



PHILADELPHIA INTERNATIONAL AIRPORT  
NORTHEAST PHILADELPHIA AIRPORT



## 2017 Environmental Progress Report **EXECUTIVE SUMMARY**

PHILADELPHIA INTERNATIONAL AND NORTHEAST AIRPORTS

# 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!

Last year, the DOA shared its first annual Environmental Progress Report, which highlighted progress toward established goals and objectives related to Recycling, Energy, Noise, Emissions, and Water



(RENEW). This Report continues this trend with 2017 performance and stories. While 2016 featured stakeholder engagement to establish a sustainability policy and short-term action plan, 2017 focused on implementation of many initiatives that will reduce resource consumption and contribute to the protection of the natural environment. The DOA has also aimed to establish a better understanding of existing conditions and performance in areas like energy, emissions, noise, and waste to inform future efforts. These achievements are summarized in the following Report along with many of our findings, which will help us continue on the path toward environmental stewardship and long-term sustainability. Please enjoy and check back next year to see what we've accomplished in 2018!



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# SUMMARY OF ACHIEVEMENTS

The DOA celebrated a number of achievements in 2017, including instrumental actions that demonstrate leadership in sustainability. Following the development of a short-term sustainability action plan in 2016, the DOA continued to implement several measures and, in November, CEO Chellie Cameron signed a comprehensive sustainability policy. That same month, the DOA signed the Airport Sustainability Declaration at the international Airports Going Green conference. Additional 2017 highlights are summarized below.



The annual Earth Day event attracted airport staff, tenants, and community members, offering activities and education on environmental stewardship. The event also featured several partnerships, with exhibitors including the Clean Air Council, Heinz Wildlife Refuge, Philadelphia Streets Department, Philadelphia Water Department, Revolution Recovery, and more!



The DOA added additional water bottle filling stations in 2017. A total of 25 stations helped save over 1 million bottles! This momentum continues to build - At the Earth Day Event, over 170 people pledged to reduce, reuse, and recycle plastic water bottles.



In the summer of 2017, the DOA kicked off a Strategic Energy and Emissions Reduction Plan, engaging stakeholders through a collaborative workshop, interviews, and surveys to obtain valuable input.



In October 2017, the sound insulation of historic Fort Mifflin was completed, providing a quieter interior space for instructional and interpretive uses of the Fort.

In addition to these highlights, PHL received two awards in 2017: a Delaware County Green Award for air quality initiatives; and the Airports Going Green Conference's honorable mention in recognition of the Terminal F Baggage Claim building for outstanding leadership in pursuit of sustainability within the aviation industry. The DOA also included a sustainability overview/update at the airport-wide town hall meeting in June 2017, and will continue with this outreach in the future.

# FOCUS AREA OVERVIEWS

The DOA has made significant progress in 2017 advancing its sustainability goals. The following pages highlight this year's achievements for each of the RENEW focus areas, as well as the DOA's efforts related to sustainable design and construction.



## Sustainable Design & Construction

THE DOA IS COMMITTED TO INTEGRATING SUSTAINABLE DESIGN PRACTICES IN ALL AIRPORT PROJECTS AND TENANT IMPROVEMENTS.

PHL's Architectural and Engineering Design Standards include chapters on climate adaptation and sustainability, and are currently being updated.

IN 2017, THE DOA COMPLETED SEVERAL PROJECTS INCORPORATING SUSTAINABILITY MEASURES.

These include LED lighting upgrades, which reduce energy costs. In addition, the DOA developed a number of processes and protocols to better integrate conservation and protection into all improvements:

- Environmental/Sustainability Checklists for Planning and Design
- Monthly Project Controls Meetings
- Project Definition Document (PDD) Process
- Formalized Stakeholder Involvement of Design Technical Reviews
- PDD/Design Coordinator Deliverable Tracking

PROJECT MANAGEMENT PLAYBOOK:

Beyond the process improvements noted above, the DOA is developing the PHL Engineering Project Management Playbook to standardize key steps in project delivery and identify specific DOA personnel crucial for project collaboration.

The DOA and Pennsylvania Horticultural Society (PHS) teamed up to develop a design competition, the PHL Image Maker Design Competition, which focused on the entrance to the Airport and surrounding environment. The collaborative event engaged many local organizations and drew over 23 submissions!



Participants reviewing submissions  
Source: DOA, 2017



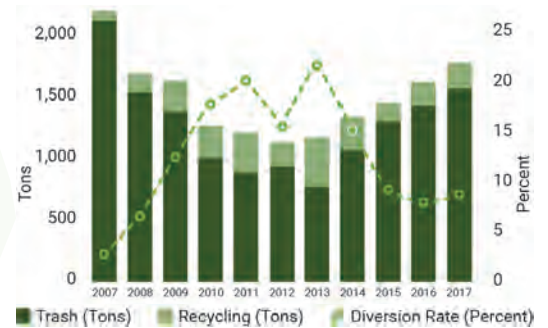
Airfield construction  
Source: DOA, 2016



## Recycling and Waste

In recent years, the international recycled materials market has grown less tolerant of contamination, causing recycling hauls that fail to meet these more stringent standards to be rejected and hauled as solid waste. While some progress was made in 2017, liquid contamination continues to challenge the recycling rate. In support of the City's 2035 goal to be litter-free and achieve zero waste (90% diversion and 10% waste to energy), the DOA hopes to implement initiatives, such as liquid collection stations at security checkpoints, that will help to reduce contamination.

PHL'S WASTE DIVERSION IS UP TO 8.3% FROM 7.4% IN 2016.<sup>1</sup>



Annual Total Solid Waste and Recycling  
Source: DOA, 2017

Each year, the DOA organizes and hosts two environmentally themed events - Earth Day and America Recycles Day. Both events encourage stewardship, conservation and recycling through awareness and education.



Earth Day 2017  
Source: DOA, 2017



RECYCLING AT PHL PROVIDED A COST SAVINGS OF APPROXIMATELY \$10,000 TO THE DOA BY DIVERTING MATERIAL FROM THE REGULAR WASTE STREAM.

### RECYCLING ADVOCACY POSTERS:

In 2017, the DOA updated its recycling advocacy posters placed in shuttle buses as part of a long-term educational campaign about recycling management and alternative methods of transportation.



### TENANT RECYCLING SUCCESS:

Two of PHL's major tenants also increased their diversion rates over the past year.

American Airlines: 6.3% → 28.3%  
MarketPlace: 19.1% → 19.5%

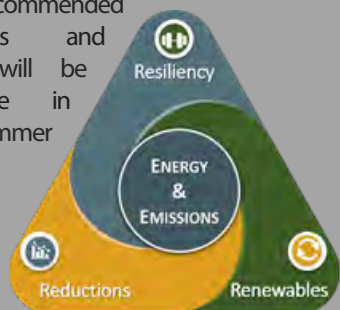
<sup>1</sup> The 2016 Environmental Progress Report indicated a higher diversion rate for 2016 due to the inclusion of C&D materials, which should have been omitted.



# Energy

In the summer of 2017, the DOA launched a Strategic Energy and Emissions Reduction Plan aimed at energy and emissions Reductions, Resilience and Renewables. The ultimate objective of this effort, termed the “Re-PHL Strategy,” is to help the DOA realize financial savings, increase its operating efficiency, and achieve long-term resiliency.

Phase I concluded in 2017 and the final phase, which includes the development of recommended strategies and goals, will be complete in the summer of 2018.



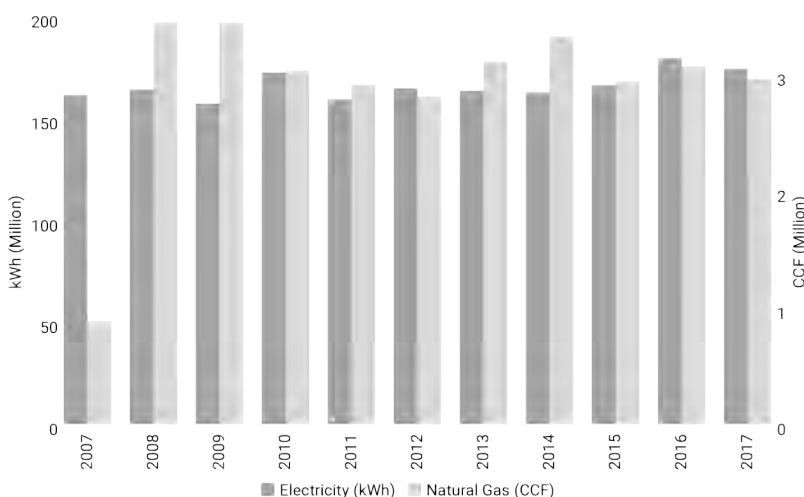
Source: DOA, 2017

Philadelphia International Airport is one of the largest consumers of energy among City departments. The Airport and its associated facilities rely on electricity and natural gas as their primary energy sources, with electricity accounting for nearly 75% of utility costs.

## 2017 WAS A YEAR OF GREAT PROGRESS IN ENHANCING ENERGY EFFICIENCY AT PHL.

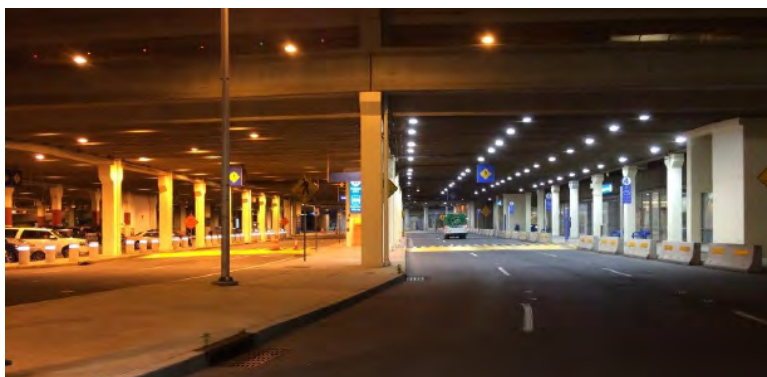
- Phase I of the terminal T12 fixtures were upgraded to LEDs, and Phase II will be completed in 2018. The project is anticipated to reduce annual energy consumption by 770,000 kilowatt-hours (kWh), equivalent to \$54,000 in cost savings.
- The DOA replaced approximately 60 rooftop air handling units, along with new controls, drives, and pumps, on Concourses B, C, and D.
- The first phase of a Strategic Energy and Emissions Reduction Plan was completed in the winter of 2017.

## NATURAL GAS AND ELECTRICITY CONSUMPTION BOTH DECREASED FROM 2016 TO 2017.<sup>2</sup>



### Annual Electric and Gas Consumption

Source: DOA, 2017



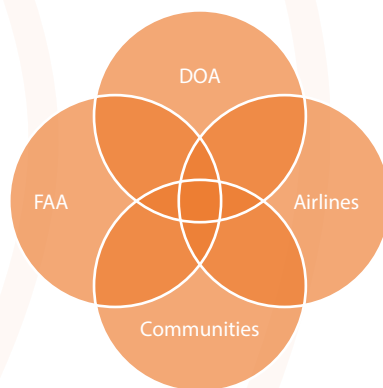
Older T12 fixtures on the left, New LED bulbs on the right  
Source: DOA, 2017

<sup>2</sup> 2015 to 2016 energy use increased due to the addition of the International Plaza buildings, which were omitted from the 2016 Environmental Progress Report.



## Noise

The DOA Aviation Noise Abatement Program is a response to community concerns about aircraft noise related to operations at PHL and PNE. The Noise Program continues to be a key liaison between airport, airline, Federal Aviation Administration (FAA), and community stakeholders.



The sound insulation project at the Fort Mifflin National Historic Landmark was completed this year. This project met FAA noise level reduction standards, did not compromise the facility's historic features, and provided a quieter interior space for use of the Fort.



Fort Mifflin National Historic Landmark  
Source: DOA, 2017



### TRACKING:

The Noise Abatement Program regularly tracks the status and progress of the following measures:

- Noise complaints;
- Noise abatement procedures (i.e., nighttime flight procedures and runway utilization);
- Aircraft operations; and,
- Measured noise levels.

### THE DOA RESPONDED TO COMPLAINTS WITHIN 72 – 96 HOURS IN 2017.

2017 marks 20 years of noise complaint tracking, and was the first full year of tracking noise complaint response time.



### NOISE COMPLAINTS:

In 2017, the number of noise complaints increased compared to the prior 3 years, primarily due to changes in runway utilization and temporary runway closures for construction and maintenance. Also, severe summer weather resulted in decreased compliance with the voluntary nighttime noise abatement procedures.





## Emissions / Air

Acknowledging the impact that airport activities have on air quality and climate change, the DOA is committed to reducing emissions from its own sources and encouraging reduction among stakeholders. The ongoing Re-PHL Strategy (see Energy section) is developing goals in collaboration with the City's Energy Office related to Greenhouse Gas (GHG) emissions and energy, as well as resiliency and renewable energy use/generation.

### A 5% REDUCTION TARGET HAS BEEN SET FOR PETROLEUM-BASED FUEL CONSUMPTION BY 2020.

This would save 27,023 gallons of fuel and the associated GHG reduction is equivalent to 76 tons of waste recycled. In 2017, 552,718 gallons of fuel were used, representing a 2% increase from 2016. Fortunately, the DOA is already taking steps in the right direction to reverse this increase.



### COMPRESSED NATURAL GAS FLEET:

In 2017, the DOA reevaluated the shuttle contract and required that the new fleet operates on Compressed Natural Gas (CNG), which will help reduce GHG emissions and petroleum-based fuel use.

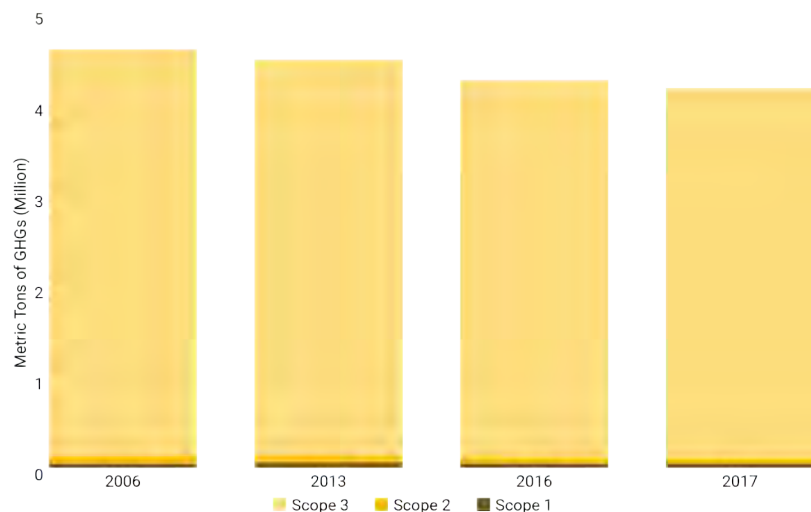
Demonstrating its commitment to reducing Scope 3 emissions, the DOA established a devoted Uber and Lyft staging lot where shared ride operators can park and wait for their next pickup. This allows drivers to remain near the Airport, thus reducing emissions and fuel use.



Devoted Uber and Lyft staging lot  
Source: DOA, 2017

### EMISSIONS:

Emissions are reported as either Scope 1 (from sources owned and controlled by the DOA, such as fleet vehicles), Scope 2 (from the generation of electricity consumed by the DOA and its tenants), or Scope 3 (associated with sources owned and controlled by others, like aircraft). As shown below, total emissions have decreased since 2006:



PHL GHG Emissions Inventories  
Source: DOA, 2017

Note: As shown, the DOA controls a very small percent of total emissions.



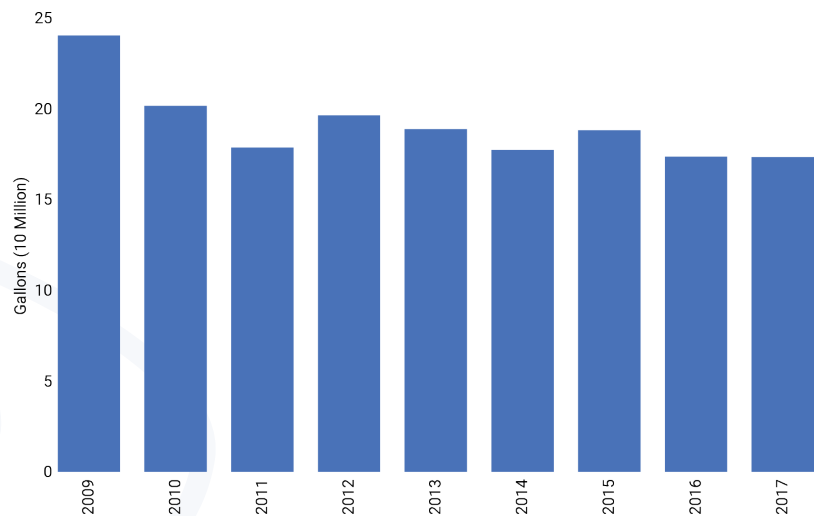


## Water and Natural Resources

The DOA is aiming to reduce water consumption 10% by 2020, which will be supported by the continued installation of low-flow fixtures and toilets in restroom renovations. To protect water quality, the DOA tracks and reports on fuel spills, has integrated stormwater management projects into its facilities, and collects and monitors stormwater runoff/snow melt affected by deicing activities.

### WATER USE REDUCTIONS:

The DOA's water use decreased slightly from 2016 to 2017, continuing the downward trend since 2015.



PHL Water Consumption  
Source: DOA, 2017

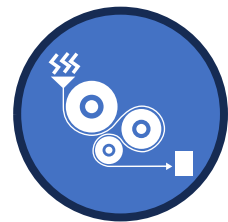
The PHL Central Deicing Facility (CDF) sits on 35 acres at the western edge of the Airport, adjacent to Cargo City. The CDF was recently converted to an all-truck deicing operation, replacing the 12 fixed hardstand booms and small fleet of trucks that previously provided the service. This new system will allow for more efficient deicing, thus improving PHL's runoff management by tailoring glycol application to each aircraft's needs based on temperature.



PHL Central Deicing Facility  
Source: DOA, 2017

### AIRCRAFT DEICING FLUID:

Through a partnership with the Philadelphia Water Department, aircraft deicing fluid from PHL feeds the anaerobic digesters at the nearby Southwest Water Pollution Control Plant. This prevents pollution from the deicing fluid, while contributing to renewable energy generation and the reduction of GHG emissions. In 2017, 3.77 million gallons of deicer was used to produce 2,090 MMBTU<sup>3</sup> of methane.



FUEL SPILLS IN 2017 WERE THE 2ND LOWEST IN THE PAST 5 YEARS.

<sup>3</sup> MMBTU - one million British Thermal Units.

