

Presentation To

Delaware Estuary Science
& Environmental
Stewardship Summit

*Moving (Shifting) Land for
Air Travel*

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OUTLINE OF PRESENTATION

- ✘ History of Land Alteration at PHL
- ✘ PHL Wetlands and Waterways
- ✘ Capacity Enhancement Program / Environmental Impacts
- ✘ Environmental Stakeholders, Permitting and Requirements
- ✘ Water Quality Management





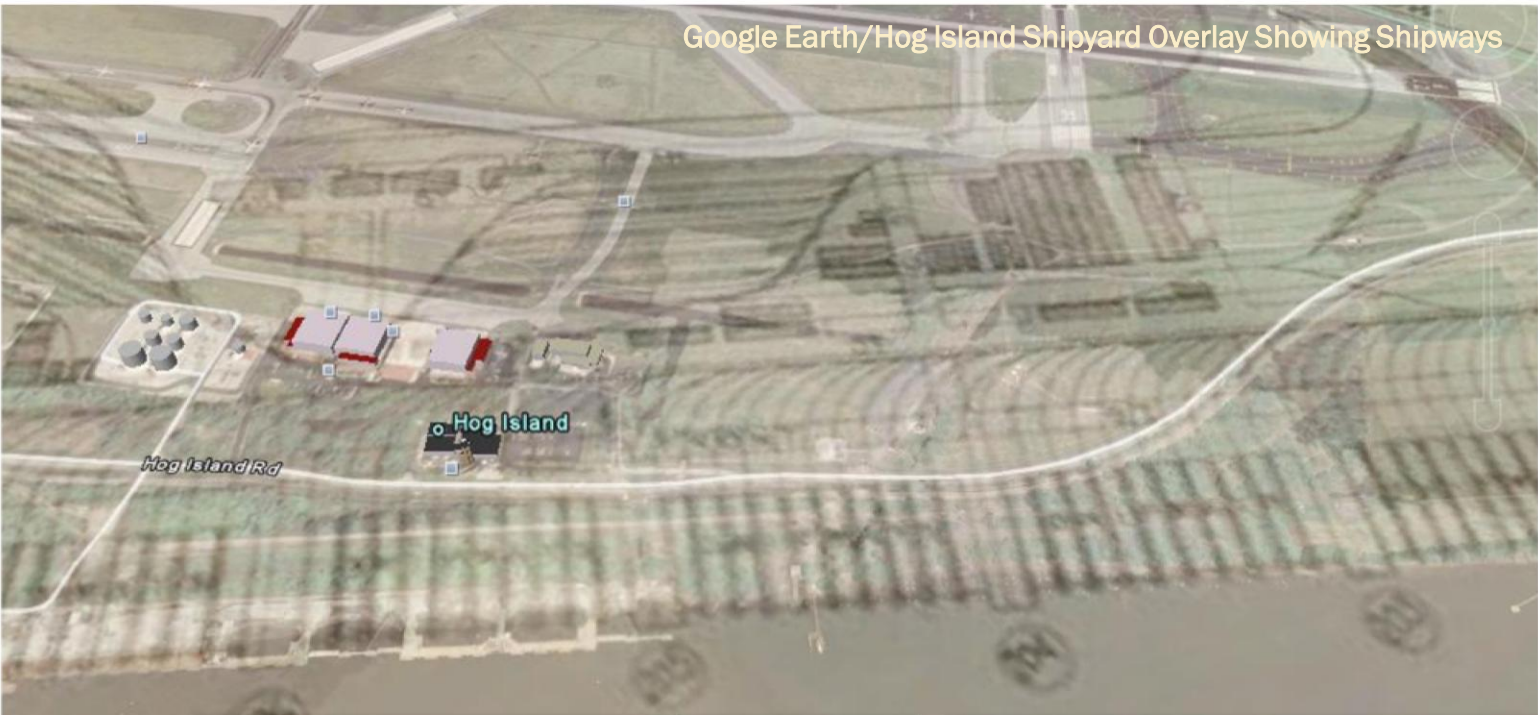
Source: 1891 USGS 15 Minute Series, My Topo. <http://historical.mtswgo.com>, accessed 1/24/12

HISTORY OF LAND ALTERATION AT PHL



Source: Philadelphia International Airport, c. 1940

Google Earth/Hog Island Shipyard Overlay Showing Shipways



HOG ISLAND SHIPYARD



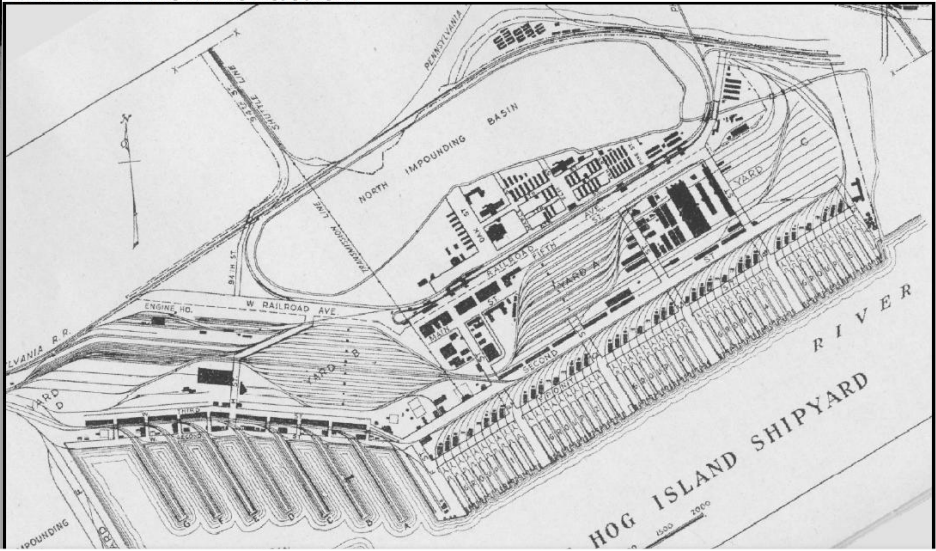
Source: NFR, Hog Island Shipyard: Context & Discoveries, ruins.wordpress.co



FROM MARSHLAND TO SHIPYARD
Hog Island on the Delaware River where fifty shipways are being constructed. A city is springing up to house 30,000 workers near this scene of activity.

Source: <http://www.photoship.co.uk> accessed 1/24/12

HOG ISLAND SHIPYARD WET BASIN, 1919



PROPOSED CITY PLAN FOR DEVELOPMENT OF THE PHILADELPHIA AIRPORT, 1932

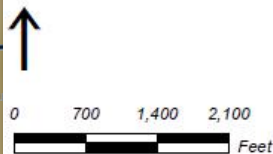
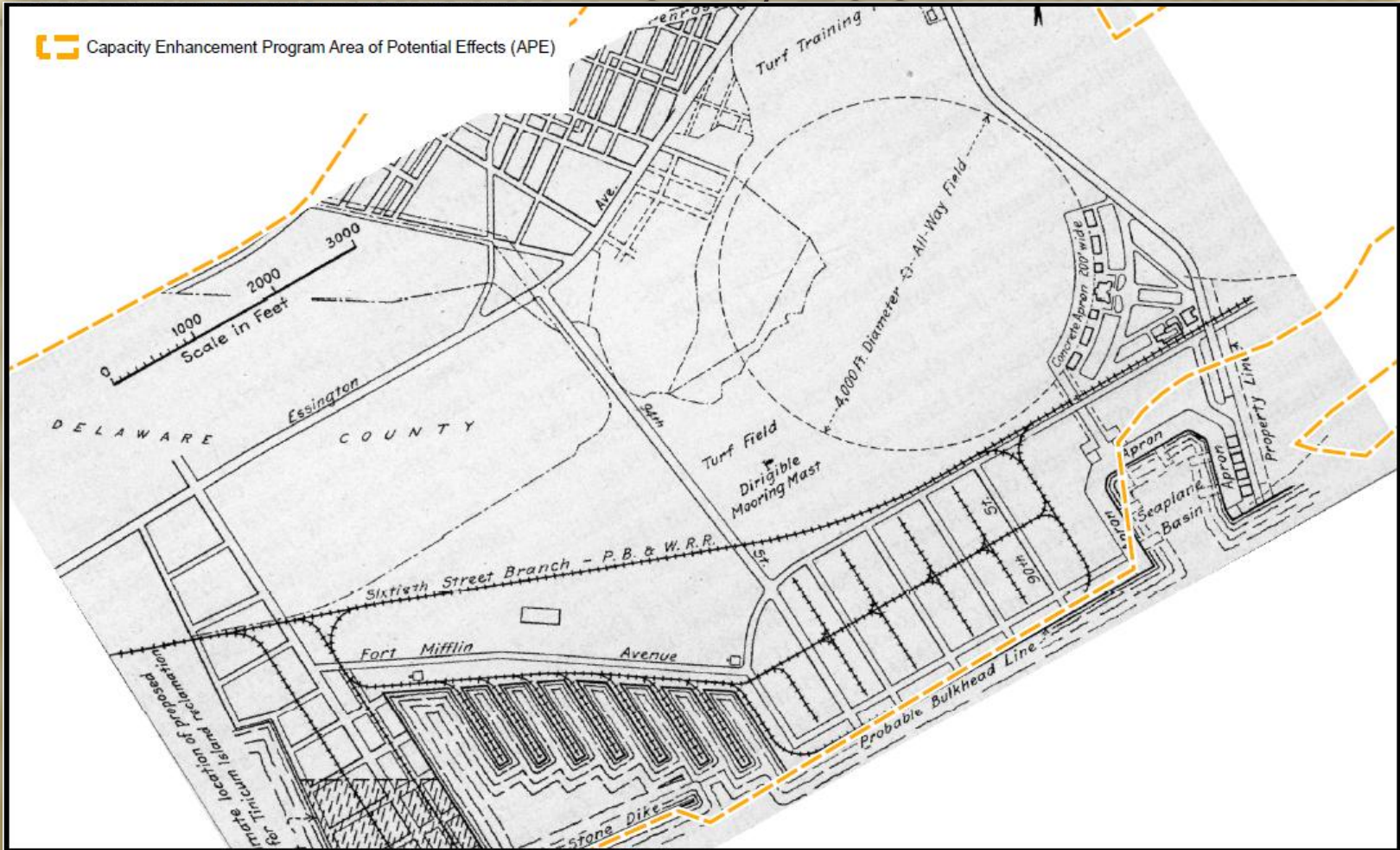
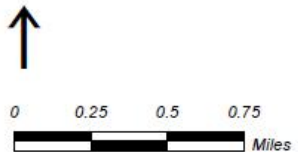
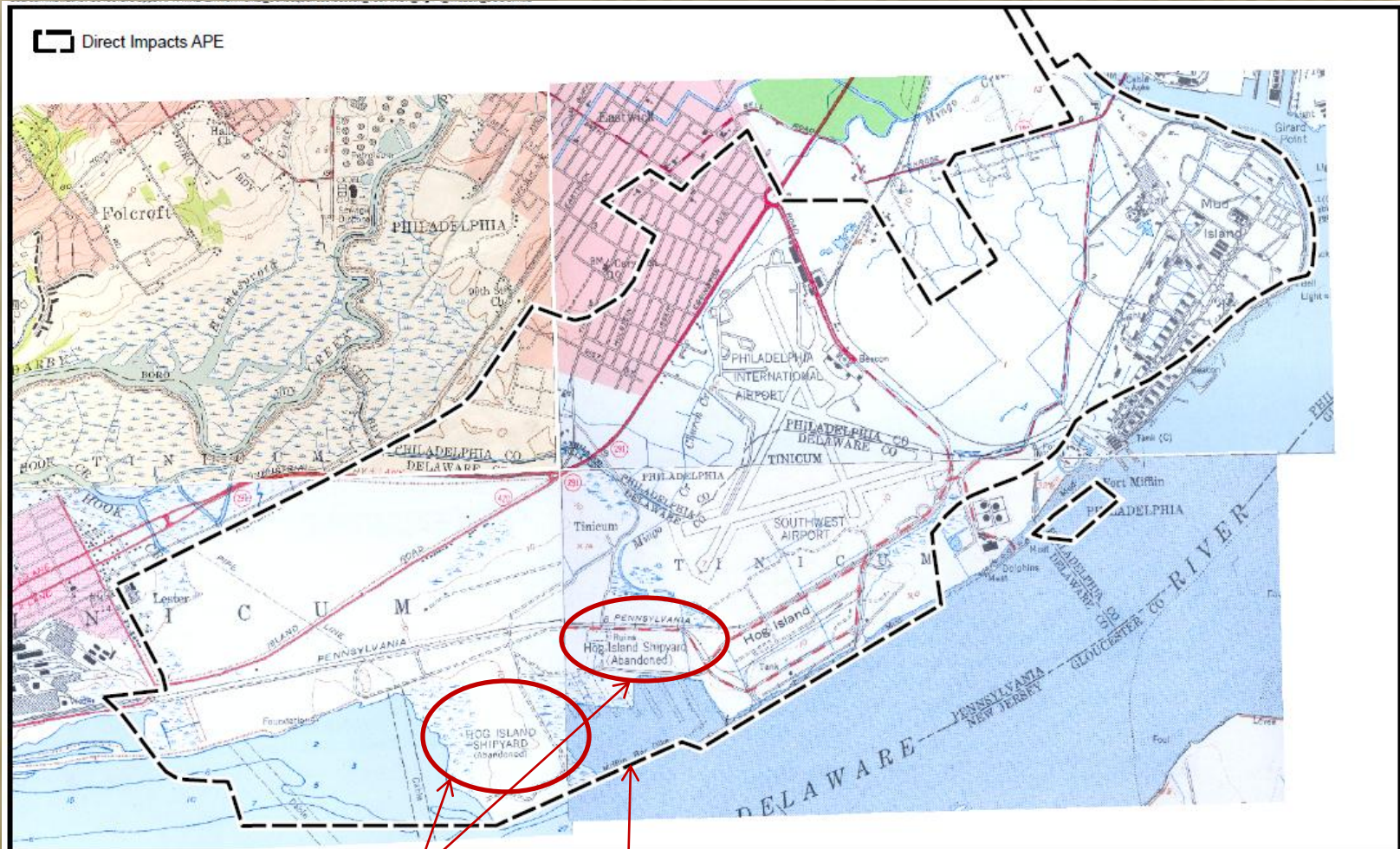


Figure 4-26

1932, Proposed City Plan for Development of the Philadelphia Airport

Source: VHB

USGS QUADRANGLE MAPS CIRCA 1950



Hog Island Shipyard (abandoned)

Mifflin Bar Dike

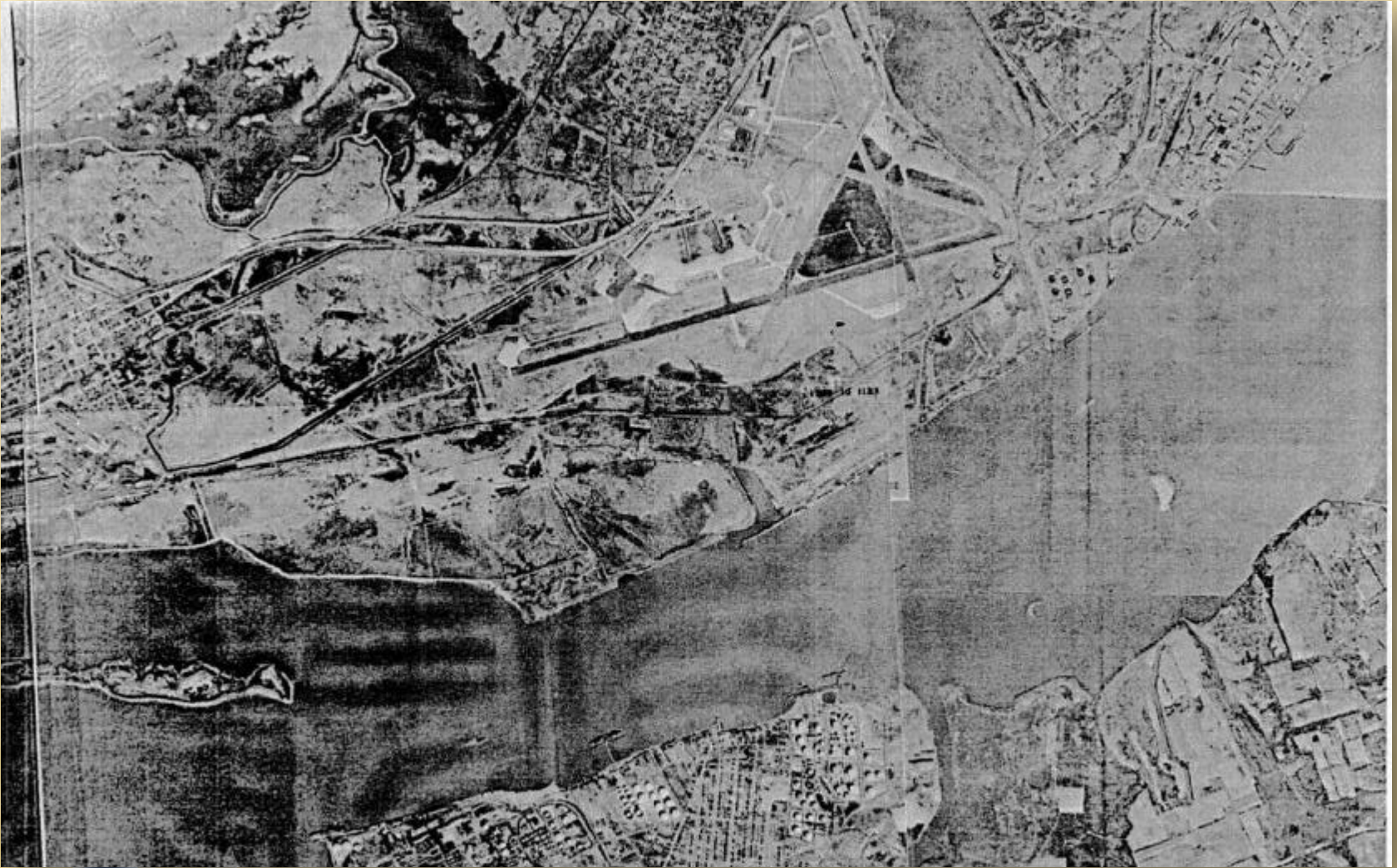


Figure 4-1

Mid-Twentieth Century Map of the Philadelphia International Airport

Source: VHB
Source: USGS

AERIAL VIEW OF AIRPORT SHORELINE, 1959



PHL PRESENT DAY



Source: Philadelphia International Airport



PHL WETLANDS & WATERWAYS

PHL STORM DRAINAGE SYSTEM

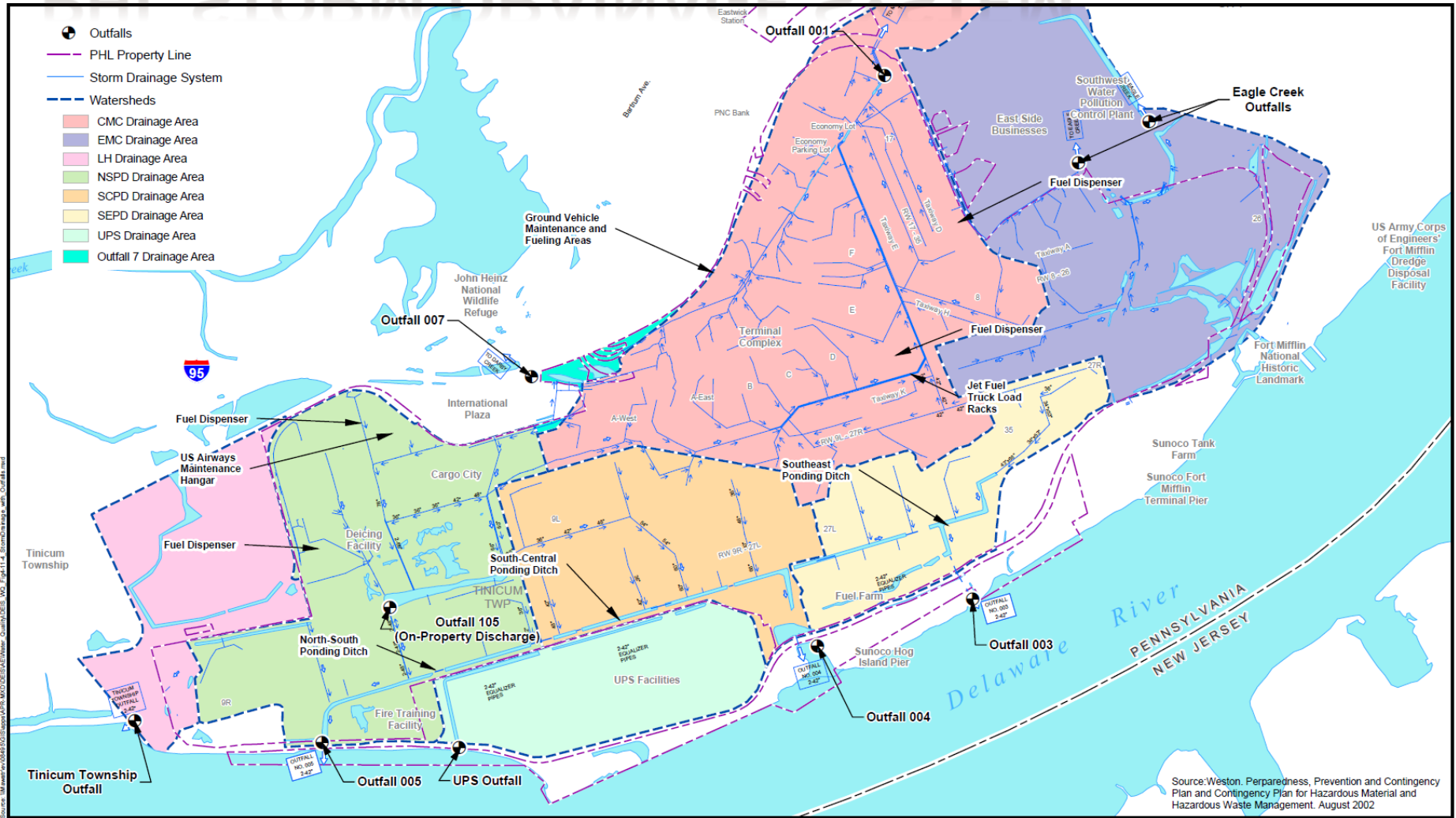


Figure 4.11-4

PHL Storm Drainage System and Watershed Areas with Outfall Points

Philadelphia International Airport

CAPACITY ENHANCEMENT PROGRAM (CEP) ENVIRONMENTAL IMPACTS

WETLANDS MITIGATION CONSIDERATIONS

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

Resource	Reason Proposed ¹	Mitigation Measure
Wetlands and Waterways	B	<p>Implement design modifications to minimize unavoidable impacts (81.7 acres of jurisdictional and non-jurisdictional wetlands, 23.1 acres of waterways, and 24.5 acres of the Delaware River).</p> <p>Provide compensatory mitigation through restoration, enhancement, or replacement of lost functions with the goal of restoring or creating at least 81.7 acres of wetlands providing state-listed species habitat, wildlife habitat, floodflow alteration, and sediment/toxicant retention.</p> <p>If possible, while also maintaining safety and security measures, incorporate public access to the Delaware River at mitigation sites.</p>
Water Quality	B	<p>Meet PA DEP water quality standards for waterbodies in the study area during and after construction.</p> <p>Meet the requirements of the Pennsylvania Stormwater Management Act during and after construction.</p> <p>Meet the requirements of the Philadelphia Water Department design requirements.</p> <p>Repair the tidegates that control flow to the Delaware River.</p> <p>Implement BMPs during construction as part of a Stormwater Pollution Prevention Plan. Incorporate water quality measures into design of the Project, including:</p> <ul style="list-style-type: none"> ■ Vegetated swales and other detention/infiltration measures, ■ Oil/water separators, ■ Glycol capture/recycling facility, ■ Hoods and deep sumps in catch basins, and ■ Controlled discharge through outfalls and tide gates.

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

WETLANDS MITIGATION CONSIDERATIONS

Biotic Communities

A

Implement design modifications to minimize unavoidable impacts (loss of 60.7 acres of state-listed fish habitat, 72.7 acres of state-listed turtle habitat, and 0.4 acres of state-listed bird nesting habitat).

Develop and implement mitigation plans for affected species (Three-spined stickleback, Eastern mudminnow, sedge wren, least bittern, red-bellied turtle, and intertidal mud flat plant species) including:

- Conducting pre-construction survey (including updated information on the distribution and abundance of protected species),
- Identifying suitable habitat for relocation,
- Relocation/transplant protocols,
- Long-term monitoring and management program, and
- Permanent protection mechanisms.

Develop and implement a mitigation program for significant impacts to state-listed plant species by a qualified botanist in consultation with the appropriate natural resource agencies.

Replace lost fisheries habitat functions associated with approximately 24.5 acres of Delaware River intertidal and subtidal habitats.

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

Source: PHL EIS



PA WETLAND NET GAIN DATA FORM [\[Link\]](#)

PA # [] YEAR [] PROJECT NAME [] COUNTY [] ZIP [] REGION [] WATERBODY AGENCY PROJECT []

CONTACT/LOCATION INFORMATION

PROJECT NAME FIRST LAST ADDRESS PHONE NUMBER LATITUDE LONGITUDE

EXISTING WETLANDS

Are wetlands present on the site? If present, what are the types and acreages? TYPE SIZE

Are wetlands created/affected by the project? If affected, what are the types and acreages? TYPE SIZE

What is the contributing area to the wetland? (Include wetland and upland) []

FUNCTIONAL GAIN PROJECTS

Classification of wetland to be created/restored

Wetland Type	Area (Acres)
Emergent	0
Shrub	0
Upland	0
Wetland	0

ENVIRONMENTAL STAKEHOLDERS, PERMITTING AND REQUIREMENTS

AGENCIES & STAKEHOLDERS IN WETLANDS MITIGATION

Local Agencies



- ✘ Tincicum Coastal Partnership
- ✘ Delaware County Coastal Task Force
- ✘ **Delaware River Basin Commission**
- ✘ Partnership for the Delaware Estuary
- ✘ Pennsylvania Coastal Zone Management Program
- ✘ **PADEP**
- ✘ NJDEP
- ✘ U.S. Fish and Wildlife Service (USFWS)
- ✘ Natural Resource Conservation Service (NRCS)
- ✘ NOAA
- ✘ FAA
- ✘ USEPA
- ✘ USACE

Federal Agencies

REQUIRED ENVIRONMENTAL PERMITTING

Regulatory Permit or Other Requirement	Applicable Laws or Regulations
General Information Form (GIF) Authorization Application	N/A
Pennsylvania Natural Diversity Inventory (PNDI) and EIS Commitments	Policy for Pennsylvania Natural Diversity Inventory (PNDI) Coordination during Permit Review and Evaluation - Doc. ID 400-0200-001
Pennsylvania Historic and Museum Commission (PHMC) Cultural Resource Notice and EIS Commitments	PA Historic Code Title 37; Implementation of the Pennsylvania State History Code: Policy and Procedures for Applicants for DEP Permits and Plan Approvals - Doc. ID 012-0700-001
PAG-13 Stormwater Discharges from Small Municipal Separate Storm Sewer Systems (MS4s) approval of Post Construction Stormwater Management Plans	40 CFR Part 122; 25 PA Code Chapters 91 through 105 as applicable; The Clean Streams Law, the Act of June 22, 1937 (P.L. 1987, No. 394), as amended, 35 P.S. §691.1 et seq.; The Clean Water Act (33 U.S.C. §1251 et seq.)
PAG-02 General Permit (NPDES Construction Activities) for Off-site Non-DOA Projects	Clean Water Act (33 USC § 1251 et seq.); CFR Parts 9, 122, 123, 124; 25 PA Code Chapters 91, 92, 102; The Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No. 394), as amended, 35 P.S. §691.1 et seq.
PAG-03 Discharge of Stormwater Associated with Industrial Activities modifications to DOA's Existing Permit	40 CFR Part 122; 25 PA Code Chapters 91 through 105 as applicable; The Clean Streams Law, the Act of June 22, 1937 (P.L. 1987, No. 394), as amended, 35 P.S. §691.1 et seq.; The Clean Water Act (33 U.S.C. §1251 et seq.)
Individual NPDES Permit for Stormwater Associated with Construction Activities (Chapter 102 Permit) for projects > 1.0 acres outside existing DOA Permit NPDES Boundary	40 CFR Part 122; 25 PA Code Chapters 91 through 105 as applicable; The Clean Streams Law, the Act of June 22, 1937 (P.L. 1987, No. 394), as amended, 35 P.S. §691.1 et seq.; The Clean Water Act (33 U.S.C. §1251 et seq.)
Existing PHL NPDES Permit modification for projects within the existing NPDES Permit Boundary	Clean Water Act (33 USC § 1251 et seq.); 25 PA Code Chapters 91, 92, 93, 95; The Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No. 394), as amended, 35 P.S. §691.1 et seq.
Chapter 105 Water Obstruction and Encroachment Permit (General) for Outfalls, Road and Utility Crossings, Etc.	25 PA Code Chapters 105, 106; Dam Safety and Encroachments Act, Act of Nov. 26, 1978 (P.L. 1375, No. 325) as amended, 32 P.S. §693.1 et seq.; Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No. 394), as amended, 35 P.S. §691.1 et seq.; Floodplain Management Act, Act of Oct. 4, 1978 (P.L. 851, No. 166), 32 P.S. §679.101 et seq.
Chapter 105 Water Obstruction and Encroachment Permit OR Environmental Assessment for Waived Activities for Water Obstruction and Encroachment	25 PA Code Chapters 105, 106; Dam Safety and Encroachments Act, Act of Nov. 26, 1978 (P.L. 1375, No. 325) as amended, 32 P.S. §693.1 et seq.; Clean Streams Law, Act of June 22, 1937 (P.L. 1987, No. 394), as amended, 35 P.S. §691.1 et seq.; Floodplain Management Act, Act of Oct. 4, 1978 (P.L. 851, No. 166), 32 P.S. §679.101 et seq.

Source: Urban Engineers, Environmental Permitting Implementation Plan, 2009

REQUIRED ENVIRONMENTAL PERMITTING (CONT'D)

Regulatory Permit or Other Requirement	Applicable Laws or Regulations
Section 404 Nationwide Permit (Water Obstructions and Fill) for outfalls, minor road and utility crossings, etc.	Section 404 of the Federal Clean Water Act
Section 10 Water Obstruction Permit	Section 10 of the Federal Rivers and Harbors Protection Act
Chapter 105/Section 404 Individual Joint Permit (PA DEP Water Obstruction and Encroachment Permit and USACE Section 404 Permit)	PA Chapter 105 + Clean Water Act (Section 404)
PA/Federal Coastal Zone Consistency Determination	PA Coastal Zone Management Program; Sections 401, 402, 405 and 318 of the Federal Water Pollution Control Act (33 USC 1341, 1342, 1345 and 1328)
Submerged Land Licensing Agreement (fill <25 acres) Water Dependent Uses Only	PA Code §105.32(b)
Submerged Land Licensing Agreement (fill >25 acres and all Non-Water Dependent Uses)	PA Code §105.32(b)
Chapter 105 Dam Safety - Dam Permit (Dams greater than 15 ft in height)	Federal Water Pollution Control Act (Section 401); Clean Water Act (Section 404); 25 PA Code Chapter 105; Dam Safety and Encroachments Act, Act of Nov. 26, 1978 (P.L. 1375, No. 325), as amended, 32 P.S. § 693.1 et seq.
Air Quality General Permit	40 CFR Part 70; 25 PA Code 127; Air Pollution Control Act, Act of Jan. 8, 1960 (P.L. 2119), as amended; Clean Air Act, 40 USC 1857 et seq.
Air Quality Operating Permit - Title V/State Only Permits (sources greater than 10 mBTU)	40 CFR Part 70; 25 PA Code 127; Air Pollution Control Act, Act of Jan. 8, 1960 (P.L. 2119), as amended; Clean Air Act, 40 USC 1857 et seq.
Storage Tanks - Installer and Inspector Certificate	25 PA Code Chapter 245; Storage Tank and Spill Prevention Act (35 P.S. 6021.101-2105), as amended
Storage Tank Registration and Permitting	25 PA Code Chapter 245; Storage Tank and Spill Prevention Act (35 P.S. 6021.101-2105), as amended
Storage Tank Site-Specific Installation Permit	25 PA Code Chapter 245; Storage Tank and Spill Prevention Act (35 P.S. 6021.101-2105), as amended

Source: Urban Engineers, Environmental Permitting Implementation Plan, 2009

OTHER ENVIRONMENTAL REQUIREMENTS

Regulatory Permit or Other Requirement	Applicable Laws or Regulations
PADEP Act 537 Wastewater Facilities Planning Reviews for facilities with additional wastewater connections or pumping stations and collectors.	Pennsylvania Sewage Facilities Act (Act 537, as amended), January 24, 1966; Title 25 Pennsylvania Code, Chapter 71, § 72.21
Wetland Delineations for off-site areas not covered by the EIS or other approvals	Section 404 of the Federal Clean Water Act (33 U.S.C. §1251 et seq.)
Threatened and Endangered Species Not Covered by the EIS or Other Approvals	7 Pa. Code § 128.102; Endangered Species Act of 1973 (7 U.S.C. § 136, 16 U.S.C. § 1531 et seq.); 50 CFR § 17.11; 50 CFR § 17.12; 50 CFR 17.95; 50 CFR Part 222; 50 CFR Part 226; 50 CFR Part 402; 50 CFR Part 424; 32 P.S. §§ 5301, Section 5307; 30 Pa. C.S.A. §§ 101, Section 102; 34 Pa. C.S.A. §§ 101, Section 102; 17 Pa. Code Chapter 45; 58 Pa. Code Chapter 75; 58 Pa. Code Chapter 133
Compliance with EIS requirements and agency agreements	(Pub. L. 91-190, 42 U.S.C. 4321-4347, January 1, 1970, as amended by Pub. L. 94-52, July 3, 1975, Pub. L. 94-83, August 9, 1975, and Pub. L. 97-258, § 4(b), Sept. 13, 1982)
PADEP Act 2 Site Remediation Agreements for on-site management of contaminated materials	Act 2 , The Land Recycling and Environmental Remediation Standards Act. (Related laws are: Act 3 , The Economic Development Agency, Fiduciary and Lender Environmental Liability Protection Act; Act 4 , The Industrial Sites Environmental Assessment Act; Act 6 of 2000 Expands Act 4; and Chapter 250. Administration of Land Recycling Program)
PADEP Management of Fill (Clean fill Documentation) for excavated materials.	PA DEP Management of Fill Policy, April 2004
Air Quality - Conformity with the SIP - Should be part of EIS Process	Clean Air Act
Air Quality - Surface transportation improvements must be identified in the SIP	Clean Air Act
Due Diligence Environmental Investigations for new property acquisitions (e.g., contaminated soil/groundwater Phase 1, 2 and 3 Studies and Cleanups)	Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA). For Phase 1 ESA use ASTM 1527-05 as guide.

Source: Urban Engineers, Environmental Permitting Implementation Plan, 2009

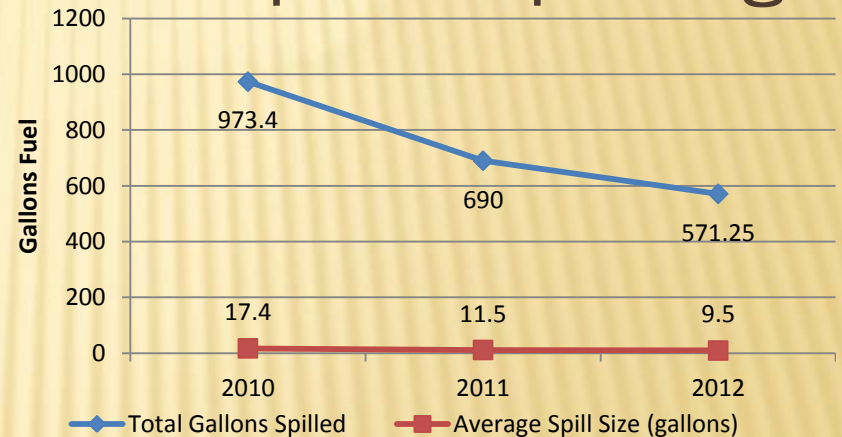


WATER QUALITY MANAGEMENT

WATER QUALITY MANAGEMENT

- ✘ Deicing Apron
- ✘ Fire Training Facility
- ✘ Stormwater Management
 - + PNE Meadow
 - + Bioswales Cell Phone & Employee Parking
 - + Pervious Pavement
 - + Green Roof Feasibility
 - + Stormwater Infiltration Master Plan

- ✘ NPDES Permits
- ✘ Spills Reporting



CITY	AIRLINE	FLIGHT	TIME	STATUS
Charleston	US Airways	3572	8:21	ARRIVED
Charlotte NC	US Airways	1744	8:08	ARRIVED
Charlotte NY	US Airways	283	8:58	8:50AM
Chicago-MDW	Southwest	193	8:58	8:50AM
Chicago-ORD	US Airways	1837	8:05	8:50AM
Chicago-ORD	American	3893	9:20	9:35AM

<http://www.phl.org/AboutPHL/Environmentalinitiatives/>

THANK YOU!

