



**Philadelphia International and Northeast Airports**

The background of the cover is a photograph of a control tower at an airport, partially obscured by a diagonal white line. In the foreground, there are pink cherry blossoms in bloom. The bottom right corner of the cover is a solid dark blue triangle.

# **2016 Environmental Progress Report**

**EXECUTIVE SUMMARY**

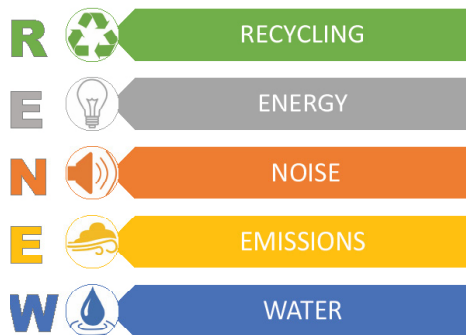
# OPENING REMARKS

The City of Philadelphia Division of Aviation (DOA) owns and operates both the Philadelphia International Airport (PHL) and Northeast Philadelphia Airport (PNE). PHL is the only major airport in the nation's seventh-largest metropolitan area that serves more than 30 million passengers annually, and PNE is Pennsylvania's sixth busiest General Aviation airport offering "on-call" U.S. Customs, Immigration and U.S. Department of Agriculture services for general aviation travel.

These facilities contribute to the economic and social sustainability of our region by supplying jobs, serving businesses, bringing tourists to the Greater Philadelphia area, and providing a means of transportation to other parts of the world. Overall, the airports have a \$15.4 billion economic impact on the region!

The DOA has recognized the potential impact that major airports can have on the environment and has already taken steps to be good stewards.

The DOA has since focused on five key areas and has even set targets for these:



Short term targets and an action plan have been prepared to guide decisions and strategies through 2020.

Looking back, 2016 was a year of great achievements. We improved compliance with environmental regulations and the DOA implemented numerous emission and energy reduction initiatives. An emphasis was placed on employee engagement and stakeholder outreach, including conducting our first sustainability charrette in March 2016 and forming a Sustainability Committee in August 2016. The charrette mobilized nearly 40 DOA and City staff to identify sustainability priorities, challenges, and opportunities.

This charrette has led to drafting a sustainability policy and action plan that will guide our efforts through 2020 and beyond. Additional information about our sustainability planning as well as our environmental progress made in 2016 can be found in the following report. We hope you enjoy this first, annual edition.

We look forward to building upon the strong foundation set in 2016 and seeing what we can accomplish in 2017!



**Danielle Buehler, AICP, LEED AP**  
Sustainability Program Manager  
Philadelphia International and Northeast Airports



# SUMMARY OF ACHIEVEMENTS

The DOA kicked off 2016 with a Sustainability Charrette to solicit input from employees and City staff regarding topics (or focus areas) that are important in terms of future sustainability planning and worthy of increased attention. The half-day event with over 40 participants helped build upon past progress and provide direction for the future. One outcome included the identification of focus areas that represent what is most important to the organization's sustainability – considering factors that span the four key elements of airport sustainability.



**Airport Sustainability - "EONS" (as defined by Airports Council International - North America)**

## 2016 ENVIRONMENTAL HIGHLIGHTS

Philadelphia Parking Authority installs 1,400 LED lights along Arrivals roadway, DOA receives \$121,742 rebate

Sustainability Charrette held at John Heinz National Wildlife Refuge



Source: C&S Companies, 2016

Waste Clean-up at International Plaza with 50 volunteers; 1,000 pounds of trash & recycling collected

Earth Day and Awards



Source: DOA, 2016 Source: DOA, 2016

Book exchange/exhibit made of recycled wooden pallets installed



**February**

**March**

**April**

**May**

New website launched with updated environmental and sustainability info

1st Sustainability Committee meeting held  
3,000 cubic yards of asphalt millings from taxiway reconfiguration reused to level a surface roadway

Art unveiled featuring recycled stained glass

Installation of new roof-top air handling units on terminals begins

RFI issued for mixed-waste processing facility

Sustainability Directors Round table

Grand opening for Terminal F Baggage Claim, a LEED Gold facility

America Recycles Day November 15

City's Greenworks Plan relaunches

Bicycle lane and signage added on Old 291 recirculation road

**July**

**August**

**September**

**October**

**November**

### ACRONYMS

CEO: Chief Executive Officer  
RFI: Request for Information  
LED: Light-emitting Diode  
FOD: Foreign Object Debris

DOA: Division of Aviation  
DNC: Democratic National Convention  
LEED: Leadership in Energy & Environmental Design

# FOCUS AREA OVERVIEWS

The following pages highlight the progress made in 2016 for each of the RENEW focus areas, as well as relevant goals, targets or other commitments the DOA has established.



## Sustainable Design

Although sustainable design and construction crosses many focus areas, it is important to recognize the efforts the DOA and its partners are making to integrate sustainability into airport improvements and development projects.



**PHL NOW HAS 2 LEED CERTIFIED BUILDINGS**  
including the LEED Silver Ground Support Equipment Maintenance Facility and LEED Gold Terminal F Baggage Claim Building



### LEED GOLD TERMINAL F BAGGAGE CLAIM BUILDING

which opened in 2016, is designed to achieve 20% energy cost savings and over 40% reduction in potable water consumption compared to a baseline building



Terminal F Baggage Claim Building  
Source: DOA, 2016



Construction  
Source: DOA, 2016

### DOA IS DEVELOPING SUSTAINABLE DESIGN STANDARDS

to help minimize impacts during and after airport projects



## Recycling

The City has a goal of achieving zero waste by 2035, which will require significant collaboration among government, businesses and individuals. The DOA is committed to reducing waste and increasing recycling, but faces a number of challenges such as liquid contamination in the terminal areas that have led to a low diversion rate (the percent of materials being diverted from landfills through recycling, reuse, and re-purposing). The DOA has set targets through 2020 to guide future progress.

### 2016 DIVERSION RATE = 9.2%

The DOA is aiming to achieve 12% diversion rate in 2017, 17% in 2018, 22% in 2019, and 25% in 2020



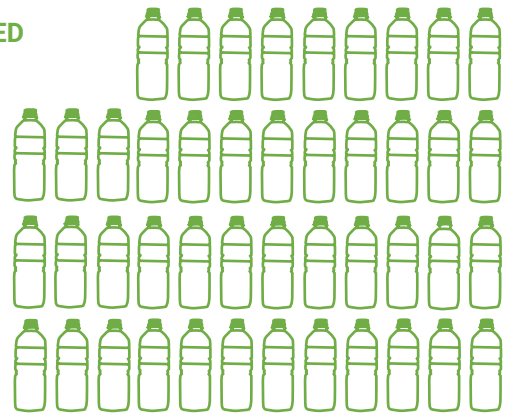
### 50 VOLUNTEERS

contributed to over 1,000 lbs of trash & recycling being collected at the April clean-up event



April Clean-up Event  
Source: DOA, 2016

### 450,000 BOTTLES SAVED by using bottle filling stations



The DOA and major tenants recycled over 1020 tons of materials in 2016

To reduce recycling liquid contamination and help customers stay hydrated while traveling, the DOA installed 18 water bottle filling stations throughout the terminals. The intent is to provide a way for customers to fill their reusable water bottles after emptying them at the security checkpoints.



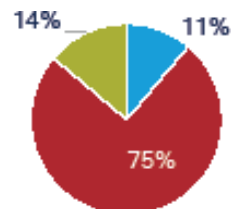
PHL Bottle Refilling Station  
Source: DOA, 2016



## Energy

Operating PHL requires a significant amount of energy – making the DOA one of the largest energy consumers among City departments. In 2016, peak demand was 25.7 megawatts. Given the environmental and cost implications, energy conservation efforts are a major priority with an emphasis on reducing electricity needs. The DOA is aiming to reduce energy consumption by 10% by 2020 and increase the use of renewable energy by 5%. The DOA is also seeking to establish a more detailed energy baseline and metrics to inform future energy strategies .

### ELECTRICITY MADE UP 75% OF PHL'S UTILITY COSTS IN 2016



#### FY 2016 Utility Costs

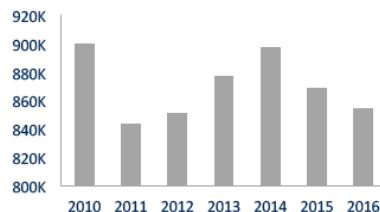
Source: DOA, 2016

■ Gas ■ Electric ■ Water



### RECEIVED >\$245,000 UTILITY REBATES for energy efficiency upgrades to date

### ENERGY USE HAS DECREASED SINCE 2014



#### Historical Energy Consumption (MMBTU)

Source: DOA, 2016



### NEW EMPLOYEE ORIENTATION

includes education on energy, recycling, and other environmental resources to promote conservation

The Philadelphia Parking Authority installed 1,400 LED lights along Arrivals Rd., for which the DOA received a \$121,742 rebate. The project will also save \$120,000 a year in energy costs.



LED Lighting (right side of photo) along Arrivals Road  
Source: Philadelphia Parking Authority, 2016

In 2016, PHL and airport concessionaires continued to install energy-efficient LED fixtures for numerous applications. Both interior and exterior LED lighting applications are being completed whenever feasible including roadway, taxiway, runway, and signage lighting, as well as LED lighting in tenant operated areas. In addition, the DOA installed three new energy-efficient boilers, a new chiller, new pumps and associated piping in the Central Utility Building.



LED Lighting  
Source: DOA, 2016





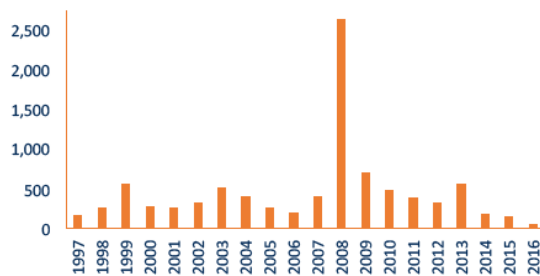
## Noise

The DOA's Aviation Noise Abatement Office was established two decades ago in response to citizen concerns about aircraft noise. The Noise Office responds to and analyzes noise complaints (with a target response time of under 4 business days), conducts community and stakeholder outreach, performs data analysis of airport operations, develops reports, and conducts noise measurements related to aircraft operations. The DOA also provides noise mitigation programs in cooperation with the Federal Aviation Administration (FAA), which include noise abatement measures (i.e., voluntary air traffic control procedures and preference of certain runways during nighttime hours).



### REDUCTION IN NOISE COMPLAINTS

2016 saw the lowest number of noise complaints on record



Historical Noise Complaints  
Source: DOA, 2016

### UTILIZATION OF NOISE ABATEMENT FLIGHT PROCEDURES EXCEEDED THE DOA'S 98% TARGET IN 2016



### PREFERRED RUNWAYS WERE USED 97.5% DURING NIGHT-TIME HOURS

in 2016, just shy of the 98% target (night-time construction work on Runway 9R/27L likely contributed to this)

An Environmental Assessment was approved in 2015 to proceed with a sound insulation project at the Fort Mifflin National Historic Landmark, the historic Revolutionary War fort that sits just outside the southeast corner of PHL. In 2016 the architectural and mechanical designs were completed, including door, window, ventilation, and acoustical treatment options for rooms used for instructional purposes. These improvements will meet FAA noise level reduction standards without compromising the historic features of the facility and will provide a quieter interior space for instructional and interpretive uses of the Fort.

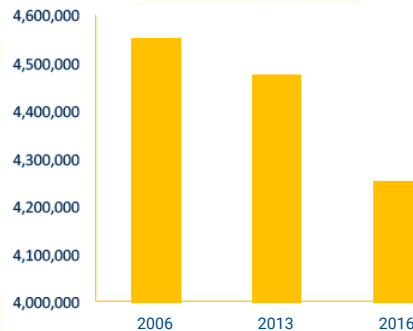


Fort Mifflin  
Source: DOA, 2007



# Emissions

Acknowledging the impact that airport activities have on air quality and climate change, the DOA seeks to reduce emissions from its own sources (i.e. vehicles and buildings) and encourage reduction from tenant and other stakeholder sources. A Greenhouse Gas (GHG) emissions inventory was conducted in 2016, which showed a reduction in Airport, tenant and public sources compared to 2013. This is in part due to the many emission reduction initiatives implemented at PHL.



Scope 1 emissions (those owned and controlled by the DOA) make up only 1% of PHL GHGs.

**Greenhouse Gas Emissions Inventories (Metric Tons of GHGs)**  
Source: DOA, 2016

## EMISSIONS DECREASED BY 5%

equivalent to removing >47,000 vehicles off the roadways for 1 year



The DOA, its partners, and the environment continue to benefit from projects funded through the FAA's Voluntary Airport Low Emissions Program, which supported the purchase of recharging stations for electric ground support equipment, hybrid vehicles, and other equipment.



Pre-Conditioned Air Unit Purchased with VALE funds  
Source: DOA, 2016



Construction Equipment  
Source: DOA, 2016

The DOA's clean diesel inspection program verifies contractors' fleet rosters and issues stickers for compliant equipment. In 2016, 103 stickers were issued. Each retrofitted piece reduced soot emissions by >20%.

## 5% reduction target has been set for petroleum-based fuel consumption, which would save 27,023 gallons

The associated GHG savings are equivalent to 76 tons of waste recycled



## 14 NEW EV CHARGING stations installed in 2016



EV Charging Station  
Source: DOA 2016





## Water and Natural Resources

The DOA is aiming to reduce its water consumption 10% by 2020 and is installing low-flow fixtures and toilets in restroom renovations to contribute to this. Simply replacing all of the toilets in Terminals A-East through E with higher-efficiency models will reduce consumption by 20%.

Equally important to conserving water is protecting water quality. The DOA tracks and reports on fuel spills, has integrated stormwater management projects into its facilities at PHL, and collects and monitors stormwater runoff/snow melt affected by deicing activities.



### 2016 SAW THE LOWEST NUMBER OF SPILLS

recorded in the past 10 years



### Historical Number of Spills

Source: DOA, 2016

Although the projects were completed in prior years, the wetlands established as part of the mitigation associated with PHL development continue to thrive and provide environmental and social benefits.

Wetland at Bartram's Garden Established as Mitigation for a Taxiway Extension at PHL



2013

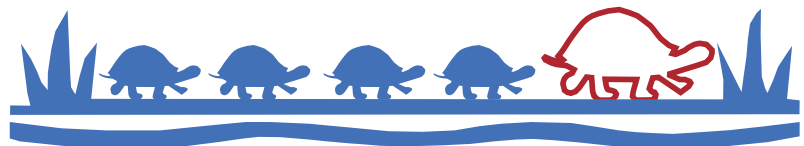


2016

Source: DOA, 2016

### PHL IS HOME TO 5 TURTLE SPECIES

including the Eastern Redbelly Turtle, which is listed as a threatened species in PA



### 3 MILLION GALLONS OF RUNOFF COLLECTED

to prevent stormwater pollution from deicing activities

