
Final

Environmental Technical Report: Cargo City Reconfiguration

Philadelphia International Airport

September 4, 2015



8000 Essington Avenue
Terminal E, Second Floor
Philadelphia, PA 19153

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Acronyms and Abbreviations

ALP	Airport Layout Plan
APU	Auxiliary Power Unit
CEP	Capacity Enhancement Program
CO	Carbon Monoxide
CZMP	Coastal Zone Management Program
dB	Decibel (also dBA)
DOT	Department of Transportation
EIS	Environmental Impact Statement
FAA	Federal Aviation Administration
GCD	General Conformity Determination
GPU	Ground Power Unit
L _{eq}	Equivalent Sound Level
NEPA	National Environmental Policy Act
NO _x	Nitrogen Oxides
PADEP	Pennsylvania Department of Environmental Protection
PHL	Philadelphia International Airport
PM	Particulate Matter
ROD	Record of Decision
RSIP	Residential Sound Insulation Program
SO _x	Sulfur Oxides
UPS	United Parcel Service
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
VOC	Volatile Organic Compounds

1. General Information

1.1 Contents of this Report

This Environmental Technical Report provides information for the Federal Aviation Administration (FAA) to consider in its Written Reevaluation of the August 2010 Final Environmental Impact Statement (EIS) for the Philadelphia International Airport (PHL) Capacity Enhancement Program (CEP). The Airport has proposed an exchange of the locations of the United Parcel Service (UPS) hub and the Cargo City facilities in the northwest quadrant of PHL (referred to herein as the *Cargo City Reconfiguration*). Specifically, this document addresses the environmental consequences related to the proposed changes in the locations of these two facilities and a different sequence of construction than originally planned. The environmental effects of these changes are compared to those documented in the FAA's Final CEP EIS.

1.2 Background

Philadelphia International Airport has developed plans for the PHL Capacity Enhancement Program, a multi-year and multi-project program to increase capacity and reduce delays at PHL. The Airport Layout Plan (ALP) depicting the CEP projects was the subject of the FAA's Final EIS and Final Record of Decision (ROD) which were approved August 4, 2010 and December 10, 2010, respectively. The CEP is critically needed, as PHL ranks as one of the most congested major airports in the U.S. Overall, the CEP includes planned improvements to existing runways, an additional new runway, taxiways, aircraft parking aprons, passenger terminal buildings, air cargo handling facilities, and other airport-related improvements. A part of the CEP, the future UPS hub and Cargo City facilities are to be located in the northwest quadrant of the Airport. The Airport has submitted a revised ALP for FAA approval that exchanges the approved locations of these two future facilities within the northwest quadrant. The proposed new locations would require a different sequence of construction. These proposed changes are referred to collectively as the *Cargo City Reconfiguration*.

This report was prepared by the CEP Program Management Office and KB Environmental Sciences, Inc.

2. Introduction/Summary

On December 31, 2010, the FAA issued a ROD that approved the PHL CEP, which is designed to enhance airport capacity in order to accommodate current and future aviation demand in the Philadelphia Metropolitan Area during all weather conditions. The ROD, available at <http://www.phl-cep-eis.com> and www.faa.gov/airports/environmental/records_decision, followed a Final Environmental Impact Statement (EIS) approved on August 4, 2010, with notice published in the Federal Register on January 4, 2011.

The CEP includes a runway addition, select runway extensions and reconfigured taxiways, passenger terminal improvement and expansion, and on-airport relocation of a number of support facilities, including a United Parcel Service (UPS) hub and air cargo facilities known as Cargo City. This document assesses the environmental effects of a proposed change to the ALP as compared to the ALP approved in the Final EIS. The proposed change is essentially an exchange of locations between the UPS and Cargo City facilities and is referred to herein as the *Cargo City Reconfiguration*.

The proposed *Cargo City Reconfiguration* would allow avoidance or reduction of some environmental impacts, including private property acquisition and residential and business relocations. It would also entail a change in the construction sequencing of the UPS and Cargo City facilities. The details of the proposed changes with the *Cargo City Reconfiguration* are presented below in **Section 4**, Summary of Project Changes. The evaluation of the environmental effects of the proposed reconfigured plan is addressed below in **Section 6**, Environmental Consequences.

The FAA's Written Reevaluation of the CEP EIS and this Environmental Technical Report were made available to the public for comment.

3. Federal Actions

The proposed exchange of locations of the UPS and Cargo City facilities under the *Cargo City Reconfiguration* plan requires revision of the PHL ALP. The revised ALP must then be submitted to the FAA for approval. These proposed reconfigured locations of the UPS and Cargo City facilities (and the proposed revised construction sequencing) were not assessed in the Final EIS or approved in the ROD. To ensure compliance with the National Environmental Policy Act (NEPA), the FAA will evaluate the proposed exchange of locations and revised construction sequencing of these facilities. This report provides technical and planning information for FAA's use in this evaluation and follows guidance provided by FAA Orders 1050.1E, *Environmental Impacts: Policies and Procedures*, and 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*.

In this case, the federal action subject to NEPA is unconditional approval of the ALP that depicts the relocated UPS and Cargo City facilities and associated other improvements that would be part of *Cargo City Reconfiguration*.

4. Summary of Project Changes

4.1 Capacity Enhancement Program

The PHL CEP comprises improvements at the Airport, including a runway addition; runway extension; taxiway and apron modifications; air passenger terminal improvements and additions; a new automated people mover (APM); roadway modifications and/or relocations; and the redevelopment/relocation of certain existing facilities to accommodate these improvements. Importantly, most of these projects would be unaffected by the *Cargo City Reconfiguration*. Therefore, unless otherwise noted herein, the CEP approved in the Final EIS will remain unchanged as a result of this action.

4.2 Existing Conditions

The current air cargo handling facilities (known collectively as Cargo City) are located in the northwest quadrant of the Airport on approximately 106 acres bounded on the west and north by the existing Tinicum Island Road, on the east by non-aviation development (International Plaza), and immediately to the south by Taxiway J and the deicing ramp. The existing Cargo City consists of cargo buildings, airport support, airline support facilities, aprons and taxiways, and vehicle service roads. Cargo City is comprised of 10 buildings with the following tenants:

- US Postal Service
- AERO Term
- US Airways
- American Airlines/United Freight
- Ridgely Cargo
- AFCO West Pac

The existing UPS hub is located on approximately 212 acres in the southern-most portions of the Airport, between Runway 9R-27L and Hog Island Road. To the south of Hog Island Road is the Delaware River. The UPS apron is connected to Runway 9R-27L via Taxiways U and Y. Unlike Cargo City, which consists of multiple different tenants, the entire UPS complex is operated by UPS. The UPS facility consists of a main operations building; ground freight, vehicle maintenance shop, and human resources buildings; and, an aircraft parking apron.

These existing conditions at PHL are depicted on **Figure 4-1**, with the red “cloud” outlining the *Cargo City Reconfiguration* area.

4.3 Approved CEP Plan

The CEP requires relocation of the UPS hub facility to accommodate a new east-west parallel runway on the south side of the Airport. The relocation – as depicted in the approved 2011 Airport Layout Plan – for the UPS hub is illustrated on **Figure 4-2**. As shown, the CEP includes constructing a replacement UPS facility on property owned by the Airport and additional property to be acquired. Cargo City will be redeveloped more-or-less in its present location, with some expansion into the existing International Plaza area and with some support facilities located in additional adjacent property to be acquired. Accompanying airfield and roadway modifications are designed to accommodate these changes.

The property identified for acquisition in the CEP is the West Side Acquisition Area and extends from the western-most Airport boundary to 4th Avenue in Tinicum Township. The West Side Acquisition Area totals 301.4 acres and includes 72 residences and 12 businesses to be relocated prior to UPS development. See **Figure 4-3** for the delineation of the West Side Acquisition Area.

The construction sequence presented in the CEP is:

- 1) Construct replacement UPS facility on newly-acquired property (existing UPS facility will continue to operate until UPS replacement complete);
- 2) Redevelop Cargo City in current general location including portions of adjacent property to be acquired; and
- 3) Demolish old UPS facility.

4.4 Proposed Cargo City Reconfiguration Plan

The fundamental change proposed with the *Cargo City Reconfiguration* is the exchange of locations between the relocated UPS facility and the redeveloped Cargo City facility. This proposed revision is shown on **Figure 4-4**. The revision was developed through on-going CEP program planning discussions with stakeholder Tinicum Township.¹ Both the UPS and Cargo City facilities would be replaced in-kind, with additional land reserved for future expansion as demand materializes.

The sections below detail the differences in airport layout, land acquisition needs, and construction schedules between the CEP and the *Cargo City Reconfiguration*.

4.4.1 Comparison of Airport Layout Plans

The proposed *Cargo City Reconfiguration* layout, when compared to the CEP, would accomplish several positive changes, most notably:

- Avoid relocation of 72 residential and 5 business locations in Tinicum Township;
- Increase the distance between Tinicum Township homes and the new UPS facility;
- Reduce noise impacts on Tinicum Township from UPS aircraft ground operations;
- Reduce UPS truck travel times to and from Interstate 95;
- Reduce overall average UPS aircraft taxi times to and from runway ends;
- Reduce construction and operational air emissions; and
- Reduce rainfall runoff and local area flood potential by reducing/minimizing new impervious surfaces.

Table 4-1 summarizes the footprint differences between the CEP plan and the proposed *Cargo City Reconfiguration* plan. The proposed *Cargo City Reconfiguration* layout maintains the assumptions outlined in the Final EIS, including the operational forecasts, aircraft fleet mix and design aircraft, and runway configurations. Furthermore, although the layout of individual buildings changes, the overall size and intensity of UPS and Cargo City operations would be similar.² For example, under the *Cargo City Reconfiguration*, a total of 47 aircraft apron parking positions would be maintained (as indicated in **Figures 4-2 and 4-4**). The UPS main facility would be similarly maintained at approximately 680,000 sq. ft. – although the supporting sorting and freight forwarding buildings would increase from 88,400 sq. ft. to 138,100 sq. ft.

The main and supporting UPS facilities, under the *Cargo City Reconfiguration*, are intended to serve the same levels of aircraft and trucking operations as the approved CEP. One notable difference is that the UPS apron area would be built in two phases, with a reserved area for future expansion (whereas, in the CEP, the entire UPS apron will be built at once). Similar to the approved ALP, there is space reserved for a future expansion of the UPS main building facility.³

¹ Discussions with Tinicum Township are confidential and remain under development. A press release was posted on May 5, 2014 at: <http://www.phl.org/news/PressReleases/Pages/Tinicumdelco.pdf>

² With the proposed *Cargo City Reconfiguration*, the overall project footprint would be reduced by approximately 7.2 acres. See Table 4-1 for a detailed comparison of footprint areas.

³ This future facility expansion area aims to meet Tinicum Township Green Space requirements under its land use provisions (i.e., a minimum of 33% open space). Full expansion of the UPS facility may require modification or waiver of these open space provisions from Tinicum Township.

The Cargo City facilities would also serve a similar level of aircraft and trucking operations when comparing the *Cargo City Reconfiguration* to the CEP. The combined footprint of Cargo City buildings – which would reduce from seven buildings in the CEP to four buildings in the *Cargo City Reconfiguration* – would remain similar, with total square footage decreasing by 9 percent. The aircraft hangar facilities (i.e., Proposed US Airways Express Hangar and Proposed Maintenance Hangar on **Figure 4-2** and Buildings P5 and P35 on **Figure 4-4**) would be similar in size, level of operations, and function. However, the *Cargo City Reconfiguration* would require demolition of existing Buildings 1 and 6 shown on **Figure 4-2** (i.e., the US Postal Service and US Airways Maintenance Hangar).

TABLE 4-1

Comparison of CEP and Cargo City Reconfiguration Footprint Areas*All figures are in Square Feet (SF)*

Airport Component or Facility	CEP	Cargo City Reconfiguration	Difference in Footprint
Cargo City:			
Taxiways	1,220,800	1,364,800	+ 144,000
Aprons/Ramps	1,792,200	1,425,300	- 366,900
Cargo Buildings	1,034,000	931,200	- 102,800
UPS:			
Taxiways	126,500	30,350	- 96,150
Aprons/Ramps	2,088,800	2,186,347	+ 97,547
Main Operations Building	680,000	678,500	- 1,500
Sorting and Freight Forwarding Buildings	88,400	138,100	+ 49,700
Total Cargo/UPS Footprint:	<u>7,030,700</u>	<u>6,754,597</u>	<u>- 276,103</u>
Related Projects:¹			
Public Roads	565,200	461,700	- 103,500
Small Maintenance Hangar	30,530	30,450	- 80
Large Maintenance Hangar	106,750	140,000	+ 33,250
Large Maintenance Hangar Demolition	Not Required	- 140,000	- 140,000
US Postal Service Building Demolition	Not Required	- 204,480	- 204,480
Total Related Projects:	<u>702,480</u>	<u>287,670</u>	<u>- 414,810</u>

¹ Two Glycol Tanks are required to be relocated in the *Cargo City Reconfiguration* plan; this was not required in the CEP plan.

Source: Final EIS 2010, PHL Master Plan 2011 and *Cargo City Reconfiguration* Airport Layout Plan 2014

The *Cargo City Reconfiguration* layout would locate Cargo City facilities, including aircraft maintenance hangars, nearer to Tinicum Township as compared to the approved CEP. However, Cargo City serves fewer aircraft operations and the overall level of operations at these facilities is lower than that of the UPS layout approved in the Final EIS. Furthermore, the majority of UPS aircraft operations occur during nighttime hours, whereas Cargo City tenants more often operate during daytime hours. Also, as discussed later in **Section 6.2.3**, cargo truck traffic would be directed away from Tinicum Township along relocated Tinicum Island Road to Scott Way for access to Route 291 and Interstate 95.

4.4.2 Comparison of Land Acquisition

Following the approval of the Final EIS and ROD, the properties approved for acquisition in the Final EIS and ROD were surveyed and additional modifications were made to the acquisition plan. Therefore, the total acreage shown for the Westside Area on **Figure 4-5** (i.e., 208.3 acres) is 93.1 acres less than that shown in the CEP. The specific reasons for this reduction in acreage – some of which are independent of the *Cargo City Reconfiguration* – are as follows (as indicated on **Figure 4-5**):

- Property 8 was surveyed at 131.7 acres, as opposed to 114.5 acres in the Final EIS for Folio 45-00-00504.
- Property 8A, surveyed at 1.1 acres, was not included in the Final EIS.
- Property 9 was surveyed at 10.9 acres, as opposed to 7.0 acres in the Final EIS for Folio 45-00-00279-00.
- Properties 10 and 10A were surveyed and reduced in acquisition size to 43.6 acres, as opposed to 152.0 acres in the Final EIS for Folio 45-00-00935 (i.e., the original 152-acre property was sub-divided and the Airport acquired areas 10 and 10A only).
- Property 11, the closure of Tincum Island Road, was surveyed at 7.0 acres but was not included in the Final EIS.
- As mentioned previously, 72 residential and 5 business locations approved for acquisition under the CEP plan would not be acquired under the *Cargo City Reconfiguration*, and are not shown on **Figure 4-5**.

4.4.3 Comparison of Construction Schedule

The revised construction sequence associated with the *Cargo City Reconfiguration* plan would be as follows:

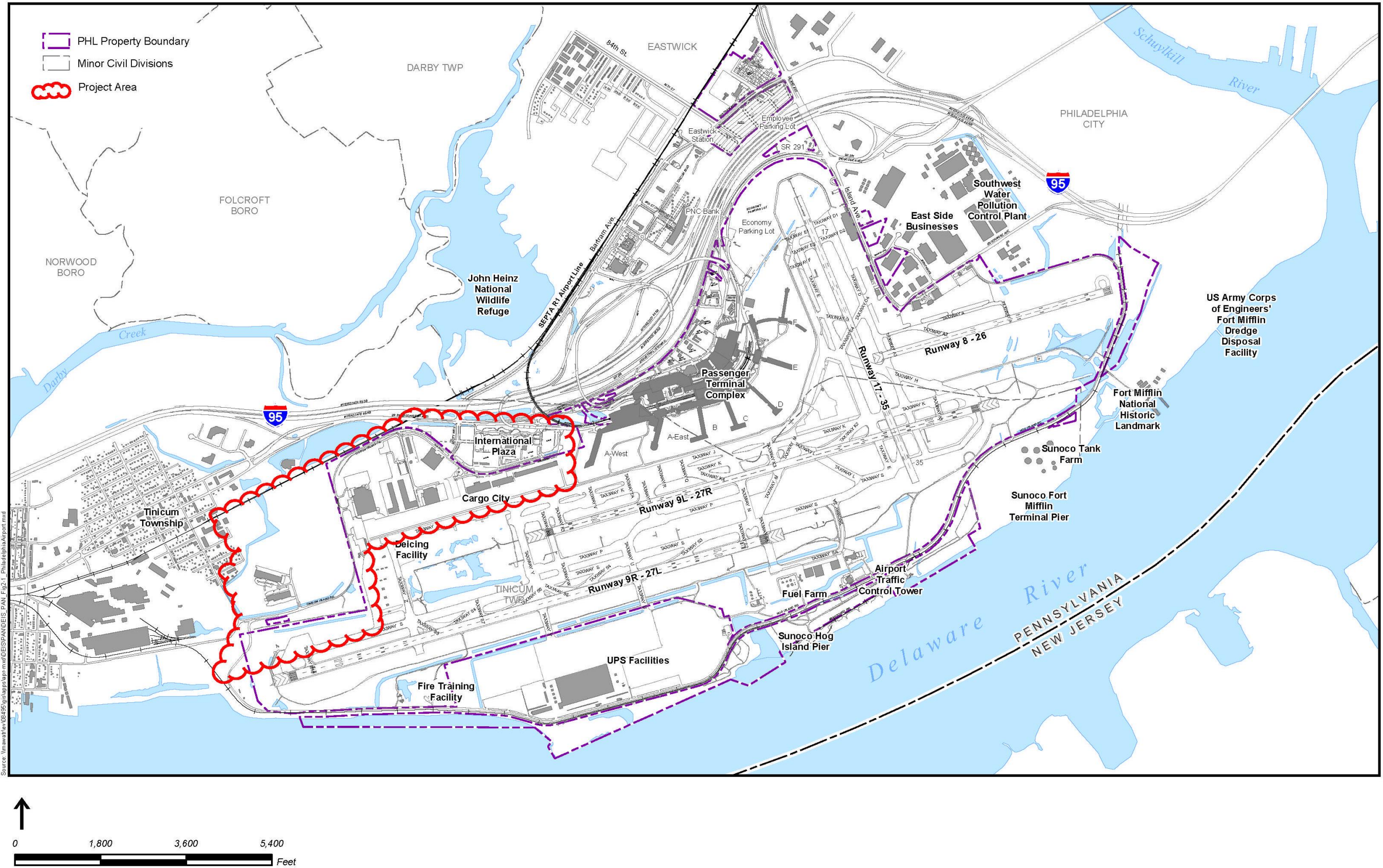
- 1) Redevelop Cargo City in the newly-acquired property;
- 2) Demolish old Cargo City;
- 3) Develop new UPS at old Cargo City site (existing UPS facility would continue to operate until UPS replacement complete); and
- 4) Demolish old UPS facility.

Table 4-2 presents a summary of the changes in the CEP construction schedule associated with the *Cargo City Reconfiguration* in terms of Construction Year. The intent of this table is to summarize the major construction phases which are being sequenced differently under the *Cargo City Reconfiguration* as compared to the CEP (Final EIS, Section 3.5.3). All other CEP construction activities would remain unchanged in terms of scheduling and phasing. Of note, there are two construction activities (demolish existing UPS facility and relocate Tincum Island Road) which would remain unchanged under the *Cargo City Reconfiguration*, but are included in **Table 4-2** for completeness. Also, in **Table 4-2**, the UPS facility construction activity (row 1) and Cargo City facilities construction activity (row 3) are inclusive of buildings and related aprons, ramps, roads, and vehicle parking.

TABLE 4-2
Summary of Changes to Construction Schedule
In terms of Construction Year number

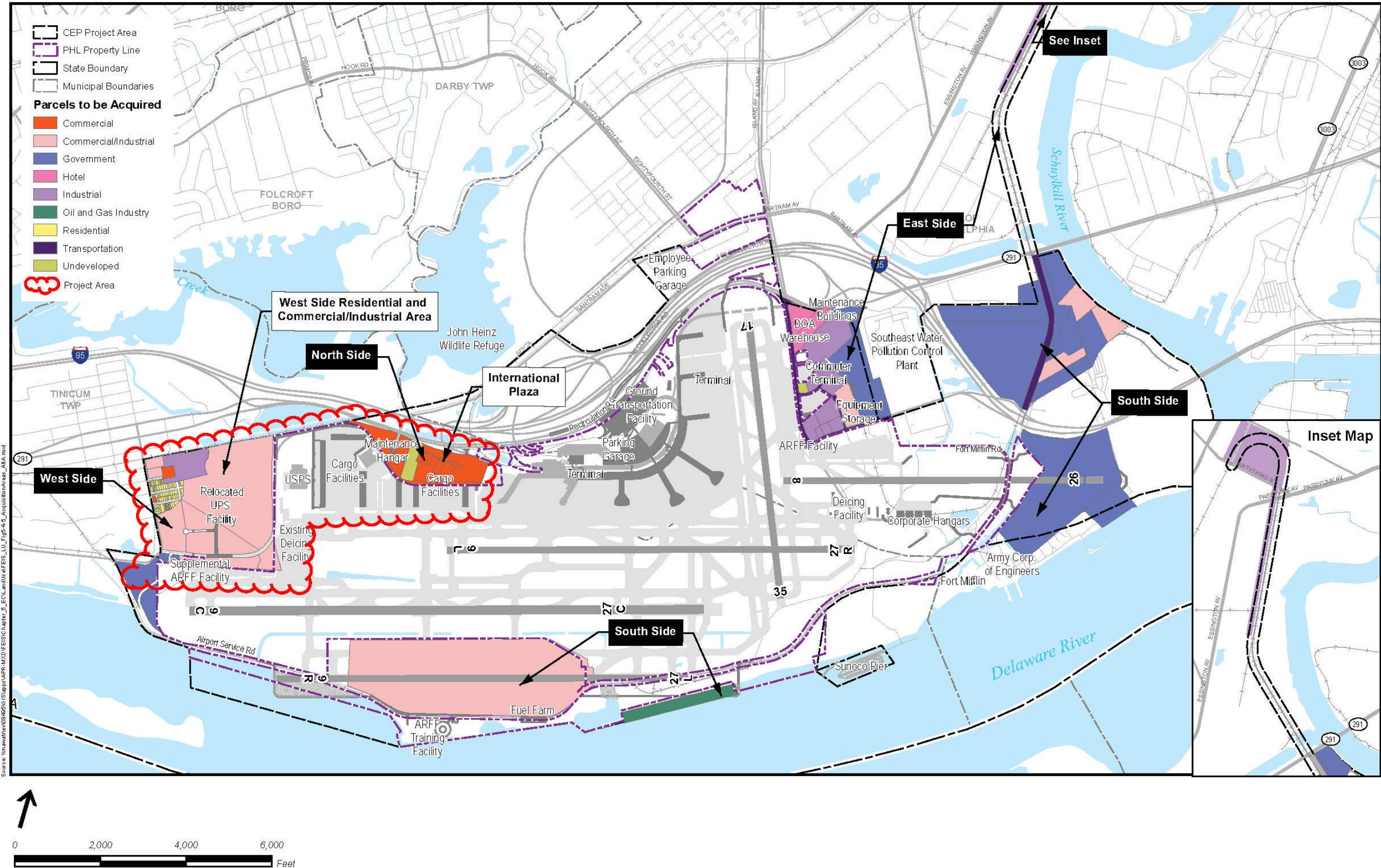
Activity	CEP Start Year	CEP End Year	Cargo City Reconfiguration Start Year	Cargo City Reconfiguration End Year
Build new UPS facility	1	4	7	10
Demolish existing Cargo City facilities	4	4	7	7
Build new Cargo City facilities	4	10	1	7
Demolish existing UPS facility	10	10	10	10
Build small maintenance hangar	1	2	2	3
Build large maintenance hangar	5	7	1	4
Relocate Tinicum Island Road	2	2	2	2
Relocate glycol tanks	N/A	N/A	1	1
Demolish large maintenance hangar	N/A	N/A	4	4
Demolish US Postal Service building	N/A	N/A	7	7

FIGURE 4-1. Existing Airport Facilities Layout as Depicted in the Final EIS



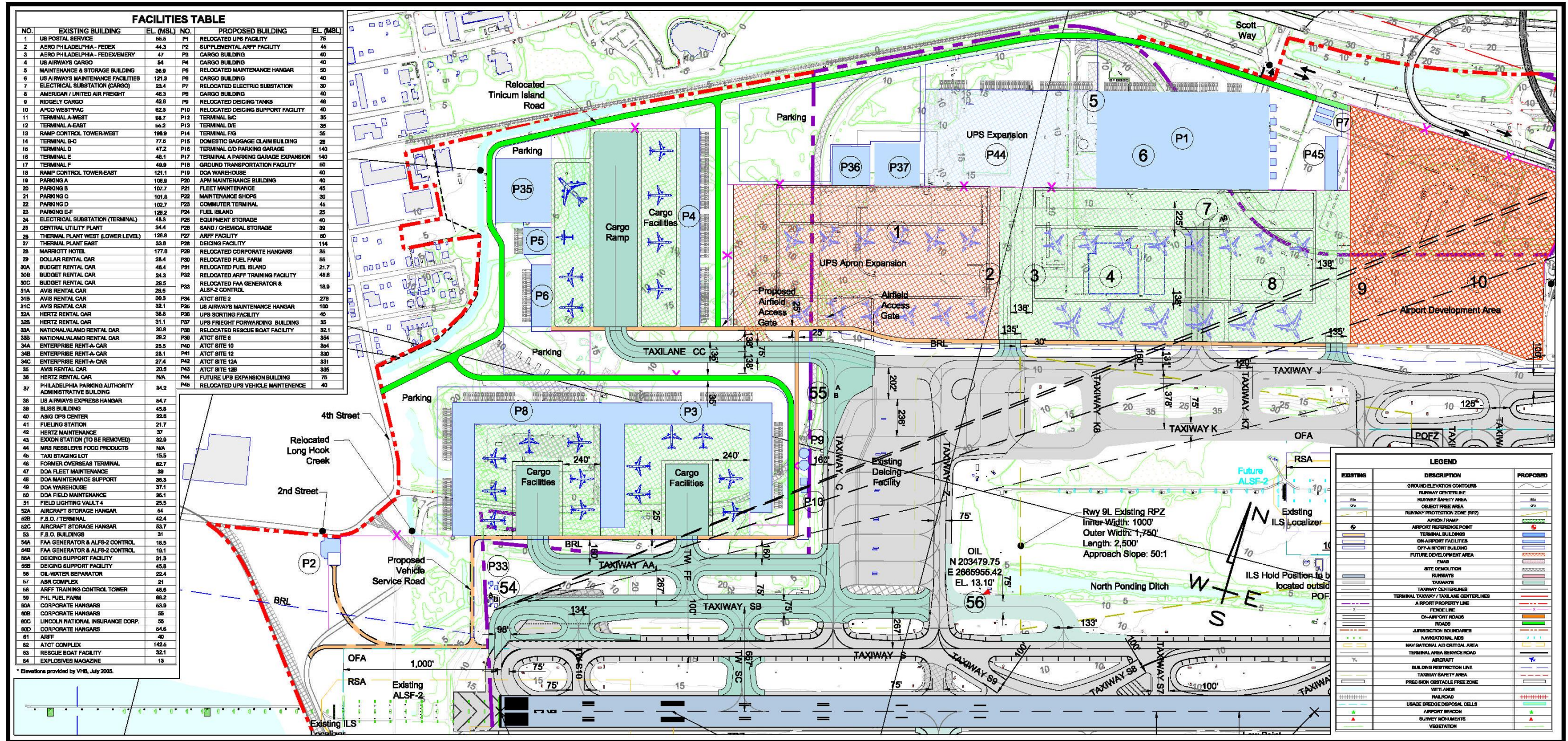
Source: Final EIS 2010: Figure 2.1 Philadelphia International Airport

FIGURE 4-3. CEP Property Acquisition Plan



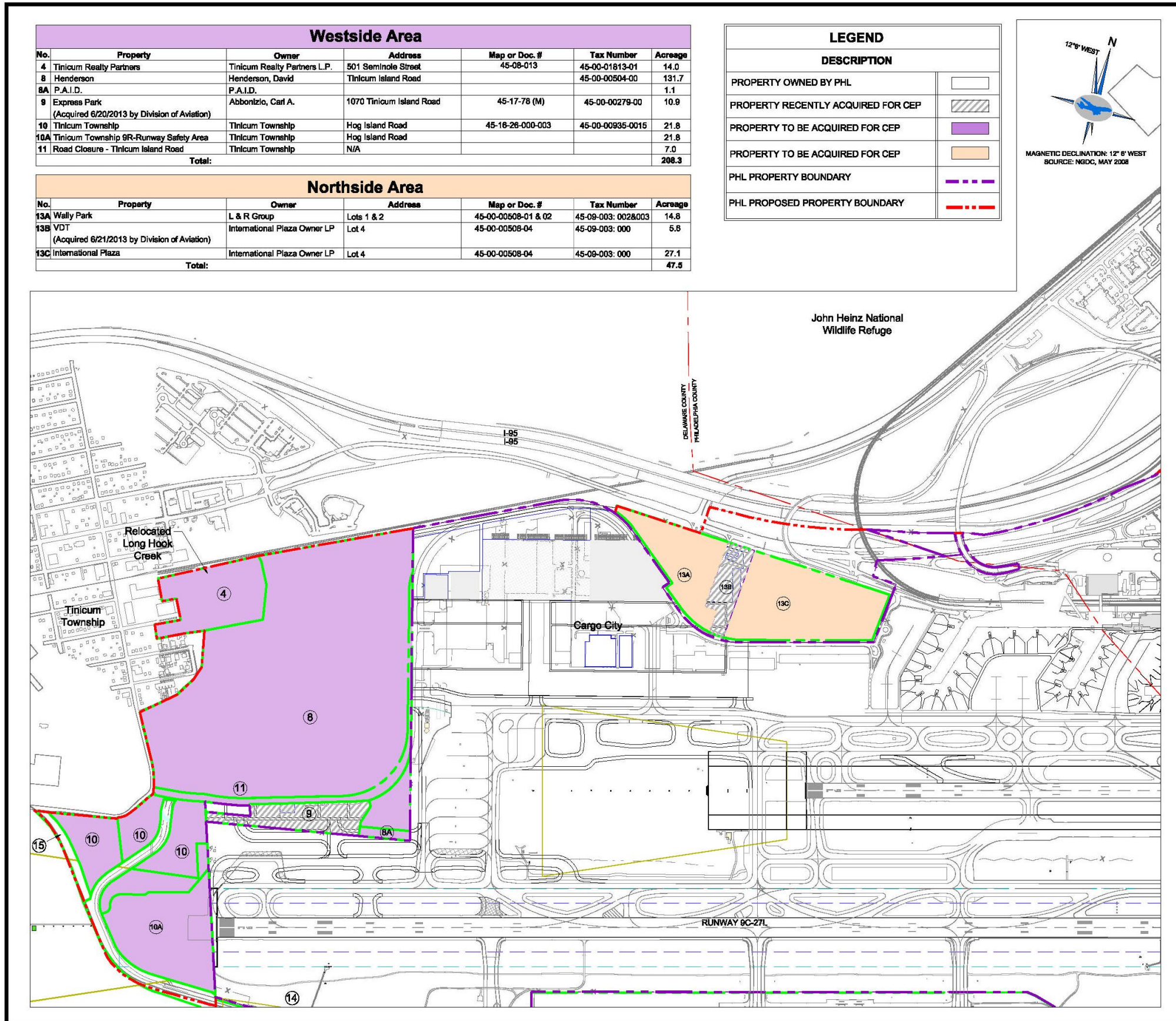
Final EIS 2010: Figure 5.4-5 Land Acquisition Areas for Preferred Alternative

FIGURE 4-4. Cargo City Reconfiguration Airport Layout Plan – Northwest Quadrant



Source: PHL 2014, Airport Layout Plan Cargo City Reconfiguration

FIGURE 4-5. Cargo City Reconfiguration Property Acquisition Plan



Source: PHL 2014, Airport Layout Plan Cargo City Reconfiguration

5. Legal Standards

In accordance with FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, proposed ALP revisions are analyzed to determine if they are substantial and whether the resultant environmental impacts present significant new circumstances or information relevant to environmental concerns that have a bearing on the proposed action or its environmental impacts.

In addition, FAA Order 1050.1E, paragraph 515a, states, “The preparation of a new EIS is not necessary when it can be documented that the:

- 1) Proposed action conforms to plans or projects for which a prior EIS has been filed and there are no substantial changes in the proposed action that are relevant to environmental concerns;
- 2) Data and analyses contained in the previous EIS are still substantially valid and there are no significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts; and
- 3) Pertinent conditions and requirements (all) of the prior approval have, or will be, met in the current action.”

The Order defines significant information as “information that paints a dramatically different picture of impacts compared to the description of impacts in the EIS” (paragraph 516a). If the proposed changes do not meet the criteria in paragraph 515a (1)–(3), then further analysis is necessary (paragraph 516a).

6. Environmental Consequences

6.1 Overview

The potential environmental impacts of the PHL CEP were identified and documented in the FAA's Final EIS. As stated above, the FAA prepared the EIS pursuant to FAA Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*. In this report, the environmental consequences of the proposed *Cargo City Reconfiguration* are presented such that FAA can compare them to the environmental consequences of the approved alternative in the Final EIS. The FAA will use this comparison to determine if the data and analysis in the Final EIS are still substantially valid and to determine if there are any new significant circumstances or information from what was disclosed in the Final EIS that would require additional NEPA analysis.

The Final EIS examined the environmental resource categories listed below. For consistency, and to ensure that each of the categories addressed in the Final EIS were considered in this report, they are presented in the same order in this section.

6.2	Noise	6.12	Floodplains
6.3	Social and Economic Environment	6.13	Biotic Communities (fish, wildlife, and plants)
6.4	Compatible Land Use	6.14	Federal Threatened and Endangered Species
6.5	Environmental Justice and Children's Environmental Health and Safety	6.15	Farmland Soils
6.6	Surface Transportation	6.16	Historical, Architectural, Archaeological, and Cultural Resources
6.7	Air Quality	6.17	DOT Act Section 4(f) and Land and Water Conservation Fund Act Section 6(f) Resources
6.8	Wetlands and Waterways	6.18	Hazardous Materials and Solid Wastes
6.9	Wild and Scenic Rivers	6.19	Light Emissions
6.10	Coastal Resources	6.20	Energy Supply and Natural Resources
6.11	Water Quality		

6.2 Noise

Noise impacts from the CEP were comprehensively addressed in Section 5.2 of the Final EIS, including noise from aircraft flight operations (arrivals and departures), ground-based aircraft operations (taxiing and departure queuing), surface transportation sources (e.g., motor vehicles, including UPS trucks), and construction activities.

The FAA determined that, while the total number of residences (and population) exposed to significant noise levels will decrease with the PHL CEP improvements, there will be 424 housing units in Delaware County, Pennsylvania in year 2030⁴ which will experience increases in noise exposure considered significant, thus warranting noise mitigation measures.

Noise impacts associated with the proposed *Cargo City Reconfiguration* are discussed below. For ease of understanding, the discussion is sub-divided into four categories of airport-related noise.

6.2.1 Aircraft Flight Operations Noise

The factors contributing to aircraft flight noise impacts include the projected aircraft fleet mix and operations, runway use, and flight tracks. These factors combine to create a pattern of aircraft noise that can be geographically mapped to model the level of noise at locations on the ground. The location or occurrence of noise-sensitive receptors can also be mapped on aircraft noise contour maps to assess how aircraft noise will affect the environment. The Day-Night Average Sound Level (DNL) expressed in A-weighted decibels (dBA or dB) is the metric used by FAA to assess noise exposure.

⁴ Final ROD, Figure 10-1 and Table 10-2

Under the proposed *Cargo City Reconfiguration* plan, none of the aircraft fleet mix, operations, runway use, or flight tracks would change from what was analyzed in the Final EIS. Therefore, there would be no difference in the noise contours from the approved CEP.

There would be one change in the location of noise-sensitive residences within the noise contours. The CEP includes the acquisition of land adjacent to the northwest part of the Airport, an area which is presently affected by aircraft noise and will continue to be affected in the future with or without the CEP projects (see **Figure 4-3**). This land acquisition will be used to allow the relocation of the UPS hub, as depicted in the CEP. On this land are 72 residences, which are to be relocated under the CEP. As reported in the Final EIS, these to-be-relocated residences were not counted among the noise-sensitive receptors, as they will not remain under the future conditions of the CEP. The year 2030 aircraft noise contours⁵ indicate that the DNL at these homes is above 65 dB and increases by 1.5 dB, which is the FAA's threshold for significant aircraft noise impact.

The proposed *Cargo City Reconfiguration* plan would avoid acquisition of the residences. Therefore, there would be an additional 72 residential units within the area impacted by aircraft noise with the *Cargo City Reconfiguration* (i.e., DNL greater than 65 dB and increased by 1.5 dB). These 72 residences have previously been determined eligible for sound insulation under the Airport's Residential Sound Insulation Program (RSIP). Of the 72 residential units determined eligible, 11 opted out and were not sound insulated (one of which is no longer eligible because there is no residence on the property). Under the *Cargo City Reconfiguration* plan, the Airport will commit to re-offering sound insulation to these 10 residences (note that the 10 residential units are located on 8 parcels because there is a multi-family unit on 1 parcel).

Figure 6-1 denotes the parcels east of 4th Avenue which were sound insulated previously, residences for which sound insulation will be re-offered, and ineligible properties. Note that 2 sound-insulated parcels contain multi-family units; therefore, there are 57 sound-insulated parcels and the total number of sound insulated residential units is 61.

If any homeowners accept the Airport's re-offer of sound insulation, eligibility will be confirmed in accordance with all applicable FAA regulations, including but not limited to, meeting interior sound level requirements and building codes.

Table 6-1 summarizes the aircraft flight operations noise impacts of the CEP (i.e., the number of noise-impacted residences identified in the ROD) as compared to those under the *Cargo City Reconfiguration* plan.

TABLE 6-1

Difference in Noise Impacts in Tinicum Township

	CEP Impacts	Cargo City Reconfiguration Impacts	Difference in Impact
Noise-impacted residences with the CEP	424	496	+ 72
Total sound-insulated residences*	533	533	0

Source: Final ROD, Figure 10-1 and Table 10-2; PHL Residential Sound Insulation Program and the Jones Payne Group

* Additional homes qualified for sound insulation through the Airport's Part 150 Noise Compatibility Program (most recently approved in 2012). Sound insulation has been completed for 533 eligible participating homes.

6.2.2 Ground-Based Aircraft Noise

The Final EIS *Noise Technical Report* discusses ground-based aircraft noise for (a.) UPS aircraft taxiing on UPS-facility ramps and aprons (including auxiliary power units [APU] and ground power units [GPU]) and (b.) all aircraft on Taxiway S queueing for departure on current Runway 9R. UPS ground-based aircraft operations would move to

⁵ Final ROD, Figure 9-1.

a different location farther from Tinicum Township under the *Cargo City Reconfiguration* plan. Specifically, the western-most extent of the UPS apron would be located approximately 1,400 feet (about ¼ mile) farther away from the nearest residential parcels in Tinicum Township, as compared to the CEP plan. Likewise, the aircraft taxi, APU and GPU noise sources modeled for the CEP would be equivalent under the *Cargo City Reconfiguration* plan but would move to a different location.

Aircraft using Taxiway S while queueing for departure on Runway 9R would not change as a result of *Cargo City Reconfiguration* because the taxiway layout, runway location, and queue times – for all aircraft departing from this runway – would not change. It is also notable that engine maintenance run-ups, when necessary, are currently conducted on the airfield near each end of Runway 9L/27R (i.e., at the intersection of Taxiways P and W, and the intersection of Taxiways K and H). This procedure would not change in the future under the *Cargo City Reconfiguration* plan.

As concluded in the Final EIS, despite contributions of ground-based aircraft noise sources, the predominant noise impact of the CEP is aircraft flight operations. As such, the changes in aircraft ground-based operations associated with the *Cargo City Reconfiguration* plan would not affect the total aircraft noise exposure, which is dominated by flight operations. The *Cargo City Reconfiguration* would not result in changes to ground-based aircraft noise which would alter the aircraft DNL contours for the CEP.

6.2.3 Surface Transportation Noise

The Final EIS assessed the contribution of surface transportation (i.e., motor vehicle traffic) noise along roadways surrounding the Airport. Specific to the UPS facility, the Final EIS did note that the original CEP layout, with the UPS facility located in the northwestern-most part of the Airport in proximity to Tinicum Township, will result in “incremental increases” in noise from trucks. This was due to (a.) forecast increases in overall vehicle traffic on all roadways in the study area and (b.) the realignment of Tinicum Island Road. In addition, traffic associated with the Airport and UPS which currently pass through Tinicum will continue to do so in the original CEP layout.⁶

The plan for routing UPS facility traffic for the CEP is as follows:

To minimize the impact of UPS trucks through residential areas of Tinicum, the proposed access design for the relocated UPS facility would 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. For purposes of forecasting traffic increases, it was assumed that routine vehicular traffic to the UPS facility would be allowed to access the UPS facility either from Scott Way or 4th Avenue.⁷

Under the *Cargo City Reconfiguration*, the same set of conditions described above would apply, with one exception: Tinicum Island Road would have a new alignment, as shown on the proposed ALP (see **Figure 4-4**). The traffic volumes, vehicle types, and traffic speeds would remain the same as the CEP. Notably, the homes in Tinicum Township east of 4th Avenue – which are set for acquisition in the CEP – would also remain in place under the *Cargo City Reconfiguration*. Therefore, the focus of this section is on these homes, which were not assessed in the Final EIS analysis of future conditions.

The Final EIS *Noise Technical Report* discusses the “screening-level evaluation” used to determine the potential effects of noise from roadway traffic related to the CEP.⁸ The evaluation was conducted using the Federal Highway Administration (FHWA) Traffic Noise Model (TNM). The modeling analysis included 4th Avenue, South Governor Printz Boulevard (Route 291 eastbound), North Governor Printz Boulevard (Route 291 westbound), and

⁶ Final EIS Noise Technical Report, pg. 4-1

⁷ Final EIS Surface Transportation Technical Report, pg. 3-34

⁸ Final EIS Noise Technical Report, pg. I-30

the relocated Tincum Island Road. Prediction sites⁹ were modeled at homes along these roadways and are shown in **Figure 6-2** along with the prediction sites analyzed for the CEP.

The CEP analysis in the Final EIS addressed both FAA and FHWA/PennDOT noise level criteria. For comparison to FAA criteria, DNL was computed for inclusion in the evaluation of composite noise levels (but was not explicitly used to determine noise impacts). For comparison to FHWA/PennDOT criteria, loudest-hour equivalent sound level (L_{eq}) was computed for comparison to criteria given in federal (i.e., 23 CFR 772) and state (i.e., PennDOT Publication No. 24) regulations. Specifically, noise impacts occur if the loudest-hour L_{eq} equals or exceeds 66 dBA at the exterior of residential properties; and, if loudest-hour L_{eq} increases 10 dBA due to the proposed project relative to existing conditions.¹⁰

In order to assess outdoor noise levels for the homes located east of 4th Avenue, prediction sites were modeled at several properties located nearest to the proposed alignment of Tincum Island Road under the *Cargo City Reconfiguration* (see red triangles in **Figure 6-2**). The four new sites were modeled 200 to 300 feet from the relocated roadway, and were placed opposite from sites included in the Final EIS for the CEP located on the west side of 4th Avenue (see blue triangles in **Figure 6-2**). The four new sites are equidistant from those included in the CEP and would experience the same noise levels due to traffic on 4th Avenue alone. **Table 6-2** details the distances of the new sites from the relevant roadways and identifies the corresponding noise site on the opposite side of 4th Avenue.

TABLE 6-2
Noise Prediction Sites for Surface Transportation Assessment

New Prediction Site ID	Distance from Relocated Tincum Island Road (feet)	Distance from 4 th Avenue (feet)	Corresponding CEP Prediction Site ¹
4E-1	200	200	IRO1
4E-2	200	300	MAN2
4E-3	200	500	SEM2
4E-4	300	500	SEM2

¹ Based on equal distance from 4th Avenue. See Figure 6-2 for locations of these sites.

In order to estimate noise levels at the four new sites, two adjustment factors were calculated. These adjustment factors accounted for *forecast traffic volumes* (i.e., forecast increases in overall vehicle traffic for the year 2030 on all roadways due to the CEP) and *roadway relocation* (i.e., the realignment of Tincum Island Road to the vicinity of the homes east of 4th Avenue).

First, to account for *forecast traffic volumes* at the new sites, the noise level was determined to be equal to that of the “corresponding site” identified in **Table 6-2**. This assumption was supported by the equal distance of these sites from 4th Avenue and the location of these sites away from the other roads modeled for the CEP (i.e., Route 291 eastbound/westbound and Tincum Island Road). Thus, the noise levels due to traffic on 4th Avenue were fully accounted for at the new sites east of 4th Avenue.

Second, to account for the *roadway relocation*, the incremental increase in noise was based on the sites in the Final EIS analysis of the CEP that were located near the relocated roadway as depicted in the Final EIS. Sites POW1, POW2, and POW3 – which were located approximately 200 to 300 feet from the relocated roadway in the CEP – are shown as green triangles in **Figure 6-2**. The difference in noise level due to the relocation of Tincum Island Road for sites POW1, POW2, and POW3 ranges from 1.1 dBA to 6.1 dBA DNL and from 3 to 6 dBA loudest-

⁹ A prediction site is a point defined in a noise model to calculate noise at a specific location (in this case, homes and front/rear yards of residences).

¹⁰ Final EIS Noise Technical Report, pg. I-31

hour L_{eq} .¹¹ To be conservative, it was assumed that the effect of relocating Tinicum Island Road results in an increase of 6.1 dBA DNL and 6 dBA loudest-hour L_{eq} for any sites located 200 feet from the relocated roadway (this is in addition to the increase in noise due to forecast traffic volumes mentioned in the previous paragraph, which ranges from 0.9 to 1 dBA). Thus, the noise levels due to the proposed alignment of Tinicum Island Road were fully accounted for at the new sites east of 4th Avenue.

The resulting DNL at sites 4E-1 through 4E-4 were calculated based on this methodology and are shown in **Table 6-3**. As presented in the Final EIS, noise levels are shown in this table for existing conditions, “No Action” conditions (i.e., future traffic volumes without the CEP), and “Proposed Action” conditions (i.e., future traffic volumes including the CEP). The resulting DNL values under the *Cargo City Reconfiguration* plan are lower than 65 dBA DNL, whereas the aircraft flight operations noise at these sites is 65 dBA DNL or higher.

TABLE 6-3

Roadway Traffic Noise for New Prediction Sites (DNL)

Figures in Day-Night Average Sound Level, A-weighted decibels (dBA)

New Prediction Site ID	Existing Conditions	Future No Action	Future with CEP ¹	Cargo City Reconfiguration ²	Increase Relative to No Action
4E-1	46.5	51.8	52.8	58.9	7.1
4E-2	41.5	46.9	47.9	54	7.1
4E-3	35.5	41	41.9	48	7
4E-4	35.5	41	41.9	48	7

¹ Denotes the increase in noise due solely to the forecast traffic volume on 4th Avenue due to the CEP.

² Denotes the additional increase in noise due solely to the proposed relocation of Tinicum Island Road.

In order to assess roadway traffic noise compared to FHWA and PennDOT criteria, loudest-hour L_{eq} was derived using the same methodology described above. However, the Final EIS *Noise Technical Report* only discloses the loudest-hour L_{eq} values at sites POW1, POW2, and POW3; it does not present L_{eq} for any other locations. Therefore, a conservative assumption was made that the No Action loudest-hour L_{eq} is equal to the DNL for roadway traffic noise (even though, at these three sites, the L_{eq} was typically equal to or less than the DNL).

To determine the loudest-hour L_{eq} for existing conditions, it was noted that the the Final EIS shows the difference between the existing conditions L_{eq} and No Action L_{eq} was consistently 1 dBA. This increase in noise level from existing conditions to No Action conditions was applied to this analysis.

Based on this assessment, the resulting loudest-hour L_{eq} are summarized in **Table 6-4**. As shown, the loudest-hour L_{eq} values under the *Cargo City Reconfiguration* plan are lower than 66 dBA, and the increase in L_{eq} (i.e., *Cargo City Reconfiguration* minus Existing Conditions) is less than 10 dBA.

¹¹ Final EIS Noise Technical Report, pg. I-35

TABLE 6-4
Roadway Traffic Noise for New Prediction Sites (Loudest-hour L_{eq})
Figures in Equivalent Sound Level, A-weighted decibels (dBA)

New Prediction Site ID	Existing Conditions	Future No Action	Future with CEP ¹	Cargo City Reconfiguration ²	Increase Relative to Existing Conditions
4E-1	50.8	51.8	52.8	58.8	8
4E-2	45.9	46.9	47.9	53.9	8
4E-3	40	41	41.9	47.9	7.9
4E-4	40	41	41.9	47.9	7.9

¹ Denotes the increase in noise due solely to the forecast traffic volume on 4th Avenue due to the CEP.

² Denotes the additional increase in noise due solely to the proposed relocation of Tinicum Island Road.

Finally, it is noted that the increases in noise levels shown in the Final EIS for the CEP at sites POW1, POW2, and POW3 due to the relocation of Tinicum Island Road would not occur with the *Cargo City Reconfiguration* plan. Therefore, roadway traffic noise at these sites would decrease under the *Cargo City Reconfiguration* plan. **Figure 6-2** shows the prediction sites color-coded as follows: Final EIS sites where noise would not change (blue); Final EIS sites where noise would decrease (green); and, new sites where noise would increase (red). As stated previously in this section, the noise increases along the proposed relocated Tinicum Island Road (red triangles) would be below the threshold of significant impact and would be lower than the aircraft flight operations noise in this area.

6.2.4 Temporary (Construction) Noise

The Final EIS discusses temporary construction-related noise in two categories: 1) noise related to aircraft flight differences due to airfield construction and related runway closures, and 2) noise from on-airport construction equipment.

In the first category, the changes proposed with *Cargo City Reconfiguration* would have no effect on aircraft flight noise levels because it would not change the schedule of runway closures and runway construction activities during the CEP. The Final EIS identifies construction Year 8 as the most disruptive phase of construction, being “the year when the fewest runways would be operational, airfield delays would be greatest, and the maximum amount of construction equipment would be in use.” In this year, “Delaware County, Pennsylvania would experience no change in the number of people exposed to DNL 65 dB and above” when compared to the No Action Alternative.¹² The construction of UPS and Cargo City facilities is independent from the construction of the primary airfield components, which are the activities requiring runway closures and therefore affecting noise contours.

Regarding the second category, noise from construction equipment, the Final EIS states that, in areas west of the Airport, maximum noise levels from construction will be greatest during construction years 1 and 2. These noise levels will be due primarily to pile driving during the construction of building foundations for the approved UPS facility, and may exceed the threshold for outdoor speech interference during construction years 1 and 2. At the prediction site in Tinicum Township located nearest to the Airport (i.e., site R2 in **Figure 6-3**), the Final EIS states that there will continue to be a potential for outdoor speech interference periodically from construction years 3 through 10.¹³

¹² Final EIS, Section 5.2.7 pg. 5-46

¹³ Final EIS, Section 5.2.7 pg. 5-48

Figure 6-3 shows the noise source and prediction site locations for the construction analysis included in the Final EIS analysis of the CEP. With respect to UPS and Cargo City facilities, the Final EIS assessed construction activity noise at source locations 10 (UPS) and 11 (Cargo City) and prediction sites R1 and R2 (both in Tinicum Township). The Final EIS analysis of the CEP identifies pile driving at source location 10 as the predominant construction noise source affecting sites R1 and R2. Also noted on **Figure 6-3** is the location of the neighborhood east of 4th Avenue in Tinicum Township that would not be acquired under the *Cargo City Reconfiguration* plan. Of note, the distance between source 10 and prediction site R2 – approximately 1,000 feet – is roughly the same as the distance from source 10 to the nearest homes in the neighborhood east of 4th Avenue. Therefore, the resulting maximum noise levels due to construction activities would be approximately the same in this neighborhood as at site R2.

Under the *Cargo City Reconfiguration* plan, the UPS and Cargo City facilities would still be in the same general area of the Airport as in the CEP, with the same types of equipment and peak activity levels. Changing the proposed locations of the UPS and Cargo City facilities would change the associated construction schedule, as depicted in **Table 4-2**. The resulting change in noise effects would be associated with different years that maximum sound levels occur.

With the proposed *Cargo City Reconfiguration* plan, UPS foundation construction and pile driving would occur at source location 11 in construction years 7 and 8. Pile driving would still occur at source location 10; however, it would be associated with Cargo City. The period of pile driving for Cargo City would be roughly the same as that of the CEP for UPS: construction years 1 and 2. However, the larger footprint area of the Cargo City facility in the *Cargo City Reconfiguration* may require that pile driving continue into construction year 3. Yet, the conclusions from the Final EIS construction noise analysis regarding site R2 would remain valid, in that maximum outdoor sound levels would reach up to 75 dBA during the loudest construction activities, and construction activities in following years (such as building construction and paving) would have the potential to periodically cause outdoor speech interference through construction year 10.¹⁴ However, the DNL due to construction noise in year 3 may be greater due to increased pile driving during that year.

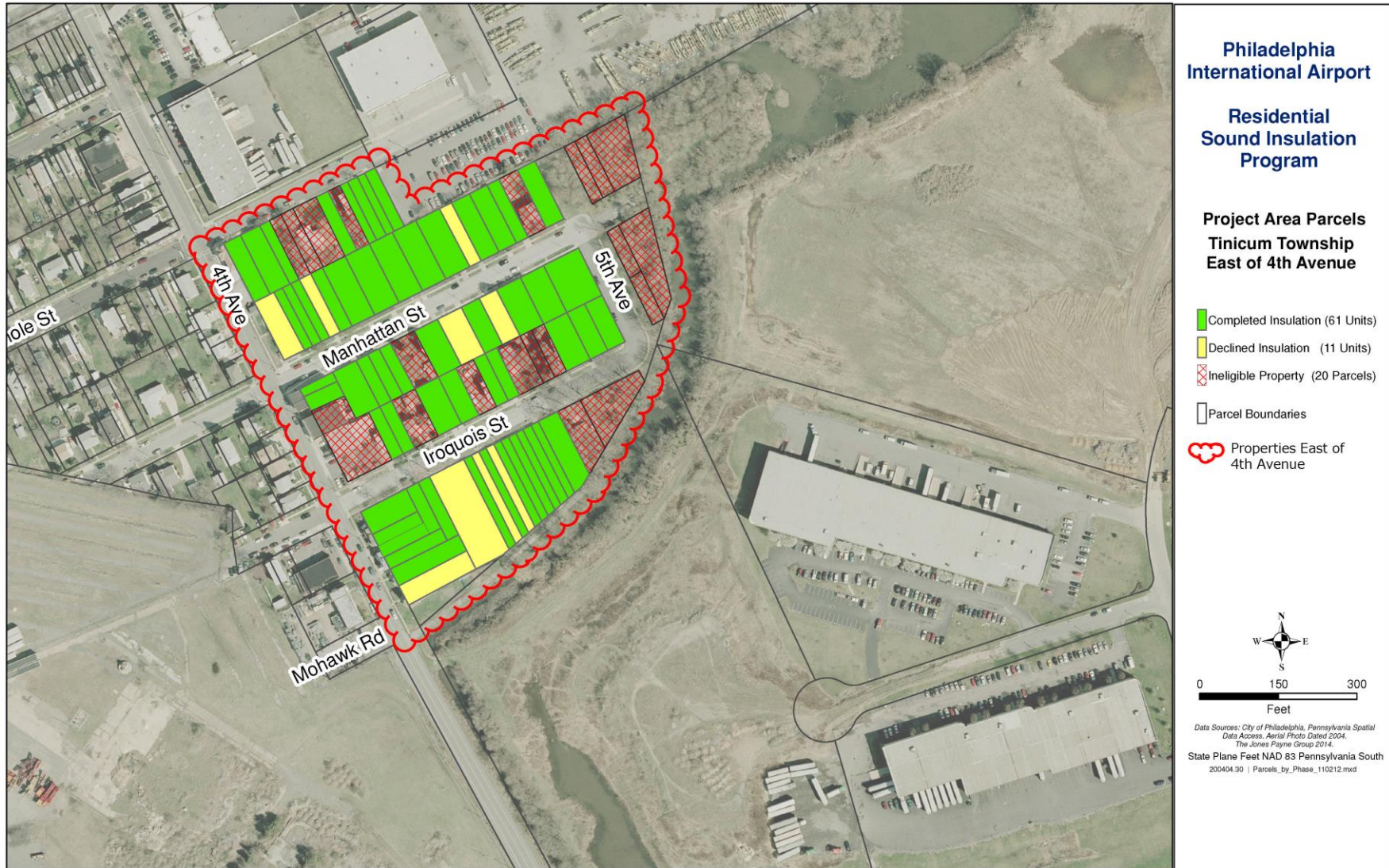
In order to mitigate all construction activity noise due to the *Cargo City Reconfiguration*, the measures included in the Final EIS would still apply:

- All construction equipment powered by an internal combustion engine would be equipped with a properly maintained muffler;
- Conduct truck loading, unloading and hauling so that noise is kept to a minimum;
- Route construction equipment and vehicles in areas that would cause the least disturbance to nearby receptors where possible;
- Fit air-powered equipment with pneumatic exhaust silencers;
- Stationary equipment powered by an internal combustion engine would not be within 150 feet of noise-sensitive sites without portable noise barriers placed between the equipment and the residences. Portable noise barriers most likely would be constructed of plywood or tongue and groove boards and would have a sound absorbing treatment on the surface facing the equipment;
- If necessary, temporary noise barrier walls may be constructed to protect noise-sensitive areas from construction noise. The locations of temporary noise barriers would be dependent upon the construction activity taking place. In general, temporary noise barriers would be located on Airport property in the vicinity of the construction activity taking place, but at some distance from said activity, so as not to impede construction or cause a safety violation.¹⁵

¹⁴ Final EIS, Noise Technical Report, Section 6.5.2.

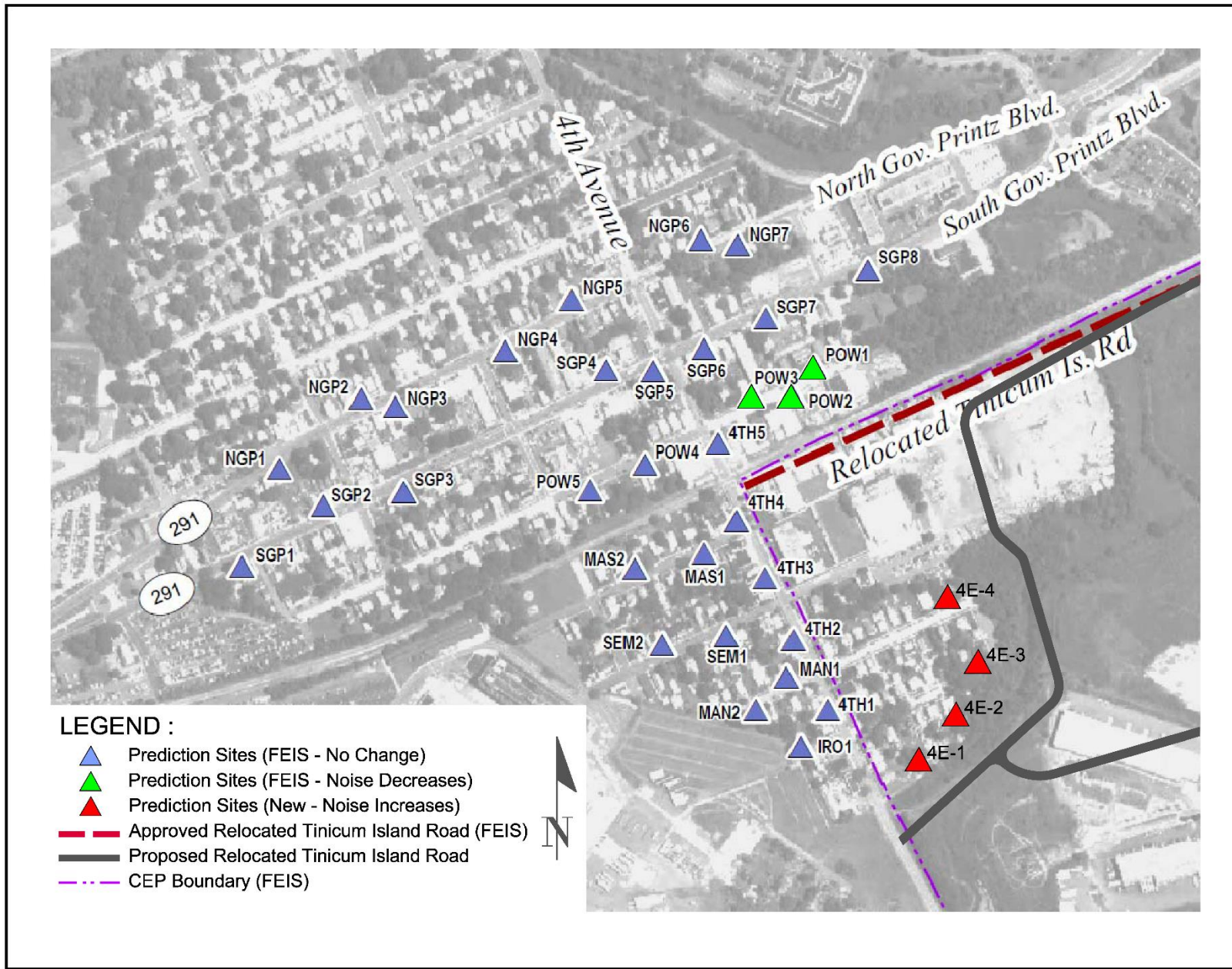
¹⁵ Final EIS, Section 6.2

FIGURE 6-1. PHL Residential Sound Insulation Program East of 4th Avenue



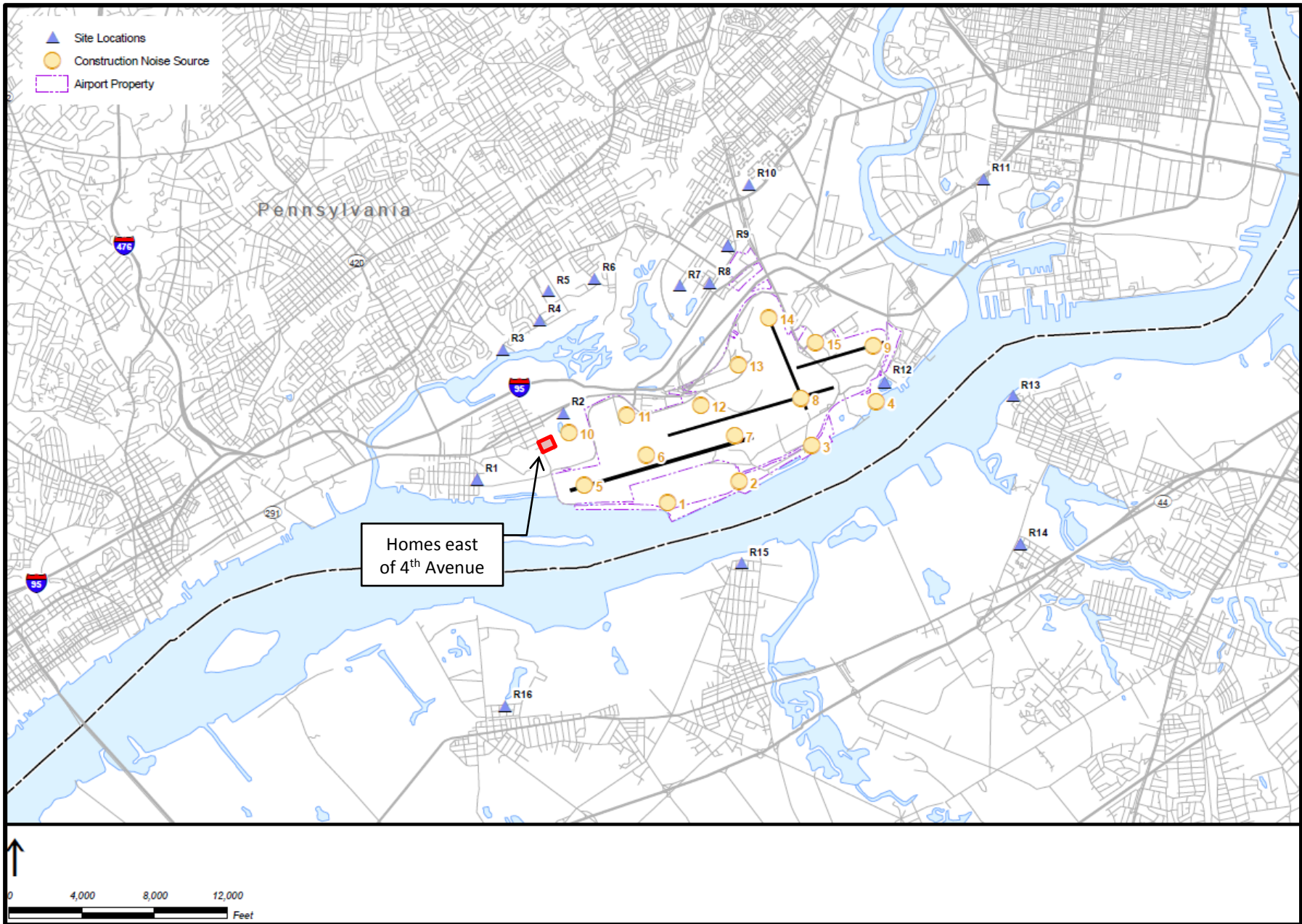
Source: PHL Residential Sound Insulation Program and the Jones Payne Group

FIGURE 6-2. Roadway Noise Analysis Prediction Sites from the Final EIS and the Analysis of Cargo City Reconfiguration



Source: Final EIS Noise Technical Report, Cargo City Reconfiguration Airport Layout Plan

FIGURE 6-3. Modeled Noise Sources and Prediction Sites for Construction Activities



Source: Final EIS Noise Technical Report, Figure 6-12: Modeled Source Locations and Prediction Sites for Ground Based Construction Activities

6.3 Social and Economic Environment

Social and economic impacts of the CEP are documented in the Final EIS Section 5.3. Such impacts involve the relocation of residences or businesses, disruption of established communities, changes in employment, and alteration of transportation patterns. The proposed *Cargo City Reconfiguration* would change these impacts compared to the approved CEP.

The differences in this impact category between the CEP and the proposed *Cargo City Reconfiguration* layout are due to less property acquisition in Tincum Township under the revised plan. Per the Final EIS, approximately 301.4 acres in the West Side Acquisition Area are to be acquired. In that area are 72 residences in a neighborhood east of 4th Avenue and 12 businesses, all of which will be relocated per the CEP. Under the proposed *Cargo City Reconfiguration* plan, the required property acquisition in that area would be scaled back to 208.3 acres. This proposed change reduces the CEP social and economic impacts as follows:

- Total residential relocations would be reduced from 72 to 0;
- Disruption of the residential neighborhood east of 4th Avenue would be avoided;
- Total business relocations would be reduced from 12 to 7;
- Subsequent real estate tax loss to local taxing authorities would be reduced commensurate with the reduced acquisition; and
- Estimated loss of employment would be reduced commensurate with the reductions in business relocations.

Table 6-5 summarizes the real estate acquisition and relocation effects of the CEP as compared to the *Cargo City Reconfiguration* plan. The first column indicates the impacts reported in the Final EIS. The second column shows the revised West Side Acquisition Area acreage, based on updated surveys, the subdivision of Folio 45-00-00935, and the inclusion of two properties not identified correctly in the Final EIS (see **Section 4** for further details). The third column presents the impacts of the proposed *Cargo City Reconfiguration*, and the fourth column shows the difference between it and the *revised* CEP impacts.

TABLE 6-5

Difference in Property Acquisition and Relocation Impacts

	CEP Impacts	Revised CEP Impacts ¹	Cargo City Reconfiguration Impacts	Difference in Impact under Cargo City Reconfiguration
Relocated Residential in Tincum (units)	72	72	0	- 72
Relocated Businesses in Tincum (units)	12	12	7	- 5
West Side Acquisition Area (acres)	301.4	222.2	208.3	- 13.9
Total Acquisition Areas (acres)	1,130.9	1051.7	1037.8	- 13.9

¹ Based on surveys and updates to acquisition plans for the Approved ALP, but not including the *Cargo City Reconfiguration* plan. See Section 4 for further details. Source: Final EIS, Table 5.4-4

The CEP identified estimated employment loss associated with business relocations in Tinicum Township. It also concluded that Tinicum Township, the Interboro School District, and Delaware County taxing districts will be negatively affected by loss of taxes from properties acquired for the CEP. The reduction of the property acquisition under the *Cargo City Reconfiguration* plan, as discussed above, would reduce that adverse impact.

Table 6-6 summarizes the updated tax assessment values and real estate taxes for the five business properties and the residential properties east of 4th Avenue that would not be acquired under the *Cargo City Reconfiguration* plan. These properties are approved for acquisition in the CEP, but would not be acquired under the *Cargo City Reconfiguration*. Thus, the values in the table represent avoidance of adverse impacts. The last row of the table indicates the revised impacts due to the *Cargo City Reconfiguration* (i.e., the impacts due to business that would still be acquired).

For each of the properties, **Table 6-6** shows the annual real estate taxes updated for 2014, and employment as reported in the Final EIS. Of note, the residential tax assessments have not changed since the CEP was approved; however, each of the municipalities' tax rates have increased, which is reflected in the table.

TABLE 6-6

Avoided Tax District and Employment Impacts with the Cargo City Reconfiguration

	Taxable Assessment	Tinicum Township Taxes	Interboro School District Taxes	Delaware County Taxes	Employees
BDP International 1017 4 th Ave.	\$925,000	\$4,116	\$30,927	\$5,076	50
SurePower 1019 4 th Ave.	\$964,170	\$4,244	\$32,249	\$5,303	25
Able Airfreight 425 Seminole St.	\$547,650	\$2,410	\$18,311	\$3,006	6
McBride's Bar 401 Seminole St.	\$120,000	\$528	\$4,012	\$719	6
Brickbeer Warehouse 1205-1207 4 th Ave.	\$264,770	\$1,165	\$8,853	\$1,453	10
Residential Properties East of 4 th Avenue	\$5,180,250	\$22,793	\$173,200	\$29,030	N/A
Impacts Avoided under <i>Cargo City Reconfiguration</i>	\$8,001,840	\$35,256	\$267,552	\$44,587	97
Total Acquisitions from CEP	\$19,038,440	\$64,731	\$531,744	\$84,721	256
Difference (Revised Impact with <i>Cargo City Reconfiguration</i>)	\$11,036,600	\$29,475	\$264,192	\$40,134	159

Sources: Delaware County Real Estate Parcels & Tax Records System; Delaware County Treasurer's Office, 2014 Tax Rate Table, 7/16/2014; Final EIS 2010.

Regarding all other aspects of social and economic impacts, the proposed *Cargo City Reconfiguration* plan would have the same impacts as the CEP. These include:

- No substantial change in surface transportation levels of service;
- Positive effect of on-airport employment gain; and
- Positive effect of construction spending and construction employment.

6.4 Compatible Land Use

The Final EIS, in Section 5.4, addresses the issue of compatible land use in terms of 1) land with sensitive receptors that will be exposed to significant noise levels or noise increases and 2) land proposed for acquisition.

All of the Final EIS findings would remain valid with the proposed *Cargo City Reconfiguration* plan except—as noted above in the discussion of Social and Economic impacts—the CEP would no longer require the relocation of 72 residences and would only require the relocation of 7 businesses (a reduction of 5 businesses) from Tincum Township. The land acquisition and relocation impacts associated with the 72 residences would not occur; however, the residences would remain within an area of significant aircraft noise exposure. As noted in **Section 6.2**, the noise impacts to those residences opting to participate in the Airport’s RSIP have previously been mitigated via sound insulation, and the Airport will re-offer sound insulation to the homes east of 4th Avenue that did not participate previously. Furthermore, the *Cargo City Reconfiguration* plan would locate the UPS facility further away from Tincum Township residential areas.

Compatible land use also pertains to the management of wildlife hazard attractants. The Airport maintains a Wildlife Hazard Management Plan (WHMP), developed in cooperation with the U.S. Department of Agriculture, which was most recently approved by the FAA on August 18, 2010. Potential hazards within Airport property and within five miles of the Airport, such as bodies of water, vegetation, and landfills, are addressed in the plan. The facilities included in the *Cargo City Reconfiguration* will be designed and constructed in accordance with the WHMP and all applicable FAA regulations such that any hazards are identified and mitigated.

6.5 Environmental Justice and Children’s Environmental Health and Safety

The Final EIS, in Section 5.5, concludes that the PHL CEP will not have a significant adverse impact or disproportionate impacts to minority or low-income populations. The evaluation of this impact category was based on census-block analyses of the population make-up in areas that will be affected by land acquisitions or noise exposure with the CEP. There would be no change from the CEP in the population areas (i.e., census blocks) that would be impacted by the proposed *Cargo City Reconfiguration*, except that some of the land acquisition would be avoided altogether, as discussed above. Nor are there new greater environmental impacts within the census blocks identified in the Final EIS for the CEP. Therefore, there would be no additional areas that would have different impacts for minority or low-income populations. There would also be no change in the finding that the CEP would not have significant impacts to drinking water, recreational waters, or other products or substances that a child might come into contact with or ingest.

6.6 Surface Transportation

The impacts to surface transportation were discussed in the Final EIS, Section 5.6. That document provides a comprehensive evaluation of roadway, public transportation, rail, parking, bicycle, and water transportation systems in the project area and concludes that the CEP will not result in significant impacts to the regional or local transportation system.

All of the data and analyses in the Final EIS for the CEP relevant to off-airport surface transportation facilities would be unchanged with the proposed *Cargo City Reconfiguration*. Since the proposed changes with the *Cargo*

City Reconfiguration would not change the overall traffic coming and going to/from the Airport when compared to the approved CEP, traffic volumes and traffic signal timing at the off-airport intersections and roadway links documented for the CEP would not change. There is nothing about the proposed switching of locations between Cargo City and the UPS hub that would influence any traffic on off-airport roadways to be any different than it would be with the CEP.

Regarding on-airport surface transportation, there would be differences with the exchanged locations for the UPS hub and Cargo City. Relocating the UPS hub east of the CEP site and placing it nearer to the roadway entrance used by UPS trucks (i.e., Scott Way) would reduce the travel distance along relocated Tinicum Island Road by approximately 2,840 feet (approximately ½ mile). Furthermore, as planned in the CEP, UPS truck traffic would be directed to and from Scott Way and away from Tinicum Township under the *Cargo City Reconfiguration* plan.

The commitment in the Final EIS would still remain in place regarding the Airport's intention to continue – through surface transportation design and construction activities – to coordinate with appropriate federal, state, and local agencies, including Federal Highway Administration, Pennsylvania Department of Transportation, Southeastern Pennsylvania Transportation Authority, Conrail, CSX Transportation, Delaware Valley Regional Planning Council, Clean Air Council, National Park Service, and the City of Philadelphia Department of Streets. The intent of this coordination is to ensure that no significant changes in surface transportation levels of service would result from the new roadway and intersection layouts.

6.7 Air Quality

Section 5.7 of the Final EIS and the Final General Conformity Determination (GCD) included in the Final EIS described the potential impacts to air quality resulting from the construction and operation of the CEP. These findings were expressed both as an inventory of annual project-related emissions and as predicted ambient (i.e., “outdoor”) pollutant concentrations. The results of the emissions inventory were compared to the pertinent *de-minimis* thresholds contained in the federal Clean Air Act (CAA) General Conformity Rule and the dispersion modeling results were compared to the applicable National Ambient Air Quality Standards (NAAQS), also promulgated by the CAA.

The Final EIS and GCD determined that the CEP would comply with the General Conformity Rule because:

- Operational emissions of Volatile Organic Compounds (VOCs), Oxides of Nitrogen (NO_x), Particulate Matter (PM_{2.5}), and Sulfur Dioxide (SO₂) would be below (i.e. within) their respective General Conformity Rule *de-minimis* thresholds;
- Construction period emissions of PM_{2.5} and SO₂ would be below their *de-minimis* thresholds for all years;
- Construction period emissions of NO_x are below the *de-minimis* threshold after the application of Airport Emission Reduction Credits (AERCs) available for PHL;¹⁶
- Construction period emissions for VOCs were below the *de-minimis* threshold for all but two years after the application of AERCs; and
- Construction period emissions of VOCs for those two years that would remain above the *de-minimis* threshold after the application of available AERCs would be fully offset with Emission Reduction Credits (ERCs) obtained by the City of Philadelphia before the construction begins.

¹⁶ As an inducement to undertake emissions-reduction activities at airports, AERCs can be used in an initial conformity analysis to demonstrate that a proposed action does not exceed *de-minimis* thresholds. Over the past several years and as documented in the Final EIS, the Airport has undertaken a number of emission reduction measures at PHL through the FAA's Voluntary Airport Low Emissions (VALE) program. The VALE Program provides funds to help finance low emission vehicles, refueling and recharging stations, gate electrification, and other airport air quality improvements. The emission reductions achieved through VALE generate Airport Emission Reduction Credits (AERCs) that can offset emissions from airport projects. Depending on the year, the Airport has generated from 27.5 to 82.6 tons of NO_x AERCs and from 2.8 to 6.3 tons of VOC AERCs over the 13-year Cargo City Reconfiguration construction schedule.

The City has acquired all of the AERCs and ERCs identified in the Final EIS and GCD for the CEP.

From these results, the Final EIS and GCD demonstrated that the emissions associated with the CEP complied with the General Conformity Rule throughout the entire construction and operational timeframes. The Final EIS and GCD also showed that the CEP will neither cause nor create any new violation(s) of a NAAQS nor exacerbate an existing one after the CEP improvements were completed. Based upon these outcomes, it was concluded that the air emissions associated with the CEP complied with NEPA and conformed to the applicable State Implementation Plan (SIP) for air quality.

The bases for these findings would not change with the *Cargo City Reconfiguration*, as discussed below.

6.7.1 Methodology

For the purposes of this report, it is important to note that when compared to the CEP, the only potential changes to air emissions attributable to the *Cargo City Reconfiguration* plan are those connected to changes in (i.) construction activities, (ii.) cargo aircraft taxi distances, and (iii.) cargo truck traffic associated with the UPS and Cargo City facilities. By comparison, emissions associated with other air pollution sources associated with the CEP (i.e., construction activities for all other projects of the CEP, passenger aircraft operations, cargo aircraft flight operations, ground support equipment (GSE), passenger motor vehicles, stationary sources, and others) will remain unaffected as a result of the proposed change to the ALP.

Based upon this understanding, this updated air quality analysis focuses on recomputing the estimated construction, cargo aircraft and cargo truck traffic emissions inventories associated with UPS and Cargo City in the CEP as approved in the Final EIS and GCD and compares them to those under the *Cargo City Reconfiguration* plan. In this way, the change(s) in annual and total emissions related to the reconfiguration of the UPS and Cargo City facilities are evaluated in the same way as in the Final EIS and GCD.

Consistent with the CEP air quality analysis in the Final EIS and GCD, the construction-related estimates in this report include emissions from on-site (i.e., off-road) construction equipment and vehicles, on-road truck trips to and from the Airport, construction worker vehicles, fugitive dust, and asphalt/concrete paving. Cargo-related emissions are based upon the forecasted changes in cargo aircraft taxi times and cargo truck travel distances associated with the *Cargo City Reconfiguration* plan.

The same emission models and databases, assessment methodologies, and assumptions were also utilized for this updated air quality analysis. This approach enables consistent calculations and an “apples-to-apples” comparison of air emissions associated with the two scenarios (i.e., the CEP vs. *Cargo City Reconfiguration* plan and the total emissions change from the No Action Alternative per year).

Finally, it is worth noting that construction activities precede (i.e., occur before) the operational functions of the UPS and Cargo City facilities under both the CEP and the *Cargo City Reconfiguration* plan. For this reason, the emissions attributable to their respective sources also do not occur at the same time and are therefore segregated from one another and presented separately in the sub-sections below.

6.7.2 Construction Emissions

For the construction-related emissions inventory, the CEP construction timeline and schedules, vehicle/equipment needs, and manpower requirements for the UPS and Cargo City facilities were first revised and updated for the *Cargo City Reconfiguration* plan.¹⁷ These data were then combined with emission factors derived

¹⁷ These revisions and updates to the CEP included the following:

- Revised construction equipment and man-power needs for the reconfigured Cargo City and UPS projects (including additional support facilities and actions not originally anticipated in the CEP: Large Maintenance Hangar demolition, US Postal Service building demolition, and relocation of two glycol tanks);
- Aligning the Cargo City, UPS and all other CEP projects to the CEP schedule; and

from the U.S. Environmental Protection Agency (USEPA) NONROAD and MOBILE6.2 emissions models to calculate emissions of carbon monoxide (CO), nitrogen oxides (NO_x), sulfur oxides (SO₂), particulate matter (PM₁₀/PM_{2.5}),¹⁸ and volatile organic compounds (VOC). From this, annual emissions were computed for the UPS and Cargo City facilities under both the CEP plan and the *Cargo City Reconfiguration* plan.

Table 6-7 provides a compilation and comparison of the combined annual construction emissions under the CEP plan and the *Cargo City Reconfiguration* plan, over the expected 13-year construction period (i.e., 2015 through 2027). For consistency with the Final EIS and GCD, these values are expressed in tons per year and segregated by pollutant (i.e., CO, NO_x, etc.).

Using these results, the differences in annual emissions between the two scenarios were also computed and shown. In this way, the net change(s) in construction-related emissions are disclosed for NEPA purposes and easily compared to the General Conformity Rule *de-minimis* levels. Based upon the nonattainment designations for the Philadelphia area, the applicable *de-minimis* thresholds for the ozone (O₃) precursors of NO_x and VOC are 100 and 50 tons, respectively, and for PM_{2.5} the threshold is 100 tons annually.¹⁹

For ease of understanding, the following summarizes this analysis:

- On a cumulative basis, total emissions would be up to 6.1 tons (i.e., up to 12 percent) lower under the *Cargo City Reconfiguration* plan over the full 13-year construction timeframe when compared to the CEP (depending on the pollutant).
- On an annual basis, total construction emissions under the *Cargo City Reconfiguration* plan would be greater during five separate years (i.e., Years 4, 5, 8, 9, and 11) when compared to the CEP. These increases are mostly due to the forecasted changes in construction sequencing, vehicle/equipment needs and manpower requirements during these time periods. In addition, the changes in emissions associated with the *Cargo City Reconfiguration* (as compared to the CEP construction emissions) are well below the applicable *de-minimis* thresholds.
- In contrast, total annual emissions under the *Cargo City Reconfiguration* plan would be lower during five other years (i.e., Years 2, 3, 6, 7, and 10), when compared to the CEP. Again, these decreases are largely attributable to the differences in the forecasted construction sequencing and vehicle/equipment needs and manpower requirements during these time periods.
- Finally, for three years of the construction period (i.e., Years 1, 12, and 13), there would be essentially no differences in annual construction emissions associated with the two scenarios. This is because there are no construction activities during the first year associated with UPS and Cargo City projects and no differences in construction activities during the last two years.

From these findings, it is evident that total construction-related emissions associated with the UPS and Cargo City projects under the *Cargo City Reconfiguration* plan would be lower overall than under the CEP plan, although, there would be year-by-year differences in the amounts of emissions generated. In no case would annual construction emissions attributable to these two projects under the *Cargo City Reconfiguration* plan exceed the applicable General Conformity Rule *de-minimis* thresholds for NO_x, VOC, or PM_{2.5}. Similarly, the annual net changes in emissions between the two scenarios would not exceed these levels.

Because the CEP involves a number of other improvements to PHL in addition to the reconfigured UPS and Cargo City facilities (i.e., new runway, select runway extensions and reconfigured taxiways, passenger terminal improvements, etc.), the Final EIS and GCD correspondingly evaluated construction-related emissions in a

– Use of updated construction equipment/vehicle emission factors.

¹⁸ PM₁₀ = particulate matter less than 10 micrometers in diameter and PM_{2.5} = particulate matter less than 2.5 micrometers in diameter.

¹⁹ The Philadelphia area is designated nonattainment for ozone and PM_{2.5}; the other pollutants are computed and shown for disclosure purposes.

comprehensive manner. In other words, air emissions associated with the UPS and Cargo City projects were assessed in combination with all of the other CEP projects planned for construction during the same timeframe. In this way, the full air quality impacts of entire CEP with the *Cargo City Reconfiguration* could be evaluated against the General Conformity Rule *de-minimis* thresholds and conformity determination standards to determine whether any of the conclusions of the Final EIS and GCD would change if the *Cargo City Reconfiguration* plan were implemented.

Consistent with the analysis of the CEP in the Final EIS and GCD, both the CEP and the *Cargo City Reconfiguration* emissions inventories include the AERCs and ERCs that were approved in the Final EIS/ROD and GCD for the CEP. These AERCs and ERCs were obtained by the Airport and applied in select years (i.e., years 5, 6 and 8) of the CEP construction period to reduce and/or offset construction-related emissions for the CEP to levels below the *de-minimis* thresholds (including net VOC emissions of zero for construction years 5 and 6), thus meeting the requirements of the General Conformity Rule.²⁰ The Airport has already undertaken the emissions reduction projects to generate the AERCs and acquired the ERCs. Thus, no new AERCs or ERCs would be needed or acquired by the City as part of the *Cargo City Reconfiguration* plan. It is also important to note that, by definition, AERCs are not considered to be “mitigation” as they are applied before the total CEP-related emissions are computed. By comparison, the ERCs are applied after the totals are computed and thus are considered to be mitigation as “offsets”.

Table 6-8 contains the results of this analysis and shows the proposed CEP construction-related emissions on a cumulative basis by source, pollutant, and year. When aggregated, total CEP construction-related emissions under the *Cargo City Reconfiguration* plan would be well under (i.e., within) the *de-minimis* thresholds for both NO_x and VOC during ten years (i.e., 1, 2, 3, 4, 7, 9, 10, 11, 12, and 13) but would exceed these values during three years (i.e., 5, 6, and 8) without applying the ERCs and AERCs already acquired for the CEP. However, as further demonstrated in **Table 6-9** and consistent with the Final EIS and GCD, the inclusion of the Airport’s AERCs and ERCs in Years 5, 6, and 8 would lower the resultant emission estimates of VOCs and NO_x to values below *de-minimis* thresholds and offset VOC emissions for construction years 5 and 6 to zero, consistent with the GCD. For PM_{2.5}, the emission estimates would remain below the *de-minimis* level over the entire 13 years.²¹

²⁰ The Airport has also purchased 137.45 tons/year of unexpiring VOC Emission Reduction Credits (ERCs) which are listed in the Pennsylvania ERC Registry. In the GCD, these ERCs were used to offset VOC emissions that exceeded *de-minimis* levels in construction years 5 and 6, so that the net VOC emissions will be zero. This same result would occur with the *Cargo City Reconfiguration* plan.

²¹ As part of the ROD, the CEP contains a number of construction- and operational-related air quality mitigation measures that will also be applied to the *Cargo City Reconfiguration* plan.

TABLE 6-7. Annual Construction Emissions for the UPS/Cargo City Facilities under the CEP and Cargo City Reconfiguration Plan

All figures in tons

Pollutant	Construction Year													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	
CEP														
VOC	0.0	0.8	4.0	0.5	0.7	0.8	1.0	0.6	0.8	1.2	0.2	0.1	0.1	10.7
NO _x	0.0	5.4	21.5	3.4	3.9	4.0	3.9	2.2	2.4	3.6	0.7	0.2	0.2	51.2
CO	0.0	8.4	52.5	4.3	4.9	7.8	13.1	6.4	8.6	14.9	2.2	0.1	0.1	123
SO _x	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.4
PM ₁₀	0.0	5.2	16.0	5.1	5.1	6.1	6.1	5.1	6.7	5.3	5.0	5.0	5.0	75.6
PM _{2.5}	0.0	0.7	11.3	0.6	0.6	1.6	1.6	0.6	2.2	0.7	0.6	0.5	0.5	21.3
Cargo City Reconfiguration														
VOC	0.0	0.4	1.1	1.3	1.4	0.5	0.9	1.0	3.0	0.1	0.5	0.1	0.1	10.4
NO _x	0.0	3.0	7.3	6.8	7.0	2.6	3.7	3.8	8.6	0.6	1.2	0.2	0.2	45.0
CO	0.0	3.3	10.2	15.8	15.0	3.2	11.8	12.5	43.7	0.2	4.2	0.1	0.1	120
SO _x	0.0	0.0	0.0	0.1	0.1	0.0	0.0	0.0	0.1	0.0	0.0	0.0	0.0	0.4
PM ₁₀	0.0	5.1	5.3	7.0	5.3	6.6	5.2	5.2	15.4	5.0	5.0	5.0	5.0	74.9
PM _{2.5}	0.0	0.6	0.7	2.4	0.7	2.1	0.7	0.6	10.7	0.5	0.5	0.5	0.5	20.6
Change in Emissions under Cargo City Reconfiguration (Project-related)														
VOC	0.0	-0.4	-2.9	0.8	0.7	-0.3	-0.1	0.5	2.3	-1.1	0.2	0.0	0.0	-0.3
NO _x	0.0	-2.4	-14.2	3.5	3.2	-1.3	-0.2	1.6	6.2	-3.0	0.6	0.0	0.0	-6.1
CO	0.0	-5.1	-42.4	11.5	10.1	-4.6	-1.3	6.1	35.1	-14.7	2.0	0.0	0.0	-3.3
SO _x	0.0	-0.0	-0.1	0.0	0.0	-0.0	-0.0	0.0	0.1	-0.0	0.0	0.0	0.0	-0.0
PM ₁₀	0.0	-0.1	-10.7	1.9	0.2	0.5	-0.9	0.1	8.7	-0.3	0.0	0.0	0.0	-0.7
PM _{2.5}	0.0	-0.1	-10.5	1.8	0.1	0.5	-0.9	0.1	8.6	-0.2	0.0	0.0	0.0	-0.7

Source: Final EIS, 2010 and KBE, 2015.

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, SO_x - sulfur oxides, PM₁₀/PM_{2.5} - particulate matter, VOC - volatile organic compounds.

The Philadelphia area is designated nonattainment for ozone and PM_{2.5}. Values shown are combined annual emissions for both the UPS and Cargo City projects. No (i.e., zero) emissions occur in Year 1 during the project design process. Change in Emissions under the *Cargo City Reconfiguration* plan = CEP - *Cargo City Reconfiguration* plan

Because emissions values represent the sum of numerous emissions source categories, some of the reported "Change in Emissions" values may differ slightly from the computed differences between the "CEP" and "*Cargo City Reconfiguration*" values due to rounding. For example, an emission sub-total of 0.005 tons for a source or category would be added to the total as 0.01 tons.

TABLE 6-8. Total CEP Construction and Operational Emissions under the Cargo City Reconfiguration Plan (Without Applying AERCs and ERCs)

All figures in tons

Pollutant	Construction Year												
	1	2	3	4	5	6	7	8	9	10	11	12	13
VOC													
Construction Activities	0.3	6.2	5.7	7.9	9.4	6.2	4.4	3.9	5.4	3.2	3.8	3.5	2.1
Airfield Operational	<0.1	-4.5	2.9	-4.0	63.6	71.5	29.7	50.1	24.6	11.5	22.1	20.3	20.3
Total VOC Emissions	0.3	1.7	8.6	3.9	73.1	77.7	34.0	54.0	29.9	14.7	25.8	23.8	22.3
NO_x													
Construction Activities	2.3	45.1	37.4	42.1	46.2	26.5	24.1	14.0	16.4	16.4	9.6	21.1	2.4
Airfield Operational	0.0	-2.7	7.3	1.2	73.1	91.4	17.0	54.8	18.0	-13.0	-45.0	-41.8	-41.8
Total NO_x Emissions	2.3	42.3	44.7	43.3	119	118	41.1	68.8	34.4	3.4	-35.5	-20.7	-39.4
PM_{2.5}													
Construction Activities	0.6	7.5	6.8	10.0	6.7	9.3	2.5	2.9	11.1	1.0	9.3	16.3	33.5
Airfield Operational	<0.1	-0.3	0.3	0.0	4.8	5.9	1.3	3.5	1.0	-0.7	-0.5	-0.3	-0.3
Total PM_{2.5} Emissions	0.6	7.2	7.1	10.0	11.5	15.2	3.8	6.4	12.1	0.3	8.7	16.0	33.1

Source: Final EIS, 2010 and KBE, 2015.

Notes: NO_x - nitrogen oxides, PM_{2.5} - particulate matter, VOC - volatile organic compounds; these pollutants are related to the current nonattainment designations for the Philadelphia area.Construction Activities emissions comprise those associated with the UPS and Cargo City Facilities under the *Cargo City Reconfiguration* plan and all other CEP projects.

Airfield operational emissions comprise those attributable to aircraft operations (i.e., taxi and delay) affected by the CEP construction program.

Total Emissions = Construction + Airfield Emissions.

Because emissions values represent the sum of many numerous emissions source categories, some of the reported "Change in Emissions" values may differ slightly from the computed differences between the "CEP" and "Cargo City Reconfiguration" values due to rounding. For example, an emission sub-total of 0.005 tons for a source or category would be added to the total as 0.01 tons.

TABLE 6-9. Total CEP Construction Emissions under the Cargo City Reconfiguration Plan with the Application of Previously-Acquired AERCs and ERCs

All figures in tons

Pollutant	Condition	Construction Year												
		1	2	3	4	5	6	7	8	9	10	11	12	13
VOC	Total CEP-Related	0.3	1.7	8.6	3.9	73.1	77.7	34.0	54.0	29.9	14.7	25.8	23.8	22.3
	AERCs Applied	-	-	-	-	6.2	6.2	-	4.1	-	-	-	-	-
	Emissions with AERCs	-	-	-	-	66.9	71.5	-	49.9	-	-	-	-	-
	ERCs Applied	-	-	-	-	86.9	92.9	-	0.0	-	-	-	-	-
	Emissions with AERCs/ERCs	-	-	-	-	0.0	0.0	-	49.9	-	-	-	-	-
	<i>De-minimis</i> Threshold	50	50	50	50	50	50	50	50	50	50	50	50	50
	Below Thresholds?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
NO _x	Total CEP-Related	2.3	42.3	44.7	43.3	119	118	41.1	68.8	34.4	3.4	-35.5	-20.7	-39.4
	AERCs Applied	-	-	-	-	20	19	-	-	-	-	-	-	-
	Emissions with AERCs	-	-	-	-	99	99	-	-	-	-	-	-	-
	<i>De-minimis</i> Threshold	100	100	100	100	100	100	100	100	100	100	100	100	100
	Below Thresholds?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Source: Final EIS, 2010 and KBE, 2015.

Notes: NO_x - nitrogen oxides, VOC - volatile organic compounds.

Dashes (-) mean not applicable.

Total CEP-Related emissions comprise those associated with the UPS and Cargo City Facilities under the *Cargo City Reconfiguration* plan and all other CEP projects.AERCs (Airport Emission Reduction Credits) and ERCs (Emission Reduction Credits) are those generated and applied by the Airport and approved in the CEP Final EIS, ROD and GCD. The Airport has generated from 27.5 to 82.6 tons of NO_x AERCs and from 2.8 to 6.3 tons of VOC AERCs over the 13-year *Cargo City Reconfiguration* construction schedule. The Airport has also purchased 137.45 tons/year of unexpiring VOC Emission Reduction Credits (ERCs) which are listed in the Pennsylvania ERC Registry.When applying AERCs, emissions only need be reduced to the *de-minimis* threshold. When applying ERCs, emissions are reduced to 0 and applied on a 1:1.3 ratio in accordance with the ROD.PM_{2.5} emissions are not shown as they are below the *de-minimis* thresholds without the application of AERCs or ERCs.

6.7.3 Operational Emissions

As discussed above, the only potential changes to operational emissions attributable to the *Cargo City Reconfiguration* plan would be those from the changes in cargo aircraft taxi distances and cargo truck travel distance associated with the reconfigured UPS and Cargo City facilities.

With respect to cargo aircraft, the *Cargo City Reconfiguration* plan would reposition the UPS and Cargo City facilities in such a manner that would result in shorter overall average aircraft taxi paths between the facilities and runways (and lower overall average taxi times of approximately 4 minutes) when compared to the CEP. As shown in **Table 6-10**, the lower average taxi time would also result in lower emissions associated with these aircraft. For the designated nonattainment pollutants of NO_x, VOC, and PM_{2.5}, these decreases in annual emissions would range from 0.34 to 8.16 tons (or 1 to 8 percent) and for the pollutant CO, the decrease would be 40 tons (or 16 percent).

TABLE 6-10

UPS Cargo Aircraft Emissions under the CEP and the Cargo City Reconfiguration Plan

All figures in tons

Pollutant	Implementation Year		
	CEP	Cargo City Reconfiguration Plan	Change in Emissions
VOC	102	93.9	-8.1
NO _x	357	352	-5
CO	254	214	-40
SO ₂	24.6	23.0	-1.6
PM ₁₀	5.51	5.17	-0.34
PM _{2.5}	5.51	5.17	-0.34

Source: Final EIS, 2010 and KBE, 2015

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, SO_x - sulfur oxides, PM₁₀/PM_{2.5} - particulate matter, VOC - volatile organic compounds.

Values shown are cargo aircraft emissions combined for the UPS and Cargo City facilities.

Change in Emissions = CEP - *Cargo City Reconfiguration* Plan.

With respect to cargo truck traffic, the *Cargo City Reconfiguration* plan would also relocate the UPS and Cargo City facilities closer to the proposed I-95 entrance/exit ramps when compared to the CEP. This change would result in a shorter travel distance of approximately ½-mile (and shorter travel time) for cargo truck traffic, resulting in a corresponding decrease in emissions associated with these vehicles. As shown in **Table 6-11**, for the designated nonattainment pollutants of NO_x and VOC, these decreases would be from 5.11 to 8.16 tons (or approximately 38 percent) per year and 0.34 tons for PM_{2.5} (or lower than 1 percent).

TABLE 6-11

UPS Cargo Truck Emissions under the CEP and the Cargo City Reconfiguration Plan*All figures in tons*

Pollutant	CEP	Implementation Year	
		Cargo City Reconfiguration Plan	Change in Emissions
VOC	0.37	0.23	-0.14
NO _x	0.13	0.08	-0.05
CO	12.0	7.71	-4.29
SO ₂	0.01	0.01	0.00
PM ₁₀	0.03	0.02	-0.01
PM _{2.5}	0.01	0.01	0.00

Source: Final EIS, 2010 and KBE, 2015

Notes: CO - carbon monoxide, NO_x - nitrogen oxides, SO_x - sulfur oxides, PM₁₀/PM_{2.5} - particulate matter, VOC - volatile organic compounds.

Values shown are cargo aircraft emissions combined for the UPS and Cargo City Facilities.

Change in Emissions = CEP - *Cargo City Reconfiguration* plan.

6.7.4 Greenhouse Gas Emissions and Climate Change

Greenhouse gases (GHG) trap heat in the earth's atmosphere and contribute to global climate change. As there is a direct link between fuel combustion and GHG emissions, sources that require fuel or power at an airport are identified as sources that would generate GHGs.

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 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”. Based on FAA data, operations activity at PHL represents less than one percent of U.S. aviation activity. Therefore, assuming that GHGs occur in proportion to the level of activity, GHG emissions associated with existing and future aviation activity at PHL would be expected to represent less than one percent of U.S.-based aviation-generated GHG or 0.3 percent of total U.S. GHG emissions from human sources. Further, because aircraft taxi distances and truck travel distances would be shorter, overall GHG emissions would decrease with lower fuel use under the *Cargo City Reconfiguration* plan, as compared to the CEP.

For the above reasons, GHG emissions were not quantified for this assessment. Moreover, under current FAA and USEPA NEPA guidance, there is no threshold of significance that pertains specifically to GHGs and airport improvement projects.

6.7.5 Summary

Based upon the results of this air quality assessment conducted for the reconfigured UPS and Cargo City facilities under the *Cargo City Reconfiguration* plan, the essential findings are summarized as follows:

- Total construction emissions would be as much as 12 percent lower (depending on the pollutant) when compared to the CEP.
- On an annual basis, construction emissions of NO_x, VOC, and/or PM_{2.5} would be greater over five years, lower over five years, and the same during three years of the 13-year schedule when compared to the CEP. In no case would these changes in emissions exceed the General Conformity Rule *de-minimis* thresholds.
- As in the Final EIS and GCD, CEP-related construction emissions of NO_x, VOC, and PM_{2.5} would remain within applicable *de-minimis* levels with the application of AERCs, except for VOCs during construction years 5 and 6.

- As with the Final EIS and GCD, total CEP VOC construction emissions under the *Cargo City Reconfiguration* plan would be offset to zero with the application of the already-acquired ERCs.
- Operational emissions of NO_x, VOC, and PM_{2.5} associated with cargo aircraft taxiing and trucks accessing/egressing the reconfigured UPS and Cargo City facilities would be lower when compared to the CEP.

From these findings the *Cargo City Reconfiguration* would not change the outcome of the FAA's GCD nor would it cause a delay in meeting the Philadelphia area attainment goals.

6.8 Wetlands and Waterways

The Final EIS, in Section 5.8, identified the impacts to wetlands and waterways that will occur with the CEP and concluded that the impacts will not be significant. The Final EIS also concluded that there is no practicable alternative that will avoid the identified wetland impacts, because wetlands are interspersed among the developed parts of the airport and directly border the airport. Although the impacts were determined not significant and unavoidable, the CEP requires a wetlands/waterways compensatory mitigation program to comply with FAA, U.S. Army Corps of Engineers (USACE), and Pennsylvania Department of Environmental Protection (PADEP) requirements of no loss of wetland area and/or functions (see 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 same mitigation commitments as stated in the Final EIS are relevant to the proposed *Cargo City Reconfiguration* plan and are discussed in this section.

As reported in the Final EIS, the wetlands and waterways that occur throughout the Airport property provide "limited wetland functions" such as sediment transport, surface water discharge, and surface water retention. In addition, some Airport wetlands and waterways provide habitat for state-listed plant and animal species and are thus considered Exceptional Value (EV) wetlands (as discussed in **Section 6.13**). Yet, the Final EIS states that the overall "impacts would be minor considering the size, location within the Airport, and degraded conditions of wetlands and waterways in the project area".²² In addition, the Wetlands and Waterways Technical Report indicates that, throughout the Airport, "all of the waterways have emergent or submerged hydrophytic vegetation ... the most predominant species is common reed [*Phragmites* spp.], which in the Philadelphia region is typical of disturbed and low-quality waters and wetlands."²³

The Long Hook Creek wetland system, described in the Final EIS as "a network of wetlands and channelized streams fringed by fragmented woodland, scrub-shrub, and emergent wetlands" is partially located in the northwest part of the Airport, where the UPS and Cargo City facilities are to be located. All of the wetlands located in the Long Hook Creek watershed are palustrine (freshwater non-tidal) and the waterways are likewise non-tidal. As such, the function of these wetlands and waterways is less critical than the tidal wetlands located along the Delaware River. As stated in the Final EIS, "Long Hook watershed has a 'poor' to 'very poor' water quality rating."²⁴ In 2014, the PADEP listed Long Hook Creek as "impaired" for fish consumption. As the result of biological assessments used to evaluate aquatic life use, Long Hook Creek required the development of a Total Maximum Daily Load (TMDL) by the PADEP.²⁵ Nonetheless, wetlands and waterways this area provide habitat for the Red-bellied Turtle, a Pennsylvania state-listed species.

The wetlands and waterways evaluation prepared for the Final EIS indicated that the Long Hook Creek system, within the boundaries of the CEP, comprised approximately 1.6 linear miles of waterway, totaling 9.2 acres of waterways in 8 separate sections; and, approximately 23.7 acres of wetlands in 15 separate wetland sections. The

²² Final EIS, Section 5.8, page 5-148.

²³ Final EIS, Wetlands and Waterways Technical Report, p. 2-10

²⁴ Final EIS, Wetlands and Waterways Technical Report, p. 2-49

²⁵ PADEP, *Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, 2014.
http://www.portal.state.pa.us/portal/server.pt/community/water_quality_standards/10556/draft_integrated_water_quality_report_-_2014/1702856

CEP will impact approximately 80 percent of the Long Hook Creek waterway resources and approximately 23 percent of the Long Hook Creek wetlands. **Table 6-12** identifies the total Section 404 Jurisdictional Wetlands for the entire CEP project area with the *Cargo City Reconfiguration* versus the impacted acreage for the CEP. **Table 6-13** presents the same comparison for Section 404 Jurisdictional Waterways.

As shown, impacts on the Long Hook Creek resources under the *Cargo City Reconfiguration* plan would be greater than the CEP due to changed facility and pavement locations, which would include filling or grading portions of the wetlands and rerouting and adding culverts within parts of the waterway. The approved CEP plan reroutes Long Hook Creek to the northern property boundary along the railroad, then extends the Creek south parallel along the area of 4th Avenue. The approved plan places the Creek along a new west Airport property boundary (see **Figures 4-2 and 4-4** at the areas labeled “Relocated Long Hook Creek”). With the *Cargo City Reconfiguration* plan, the acquisition area would be smaller and the Creek would be rerouted along the proposed Airport property boundary with homes in Tinicum Township near Seminole, Manhattan, and Iroquois Streets, and also farther south along the west and south sides of the proposed cargo facility, connecting into an existing ditch near the west end of existing Runway 9R-27L.

In order to determine the difference in impacts to the various sections of Long Hook Creek, a detailed review of wetland and waterway locations and dimensions was conducted comparing the CEP to the proposed *Cargo City Reconfiguration*. This review relied on the Final EIS Technical Report on Wetlands and Waterways²⁶ which presents maps and tables of the wetlands and waterways comprising the Long Hook Creek watershed. **Figures 6-4 and 6-5** are based on information presented in Figure 2-6, “Existing LH Wetlands and Waterways” in that report. **Figure 6-4** presents an overlay of the approved ALP onto the Long Hook Creek watershed and includes the creek alignment approved in the CEP. **Figure 6-5** shows an overlay of the *Cargo City Reconfiguration* plan on the same watershed area, and includes the proposed creek alignment discussed previously.

The review shows that the following wetland and waterway sections would incur increased impacts as a result of *Cargo City Reconfiguration* as compared to the CEP: LH-3B, LH-4, LH-5A, LH-12A, and LH-13B. For all other sections of wetlands and waterways, the impacts were determined to be the same as those reported in the Final EIS. **Tables 6-12 and 6-13** show the impact to wetlands and waterways under the *Cargo City Reconfiguration* plan, respectively, and also show the difference in impact to the Long Hook Creek watershed and throughout the overall CEP project area.

TABLE 6-12

Difference in Impact to Section 404 Jurisdictional Wetlands*All Figures in Acres*

	Total within CEP Project Area		CEP Impacts		Cargo City Reconfiguration Impacts		Difference in Impact	
	All Wetlands	Exceptional Value Wetlands	All Wetlands	Exceptional Value Wetlands	All Wetlands	Exceptional Value Wetlands	All Wetlands	Exceptional Value Wetlands
Long Hook Creek								
Total (acres)	23.7	21.5	5.4	5.4	6.7	6.7	1.3	1.3
Percent Loss	N/A	N/A	22.8%	25.1%	28.4%	31.3%	5.6%	6.1%
Overall Total (acres)	155.7	117.8	35	23.3	36.3	24.6	1.3	1.3
Percent Loss	N/A	N/A	22.5%	19.8%	23.3%	20.9%	0.8%	1.1%

Source: Final EIS, Table 5.8-2

²⁶ A.D. Marble & Co., VHB, 2008

TABLE 6-13

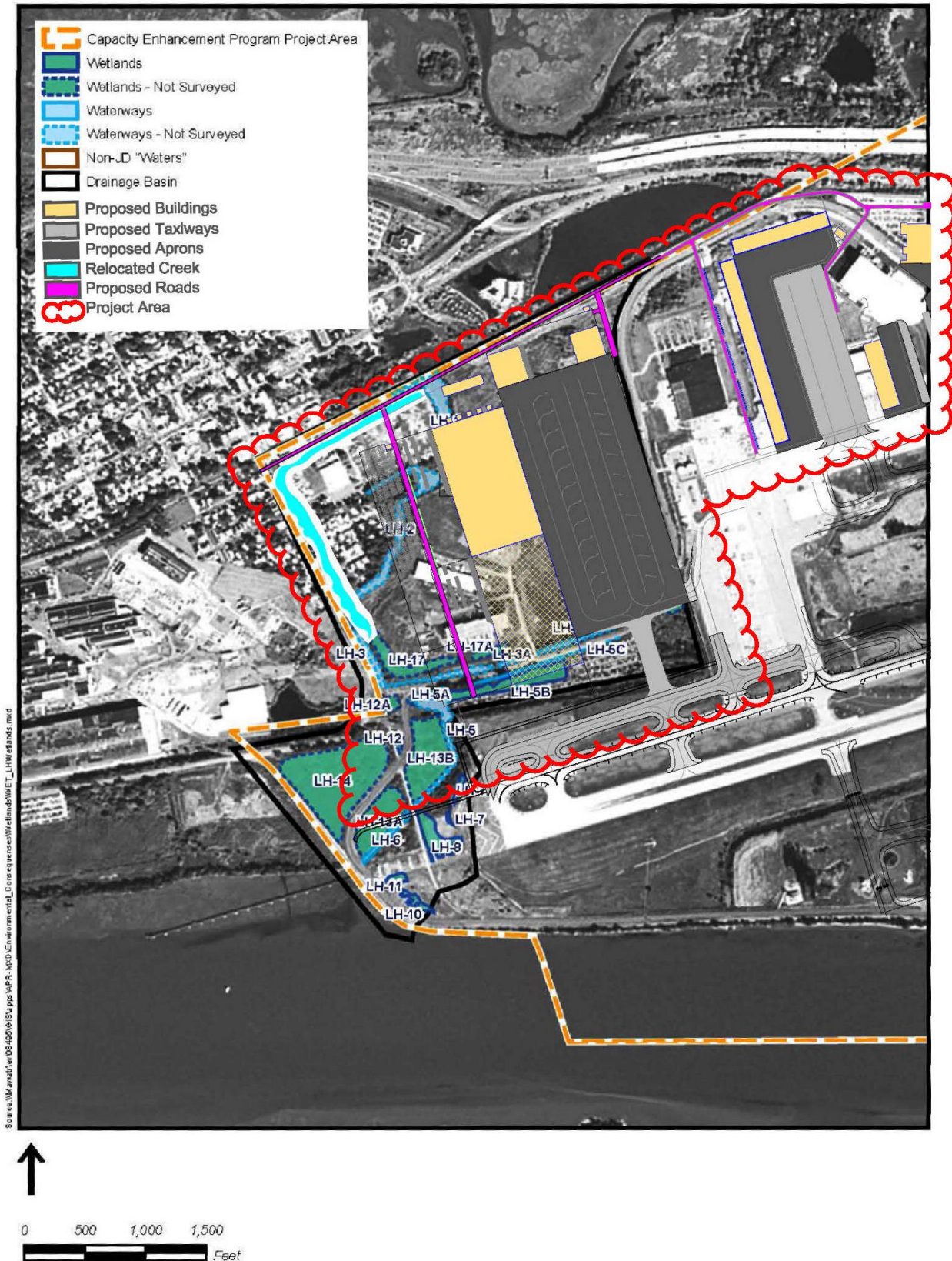
Difference in Impact to Section 404 Jurisdictional Waterways*All Figures in Acres*

	Total within CEP Project Area		CEP Impacts		Cargo City Reconfiguration Impacts		Difference in Impact	
	All Waterways	Waterways with State T&E Species Habitat	All Waterways	Waterways with State T&E Species Habitat	All Waterways	Waterways with State T&E Species Habitat	All Waterways	Waterways with State T&E Species Habitat
Long Hook Creek Total (acres)	9.2	9.2	7.4	7.4	7.5	7.4	0.1	0
Percent Loss	N/A	N/A	80.4%	80.4%	81.4%	80.4%	1.0%	0%
Overall Total (acres)	52.2	47.4	23.1	18.7	23.2	18.7	0.1	0
Percent Loss	N/A	N/A	44.2%	39.5%	44.4%	39.5%	0.2%	0%

Source: Final EIS, Table 5.8-3

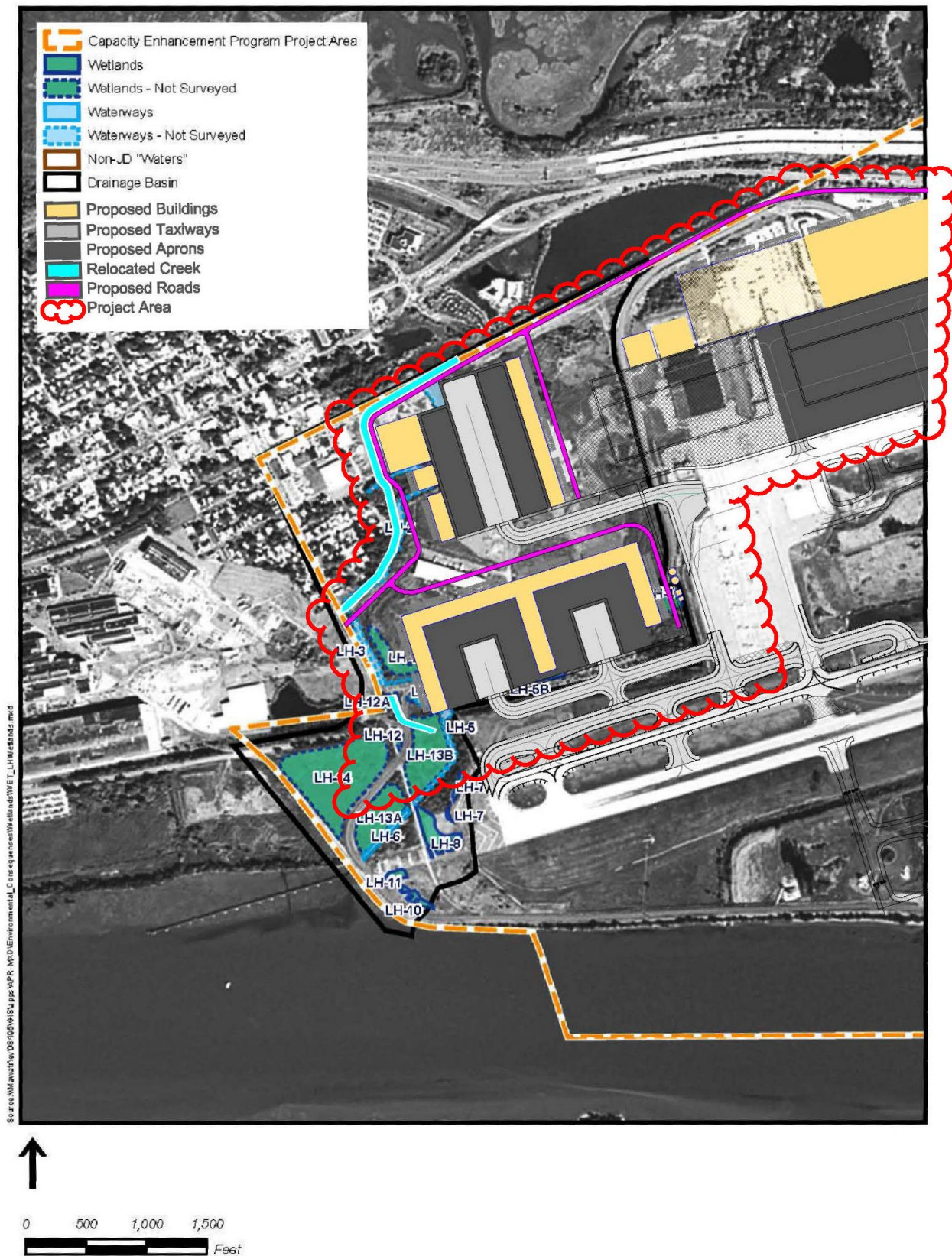
Note: Further details about T&E species habitat effects are presented in Section 6.13 of this report.

FIGURE 6-4. Wetland and Waterway Sections of Long Hook Creek Watershed – Approved ALP



Source: Final EIS Technical Report, Wetlands and Waterways (A.D. Marble & Co., VHB, 2008): Figure 2-6, Existing LH Creek Wetlands and Waterways; Approved PHL ALP

FIGURE 6-5. Wetland and Waterway Sections of Long Hook Creek Watershed – Cargo City Reconfiguration



Source: Final EIS Technical Report, Wetlands and Waterways (A.D. Marble & Co., VHB, 2008): Figure 2-6, Existing LH Creek Wetlands and Waterways; Cargo City Reconfiguration ALP

Although the *Cargo City Reconfiguration* plan results in a greater impact to wetlands and waterways, this increase is a relatively small change as compared to the total wetlands and waterways impacts of the entire CEP or the total inventory of wetlands and waterways at the Airport. The increase in jurisdictional wetlands impact due to the *Cargo City Reconfiguration* plan is 1.3 acres – from 35 acres to 36.3 acres. The increase in percent loss of jurisdictional wetlands is less than 1% – from 22.5% to 23.3%. Also of note, the impacts to non-jurisdictional wetlands of the CEP, 46.7 acres, would not change with the *Cargo City Reconfiguration*.

The increase in waterways impact with the *Cargo City Reconfiguration* is 0.1 acres – from 23.1 acres to 23.2 acres – and the area of increase does not contain state-listed threatened and endangered species habitats. The increase in percent loss of waterways is 0.2% – from 44.2% to 44.4%.

The overall CEP Wetlands and Waterways Mitigation Plan would be adjusted to mitigate for this additional impact. The wetland mitigation goals stated in the Final EIS included:

- General consensus that mitigation should occur within and benefit the Pennsylvania coastal zone;
- General preference for restoration, creation or enhancement of freshwater intertidal shoreline habitat, including deepwater areas;
- General preference for targeting species of concern, state and federal, in the consideration of mitigation sites and design;
- Acknowledgement of the need to observe aircraft safety issues;
- Avoidance and minimization actions must occur in final design prior to permit submission;
- Mitigation planning should continue as a collaborative interagency effort through Final Design.²⁷

Currently, wetlands mitigation is being completed to offset the construction of the Taxiway K extension in accordance with the conditions of the USACE Section 404 Permit. The Bartram's Garden compensatory mitigation site (listed as site 17 in Table 6.6-2 in the Final EIS) is under construction and will fully offset the filling and loss of 1.49 acres of non-tidal wetland habitat²⁸ (fill areas shown in **Figure 6-6**). Furthermore, in preparation for the Runway 27L extension project of the CEP, agency coordination has been initiated with the USACE and PADEP (e.g., a site visit was conducted with the agencies on December 9, 2014). Also of note, the Airport updated and received USACE approval for its wetlands Jurisdictional Determination in January 2014.²⁹

In addition, several of the potential wetland mitigation sites identified in Table 6.6-2 of the Final EIS have been studied in detail, including Phase I and Phase II Environmental Site Assessments, archaeological surveys, and studies of the feasibility of the creation or restoration of wetlands. The purposes of these studies were to prepare for future wetlands mitigation work as the need arises for CEP development. These sites include:

- Dodge Steel (FEIS site 3);
- Pennypack Creek behind prison (FEIS site 5);
- Parcel between Robbins Street and Deveraux Street/ River's Edge Memorial Center (FEIS site 6); and
- Parcel at Princeton Street and New State Road/Tacony Boat Launch (FEIS site 8)

In summary, the Final EIS noted that the CEP would not have significant wetlands and waterways impacts as defined in FAA Order 1050.1E. Specifically, the CEP would not:

- Adversely affect the function of a wetland to protect municipal water supplies or aquifers;
- Substantially alter hydrology needed to maintain wetlands;

²⁷ Final EIS, Section 6.6

²⁸ USACE Permit number CENAP-OP-R-2012-0974-1, issued July 11, 2013.

²⁹ CENAP-OP-R 2008-0872-1 (JD) approved January 28, 2014.

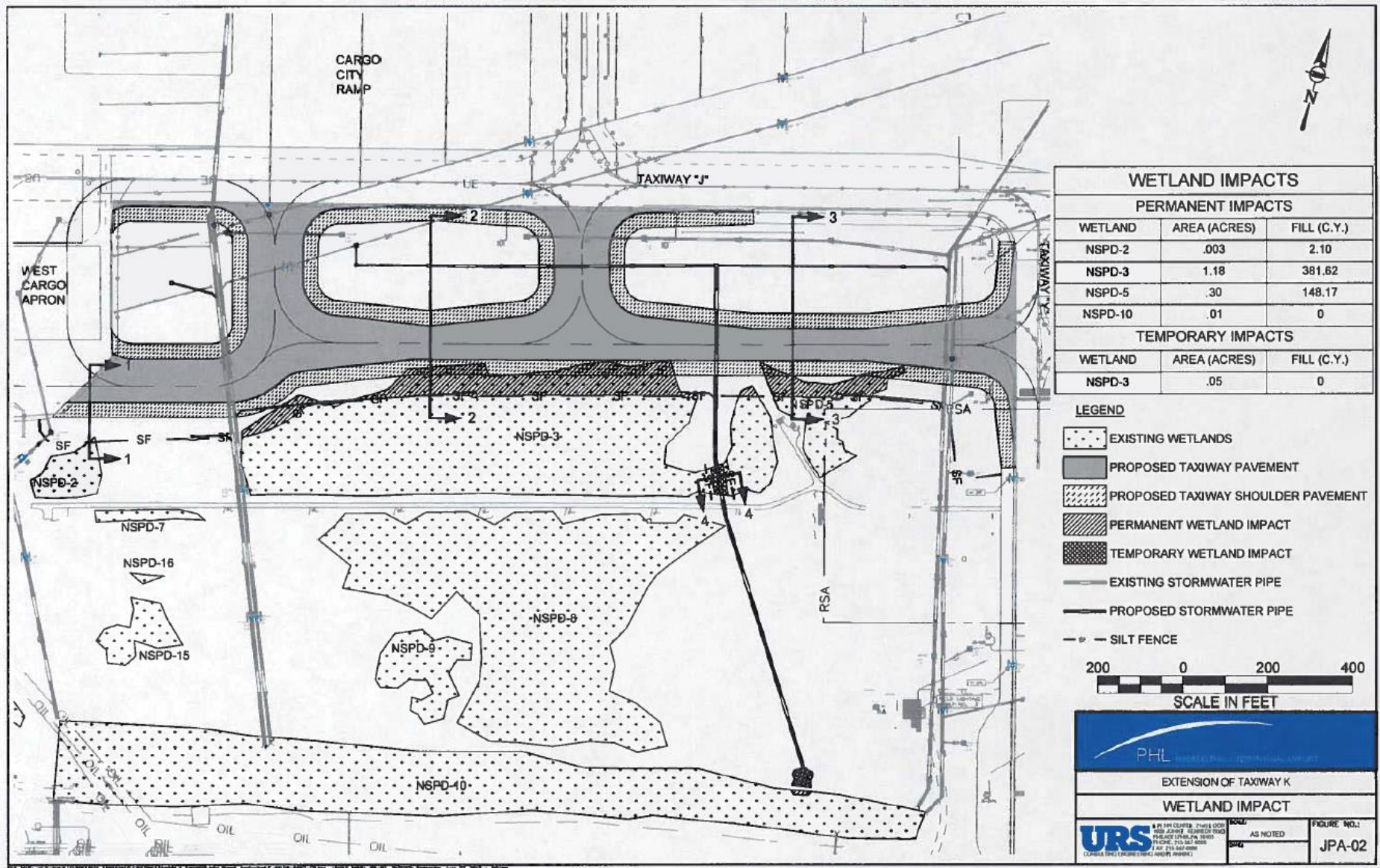
- Threaten public health, safety, or welfare by reducing a wetland’s flood-retention ability;
- Adversely affect the maintenance of natural systems that support economically-important resources;
- Promote development of secondary activities that would affect wetland resources; or
- Be inconsistent with state wetlands strategies.

The *Cargo City Reconfiguration* plan would not change these findings from the Final EIS. In fact, the UPS facility for the CEP will “require that a portion of Long Hook Creek be relocated and restored in a different location on-site with enhanced water quality and wildlife habitat features.”³⁰ Under the *Cargo City Reconfiguration* plan, the proposed Cargo City facility will likewise require the relocation of Long Hook Creek. The commitment to restoring the creek with enhanced water quality and wildlife habitat as part of the relocation would remain in effect with the *Cargo City Reconfiguration*, and would address the issues of poor water quality and overall low-quality of the waterways and wetlands discussed at the beginning of this section.

Given this commitment, and the Airport’s past and present permitting activities for the CEP discussed above, it is not anticipated that the proposed *Cargo City Reconfiguration* plan would impede the process of applying for and receiving a USACE Section 404 permit.

³⁰ Final EIS, p. 5-156

FIGURE 6-6. Wetland Fill Locations for Taxiway K Extension Project



Source: USACE Permit number CENAP-OP-R-2012-0974-1, issued July 11, 2013

6.9 Wild and Scenic Rivers

The Delaware River, in the reach adjacent to the Airport, is not designated a Wild and Scenic River segment, as defined by the Wild and Scenic Rivers Act (WSRA) of 1968. Therefore, the Final EIS Section 5.9 concluded the CEP will have no impact on this category of resource. As such, the proposed *Cargo City Reconfiguration* facilities would also have no impact on this resource.

6.10 Coastal Resources

The Final EIS Section 5.10 presents a comprehensive analysis of how the CEP will be consistent with the Coastal Zone Management Program (CZMP) policies of Pennsylvania and New Jersey. The effects of the proposed *Cargo City Reconfiguration* on the findings of the Final EIS relative to CZMP consistency are discussed below.

In Pennsylvania, the CZMP includes the Delaware Estuary coastal zone which extends along the Delaware River and includes areas of Philadelphia and Delaware Counties. The Final EIS concludes that the CEP is consistent with applicable Pennsylvania Coastal Zone Management (CZM) policies. Listed below are the specific policies relevant to the CEP, noting how the *Cargo City Reconfiguration* affects the conclusions of the Final EIS, where applicable:

- Coastal Hazard Areas: The Airport is located in a coastal flood zone. The *Cargo City Reconfiguration* would reduce the floodplain impacts of the CEP, as discussed in **Section 6.12**.
- Dredging and Spoil Disposal: The *Cargo City Reconfiguration* would have no effect on the approved plans for dredging and spoil disposal for the CEP.
- Fisheries Management: The Final EIS states that the CEP will not impact stocks of popular game-fish species or Essential Fish Habitat (EFH). This conclusion remains valid for the *Cargo City Reconfiguration* because the bluefish EFH is distant from the project area and the impacts to prey species would be minimal. The area affected by the *Cargo City Reconfiguration* is not adjacent to the Delaware River and related fisheries habitats.
- Wetlands: The Final EIS states that the CEP will result in the unavoidable loss of wetlands in the Coastal Zone. The non-tidal wetlands impacts due to the *Cargo City Reconfiguration* would increase, however they would be fully mitigated as discussed in **Section 6.8**. The mitigation would be undertaken within the Pennsylvania Coastal Zone.
- Public Access for Recreation: The Final EIS requirement to provide Delaware River access at wetlands mitigation sites would remain in effect. The area affected by the *Cargo City Reconfiguration* is not adjacent to the Delaware River.
- Historic Site and Structures: The Final EIS conclusion that the CEP will not adversely affect coastally significant historic sites and structures within the Coastal Zone would remain valid. There are no coastally significant historic sites and structures within the area of the *Cargo City Reconfiguration*.
- Port Activities: The *Cargo City Reconfiguration* would not change the Sunoco Fort Mifflin Pier extension approved in the CEP. The *Cargo City Reconfiguration* is not near or adjacent to the Sunoco Fort Mifflin Pier.
- Public Involvement: As stated in the Final EIS, the public outreach conducted during the EIS process provided opportunities for public participation in coastal issues.

Pennsylvania CZM policies for energy facilities siting, intergovernmental coordination, and ocean resources are not applicable to the CEP, as stated in the Final EIS; the *Cargo City Reconfiguration* would not change this conclusion.

In New Jersey, the only effect on the state Coastal Management Program (CMP) due to the CEP is related to the Sunoco Pier dredging activity in the Delaware River (as reported in the Final EIS). The *Cargo City Reconfiguration* has no effect on the Sunoco Pier dredging for the CEP.

Mitigation requirements of the CEP would still remain in effect with the *Cargo City Reconfiguration*. Specifically, the requirements for final designs to incorporate all mitigation measures in the Final EIS and ROD, consistent with PA DEP and NJ DEP Coastal Zone Policies and regulations, would remain in effect. All wetland mitigation would still be located within the Coastal Zone, and measures to protect water quality during construction and to enhance water quality at the Airport would be implemented with the *Cargo City Reconfiguration*. Also of note, the CEP requirements for the relocated UPS facility (such as wetland mitigation, water quality protection, stormwater management, spill prevention and containment, and the relocation/restoration of Long Hook Creek with enhanced water quality and habitat features) would remain in effect although the location of the UPS facility would change (see **Sections 6.8, 6.11, 6.13, and 6.18** for further details on these environmental effects and mitigation).

6.11 Water Quality

The potential for impacts to water quality were documented in the Final EIS Section 5.11. The Airport features or activities that could affect water quality were identified in the CEP as deicing, refueling, maintenance, roads and parking lots, river fill, and total impervious area. For all of those items except “total impervious area,” the anticipated impacts with *Cargo City Reconfiguration* would be the same as the CEP.

The importance of total impervious area as it regards water quality is that any increase in impervious area would decrease storm water infiltration and increase the volume and peak flows of runoff during storm events. The increased volumes would enter the storm water system and, subsequently, the receiving waters.

With the proposed *Cargo City Reconfiguration*, the project footprint would be reduced by approximately 7.2 acres³¹ (4 percent) of the UPS/Cargo City total as presented in the CEP, including the properties and streets east of 4th Avenue which will not be acquired (see **Table 4-1** for a comparison of footprint areas). Therefore, the proposed reconfigured project would result in less impervious surface than with the approved CEP. **Table 6-14** summarizes the water quality effects of the CEP versus *Cargo City Reconfiguration*, as it pertains to impervious surface areas.

TABLE 6-14

Difference in Impact to Water Quality (Impervious Surface)

All Figures in Acres

	CEP Impacts	Cargo City Reconfiguration On-Airport Impacts	Impervious Surface Remaining in Tinicum East of 4 th Avenue	Difference in Impact
UPS/Cargo City Total Impervious Surface	177.5	161.7	8.7	- 7.2 (- 4.0%)

Source: Final EIS, Table 5.11-2

As noted at the beginning of this section, the Final EIS identified the following features and activities of the CEP which could affect water resources: deicing, refueling, maintenance, road and parking lot runoff, and river fill. Each of these are discussed below, noting how the *Cargo City Reconfiguration* affects the conclusions of the Final EIS, where applicable:

- Deicing: The location, pavement area, and level of operations for the deicing area nearest to the Cargo City and UPS facilities (shown in **Figures 4-2 and 4-4** as “Existing Deicing Apron”) would be the same in the *Cargo City Reconfiguration* as in the CEP. The surface area of other paved surfaces requiring deicing

³¹ The Final EIS West Side Acquisition Area included green space. The calculations used in this section include that green space, and results in a reduction in impervious area for the *Cargo City Reconfiguration*.

(runways, taxiways, aprons, roads, and parking lots) would decrease³² with the *Cargo City Reconfiguration* compared to the CEP and approved ALP.

- Refueling: Although the specific facility, apron, and gate locations for UPS and other cargo aircraft would be modified in the *Cargo City Reconfiguration* (as shown in **Figures 4-2 and 4-4**), the general location of refueling activities for UPS and other cargo aircraft, and related motor vehicles, would remain in the same northwest area of the airport. The locations and designs of the fuel farm and fuel island near the commuter terminal approved in the CEP would not change with the *Cargo City Reconfiguration*.
- Maintenance: Although the specific facility, apron, and gate locations for UPS and other cargo aircraft would be modified in the *Cargo City Reconfiguration* (as shown in **Figures 4-2 and 4-4**), the general location of maintenance activities for UPS and other cargo aircraft, and related motor vehicles, would remain in the same northwest area of the airport. Proposed maintenance hangars would still be located within the same general northwest area of the airport.
- Roads and Parking Lots: The change in road areas with the *Cargo City Reconfiguration* would be a decrease of 103,500 square feet. The level of motor vehicle traffic on the roads servicing UPS and Cargo City would be the same with the *Cargo City Reconfiguration* compared to the CEP. Parking lot designs for UPS and Cargo City under the *Cargo City Reconfiguration* plan would be similar in capacity as those in the CEP.
- River Fill: The *Cargo City Reconfiguration* does not involve any changes to the approved plans for river fill for the CEP.

All other aspects of the CEP as related to water quality, including facility designs with stormwater management/treatment to meet state water quality standards and the use of Best Management Practices during construction activities, would be unchanged from what was reported for the CEP. The *Cargo City Reconfiguration* would not change the conclusions from the Final EIS³³ that:

- The design of the project with mitigation for water quality and quantity will ensure that the CEP meets state water quality standards.
- Peak discharge rates and glycol use do not result in special water related problems.
- No difficulty in obtaining permits is anticipated.
- Groundwater recharge and quality would have negligible effects on the New Jersey Coastal Plain Sole Source Aquifer.

6.12 Floodplains

The Final EIS, in Section 5.12, identified the anticipated loss of floodplain storage and the area of floodplain affected by the approved CEP, finding the changes will not have a significant effect on overall flooding potential in the region. The Final EIS indicated that the Airport is located within the 100- or 500-year tidal floodplains of the Delaware River. The approved CEP results in unavoidable impacts to the 100-year floodplain, because the PHL airfield lies within it. However, the Airport is required to obtain a permit from the Pennsylvania Department of Environmental Protection (PADEP) under Title 25, Chapter 106, which will ensure the CEP is designed and constructed to conform to applicable state and local floodplain protection standards.

Table 6-15 summarizes the floodplains effects of the CEP versus *Cargo City Reconfiguration*. The reduction in floodplain area impact was determined from the reduction in footprint area, including the properties and streets east of 4th Avenue which will not be acquired, as previously discussed in **Section 6.11** above. As noted in that section, the proposed *Cargo City Reconfiguration* would result in less impervious surface area than the approved

³² As presented in Table 4-1, the total change in taxiway, apron and ramp area would be a decrease of 221,503 square feet. The change in road areas would be a decrease of 103,500 square feet. The approved runway layouts from the Final EIS would not change.

³³ Final EIS, pg. 5-172 through 5-174

CEP. This should result in more area for storm water infiltration and reduced rainfall runoff that would ameliorate flooding effects.

TABLE 6-15

Difference in Impacts to Floodplains*All Figures in Acres*

	CEP Impacts	Cargo City Reconfiguration Impacts	Footprint Area Remaining in Tinicum East of 4 th Avenue	Difference in Impact
Area of Floodplain Affected (acres)	347	331.1	8.7	- 7.2 (- 2.1%)

Source: Final EIS, Table 5.12-1

With the proposed *Cargo City Reconfiguration*, the area of floodplain effects would be reduced by 7.2 acres (2.1 percent) with the smaller project footprint.

6.13 Biotic Communities

The Final EIS Section 5.13 concludes that the projected CEP impacts to biotic communities (i.e., fish, wildlife, plants, and state-listed threatened and endangered species) will be significant, mostly through loss of habitat in areas that would be converted to Airport uses. Some of that lost habitat will be in the northwest part of the CEP, where the UPS and Cargo City facilities are to be located. This habitat coincides with particular sections of the Long Hook Creek system of wetlands and waterways (as shown previously in **Figures 6-4 and 6-5**).

For this reason, a detailed review of the CEP plan versus the proposed *Cargo City Reconfiguration* plan was conducted. This included a review of the Final EIS Technical Report, Threatened and Endangered Species (A.D. Marble & Co., VHB, 2008) which contains tables of the Pennsylvania state-listed species habitat areas throughout the Long Hook Creek watershed. Specific to this watershed, the Final EIS reports impacts to the Threespine Stickleback, the Eastern Mudminnow, and the Red-bellied Turtle habitats. The *Cargo City Reconfiguration* plan would also impact these species. Of these, only the Red-bellied Turtle habitat has a slightly increased impact due to the *Cargo City Reconfiguration* plan compared to the CEP plan. **Table 6-16** summarizes these findings.

TABLE 6-16
Difference in Impact to Red-Bellied Turtle Habitat
All Figures in Acres

	Total within Project Area	CEP Impacts	Cargo City Reconfiguration Impacts	Difference in Impact
Long Hook Creek Total (acres)	10.46	9.00	9.22	0.22
Percent Loss	N/A	86.0%	88.1%	2.1%
Overall Total (acres)	130.30	72.69	72.91	0.22
Percent Loss	N/A	55.8%	56.0%	0.2%

Source: Final EIS, Table 5.13-2

In the Final EIS and in the ROD (Section 10.8), commitment is made to an extensive mitigation plan for Biotic Communities, with the final details to be determined in the succeeding phases of CEP development (i.e., final design and permitting). The mitigation program includes species-specific plans for pre-construction surveys, identification of appropriate transplanting and translocation sites and protocols, development of long-term monitoring and management programs (including habitat preservation), and permanent protection mechanisms. Such plans have been developed for the on-going construction activities within the CEP. For the design, permitting and construction of UPS and Cargo City facilities under the *Cargo City Reconfiguration* plan, similar plans will also be developed in accordance with the Final EIS and ROD. Due to the presence of state-listed species in the Long Hook Creek watershed, efforts will be made to minimize impacts throughout the area as part of the final design and permitting process.

All of the commitments for Biotic Communities mitigation made in the Final EIS and the ROD would remain in place and relevant with the proposed *Cargo City Reconfiguration* plan. The *Cargo City Reconfiguration* plan would result in an increase of 0.22 acres (i.e., 0.2 percent greater percent-loss) for the entire CEP project area. There would be a slight increase in Red-bellied Turtle habitat impacts. The 0.22 acres that would be additionally impacted are contiguous with, and serve the same functions as, those existing throughout the Long Hook Creek watershed. The new impact area is confined to two wetland sections already impacted by the CEP, LH-4 and LH-12A. Under the *Cargo City Reconfiguration* plan, the change in impacted area for these two sections increases from 0.67 acres to 0.89 acres. As discussed above, this increase in impact would be fully mitigated.

6.14 Federal Threatened and Endangered Species

Environmental impacts to federal threatened and endangered species were reported in the Final EIS Section 5.14. The only two such species known to occur in the overall CEP project area are the Shortnose sturgeon and the Atlantic sturgeon, both of which may pass by the Airport area in the Delaware River during migrations between spawning grounds upriver and main foraging and overwintering areas elsewhere. As the proposed *Cargo City Reconfiguration* would not involve any part of the Airport adjacent to the river, there would be no change to this environmental resource category.

6.15 Farmland Soils

As reported in the Final EIS Section 5.15, there are no Prime Farmland Soils, Unique Farmland Soils, or Farmland of Statewide or Local Importance within the CEP area. The proposed *Cargo City Reconfiguration* would not change that finding. Therefore, there will be no difference on this resource category from the CEP.

6.16 Historical, Architectural, Archaeological, and Cultural Resources

As reported in the Final EIS Section 5.16, none of the projects within the CEP will require property acquisition, alteration, demolition, or changes in the visual setting of any culturally-important or protected resource, including historic or architectural resources or archaeological sites. The *Cargo City Reconfiguration* plan, as compared to the CEP plan, would not change the relationship to any historical, architectural, archaeological or cultural resource.

The Final EIS also presents analyses of potential noise impacts of the CEP on a number of off-airport cultural resources. As the noise component of the CEP would be unchanged with the proposed *Cargo City Reconfiguration*, the analyses in that regard would be unchanged from the CEP.

6.17 DOT Act Section 4(f) and Land and Water Conservation Fund Act Section 6(f)

U.S. Department of Transportation (DOT) Act Section 4(f) protected resources include: publicly owned parks, recreational areas, wildlife and waterfowl refuges, and public and private historical sites. Section 6(f) properties are outdoor recreational areas federally-funded by the Land and Water Conservation Fund Act.

There are no Section 4(f) or Section 6(f) properties located on the Airport, therefore there will be no effect on any of those types of resources as a result of the proposed *Cargo City Reconfiguration*. The Final EIS Section 5.17 identified a number of Section 4(f) and Section 6(f) properties off-airport in order to evaluate airport noise impacts on those resources. As the aircraft flight operations noise contours from the CEP would not change with *Cargo City Reconfiguration*, the effects on the off-airport properties would be the same as the CEP.

6.18 Hazardous Materials and Solid Wastes

Environmental consequences due to hazardous materials and solid wastes were reported in the Final EIS Section 5.18. The potential for impacts within this category would occur if construction activities encountered contaminated soils or groundwater. The Final EIS identified specific areas of concern for the entire PHL CEP area. Within the area where *Cargo City Reconfiguration* would be located, there are four such sites: the Hertz Maintenance Facility, the (existing) Cargo City Building C-5, the PHL maintenance and storage building, and International Plaza.

The proposed revision of the new UPS and Cargo City facilities under the *Cargo City Reconfiguration* plan would not involve any more, or fewer, of the potentially contaminated sites than were identified in the Final EIS. As also reported in the Final EIS, any contaminated materials encountered during construction will be reported, treated and/or removed in accordance with all relevant federal and state regulations.

6.19 Light Emissions

Potential environmental impacts from light emissions are related to the possibility that Airport lighting may create an annoyance for people in the vicinity or interfere with their normal activities. The Final EIS Section 5.19 discussion of impacts within this category would be the same for the proposed *Cargo City Reconfiguration*.

In the EIS, the lighting that will be associated with the UPS facility is generally discussed, with the stipulation that lighting fixtures, particularly on the landside of the facility, will include downcast hoods to avoid light propagation to neighboring areas. The same stipulations would apply to the proposed reconfigured UPS facility and, therefore, the conclusion would be the same as in the Final EIS—that lighting associated with the proposal should not be perceived by the surrounding community as a significant increase. In addition, the UPS facility (under the proposed *Cargo City Reconfiguration*) would be moved further from the Tinicum Township sites that may otherwise have been affected by spillover light.

In order to reduce any effects of light emissions associated with the Cargo City facilities, similar measures will be incorporated (e.g., lighting fixtures, particularly on the landside of the facility, would include downcast hoods to avoid light propagation to neighboring areas). Because the Cargo City facility has a smaller footprint and has a

lower operational intensity than the UPS facility, light emissions from Cargo City facilities would be equal to, or lower than, those from UPS in the CEP.

6.20 Energy Supply and Natural Resources

There would be no difference in this environmental resource category with the proposed *Cargo City Reconfiguration* versus the CEP (Final EIS, Section 5.20). The evaluation of environmental impacts in this category includes the changes in stationary facilities (i.e., power/energy facilities) to determine if they would have an effect on local energy supplies, as well as the anticipated difference in consumption of fuel by aircraft, based on the projected time for aircraft operations (e.g., queuing and delays).

The Final EIS concludes that the use of electricity will increase with the implementation of the CEP, due to increased terminal space and lighting added to airfield components. However, the use of aircraft fuels will decrease overall with more-efficient airfield operations. In the CEP, motor vehicle fuel use on the Airport decreases due to the reconfigured rental car operation, revised busing operations, and the use of the Automated People Mover. Per the Final EIS, ground support equipment fuel use will increase with aircraft operations; and, freight train diesel fuel use will increase due to the new alignment of freight rail in the CEP. However, none of these conclusions from the Final EIS would be changed by the *Cargo City Reconfiguration*.

References

CEP Program Management Office, *Air Quality Analysis Spreadsheets*, 2015.

CEP Program Management Office, *Construction Schedule and Equipment Spreadsheets*, 2015.

CEP Program Management Office, *Noise Analysis Spreadsheets*, 2015.

CEP Program Management Office, *Wetlands and Waterways Analysis Spreadsheets*, 2015.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final Environmental Impact Statement*, August 2010.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final General Conformity Determination*, August 2010.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final Record of Decision*, December 2010.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final Environmental Impact Statement Technical Report, Wetlands and Waterways* (A.D. Marble & Co., VHB), 2008.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final Environmental Impact Statement Technical Report, Threatened and Endangered Species* (A.D. Marble & Co., VHB) 2008.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final Environmental Impact Statement Technical Report, Noise* (HMMH, VHB) 2008.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final Environmental Impact Statement Technical Report, Surface Transportation* (VHB) 2008.

Federal Aviation Administration, Philadelphia International Airport Capacity Enhancement Program, *Final Environmental Impact Statement Technical Report, Social and Economic Impacts* (RKG Associates) 2008.

Federal Aviation Administration, Order 1050.1E, *Environmental Impacts: Policies and Procedures*, June 2004.

Federal Aviation Administration, Order 5050.4B, *National Environmental Policy Act (NEPA) Implementing Instructions for Airport Actions*, April 2006.

Pennsylvania Department of Environmental Protection, *Pennsylvania Integrated Water Quality Monitoring and Assessment Report*, 2014.

Philadelphia International Airport, *Alternative UPS Site Support Analyses and Studies Phases I & II*, July 24, 2013.

Philadelphia International Airport, *SIMMOD Analyses of Airfield Development Alternatives*, February 19, 2014.

Philadelphia International Airport, *Airport Master Plan Update*, 2011.

Philadelphia International Airport, *Airport Layout Plan and Narrative for Cargo City Reconfiguration*, September 2014.

Philadelphia International Airport, Residential Sound Insulation Program, *RSIP Information Document*, November 29, 2012.