



**THREE DECADES OF HIGHLIGHTS**  
AVIATION NOISE MANAGEMENT PROGRAM

 PORT OF PORTLAND

# AVIATION NOISE MANAGEMENT

## **Noise Management Vision**

The Port of Portland Noise Management Department will be recognized regionally, nationally and globally for our commitment to aviation noise management, for helping enhance the livability of the region through programs that balance the needs of all stakeholders, and for encouraging trust and open communication.

## **Noise Management Mission**

Minimize, to the extent possible, the noise impacts from aircraft utilizing airports operated by the Port of Portland. Encourage cooperation and collaboration with internal and external partners.

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### **Aviation Noise Management Program**

For more than 35 years, the Port of Portland Noise Management Program has served communities surrounding Port of Portland airports in Portland, Hillsboro and Troutdale. The program supports both our aviation and community partners by facilitating safe, efficient, and convenient air travel options that minimize the impacts of aircraft noise.

### **Commitment to Sustainability**

We are committed to doing business in consideration of the “triple bottom line” of economic, social and environmental sustainability factors and our noise management program continually seeks to balance those needs with operational safety and efficiency.

### **Regional Focus**

The noise management program focuses on impacts from aircraft operations at the three airports owned and operated by the Port: Portland International Airport, Hillsboro Airport and Troutdale Airport. Our geographic focus is on communities within Multnomah, Washington and Clackamas counties in Oregon, and Clark County in Washington.

PDX is the region’s largest commercial airport, serving close to 15 million passengers annually. Hillsboro Airport hosts aviation activities ranging from corporate flight departments and aircraft charter services to flight schools and aircraft maintenance. Troutdale Airport is primarily a flight training and recreational airport.

### **Program Elements**

We founded the noise management program in 1979. Since that time, there were significant improvements in aircraft technology, resulting in quieter, more efficient aircraft. However, noise remains a critical concern for airports and surrounding communities both in our region and across the globe.

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Recognizing the impact aircraft noise can have on our community, we are committed to balancing the regional demand for air transportation services with the desire for a community with minimal aircraft noise. In support of that mission, our program relies on these critical elements:

- Understanding, respecting, and serving the interests of all stakeholders.
- Advocating for win-win solutions and finding acceptable compromises.
- Encouraging a balanced approach to sustainability at all levels: local, regional, national, and global.
- Identifying opportunities to improve our performance and service to our stakeholders.
- Using an “Advocate-Collaborate-Educate” model:
  - Advocate for all stakeholders, ensuring the interests and goals of each are understood and respected.
  - Encourage collaboration and engagement among all stakeholders. This is critical to understanding the collective interests, obstacles, and opportunities.
  - Educate ourselves and our partners to ensure mutual understanding which is essential for meaningful collaboration.

### **Leadership**

We are recognized as a leader in noise management and stakeholder engagement by communities and the aviation industry across the country and around the world. Identifying new strategies and opportunities to better do that job remains a cornerstone of our approach. The highlights of our accomplishments over the years include:

### **PDX**

- Eighth airport in the U.S. to conduct a Part 150 Noise Compatibility Study – a voluntary program which identifies, evaluates, and recommends measures for reducing aircraft noise impacts. The initial study was completed in 1983 and has been updated four times.
- Third airport in the nation to build a ground run-up enclosure, which reduces noise from aircraft engine testing following maintenance
- Only known airport in North America to have owned and operated a VHF Omnidirectional Range navigation system (navigational aid) exclusively for establishing noise abatement flight pathways.
- One of the first airports in the U.S. to host a noise advisory committee with citizen participation. Our committee started in 1983.

## **PDX and Hillsboro Airport**

- Early adopter of satellite-based Next Generation Air Transportation System (NextGen) navigation procedures, reducing noise and environmental impacts while enhancing safety and airspace efficiency.

We also participate in numerous industry committees, working groups, and project teams. Our involvement often focuses on encouraging inclusive stakeholder engagement and advocating for community interests. Recent efforts include:

- Airport Cooperative Research Program (Part of the National Academies of Science)
- Partnership for Air Transportation Noise and Emissions Reduction
- NoiseQuest Website Project Team
- Airports Council International-North America
- University of California Noise and Emissions Symposium (Program Committee and Presenter)
- Helicopter Association International (Acoustics and Environmental Committee and Fly Neighborly Committee)
- National Business Aviation Association (Airport Access Committee)
- European Airport Regions Conference
- Federal Aviation Administration “Recognizing Excellence and Leadership in Air Transportation for the Environment” Core Group
- Radio Technical Commission for Aeronautics (Performance Based Navigation Blueprint For Success Task Group)
- National Organization to Insure a Sound Controlled Environment

## **A Holistic Approach to Noise Management**

We understand that sensitivity to aircraft noise varies by individual, and we look beyond federal and state standards which define “significant” noise levels. The noise management program relies on three main strategies for addressing noise issues: operational procedures, technology, and stakeholder collaboration and engagement.

### **Operational Procedures**

Aircraft operational procedures play an important role in managing aircraft noise. Although we do not operate aircraft or have authority over aircraft in flight, we are responsible for recognizing aircraft noise issues associated with our airports and identifying strategies to mitigate those impacts. Most of these efforts depend on the support and participation of other industry stakeholders such as aircraft operators and FAA air traffic controllers.

Current operational procedures at PDX are based on noise abatement flight procedures in place since the 1970s. The procedures were enhanced multiple times as new technologies became available, but the goal remains the same – focus flights over the Columbia River and minimize aircraft noise over residential areas to the greatest extent possible.



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Although we, with the help of industry partners, have developed and implemented noise abatement procedures, we rely on partners including the FAA and aircraft operators to help design and utilize those procedures while operating in the safest and most efficient manner possible.

These efforts have been extremely effective, although for the most part voluntary compliance with the noise abatement procedures at our airports is extremely high. To address the complexity of the airspace and fleet mix operating at PDX, the noise abatement team developed program elements which apply to different aircraft types. A study using 2013 data showed airline and air traffic compliance with the noise program consistently between 85-95 percent. Participation rates at Hillsboro Airport are also very high and we continue to engage air traffic control and aircraft operators at all our airports to further improve participation.

Noise management efforts associated with Hillsboro Airport date back to the early 1970s. In 1993, the Port completed the first Compatibility Study for Hillsboro Airport in an effort to identify strategies for reducing noise impacts in communities surrounding the airport. This study was updated in 2006, further expanding the Hillsboro Airport noise program in an effort to reduce community impacts. More than 30 recommendations were identified in the 2006 update addressing land-use and zoning, facility enhancements and operational procedures. These recommendations combined with additional program elements make up the Hillsboro Airport Fly Friendly Program, which is in place today. To help address noise impacts from helicopter training overflights of residential areas in this growing community, we worked with the City of Hillsboro, FAA and aircraft operators to create a third helicopter pattern away from residential areas and designate this pattern as the preferred pattern for users.

Although much smaller than PDX and Hillsboro Airport, we are just as committed to managing community impacts associated with Troutdale Airport. Situated between the Columbia River and industrial areas to the north; Interstate 84 to the south, and the Columbia Gorge to the east, there is a buffer between Troutdale Airport and the surrounding communities in three directions. Residential communities are located to the west and flight operations can impact communities further out from the airport to the north and south. In an effort to minimize noise impacts, operational procedures use preferred traffic patterns to the north (overflying the river), as well as ingress and egress routes intended to keep aircraft over industrial areas and major roadways whenever possible. Repetitive training operations such as “touch-and-gos” are discouraged during late-night and early morning hours.



Recommendations from a Compatibility Study for Hillsboro Airport, combined with additional program elements, make up the Hillsboro Airport Fly Friendly Program.

## Technology

Technology is a critical component of the noise management program and includes the tools used by the noise management team, air traffic controllers and pilots.

Improvements in aircraft engine and airframe technology have resulted in tremendous reductions in noise exposure levels at our airports. Meanwhile, navigational technologies – we often initiated – further reduce noise. In 1984, we became the only airport operator in North America to own and operate a Very High Frequency (VHF) Omnidirectional Range navigation system – commonly known as a VOR navigational aid – exclusively for noise abatement. The VOR provided more precise navigation for aircraft, reducing the dispersion of noise impacts for 29 years until it was replaced by satellite technology. In 2004, recognizing the potential benefits of the evolving satellite-based navigation systems, we partnered with Alaska Airlines, Horizon Air, and the FAA to explore the use of then-new GPS technology to further reduce aircraft noise by improving flight precision along noise abatement routes. This work resulted in PDX becoming an early adopter of Area Navigation (RNAV) technology, a cornerstone in the FAA's NextGen program.

The ability to track flight operations is an important tool when responding to community concerns, and monitoring operational performance. We introduced our first flight tracking system in 1993, enabling staff to monitor the use of noise abatement procedures and identify opportunities for improvement. The system is continually upgraded to enable better service to the community and other stakeholders. Based on feedback from the community, the 2007 system upgrade added Web-track, a public web-based flight tracking tool. Web-track enables residents to monitor flight activity, including specific operations in proximity to their community or home, and conveniently submit a request for more information.

## Stakeholder Collaboration and Engagement

Collaboration with stakeholders – both within the industry and within the community – serves as a foundation for the noise management program.

## Industry

Through collaboration with industry partners, we have developed one of the most comprehensive and effective noise management programs in the world. Working directly with local and national partners who fly aircraft and manage the airspace is making a positive difference for the community. Recent examples of industry collaboration locally include:

- FAA (PDX, Hillsboro Airport and Troutdale Airport) Air traffic controller noise management briefings



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We host a number of advisory committees, which include citizens representing the needs and interests of the community, helping identify better ways for us to serve and engage stakeholders.



- PDX airlines – Development and expansion of noise abatement procedures
- Oregon Air National Guard and other military operators Noise abatement procedures development and pilot outreach program; technical advisor to the PDX Citizen Noise Advisory Committee
- Local pilots and flight instructors – Noise program educational briefings
- Local law enforcement pilots – Noise abatement procedures development and community outreach program
- Local media and news-gathering pilots – educational outreach program

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### **Local and Regional Government**

Because we don't operate aircraft and we don't control air traffic, we depend on our industry partners to help minimize community noise impacts associated with aircraft operations. Similarly, because we have no land-use authority outside the airport perimeter, we work closely with local and regional authorities to encourage compatible land-use and development. As important as it is to establish operational procedures and utilize aviation technologies to reduce noise, good land-use decisions are critical to ensuring compatibility between the airport and our neighbors.

For example, collaboration with the cities of Portland, Gresham, and Troutdale encouraged industrial and commercial development along the shoreline of the Columbia River. This keeps noise sensitive structures such as homes away from an area which experiences high-density overflight activity east and west of PDX.

Another effective partnership in land-use planning was the development of the "Portland International Airport Noise Impact Zone" (known as the Airport Noise Zone). The City of Portland created the Airport Noise Zone in 1991 in an effort to discourage residential development close to the airport where aircraft noise levels are highest.

Similar efforts by other jurisdictions include:

- Noise Impact Overlay District (Vancouver)
- Airport Use Zone and Airport Safety and Compatibility Overlay Zone (Hillsboro)

Collaboration with our partners in local government extends beyond land-use planning. We also work closely with other agencies to help understand and address the aircraft noise-related concerns of residents and to identify opportunities to be accessible to the communities we serve. Some of those initiatives are further described below.



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## **Community**

An equally important aspect of collaboration is working with community stakeholders. Typically, these include local residents and governments, those impacted by aircraft noise, and those who use Port airports. Examples include:

- Regional Cargo Feeder Study
- Oregon Air National Guard continuous descent overhead approach project
- NoiseQuest Project Team ([www.noisequest.psu.edu](http://www.noisequest.psu.edu))
- Airport Futures Noise Working Group

## **Advisory Committees**

We host a number of advisory committees, which include citizens representing the needs and interests of the community, helping identify better ways for us to serve and engage stakeholders. Public attendance and participation is always welcome at these forums and meeting agendas include time for public comments and questions.

- PDX Citizen Noise Advisory Committee
- Hillsboro Airport Roundtable Exchange
- PDX Community Advisory Committee

## **Accessibility**

We strive to be accessible and available to our stakeholders, especially those in the community. This includes managing a Noise Information Line which is available 24 hours, 7 days a week. Our website includes information about the noise program, our advisory committees, the public flight-tracking tool, and other avenues for submitting comments or concerns electronically. We also manage an email notification system to proactively notify residents of upcoming events and conditions that may result in changes in aircraft noise, such as modified flight paths due to runway closures.

In addition to these tools, members of the noise team go out into the community, talking with individuals or groups concerned about aircraft noise. This effort provides a better understanding of the issues and concerns, and fosters collaboration in identifying solutions. We also are available at many city council and county commission meetings, neighborhood association meetings, community farmers' markets, and a variety of community and school events.

With more than three decades of experience, our longstanding and ongoing commitment to our neighbors and stakeholders helps us achieve our goal of enhancing our region's livability and supporting our community and industry partners.

### 30 Years of Proactive Aviation Noise Management

Since the inception of the PDX Noise Management Program in 1983, the number of acres exposed to federally-defined “high noise levels” has been reduced from 19,840 acres in 1982 to 3,701 acres in 2008. That’s an 80 percent reduction. With this smaller footprint, the number of residents experiencing those levels of aviation noise decreased from 890,000 people in 1981 to none by 2008.



## **TOOLS TO HELP YOU CONNECT WITH US!**



View flights over your home or community. Port of Portland's online flight tracking system, WebTrak, allows users to view aircraft activity in the greater Portland/Vancouver metropolitan area, including most flights at Portland International Airport.

For information or to get involved with the PDX Citizen Noise Advisory Committee or the Hillsboro Airport Roundtable Exchange, contact:

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**Stay Connected!** Visit us online and sign up for noise alerts, social media, or to submit a question or complaint at [www.portofportland.com](http://www.portofportland.com).

If you have questions or concerns about aircraft noise or wish to report a specific event, please call or email us:

**Noise Information Line:**  
Oregon: 503.460.4100  
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