

HILLSBORO AIRPORT



PORT OF PORTLAND

AIRPORT MASTER PLAN
Executive Summary

**HILLSBORO AIRPORT
Hillsboro, Oregon**

AIRPORT MASTER PLAN

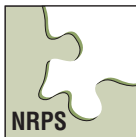
EXECUTIVE SUMMARY

Prepared for:



PORT OF PORTLAND

Prepared by:



Mark J. Greenfield
Attorney at Law

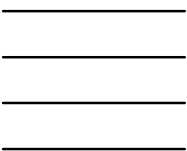
May 2005

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Airport Master Plan EXECUTIVE SUMMARY

The Hillsboro Airport Master Plan study was undertaken to evaluate the airport's capabilities and role, to forecast future aviation demand, and to plan for the timely development of new or expanded facilities that may be required to meet that demand. The ultimate goal of the Master Plan was to provide systematic guidelines for the airport's overall maintenance, development, and operation.

The Master Plan is a proactive document which identifies and then plans for future facility needs well in advance of the actual need for those facilities. This is done to ensure that the Port of Portland (Port) can coordinate project approvals, design, financing, and construction in a timely manner prior to experiencing the detrimental effects of inadequate facilities.

An important result of the Master Plan was reserving sufficient land area for future facility needs. This protects development areas and ensures they will be readily available when required to meet future needs. The result is a detailed airfield and landside development concept which outlines recommended uses for all areas of airport property.

The preparation of this Master Plan is evidence that the Port recognizes the importance of air transportation to the community and the associated challenges inherent in providing for its unique operating and improvement needs. The costs of maintaining an airport is an investment which yield benefits to the community. With a sound and realistic Master Plan, Hillsboro Airport can maintain its role as an important link to the national air trans-



portation system for the community and the Port of Portland will be able to maintain the existing public and private investments in this facility.

MASTER PLAN GOAL

“Develop a comprehensive tool to guide the Airport’s development and optimize community compatibility through the year 2025.”

MASTER PLAN OBJECTIVES

The primary objective of the Master Plan is to formulate and maintain a long-term development program which will yield a safe, efficient, economical, and environmentally acceptable aviation facility. The accomplishment of this objective requires the evaluation of the existing airport and a determination of what actions should be taken to maintain an adequate, safe, and reliable airport facility to meet the needs of the area. This update will provide an outline of the necessary improvements and give those responsible for its operation advance notice of future airport funding needs so the appropriate steps can be taken to ensure that adequate funds are budgeted.

Specific objectives of the Hillsboro Airport Master Plan update are:

PRESERVE PUBLIC AND PRIVATE INVESTMENTS

The Port and United States Government (through the Federal Aviation

Administration, or the FAA) have made considerable investments in the airport’s infrastructure. Private individuals and businesses have made investments in buildings and other facilities as well. This update will provide for the continued maintenance and the necessary improvements to the airport’s infrastructure to ensure maximum utility of both public and private-use facilities at the Hillsboro Airport.

BE REFLECTIVE OF COMMUNITY GOALS AND OBJECTIVES

The Hillsboro Airport is a public-use aviation facility serving the aeronautical needs of local and regional residents and businesses. The Master Plan needs to reflect the desires the surrounding communities have for quality of life, business and development, and land use. The Master Plan will consider existing planning documents for surrounding communities and the county in the ultimate design and use of the Hillsboro Airport.

DETERMINE ROLE

The Hillsboro Airport is part of a regional and national aviation system. To ensure that the Hillsboro Airport fulfills its role, the Master Plan will evaluate the segments of aviation that it must serve to ensure strong and vibrant regional and national aviation systems.

MAINTAIN SAFETY

Safety is an essential consideration in the planning and development at the

Airport. The Master Plan will focus on maintaining the already high levels of safety for airport users, visitors, employees, and surrounding communities.

PRESERVE THE ENVIRONMENT

Protection and preservation of the local environment are important concerns in the Master Plan. Any improvements suggested within the Master Plan will be mindful of environmental requirements, such as those for air quality, noise, and the protection of sensitive species' habitat.

SEEK TO BALANCE DISRUPTION

The Master Plan will seek to balance the needs of the community for quality of life with the need for a vibrant business atmosphere. The Master Plan will seek to moderate the effects of aircraft activity on existing land uses while meeting aviation needs.

ATTRACT PUBLIC PARTICIPATION

To ensure that the Master Plan reflects the concerns of the public and their representatives, the local communities, residents, and businesses throughout the region will be notified of the Master Plan update process and their comments and suggestions will be actively solicited and included in the final Master Plan, to the extent possible.

STRENGTHEN THE ECONOMY

In continuing support of the area's economy, the Master Plan is aimed at retaining and increasing jobs and revenue for the region and its businesses.

PUBLIC OUTREACH AND COORDINATION

The Hillsboro Airport Master Plan is of interest to many within the local community. This includes local citizens, community organizations, airport users, airport tenants, area-wide planning agencies, and aviation organizations. As an important component of the regional, state, and national aviation systems, the Hillsboro Airport Master Plan is of great importance to both state and federal agencies responsible for overseeing air transportation. To assist in the development of the Hillsboro Airport Master Plan, the Port identified a cross-section of community members and interested persons to act in an advisory role in the development of the Master Plan. As members of the Project Advisory Committee (PAC), the committee members reviewed draft working papers and provided comments throughout the study to help ensure that a realistic, viable plan was developed.

To assist in the review process, draft working papers of each chapter were prepared at several milestones in the planning process as shown on **Exhibit ES-1**. The draft working papers process

allowed for input and review during each step within the update process to ensure that all issues were fully addressed as the recommended program was developed.

Two project-specific Open Houses were held as part of the plan coordination. Open Houses afforded the public opportunities to provide input and learn about general information concerning the Master Plan update. Master Plan information was made available through the publication of a series of brochures and newsletters. The working papers and draft final report were also made available to the general public over the internet via the Port web page shortly after submission to the committee. The web site allowed persons to e-mail comments to the Port.

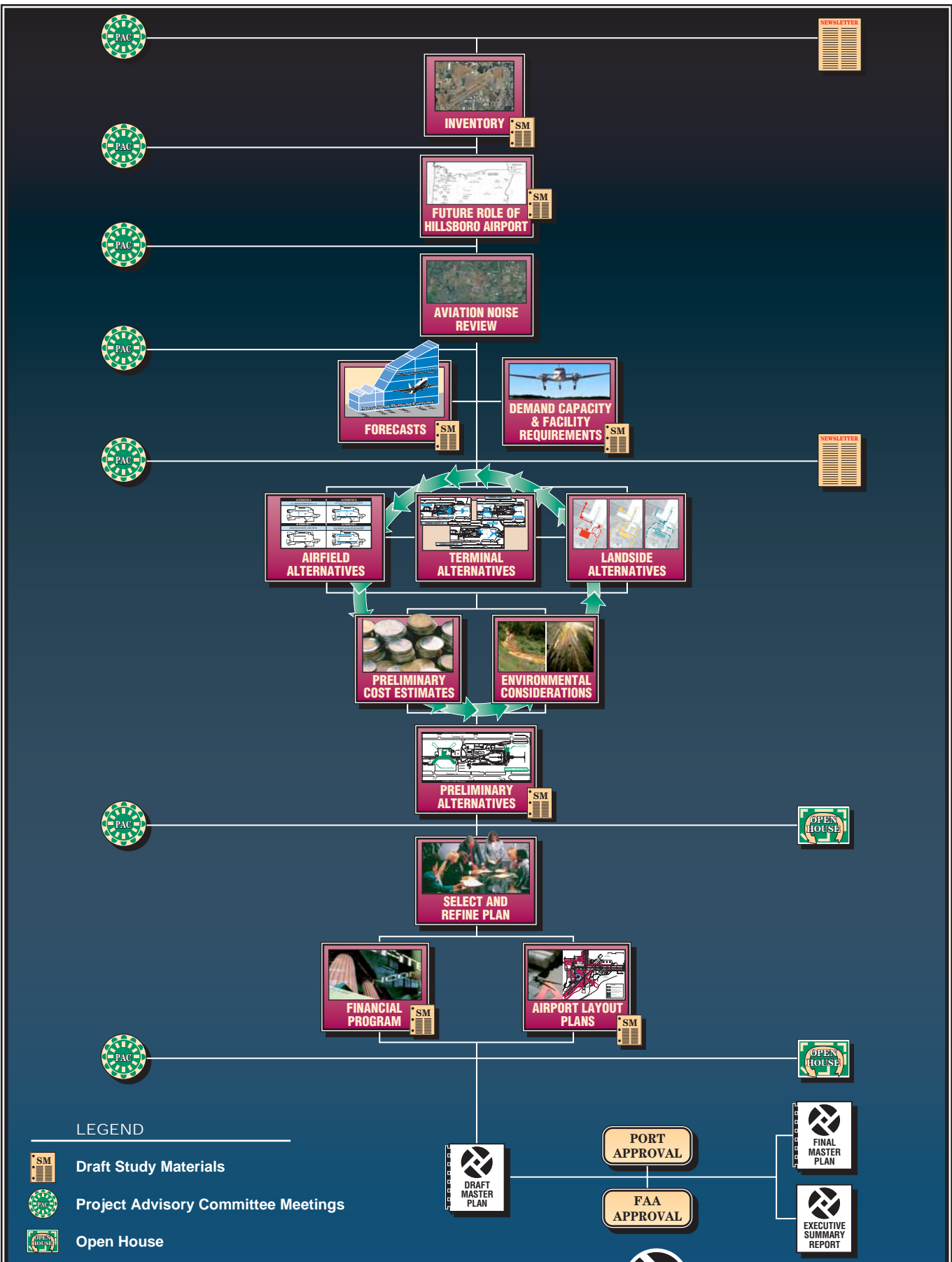
FUTURE ROLE HILLSBORO AIRPORT

Hillsboro Airport is defined as a reliever airport for Portland International Airport (PDX) in the Federal Aviation Administration's (FAA) *National Plan of Integrated Airport Systems (NPIAS)*. 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. At the state level, Hillsboro Airport is included as a Category 2 Airport in the *Oregon Aviation Plan* prepared by the Oregon Department of Aviation (ODA). The *Oregon Aviation Plan* defines a Category 2 airport as an airport to "accommodate corporate aviation activity, including business jets, helicopters, and other general aviation activities."

Four potential future roles or options for development were considered for Hillsboro Airport in the Master Plan as outlined below:

1. **General Aviation/Reliever:** This is a continuation of the airport's existing role.
2. **General Aviation/Reliever That Also Supports Scheduled Commuter Airline Operations With Aircraft With Fewer Than 10 Passenger Seats:** This would be the extent of commercial air service that could be accommodated without the FAR Part 139 certification that is required for scheduled airline service. (Hillsboro Airport is presently not certificated to accommodate scheduled airline service with aircraft with more than 9 passenger seats.)
3. **Commercial Service/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.
4. **General Aviation/Air Cargo:** This would be characterized by the airport primarily serving as a general aviation reliever for PDX, but also planning for the potential for air cargo.

Potential role one, **General Aviation/Reliever**, and potential role two, **General Aviation/Reliever That Also Supports Scheduled Com-**



LEGEND



Draft Study Materials



Project Advisory Committee Meetings



Open House



DRAFT MASTER PLAN



PORT APPROVAL



FAA APPROVAL



FINAL MASTER PLAN



EXECUTIVE SUMMARY REPORT



PORT OF PORTLAND

Exhibit ES-1

MASTER PLAN ELEMENTS AND PROCESS

Commuter Airline Operations With Aircraft With Fewer 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 are permitted by FAA regulations to operate into Hillsboro Airport and do not require FAR Part 139 certification. Potential role three, **Commercial Service/Reliever**, and potential role four, **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.

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 one and two).

The examination of the future role of Hillsboro Airport determined that 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 two, three, and four is strong enough to change the role of the airport at this time. The existing role of the airport (role one), 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 provide competitive cargo and passenger access to regional, national and international markets, while enhancing the region's quality of life. The Aviation mission is to operate, maintain and promote an airport system that satisfies the air transportation needs of its customers by providing competitive cargo and passenger access to regional, national and international markets. Since general aviation contributes to moving cargo and passengers around the region, nation, and the world, maintaining the same role for Hillsboro Airport allows the Port to directly meet these missions.

Ensuring that Hillsboro Airport can continue to accommodate general aviation activity, aids the Port in implementing the objectives of the *2000 Portland International Airport Master Plan*. The *2000 Portland International Airport Master Plan* called for "Strategies to Preserve Capacity." By accommodating general aviation activity at Hillsboro Airport, the capacity of the runway system is maximized at PDX and the need for a third parallel runway at PDX is reduced.

Hillsboro Airport is the most capable general aviation airport in the metropolitan region as well as near the Portland central business district. The capabilities of Hillsboro Airport cannot be duplicated at another regional airport without significant capital investments. Therefore, Hillsboro Airport should continue to be developed primarily for general aviation services.

AVIATION DEMAND FORECASTS

An important factor in any facility plan is a definition of the demand that it should reasonably be expected to accommodate during the useful life of its key components. In the Hillsboro Airport Master Plan, this involved projecting aviation activity indicators through the Year 2025. Forecasts of based aircraft and operations (takeoffs and landings) served as the basis for facility planning.

Aviation activity can be affected by many influences on the local, regional, and national levels, making it virtually impossible to predict year-to-year fluctuations over 20 years with any certainty. Therefore, it must be remembered that forecasts are to serve only as guidelines and planning must remain flexible enough to respond to a range of unforeseen developments.

Recognizing this, it was intended to develop the Hillsboro Airport Master Plan to be demand-based rather than time-based. As a result, the reasonable levels of activity potential that are derived from the forecasting effort will be related to planning horizon levels rather than points in time. These planning horizons are established as levels of activity that will call for consideration of the implementation of the next step in the Master Plan program.

Moderate growth in based aircraft and operations was projected for Hillsboro Airport as shown on **Exhibit ES-2**. This growth is influenced by local socioeconomic growth in the Portland Metropolitan Area and growth in the national

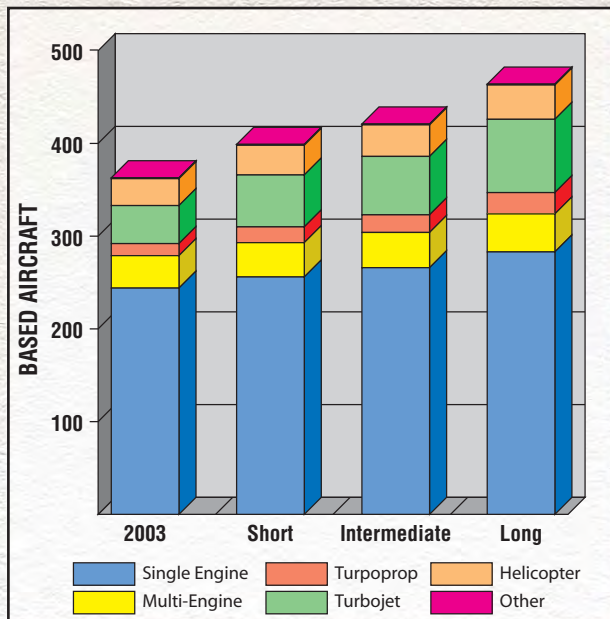
general aviation industry. The Metro Council projects the Portland-Vancouver population to grow by 1.6 percent annually through 2025, from 1.9 million to 2.8 million. Total households and total employment are projected to grow by 1.7 percent and 2.2 percent annually, respectively, over the same period. Finally, per capita personal income is projected to grow 4.0 percent annually through 2025, from \$32,563 to \$79,894 (constant dollars).

Nationally, the number of general aviation aircraft is expected to grow at 1.3 percent annually as forecast by the FAA. This growth is influenced by new federal rules creating the affordable Light Sport Aircraft, the expected introduction of the microjet (a low-cost business jet), and continued growth in corporate and fractional ownership of aircraft. Corporate and fractional aircraft growth is the result of changes in business travel away from the commercial airports for travel flexibility and time savings. Turbine-powered aircraft, which make up the overwhelming majority of the corporate and fractional fleet, are projected to grow at 3.6 percent annually, the fastest pace of all general aviation aircraft.

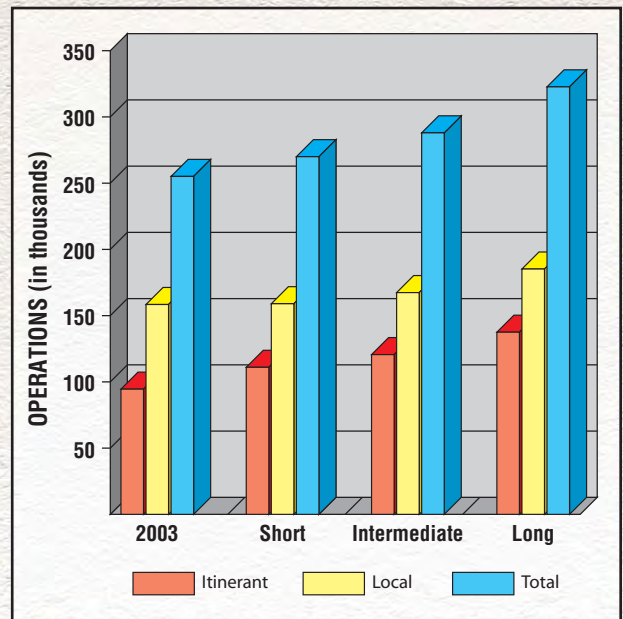
The Master Plan projected based aircraft at Hillsboro Airport to grow at an annual rate of 1.4 percent, increasing from 363 to 464 based aircraft by the end of the planning period. Along with national general aviation trends and the growing local economy, the trend of increased aircraft ownership in Washington County was a factor in projecting based aircraft growth. Between 1993 and 2003, 191 new aircraft were registered in Washington County. Based

	BASE YEAR	FORECASTS		
		SHORT TERM	INTERMEDIATE TERM	LONG TERM
BASED AIRCRAFT				
Single Engine Piston	244	256	265	284
Multi-Engine Piston	35	37	38	41
Turboprop	13	17	19	23
Turbojet	41	56	63	79
Helicopter	29	32	34	37
Other	1	1	1	1
Total Based Aircraft	363	399	420	465
OPERATIONS				
ITINERANT OPERATIONS				
General Aviation	83,381	99,000	105,700	119,700
Air Taxi	9,561	11,300	14,200	17,100
Military	503	900	900	900
<i>Subtotal Itinerant Operations</i>	<i>93,445</i>	<i>111,200</i>	<i>120,800</i>	<i>137,700</i>
LOCAL OPERATIONS				
General Aviation	160,261	158,500	166,900	184,700
Military	141	600	600	600
<i>Subtotal Local Operations</i>	<i>160,402</i>	<i>159,100</i>	<i>167,500</i>	<i>185,300</i>
Total Operations	253,847	270,300	288,300	323,000

BASED AIRCRAFT FLEET MIX



OPERATIONS FORECASTS



upon the pilot survey results conducted for the Master Plan, it is expected that new aircraft owners in Washington County would prefer to base at Hillsboro Airport since it is the most capable airport near their homes or businesses.

Nationally, general aviation operations are projected to grow at 1.7 percent annually. The Master Plan projected total annual operations at Hillsboro Airport to grow at 1.1 percent annually through the planning period. Itinerant operations were projected to grow faster than local operations (training operations) as the mix of aircraft operating at the airport is expected to continue to include a higher percentage of business aircraft which normally only conduct itinerant operations. The number of helicopter operations was projected to remain constant through the planning period as 2003 was considered a peak year for helicopter operations at Hillsboro Airport.

NEED FOR A PARALLEL RUNWAY

An airfield capacity analysis confirmed the need for a small aircraft-only runway at Hillsboro Airport. An airport's airfield capacity is expressed in terms of its annual service volume (ASV). An airport's ASV is a reasonable estimate of the maximum level of aircraft operations that can be accommodated in a year. An airport's ASV figure accounts for annual differences in runway use, aircraft mix, and weather conditions.

As shown in the upper left-hand corner of **Exhibit ES-3**, the airport is presently operating beyond its ASV. The

present ASV is estimated at approximately 169,000 operations; however, the airport accommodates more than 180,000 operations to the runways (helicopters operating in the Alpha, Bravo, or Charlie Patterns do not operate to the runways. Therefore, these operations which are included in the airport's total operations count and are not considered in the ASV calculations).

Exceeding the ASV increases departure and arrival delays to aircraft. At current operational levels, this delay is estimated at an average of 1.9 minutes per operation.

As the mix of aircraft operating at the airport continues to shift to include a larger percentage of business aircraft, and as operations increase, this delay figure is projected to increase to over six minutes per aircraft operation on average. Increasing levels of annual delay create undesirable conditions such as increased air emissions, increased operating costs, and extended aircraft traffic patterns. Increased air emissions are the result of aircraft engines running for longer periods of time. Aircraft engines running for longer periods of time increase fuel and maintenance costs for owners. In-flight delays cause extended downwind legs for arriving aircraft, which can lead to aircraft flying larger-than-typical traffic patterns and increased overflights of residential areas. Such temporary changes to the airport's operating environment makes conformance with voluntary noise abatement procedures more difficult for a pilot.

The availability of radar coverage and additional exit taxiways along Runway 30 can increase the ASV as shown on Exhibit ES-3. Radar coverage can in-

crease the ASV by approximately 1,000 annual operations; however, this would not reduce delay. Additional exit taxiways along Runway 30 could increase the ASV by approximately 9,000 annual operations and reduce the current delay by approximately 36 seconds per operation. However, even with both of these improvements in place, the airport would still be operating beyond its current ASV.

The capacity analysis confirmed previous planning efforts from the 1990 and 1996 Hillsboro Airport Master Plan Updates and concluded that a runway for use by small general aviation aircraft exclusively is the best means available for reducing delays and the undesirable conditions that occur due to delay. The parallel runway achieves the capacity enhancement by segregating small aircraft and large aircraft operations. As shown on Exhibit ES-3, combining the benefits of improved radar coverage and several additional exit taxiways with a parallel runway, the airport's ASV is consistently higher than the number of operations through the planning period. It is anticipated that these improvements will reduce delay to less than 30 seconds per aircraft operation on average.

MASTER PLAN CONCEPT

The Master Plan Development Concept represents the development direction for the Hillsboro Airport through the planning period of this Master Plan. The Master Plan Development Concept is the consolidation and refinement of the three airfield and three landside alternatives into a single development

concept collectively representing input received from the PAC, public Open House meetings, Port, and the Federal Aviation Administration (FAA).

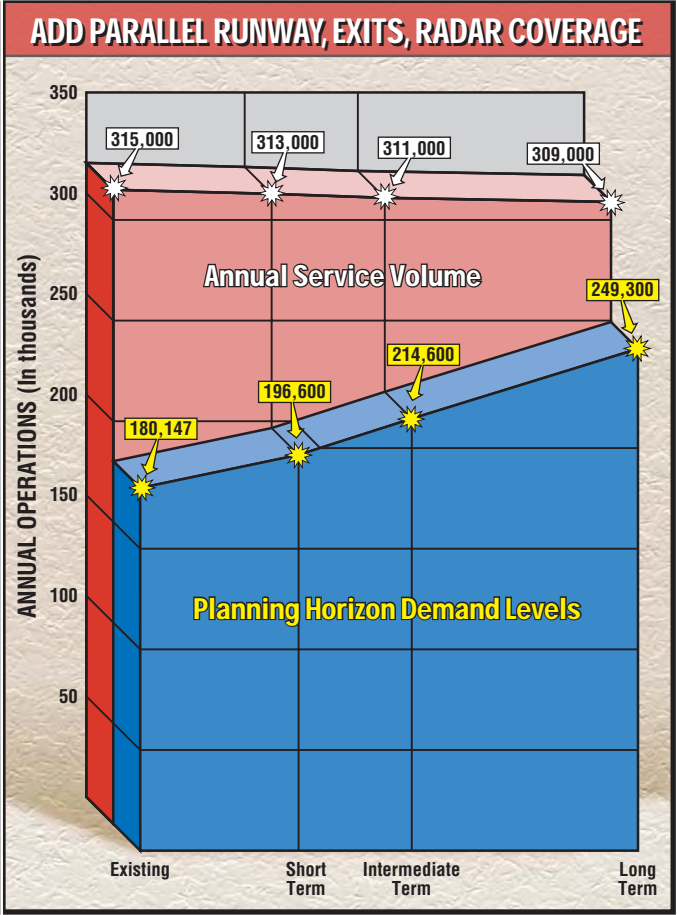
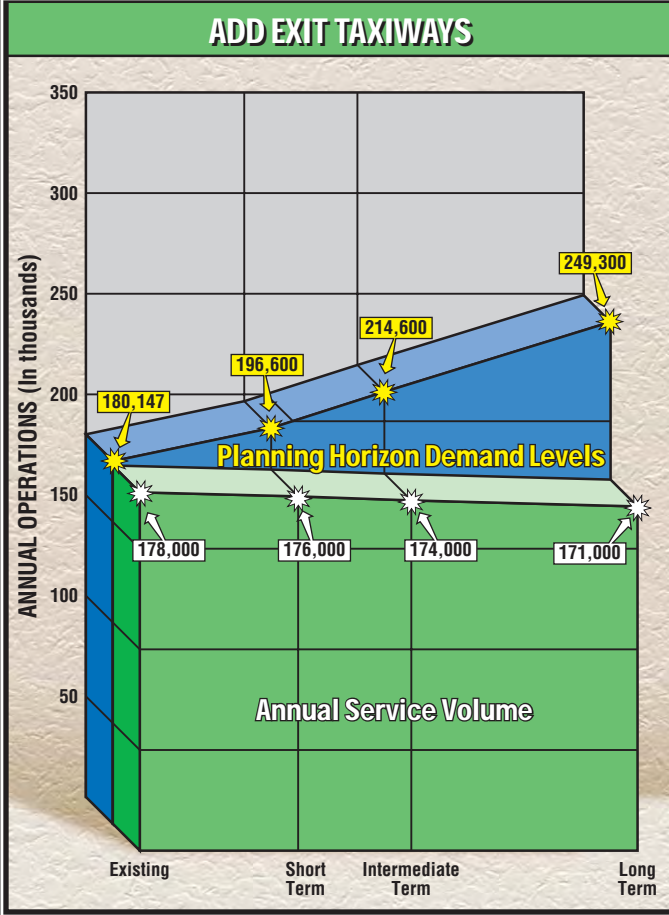
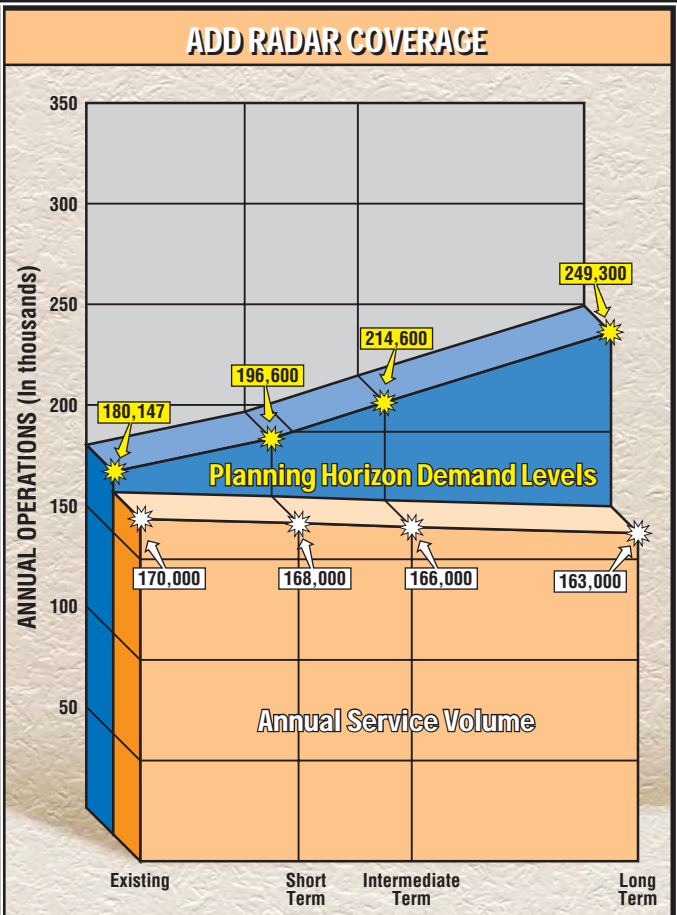
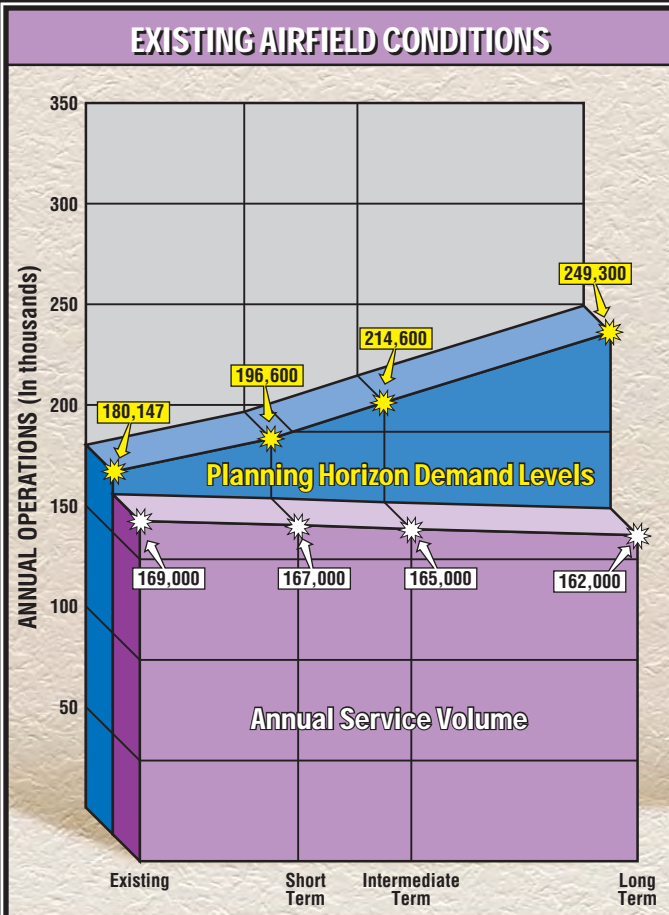
AIRFIELD PLAN

Airfield components include the runways, parallel and connecting taxiways, lighting aids, navigational aids, and imaginary surfaces which help to provide a safe operating environment. The specific development plans for the airfield are shown on **Exhibit ES-4** and are more fully described in the following subsections.
















Capacity Improvements

The airfield plan includes the construction of three acute-angled (high-speed) exit taxiways between Taxiway A3 and Taxiway A5. High-speed exit taxiways are the preferred taxiways for capacity enhancement, as they allow aircraft to exit the runway at a higher speed, thus allowing the aircraft to clear the runway faster. Taxiway A4 is planned to be closed since it would be redundant to the high-speed exits. A fourth high-speed exit taxiway is also planned near the Runway 30 end to allow business aircraft stored in the future northeast corporate aircraft storage facility area to exit Runway 12 quickly.

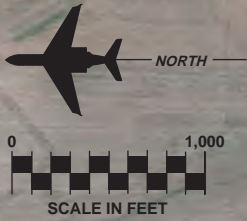
The FAA currently does not provide pilots with radar coverage to the ground at Hillsboro Airport. Adding radar coverage would improve capacity during poor visibility and cloud ceiling conditions, and reduce instrument departure delays. Improved radar coverage would also serve to reduce controller workload,



LEGEND

-  Existing Airport Property Line
-  Ultimate Airport Property Line
-  Potential Property Acquisition
-  Ultimate Pavement
-  Existing Runway Visibility Zone
-  Ultimate Runway Visibility Zone
-  Object Free Area (OFA)
-  Runway Safety Area (RSA)
-  Obstacle Free Zone (OFZ)
-  Precision Obstacle Free Zone (POFZ)
-  35' Building Restriction Line (BRL)
-  20' BRL
-  Glideslope Critical Area
-  Localizer Critical Area
-  Runway Protection Zone (RPZ)

NOTE: A detailed traffic assessment of surrounding facilities has not been completed. The future Evergreen Road to Brookwood Parkway alignment is generalized. This alignment may change. The road would be constructed with local resources and not by the Port.



expedite instrument departures, and give the Port's Noise Management Office the ability to track aircraft operations near the airport. While some instrument departure delays will be reduced by adding radar coverage, instrument departures will still need to be sequenced with Portland International Airport (PDX) aircraft. Depending on overall air traffic in the region, some delays may still occur for instrument departures. The Port should aggressively pursue the addition of radar coverage with the FAA.

The airfield plan includes the construction of a parallel runway 700 feet east of Runway 12-30 for the exclusive use of small general aviation aircraft to reduce delay. This runway is planned to be 3,600 feet long, 60 feet wide and have visual approaches. A parallel taxiway is planned 240 feet east of the runway to serve future small aircraft apron areas and storage hangars.

Runway 2-20

The FAA recommends that Runway 2-20 be 4,200 feet long. Runway 2-20 is presently 4,049 feet long, 151 feet short of this design length. While this additional length is too short to allow for a change in the mix of aircraft operating on the runway, this additional length would improve the safety of operations on the runway by increasing the landing length and accelerate stop/distance available (ASDA). The ASDA is a departure length calculation that allows for an aircraft to reach rotation speed (liftoff) and stop on the paved runway surface should the pilot elect not to continue the departure for safety reasons

(such as loss in engine power). Longer paved areas decrease the potential for aircraft to exit the runway should they have a power reduction or failure during the ground roll on departure, or land long or too fast to the runway.

The runway visibility zone (RVZ) is established by federal design standards to provide a clear view of intersecting runways for departing pilots. Permanent structures are not normally permitted in the RVZ. Several T-hangars and the airport traffic control tower (ATCT) are located within the limits of the existing RVZ.

The size and configuration of the RVZ is controlled by the distance between the runway intersection and the runway ends. Therefore, any changes to location of the intersecting runway ends will change the dimensions and location of the RVZ. Instead of removing the T-hangars and relocating ATCT facilities to clear the RVZ, the airfield plan proposes to relocate the Runway 2 end approximately 238 feet east, to move the RVZ away from these facilities. The airfield plan includes the addition of 238 feet behind the Runway 20 end to replace the runway lost at the Runway 2 end due to this shift. Since Runway 2-20 is being shifted to the east, the extension is also planned to the east.

Instrument Approaches

The airfield plan reserves the potential for the FAA to establish future straight-in instrument approaches to Runways 2, 20, and 30, utilizing the Global Positioning System (GPS). The marking and lighting available at these runway

ends currently comply with applicable federal standards for establishing an instrument approach with visibility minimums as low as one mile and cloud ceilings as low as 300 feet. Improving the instrument approach capability to these runway ends will be at the sole discretion of the FAA. While instrument approaches are designed for use by pilots during inclement weather conditions, instrument approaches are commonly used during good visibility conditions by transient pilots, to navigate to the airport.

Taxiways

A focus of airfield planning and development is to reduce the number of runway crossings. Runway crossings increase the potential for runway incursions and the potential for aircraft accidents. A full-length parallel taxiway 400 feet east of Runway 12-30 would ensure that aircraft located east of Runway 12-30 would not have to cross the runway to access either the Runway 12 or Runway 30 ends.

Taxiway B is planned to be extended to the Runway 2 end. Extending Taxiway B to the Runway 2 end would eliminate the need for pilots to taxi through the main apron area to reach the Runway 2 end and give pilots a direct taxi route to each end of Runway 2-20.

The Runway 2 entrance taxiway on the south side of the runway is planned to be reconfigured at a right angle to the Runway 2 end. This is the preferred method for intersecting the runway, as it allows the pilot to have a better view

of both the approach and departure areas.

Taxiway C is planned to be relocated 40 feet north to meet current FAA runway centerline-to-taxiway centerline separation distances. Relocating Taxiway C will require closing Taxiway CC because, once relocated, Taxiway C would be located too close to Taxiway CC for simultaneous aircraft use. The extension of Taxiway C to the Runway 20 end is also planned. Extending Taxiway C to the Runway 20 end provides a connection to the future parallel runway from the west side of the airport.

Piston-powered aircraft must complete a series of engine run-up tests before departure. Some aircraft on Instrument Flight Rule (IFR) flight plans must hold at the runway end for departure clearance. Holding aprons at the runway ends allow these activities to take place off the active taxiway surface, allowing ready-for-departure aircraft to bypass those aircraft holding or completing engine run-up tests. Holding aprons are planned along Taxiway C at the future Runway 20 end, along Taxiway B at the Runway 20 end, along Taxiway M at the Runway 30L and 30R ends, and along Taxiway D at the future Runway 12L and Runway 30R ends. The holding apron along Taxiway M, serving the Runway 12L and Runway 12R ends, is located outside the glideslope critical area, east of the taxiway.

Charlie Pattern Landing Pads

The existing Charlie Pattern landing pads are located where the parallel

runway is planned to be constructed. Therefore, the existing Charlie Pattern landing pads will need to be removed when the parallel runway is constructed. The airfield plan includes the eventual replacement of the Charlie Pattern landing pads approximately 1,500 feet east of the parallel runway. This location allows for the development of landside facilities along Taxiway D.

While the Charlie Pattern operations could be conducted to Taxiway D (as might be required after the parallel runway is constructed and before the new landing pads can be constructed), the relocated Charlie Pattern landing pads offer greater segregation between the aircraft using the parallel runway and the Charlie Pattern landing pads. A relocated Charlie Pattern landing pad allows the Charlie Pattern flight paths to be located further east over existing and planned industrial/commercial land uses, which are more compatible with Charlie Pattern usage. The relocated Charlie Pattern landing pads would require the acquisition of approximately 30 acres of land north of the airport's intersecting runways as shown on Exhibit ES-4.

LANDSIDE PLAN

Examples of landside facilities include aircraft storage hangars, terminal buildings, aircraft parking aprons, hangar and apron access taxilanes, fuel storage facilities, and vehicle parking lots. The landside plan for Hillsboro Airport has been devised to efficiently accommodate potential aviation demand and provide revenue enhancement possibilities by designating the

use of certain portions of airport property for aviation-related and non-aviation-related commercial and industrial uses. With the exception of the public terminal building and aircraft wash racks, most structural improvements are anticipated to be developed privately, as has been done in the past at Hillsboro Airport.

The development of landside facilities depicted on **Exhibit ES-5** will be demand-based. In this manner, the facilities will only be constructed if required by verifiable demand. For example, T-hangars will only be constructed if new based aircraft owners desire enclosed aircraft storage. The landside plan is based on projected needs that can change over time to ensure the orderly development of the airport should this demand materialize.

A conceptual alignment of a connector road between Evergreen Road and Brookwood parkway is also shown on Exhibit ES-5. The conceptual alignment for this future collector road considers the constraints of the existing and planned future airport facilities and need to protect the required FAA safety areas at the airport.

Perimeter Service Road

Perimeter service roads allow vehicles to circumnavigate the airfield without using a runway or taxiway surface. The existing perimeter service road only extends around the Runway 2 and Runway 30 ends. The airfield plan includes the extension of the perimeter service road around the Runway 20 end, to the

future landside facilities east of the proposed short parallel runway.

Revenue Enhancement

Portions of existing airport property which are not contiguous to the airfield have been reserved for revenue enhancement potential, as shown on Exhibit ES-5. This can include the property being developed for a variety of income-generating uses. For example, these areas could be developed for commercial/industrial uses similar to the manner in which the property at the intersection of N.E. 25th Avenue and Cornell Road was developed. Portions of this property could continue to be used for agricultural purposes. Other uses could include automobile parking. The non-aviation use of existing airport property will require specific approval of the FAA. The range and intensity of all such uses described above will vary significantly relative to imaginary operating surfaces that must be maintained by both the Port and the FAA. Certain areas behind each runway end cannot be used for automobile parking, or the construction of buildings and facilities which cause the congregation of people and property on the ground. Fuel storage facilities are also prohibited. These areas are shown in a different hatch pattern.

The further description of the landside plan is organized around four separate and distinct quadrants of the airport: Northwest, Southwest, Southeast, and Northeast. These quadrants are generally described in the following manner:

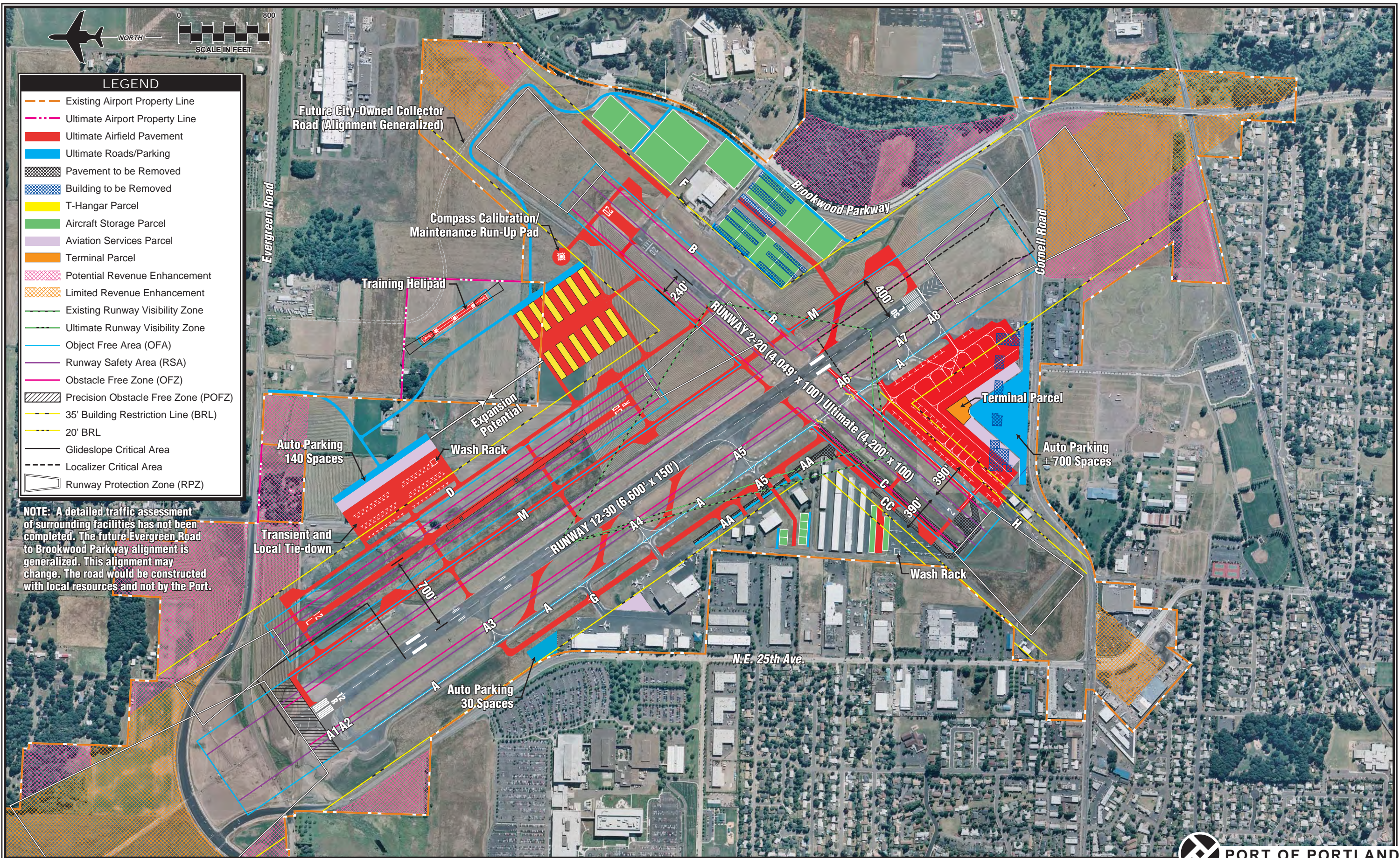
Northwest Quadrant

The northwest quadrant includes the area west of Taxiway A and north of Taxiway C. The landside plan for the northwest quadrant includes expanded apron, improved taxiway access, and new hangar development.

A portion of available land west of Taxiway AA and the ATCT is presently undeveloped. The landside plan reserves this area for the development of up to six 3,600-square-foot clearspan hangars for aircraft storage. Clearspan hangars can provide for the storage of multiple aircraft, depending on the type and size of the aircraft stored in the hangar. A new taxiway extending to the west from Taxiway AA, near the intersection with Taxiway A5, would provide the connection to the airfield.

Two additional rows of hangars can be constructed in the hangar area west of Taxiway C, north of the west tiedown apron. The landside plan reserves this area for the development of T-hangars or clearspan hangars. An aircraft wash rack is planned along the west tiedown apron to provide for the collection and proper disposal of aircraft cleaning agents and debris resulting from aircraft washing.

Taxiway AA is planned to be relocated to the east approximately 152 feet west of Taxiway A. Taxiway AA would be extended to Taxiway A3. The portion of Taxiway AA north of Taxiway G would allow an alternative access/egress point for the northwest apron area. Once relocated, the existing Taxiway AA surface would serve as the perimeter ser-



LEGEND

- Existing Airport Property Line
- Ultimate Airport Property Line
- Ultimate Airfield Pavement
- Ultimate Roads/Parking
- Pavement to be Removed
- Building to be Removed
- T-Hangar Parcel
- Aircraft Storage Parcel
- Aviation Services Parcel
- Terminal Parcel
- Potential Revenue Enhancement
- Limited Revenue Enhancement
- Existing Runway Visibility Zone
- Ultimate Runway Visibility Zone
- Object Free Area (OFA)
- Runway Safety Area (RSA)
- Obstacle Free Zone (OFZ)
- Precision Obstacle Free Zone (POFZ)
- 35' Building Restriction Line (BRL)
- 20' BRL
- Glideslope Critical Area
- Localizer Critical Area
- Runway Protection Zone (RPZ)

NOTE: A detailed traffic assessment of surrounding facilities has not been completed. The future Evergreen Road to Brookwood Parkway alignment is generalized. This alignment may change. The road would be constructed with local resources and not by the Port.

vice road and connect with the existing perimeter service road near the airport traffic control tower (ATCT).

The expansion of the existing automobile parking area along N.E. 25th Avenue by approximately 30 spaces is provided in the landside plan. The existing parking area will need to be reconfigured to allow for the development of the portion of Taxiway AA between Taxiway A3 and Taxiway G. A portion of this parking area is located too close to the taxiway to ensure the safe and clear passage of aircraft. This parking area could be extended to the north.

Southwest Quadrant

The southwest quadrant includes the existing terminal area located west of Taxiway A and south of Runway 2-20. The landside plan includes a complete redevelopment of this portion of the airport to better meet large business aircraft needs and provide a more appealing entrance to the primary public access point of the airport consistent with other local community commercial development.

The apron will be expanded toward the runway intersection to allow for increased automobile parking between the terminal building and Cornell Road. The proposed configuration will allow for more than 700 automobile parking spaces along Cornell Road. Redeveloping the apron closer to the parallel taxiways and runway intersection takes advantage of the underdeveloped portion of the airport which is not conveniently located near the FBOs and terminal building.

The existing terminal building is ultimately planned to be removed and replaced by a new facility north of its existing position in the center of the redeveloped southwest apron. The existing terminal building is presently underutilized and not ideally configured for general aviation activity. Most of the second floor is vacant (including the previous restaurant space), while the ground floor is occupied mostly for the private air-shuttle operation and supporting rental car services. Ultimately, a terminal building at Hillsboro Airport may need to serve several potential functions such as: airport concessions (i.e., a restaurant, rental cars, etc.), space for flight planning and a pilots' lounge, and serving the private shuttle operation.

Southeast Quadrant:

The southeast quadrant includes the area south of Taxiway B, east of the Runway 30 end. The landside plan includes relocating all existing T-hangars in this area east of the future parallel runway, and consolidating all large corporate storage needs in this area.

In the southeast quadrant of the airport, there is a mix of small aircraft T-hangars and large corporate storage hangars. Existing Taxiways B and F, as well as the future Taxiway M, are stressed to handle large corporate aircraft which use Runway 12-30 almost exclusively. Since the proposed parallel runway is planned for small aircraft use only, the T-hangars for small aircraft are best placed in this area, as the future pavements along the proposed parallel runway would not be stressed for large aircraft commonly stored in corpo-

rate hangars. The southeast landside plan allows for up to 13 new corporate hangar parcels which would be accessed via Taxiway B or Taxiway M. Vehicle access would be off of Brookwood Parkway.

Northeast Quadrant:

The northeast quadrant includes the area north of Runway 2-20, east of the proposed parallel runway. The landside plan calls for the consolidation of most future small aircraft landside facility needs in this area, along the runway specifically designed and intended to accommodate most small aircraft use in the future.

As mentioned previously, the existing T-hangars located in the southeast quadrant of the airport are planned to be relocated east of the parallel runway, near the proposed Runway 30R end. Any future T-hangar expansion would occur in this area. An automobile parking area for visitors and pilots is located on the east side of the T-hangars.

With the redevelopment of the southwest apron for hangars, additional apron area will be needed to replace lost parking positions and to meet projected demand. An apron area for small aircraft is planned along Taxiway D. This apron area will provide approximately 100 tiedown locations and include an aircraft wash rack. An aircraft wash rack allows for the collection of cleaning fluids and debris when an aircraft is cleaned. Vehicle access is via a new roadway connecting to Evergreen Road. This apron would serve both transient and local tiedown needs. Vehicle access

is via a new roadway connecting to Evergreen Road

There is currently no compass calibration pad at the airport. A compass calibration pad is used by pilots and maintenance technicians to align an aircraft on known magnetic headings for purposes of determining and correcting errors in the magnetic compass caused by equipment installed in the aircraft. The compass calibration pad is planned north of the shifted\extended Runway 20 end, to maintain it at a distance from potential development that may interfere with the magnetic readings. Ultimately, a second or replacement engine maintenance run-up area would be collocated with the compass calibration pad. This location is near the center of the airport, and more distant from nearby land uses that are more sensitive to such activities. Depending on the number and type of engine run-ups, a blast fence may be needed to reduce soil erosion around the run-up pad.

SECURITY

Application of the *Aviation and Transportation Security Act* of 2001 will need to be closely monitored throughout the implementation of this Master Plan. This law established the Transportation Security Administration (TSA) to administer transportation security nationally. While the most visible function of the TSA is commercial airline checked baggage and carry-on baggage screening, a component of the TSA security plan is general aviation airport security. The TSA has issued a series of security recommendations for general

aviation airports. The Port will need to monitor these security recommendations for their applicability to the secure operation of Hillsboro Airport.

Specific recommendations of the TSA applicable to Hillsboro Airport include:

1. **Access Controls:** Already implemented. The Port maintains perimeter security fencing and controlled access vehicle gates.
2. **Lighting System:** Already implemented. Security lights are in place along most hangar buildings at the airport, which includes illumination of aircraft parking aprons. Security lighting systems should be included in all future landside development areas and connected to an emergency power source, if available.
3. **Personal ID System:** A method of identifying airport employees or authorized tenant access to various areas of the airport through badges or biometric controls.
4. **Vehicle ID System:** An identification system which can assist airport personnel and law enforcement in identifying authorized vehicles. Vehicles can be identified through use of decals, stickers, or hang tags.
5. **Law Enforcement Support:** Procedures may be developed to have local law enforcement personnel regularly or randomly patrol ramps and aircraft hangar areas, with increased patrols during periods of heightened security.
6. **Security Committee:** This Committee should be composed of airport tenants and users drawn from all segments of the airport community. The main goal of this group is to involve airport stakeholders in developing effective and reasonable security measures and disseminating timely security information.
7. **Transient Pilot Sign-in/Sign-Out Procedures:** Establishes procedures to identify non-based pilots and aircraft using their facilities, and implementing sign-in/sign-out procedures for all transient operators and associating them with their parked aircraft. Having assigned spots for transient parking areas can help to easily identify transient aircraft on an apron.
8. **Signs:** Already implemented. Signs are posted at each vehicle access gate noting that access to the airport is restricted to authorized users.
9. **Documented Security Procedures:** A written security plan that would include documenting the security initiatives already in place at the airport, as well as any new enhancements. This document could consist of, but not be limited to, airport and local law enforcement contact information, including alternates when available, and utilization of a program to increase airport user awareness of security precautions such as an airport watch program. The security plan should include a contact list. The contact list involves the development of a comprehensive

list of responsible personnel/ agencies to be contacted in the event of an emergency procedure. The list should be distributed to all appropriate individuals. Additionally, in the event of a security incident, it is essential that first responders and airport management have the capability to communicate. Where possible, coordinate radio communication and establish common frequencies and procedures to establish a radio communications network with local law enforcement.

10. Community Watch Program: Already implemented. A watch program involves the tenants and users monitoring activity on the airport and reporting suspicious behaviors. Established challenge procedures can assist tenants and users in identifying unauthorized and potentially illegal activities at the airport.

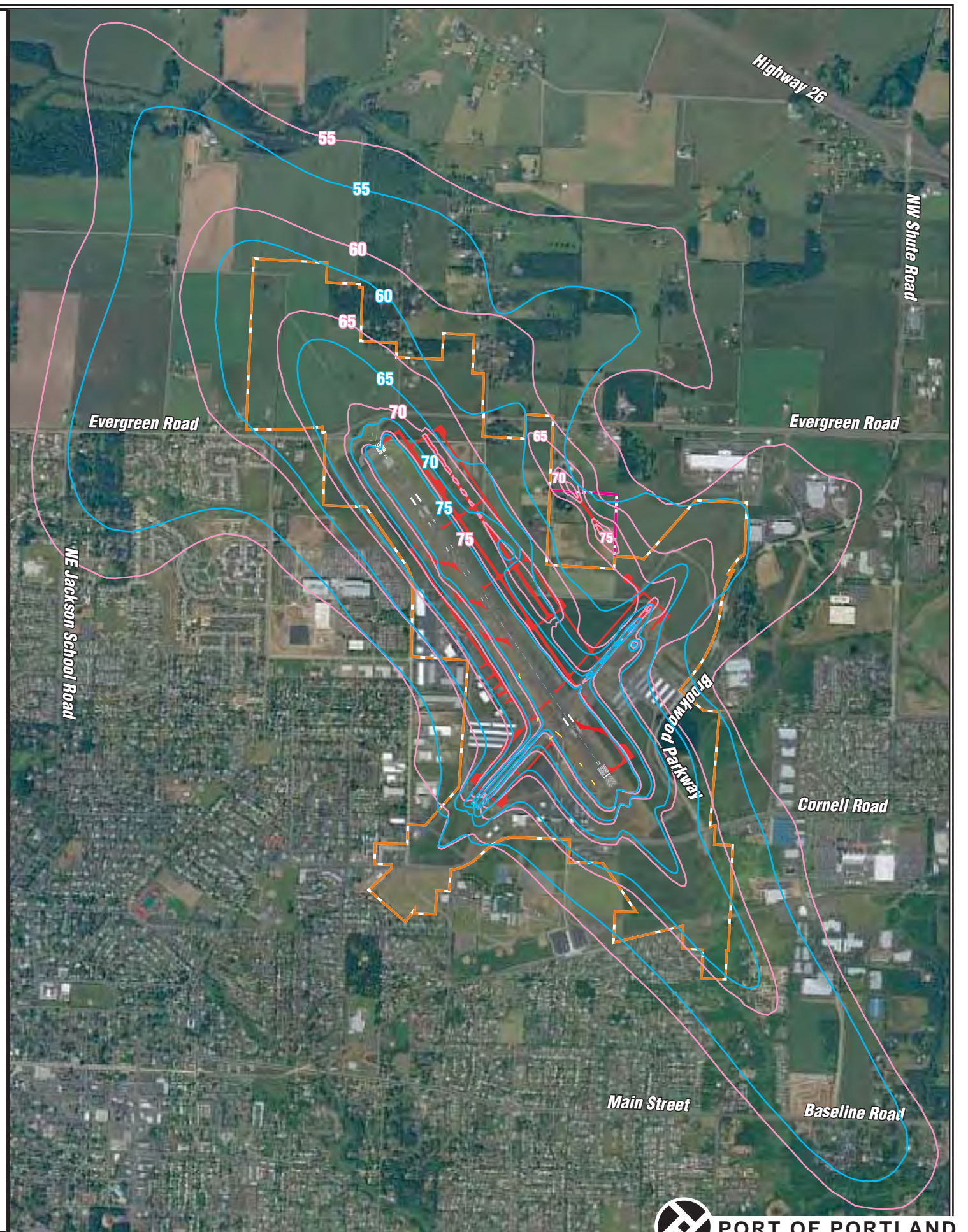
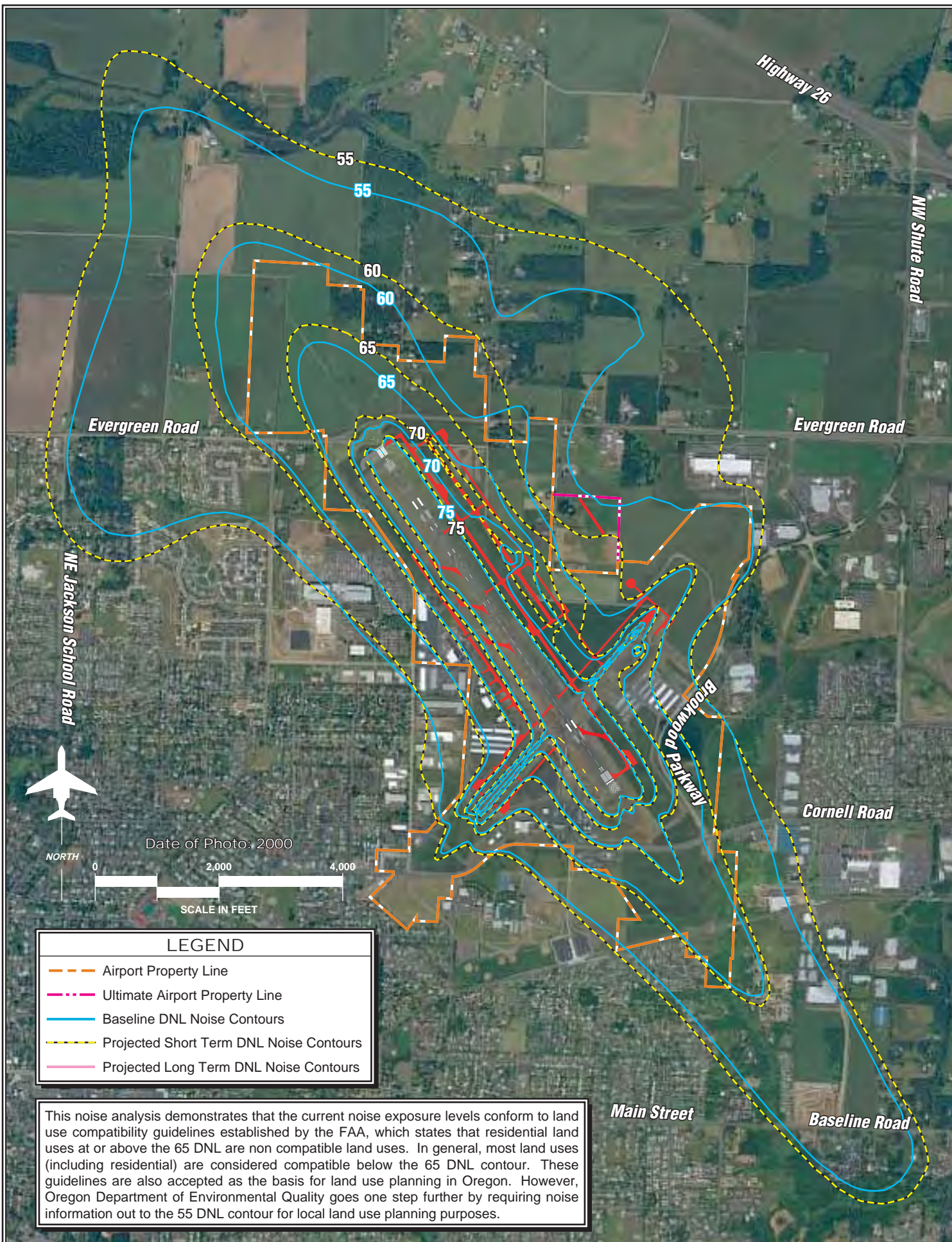
AIRCRAFT NOISE ANALYSIS

To distinguish changes in the overall noise environment caused by the proposed changes to the airfield configuration, new noise exposure contours were prepared considering implementation of the improvements shown in the Master Plan Development Concept. This involved use of the FAA's Integrated Noise Model (INM) version 6.1. See the Master Plan for specifics of the INM.

Two noise contours have been prepared. The first assumes the Short Term Planning Horizon projected activity levels

and fleet mix, and the construction of the parallel runway (the Charlie Pattern moves to Taxiway D, the eastern parallel taxiway for the parallel runway, in this scenario). The second contour assumes the projected Long Term Planning Horizon activity levels and fleet mix, and the implementation of all airfield improvements shown in the Development Concept, including the relocated Charlie Pattern landing pads 1,500 feet east of the proposed short parallel runway. Both scenarios assume all three existing helicopter patterns would remain accessible into the foreseeable future.

The FAA has established the 65 day-night noise level (DNL) contour as the threshold of incompatibility for assessing environmental impacts of proposed improvement. As shown on **Exhibit ES-6**, the 65 DNL contour for the baseline, Projected Short Term Noise Exposure and Projected Long Term Noise Exposure contours, remains almost entirely within existing airport property. The 65 DNL contour extends slightly outside the existing airport boundary north of Evergreen Road, along the extended centerline of the short parallel runway, over Evergreen Road west of the Runway 12 end. Portions of the 65 DNL contour for the relocated Charlie Pattern landing area in the Projected Long Term Noise Exposure contours would extend beyond existing and future airport boundaries. These land areas are currently planned for industrial/commercial uses. Therefore, it is anticipated that no incompatible development would be located within the 65 DNL contour as the result of project implementation.



This noise analysis demonstrates that the current noise exposure levels conform to land use compatibility guidelines established by the FAA, which states that residential land uses at or above the 65 DNL are non compatible land uses. In general, most land uses (including residential) are considered compatible below the 65 DNL contour. These guidelines are also accepted as the basis for land use planning in Oregon. However, Oregon Department of Environmental Quality goes one step further by requiring noise information out to the 55 DNL contour for local land use planning purposes.

COMPATIBLE LAND USE

Following the development of the Master Plan, the Airport Compatibility Study for Hillsboro Airport will be updated. The Airport Compatibility Study is a comprehensive document examining both operational and land use measures to improve the compatibility between aircraft operations and the local community. The updated Airport Compatibility Study is a stand-alone document. Public input for the Airport Compatibility Study includes the review of the document by the Master Plan Project Advisory Committee (PAC) and two Technical Advisory Groups (TAGs).

CAPITAL IMPROVEMENTS

Exhibit ES-7 presents development staging for the capital improvements at the airport through the planning period. The capital needs for the airport can be categorized as follows:

- 1) **Maintenance** - Maintaining the existing infrastructure is a priority. The capital needs program provides for the continued maintenance and rehabilitation of the airport's pavement areas.
- 2) **Safety** - Of utmost importance with any transportation facility is safety. All projects in the plan are designed according to Federal Aviation Administration (FAA) design standards. This is carried throughout the other areas of fo-

cus. The safety needs are considered necessary for the operational safety and protection of aircraft and/or people and property on the ground near the airport.

- 3) **Environmental** – These are projects to carry out the Port Commission's environmental policy of achieving its mission through responsible environmental stewardship and to integrate environmental considerations into all aspects of the Port's planning and business decision-making.
- 4) **Capacity** – These are projects which improve the capacity or use of the airport in an effort to reduce delay. Examples include taxiway improvements and new runways.
- 5) **Demand** - The Master Plan has established future activity levels for the airport. Should these activity levels be reached, it may be necessary to improve existing facilities to safely, efficiently, and securely accommodate the new activity levels. Therefore, the capital needs program includes provisions to accommodate levels of aviation demand. The implementation of these projects should only occur when demand for these needs are verified.

Table ES-A summarizes capital improvement costs by category and planning term.

**TABLE ES-A
Total Projects By Type
Hillsboro Airport**

	Short Term	Intermediate Term	Long Term	Total	Percent of Total
Maintenance	\$4,214,000	\$15,185,000	\$6,759,000	\$26,158,000	20.6%
Safety	2,102,000	4,608,000	0	6,710,000	5.3%
Environmental	2,150,000	0	0	2,150,000	1.7%
Capacity	18,234,000	13,788,000	0	32,022,000	25.2%
Demand	8,073,000	25,248,000	26,328,000	59,649,000	47.0%
Other	300,000	0	0	300,000	0.2%
Total	\$35,073,000	\$58,829,000	\$33,087,000	\$126,989,000	100.0%

CAPITAL IMPROVEMENTS FUNDING

Financing capital improvements at the airport will not rely exclusively upon the financial resources of the Port of Portland (Port). Through federal legislation over the years, various grants-in-aid programs have been established to develop and maintain a system of public airports throughout the United States. The purpose of this system and its federally-based funding is to maintain national defense and promote interstate commerce.

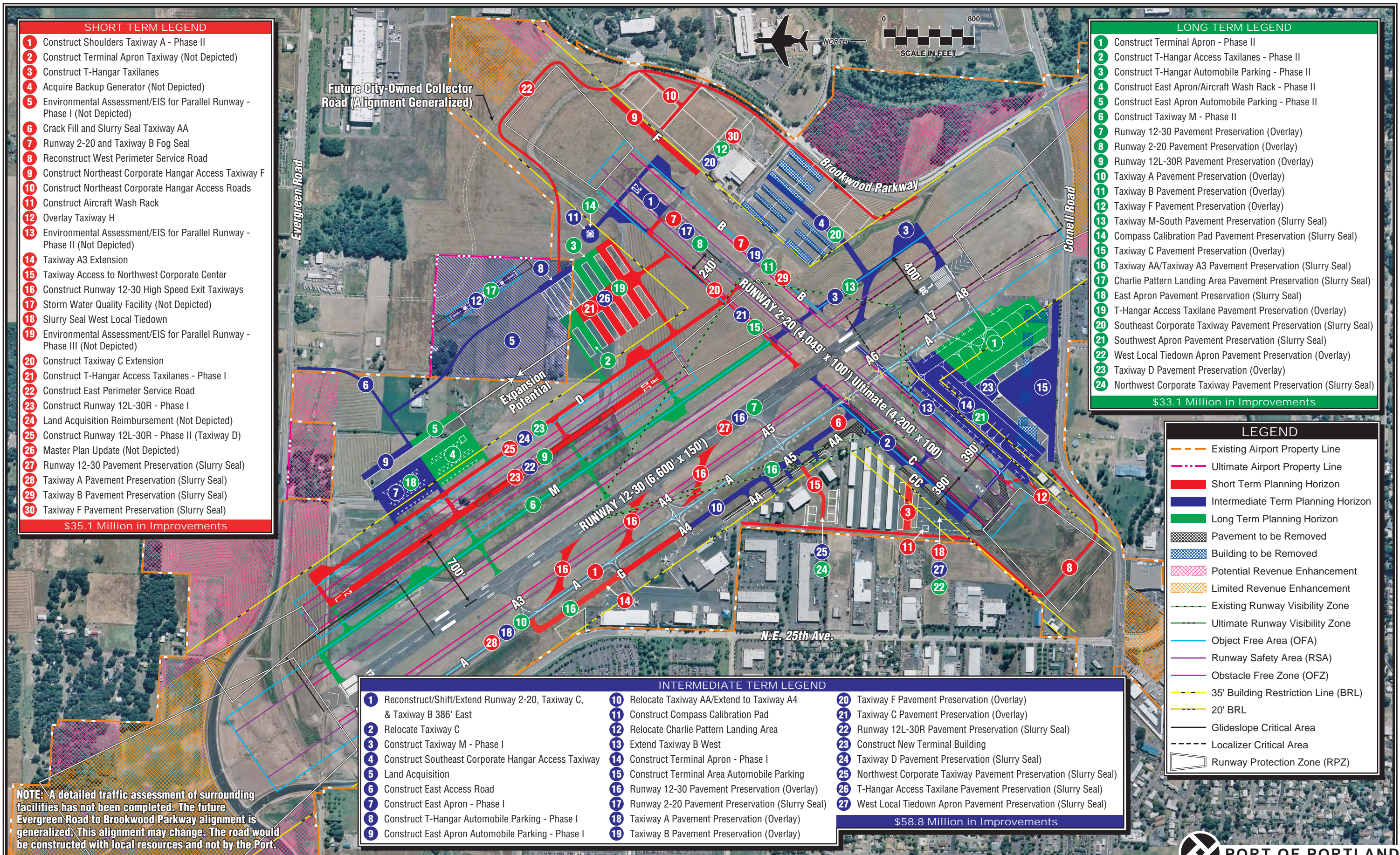
The source for federal funding of airports is the Aviation Trust Fund. The Aviation Trust Fund was established in 1970 to provide funding for aviation capital investment programs (aviation development, facilities and equipment, and research and development). The Aviation Trust Fund also finances the operation of the FAA. It is funded by user fees, taxes on airline tickets, aviation fuel, and various aircraft parts.

Airport development that meets the FAA's eligibility requirements can receive 95 percent of the total eligible pro-

ject cost from the FAA. Property acquisition, airfield improvements, aprons, perimeter service roads, and access road improvements are examples of eligible items.

The balance of project costs, after consideration has been given to federal grants, must be funded through local sources. There are several alternatives for local finance options for future development at an airport. The Port can fund the local share, after FAA grants, through airport revenues, Port Cost Center Income (aviation) and/or bonds. The Port Cost Center represents the financial conglomeration of several aviation business lines including parking, rental cars, PDX airside and landside, and general aviation. Some improvements may require private funding mechanisms, such as bank loans or private capital investments. These decisions are made at project implementation, based on Port financial resources at that time.

The development of general aviation facilities at Hillsboro Airport has relied on a combination of public and private investments in the past. The Port has



- SHORT TERM LEGEND**
- 1 Construct Shoulders Taxiway A - Phase II
 - 2 Construct Terminal Apron Taxiway (Not Depicted)
 - 3 Construct T-Hangar Taxilanes
 - 4 Acquire Backup Generator (Not Depicted)
 - 5 Environmental Assessment/EIS for Parallel Runway - Phase I (Not Depicted)
 - 6 Crack Fill and Slurry Seal Taxiway AA
 - 7 Runway 2-20 and Taxiway B Fog Seal
 - 8 Reconstruct West Perimeter Service Road
 - 9 Construct Northeast Corporate Hangar Access Taxiway F
 - 10 Construct Northeast Corporate Hangar Access Roads
 - 11 Construct Aircraft Wash Rack
 - 12 Overlay Taxiway H
 - 13 Environmental Assessment/EIS for Parallel Runway - Phase II (Not Depicted)
 - 14 Taxiway A3 Extension
 - 15 Taxiway Access to Northwest Corporate Center
 - 16 Construct Runway 12-30 High Speed Exit Taxiways
 - 17 Storm Water Quality Facility (Not Depicted)
 - 18 Slurry Seal West Local Tiedown
 - 19 Environmental Assessment/EIS for Parallel Runway - Phase III (Not Depicted)
 - 20 Construct Taxiway C Extension
 - 21 Construct T-Hangar Access Taxilanes - Phase I
 - 22 Construct East Perimeter Service Road
 - 23 Construct Runway 12L-30R - Phase I
 - 24 Land Acquisition Reimbursement (Not Depicted)
 - 25 Construct Runway 12L-30R - Phase II (Taxiway D)
 - 26 Master Plan Update (Not Depicted)
 - 27 Runway 12-30 Pavement Preservation (Slurry Seal)
 - 28 Taxiway A Pavement Preservation (Slurry Seal)
 - 29 Taxiway B Pavement Preservation (Slurry Seal)
 - 30 Taxiway F Pavement Preservation (Slurry Seal)
- \$35.1 Million in Improvements**

- LONG TERM LEGEND**
- 1 Construct Terminal Apron - Phase II
 - 2 Construct T-Hangar Access Taxilanes - Phase II
 - 3 Construct T-Hangar Automobile Parking - Phase II
 - 4 Construct East Apron/Aircraft Wash Rack - Phase II
 - 5 Construct East Apron Automobile Parking - Phase II
 - 6 Construct Taxiway M - Phase II
 - 7 Runway 12-30 Pavement Preservation (Overlay)
 - 8 Runway 2-20 Pavement Preservation (Overlay)
 - 9 Runway 12L-30R Pavement Preservation (Overlay)
 - 10 Taxiway A Pavement Preservation (Overlay)
 - 11 Taxiway B Pavement Preservation (Overlay)
 - 12 Taxiway F Pavement Preservation (Overlay)
 - 13 Taxiway M-South Pavement Preservation (Slurry Seal)
 - 14 Compass Calibration Pad Pavement Preservation (Slurry Seal)
 - 15 Taxiway C Pavement Preservation (Overlay)
 - 16 Taxiway AA/Taxiway A3 Pavement Preservation (Slurry Seal)
 - 17 Charlie Pattern Landing Area Pavement Preservation (Slurry Seal)
 - 18 East Apron Pavement Preservation (Slurry Seal)
 - 19 T-Hangar Access Taxilane Pavement Preservation (Overlay)
 - 20 Southeast Corporate Taxiway Pavement Preservation (Slurry Seal)
 - 21 Southwest Apron Pavement Preservation (Slurry Seal)
 - 22 West Local Tiedown Apron Pavement Preservation (Overlay)
 - 23 Taxiway D Pavement Preservation (Overlay)
 - 24 Northwest Corporate Taxiway Pavement Preservation (Slurry Seal)
- \$33.1 Million in Improvements**

- INTERMEDIATE TERM LEGEND**
- | | | |
|--|--|--|
| 1 Reconstruct/Shift/Extend Runway 2-20, Taxiway C, & Taxiway B 386' East | 10 Relocate Taxiway AA/Extend to Taxiway A4 | 20 Taxiway F Pavement Preservation (Overlay) |
| 2 Relocate Taxiway C | 11 Construct Compass Calibration Pad | 21 Taxiway C Pavement Preservation (Overlay) |
| 3 Construct Taxiway M - Phase I | 12 Relocate Charlie Pattern Landing Area | 22 Runway 12L-30R Pavement Preservation (Slurry Seal) |
| 4 Construct Southeast Corporate Hangar Access Taxiway | 13 Extend Taxiway B West | 23 Construct New Terminal Building |
| 5 Land Acquisition | 14 Construct Terminal Apron - Phase I | 24 Taxiway D Pavement Preservation (Slurry Seal) |
| 6 Construct East Access Road | 15 Construct Terminal Area Automobile Parking | 25 Northwest Corporate Taxiway Pavement Preservation (Slurry Seal) |
| 7 Construct East Apron - Phase I | 16 Runway 12-30 Pavement Preservation (Overlay) | 26 T-Hangar Access Taxilane Pavement Preservation (Slurry Seal) |
| 8 Construct T-Hangar Automobile Parking - Phase I | 17 Runway 2-20 Pavement Preservation (Slurry Seal) | 27 West Local Tiedown Apron Pavement Preservation (Slurry Seal) |
| 9 Construct East Apron Automobile Parking - Phase I | 18 Taxiway A Pavement Preservation (Overlay) | |
| | 19 Taxiway B Pavement Preservation (Overlay) | |
- \$58.8 Million in Improvements**

NOTE: A detailed traffic assessment of surrounding facilities has not been completed. The future Evergreen Road to Brookwood Parkway alignment is generalized. This alignment may change. The road would be constructed with local resources and not by the Port.

- LEGEND**
- Existing Airport Property Line
 - Ultimate Airport Property Line
 - Short Term Planning Horizon
 - Intermediate Term Planning Horizon
 - Long Term Planning Horizon
 - Pavement to be Removed
 - Building to be Removed
 - Potential Revenue Enhancement
 - Limited Revenue Enhancement
 - Existing Runway Visibility Zone
 - Ultimate Runway Visibility Zone
 - Object Free Area (OFA)
 - Runway Safety Area (RSA)
 - Obstacle Free Zone (OFZ)
 - 35' Building Restriction Line (BRL)
 - 20' BRL
 - Glideslope Critical Area
 - Localizer Critical Area
 - Runway Protection Zone (RPZ)

funded many of the grant-eligible items for general aviation at the airport including taxiways, aprons, access roads, and automobile parking. Private individuals or businesses have financed the construction of hangar facilities.

The Oregon Economic & Community Development Department (OECDD) and Federal Economic Development Administration provide a number of grant and loan programs to businesses that create jobs. These programs could be used to support infrastructure improvements at Hillsboro Airport for the attraction of a specific business.

A continuation of public and private investments will be necessary to implement the proposed plan. The capital improvement program includes the Port fully pursuing all the grant-eligible improvements to accommodate general aviation growth in the future. This includes apron development, hangar access taxiways, public roadways and automobile parking, and land acquisition.

The hangars are assumed to be developed by private developers through long-term ground leases. The obvious advantage of such an arrangement is that it relieves the Port of all responsibility for raising the capital funds for these improvements, considering the remaining capital needs at the airport. These improvements are demand-based; therefore, these projects should only be pursued when the need for these facilities can be determined. Furthermore, these facilities should only be constructed when it is found that the development costs can be fully recovered through lease and rental fees.

ECONOMIC IMPACT

The total number of jobs, total employee earnings, total business revenue, total state taxes collected, and total local taxes collected as a result of the use of Hillsboro Airport were determined through an economic study completed by Martin Associates in September 2003. A summary of the direct impacts (airport-generated impacts generated by activities conducted on the airport), indirect (visitor industry impacts generated by local visitors who came to the area using the airport), and induced impacts (economic activity generated as direct income recirculated through the economy) are shown in **Table ES-B**. The complete document can be obtained from the Port. These impacts are calculated for the Portland metropolitan area.

As shown in the table, there are 558 direct jobs on Hillsboro Airport, generating over \$22 million in annual income. These 558 jobs support an additional 305 induced jobs in the community that collectively earn another \$23 million. Finally, activity at Hillsboro Airport was found to support an additional 496 indirect jobs and over \$16 million in income. Another segment of activities affected by HIO's presence is the visitor industry (i.e., hotels, car rental agencies, etc.). This represents individuals who travel to Hillsboro by air and stay an average of 2.2 nights per trip. Last year, this group generated 76 direct and 29 indirect jobs and provided \$2.0 million and \$1.7 million in personal income, respectively. In summary, the use of Hillsboro Airport generated over \$110 million for the local economy in 2002, supported 1,464 jobs, and provided over \$6.1 million in state and local tax revenues.

TABLE ES-B			
Economic Impacts of Hillsboro Airport			
Impact Category	Hillsboro Airport Generated	Hillsboro Airport Visitors	Combined Total Impacts
Jobs			
Direct	558	76	634
Induced	305	29	334
Indirect	<u>496</u>	<u>N/A</u>	<u>496</u>
Total	1,359	105	1,464
Personal Income			
Direct	\$22,221,000	\$2,016,000	\$24,237,000
Induced	23,409,000	1,734,000	25,143,000
Indirect	<u>16,178,000</u>	<u>N/A</u>	<u>16,178,000</u>
Total	\$61,808,000	\$3,750,000	\$65,558,000
Avg. Income/ Direct Em- ployee	\$39,823	\$26,526,000	\$38,229
Business Reve- nue	\$106,821,000	\$3,466,000	\$110,287,000
Local Purchases	\$40,958,000	N/A	\$40,958,000
State and Local Taxes	\$5,814,000	\$353,000	\$6,167,000
Source:	<i>The Economic Impacts of Hillsboro Airport on the Local and Regional Economy, Martin Associates, September 2003</i>		