

PHL Master Plan Update

Executive Summary – Facilities Inventory

Facilities Inventory:

The Facilities Inventory chapter describes the current physical, operational, and functional characteristics of the Philadelphia International Airport (PHL) and its vicinity. This chapter includes background, airfield facilities, post-security facilities, transportation facilities, air cargo facilities, and environmental overview.

Aviation activities began at the current airport location (then called Hog Island) in 1925, when the Pennsylvania National Guard opened a training airfield. Redevelopment was completed in 1940, and this milestone is often considered as the real start of commercial service operations at Philadelphia Municipal Airport. The airport became Philadelphia International Airport as early as 1947, when American Overseas Airlines (later merged with American Airlines) inaugurated direct services to Europe.

Airside Facilities:

This section describes the airfield facilities of PHL, which have the largest footprint on the airport property. The facilities discussed in this section include the runways, navigational aids (NAVAIDS), taxiways, aprons, and aircraft deicing facilities.

Runways

There are four active runways at PHL—Runway 09L-27R, Runway 09R-27L, Runway 17-35, and Runway 08-26. The four runways allow PHL to safely handle more takeoffs/landings during peak hours.

Navigation Aids

A NAVAID is any structure, equipment, or infrastructure used to help guide pilots in flight.

Taxiways and Aprons

The **taxiway system** at PHL is designed to facilitate the flow of traffic on the airfield to/from the terminal and aprons. There are currently nine designated aircraft **parking aprons** at PHL (i.e. a passenger terminal apron, two cargo ramps, etc.).



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Passenger Terminal Facilities:

Passenger Terminal Facilities describe how Philadelphia is connected to the Philadelphia International Airport. Interstate Highway 95 is the main route for passenger vehicular access to and from the airport. Industrial Highway and Tinicum Island Road provide secondary airport vehicular access for passengers and employees. All terminals are also served by public transportation via Southeastern Pennsylvania Transportation Authority's (SEPTA) Regional Rail Airport Line. All terminals are connected to dedicated vehicular parking structures and baggage claim facilities through elevated bridges over the Arrivals Roadway and SEPTA rail line. There is a total of seven Terminals and a total of 149 gates servicing international and domestic flights.

Major Building Areas

Departing passengers needing to obtain a boarding pass or check in their luggage use one of the seven check-in lobbies at the terminal complex. The check-in process has changed substantially during the past few years with the incorporation of new technology and innovations such as smartphone applications, self-bag tag kiosks, etc., and PHL terminal lobbies reflect these changes and improvements. **Terminal A-West** was constructed in 2003 and is one of the most recent buildings at PHL. The check-in lobby was designed primarily to process international departures, serving most of the departing international foreign flag carriers, including Qatar, Lufthansa, Iceland, British Airways, Aer Lingus, as well as American Airlines' departing international flights. Most domestic and a few international passengers requiring check-in assistance use **Terminal B-C**, proceeding to the gates through two separate checkpoints located on opposite sides of the lobby. American Airlines is the only carrier using this check-in area. Because of the number of passengers and flights served at Terminal B-C, the check-in area often becomes congested, particularly during peak periods. The **Terminal D** check-in lobby currently serves Air Canada, Alaska Air Lines, Delta Air Lines, Sun Country Airlines, and United Airlines, which operate mostly out of D gates. Most of these airlines' passengers are origination/destination and use check-in counters, security checkpoints, and baggage claim more than American Airlines which has a large number of connecting passengers.

Passenger Security Screening

Passenger screening, which includes mandated screening of passengers and carry-on baggage prior to boarding any aircraft, helps ensure safety for the nation's transportation systems. Due to the building configuration and distances from the check-in counters to gates, the airport complex has been divided into zones for passenger screening purposes. There are seven passenger security screening checkpoints. All check-in lobbies are connected to security checkpoints, offering a simple passenger flow to the airplane boarding gates.

Holdroom and Boarding Gates

At PHL, both domestic and international flights have similar requirements, but operations might be different. Some passenger holdrooms at the airport are more integrated with concession services. Also, different airlines tend to manage boarding in different ways. The PHL complex includes two international-capable terminals (A-West and A-East), two domestic terminals (B and C), two origination/destination terminals (D and E), and one commuter exclusive use terminal (Terminal F).

Concessions

Airport concessions are an important aspect of the airport terminal. Provisions for concessions pre- and post-security not only enhance the passenger experience by providing entertainment and access to food

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and beverages, but also provide basic amenities to airport employees and visitors who do not have access to post-security areas and provide a vital source of revenue for the airport.

Baggage Claim

The **international baggage** claim is located at the third level of Terminal A-West within the Federal Inspection Services facility. International passengers retrieve their bags from one of the eight baggage claim devices. The international arriving passengers need to clear their luggage from CBP agents and proceed to the international arrivals hall to exit the airport or, for connecting passengers, re-check their bags and continue to the passenger security checkpoint located on the second floor of Terminal A-East. **Domestic baggage** claim occurs at various baggage claim facilities located to the north of the terminal complex and with close adjacency to the vehicle parking structures. Once the passengers claim their bags, they exit to the curbside(s) to reach their chosen mode of transportation. SEPTA stations are located adjacent to these facilities along the commercial curbside.

Federal Inspection Services Facility

This facility consists of the main international arrivals lobby, which handles mainly immigration affairs and inspection and contains a large baggage claim area for international passengers to retrieve their luggage. Passengers are processed through Customs and Animal and Plant Health Inspection Services before entering the country.

Landside Transport System Facilities:

PHL is connected to the Philadelphia region's vast and mature multimodal transportation system through a network of roadway and transit linkages. This network consists of I-95, SEPTA's Regional Rail, and four bus lines running on Routes 37, 68, 108, and 115. Taxis, limousines, and ride-sharing vehicles are also publicly available to passengers.

Transportation Context

Travel to and from the airport continues to vary and evolve for travelers, employees, and vendors as emerging services and smartphone apps expand travel options and available modes in ways that could result in disruptions to future cost models and revenue opportunities. The airport is located in the southwestern section of the city of Philadelphia and occupies a portion of Tinicum Township in Delaware County. The airport is immediately adjacent to residential and commercial uses in the neighborhoods of Tinicum, Eastwick, Paschall, and Elmwood and industrial uses and scrap yards to the northeast. The Delaware River forms the southern boundary of the airport, and the Schuylkill River bounds the airport to the east.

Internal Circulation

For **arriving flights**, three travel lanes are provided, which transition into 4 lanes after traveling past Terminal A. For **departing flights**, three travel lanes are also provided at the start of the terminal area, which then widens to four lanes. At each terminal, there is an additional lane provided for pick-up and drop-off.

Rental Car Facilities

Passengers have the option to take shuttle buses provided by the airport to rental car services. There are a total of 7 rental car companies.

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Auto Parking

Five airport parking garages—A-West, A-East/B, C, D, and E/F—are operated by the Philadelphia International Airport and provide a total of 19,726 spaces for public short- and long-term parking.

Air Cargo Facilities

There are three primary air cargo areas at PHL: UPS's facility south of the airport along Hog Island Road, Cargo City in the northwestern quadrant of the airport along Tinicum Island Road, and the recently acquired West Cargo expansion area west of Cargo City (Tinicum Road passes through the site). FedEx has a facility further west of the airport in Tinicum Township. Hog Island Road provides the primary access to the UPS facility, while Tinicum Island Road is the main access for FedEx, serves as the main access for UPS from the southwest, and continues past Cargo City to the east.

Trends in Landside Access for Passengers and Employees

Landside facilities are used by two primary groups: passengers and employees. In 2019, 33 million passengers passed through the airport. Within the last five years, the advent and rapid adoption of ride-sharing services such as Uber and Lyft have transformed the mode share for passengers at the airport and have displaced traditional demand for taxis, limousines, and courtesy shuttles.

In 2019, the airport had 33 million passengers, a 4.2% increase over 2018. Twelve percent were international passengers, and the remainder were domestic. About half (47%) of passengers arrive or depart the airport in a private car. Thirteen percent of passengers arrived at or departed from the airport in a rental car. Approximately 22% of passengers arrived at or departed from the airport in a ride-share (Uber/Lyft), taxi, limousine, or courtesy shuttle. Two percent of passengers arrived and departed from the airport via the SEPTA Airport Line.

Air Cargo Facilities:

In its simplest form, the air cargo market is made up of freight and mail. Airmail in the United States is contracted out by the U.S. Postal Service (USPS) and uses the belly hold of commercial passenger aircraft and on freighters operated by contractors. Air freight refers to all cargo other than mail. PHL has air cargo routes to almost all the largest U.S. cities, especially on the East Coast. In addition, PHL has some international air cargo routes, connecting to Western Europe and one route with Doha, Qatar.

Cargo City

Cargo City is located on 106 acres in the northwestern quadrant of the airport, along Tinicum Island Road. It comprises seven cargo buildings, with the necessary facilities to park and service aircraft. UPS owns and operates a regional terminal and distribution facility located on 210 acres along the airport's south side. It is important to note that the UPS operation at PHL is located on privately owned property and is a through-the-fence operation—that is, the UPS buildings and aircraft apron are not on airport property. UPS does have direct access to the airport's runways via Taxiways U and Y.

Environmental Overview:

In 2016, the PHL Division of Aviation (DOA) developed a sustainability strategy that focused on several key areas: recycling, energy, noise, emissions, and water (RENEW). The DOA launched a Strategic Energy and Emissions Reduction Plan in support of this strategy that focused on greenhouse gas (GHG) emission reductions, resiliency, and renewables (Re-PHL). The Re-PHL strategy is designed to help the DOA realize financial savings, minimize consumption of non-renewable energy, increase operating efficiency, and achieve long-term resilience. In support

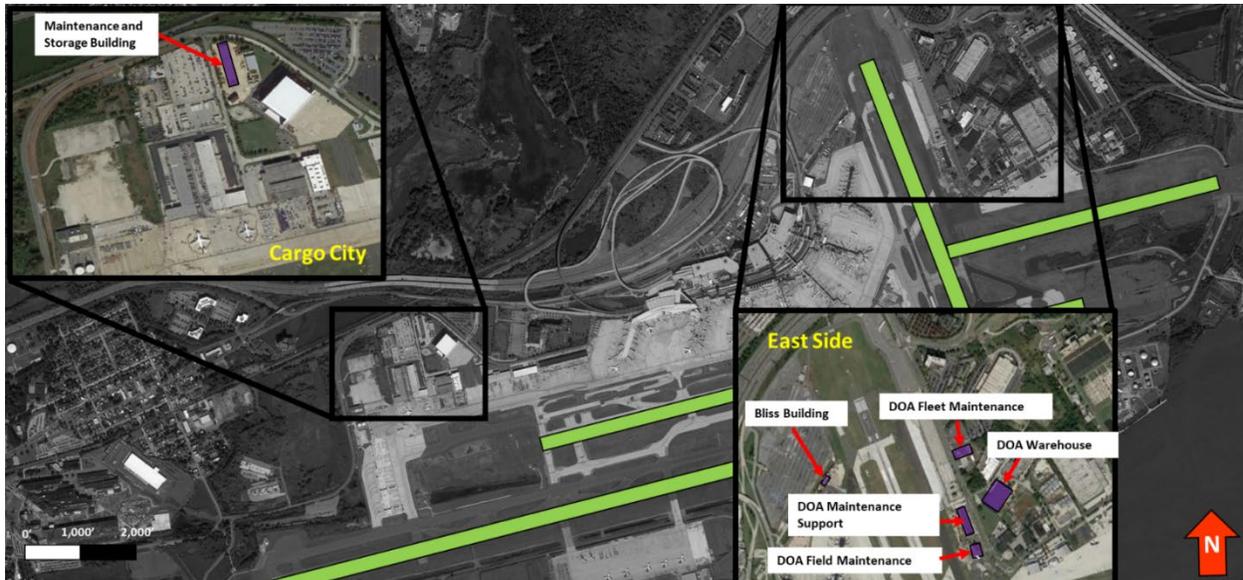
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of these interrelated programs, the PHL Sustainability Action Plan (2020) is circulated internally to track and coordinate projects (including priority, timelines, costs, and status) to aid progression toward the RENEW strategy's goals.

Airport Maintenance:

The airport maintenance facilities at PHL are primarily situated at two locations: the east side area of Runway 17, and the Cargo City area, northwest of Terminal A. The east side accommodates four DOA buildings, which include fleet maintenance, maintenance support, field maintenance, and a warehouse.



Aircraft Fueling:

There are two aircraft fuel farms and one major fueling station at PHL, the primary fuel storage facility is PHL Fuel Facilities LLC. The fuel farm features nine Jet fuel storage tanks with a total storage capacity of 14,000,000 gallons. The fuel in these tanks is supplied via one pipeline running under the Delaware River from a fuel terminal in New Jersey. The fuel terminal is supplied via pipeline and a local refinery.

Aircraft Rescue and Fire Fighting:

The PHL Aircraft Rescue and Fire Fighting (ARFF) station was constructed in 1987 and is located on the south of the airport, east of the corporate hangars and south of the Runway 27L. The ARFF station provides emergency services to aircraft and facilities on airport property, and houses both the emergency equipment and the necessary personnel. With an approximately 14,500-square-foot building and six bays, the ARFF station accommodates space for administration, firefighting equipment, living facilities, and ARFF vehicle parking and support.

Air Traffic Control Facilities

The existing Control tower is located on the south of the airport, between Hog Island Road and the corporate hangars. The tower was built in 1981 and has a total height of (including antennas) 146 feet. The facility also houses a radar room, the local Flight Standards District Office, Airways Facilities office, and other administrative space and support facilities.

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Solid Waste and Recycling Collection and Facilities:

The waste and recycling materials from PHL terminals (public and secured areas) and the landside areas are collected by the City's custodial staff. The City's Pavement and Grounds (P&G) staff are responsible for the collection of waste and recycling materials from the airside and other outdoor areas, including the SEPTA train platforms. P&G staff are also responsible for seasonal cleanups, street sweeping, and waste from construction and demolition activities.

Sustainability Overview:

The DOA and the City of Philadelphia have a longstanding commitment to sustainability across the Philadelphia airport system. The DOA embraces the Airports Council International – North America definition of airport sustainability, which identifies a balance of economic viability, operational efficiency, natural resource conservation, and social responsibility (EONS). The DOA is committed to integrating sustainability into the master planning processes to ensure the long-term sustainability of their airports. Sustainability is, therefore, being integrated into every step of the PHL Master Plan, starting with an inventory of existing sustainability goals and priorities. This overview will support the development of overarching goals for integrating sustainability into the airport's development plans.

All projects at PHL and Northeast Philadelphia Airport (PNE) are expected to implement integrated design methods that perform across each of the EONS categories and achieve the FAA's sustainable development guidelines.

City of Philadelphia Sustainability Program

The **Greenworks** program is a broad framework for sustainability within the City of Philadelphia. The program is intended to address sustainability in terms of equity, health, environmental, and economic benefits. Projects at PHL and PNE shall address the Greenworks visions throughout their planning, design, and construction. Greenworks program documents can be sourced from the City of Philadelphia's Office of Sustainability.

In 2021, the City of Philadelphia committed to achieving carbon neutrality by 2050, indicating that it will generate net-zero greenhouse gas (GHG) emissions in the buildings, energy, transportation, and waste sectors. To achieve carbon neutrality by 2050, the City has set numerous key goals and metrics by sector that can be sourced in the January 2021 **Philadelphia Climate Action Book** which outlines key goals and metrics that may be applicable to the DOA's facilities and operations

All building projects at PHL and PNE must consider the specific emissions, energy, and waste goals of the City of Philadelphia throughout their planning, design, and construction. Findings and recommendations on opportunities for emissions, energy, and waste reduction shall be incorporated into the project process.

Historically, the DOA has addressed sustainability for internal activities over which the DOA has some level of control or influence. The Sustainability Unit has focused on environmental factors as described in the existing RENEW Program. Since the environment, society, and economy are interdependent, they must be addressed concurrently to enable sustainable operations and development. This requires the efforts of individuals and organizations, such as the DOA, to spur change and commit to sustainability. The DOA is currently in the middle of drafting a **Sustainability Management Plan (SMP)**.

Airport Carbon Accreditation Program

The Airport Carbon Accreditation (ACA) program is a voluntary, worldwide carbon management standard. Each level of accreditation presents a set of criteria to fulfill, as well as a path to carbon neutrality and continued reduction. The program is site-specific, allowing flexibility to consider national or local legal

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requirements while ensuring that the methodology used is always robust. Philadelphia International Airport has moved up to Level 2 in the ACA program (PHL was ACA Level 1 in 2021). PHL was the first airport in Pennsylvania to enter the ACA program.