques to minimize airborne entrainment.
- Traffic speeds on unpaved roads shall be minimized.
- Install wash downs for construction vehicles prior to use of the general roadways.
- Install rumble strips to remove soil from construction vehicles prior to use of the general roadways.
- Create a regularly scheduled street sweeping program and a system to address problem areas as they arise.
- Use covers on haul trucks.

#### **10.6. Wetlands and Waterways**

Modifications to the Project to avoid direct impacts to the wetlands and waterways were determined to be not practicable. Wetlands and jurisdictional waterways occur throughout the southern portion of the Airport, and along the north and south sides of Runway 8-26. Modifications to the airfield, including adding a fourth parallel runway (new Runway 9R-27L) cannot be made without wetland and waterways impacts. Alternative C, which would have avoided impacts to the Delaware River, was determined to be not practicable to construct, as documented in Section 3.4 of the EIS. The only alternative that would avoid impacts to wetlands is the No-Action Alternative, which does not meet the project purpose and need.

The National Marine Fisheries Service requested information on the construction method for the Runway 9 End in the Delaware River to make a determination as to the effect on the shortnose sturgeon (See Figure 9-4). In response, the City stated that the assumed method would be solid fill. At this time, it is expected that the area of fill will be enclosed with steel sheeting (a cofferdam) that will be supported by steel piles, that the area will be dewatered and excavated and that a solid fill structure will be constructed behind the sheeting, which will be left in place. Sunoco is responsible for extension of its Fort Mifflin Pier and the construction method (solid fill, cofferdam or pilings) will be determined by Sunoco for the pier as part of the final design and permitting process.

During the design phase of the CEP, the City will evaluate methods to avoid and minimize impacts to wetlands from the Project to the extent practicable, including measures such as steepened side slopes, reducing the

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- When equipment is forced to remain motionless because of traffic conditions or mechanical difficulties over which the operator has no control,
  - When it is necessary to operate auxiliary systems installed on the equipment, only when such system operation is necessary to accomplish the intended use of the equipment,
  - To bring the equipment to the manufacturers recommended operating temperature,
  - When the ambient temperature is below 40 degrees Fahrenheit or above 80 degrees Fahrenheit, or
  - When equipment is being repaired.

footprint of the fire training facility, and reconfiguring the relocated UPS facility. The City will continue to consult with the USACE, the PA DEP and other appropriate resource agencies when developing ways to minimize effects of the fill.

Because the Project results in unavoidable impacts to wetlands and waterways, compensatory mitigation measures are required to meet FAA, USACE, and PA DEP requirements of no loss of wetland area and/or functions. These compensatory mitigation measures will include on-site or off-site restoration and/or creation of wetland and waterway habitat and/or function; purchase of credits through an established wetland mitigation bank; and/or improvement of existing function and value. According to Pennsylvania Code Chapter 105 guidelines and PA DEP guidelines, required wetland replacement generally has a minimum of at least 1:1 ratio. Section 105.20(a)(3) requires that wetlands be replaced within the Coastal Zone. There is no defined ratio for waterway replacement or creation. Mitigation goals have been approved by the natural resource and regulatory agencies, and are summarized below. The final mitigation plan would be coordinated with the USACE and the PA DEP during final design, in accordance with the federal 2008 Final Rule on Compensatory Mitigation for Losses of Aquatic Resources (33 C.F.R. Parts 325 and 332) and the Pennsylvania Code Title 25, Chapter 105.20(a).

The minimum mitigation requirements for the Project include:

- 81.7 acres of vegetated wetland, of which 66.1 acres would be palustrine (freshwater non-tidal); and 15.6 acres would be riverine (freshwater tidal).
- Replace lost functions of state-listed endangered species habitat, flood flow alteration, sediment/toxicant retention, and fish and shellfish habitat (riverine).
- Replace 23.1 acres of non-tidal waterways providing state-listed endangered species habitat, flood flow alteration, sediment/toxicant retention, and fish and shellfish habitat.
- Replace lost fisheries habitat functions associated with approximately 24.5 acres of Delaware River intertidal and subtidal habitats.

The PA DEP and the USACE may require compensatory mitigation for wetlands impacts at a ratio of greater than 1:1, depending upon the type of mitigation proposed. As shown in the table in Attachment G of this ROD, a sufficient range of feasible mitigation sites exist to satisfy the Project's mitigation requirements. The City has been working to advance the wetlands mitigation planning and Attachment G to this ROD provides updated data on the wetlands mitigation sites that are listed in Table 6.6-2 of the FEIS. In addition, the USACE requires a perpetual deed restriction, conservation easement, or similar land protection mechanisms for mitigation sites to assure their continued protection. During the final design process, the City will continue to coordinate with the resource agencies to develop a mitigation plan that meets federal and state requirements.

Mitigation measures that will compensate for the loss of wetland and waterways functions and values include restoring historically-filled wetlands, restoring degraded wetlands to enhance or restore functions, creating compensatory wetlands in areas that are currently uplands, preserving wetland-upland complexes that provide important functions, and out-of-kind mitigation measures to protect or improve water quality. Because the lost wetland areas are within Pennsylvania's Coastal Zone, replacement of wetland functions within the Coastal Zone will be given priority over replacement of functions in inland locations, although locations within the

watershed of the Delaware and Schuylkill River outside of the Coastal Zone are considered. In addition, to the extent practicable, the City will consider public access to the shoreline in the design of coastal wetland mitigation areas.

Twenty potential wetland mitigation sites have been identified, in consultation with the resource agencies, and are listed in Attachment G of this ROD. There are sufficient opportunities for wetland mitigation within the Pennsylvania Coastal Zone that meet the minimum mitigation goals of the CEP. These sites are primarily restoration of historically-filled wetlands and enhancement of functions in degraded wetlands. These potential mitigation measures will be further refined and specific mitigation site designs and commitments will be developed in coordination with the regulatory and permitting agencies. It is likely that the City of Philadelphia, as a condition of the Section 404 permit, will be required to use an environmental monitor during construction in wetland areas, and during construction of wetland mitigation areas, to monitor compliance with permit conditions.

### **10.7. Water Quality**

While the Project will have no significant impact on water quality, mitigation measures will be implemented to ensure compliance with the requirements of the state and federal permitting process, and to ensure that water quality is not degraded as a result of the CEP. FAA Order 1050.1E standards require projects to meet state water quality standards, to result in no special water-related problems, and to meet the requirements of any permits necessary for a project's construction and operation.<sup>50</sup>

The Project will meet PA DEP water quality standards for water bodies in the study area, which address alkalinity, dissolved oxygen, iron, osmotic pressure, pH, temperature, and total residual chlorine.<sup>51</sup> The project will also meet the requirements of the Pennsylvania Storm Water Management Act, which include maintaining a stormwater management plan for the site and either assuring that post-construction peak flows match baseline conditions or managing the quantity, velocity, and direction of discharges to protect both health and property from injury. Mitigation measures used within the City of Philadelphia will also conform to the Philadelphia Water Department's design requirements for water quality and channel protection.

Mitigation measures to minimize the effects of increased airport pavement and operations on the water quality in receiving waters (the Schuylkill River and Delaware River) will be incorporated into the design to minimize impacts from the reconstructed airport following construction. These include vegetated swales and vegetated buffers to promote infiltration and reduce sediment, metal, nutrient, and bacteria loads. The City will repair the tidegates that control flow to the Delaware River to provide more control over detention times, improving water quality. Other design features for parking lots and roads will include sediment traps and structural BMPs that would reduce pollutant loading.

Construction dewatering will likely require additional mitigation measures and proper handling of the dewatering discharge, as well as a permit from the PA DEP. Contaminated dewatering discharge will be stored

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<sup>50</sup> FAA Order 1050.1E, Appendix A, Section 17.4a, Pages A-74 – A-76.

<sup>51</sup> *Pennsylvania Code Title 25, Chapter 93 Water Quality Standards*. Pennsylvania Department of Environmental Protection. October 8, 1979.

and disposed of in accordance with Title 25, Chapter 95 of the Pennsylvania Code, in coordination with the PA DEP.

### **10.8. Biotic Communities**

Minimizing impacts to state-listed species habitats will be investigated during the final design phase, and will consider measures such as steepened side slopes, reducing the footprint of the fire training facility, and reconfiguring the relocated UPS facility. During final design, FAA will determine, taking safety into consideration, whether portions of the existing ponding ditches can remain in place as open channels and be designed to provide habitat for red-bellied turtles and eastern mudminnows. If these ditch segments remain in place, currently culverted segments could be converted to open channels when taxiways are relocated.

For each affected species (three-spined stickleback, eastern mudminnow, sedge wren, least bittern, red-bellied turtle, and intertidal mud flat plant species), a mitigation plan will be developed and implemented. An intensive pre-construction survey will be undertaken to provide detailed and updated information on the distribution and abundance of the species within the affected habitats. This information will be used to prepare the final mitigation protocols, which will include the identification of suitable habitat for relocation, and to design post-construction monitoring protocols, and permanent protection measures. It is likely that, as a requirement of the PA DEP permit, the City of Philadelphia will be required to use an environmental monitor during construction in sensitive habitat areas.

The mitigation program for significant impacts to state-listed plant species will be developed for the Airport by a qualified botanist in consultation with the appropriate natural resource agencies (Pennsylvania Department of Conservation and Natural Resources). A long-term monitoring and management program will be developed and implemented to measure success, and to identify remedial measures that may be required to maintain the targeted habitat characteristics.

A mitigation program for intertidal and subtidal fish habitat will be developed for the Airport by a qualified fisheries biologist in coordination with NOAA-NMFS. The mitigation measures will be based on an assessment of the fisheries habitat functions provided by the filled areas within the Delaware River.

### **10.9. Archaeological Resources**

The EIS identified four land parcels that would be affected by the Project that are sensitive for terrestrial archaeological resources for which the private property owners would not provide permission to conduct archaeological investigations during the EIS. In addition, one underwater target was identified for monitoring.

Additional studies required to assess, avoid, or mitigate archaeological resources in these areas are stipulated in a project-specific Memorandum of Agreement (MOA) between the FAA and the Pennsylvania State Historic Preservation Officer (PA SHPO), with the City of Philadelphia as a concurring party. The purpose of the MOA is to monitor the underwater target and to conduct Phase I archaeological investigations on the four terrestrial parcels. The MOA stipulates that if any intact cultural resources are identified during the Phase I investigations, and if their eligibility for listing on the NRHP cannot be determined on the basis of Phase I data, then Phase II evaluations will be conducted. The MOA also stipulates that if resources are present and deemed NRHP-eligible, a Phase III data recovery plan will be implemented. The final MOA has been accepted and signed by the FAA, PA SHPO, and the City of Philadelphia, and can be found in Attachment B of this ROD.

#### 10.10. Hazardous Materials and Solid Waste

Mitigation measures will be required for impacts to the former Enterprise Avenue Landfill, a landfill which has been capped, for which groundwater remediation has occurred, and where an active groundwater monitoring program is on-going. The Project will require placing a substantial amount of fill material (55 feet in depth) over the landfill for the extension of Runway 8-26, and will likely require that the landfill cap and groundwater monitoring system be reconstructed.

The City, under the AOC for Removal Action (June, 2002) is responsible for maintaining the effectiveness of the Enterprise Avenue Landfill remedy (cover) and for continuing to monitor the landfill. The City will renegotiate the AOC and response plan with the USEPA and will obtain the approval of USEPA for plans to alter the landfill cover and groundwater monitoring system. During the preliminary and final design process, the City will coordinate with the USEPA and the PA DEP with regard to impacts to the Enterprise Avenue Landfill and will, in accordance with the requirements of the AOC, prepare a detailed plan that will: ensure that the effectiveness of the landfill cover and the groundwater monitoring system is maintained during and after construction, ensure that the construction will not result in the release of hazardous substances to groundwater, and if necessary, address capturing and treating any contaminated groundwater from the landfill. The City will seek and obtain the approval of the USEPA for the plan before initiating modifications to the ongoing response action or any construction activities that would impact the remedy. In addition, if contaminated soils are discovered during construction, the City will take the appropriate steps to ensure proper treatment of those soils. The City will have to ensure the continued effectiveness of the landfill remediation and groundwater monitoring systems throughout and after construction, in accordance with PA DEP permitting requirements and in accordance with the USEPA-approved plan and the AOC.

#### 10.11. Construction Impacts

Mitigation measures will be implemented to address temporary impacts that will occur during the 13 calendar year construction period for the Project. Anticipated mitigation measures not discussed previously in this section are summarized below.

- In terms of construction-related noise mitigation, all on-airport construction activities will adhere to FAA AC 150/5370-10E, *Standards for Specifying Construction of Airports*. Minimization measures to reduce temporary noise impacts include measures to reduce noise from construction vehicle operations, vehicle loading/unloading, routing construction vehicles on non-residential streets, and limiting work hours to avoid sleep disturbance impacts to residential land uses in proximity to construction activities.
- To reduce the potential for human health effects from subsurface contamination or waste materials encountered during construction in the Delaware River or dredging for the Sunoco Fort Mifflin Pier extension will be mitigated by conducting preliminary investigations; contaminated soil and groundwater management; asphalt paving and demolition debris management techniques; erosion and sedimentation controls; construction worker health and safety planning; assessment and remediation of known releases; and other BMPs.
- Mitigation measures for temporary, short-term impacts to the habitat of state-listed wildlife species (red-bellied turtles) will include employing BMPs, such as sediment traps and silt fences, to prevent water quality degradation; timing construction to avoid critical nesting periods (March through June); monitoring during

construction; temporarily relocating turtles, if necessary; and erecting exclusion fencing to protect the red-bellied turtles.

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## 11. Conditions of Project Approval

For the approval of the Project the Sponsor must comply with the following conditions:

- Mitigation requirements to minimize or avoid significant impacts to the extent practicable, as detailed in Section 10 of this ROD, and summarized in Table 10-1.
- Detailed airfield simulation analysis revealed that construction of the part of the APM that would require closure of Runway 17-35 in construction years 11 and 12 has the potential to cause excessive delays. After final design and construction phasing is completed, the Airport must demonstrate that construction of the APM will avoid excessive delay<sup>52</sup> and still demonstrate General Conformity during each construction year. In the event that complete construction of the APM would cause excessive delay, or General Conformity cannot be demonstrated, then alternative passenger transportation options, such as the use of low-emissions buses would be used to provide access between parking facilities and terminals, instead of constructing the underground portion of the APM.
- Prior to initiating construction, the City, and as they apply to extension of the Fort Mifflin Pier, Sunoco, will obtain all permits necessary for development and operation of the Project. A list of the permits and approvals that are likely to be required is provided in Table 11-1.
- If the City or PHL is unable to acquire sufficient property to relocate UPS at PHL, and/or UPS decides to relocate elsewhere, the FAA will conduct additional environmental analysis to determine the impacts of the UPS relocation prior to moving forward with the Project.

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52 The FAA would normally consider annualized average delays of 20 minutes or more per aircraft operation for an extended period of time as excessive.

**Table 11-1 Permits or Approvals**

<b>Agency</b>	<b>Approval or Permit</b>
Pennsylvania Department of Environmental Protection (PA DEP)	■ Groundwater Discharge Permit-Temporary Discharge Approval
	■ Dewatering Permit
	■ Water Quality Standards Compliance
	■ Joint Permit [combines state PA DEP Water Obstruction & Encroachment Permit (Chapter 105 Permit) & Federal United States Army Corps of Engineers (USACE) Clean Water Act (CWA) Section 404 Permit]
	■ National Pollutant Discharge Elimination System (NPDES) Permit for Stormwater Discharges Associated with Construction Activities (Chapter 102 Permit)
	■ Floodplain Management Permit (Chapter 106 Permit)
	■ Coastal Zone Management Act Compliance
	■ Air Emission Source Operating Permits (Title V, Synthetic Minor or Planning Permit) for new or modified stationary sources.
	■ Sunoco Pier Submerged Lands License Agreement
	■ Submerged Lands License Agreement for runway fill
Pennsylvania Department of Conservation and Natural Resources (PA DCNR)	■ Wild Resources Conservation Act Compliance (native plant protection)
Pennsylvania Fish & Boat Commission (PFBC)	■ Fish and Boat Code Compliance (special status fish, amphibian, and reptile protection)
Pennsylvania Game Commission (PGC)	■ Game and Wildlife Code Compliance (special status birds and mammals protection)
New Jersey Department of Environmental Protection (NJ DEP)	■ Coastal Zone Management Act Compliance
U.S. Army Corps of Engineers (USACE)	■ Joint Permit [combines state PA DEP Water Obstruction & Encroachment Permit (Chapter 105 Permit) & Federal USACE Section 404 Permit]
U.S. Environmental Protection Agency (USEPA)-Region III	■ Safe Drinking Water Act Compliance
	■ Federal Clean Air Act General Conformity Rule Compliance
	■ Renegotiate Enterprise Avenue Landfill AOC for Removal Action

Note: This table only lists the permits or approvals that would be required for implementation of the Project and does not reflect all potential environmental impacts associated with the Project.

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## 12. Agency Findings

In accordance with applicable law, the FAA makes the following determinations for the Project, based on appropriate information and analyses contained in the FEIS and other portions of the administrative record for the EIS.

### 12.1. The Project is reasonably consistent with existing plans of public agencies for development of areas surrounding the airport (49 U.S.C. Section 47106(a)(1)), and Executive Order 12372.

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

The Delaware Valley Regional Planning Commission (DVRPC) has been designated as both the MPO and the comprehensive land use planning agency for the Delaware Valley Region. The DVRPC's goals, as outlined in the *Destination 2030: The Long Range Plan*, include promoting regional growth and implementing smart transportation approaches to achieve change.<sup>53</sup> Goals outlined in the plan, specific to PHL, include:

- Working with the Airport Sponsor and municipal leaders to promote aviation needs and opportunities; and,
- Increasing PHL capacity by 30 percent including ATC, runway/taxiway, and passenger terminal improvements.<sup>54</sup>

The Destination 2030 Plan also maintains the Airport/I-95 area as an important employment center for the regional area. In addition, the DVRPC's *Integrating Land Use Transportation & Economic Development Report*<sup>55</sup> identifies capacity expansion at PHL as the fourth most important transportation project to support economic development in the region. The report specifically calls out the need for expansion and modernization at PHL as a key regional challenge, identifying runway and terminal improvements at PHL as a priority regional initiative.

The FAA accordingly finds that the proposed action is reasonably consistent with the existing plans of public agencies authorized by the state in the area in which the Airport is located to plan for the development of the area surrounding the airport, and will contribute to the purposes of the 49 U.S.C. Section 47101 *et seq.*

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53 *Destination 2030: The Long Range Plan*, DVRPC, 23 June 2005. (<http://www.dvrpc.org/LongRange.htm>).

54 *Ibid*

55 *Integrating Land Use Transportation & Economic Development*, Delaware Valley Regional Planning Commission: Activities and Major Findings FY 2007 and FY 2008, October 2008. ([http://www.dvrpc.org/asp/pubs/publicationabstract.asp?pub\\_id=08020](http://www.dvrpc.org/asp/pubs/publicationabstract.asp?pub_id=08020))

This conclusion is not altered by the fact that two local government units in the immediate vicinity of PHL claim the right under Pennsylvania law to consent to the acquisition of property that is or may be necessary to the Project.<sup>56</sup> The state law does not have any bearing upon the determination of reasonable consistency.

In light of the actions of the MPO and after examining the particulars of the lawsuit, the FAA is satisfied that this project meets the requirements for project grant approval under 49 U.S.C. Section 47106(a)(1).

**12.2. The interest of the communities in or near where the Project may be located were given fair consideration (49 U.S.C. Section 47106(b)(2)).**

The determination prescribed by this statutory provision is a precondition to agency approval of airport funding applications. The process associated with the Airport's Master Plan Update and the FEIS, which began in 2003 and extended to this point of decision, provided numerous opportunities for the expression of and response to issues put forward by communities near the Project location. Nearby communities and their residents have had numerous opportunities to express their views during the DEIS public comment period, at a public hearing, as well as during the review period following public issuance of the FEIS. The FAA's consideration of these comments is set forth in Chapter 1, Appendix B and Volume 3 of the FEIS, and in Attachment A of this ROD. Thus, the FAA has determined that throughout the environmental process, consideration was given to the interest of communities in or near the Project location.

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

The Sponsor assurance prescribed by this statutory provision is a precondition of the approval of airport development project funding applications. The FAA requires satisfactory assurances that appropriate action, including the adoption of zoning laws be taken to restrict, to the extent reasonable, the use of land adjacent to or in the immediate vicinity of the airport to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft. Section 4.4 of the FEIS describes the current status and land use planning for lands near the airport. On August 10, 2010, the City of Philadelphia provided written assurance that it will, *to the extent reasonable, restrict by zoning or other means, the use of land adjacent to or in the immediate vicinity of the airport (in Philadelphia County) to activities and purposes compatible with normal airport operations, including landing and takeoff of aircraft* (see Appendix C of the FEIS). Some areas in the vicinity of the airport are outside of the City of Philadelphia (in Tincum Township, Delaware County) and cannot be zoned by the Sponsor; however, through the August 10, 2010 land use assurance letter, the City has committed to advocating for land use compatible with the airport in Delaware County, to the best of its ability. The Sponsor is working with Tincum through its Part 150 study to avoid or mitigate potentially incompatible land uses around the airport. Based on the administrative record for the EIS, for this ROD, the FAA has concluded that existing noise mitigation programs provide for appropriate action to ensure compatible land use in the airport vicinity. A

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56 Two municipalities, the County of Delaware, PA (a member of the DVRPC) and Tincum Township, have challenged the City of Philadelphia's ability to acquire property in their jurisdictions for the purposes of implementing the CEP. To that end, in 2009, the County and the Township filed a lawsuit alleging that Pennsylvania state law required the City of Philadelphia to obtain their consent prior to purchasing land in their jurisdictions. On August 27, 2010, the U.S. District Court for the Eastern District of Pennsylvania found that the Pennsylvania state law in question was preempted by Federal law. *Township of Tincum v. City of Philadelphia*, \_\_\_ F. Supp. 2<sup>nd</sup> \_\_\_, 2010 WL 3431717 (E.D. Pa.). Tincum and Delaware County have appealed this decision. As a practical matter, even if the holding below is reversed, the City of Philadelphia has committed that there are other avenues for moving forward with the CEP.

small portion of the land within the 65 db DNL contour is within Greenwich Township, New Jersey; however this land is currently zoned Manufacturing District and is compatible with those noise levels.

**12.4. The City has provided the opportunity for a public hearing to consider economic, social, and environmental effects of the project location and the location's consistency with the objectives of any planning that the community has carried out (49 U.S.C. Section 47106(c)(1)(A)(i)).**

The opportunity for a public hearing was provided; as documented in a letter from the City to FAA that is included in Attachment C. The City participated in a public hearing, comprised of four sessions held in representative municipalities around PHL, in October 2008, after the release of the DEIS. The Public Hearing sessions were held in Wilmington, DE (October 20), Paulsboro, NJ (October 21), Essington/Tinicum, PA (October 22), and Philadelphia, PA (October 23). Details of the Public Hearing are provided in Section 1.3 of the FEIS and are summarized in Section 8 of this ROD. Verbal and written comments submitted during the public hearing, including FAA responses, are contained in Volume 3 of the FEIS.

**12.5. The City has provided certification that the airport management board has voting representation from the communities in which the project would be located or that the sponsor has advised communities they have the right to petition the Secretary of Transportation about a proposed project (49 U.S.C. Section 47106.(c)(1)(A)(ii)).**

The City has provided certification that the Board of Commissioners of Tinicum Township and the County Council of Delaware County (Pennsylvania) has been notified that the community has the right to petition the Secretary of Transportation about the Project. This certification is included in Attachment C.

**12.6. The City has provided a certification verifying that, on request from the metropolitan planning organization (MPO) in the area where the project is located, the sponsor has made the proposed ALP and Master Plan available to the MPO (49 U.S.C. Section 47106.(c)(1)(A)(iii)).**

Philadelphia region's Metropolitan Planning Organization is the Delaware Valley Regional Planning Commission (DVRPC), which plays a vital role in transportation planning for the region. The City provided certification that DVRPC was notified that the Airport Layout Plan and Master Plan are available. This certification is included in Attachment C.

**12.7. For actions involving airport location, runway location, or a major runway extension, and found to have a significant adverse effect, there is no possible and prudent alternative to the project, and reasonable steps have been taken to minimize adverse effects (49 U.S.C. Section 47106(c)(1)(B)).**

FAA developed and evaluated numerous alternatives as part of the EIS process and retained two alternatives for detailed environmental analysis as well as the No-Action Alternative. The No-Action Alternative has fewer adverse environmental impacts, but it does not meet the purpose and need of the CEP, to enhance airport capacity in order to accommodate current and future aviation demand in the Philadelphia Metropolitan Area during all weather conditions. The FAA considered a full range of alternatives including alternatives that do not involve construction on the airport. Those alternatives were rejected because they did not meet the purpose and need of CEP. The two build alternatives met all of the Level 1 screening criteria and Level 2 screening criteria. However, both of the build alternatives would result in significant adverse environmental impacts to noise, compatible land use (for noise) and state-listed protected species. NOAA-NMFS questioned the FAA's

determination that impacts to essential fish habitat is not significant, PA DEP questioned the FAA's determination that impacts to water quality would not be significant and USEPA questioned the FAA's determination that the project would have only minor impacts to common wildlife species habitat. The FAA has carefully considered these comments and determined these impacts would not be significant, particularly considering mitigation measures. For more information on impacts to these natural resources, see Section 9 of this ROD.

The avoidance of impacts was considered during the initial formulation of on-site alternatives. The FAA considered a total of 29 build alternatives. However, due to numerous specific safety, operational, and preliminary engineering siting requirements, it was determined that none of the build alternatives would avoid impacts to natural resources. The impacts of the project are summarized in Section 9 of this ROD and detailed in Chapter 5 of the FEIS.

The FEIS and Section 10 of this ROD demonstrate that the mitigation measures included to address significant and unavoidable environmental impacts will minimize the adverse effects of the Project. There is no possible and prudent alternative to the Project. Further, every reasonable step has been taken to minimize the adverse effect through the imposition of mitigation measures.

**12.8. For the Project, which would directly affect wetlands, there is no practicable alternative to development of the Project. The Project conforms to the Avoidance, Minimization, and/or Compensation of Harm to Wetlands in Accordance with Executive Order 11990 and the Clean Water Act.**

Executive Order 11990 requires all federal agencies to avoid providing assistance for new construction located in wetlands, unless there is no practicable alternative to such construction, and all practicable measures to prevent harm to wetlands are included in the action. As described in the FEIS and in Section 9 of this ROD, development of the Project would result in the unavoidable loss of 81.7 acres of wetlands, including 35 acres of wetlands on Airport property. The Project would also impact 23.1 acres of waterways and place 24.5 acres of fill in the Delaware River. Practicable means could not be found to avoid impacts to wetlands and waterways by the CEP. Modifications to the airfield, including adding a fourth parallel runway (proposed Runway 9R-27L) cannot be made without wetland and waterway impacts. Consideration was given to the practicable measures available to minimize harm to the wetlands and waterways where harm could not be avoided. Section 6.6 of the FEIS discusses these considerations, which included steepened side slopes, reducing the footprint of the fire training facility, and reconfiguring the relocated UPS facility. Additional mitigation measures to minimize indirect impacts to waterways and water quality during construction have been developed and are described in Chapter 6 of the FEIS and Section 10.6 of the ROD.

The FAA finds that there is no practicable alternative to the Project's use of wetlands, and that the Project includes all practicable measures to minimize harm to wetlands that may result from such use. This Project is in compliance with Executive Order 11990, as amended. The Project's mitigation plan includes all practicable measures to minimize harm to wetlands that may result from such use.

**12.9. Relocation assistance will be provided in accordance with 42 U.S.C. Section 4601 et seq. Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970.**

Title II of the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 (42 U.S.C. Section 4601 *et seq.*) and implemented by the Secretary of Transportation under 49 C.F.R. Part 24, requires that state or local agencies that undertake federally-assisted projects, which cause an involuntary displacement of persons or businesses, follow the prescribed procedures and provide relocation benefits to those displaced.

As detailed in Section 5.3 of the FEIS and Section 9.5 of this ROD, the Project will displace 72 residences and 80 businesses. Per the Act, relocation assistance will be provided to the residents and businesses. As a condition of approval, the City of Philadelphia is required to provide fair and reasonable relocation payments and assistance payments pursuant to the provision of the Uniform Relocation Assistance and Real Property Acquisition Policies Act. Comparable decent, safe, and sanitary replacement properties are available on the open market.

**12.10. For any use of lands with publicly owned parks, recreation areas, national wildlife refuges, or significant historic sites, there is no prudent and feasible alternative to using the land; the Project includes all possible planning to minimize harm to structures from land use (49 U.S.C. Section 303 (c) and Section 106 National Historic Preservation Act).**

As discussed in Sections 5.16 and 5.17 of the FEIS, the Project would not result in direct or indirect impacts to publicly-owned parks, recreation areas, national wildlife refuges, or significant historic sites. The Project would not have significant adverse impacts on historic properties that could be assessed during the EIS process. The FAA has consulted with the Pennsylvania Historic and Museum Commission, the New Jersey Historic Preservation Office, and the Delaware Division of Historical and Cultural Affairs. The Pennsylvania Historic and Museum Commission (PHMC) and the New Jersey Historic Preservation Office have concurred with this finding. The Delaware SHPO disagrees with the use of 65 dB DNL as a threshold of impact on a historic property, but acknowledges that noise levels over the historic Ardens district will decrease under the Project.

As discussed in Section 10.9 of this ROD, four land parcels and one underwater target in Pennsylvania have not been accessible during the EIS process. Additional studies required to assess, and if present, to avoid or mitigate impacts to, archaeological resources in these areas are stipulated in a project-specific Memorandum of Agreement (MOA) between the FAA and the PHMC, with the City of Philadelphia as a concurring party. The final MOA has been accepted and signed by the FAA, PHMC and the City of Philadelphia, and can be found in Attachment B of this ROD.

Based on the analyses presented in the FEIS and information in the administrative record for the EIS, the FAA finds that there is no actual or constructive use of any resource protected by 49 U.S.C. Section 303(c) (also referred to as DOT Section 4(f)). In the event that the FAA discovers archeological resources, it will take necessary measures to develop and consider mitigation measures.

**12.11. There are no disproportionately high and adverse environmental effects of the Project on minority and/or low-income populations (Executive Order 12989).**

Environmental justice concerns were addressed in Section 5.5 of the FEIS, which concluded that no minority or low-income group would be disproportionately high and adversely affected by the impacts occurring as a result of the Project.

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

As documented in the FEIS and this ROD, the FAA has engaged in a lengthy and extensive process related to the screening and selection of the viable alternatives that best fulfilled the identified purposes and needs for development of the Sponsor's airport. The process included FAA selecting a consultant/contractor through a competitive process to assist in conducting the environmental process, which included identifying the Project purpose, screening reasonable alternatives, fully discovering and disclosing potential environmental impacts, and developing appropriate mitigation measures. The FAA directed the technical analysis provided in the DEIS and FEIS for the Project. From its inception, the FAA has taken a strong leadership role in the environmental evaluation of the Project and has maintained its objectivity.

**12.13. For this Project, which involves encroachment on a floodplain, there is no practicable alternative to development of the Project. The Project conforms to all applicable state and/or local floodplain protection standards (Executive Order 11988).**

Executive Order 11988 establishes a policy to avoid construction within a 100-year floodplain where practicable, and where avoidance is not practicable, to ensure that the construction design minimizes potential harm to or within the floodplain. U.S. Department of Transportation Order 5650.2. *Floodplain Management and Protection*, is the Department's implementing procedures to fulfill the requirements of the Executive Order.

The Project will require the impact of 347 acres within the 100-year floodplain, with a net loss of 277 acre-feet of flood storage; however, due to the unconstrained nature of the estuarine floodplain, this work will not result in increased depth, duration, or lateral extent of flooding. Development in the Project area would result in only minor impacts to natural and beneficial floodplain values, if any, and therefore is not considered significant.

The proposed encroachment associated with the Project is unavoidable because the majority of the airport is within the 100-year floodplain of the Delaware River, as documented in Section 5.12 and shown in Figure 5.12-1 of the FEIS. Disturbance of the 100-year floodplain could not be avoided with any of the on-airport build alternatives evaluated in the alternatives analysis. The FEIS also demonstrates that any off-airport alternatives (see Section 3 of the FEIS) would not meet the purpose and need of the project, and therefore were not considered further in the detailed environmental evaluation.

The Project will require that the Sponsor obtain a permit from PA DEP under Chapter 106 (Title 25, Chapter 106). Therefore, the Project will be designed and constructed to conform to applicable state and local floodplain protection standards.

**12.14. The Project will conform with the SIP in accordance with Section 176 of the Clean Air Act Amendments (42 U.S.C. Section 7506(c)).**

The Airport is located in a Serious Non-Attainment area for ozone (O<sub>3</sub>) and particulate matter 2.5 micrometers and smaller (PM<sub>2.5</sub>). Because of the long construction period involved in this Project, at the request of USEPA and PADEP, air quality for the purposes of conformity under the Clean Air Act General Conformity Rule was analyzed both during the construction period and after full implementation (operational).

During construction, emissions of PM<sub>2.5</sub> and its precursor sulfur oxides (SO<sub>x</sub>) would be within *de minimis* levels. Nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) emissions, the principle precursors to O<sub>3</sub>, would exceed *de minimis* levels in the General Conformity Rule. However these emissions can and will be offset to appropriate levels with the application of AERCs that the City has earned through the FAA's VALE Reduction Program and ERCs, which are available in sufficient quantity and that they City will purchase. As a result, during the construction period, the Project will conform with the SIP

Once the Project is fully implemented, operational-related emissions of PM<sub>2.5</sub>, SO<sub>x</sub>, NO<sub>x</sub>, and VOCs are well within the *de minimis* levels of the General Conformity Rule, and thus conform to the SIP. The Draft General Conformity Determination was published on April 27, 2010 and the Final General Conformity Determination was published with the FEIS (as Appendix E) on August 27, 2010.

The Project will conform to the purpose of the SIP and will not: cause or contribute to any new violation of any standard; increase the frequency or severity of any existing violation; or delay timely attainment of any standard or any interim emissions reduction.

**12.15. The Project includes all practicable measures to minimize harm to endangered species as much as such harm may result from implementation of the Project (Endangered Species Act of 1974, U.S.C. Section 1531, as amended).**

To comply with Section 7(c) of the Endangered Species Act of 1974 (ESA) as amended, agencies overseeing federally funded projects are required to obtain from USFWS and NMFS information concerning any species, listed or proposed to be listed, as may be present in the area of concern. As part of the review associated with the FEIS, NMFS identified one endangered species present near the airport (shortnose sturgeon), as described in Section 5.13 of the FEIS. Potential direct and indirect impacts to this species were evaluated in the FEIS, and USFWS and NMFS have concurred that the Project will not harm endangered species.

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**13. Decision and Order**

The FAA decision is based on a comparative examination of environmental impacts, operational factors, and economic factors for each of the alternatives in the EIS. The FEIS provides a fair and full discussion of the impacts, including any significant impacts. The EIS process included appropriate planning and design for avoidance, minimization, and/or compensation of impacts, as required by NEPA, the CEQ regulations, other special purpose environmental laws, and appropriate FAA environmental directives.

The FAA has determined that environmental and other relevant concerns presented by interested agencies and citizens have been addressed in the FEIS. The FAA believes that with respect to the Project, there are no outstanding environmental issues within FAA jurisdiction to be studied or NEPA requirements that have not been met. In making this determination, the FAA must decide whether to approve the federal actions necessary for Project implementation. FAA approval signifies that applicable federal requirements relating to airport development planning have been met and permits the Sponsor to proceed with development and possibly receive funds for eligible items. Not approving these actions would prevent the Sponsor from proceeding with the airport development.

For reasons summarized earlier in this ROD, supported by disclosures and analysis presented in detail in the EIS, FAA has determined that the Sponsor's Project, described as Alternative A, the Preferred Alternative, is reasonable, feasible, and prudent, with respect to both federal and Sponsor goals and objectives. The FAA decision to take the actions and provide approvals requested by the Sponsor is consistent with the FAA statutory mission and policies. This decision is supported by the environmental findings and conclusions presented in the FEIS and this ROD.

After reviewing the FEIS and all of its related materials, I have fully and carefully considered the FAA's goals and objectives as to the aeronautical aspects of the proposed development and related activities at PHL. These include purpose and need for this Project, alternative means of achieving these objectives, the environmental impacts of the alternatives, the mitigation necessary to preserve and enhance the environment, national transportation policies within which the FAA operates, and the costs and benefits of achieving the purpose and need in terms of efficiency and fiscally responsible expenditures of federal funds.

While this decision neither grants federal funding nor constitutes a funding commitment, it does fulfill the environmental analysis prerequisites for federal funding determinations to be made. The FAA will review funding requests upon receipt from the Sponsor of a timely application for federal grant-in-aid, and the FAA will make funding decisions in accordance with the established procedures and applicable statutory requirements.

Accordingly, pursuant to the authority delegated to me by the Administrator of the FAA, I find that the actions summarized in this Record of Decision are reasonably supported and approved. I hereby direct that action be taken together with the necessary related and collateral actions, to carry out the agency decisions discussed more fully in sections of this ROD, including:

- Approval of a revised Airport Layout Plan under 49 U.S.C. Section 47107(a)(16) and determinations under 49 U.S.C. Section 47106 and 47107 pertaining to applications for project grant funding and approval, including approval under 49 U.S.C. Section 47107 *et seq.* of eligibility of the Project for federal grant-in-aid funds as well as approval, under 49 U.S.C. Section 40117, of an application to impose and use Passenger Facility Charges;
- Determination that air quality impacts associated with the Project conform to applicable air quality standards under the Clean Air Act, as amended (42 U.S.C. Section 7506) and 40 C.F.R. Part 93). FAA issued a Final General Conformity Determination on August 27, 2010, which is included in the FEIS as Appendix E;
- Determination and actions under 49 U.S.C. Section 44718 (14 C.F.R. Part 77) evaluating obstructions to navigable airspace;
- Determination that the Project conforms with FAA design criteria (including the siting of a relocated ATCT per FAA Order 6480.4A), federal regulations, and grant agreements (14 C.F.R. Parts 77, 139, 150, 152, 157, and 169).
- Determination and actions, under 49 U.S.C. Sections 40103(b) and 44701, designing, developing, approving, and implementing new ATC, airspace management, flight procedures, and other rules or terms and conditions for the safe and efficient use, as well as management, of the navigable airspace;

- Approval for establishment of new instrument landing systems and associated lighting systems and navigational aids, as appropriate, for the new runway, the existing runways, and the airport as a whole;
- Determination that the Project is in conformance, for environmental purposes only, with federal grant eligibility and other requirements, pursuant to 14 C.F.R. Parts 77, 150, 152, 157, and 169; and
- Review and subsequent approval of an amended Airport Certification Manual for the PHL.

Based on the administrative record for the EIS of the Project, I certify, as prescribed by 49 U.S.C. Section 44502(b), that implementation of the Project is reasonably necessary for use in air commerce.

12/30/2010  
Date of Approval



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Carmine Gallo  
Regional Administrator, FAA Eastern Region  
For Federal Aviation Administration

#### Right of Appeal

This ROD presents the Federal Aviation Administration's final decision and approvals for the actions identified, including those taken under the provisions of Title 49 of the United States Code, Subtitle VII, Parts A and B. This decision constitutes a final order of the Administrator subject to review by the Courts of Appeals of the United States in accordance with provisions of 49 U.S.C. Section 46110.

Any party seeking to stay the implementation of this ROD must file an application with the FAA prior to seeking judicial relief, as provided in Rule 18(a) of the Federal Rules of Appellate Procedure.

# Figures

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