

## Chapter Two

### ROLE OF AIRPORT/STRATEGIC ANALYSIS

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*Airport Master Plan  
Hillsboro Airport*

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This chapter will analyze the feasibility of alternative roles for Hillsboro Airport within the context of the local, state, and national system of airports. This analysis provides a foundation for the Port of Portland to determine, specifically and ideally, what Hillsboro Airport's role should be through 2037.

The Port of Portland has long understood the importance of airport planning as evidenced by their systematic approach and action to regularly update the master plans for all three of their airports. The role of an airport rarely changes and such an examination is commonly addressed very briefly in master plans. The Port of Portland has been much more proactive in this regard, understanding that they have a responsibility to the greater Portland region to provide air transportation facilities. Factors such as changes in the air transportation industry, local community and business interests, overall facility planning for all three Port of Portland airports, and preparation for a seismic event, lead to a more detailed examination of the long term role of the Hillsboro Airport.

Defining the Airport's role is an important component of the Hillsboro Airport Master Plan, as the defined role will form the basis for the determination of aviation demand (Chapter Three) and facility requirements (Chapter Four) for Hillsboro Airport through 2037.

## CURRENT ROLE OF THE AIRPORT

The basic role of all airports is to serve as a safe location from which aircraft and other flying machines can takeoff and land. The capability of each airport is dependent upon available facilities. To insure the adequacy of the aviation system, both the Federal Aviation Administration (FAA) and Oregon Department of Aviation (ODA) develop aviation system plans that identify the current and future role of airports. These plans provide a basic classification of airports within their jurisdiction.

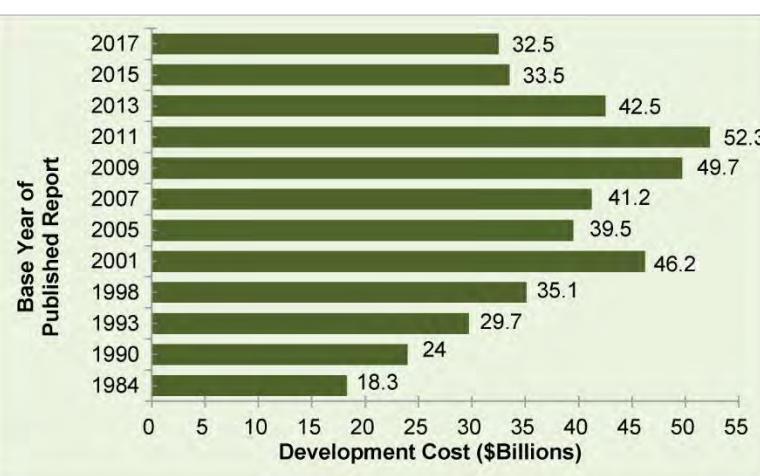
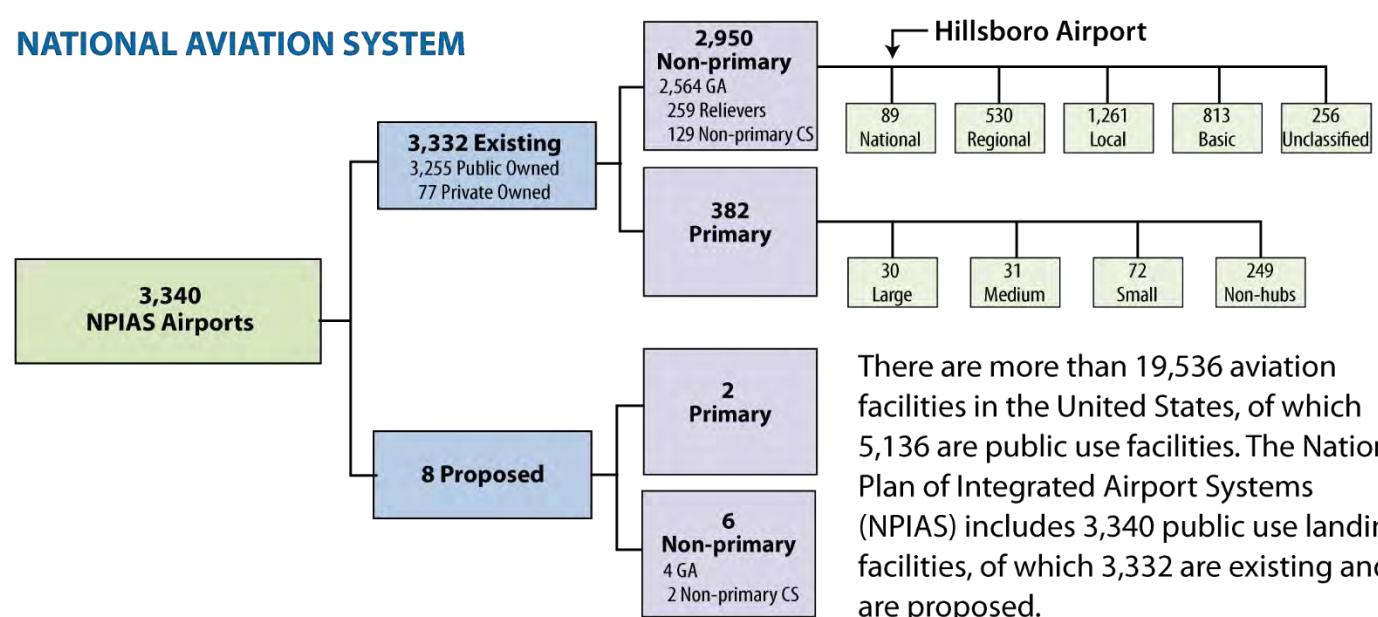
## FEDERAL AIRPORT CLASSIFICATION

The role of the federal government in the development of airports cannot be overstated. Many of the nation's existing airports were either initially constructed by the federal government or their development and maintenance was partially funded through various federal grant-in-aid programs to local communities. The system of airports existing today is due, in large part, to the existence of federal policy that promotes the development of civil aviation. As part of a continuing effort to develop a national airport system to meet the needs of civil aviation and promote air commerce, the United States (U.S.) Congress has continually maintained a national plan for the development and maintenance of airports.

The FAA provides a baseline definition of the various roles for airports in the *National Plan of Integrated Airport Systems* (NPIAS). The NPIAS is a report submitted by the FAA to the U.S. Congress every two years in accordance with Title 49 United States Code, section 47103. The NPIAS identifies the airports included in the national airport system, the role they serve, and the amounts and types of airport development eligible for Federal funding under the Airport Improvement Program (AIP) over the next five years.

The current NPIAS covers years 2017-2021. There are more than 19,000 aviation facilities in the U.S., 5,136 of which are open to the public. A total of 3,332 of the public use aviation facilities are included in the NPIAS. Airports are grouped into two major categories: primary and nonprimary, as shown on **Exhibit 2A**. There are 382 primary airports that are defined as public airports receiving scheduled commercial air carrier service with 10,000 or more passenger enplanements (boardings). There are 2,950 nonprimary airports which are comprised of 2,564 general aviation, 259 general aviation reliever and 127 general aviation nonprimary commercial service (between 2,500-9,999 enplanements) airports. It is common to refer to this group of airports collectively as general aviation airports.

To distinguish the important and varied roles that general aviation airports serve, the FAA has completed two top-down reviews of the existing network of general aviation facilities included in the NPIAS. The results of these efforts are contained in the May 2012 report entitled, *General Aviation Airports: A National Asset*, and the March 2014 report entitled, *ASSET 2: In-Depth Review of 497 Unclassified Airports*. The purpose of both reports is to further classify general aviation airports into four categories: national, regional, local, and basic. Of the 2,950 general aviation airports included in the studies, 256 are currently unclassified due to types of activity and characteristics that did not provide for clear classification within one of the four groups.

**NATIONAL AVIATION SYSTEM**

The FAA estimates that over the next five years, (2017-2021), there will be \$32.5 billion of airport infrastructure projects eligible for Airport Improvement Program (AIP) funding.

**GENERAL AVIATION AIRPORTS**

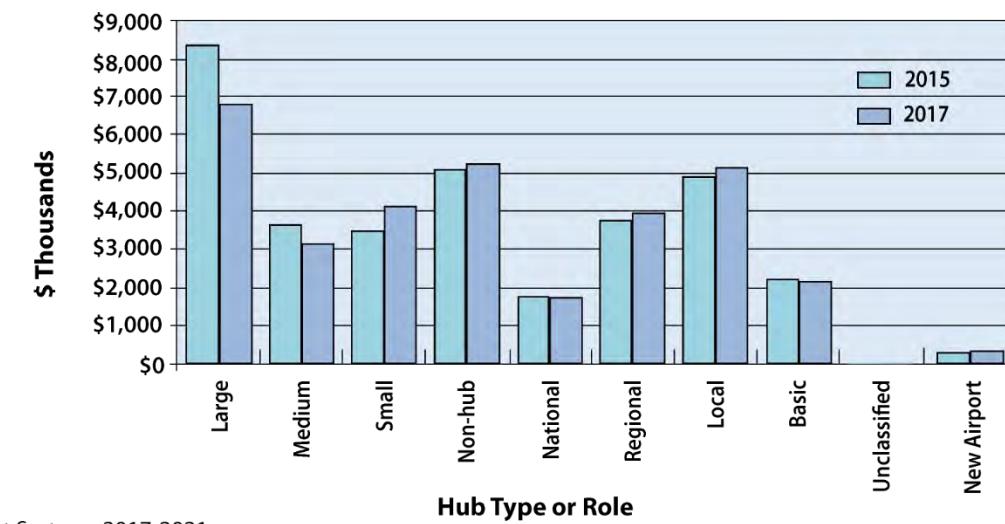
The FAA has further categorized non-primary airports to help guide policy makers when making decisions regarding airport development. An additional 256 airports are currently unclassified.

<b>Emergency Preparedness and Response</b>	<ul style="list-style-type: none"> <li>Aeromedical Flights</li> <li>Law Enforcement/National Security/Border Security</li> <li>Emergency Response</li> <li>Aerial Fire Fighting Support</li> <li>Emergency Diversionary Airport</li> <li>Disaster Relief and Search and Rescue</li> <li>Critical Federal Functions</li> </ul>	
<b>Critical Community Access</b>	<ul style="list-style-type: none"> <li>Remote Population/Island Access</li> <li>Air Taxi/Charter Services</li> <li>Essential Scheduled Air Service Cargo</li> </ul>	
<b>Other Aviation Specific Functions</b>	<ul style="list-style-type: none"> <li>Self-Piloted Business Flights</li> <li>Corporate</li> <li>Flight Instruction</li> <li>Personal Flying</li> <li>Charter Passenger Services</li> <li>Aircraft/Avionics Manufacturing/Maintenance</li> <li>Aircraft Storage</li> <li>Aerospace Engineering/Research</li> </ul>	

<b>Commercial, Industrial, and Economic Activities</b>	<ul style="list-style-type: none"> <li>Agricultural Support</li> <li>Aerial Surveying and Observation</li> <li>Low-Orbit Space Launch and Landing</li> <li>Oil and Mineral Exploration/Survey</li> <li>Utility/Pipeline Control and Inspection</li> <li>Business Executive Flight Service</li> <li>Manufacturing and Distribution</li> <li>Express Delivery Service</li> <li>Air Cargo</li> </ul>	
<b>Destination and Special Events</b>	<ul style="list-style-type: none"> <li>Tourism and Access to Special Events</li> <li>Intermodal Connections (rail/ship)</li> <li>Special Aeronautical (skydiving/airshows)</li> </ul>	

General aviation airports provide important services for both local communities and the national aviation system.

The 382 primary airports account for 11.4% of the airports and 60% of the total development costs. The 2,950 non-primary airports account for 88.3% of the airports and 39.2% of total development costs.



Airports in the non-primary categories account for \$12.9 billion of the \$32.5 billion in identified development need over the next five years.

Category	National	Regional	Local	Basic	Unclassified	Total	Percent
<b>Safety</b>	\$ 68	\$ 68	\$ 72	\$ 38	\$ 0	\$ 246	0.76%
<b>Security</b>	67	61	127	72	\$ 0	\$ 327	1.00%
<b>Reconstruction</b>	683	1,531	1,649	703	\$ 6	\$ 4,572	14.05%
<b>Standards</b>	728	1,894	2,744	1,181	\$ 2	\$ 6,549	20.12%
<b>Environmental</b>	2	17	16	13	\$ 0	\$ 48	0.15%
<b>Noise</b>	44	17	2	0	\$ 0	\$ 63	0.19%
<b>Capacity</b>	109	207	175	67	\$ 0	\$ 558	1.71%
<b>Terminal</b>	2	39	56	25	\$ 0	\$ 122	0.37%
<b>Access</b>	42	105	93	32	\$ 0	\$ 272	0.84%
<b>Other</b>	3	29	48	26	\$ 0	\$ 106	0.33%
<b>New Airport</b>	0	0	0	0	\$ 0	\$ 0	0.00%
<b>Total</b>	<b>\$1,747</b>	<b>\$3,968</b>	<b>\$4,984</b>	<b>\$2,157</b>	<b>\$8</b>	<b>\$12,863</b>	<b>39.52%</b>
<b>Percentage</b>	<b>5.4%</b>	<b>12.2%</b>	<b>15.3%</b>	<b>6.6%</b>	<b>0.03%</b>	<b>39.52%</b>	

Note: Dollars in millions (2015)

Source: General Aviation Airports: A National Asset (May 2012)

Source: National Plan of Integrated Airport Systems 2017-2021

National general aviation airports are located in metropolitan areas near major business centers and support flying throughout the nation and world. These airports support operations by the most sophisticated aircraft in the general aviation fleet (i.e., large business jets). The FAA criteria for national airports include 5,000+ instrument operations, 11+ based jets, 20+ international flights, or 500+ interstate departures. All of these airports provide pilots with an alternative to busy commercial service airports.

Hillsboro Airport is classified by the FAA as a nonprimary national general aviation reliever airport (reliever). Reliever airports are specially designated general aviation airports intended to reduce congestion at large commercial service airports. The reliever role is usually accomplished not by accommodating commercial flights, but by providing an attractive option for the myriad of non-commercial, general aviation aircraft operations that urban areas generate. Hillsboro Airport is classified as a reliever for Portland International Airport (PDX). In this role, Hillsboro Airport is intended to preserve capacity at PDX by offering an alternative operating area for general aviation aircraft, separate from commercial airline and air cargo activities.

*"In the NPIAS, the Hillsboro Airport is classified as a National General Aviation Reliever Airport."*

## STATE AIRPORT CLASSIFICATION

Hillsboro Airport is included in the *Oregon Aviation Plan 2007* (OAP). The OAP is a comprehensive evaluation of Oregon's aviation system and serves as a guide for future aviation development. The OAP defines the specific role of each airport in the state's aviation system and establishes funding and development needs. The OAP is periodically updated, with the current version having been completed in 2007. The Airport is one of 97 public-use airports within the state's aviation system plan.

The State of Oregon categorizes public-use airports by functional classification. They utilized the FAA's Airport Reference Code (ARC) classification system (described in detail in Chapter Three - Forecasts), which is based on operational and physical criteria, and developed a unique set of performance measures to clearly demonstrate the types of facilities and services that should be provided at each airport category. **Table 2A** presents a summary of the five ODA airport classifications.

**Table 2A**  
**Oregon Department of Aviation Airport Classification**

Category	Type	Number	Example
Category 1	Commercial Service	8	PDX, Redmond, Eugene
<b>Category 2</b>	<b>Urban General Aviation</b>	<b>10</b>	<b>Hillsboro, Troutdale, Corvallis</b>
Category 3	Regional General Aviation	13	Columbia Gorge, Roseburg
Category 4	Local General Aviation	27	Albany, Mulino
Category 5	RAES (Remote Access/Emergency Service)	38	Arlington, Chiloquin, Sandy River

*Source: Oregon Aviation Plan*

The five airport classifications in the state are defined as follows:

**Category I – Commercial Service Airports:** These airports support some level of scheduled commercial airline service, in addition to a full range of general aviation aircraft. This includes both domestic and international destinations. There are eight commercial service airports in Oregon.

**Category II – Urban General Aviation Airports:** These airports support all general aviation aircraft and accommodate corporate aviation activity, including business jets, helicopters, and other general aviation activity. The primary users are business-related and serve a large geographic region, or they experience high levels of general aviation activity. There are 10 urban general aviation airports, including Hillsboro Airport, in Oregon.

*“In the Oregon Aviation Plan, the Hillsboro Airport is classified as an Urban General Aviation Airport.”*

**Category III – Regional General Aviation Airports:** These airports support most twin and single engine aircraft, occasional business jets, and support regional transportation needs. There are 13 regional general aviation airports in Oregon.

**Category IV – Local General Aviation Airports:** These airports primarily support single engine, general aviation aircraft, but are capable of accommodating smaller twin-engine general aviation aircraft. They also support local air transportation needs and special use aviation activities. There are 27 local general aviation airports in Oregon.

**Category V – RAES (Remote Access/Emergency Service) Airports:** These airports primarily support single engine, general aviation aircraft, special use aviation activities, and access to remote areas or provide emergency service access. There are 38 RAES airports in Oregon.

Hillsboro Airport is classified as an Urban General Aviation Airport in the *Oregon Aviation Plan 2007*. Hillsboro Airport meets all of the design criteria outlined in the *Oregon Aviation Plan 2007* except for auto parking recommendations. The lack of auto parking in the terminal area has long been a concern for the Airport. The applicable design and performance criteria are listed in **Table 2B**.

Neither the NPIAS nor the OAP anticipate Hillsboro Airport changing from its current classification in the future.

**TABLE 2B**  
**Oregon Aviation Plan 2007**  
**Design Criteria for Urban General Aviation Airports**

	Minimum Criteria	Desired Criteria	Meets Minimum Criteria (Available at HIO)
<b>Airside Facilities</b>			
FAA-ARC	C-II	Varies	Yes (C-III)
Runway Length	5,000'	Varies	Yes (6,600')
Runway Width	100'	Varies	Yes (150')
Pavement Type	Concrete or Asphalt	Concrete or Asphalt	Yes (Asphalt)
Taxiways	Full Parallel	High Speed Exits	Yes (Twy A)
Approach Type	Precision	Precision	Yes (Precision)
Visual Aids	One Runway End	Both Runway Ends	Yes (Both Ends)
Runway Lighting	MIRL/HIRL	MIRL/HIRL	Yes (MIRL)
Taxiway Lighting	MIRL/HIRL	MIRL/HIRL	Yes (MITL)
<b>General Facilities</b>			
Rotating Beacon	Yes	Yes	Yes
Lighted Wind Indicator	Yes	Yes	Yes
Weather Reporting	AWOS/ASOS	AWOS/ASOS	Yes (ASOS)
Aircraft Storage	75% of based aircraft	100% of based aircraft	Yes (75%)
Apron Parking/Storage	75% of daily transient	100% of daily transient	Yes (75%)
Terminal Building	Yes	Yes	Yes
Auto Parking	Moderate	Adequate	No (Less than Moderate)
Fencing	Perimeter	Perimeter	Yes (Full Perimeter)
Cargo	Apron Area	Sort Facility and Apron	NA (No cargo activity)
<b>Services</b>			
Fuel	100LL, Jet A	100LL, Jet A (24-hour)	Yes
FBO	Full Service	Full Service, 24-hour	Yes (Full Service)
Ground Transportation	Offsite Rental Car, Taxi	Onsite Rental Car, Taxi	Yes (Onsite)
Food Service	Vending	Deli and Cold Foods	Yes (Vending)
Restrooms	Yes	Yes	Yes
Pilot Lounge	Yes w/weather reporting	Yes w/weather reporting	Yes (FBOs)
Snow Removal	Yes	Yes	Yes
Telephone	Yes	Yes	Yes

Source: Oregon Aviation Plan 2007

## AIRCRAFT OPERATIONS CLASSIFICATION

The Federal Aviation Regulations, or FARs, are rules prescribed by the FAA governing all aviation activities in the U.S. The FARs are part of Title 14 of the Code of Federal Regulations (CFR). A wide variety of activities are regulated, such as airplane design, pilot training activities, obstruction lighting and marking, hot-air ballooning, man-made structure heights, and even model rocket launches. The rules are designed to promote safe aviation, protecting pilots and passengers from unnecessary risk.

The FARs are organized into sections, called Parts, due to their organization within the CFR. Each Part addresses a specific aviation-related activity. Many of the FARs are designed to regulate certification of airports, pilots, schools, or aircraft rather than the operations of airplanes.

FAR Parts 23, 25, 27, and 29 apply to general aviation operations conducted by private owners including companies. FAR Part 91 is general operating rules for all aircraft and Subpart (K) prescribes operating rules for fractional ownership programs. FAR Part 121 applies to scheduled air carrier activity. FAR Part 135 is a set of rules for commuter and on-demand operations. Operators of aircraft providing on-demand, charter, commuter, or scheduled passenger service must meet the requirements of the applicable regulations.

Hillsboro currently experiences these operational types except FAR Part 121, scheduled air carrier. To accommodate FAR Part 121 operations, the airport must be certified under FAR Part 139 by the FAA. Hillsboro Airport is not certificated under FAR Part 139; therefore, at this time, Hillsboro Airport cannot accommodate scheduled air carriers using aircraft with more than nine passenger seats. Hillsboro Airport would be required to obtain FAR Part 139 certification to accommodate scheduled air carrier activity with aircraft with more than nine passenger seats.

## PART 139 AIRPORT CERTIFICATION

To accommodate certain levels of commercial passenger or cargo service, an airport must apply for and maintain an Airport Operating Certificate (AOC) under 14 CFR Part 139, *Certification and Operations: Land Airports Serving Certain Air Carriers*. The airport must notify the FAA Northwest Mountain Region Airports Division that there is currently air service or that air service will begin on a certain date. Without FAR Part 121 air service, this regulation does not apply. If an AOC has been issued and there is no current air service, the AOC becomes inactive and certain regulatory requirements temporarily become inactive.

The 14 CFR Part 139 certification requirements depend on the type and frequency of aircraft serving the airport in a commercial capacity which determines the class of the airport. In helping to define the airport's class, it is important to understand the distinction between the definition of large and small air carrier aircraft.

- A large air carrier aircraft is designed for 31 passenger seats or more.
- A small air carrier aircraft is designed for 10 to 30 passenger seats.

**Note: 14 CFR Part 139 does not apply to airports served by scheduled air carrier aircraft with nine seats or less and/or unscheduled air carrier aircraft with 30 seats or less.**

14 CFR Part 139 defines four airport classifications as follows:

- **Class I** - an airport certificated to serve scheduled operations of large air carrier aircraft that also can serve unscheduled passenger operations of large air carrier aircraft and/or scheduled operations of small air carrier aircraft. A Class I airport may serve any class of air carrier operations (e.g. PDX).
- **Class II** - an airport certificated to serve scheduled operations of small air carrier aircraft and the unscheduled passenger operations of large air carrier aircraft. A Class II airport cannot serve scheduled large air carrier aircraft (none in OR/WA).

- **Class III** - an airport certificated to serve scheduled operations of small air carrier aircraft. A Class III airport cannot serve scheduled or unscheduled large air carrier aircraft (none in OR/WA).
- **Class IV** - an airport certificated to serve unscheduled passenger operations of large air carrier aircraft. A Class IV airport cannot serve scheduled large or small air carrier aircraft (e.g. North Bend, Eastern Oregon Regional).

**Note:** The FAA will only allow an airport to be certificated for the type of operations currently occurring at the airport.

The AOC serves to ensure safety in air transportation. To obtain a certificate, the airport must agree to certain operational and safety standards and provide for such things as firefighting and rescue equipment. FAR Part 139 sets forth rules for a continuous self-inspection program of operations and maintenance by the airport owner, to ensure a safe operating environment for commercial air carrier aircraft. FAR Part 139 requires the development of an airport certification manual to describe how the airport would comply with the regulations and the details of the self-inspection program. These regulations specify that airport rescue and firefighting equipment and personnel be on hand during air carrier operations, and the development of an emergency plan. FAR Part 139 further specifies inspections of the air carrier operating areas, limiting vehicle and pedestrian access to the airfield and air carrier operating areas, the protection of navigational aids on the airport, and identification (or removal) of obstructions in the air space used by air carrier aircraft.

To ensure that airports with an AOC are meeting the requirements of Part 139, the FAA employs Airport Certification Safety Inspectors to conduct certification inspections. These inspections typically occur annually, but FAA can also make unannounced inspections.

The FAA inspection typically covers a review of airport files and the airport certification manual as well as in-briefing of airport management. Further inspection includes the runway, taxiways, movement areas, navigational aids, lights, ARFF equipment, fuel facilities, nighttime operations, and general operating procedures.

**“Hillsboro Airport cannot accommodate scheduled air carriers with more than 9 passenger seats without a CFR Part 139 Airport Operating Certificate.”**

Without FAR Part 139 certification, Hillsboro Airport can only legally accommodate the following segments of the commercial air carrier industry:

- Scheduled air carriers using aircraft with nine (9) or fewer passenger seats.
- Air cargo carriers using aircraft with a payload capacity of less than 7,500 pounds.
- On demand air carriers using aircraft (charters) with 30 or fewer passenger seats and a payload capacity of less than 7,500 pounds.
- Commuter operations with non-turbojet aircraft that have a seating capacity of nine or fewer passenger seats and a payload capacity of less than 7,500 pounds.

## THE AIR TRANSPORTATION INDUSTRY

Prior to examining the existing and future role for Hillsboro Airport, it is important to draw a distinction between the various segments of the air transportation industry in the United States. There are three broad segments of the national air transportation system: commercial air carriers, military, and general aviation. Hillsboro Airport currently serves each of these segments of the air transportation industry.

### COMMERCIAL AIR CARRIERS

Commercial air carriers are broadly defined in Section 101 of the *Federal Aviation Act of 1958*, as amended, as any domestic or foreign aircraft carrying passengers or cargo for hire. Federal regulations draw a distinction between air carriers, based on the number of seats within an aircraft used for air carrier activities or the payload capacity of the aircraft, and whether the air carrier provides scheduled or unscheduled service. Federal Aviation Regulations (FAR) Part 121, *Operating Requirements: Domestic, Flag, and Supplemental Operations*, requires that air carriers using passenger aircraft with more than nine passenger seats operate only at certificated airports such as Portland International Airport (PDX).

Airports without FAR Part 139 certification can only accommodate operations by passenger-carrying aircraft with fewer than 10 passenger seats. This would comprise a limited number of aircraft such as the Cessna Caravan 208, Beechcraft King Air 350, and the Pilatus PC-12 aircraft. These aircraft currently operate at the Airport in a private capacity. Within the continental U.S., there are only a handful of operators providing scheduled service with aircraft with fewer than 10 passenger seats. These aircraft are used on specialty niche routes and are not associated with mainline aircraft operation.

A regional example is Kenmore Air, which operates their wheeled aircraft out of Boeing Field in Seattle. They also operate seaplanes from Lake Union in Seattle. They utilize the 9-seat Cessna Caravan providing service to the San Juan Islands and other destinations in the northwest.

Some air carriers operate on an on-demand basis, while other air carriers provide commuter service. These types of operations fall outside the FAR Part 139 certification described above, and could be accommodated at Hillsboro Airport. In fact, on-demand services, or charter services as they are commonly referred to, are currently provided from Hillsboro Airport. Charter services are also available from some of the FBOs on the Airport.

On-demand air carrier services are provided using aircraft with 30 or fewer passenger seats or payload capacity less than 7,500 pounds. A commuter operation must be conducted with non-turbojet (i.e., turboprop or piston-powered) aircraft with nine or less passenger seats or a payload capacity of less than 7,500 pounds. A commuter must operate more than five scheduled flights per week, otherwise they would be considered as an on-demand air carrier. FAR Part 135, *Operating Requirements: Commuter and On-Demand Operations and Rules Governing Persons On Board Such Aircraft*, governs these operations. These operations are sometimes referred to as air taxi operations and included in the air taxi category for air traffic counts.

## MILITARY

The term “military” refers to U.S. Department of Defense (DOD) aircraft operations, foreign military operations, or operations by state National Guard aircraft. Hillsboro Airport currently accommodates local and transient operations by military rotorcraft and an occasional military jet aircraft. While there are no military aircraft based at Hillsboro, the FAA Terminal Area Forecast (TAF) estimates that there are approximately 300 annual military operations at the Airport. This represents a very small portion of overall activity at Hillsboro.

## GENERAL AVIATION

General Aviation (GA) is defined as all aviation other than military and commercial airlines. General aviation includes a diverse range of activities such as pilot training, sightseeing, personal/recreational flying, agricultural spraying and seeding, and emergency medical services. Fractional business jet operations (i.e. companies or individuals owning fractions or shares in a fleet of aircraft managed by a single operator) are also a component of general aviation.

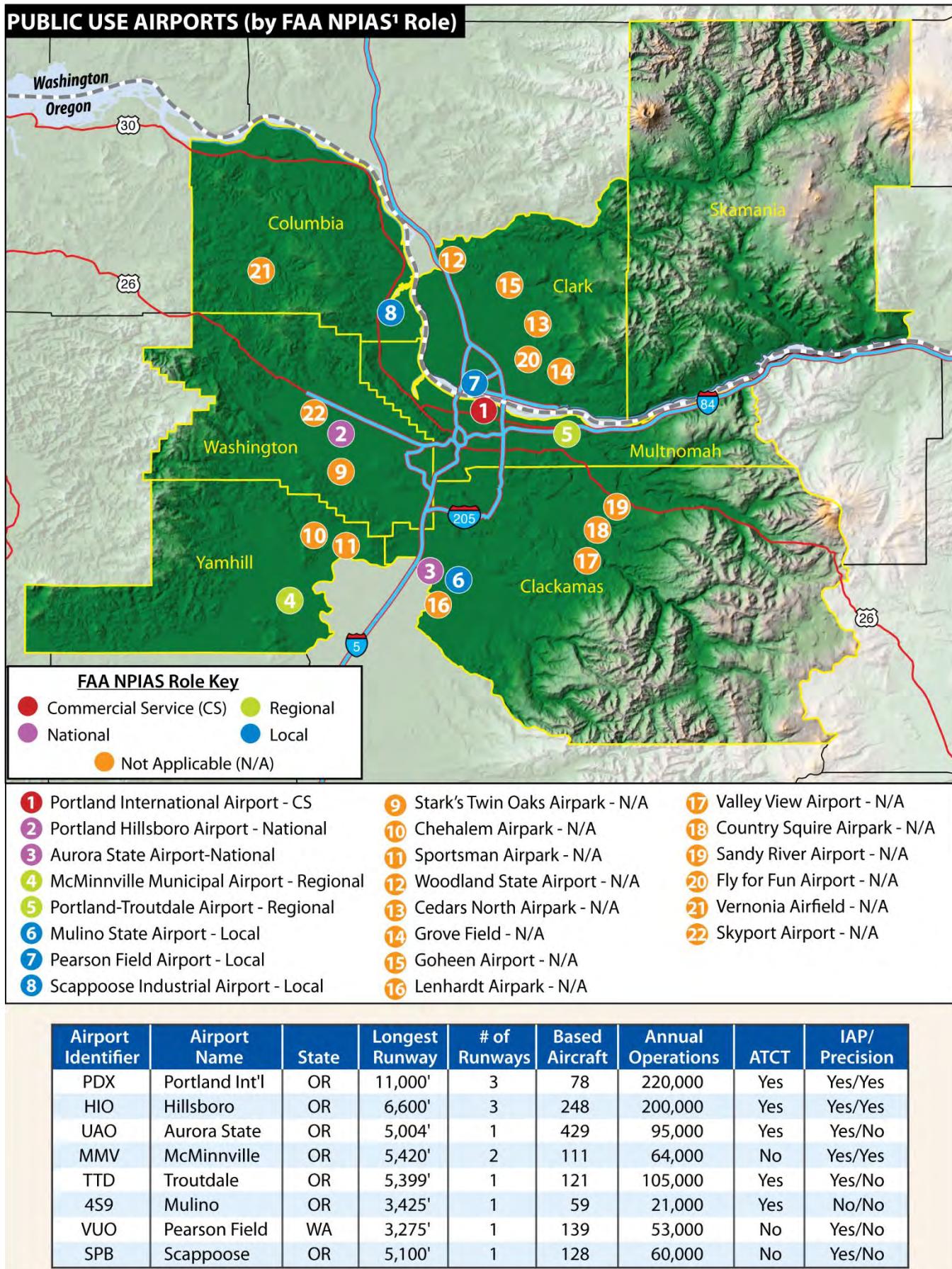
The General Aviation Manufacturers’ Association (GAMA) states that general aviation aircraft fly to more than 5,000 public-use airports, as compared to the airlines which serve less than 400 airports. General aviation operations account for over 24 million flight hours annually, of which two-thirds are for business purposes.

According to the FAA, the national active general aviation fleet consisted of 210,031 aircraft in 2015, which was a 2.8 percent increase over 2014. The number of general aviation hours flown was over 24.1 million, an increase 3.7 percent over 2014. The total general aviation fleet consisted of 13,440 business jets; 9,712 turboprops; 141,141 fixed wing pistons, 10,506 helicopters, and 35,232 experimental/sport/other aircraft. As a point of comparison, there were 6,876 aircraft in commercial service nationally (passenger and cargo) in 2015.

## REGIONAL AIRPORT COMPARISON

It is important to examine the capabilities of other area airports when considering the role of Hillsboro Airport. There are 50 FAA registered airports within 40 nautical miles of Hillsboro Airport. Most of these are private airstrips that serve a limited number of aircraft and operators. There are 22 airports in the region that are included in the NPIAS and are therefore eligible for FAA development funding. **Exhibit 2B** presents the location, classification, and capabilities of the 22 NPIAS airports. PDX is the only commercial service airport in the immediate region.

Hillsboro Airport is the most capable general aviation airport in the region. The Airport has the longest runway of all general aviation airports, a crosswind runway to allow for safe landing and departures in all wind conditions, a parallel runway to facilitate training operations, an airport traffic control tower

<sup>1</sup> National Plan of Integrated Airport SystemsSource: [www.airnav.com](http://www.airnav.com)

(ATCT), and an instrument landing system (ILS). McMinnville Municipal Airport is the only other area airport with both a crosswind runway and an ILS.

Hillsboro Airport is in Class D airspace when the ATCT is open and Class E airspace when the tower is closed. Troutdale Airport does not currently provide the same instrument approach capability as does Hillsboro Airport. While the airspace surrounding Troutdale is Class D due to the ATCT at Troutdale, Troutdale Airport is also located under the PDX Class C airspace. The airspace under which an airport is located can have an impact of the utilization of that airport. For example, recreational flyers may choose to avoid the Class C airspace surrounding PDX.

The general aviation public-use airports in the Portland area are important to the regional air transportation system. First, these airports provide alternate landing areas for general aviation aircraft away from PDX. This preserves airfield capacity at PDX by reducing general aviation traffic at the airport. Secondly, these airports provide convenient locations near local residents' homes and businesses to store privately-owned aircraft. These airports also support business and economic growth by being located near the diverse economic areas of the metropolitan area for access by visitors and transient business users. Finally, these airports also allow convenient locations for air ambulance transport flights.

**"The capabilities of the Hillsboro Airport cannot readily be replaced by another airport in the region."**

In recognizing the benefits of these general aviation airports, it is important to consider the impacts that any change to the role of any one of these airports may have on the ability to continue to provide general aviation services at Hillsboro Airport. As alternative roles for Hillsboro Airport are examined within this section, it is important to remember how Hillsboro Airport is positioned in the metropolitan air transportation system. Hillsboro Airport has evolved as the primary general aviation airport in the metropolitan area. The capabilities of the Airport cannot readily be replaced by another airport in the region, without significant capital investments for runway development, air traffic control, and/or instrument approach capability.

## **COMMERCIAL PASSENGER AIR SERVICE POTENTIAL**

Commercial air service for residents of Washington County has historically been provided at PDX, located approximately 30 miles northeast of the City of Hillsboro. Under certain conditions, it may make sense for there to be a second commercial service airport in the region. Hillsboro Airport may be in the best position to ultimately fill this role to some degree because it is the most capable non-commercial service airport in the region. Some reasons to consider a commercial service role for Hillsboro Airport include system capacity management, metropolitan growth, and regional surface transportation congestion, to name a few.

The number of people using PDX has grown steadily over the years. In 1995, PDX had approximately 11.1 million passengers. In 2015, approximately 16.7 million passengers used PDX. This equates to a

2.07 percent compound annual growth rate. Eventually, a second commercial service airport could provide needed capacity relief for PDX and to provide additional options for the travelling public. By accommodating a portion of the commercial service activity at Hillsboro, PDX will have less congestion, especially at peak times. **Table 2C** shows the passenger growth at PDX for a 20-year period from 1995 to 2015.

During peak travel periods, travel to PDX from the Hillsboro area by road has considerable delays, with travel times exceeding more than one hour. The availability of commercial service at Hillsboro Airport is thought to have the potential to reduce vehicle travel times and be more convenient for local residents.

While vehicle travel times to PDX are affected by congestion, light rail service is available from Washington County to PDX. According to the Tri-Met schedule, light rail service from the Washington County Fair Complex/Hillsboro Airport MAX station to PDX is 88 minutes, and requires a transfer from the Blue Line to the Red Line. TriMet is currently considering service and reliability improvements by extending the Red Line to Hillsboro.

Other factors that trend toward considering scheduled passenger air and/or air cargo service at Hillsboro Airport include: location and proximity to population growth in the western metropolitan area, potential operating cost advantages over PDX for an airline, the growing high-tech economy, and the many individuals and businesses in the western metropolitan areas that have voiced an interest in seeing such services offered (see 2002 Hillsboro Community Survey). There are many choices for air travelers in terms of the number of destinations, costs, and aircraft types operating at PDX. An air traveler's decision to fly is highly volatile and based on these factors, with cost typically being the most important.

## DOMESTIC AIRLINE ENVIRONMENT

The FAA publishes an annual forecast of various aviation demand factors. The most recent report, *FAA Aerospace Forecast – Fiscal Years 2017-2037*, was published in March of 2017. Included within the report is a detailed review of the current state of the domestic airline environment. As the business of aviation evolves and reacts to economic realities, opportunities may emerge for additional passenger service options. The following discussion is sourced from this report and provides the necessary background on the current state of the airline industry. These factors provide a foundation from which any future air service at Hillsboro Airport must be considered.

The domestic airline industry is primarily comprised of mainline and regional carriers. Mainline carriers are those providing service primarily with aircraft with 90 or more seats. Regionals are those providing service with 89 or fewer seats or whose routes serve as feeders to the mainline carriers. There are three

**TABLE 2C**  
**PDX Historical Passengers**

Year	Passengers
1995	11,075,580
2000	13,509,028
2005	13,597,952
2010	13,164,454
2015	16,680,504
CAGR	2.07%

*CAGR: Compound annual growth rate*

distinct trends in commercial aviation: 1) industry consolidation and restructuring; 2) continued capacity discipline in response to external shocks, and 3) the proliferation of ancillary revenues.

The 2007-2009 recession was a catalyst to a renewed round of consolidation and restructuring that has continued into 2016. In October 2015, the last US Airways flight occurred, marking the finalization of the American/US Airways merger. In April 2016, Alaska Airlines announced its intention to merge with Virgin America, which will create the 5<sup>th</sup> largest airline in the nation. As a result, there are now six major airlines in the U.S. - American, Delta, Southwest, United, Alaska/Virgin, and jetBlue – controlling approximately 85 percent of the market (revenue passenger miles). As a point of comparison, there were 12 major airlines in 2005. Further consolidation is unlikely.

One of the most notable outcomes of industry restructuring has been the level of capacity discipline. Capacity in this context refers to available seat miles (ASM). Between 1978 and 2000, airlines were adding seats at an average annual rate of more than four percent. Following a decline in 2002, subsequent to the events of 9/11, ASM growth returned, and by 2007, was 3.6 percent annually. Since 2009, ASMs have averaged only 2.0 percent growth. Factors such as the high oil prices at the time and the recession forced airlines to limit adding more seats (flights) in order to remain profitable. The capacity restraint was felt most by the regional airlines which have realized a reduction in ASMs since 2009. The regional market has continued to shrink as the regional carriers compete for fewer contracts with the remaining dominant carriers, which has resulted in slow growth.

The regionals have less leverage with the mainline carriers than they have had in the past as the mainline carriers have negotiated contracts that are more favorable for their operational and financial bottom lines. Furthermore, the regional airlines are facing pilot shortages and tighter regulations regarding pilot training. Their labor costs are increasing as they raise wages to combat the pilot shortage while their capital costs have increased in the short-term as they continue to replace their 50-seat regional jets with more fuel-efficient 70-seat jets. The move to the larger aircraft should prove beneficial in the future, however, since their unit costs are lower.

Another continuing trend is that of ancillary revenues. Many carriers now charge additional fees for checked bags, on-board meals, seating priority, and internet access. As a result of capacity discipline, lower oil prices, and ancillary revenues, U.S. passenger carriers posted record net profits for the seventh consecutive year in 2016. Airlines are also moving ahead with plans to further segment their passengers into more discreet cost categories based on comfort amenities like seat pitch, leg room, and access to the internet and electrical outlets. Delta introduced “Basic Economy” fares in 2015 and expanded the number of markets throughout 2016. United introduced its version of Basic Economy fares in November 2016, and American is planning to introduce its version in 2017. These efforts by the mainline carriers are, in part, in response to the success of ultra low-cost carriers such as Spirit and Allegiant Airlines.

U.S. commercial air carriers' total number of domestic departures rose in 2016 for the first time since 2007, but still remain 17.3 percent below the 2007 level. Revenue Passenger miles (RPMs), enplanements, and ASMs all showed a rebound; these trends underlie the expanding size of aircraft and

higher load factors. In 2016, the domestic load factor reached a historic high of 84.7 percent for commercial air carriers.

The sum of domestic plus international capacity increased 4.2 percent to 1.112 trillion ASMs in 2016, while RPMs increased 4.3 percent to 928 billion. During the same period, system-wide enplanements increased 4.2 percent to 819.6 million. In 2016, U.S. carriers continued to prioritize the domestic over the international market in terms of allocating capacity as domestic capacity increased 5.3 percent while inter-national capacity was up just 1.6 percent. U.S. carriers' domestic capacity growth will exceed their international capacity growth in 2017, but carriers will start expanding capacity in international markets faster than domestic markets beginning in 2018. This trend is projected to continue through 2037 as the domestic market continues to mature.

U.S. mainline carrier enplanement growth in the combined domestic and international markets was 5.4 percent in 2016, while regional carriers saw 0.6 percent fewer passengers. In the domestic market, mainline enplanements increased for the sixth consecutive year, up 5.8 percent, marking the first time since 2000 that the industry recorded six consecutive years of passenger growth in the domestic market. Mainline passengers in international markets posted a seventh year of growth, up 3.1 percent.

With relatively robust demand, industry capacity growth was up 4.2 percent after a 3.9 percent increase in 2015. Solid increases in passenger volume and traffic offset lower yields and, along with higher ancillary revenues and falling fuel prices, resulted in U.S. carriers finishing up 2016 with record profits.

System load factor increased 0.1 point while trip length increased 1.2 miles (0.1 percent) in 2016, even as seats per aircraft mile increased by 1.6 percent; reflecting the trend towards using larger aircraft. Seats per aircraft mile system-wide increased to 151.3 seats (up 2.3 seats per aircraft mile), the highest level since 1992.

### **U.S. CITIES SERVED BY MORE THAN ONE COMMERCIAL SERVICE AIRPORT**

Prior to examining the potential for scheduled airline service at Hillsboro Airport, it is appropriate to review the characteristics of U.S. cities that are served by more than one commercial service airport. This can help identify if there are potential market opportunities that could be captured at Hillsboro Airport. It may also indicate the characteristics within other communities that are not applicable to the Portland metropolitan area.

**Exhibit 2C** summarizes population and passengers for communities with more than one commercial service airport. The airports identified fall within a single metropolitan statistical area (MSA); therefore, some airports that may be associated with that community, such as Ontario International Airport (ONT) west of Los Angeles, are not included, as it is in a different MSA. The population of the Portland MSA and the PDX passengers are presented as a point of comparison.



City	Airport Name	MSA Population 2016 <sup>1</sup>	Total Passengers (2015)
Portland, OR*	Portland International	2,411,688	16,680,504
Chicago, IL	Chicago O'Hare Int'l	9,656,264	72,611,336
	Chicago Midway		21,661,700
Dallas/Ft. Worth, TX	Dallas-Ft. Worth Int'l	7,202,994	63,179,678
	Dallas Love		14,081,900
Houston, TX	Bush Intercontinental	6,727,085	41,191,762
	Houston Hobby		11,875,980
Los Angeles, CA	Los Angeles Int'l	13,442,966	72,702,544
	John Wayne- Orange Co.		9,890,418
	Long Beach		2,441,874
	Bob Hope - Burbank		3,947,794
Las Vegas, NV	McCarran Int'l	2,138,330	43,715,386
	Boulder City		987,048
	Henderson		107,102
	North Las Vegas		30,868
Miami, FL	Miami Int'l	6,085,027	41,972,698
	Fort Lauderdale Int'l		26,123,264
New York, NY	John F. Kennedy Int'l	20,271,891	55,564,738
	Newark Liberty Int'l (NJ)		37,369,636
	La Guardia		28,639,848
Orlando, FL	Orlando Int'l	2,403,021	37,519,876
	Orlando Sanford		2,418,764
Phoenix, AZ	Phoenix Sky Harbor	4,650,110	42,703,008
	Phoenix-Mesa Gateway		1,332,374
San Francisco, CA	San Francisco Int'l	4,663,635	48,381,120
	Oakland Int'l		11,013,374
Seattle, WA	Seattle-Tacoma Int'l	3,765,621	40,297,960
	Boeing Field/King County Int'l		37,890
Tampa, FL	Tampa Int'l	2,990,492	18,300,916
	St. Pete-Clearwater Int'l		1,639,948

\*For Comparison MSA - Metropolitan Statistical Area <sup>1</sup>2016 Complete Economic and Demographic Data Source (CEDDS), Woods and Poole Economics

Las Vegas, Orlando, and Tampa have an MSA population base that is similar to that of Portland. The other cities listed have a population base substantially higher than that of Portland. All three of these cities have a visitor base that is significantly higher than Portland and they each have at least one world-renowned tourist attraction.

The approximate number of visitors to each of these cities was obtained from the local agencies involved in convention and tourism promotion. In 2016, Orlando had 66 million visitors, Las Vegas had 43 million visitors, and Tampa had 22 million visitors. By comparison, Portland had 9 million visitors in 2016. Seattle is the next closest city in terms of population and it had 38 million visitors in 2016. It is evident that cities with multiple commercial service airports have a relatively high visitor base typically drawn by a major attraction.

The passenger counts at the secondary airports in Las Vegas are attributable to aerial tours of the city and Grand Canyon. The secondary airports in Orlando and Tampa are primarily served by tourist flights (e.g. Allegiant Air, Sun Country). The secondary airport in Seattle, Boeing Field, supports specialized service to more remote locations in the upper northwest.

**Table 2D** summarizes the population of the 10 MSAs above and below that of the Portland MSA. The number of passengers is also presented for these population centers. Those population centers that may be comparable to Portland tend to have one primary commercial service airport. Where a secondary commercial service airport is available, these tend to serve a niche segment of the air transportation industry, such as tourism.

While there are many communities in the United States that are served by more than one commercial service airport, none of these communities are similar to the Portland area. Either the communities with two airports have a larger population or they have a significantly larger air travel market that is driven by their resort/tourist destination characteristics. In similarly-sized communities to Portland, the secondary commercial service airport serves a unique tourist attraction or a specialized need for access to remote communities (often islands).

“The cities closest in population to the Portland region that have two commercial service airports have more visitors and a major attraction.”

### Threshold for Commercial Service Example

While there is no single factor that will provide a community with a determination that expanding commercial service to a second airport is necessary, the ratio of passengers to population appears to be a benchmark. A very recent example of this is currently developing in Seattle.

**TABLE 2D**

Commercial Service Airports in Cities with Similar Population Size to Portland

MSA LOCATION	Population (2016) <sup>1</sup>	Airport(s)	Passengers (2015) <sup>2</sup>	Notes
Indianapolis, IN	2,008,405	Indianapolis Int'l	7,779,134	1 CS Airport
Columbus, OH	2,037,388	John Glenn Columbus Int'l	6,624,992	1 CS Airport
Cleveland, OH	2,059,123	Cleveland Hopkins Int'l	7,833,844	1 CS Airport
Kansas City, MO	2,111,103	Kansas City Int'l	10,270,254	1 CS Airport
Las Vegas, NV	2,138,330	McCarran Int'l	43,715,386	4 CS Airport
		Boulder City	987,048	Tourist Attraction
		Henderson	107,102	
		North Las Vegas	30,868	
Cincinnati, OH	2,177,982	Cincinnati/N. Kentucky Int'l	6,109,982	1 CS Airport
Sacramento	2,297,396	Sacramento Int'l	9,429,458	1 CS Airport
Pittsburgh, PA	2,350,912	Pittsburgh Int'l	7,781,362	1 CS Airport
Orlando, FL	2,403,021	Orlando Int'l	37,519,876	2 CS Airports
		Orlando Sanford	2,418,764	Tourist Attraction
San Antonio, TX	2,408,226	San Antonio Int'l	8,182,868	1 CS Airport
<b>Portland, OR</b>	<b>2,411,688</b>	<b>Portland Int'l</b>	<b>16,680,504</b>	<b>1 CS Airport</b>
Charlotte, NC	2,460,857	Charlotte Douglas Int'l	43,826,332	1 CS Airport
Denver, CO	2,791,755	Denver Int'l	52,560,086	1 CS Airport
Baltimore, MD	2,835,912	Baltimore Washington Int'l	23,477,690	Serves Washington DC
St. Louis, MO	2,828,355	St. Louis Lambert Int'l	12,478,496	1 CS Airport
Tampa, FL	2,990,492	Tampa Int'l	18,300,916	2 CS Airports
		St. Pete-Clearwater Int'l	1,639,948	Tourist Attraction
San Diego, CA	3,335,405	San Diego Int'l	19,971,526	1 CS Airport
Minn.-St. Paul, MN	3,568,940	Minneapolis - St. Paul Int'l	35,268,546	1 CS Airport
Seattle, WA	3,765,621	Seattle-Tacoma Int'l	40,297,960	2 CS Airports
		Boeing Field/King County Int'l	37,890	Serves Remote Locations
Detroit, MI	4,295,214	Detroit Metro Int'l	32,511,040	1 CS Airport
Riverside, CA	4,592,365	Ontario Int'l	4,179,602	1 CS Airport

MSA - Metropolitan Statistical Area; CS - Commercial Service

<sup>1</sup>Woods & Poole CEDDS<sup>2</sup>FAA Enplanement Data

Seattle-Tacoma International Airport (Sea-Tac) is the primary commercial service airport serving the Seattle area. The second commercial service airport, Boeing Field, serves a limited number of passengers and destinations (primarily to the San Juan Islands). Paine Field, however, is a Part 139 airport located in Everett, approximately 30 miles north of Sea-Tac. This airport is home to most Boeing aircraft manufacturing and is therefore designed to accommodate large commercial transport aircraft. There is a 9,000-foot long runway that has the pavement strength for these aircraft.



Paine Field – Everett, Washington

Paine Field has long been considered for commercial service and community leaders are moving forward with a plan to offer commercial flights. A private company is currently (2017) constructing a new terminal building that is to have two gates. As of the summer of 2017, both Alaska and United Airlines have indicated they will establish service from Paine Field. Alaska is planning to offer service to destinations in Oregon and California, while United is considering Denver and San Francisco.

In 2015, Sea-Tac had 40.2 million passengers, while PDX had 16.6 million. By 2040, Sea-Tac is forecast to have 73.2 million passengers, while PDX is forecast to have 29.8 million. It appears that a reasonable threshold to initiate service at a second airport is approximately 40 million passengers. PDX is not forecast to reach that level during the 20-year term of this master plan.

## HILLSBORO AIRPORT CAPABILITIES

Runway 13R-31L is 6,600 feet long and offers a pavement strength rating of 50,000 pounds single wheel (SW) loading, 70,000 pounds dual wheel (DW) loading, and 110,000 pounds dual tandem wheel (DTW) loading. The wheel loading description refers to the number of wheels on each landing gear strut. The more wheels, the greater the aircraft weight dispersal, which allows for heavier aircraft. Runway 13R-31L is the most capable of the three runways and the one that would support any future commercial operations.

*"The runway length and strength at Hillsboro limits the types of commercial aircraft that could operate."*

It is important to have an understanding of the type of aircraft that could regularly operate at Hillsboro Airport in a commercial capacity. First and foremost, the existing runway length and pavement strength must be considered. Other factors include the maximum flight distance, the destinations that could be served, and the aircraft seating capacity, all of which contribute to the ability to profitably serve the market. Other infrastructure needs are also influenced by the aircraft size such as apron area, terminal building size, automobile parking needs, and firefighting needs.

**Exhibit 2D** lists the characteristics of the most common narrow body commercial service jet aircraft and turboprop in commercial service operation today. Information on maximum takeoff weight, runway departure length, landing length, seating capacity, and range is also presented. All of the jet aircraft have dual-wheel configurations; therefore, repeated use should be maintained below 70,000 pounds. As can be seen in the table, commercial aircraft that could regularly operate at the Airport is limited to some regional jets (shown in bold). To accommodate a larger or heavier passenger aircraft, the pavement would need to be strengthened and, in some cases, the runway would need to be lengthened.

## DUAL-WHEEL NARROW-BODY COMMERCIAL JET AIRCRAFT

Aircraft		Weight (lbs.) Gross	# Seats	FAA Takeoff Field Length (ft.)	FAA Landing Field Length (ft.)	Range (miles)
	<b>Airbus A320-200</b>	169,800	150	5,900	4,800	3,500
	<b>Airbus A321-100</b>	187,400	185	6,300	5,000	2,700
	<b>Boeing 737-700</b>	154,500	126	5,500	4,700	3,873
	<b>Boeing 737-800</b>	174,200	162	7,350	5,450	3,522
	<b>Boeing MD-88</b>	149,500	143	6,650	5,400	2,400
	<b>Bombardier CRJ200 (LR)</b>	<b>53,000</b>	<b>50</b>	<b>6,290</b>	<b>4,850</b>	<b>2,307</b>
	Bombardier CRJ700 (ER)	75,000	70	5,500	4,850	2,284
	Bombardier CRJ900 (ER)	82,500	90	6,462	5,136	1,993
	<b>Embraer ERJ 135 LR</b>	<b>44,092</b>	<b>37</b>	<b>5,577</b>	<b>4,363</b>	<b>1,956</b>
	<b>Embraer ERJ 140 LR</b>	<b>44,517</b>	<b>44</b>	<b>6,463</b>	<b>4,495</b>	<b>1,875</b>
	<b>Embraer ERJ 145</b>	<b>45,415</b>	<b>50</b>	<b>5,839</b>	<b>4,495</b>	<b>1,220</b>
	Embraer ERJ 170 LR	82,012	70	5,541	3,868	2,417
	Embraer ERJ 175 LR	85,958	78	6,365	4,035	2,186
	Embraer ERJ 190 LR	109,129	98	6,194	4,166	2,647
	Embraer ERJ 195 LR	110,209	108	6,814	4,330	2,071

## TURBOPROP COMMERCIAL AIRCRAFT

Aircraft		Weight (lbs.) Gross	# Seats	FAA Takeoff Field Length (ft.)	FAA Landing Field Length (ft.)	Range (miles)
	<b>Pilatus PC-12</b>	<b>9,920</b>	<b>9</b>	<b>2,650</b>	<b>1,830</b>	<b>2,100</b>
	<b>Cessna 208B Grand Caravan</b>	<b>8,750</b>	<b>9</b>	<b>2,420</b>	<b>1,795</b>	<b>1,162</b>
	<b>King Air 350</b>	<b>15,000</b>	<b>9</b>	<b>3,300</b>	<b>2,692</b>	<b>2,078</b>
	ATR 42-500	41,005	48	3,822	3,694	966
	ATR 72-500	48,500	68	4,012	3,438	822
	Bombardier Q200	36,300	37-39	3,196	2,605	1,143
	Bombardier Q300	43,000	50-56	3,896	3,415	1,147
	Bombardier Q400	65,200	68-78	4,265	4,221	1,650
	Embraer EMB-120	26,433	30	5,105	4,527	900
	Beechcraft 1900C	16,600	19	3,800	2,450	723
	Beechcraft 1900D	17,120	19	3,813	2,380	606
	Saab 340	29,000	30-37	3,830	3,258	857
	Saab 2000	50,265	50-58	4,235	4,193	1,350

BOLD - Can operate at Hillsboro based on current pavement strength

Italics - Part 139 operating certificate not required by airport

Source: Aviation Week

It should be noted that the Port, on occasion, allows aircraft exceeding the pavement strength rating to land at the Airport (i.e., the annual air show). However, to maintain the integrity of the pavement, the number of such landings is limited. Therefore, if there were to be regular use of the airfield (i.e., daily landings) of aircraft over the pavement strength ratings, the pavement strength would need to be upgraded.

The Bombardier and Embraer aircraft are regional jets. Their use in the U.S. national transportation system has been primarily for regional airlines connecting passengers to their major network partner's hub locations. These aircraft would have a range up to 2,400 miles from Portland. This would include all west coast metropolitan areas and extend to the Midwest. To operate these aircraft on a scheduled basis at Hillsboro Airport, the Airport would have to first become FAR Part 139 certificated.

The exhibit also summarizes representative turboprop aircraft in the national regional/commuter airline fleet. All of these aircraft would be able to operate within the pavement strength and runway length limitations of Hillsboro Airport. Several of these aircraft have a range of more than 1,000 miles, which is the approximate air distance to Denver. Therefore, most locations west of Denver would be in range for the turboprop aircraft.

If an aircraft with more than nine passenger seats were to be proposed for regular commercial service, the Airport would have to be FAR Part 139 certified by the FAA. Utilizing an aircraft with nine or fewer passenger seats (shown in bold on **Exhibit 2D**) would not trigger this requirement.

## AIRLINE REQUIREMENTS

To add new service at an airport not currently served, an airline needs to ensure that the service would be beneficial to their long-term goals. Their evaluation includes many factors, most proprietary and specific to the airline. However, for all airlines, the decision to initiate new service at a new airport revolves around three common factors:

- Adequate Facilities
- Community Support
- Market Viability/Profitability

### Adequate Facilities

A number of facilities must be in place to serve the passenger handling and flight operations of scheduled airline service. This includes a terminal building that provides areas for airline management, passenger ticketing, bag claim, and passenger screening and secure holding prior to flight. An apron area adequate for the size of aircraft using the Airport must be available. Sufficient automobile parking must be available for passengers.

Presently, the Port of Portland owns the Hillsboro Airport terminal building. This building currently serves a number of aviation-related and non-aviation tenants, including rental car companies. The primary aircraft operation from the terminal building is a private shuttle service which now occupies most of the first floor of the terminal and the terminal apron. The terminal vehicle parking lot is typically full, supporting this shuttle operation.

The present terminal building does not provide ticket counters or baggage claim areas. A significant reconfiguration of the terminal building would be required to accommodate scheduled airline service. Substantial expansion of the public parking area would be required to serve the additional public parking needs of the scheduled airline passengers.

The *Air Carrier Access Act* of 1986 requires that an air carrier/commuter service airport either have loading bridges or equipment to assist the boarding of disabled passengers where level entry is not available. Hillsboro Airport is not equipped with loading bridges, nor does it have a disabled person lift. This arrangement would need to be met prior to initiating airline service at Hillsboro Airport.

Of special consideration with all scheduled airline activities are new requirements for passenger checked baggage and departure screening. Following the events of September 11, 2001, the federal government passed the *Aviation and Transportation Security Act*. This law created the Transportation Security Administration (TSA) to administer air transportation security. With this law, the TSA took responsibility for conducting check point passenger screening and was responsible for checked baggage screening. The law requires security screeners to be employees of the Federal government, except for a few limited situations when the airport can request contract security screeners funded by the TSA.

Therefore, prior to establishing any new scheduled airline service at Hillsboro Airport, the TSA must fund security screening at Hillsboro Airport (aircraft with more than nine seats). In recent years, some airports that temporarily lost service have had difficulty getting TSA to return to their airport. Following Congressional involvement, TSA has returned to these airports. Without the support of the TSA, scheduled airline service could not be established at Hillsboro Airport.

Hillsboro Airport currently does not provide adequate terminal facilities, public parking, security or certification to allow most commercial air carrier operations. These capital and operational needs would need to be implemented prior to accommodating most types of scheduled air service at Hillsboro Airport.

## **Community Support**

There are more airports desiring air service than there are airlines and aircraft to provide the air service. Many communities across the country have implemented extensive programs to initiate or increase air travel through incentive packages. Common incentive packages may include an Airline Travel Bank (ATB), a revenue guarantee, marketing programs and fee waivers.

ATBs are a financial commitment from the business community to support a specific air service initiative for a specified period. The concept capitalizes on the airline's interest in the "business flyer" and the community's interest in air service that supports business and economic activity.

Operating subsidies (revenue guarantees) often are also provided to help offset the high initial cost of establishing service by an airline. Other financial offsets may be offered in the form of marketing support and fee waivers (e.g. landing fees).

The Port of Portland has employed some of these techniques for attracting certain types of air service to PDX. The International Air Service Development Committee, which consists of business, travel industry and community leaders in the region was established more than 15 years ago. The committee is tasked with establishing and maintaining nonstop international air service between Portland International Airport and Europe, Asia, Mexico and Canada. A similar type of organized effort may increase the possibility of establishing passenger service at a secondary airport in the Portland region.

In most cases, the establishment of new service at an airport that has not previously been served by an airline involves a combination of these subsidies for airlines. Without a community actively pursuing an airline candidate, it is not likely that new service will be established. There is no active program within the Port or the community to provide marketing or operational subsidies to an airline for service at Hillsboro Airport at this time.

Some small commercial service airports in more remote locations can receive federal airline subsidies through the Essential Air Service (EAS) program. This program was established in 1978 as part of airline deregulation to ensure that service to more remote locations would continue. To be eligible for the EAS funding, the airport must have had service prior to deregulation. The only EAS airport in Oregon is Pendleton. In 2016, there were 159 EAS airports (44 of which are in Alaska) and the total federal budget was approximately \$260 million.

Another federal grant program available is the Small Community Air Service Development Program (SCASDP). This is a highly competitive program and only a few airports are selected annually. The EAS and SCASDP programs are separate and unique. SCASDP's eligibility criteria are broader and provide a grant applicant the opportunity to self-identify its air service deficiencies and propose an appropriate solution. EAS is a direct subsidy to air carriers and serves a limited universe of eligible applicants. SCASDP can involve, among others, revenue guarantees, financial assistance for marketing programs, start-up costs, and studies. In 2016, nine airports received on average \$572,000 from the SCASDP program.

Hillsboro is not one of the identified EAS airports, and the SCASDP grants are intended for smaller, rural communities; therefore, Hillsboro is not eligible for either of these air service funding sources.

The State of Oregon has two primary funding sources for air service development; *ConnectOregon* and the Oregon Department of Aviation (ODA). While *ConnectOregon* funds have been allocated for air

service development at other airports in the past, the results have been short-lived. As is common across the U.S., when funding subsidies run out, airlines often drop service. Therefore, funding from ConnectOregon for air service development is thought to be difficult to obtain. When the Oregon Legislature recently increased the aviation fuel tax, approximately 25 percent of those funds were allocated for rural Oregon air service development. Hillsboro Airport is not a likely candidate for funds from this source.

Community support also includes the support of local business leaders and elected officials. Airlines are reluctant to try to enter a market, especially a new market not served previously, if there is not sufficient local support. For example, when PDX was pursuing certain international routes, support was obtained from the business community and was an essential element of the business case. Likewise, support from the mayor and city council were important to new service being initiated at Paine Field.

### **Market Viability/Profitability**

A primary factor for route expansion for an airline is profitability. There are many factors that contribute to the profitability of a service route. These will include the aircraft type, frequency of service, passenger load factors, and potential subsidies available. Any airline choosing to operate from Hillsboro Airport will consider the number of passengers that could be captured for each destination.

For Hillsboro Airport, the potential passenger market that could be captured would be limited to the western areas of the metropolitan area, specifically Washington County, Yamhill County, and Columbia County residents. It is not anticipated that residents in Clark County, Washington or residents of Multnomah or Clackamas Counties in Oregon would bypass PDX to fly from Hillsboro Airport. This would increase their current travel times and distances. The combined population of Washington County, Yamhill County, and Columbia County is approximately 739,000. This is approximately 31 percent of the entire metropolitan area (MSA).

This section will examine the market potential for an airline considering service to and from Hillsboro. It should be understood that the number of potential passengers is a significant factor in route determination and profitability, but it is not the only factor.

Viable markets for potential air service from Hillsboro Airport would be those markets where the most people fly (high density markets). An examination of the top 20 destinations from PDX was made to determine those destinations. **Exhibit 2E** presents the top 20 markets for passengers departing from PDX. For those markets with multiple commercial service airports, the enplanements for each airport are combined to represent the market. For the 12-month period ending September 30, 2016, the Los Angeles region was the top destination. San Francisco, Las Vegas, Phoenix, and Chicago round out the top five. The top 20 destinations represent approximately 57 percent of total enplanements at PDX.

By providing service to the higher density markets, a small percentage capture of the total market could provide a relatively large number of passengers for Hillsboro Airport. For example, capturing only 10

## MARKET VIABILITY/PROFITABILITY



O&D Rank	City/Region	PDX Enplanements	Range (miles)	ERJ 145 50-seat Market Capture	Saab 340B 30-seat Market Capture	Caravan 208B 9-seat Market Capture
1	Los Angeles	927,090	834	4.72%	NA	0.85%
2	San Francisco Bay	755,380	550	5.80%	3.48%	1.04%
3	Las Vegas	332,580	762	13.17%	7.90%	2.37%
4	Phoenix	287,080	1,009	15.26%	NA	NA
5	Chicago Area	240,810	1,733	NA	NA	NA
6	San Diego	240,800	933	18.19%	NA	3.27%
7	Denver	240,030	989	18.25%	NA	3.28%
8	New York	222,490	2,446	NA	NA	NA
9	Sacramento	196,160	492	22.33%	13.40%	4.02%
10	Dallas	165,390	1,613	NA	NA	NA
11	Salt Lake City	153,990	628	28.44%	17.07%	5.12%
12	Seattle	145,000	129	30.21%	18.12%	5.44%
13	Washington D.C.	140,870	2,343	NA	NA	NA
14	Boston	126,930	2,529	NA	NA	NA
15	Minneapolis	123,050	1,421	35.60%	NA	NA
16	Honolulu	111,010	2,601	NA	NA	NA
17	Boise	105,200	343	41.63%	24.98%	7.49%
18	Atlanta	99,520	2,167	NA	NA	NA
19	Orlando	87,850	2,529	NA	NA	NA
20	Spokane	87,620	278	49.99%	29.99%	9.00%

Assumed enplanements needed for viability:

ERJ 145: 50-seats, 1,220 mile range, 43,000 enplanements

Saab 340B: 30-seats, 850 mile range, 26,280 enplanements

Caravan 208B: 9-seats, 1,100 mile range, 7,884 enplanements

percent of the Los Angeles market could provide over 92,000 enplanements annually at Hillsboro Airport, whereas with the Seattle market, to achieve the same level of enplanements would require capturing 63 percent of the market. Since Hillsboro Airport would be competing with the established airlines at PDX, which can offer larger aircraft types and more departures, it is expected that Hillsboro Airport could only capture a small portion of each market with regional jet or turboprop service.

For Hillsboro Airport, it is not expected that an airline operating at PDX would be a candidate airline to provide service at Hillsboro Airport at this time. The regional airlines operating the type of aircraft that could land and depart at Hillsboro Airport currently feed connecting traffic to their major airline partners at PDX. Feeder airlines cannot be segregated between airports since the feeder relies on quick and convenient connections with the major airline partner. Quick and convenient connections could not be made between Hillsboro Airport and PDX. For some routes, the regional airlines provide city-to-city service that might ordinarily be flown by the major airline partner.

Service at Hillsboro Airport could be offered by a new/start-up airline operating the types of aircraft capable of operating at Hillsboro Airport. The existing regional airlines operating in the Northwest region of the United States code-share with a major airline. In some cases, these agreements restrict the regional airline from developing individual routes without the approval of the major airline partner. Therefore, these code-share agreements could inhibit existing regional airlines from independently developing new service at Hillsboro Airport. Regional airlines in the northwest and their code-share partners are listed below:

- SkyWest – American Airlines, United Airlines, Delta, Airlines, Alaska Airlines
- PenAir – Alaska Airlines

The type of aircraft put into service at Hillsboro will have an impact on the potential destinations as will the frequency of service. The greater the frequency of flights, the more support there is for service in a city pair. Frequency of flights offers flexibility for the air traveler. At a minimum, two daily flights are typically needed to support air travel. However, three or more daily departures garners more support, as departure and landing times can be more closely matched to air travelers' schedules. For this analysis, it is assumed that any new service initiated at Hillsboro will offer three daily flights. Three aircraft types are also considered: 1) a 50-seat regional jet, 2) a 30-seat turboprop, 3) a 9-seat turboprop. **Exhibit 2E** shows the capture rate needed under these three aircraft types to the top 20 destinations.

**Regional Jet Scenario:** A 50-seat regional jet, such as the ERJ 145, can reach all of the top 20 destinations except for Chicago, New York, and Dallas. With three flights a day, a total of 150 seats would be available for purchase from Hillsboro. Currently, regional airlines average a load factor of 80 percent as documented in the FAA Aerospace Forecasts. While this load factor does not equate directly to the point of profitability, it is a reasonable indicator. To meet this load factor with this aircraft, a total of 43,000 enplanements would need to be realized.

**30-Seat Turboprop Scenario:** The Saab340B and the Embraer 120 are the two primary 30-seat turboprops still in commercial service. The range of these aircraft is limited and only seven of the top

20 destinations could be reasonably accommodated. Utilizing the same 80 percent load factor, a total of 26,280 enplanements would need to be achieved for viability of service with these aircraft.

**9-Seat Turboprop Scenario:** Utilizing the 9-seat Cessna Caravan 208B turboprop would require capturing 7,884 enplanements for viability. Of the top 20 destinations, this aircraft could reach 10 of them.

## COMPETITIVE FACTORS

The primary factors that influence passenger selection for air service include: low fares, type of aircraft, convenient departure times, and nonstop service. Jet aircraft are preferred over turboprop aircraft for their speed, perceived level of safety, and comfort due to bigger cabins and reduced vibration levels. The range of jet aircraft operating at PDX include most models of the Airbus and Boeing fleets, including narrow body and wide body transport aircraft. As shown earlier, Hillsboro Airport is presently not capable of accommodating these aircraft due to runway length and strength limitations. Therefore, aircraft service from Hillsboro Airport could not directly compete with the type of aircraft offered by the air carriers at PDX.

The best type of air service that could be provided from Hillsboro Airport would be from regional jet aircraft. Regional jets can operate within the pavement strength and runway length limitations of Hillsboro Airport. If regional jet service was provided from Hillsboro Airport, it can be expected that this would not be viewed by the public as an inferior service to that of PDX. However, if only turboprop aircraft service was provided at Hillsboro Airport, this service would be at a considerable competitive disadvantage with PDX. As noted above, the traveling public preference is for turbojet aircraft.

At PDX, most major markets are served by more than one air carrier, providing competition for price and schedule. PDX is also served by Southwest Airlines and other low-fare carriers. This supports lower fares for air travelers in the region. This reduces a potential competitive advantage for an operator from Hillsboro Airport that could market lower fares than offered at PDX.

**Exhibit 2F** presents the airlines and domestic non-stop destinations for Portland International Airport as of March 2017. There are 66 domestic destinations, including six Oregon airports, and there are 10 international destinations including both Europe and Asia. As shown, non-stop service from PDX is available to all the major west coast destinations (i.e., Seattle, Los Angeles, San Diego, San Francisco Bay Area), most commercial service airports within the State of Oregon (e.g., Redmond, North Bend, Eugene, Klamath Falls), several western mountain communities (e.g., Boise, Spokane, Salt Lake City) and major U.S. airline hubs across the country (e.g., Phoenix, Las Vegas, Chicago O'Hare, Atlanta, Denver). With all major markets being flown to from PDX, any service to/from Hillsboro Airport would directly compete with the destinations served from PDX, unless service was provided to an alternate airport such as Boeing Field in Seattle.

## NON-STOP DESTINATIONS PORTLAND INTERNATIONAL AIRPORT

17 Airlines • 66 Domestic Destinations • 10 International Destinations



### PDX DESTINATIONS AND ESTIMATED DEPARTURES

Airline	Destinations	Approximate Daily Departures	Aircraft
<b>AIR CANADA</b>	3 (Canada)	4	All Major
<b>Alaska Airlines</b>	55 (Inc. Hawaii, Mexico)	103	All B737, ERJ175, CRJ700, Q400
<b>American Airlines</b>	6 (ORD, CTL, DFW, LAX, PHL, PHX)	9	All Major
<b>BOUTIQUE AIR</b>	Pendleton, OR	2	PC-12, King Air 350
<b>Condor</b>	Frankfurt Germany	1	A320, A321, B757, B767
<b>DELTA</b>	11 (Inc. Japan, Hawaii, Amsterdam)	18	All Major
<b>FRONTIER</b>	4 (ORD, CLE, DEN, PHX)	3	A319, A320, A321
<b>HAWAIIAN AIRLINES</b>	Hawaii (HNL)	1	A330, B767
<b>ICELANDAIR</b>	Iceland	1	B757, B767
<b>jetBlue</b>	4 (ANC, BOS, LGB, JFK)	2	A320, A321, ERJ190
<b>PenAir</b>	5 - Klamath Falls, Eureka, Crescent City, North Bend, Redding	8	Saab 340B, Saab 2000
<b>Southwest</b>	19	37	All B737
<b>spirit airlines</b>	3 (DFW, LAS, LAX)	2	A319, A320, A321
<b>sun country airlines.</b>	1 (MSP)	1	B737-7, B737-8
<b>UNITED</b>	6 (ORD, DEN, IAH, EWR, SFO, IAD)	10	All Major
<b>Virgin America</b>	SFO	2	A319, A320
<b>volaris</b>	Mexico	1	A319, A320, A321
<b>Approximate Total</b>		<b>205</b>	

## COMMERCIAL PASSENGER AIR SERVICE POTENTIAL CONCLUSIONS

Portland International Airport provides significant competitive advantages over Hillsboro Airport that reduce the potential for establishing scheduled passenger air service at Hillsboro Airport. First, PDX is an operational and certificated commercial service airport. Hillsboro Airport has never been certificated for commercial service and has many capital improvement needs and regulatory requirements that must be met prior to establishing scheduled air service. These include:

- Establishing Part 139 certification,
- Obtaining TSA security personnel and security equipment for checked baggage and passenger screening,
- Upgrading terminal facilities that do not have ticketing or baggage claim facilities. The terminal apron and automobile parking areas are used by a private shuttle service. Additional apron area and public parking are needed to accommodate scheduled airline service. There are no loading bridges or lifts to accommodate disabled passengers.

A review of communities across the country that support more than one commercial service airport indicates that there are no market similarities between Portland and these communities. Either these communities have a much larger population and air service market than Portland, or the secondary airport served a unique aspect of that community. For example, the secondary commercial service airport in Las Vegas provides air tours over the Grand Canyon.

Since PDX provides non-stop service to more than 70 destinations and all western U.S. destinations within the range of a regional jet or turboprop aircraft, service from Hillsboro Airport would compete directly with service from PDX. All the top 20 markets at PDX are served with jet service. The remaining markets would need to be priced competitively with PDX in order for Hillsboro Airport to capture any reasonable market share.

Currently, there is no potential airline candidate to serve Hillsboro Airport. The regional airlines serving Oregon and Washington provide feeder services for their code-sharing partners at PDX. While a start-up airline could serve the Airport, start-up airlines are typically hampered by a lack of capital, operating funds, and name recognition, which proves difficult in maintaining reliable service. Since feeder service is provided now to PDX, scheduled airline service from Hillsboro Airport would strictly be origin/destination traffic to a specific market. Given these considerations, it does not appear that scheduled airline service utilizing aircraft with more than nine seats is feasible at this time for Hillsboro Airport.

## SERVICE WITH SMALL AIRCRAFT

Some airlines have developed a business model that specifically utilizes aircraft with nine or fewer passenger seats. These companies are primarily relying on the value of time saved for the traveler and see the following benefits to the travelling public:

- No TSA screening;
- Arrive immediately before flight departure;
- Less time spent at a terminal;
- No Part 139 requirement for the airport;
- Able to operate into smaller airports;
- Able to utilize shorter runways.

In many cases, these companies serve EAS airports so that they can get the federal subsidy for providing service. The only EAS airport in Oregon is Eastern Oregon Regional Airport in Pendleton. Currently, Boutique Air, utilizing the 9-seat Pilatus PC12, holds this EAS contract for service from Pendleton to PDX and Seattle.

**Table 2E** presents the characteristics of companies specifically operating commercial flights utilizing aircraft with nine or fewer passenger seats. Each of these, with the exception of Kenmore and SurfAir, primarily operate from EAS airports. Kenmore operates 9-seat Cessna Caravan aircraft from Boeing Field in Seattle to destinations in the San Juan Islands. SurfAir is a relatively new concept airline based out of San Carlos Airport (south San Francisco Bay). They sell monthly subscriptions and travelers can utilize any flight during the month. Currently, SurfAir serves 12 destinations in California with 34 daily flights (April 2017).

**TABLE 2E**  
Example Commercial Service Airlines Operating 9-seat Aircraft

	Cessna Caravan 208	9	Midwest, MO, IL, IA, MN, WI
	Cessna Caravan 208	9	Seattle, NW Washington
	Cessna 402	9	Northeast, Midwest, Montana, Caribbean
	Tecnam P2012 Traveller	9	
	Pilatus PC-12	9	Southwest, South, Mountain, CA, OR, NY, MD
	Cessna Caravan 208	9	South, NY, PA, MD, DC
	Piper PA-31 Chieftain	9	
	Cessna Caravan 208	9	California, Hawaii
	Bae Jetstream 31	9	MS, TN
	Pilatus PC-12	9	California

\* Subscription on-demand service

Source: Corporate websites as of April 2016

Operators of the 9-seat aircraft typically offer flights between city pairs that are relatively close. This is primarily a function of passenger comfort as these aircraft have neither lavatory facilities nor standing headroom. Therefore, short flights are sensible.

Potential destinations from Hillsboro Airport would be determined by the capability of the airline to generate a profit through ticket sales and the distance. Most of the routes flown by these operators are less than one hour, and very few are more than two hours. Potential destinations might include San Francisco, Seattle, Bellingham, Pasco, Eugene, Medford, Redmond, Klamath Falls, and other Oregon airports. The flight time from Hillsboro to San Francisco utilizing a Pilatus PC-12 aircraft is approximately an hour and a half. This length of time would likely compromise passenger comfort and may not be sustainable.

Some of these routes, such as Seattle and San Francisco, would likely be seen as direct competition to flights offered out of PDX. For example, in 2011 and 2012, SeaPort Airlines offered service to Seattle Boeing Field from PDX utilizing the nine-seat Pilatus PC-12. Other airlines such as Alaska Airlines, reduced fares from PDX to Sea-Tac, putting price pressure on SeaPort. Ultimately, SeaPort suspended this service and by 2016 was out of business.

Service from Hillsboro utilizing 9-seat aircraft would likely be limited by lower-density destinations that are not in direct competition to flights from PDX. This provides a limited number of destinations. The remaining question for an operator is whether the benefits of utilizing the smaller aircraft (i.e., time saved, convenience, less hassle) outweigh limited destinations.

## AIR CARGO SERVICE POTENTIAL

Air cargo services are provided by a segmented group of air carriers that provide differing services based upon wide ranging customer demands. The following four basic types of carriers provide these services:

- Integrated express operators
- All-cargo carriers
- Commercial service passenger airlines
- Ad-hoc cargo charter carriers

**Integrated express operators** (FedEx, UPS, DHL) operate a fleet of scheduled aircraft, trucks, and couriers offering door-to-door delivery service. These carriers operate extensive hub-and-spoke networks providing expansive geographic coverage. The integrated express operators have well established hubs, such as PDX, with significant infrastructure to transfer goods from aircraft to truck for final delivery.

**All-cargo carriers** (Cathay Pacific Cargo, Ameriflight, Empire Airlines) generally operate scheduled widebody aircraft from one major airport to another, often overseas, and are highly reliant on the air freight forwarding industry. Due to their airport-to-airport service structure, all-cargo carriers are

typically concentrated in large, high volume market airports; geographic coverage is limited. The all-cargo airlines rely on freight forwarders and other independent agents for ground transportation. Ameriflight and Empire Airlines are also all-cargo airlines which operate at PDX and serve as cargo feeders to the integrated express operators.

**Commercial service passenger airlines** (United, Delta, American) are scheduled passenger airline operators. Space in the bellies of these aircraft is generally available to move cargo airport-to-airport. This service would only be feasible at Hillsboro Airport if passenger service were available.

**Ad-hoc cargo charter carriers** (AirPac Airlines, Western Air Express) are unscheduled air charter operators who move goods from airport-to-airport. The market share of these operators is minimal, difficult to gauge, and often lumped together with the all-cargo carriers.

The integrated air carriers are similar in many respects to the major air carriers. The integrated air carriers have established a network of hub airports across the country to ensure the overnight delivery of packages to virtually any address in the U.S. These hub airports serve the large transport aircraft of the integrated air carrier. Feeder aircraft operate at outlying communities that do not have the capabilities to accommodate the large transport aircraft or have sufficient levels of freight to support a larger aircraft.

**Table 2F** summarizes the operational characteristics of representative aircraft within the existing integrated cargo fleets and all-cargo airline fleets.

**TABLE 2F**  
**Representative Aircraft**  
**Integrated Cargo Air Carriers and All-Cargo Airlines**

Aircraft	Example Operator	Gross Weight (lbs.)	Cargo Capacity (lbs.)	FAA Takeoff Length (ft.)	FAA Landing Length (ft.)	Range (miles)
<b>Narrow and Wide Body Cargo Aircraft</b>						
A310-300F	FedEx	361,600	28,650	7,400	4,950	5,200
A300-600F	FedEx, UPS	375,900	120,800	7,400	4,900	2,650
Boeing 767-300F	FedEx, DHL	412,000	118,300	9,300	5,600	3,255
Boeing 757-200SF	FedEx, DHL	255,000	72,210	7,750	4,950	3,140
Boeing DC-10-30F	FedEx	580,000	171,130	10,700	6,320	3,780
Boding MD-11F	FedEx	630,500	192,030	10,000	7,600	4,120
Boeing 747-200F	UPS, DHL, Cathay	833,000	242,800	10,900	6,930	3,615
<b>Turboprop Aircraft</b>						
ATR 42-300F/-320F	Empire Air	27,100	11,332	4,280	4,220	978
ATR 72-200F	Empire Air	48,500	16,755	4,954	3,970	1,105
EMB120RTF	Ameriflight	26,433	8,157	5,105	4,527	935
<b>Beechcraft 1900</b>	<b>Ameriflight</b>	<b>17,600</b>	<b>5,880</b>	<b>3,800</b>	<b>2,413</b>	<b>1,498</b>
<b>SA227 Metroliner</b>	<b>Ameriflight</b>	<b>16,500</b>	<b>5,000</b>	<b>5,503</b>	<b>4,609</b>	<b>1,266</b>
<b>Cessna 208B Cargo</b>	<b>Empire Air, FedEx</b>	<b>8,750</b>	<b>4,070</b>	<b>2,420</b>	<b>1,795</b>	<b>1,086</b>

Bold: Capable of operating at HIO currently

Source: Aviation Week

Hillsboro Airport does not have the runway pavement strength or runway length to serve the large transport aircraft in either the integrated air carrier fleets or all-cargo fleets. Most of the smaller turboprop aircraft utilized in cargo service can operate from Hillsboro Airport; however, those that are operated as feeder aircraft to the integrated carriers must be co-located at PDX. Therefore, based upon the infrastructure limitations at Hillsboro Airport, it does not appear that Hillsboro Airport could accommodate an integrated air carrier. Furthermore, the integrated air carriers, including the feeders, typically operate under FAR Part 121. Similar to the commercial airlines, the airport would need to be FAR Part 139 certificated to accommodate the operations of these aircraft.

The only cargo aircraft that could currently operate at Hillsboro Airport are the turboprop aircraft listed above that have a cargo payload capacity of 7,500 pounds or less. Cargo with payload capacity of more than 7,500 pounds must operate under FAR Part 121; therefore, the airport must be Part 139 certified. Aircraft such as the Beech 1900, Cessna Caravan, and Metroliner have a payload capacity of less than 7,500 pounds. These aircraft would operate under FAR Part 135 and could use Hillsboro Airport without FAR Part 139 certification by the airport.



FedEx Cessna Caravan 208B

### **Portland Region Westside Freight Access and Logistics Analysis**

In 2013, Greater Portland Inc. (GPI), an organization that works to promote the economy of the greater Portland region, commissioned a study of the delivery of freight for export from the Hillsboro area to the freight distribution center at PDX. While much of the study centered around the challenges of the surface transportation network, some consideration was given to the feasibility of utilizing feeder aircraft from HIO to PDX. The study is titled *Portland Region Westside Freight Access and Logistics Analysis*.

The study found that most of the computer and electronics shipments, which make up 45 percent of Portland area exports bound for PDX, do not go on an aircraft. Instead, they are consolidated with other goods and trucked to other gateways like Seattle or San Francisco. The study indicated that significant capital investment would be required to justify feeder service from HIO, especially given the relatively small physical volume of freight from the computer and electronics industry.

Some manufacturers did show a strong willingness to pay for speed in delivery and expressed support for feeder service from HIO to PDX to replace truck trips. However, forwarders, integrators, and all-cargo carriers were skeptical that this type of service would be competitive with current trucking methods. From their perspective, a feeder flight would not yield a significant time savings due to logistical complexities. These firms were also skeptical that the manufacturers would readily pay the higher cost for an additional air cargo trip in the supply chain.

The following major constraints to operating feeder flights from HIO to PDX were outlined in the study:

- Runway and other design limitations;
- Lack of cargo loading infrastructure and equipment;
- No integrator or consolidator presence at HIO;
- Capital cost of aircraft for new service.

### AIR CARGO SERVICE POTENTIAL CONCLUSIONS

There is only a limited opportunity for air cargo services at Hillsboro Airport. This is a function of the structure of the air cargo industry and type of aircraft used for air cargo services, more than it is a function of the air cargo market in the Portland-Vancouver area.

Air freight is moved by both the passenger air carriers and all-cargo airlines. The cargo handling from the passenger and mixed airlines is only feasible at PDX where the passenger airlines operate.

The integrated all-cargo carriers utilize a combination of large transport aircraft and feeder aircraft at hub network locations. Integrated all-cargo service could not be established at Hillsboro Airport since it has neither the pavement strength nor the runway length needed to serve the large aircraft in the integrated airline fleet. Also, the Airport does not have the available land to support the aircraft parking needs for these size aircraft nor the space for the required package sorting/handling/transfer facilities. The feeder operations of the integrated all-cargo airlines cannot be segregated to another airport. It is imperative that the feeder aircraft use the same airport for the convenient and efficient consolidation of freight.

An all-cargo airline that operates a turboprop or piston-powered fleet would be the only type of air cargo operation that could be accommodated at Hillsboro Airport. These aircraft are similar in size to the existing fleet at Hillsboro Airport and could be easily integrated into existing airport operations.

### FUTURE AIRPORT ROLE CONCLUSION

Considering the organization of the air transportation industry as defined by FAA regulation (discussed above) and industry practices, there are four potential future roles for Hillsboro Airport as outlined below:

1. **General Aviation/Reliever:** This is a continuation of the Airport's existing role.
2. **General Aviation/Reliever/Commuter with less than 10 passenger seats:** This is a continuation of the Airport's current role with the addition of commuter operations utilizing an aircraft that does not require the Airport to obtain a Part 139 commercial operating certificate.
3. **Commercial Service/General Aviation/Reliever:** This would be characterized by the Airport primarily serving as a general aviation reliever for PDX, but also planning for the potential for

scheduled airline activity with aircraft capable of carrying 10 or more passengers. Part 139 certification required.

4. **General Aviation/Air Cargo:** This would be characterized by the Airport continuing to primarily serve as a general aviation reliever for PDX, but also planning for the potential for air cargo operations using aircraft with a payload of greater than 7,500 pounds. Part 139 certification required.

Potential role 1, **General Aviation/Reliever**, and potential role 2, **General Aviation/Reliever/Commuter with less than 10 passenger seats**, can be accommodated within the existing infrastructure capabilities (runway length, pavement strength) of Hillsboro Airport and existing FAA regulatory environment. Commuter airline aircraft with nine passenger seats are permitted by FAA regulation to operate into Hillsboro Airport and do not require FAR Part 139 certification.

Potential role 3, **Commercial Service/Reliever**, and potential role 4, **General Aviation/Air Cargo** cannot be fully accommodated at Hillsboro Airport due to existing limitations of the pavement strengths and runway lengths and the absence of FAR Part 139 certification. As mentioned previously, Hillsboro Airport can only accommodate regular use by regional jet aircraft and smaller turboprop aircraft without increasing the existing pavement strengths and runway lengths at Hillsboro Airport. Without FAR Part 139 certification, the Airport can only accommodate air carrier aircraft with fewer than 10 passenger seats.

Expansion or strengthening of the existing runway and taxiway system to support heavier commercial service aircraft cannot be economically or environmentally justified at this time and is not supported by the local community or Port staff. Therefore, the selected role for Hillsboro Airport must remain within the existing infrastructure limitations at Hillsboro Airport (i.e., roles 1 and 2).

Federal regulations prevent the Port from specifically excluding certain classes of aircraft operating from the Airport. For example, the Port cannot, by policy, exclude transport aircraft and only accommodate general aviation aircraft. Nor can the Port set a limitation on the size of transport aircraft that it would allow to operate at the Airport. For example, the Port could not restrict the use of the Airport based on aircraft seating capacity. However, current federal policy allows the Airport to limit operations by aircraft that exceed pavement strength limitations. Therefore, any future role for Hillsboro Airport that considers potential roles 3 and 4 would, by regulation, need to accommodate all those aircraft that can operate within the existing pavement strength and runway length limitations of the Airport.

In essence, federal regulations and policy require that the Port allow non-FAR Part 139 commercial passenger service and air cargo operations as long as they are compatible with the airport's infrastructure and there is space at Hillsboro Airport to support their operation. Title 49, Sec. 44706, Para (f), of U.S. Code, does give the Port the authority to decline Part 139 certification for Hillsboro Airport if the Port, as a policy, desires not to pursue certification.

As discussed above, initiating new scheduled passenger airline and/or air cargo activity at Hillsboro Airport would be difficult. Any airline would face considerable risk and challenges including: limited

market opportunities, lack of suitable facilities for their operation, and considerable competition from PDX. Therefore, it does not appear that the potential for roles 2, 3, and 4 is strong enough to change the role of the Airport at this time. The existing role of the Airport (role 1), as a growing business-class general aviation/reliever airport, is the most likely role for Hillsboro Airport in the future.

The Port's overall mission is to enhance the region's economy and quality of life by providing efficient cargo and air passenger access to national and global markets. Supporting its mission, the Port's vision is to be a prominent, innovative economic development engine while stewarding the region's community and environmental best interests. Since general aviation contributes to moving cargo and passengers around the region, nation, and world, maintaining the same role for Hillsboro Airport allows the Port to directly meet these missions.

**“Hillsboro Airport is planned to maintain its current role as a growing business-class general aviation reliever airport. A move to regularly scheduled commercial service is not planned at this time.”**

This master plan will focus on presenting forecasts and facility requirements related to the current role of the Airport as a general aviation reliever facility. It is not anticipated that the Airport will transition to an FAR Part 139 commercial service airport; therefore, capital projects related to achieving this status will not be presented. Consideration will be given to the potential for a small commercial operator utilizing a 9-seat aircraft as this appears to be the most likely scenario for commercial service. This type of service does not require the Airport to meet FAR Part 139 requirements and can likely be accommodated through existing facilities.