AIRPORT MASTER PLAN *for*

Portland

INTERNATIONAL JETPORT

EXECUTIVE SUMMARY

AIRPORT MASTER PLAN
EXECUTIVE SUMMARY

for

PORTLAND INTERNATIONAL JETPORT
Portland, Maine

Prepared for the

CITY OF PORTLAND

by

Coffman Associates, Inc.

June 2008

PORTLAND INTERNATIONAL JETPORT

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Portland, Maine

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EXECUTIVE SUMMARY

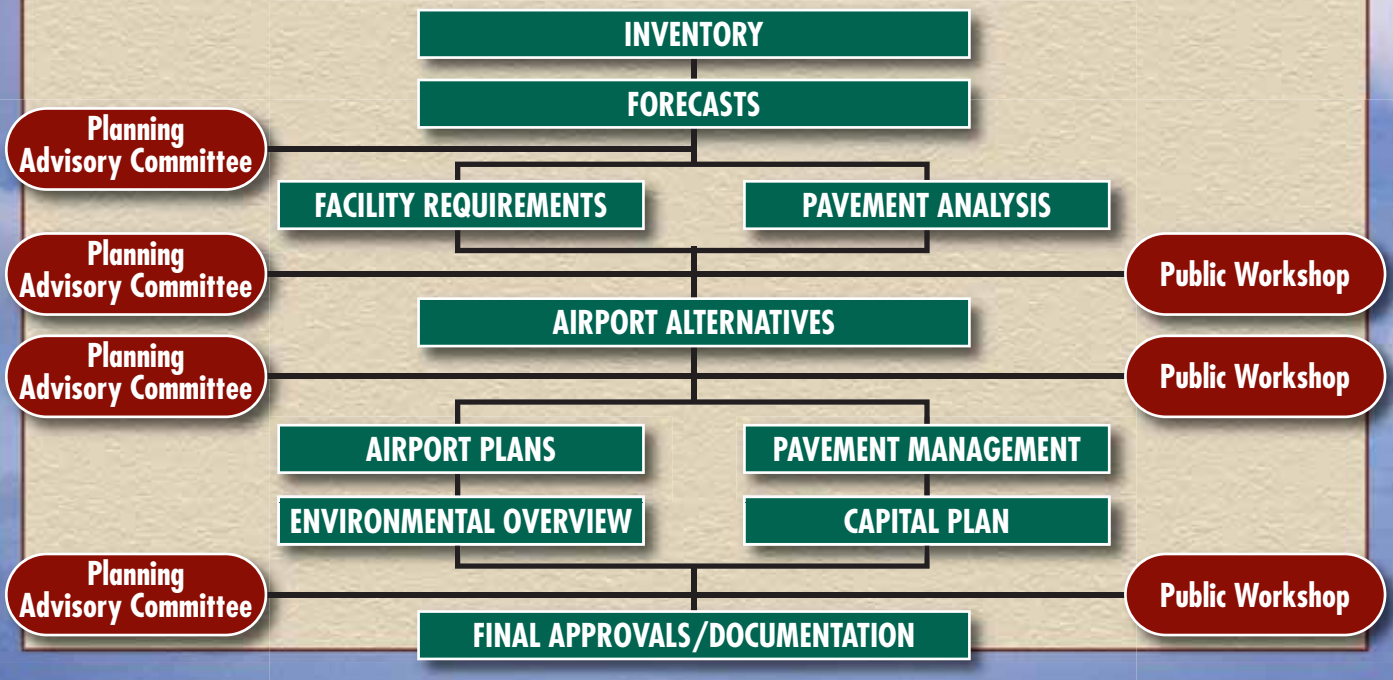
Executive Summary

The Portland International Jetport Master Plan 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 improved facilities that may be required to meet that demand. The ultimate goal of the Master Plan is to provide systematic facility planning guidelines for the airport's overall maintenance, development, and operation.

The Master Plan is intended to be a proactive document which identifies and then plans for future facility needs well in advance of the actual need for the facilities. This is done to ensure that the City of Portland can coordinate project approvals, design, financing, and construction to avoid experiencing detrimental effects due to inadequate facilities.

An important result of the Master Plan is reserving sufficient areas for future facility needs. This protects development areas and ensures they will be readily available when required to meet future needs.

The preparation of this Master Plan is evidence that the City of Portland recognizes the importance of air transportation to the community and the associated challenges inherent in providing for its unique operating and improvement needs. The cost of developing and maintaining an airport is an investment which can yield impressive benefits to the community and the region. With a sound and



realistic Master Plan, Portland International Jetport can maintain its role as an important link to the national air transportation system for the community and maintain the existing public and private investments in its facilities.

This Master Plan update examines and consider all the activities currently taking place at Portland International Jetport and will strive to produce refinements that will support all airport users and meet the needs of the community, while at the same time remaining sensitive to environmental and community concerns.

MASTER PLAN OBJECTIVES

The primary objective of this Master Plan is to provide the community and public officials with guidance for future development in a manner that will satisfy aviation demands and be wholly compatible with the environment. The accomplishment of this objective requires the evaluation of the existing airport and determination of what actions should be taken to maintain an adequate, safe, and reliable airport facility to meet the general aviation needs of the area. This Master Plan provides an outline of necessary development and gives the responsible officials advance notice of future airport funding needs so that appropriate steps can be taken to ensure that adequate funds are budgeted and planned.

Specific objectives of the Portland International Jetport Master Plan were:

- To preserve and protect public and private investments in existing airport facilities;
- To enhance the safety of aircraft operations;
- To be reflective of community and regional goals, needs, and plans;
- To ensure that future development is environmentally compatible;
- To establish a schedule of development priorities and a program to meet the needs of the proposed improvements in the Master Plan;
- To develop a plan that is responsive to air transportation demands;
- To develop an orderly plan for use of the airport;
- To coordinate this Master Plan with local, regional, state, and federal agencies, and;
- To develop active and productive public involvement throughout the planning process.

MASTER PLAN COORDINATION

The Portland International Jetport Master Plan was of interest to many within the local community. This in-

cluded local citizens, community organizations, airport users, airport tenants, area-wide planning agencies, and aviation organizations. As the Jetport is an important component of the state and national aviation systems, the Portland International Jetport Master Plan is of importance to both state and federal agencies responsible for overseeing air transportation.

To assist in the development of the Master Plan, the City of Portland identified a group of community members and aviation interest groups to act in an advisory role in the development of the Master Plan. Members of the Planning Advisory Committee (PAC) reviewed phase reports and provided comments throughout the study to help ensure that a realistic, viable plan was developed. The list of committee members is included at the end of this introduction.

To assist in the review process, draft working papers were prepared at various milestones in the planning process. The working paper process allowed for timely input and review during each step within the master plan to ensure that all Master Plan issues were fully addressed as the recommended program was developed.

Three public information workshops were also held as part of the plan coordination. The public information workshops were designed to allow any and all interested persons to become informed and provide input concerning the Master Plan. Notices of meeting times and locations will be advertised through the media as well as local neighborhood associations.

All Master Plan draft working papers were also made available to the public in electronic format via the Internet. This allowed any member of the public to download and view the same documents available to the City and PAC. Members of the public were also able to submit comment forms via the Internet and expand the coordination of the study through a "Refer-a-Friend" tool. The Internet allowed the Master Plan to be viewed virtually 24 hours each day of the week during the process.

ECONOMIC BENEFITS

In conjunction with the Master Plan, the economic benefits of Portland International Jetport were also evaluated. The study measured economic benefits of the airport through four indicators:

Revenues or output measure the total flow of dollars from aviation-related activity and include total sales of business firms and budgets of administration agencies.

Earnings or payroll represent the dollar value of payments received by workers (as wages) and business proprietors (as income) who create the goods and services that are sold to produce revenues.

Employment is a measure of the number of jobs required to create the gross revenues and value added.

The economic benefits of the Portland International Jetport for the year 2006 are summarized in **Table A**. The study concluded that the airport has a nearly $900 million dollar benefit to the regional economy and supports over 11,000 jobs in the community.

TABLE A
Economic Benefits
Portland International Jetport

	Revenues	Earnings	Employment
Direct Benefits			
On-Airport	$196,300,000	$45,400,000	1,184
Visitors	221,800,000	84,500,000	4,456
Indirect Benefits	449,800,000	165,100,000	5,951
Total Benefits	**$867,900,000**	**$295,000,000**	**11,591**

AIRPORT SETTING

Portland International Jetport is uniquely situated on the corporate boundaries of Portland, South Portland, and Westbrook. In fact, portions of airport property are located within each city. Runway 11-29 and the southern half of Runway 18-36 are located in South Portland. The north half of Runway 18-36 and the majority of the existing terminal facilities are located in Portland. A portion of airport property protecting the west approach extends into the Westbrook corporate limits.

The 726-acre airport is located three miles west of downtown Portland, as shown in **Exhibit A**. Primary access to the airport is off Congress Street (Route 22) and International Parkway, the airport's main access road. A second entrance is off Johnson Road and Jetport Boulevard, which links directly to the Jetport off-ramp of the Maine Turnpike (Exit 46 on Interstate 95). The Stroudwater neighborhood abuts the airport to the north and the Redbank neighborhood is located to the south.

Portland International Jetport is owned and operated by the City of Portland. Portland has a mayor, with a city manager and city council form of government. A standing three-person transportation committee oversees the city-wide infrastructure for the council. A full-time airport manager, who reports to the City Manager, runs the facility, with the help of 40 full-time staff members

Exhibit B shows annual enplanement totals since 1980. Annual enplanements were higher in 2004, 2005, and 2006 than in previous years, as low fare service was introduced at the airport. Independence Air operated at the airport from 2004 and to early 2006 when service was discontinued. JetBlue initiated service in June 2006. Enplanements peaked at 827,588 in 2007.

04MP17-A-2/6/07

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Exhibit A
LOCATION MAP

04MP17-B-6/26/08

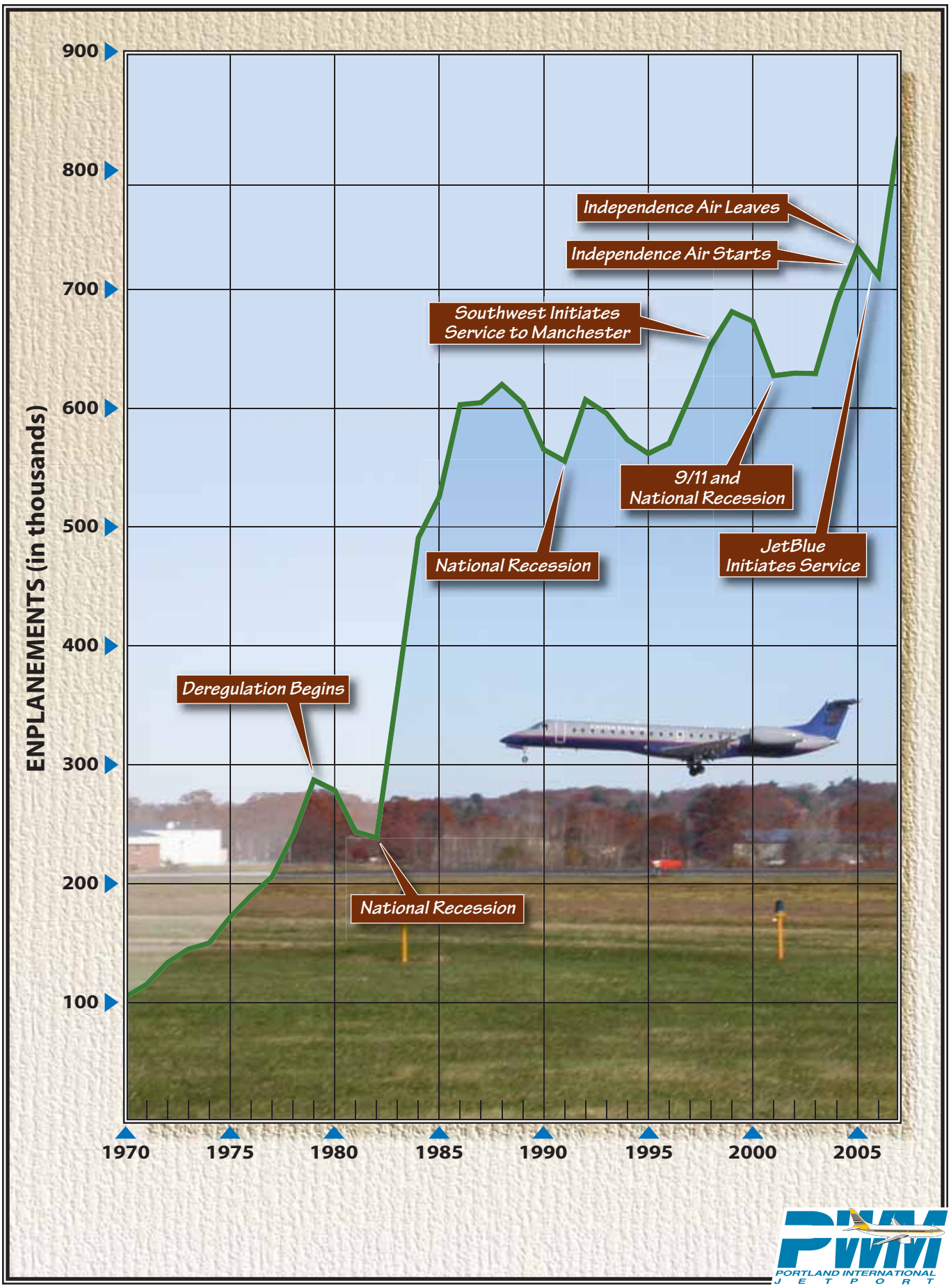

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Exhibit B
HISTORIC ENPLANEMENTS 1970-2007

Exhibit C depicts annual aircraft operations (takeoffs and landings) at the Jetport since 1990. Total operations at Portland International Jetport have declined at an annual rate of 2.5 percent since 1990.

Exhibit D shows total cargo moved during the period from 1995 through 2007. Enplaned air cargo grew in 2005, 2006, and 2007, after declining in 2004.

EXISTING FACILITIES

AIRFIELD

As shown in **Exhibit E** and **Table B**, Portland International Jetport operates two runways: the primary runway is Runway 11-29, at 7,200 feet long and 150 feet wide. The runway is served at both ends by an instrument landing system (ILS) precision approach, which allows access to the airport in virtually all weather conditions.

TABLE B
Runway Data
Portland International Jetport

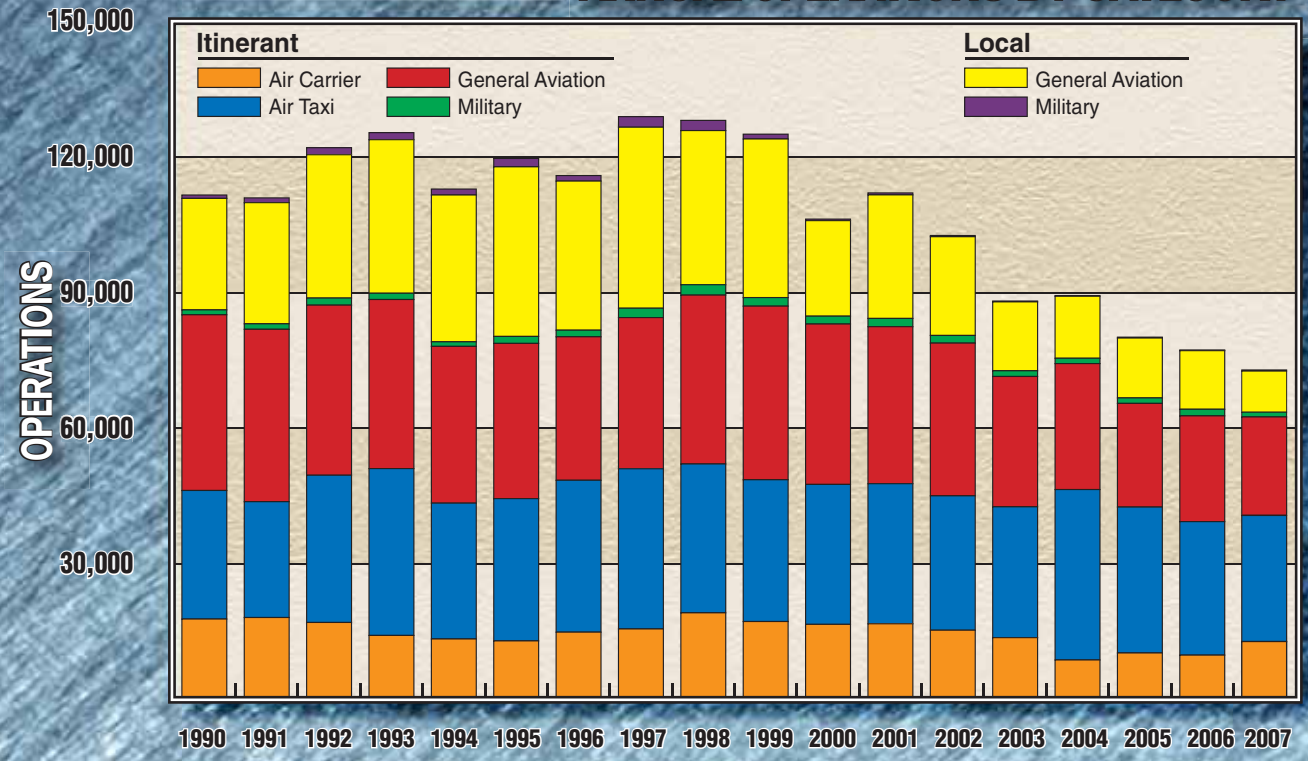
	Runway 11	Runway 29	Runway 18	Runway 36
Dimensions	7,200 feet x 150 feet		5,001 feet x 150 feet	
Surface	Asphalt/grooved		Asphalt	
Weight Limitation (Pounds)	Single wheel: 75,000 Double wheel: 169,000 Double tandem: 300,000		Single wheel: 75,000 Double wheel: 165,000 Double tandem: 300,000	
Runway Lights	High Intensity, Touchdown Zone, Centerline		Medium intensity	
Elevation	76.5 ft.	42.9ft.	44.6 ft.	46.6 ft.
Gradient	0.47%		0.04%	
Runway Heading	112° magnetic, 095° true	292° magnetic, 275° true	180° magnetic, 163° true	000° magnetic, 343° true
Declared Distances	TORA – 7,200 ft. TODA – 7,200 ft. ASDA – 6,800 ft. LDA – 6,800 ft.	TORA – 7,200 ft. TODA – 7,200 ft. ASDA – 7,200 ft. LDA – 7,200 ft.	Not published	Not published
Markings	Precision		Non-precision	
Visual Glide Slope Indicator	PAPI – 4R	PAPI – 4R	VASI – 4L	VASI – 4R
RVR Equipment	Touchdown, Midpoint, Rollout	Touchdown	None	None
Runway End/ Approach Lights	ALSF-2/SSALR	MALSR	REIL	REIL
Instrument Approach Procedures	ILS, NDB, RNAV (GPS)	ILS, RNAV (GPS)	RNAV (GPS)	RNAV (GPS)

Source: Airnav; Airport inspection

PAPI – Precision Approach Path Indicator
VASI – Visual Approach Slope Indicator
RVR – Runway Visual Range
ILS – Instrument Landing System
NDB – Nondirectional Beacon
GPS – Global Positioning System
RNAV – Area Navigation
MALSR – Medium Intensity Approach Lighting System With Runway Alignment Indicator Lights
ALSF –Standard High Intensity Approach Lighting System with Sequenced Flashers
SSALR –Simplified Short Approach Lighting System With Sequenced Flashers
REIL – Runway End Identifier Lighting.

04MP17-C-6/26/08

ANNUAL OPERATIONS BY CATEGORY



AVERAGE MONTHLY OPERATIONS BY CATEGORY

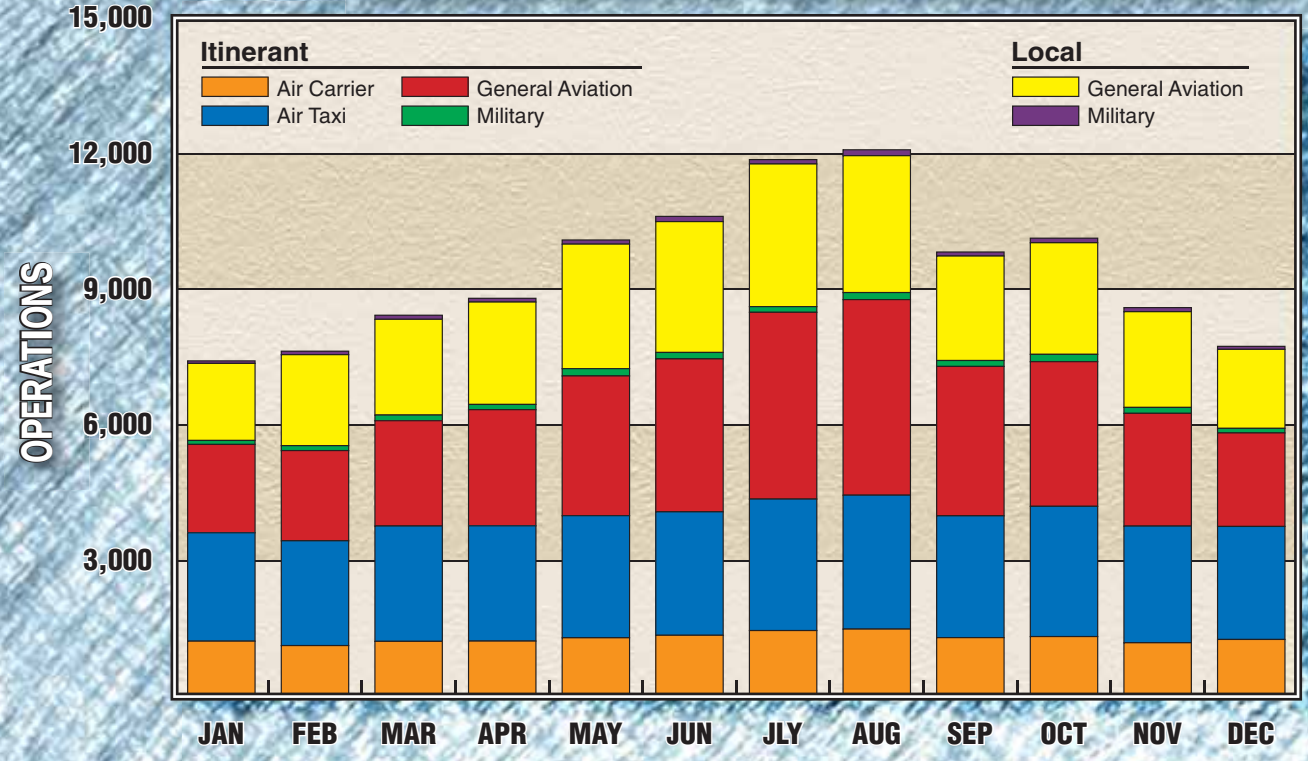


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Exhibit C
HISTORICAL OPERATIONS

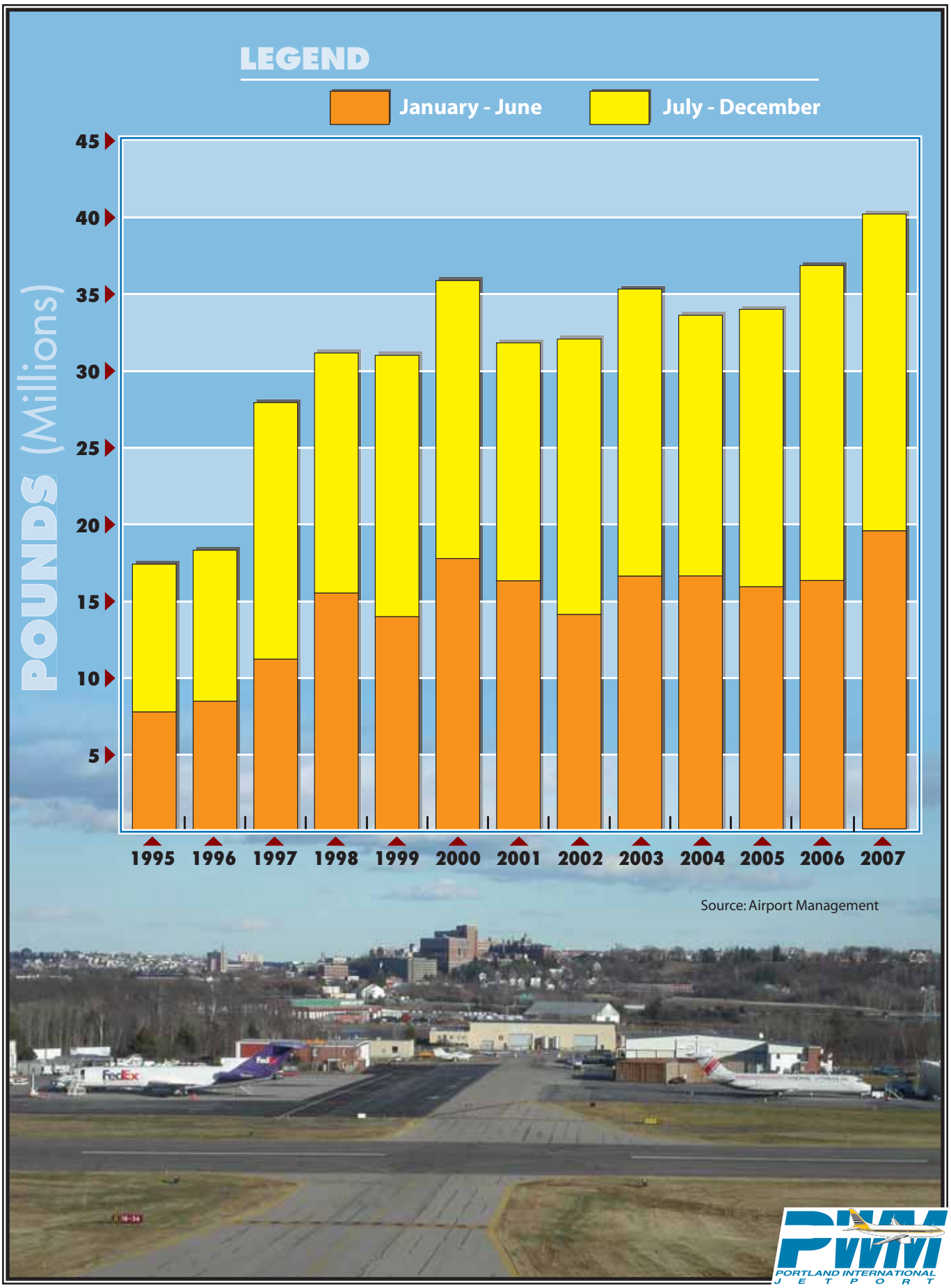

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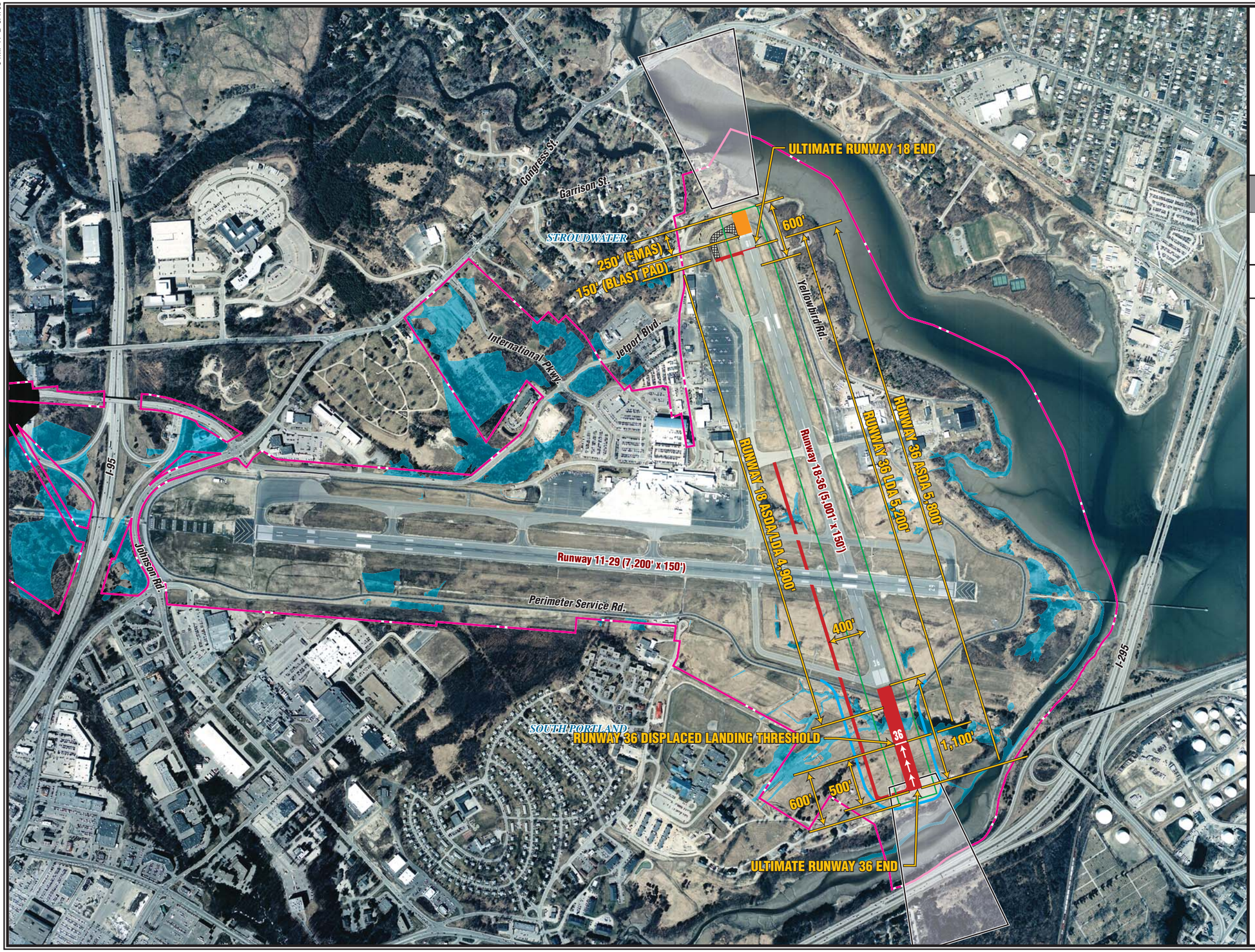
Exhibit D
CARGO MOVEMENT

04MP17-D-9/1/05



ALTERNATIVE D

Develops Runway 18-36 with E-mas off North End Only

DECLARED DISTANCES	RUNWAY 18	RUNWAY 36
ASDA	4,900'	5,800'
LDA	4,900'	5,200'

Total Runway Pavement: 5,800'

LEGEND

- Existing Airport Property Line
- Ultimate Airport Property Line
- Wetlands
- Runway Safety Area (RSA)
- Object Free Area (OFA)
- Runway Protection Zone (RPZ)
- Ultimate Airfield Pavement
- Pavement to be Removed
- Ultimate Service Road

0 1000 2000

SCALE IN FEET

NORTH

PWM PORTLAND INTERNATIONAL JETPORT

Exhibit E
RUNWAY 18-36 ALTERNATIVE D
ARC C-II SAFETY AREAS

Runway 18-36 serves as the crosswind runway. It is 150 feet wide and 5,001 feet long. While capable of handling larger air carriers on an infrequent basis, it primarily serves general aviation and commuter aircraft, particularly during high wind conditions, and when advantageous to both air traffic control (ATC) and pilots.

PASSENGER TERMINAL COMPLEX

The passenger terminal is located along the north side of Runway 11-29 as shown on **Exhibit F**. The current terminal configuration was redesigned since the last Master Plan. In 2006, a multimillion dollar expansion of the east end of the terminal building was completed, which doubled the capacity of the baggage claim area, while providing additional office space on the second level, and a new partial third level that houses a mechanical penthouse with generator room. The new space adds 24,000 square feet to the existing 136,000 square feet, for a total capacity of 160,000 square feet.

Since the last Master Plan, the airport has revamped its automobile parking infrastructure, highlighted by construction of a $29.2 million six-level garage. This facility has five public levels of parking (all long-term), as well as a sixth underground level for rental car pickup and drop-off. Overall, the airport has seven lots (five public and two employee) for vehicle parking. **Table C** shows the vehicle parking capacity at the Jetport.

TABLE C
Automobile Parking Capacity
Portland International Jetport

Lot	Capacity
Old Garage Short-Term (First Floor)	145
Old Garage Long-Term (Upper Levels)	478
New Garage Long-Term	1,171
New Garage Rental Car	238
Surface Lot Long-Term	501
Remote Lot Long-Term	400
Old (East) Employee Lot	225
New (North) Employee Lot	95
Public Short-Term Total	**145**
Public Long-Term Total	**2,550**
Employee Total	**320**
Rental Car Ready Total	**238**
Airport Total	**3,253**

Source: Airport Management

AIR CARGO

The primary air cargo facility is located east of Runway 18-36. One major change that has occurred since the last update in 1994 is the improvement of air cargo service from the Jetport. Both FedEx and DHL operate from the cargo area. FedEx leases three ramp positions totaling 55,000 square feet. DHL leases one ramp position totaling 26,000 square feet.

GENERAL AVIATION

While designated a commercial service airport, Portland International Jetport remains a vital link to general aviation in the region. A fixed-base operator (FBO), Northeast Airmotive, operates on the field, providing typical general aviation services. There are also two specialized aviation service

04MP17-F-2/6/07

① Aircraft Storage Hangars

② Maine Aviation

③ Northeast Airmotive

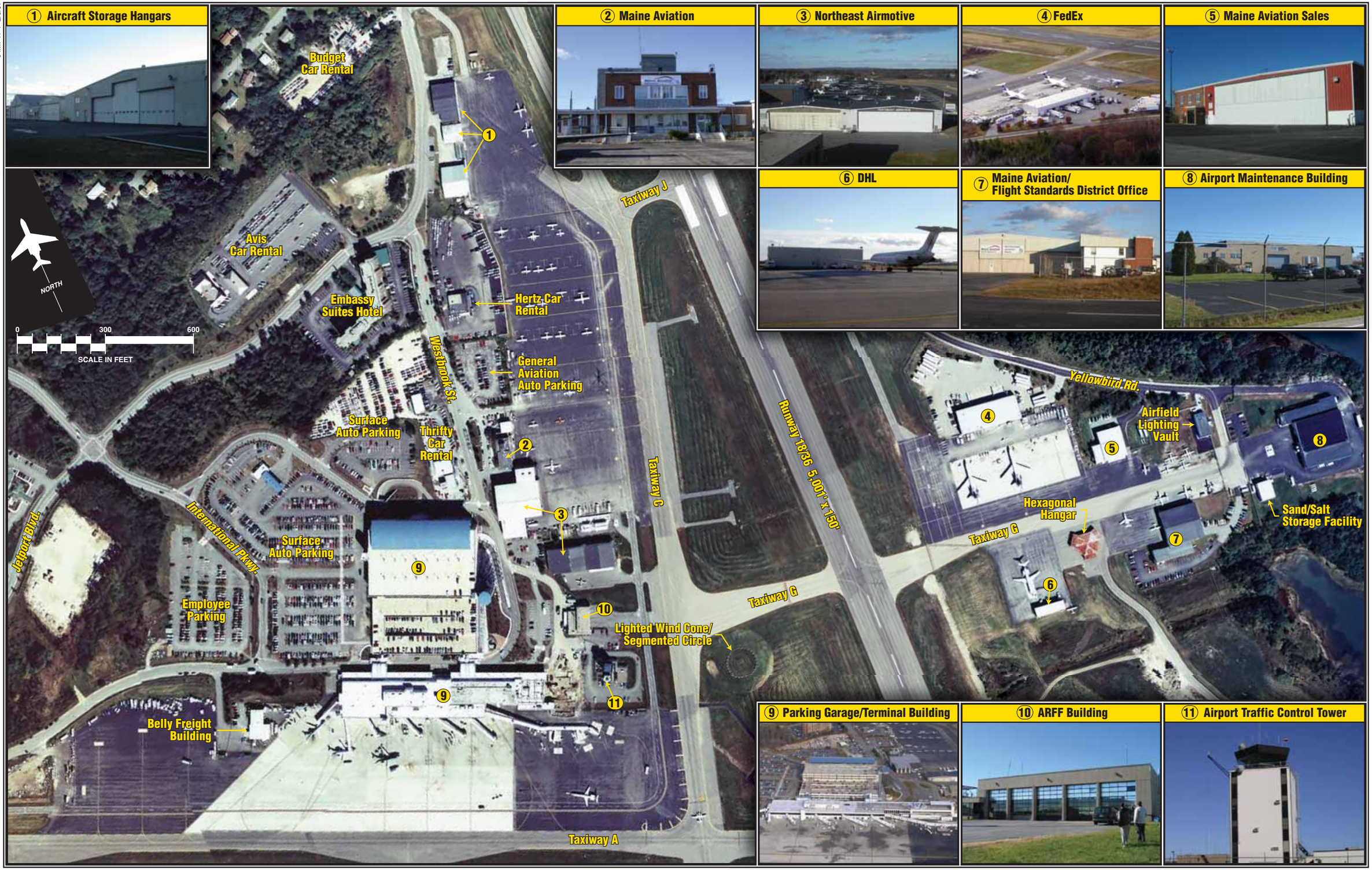
④ FedEx

⑤ Maine Aviation Sales

⑥ DHL

⑦ Maine Aviation/ Flight Standards District Office

⑧ Airport Maintenance Building



⑨ Parking Garage/Terminal Building

⑩ ARFF Building

⑪ Airport Traffic Control Tower

Exhibit F
LANDSIDE FACILITIES

operators (SASOs), Maine Aviation and Maine Aviation Sales, at the Jetport. **Table D** highlights the general services offered by Northeast Airmotive and Maine Aviation. Several hangar facilities offer space for aircraft storage and maintenance.

TABLE D
FBO Services
Portland International Jetport

Services	Northeast Airmotive	Maine Aviation
Aircraft Charters	X	X
Aircraft Maintenance	X	X
Aircraft Modifications	X	X
Aircraft Parking	X	--
Aircraft Parts	X	X
Avionics Sales and Service	X	X
Car Rental	X	--
De-icing Service	X	--
Flight Training	--	X
Fuel	X	--
Ground Handling	X	X
Hangars	X	--
Oxygen Service	X	--
Passenger Terminal/Lounge	X	--
Weather/Briefing Services	X	--

Source: Airnav.com

AIRPORT ROLE

The federal government has had an important role in the development of airports in the United States. 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. In large measure, the system of airports existing today is due to the existence of federal policy that promotes the development of civil aviation. As part of its effort to maintain a system of airports to meet the needs of civil aviation and promote air commerce, the United States Congress has continually supported a national plan for the development and maintenance of airports.

The current national airport system plan is the *National Plan of Integrated Airport Systems* (NPIAS). A primary purpose of the NPIAS is to identify airports that are important to national transportation and include all commercial service airports, all reliever airports, and selected general aviation airports. Because of the importance of Portland International Jetport to the local community and the national air transportation system, the FAA includes it in the NPIAS. Portland International Jetport is classified in the NPIAS as a primary commercial service small-hub airport.

The Portland International Jetport is part of the *New England Regional Airport System Plan* (NERASP). The NERASP describes the foundations of a regional strategy for the air carrier airport system to support the needs of air passengers through 2020. The underlying theme of the NERASP is to develop an airport system based upon the location of passengers and having adequate facilities to allow airlines to evolve in the range of services that provides the best mix of efficiency, convenience, and reliability.

FORECASTS

The proper planning of a facility of any type must consider the demand that may occur in the future. For the Portland International Jetport, this involved updating forecasts to identify potential future aviation demand. Because of the cyclical nature of the economy, it is virtually impossible to predict with certainty year-to-year fluctuations in activity when looking five, ten, and twenty years into the future.

Recognizing this reality, the Master Plan is keyed to potential demand "horizon" levels than future dates in time. These "planning horizons" were established as levels of activity that will call for consideration of the implementation of the next step in the Master Plan program. By developing the airport to meet the aviation demand levels instead of specific points in time, the airport will serve as a safe and efficient aviation facility which will meet the operational demands of its users while being developed in a cost-efficient manner. This program allows the City to change specific development in response to unanticipated needs or demand.

As shown on **Exhibit G**, the primary service area for commercial air travel from the Jetport includes all of Cumberland County as well as much of York, Androscoggin, and Sagadahoc Counties. The limits of the service area were established at a point equidistant between other commercial service airports. The Jetport is one of eight airports that can be used by air travelers within this service area. Five airports are in Maine; the other three airports (Pease International Tradeport in New Hampshire, Manchester Airport in New Hampshire, and Boston Logan International Airport in Massachusetts) are located in neighboring states.

The NERASP describes the functional role of the Jetport as providing access to tourists visiting the state and that the Jetport serves an area of "strong economic growth" and that the recent highway improvements appeal to passengers. Consistent with the findings of the Master Plan, the NERASP notes that the Jetport loses passengers to Boston and Manchester due to lower fares and better service; however, this has been minimized with the introduction of low fare service. In particular, the low fare service provided by JetBlue to New York.

The Portland International Jetport service area has responded well to low fare service initially provided by Independence Air in 2004 and 2005, and then JetBlue in 2006. The low fare service increased passenger levels to new records at the airport. Passenger enplanements were over 732,000 in 2005, the highest ever recorded for the Jetport. The second highest level was reached in 2004, with over 687,000 annual enplanements.

The Master Plan projects that passenger enplanements at the Jetport could reasonably be expected to grow at an average annual rate of four percent over the next 20 years with sustained low fare service. Growth is also projected for air cargo and annual operations. The annual tons of air cargo moved at the airport are projected to grow at an annual rate of 3.1 percent.

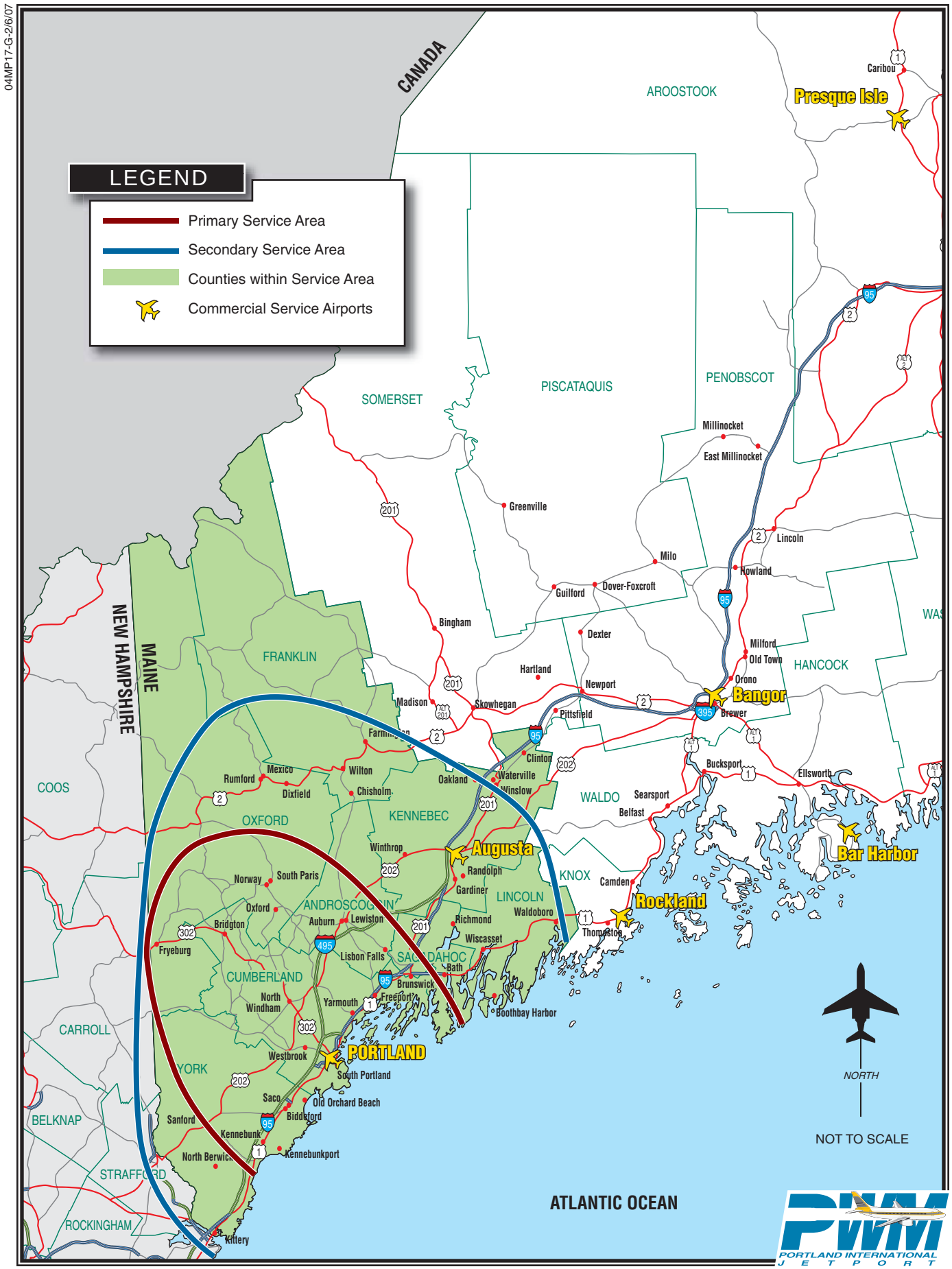


Exhibit G
JETPORT COMMERCIAL SERVICE AREA

Annual general aviation operations (takeoffs and landings) are projected to grow at 2.4 percent annually driven by business and corporate aircraft use. Up to 33 additional general aviation aircraft are expected to base at the airport. The forecast planning horizons are summarized on **Exhibit H**.

AIRPORT IMPROVEMENT PLAN

The short term recommendations of the 1994 Master Plan led to the improvements that have occurred over the last several years at the Jetport. Major airfield improvements that were completed included the reconstruction of Runway 11-29 and Taxiway A, and improvement to instrument approach capability to Runway 11. Johnson Road was relocated to allow runway safety area improvements behind the Runway 11 end. Jetport Boulevard was constructed to allow more direct access to Interstate Highway 95, while International Parkway was constructed to provide direct access to the passenger terminal from Congress Street, avoiding residential neighborhoods. A new parking garage was constructed and the baggage claim area renovated within the terminal building.

AIRFIELD IMPROVEMENTS

The improvements to the airfield since the last Master Plan have resulted in only a few future requirements for airfield improvements. As indicated by **Exhibit J** and **Exhibit K**, the airfield improvements for the Jetport focus on meeting FAA design and safety standards, new taxiways for efficiency, and upgrading Runway 18-36 so that it can more fully serve as a back-up to Runway 11-29. **Exhibit L** graphically depicts the proposed airfield improvements.

The runway length provided separately on Runway 11 and Runway 29 varies. While Runway 29 provides a full 7,200 feet of runway length for landing and departures to the west, the landing and departure length on Runway 11 is limited to 6,800 feet. This is due to the limited runway safety area (RSA) available beyond Runway 29 to the east, which affects the Runway 11 runway length. The RSA is defined as a “surface surrounding the runway prepared or suitable for reducing the risk of damage to airplanes in the event of an undershoot, overshoot or excursion from the runway." The airfield improvement plan includes clearing objects within the Runway 29 RSA, and grading and filling the RSA to standard. This will eliminate the restrictions on Runway 11 departure landing lengths.

Several improvements are considered for Runway 18-36 to more effectively serve as a back-up to Runway 11-29 when it is closed for maintenance or other reasons. Runway 18-36 now serves a limited role in maintaining the continuity of air service when Runway 11-29 is closed, as Runway 18-36 can accommodate the regional jet and turboprop aircraft that use the airport in scheduled airline and air cargo services. The improvements to Runway 18-36 include upgrading design standards, a 1,100-foot extension to the south, wider and longer RSAs

	BASELINE	FORECAST 2010	FORECAST 2015	FORECAST 2025
ANNUAL OPERATIONS				
General Aviation				
Itinerant	27,843	33,000	36,000	41,000
Local	13,704	20,000	23,000	28,000
Total General Aviation	*41,547*	*53,000*	*59,000*	*69,000*
Airline	36,872	41,900	43,400	49,500
Air Cargo	4,398	4,800	5,000	5,500
Air Taxi	5,204	6,900	7,800	9,200
Military	1,338	2,000	2,000	2,000
Total Operations	***89,359***	***108,600***	***117,200***	***135,200***
ENPLANEMENTS	***689,174***	***855,000***	***970,000***	***1,220,000***
AIR CARGO (tons)				
Enplaned	7,331	9,100	10,400	13,600
Deplaned	9,481	12,100	13,800	18,000
Total Air Cargo	***16,812***	***21,200***	***24,200***	***31,600***
BASED AIRCRAFT				
Single Engine Piston	30	38	42	51
Multi-Engine Piston	9	9	9	9
Turboprop	1	2	3	5
Business Jet	1	3	4	7
Helicopter	2	2	3	4
Total Based Aircraft	***43***	***54***	***61***	***76***
Low-Cost Carrier Scenario				
Enplanements	689,174	1,105,000	1,260,000	1,570,000
Airline Operations	36,872	46,300	48,200	54,700

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Exhibit H
ACTIVITY FORECAST SUMMARY

04MP17-J-2/6/07

EXISTING	SHORT TERM NEED	LONG RANGE NEED
RUNWAYS		
Runway 11-29		
ARC C-IV ≤ 1/2 mile visibility approach minimums each end 7,200' x 150' Grooved Surface 75,000# SWL 169,000# DWL 300,000# DTWL	Same Same Same Same Same Same Same	***ARC D-IV*** Same Same Same Same Same Same
Runway Safety Area (RSA)		
250' each side of runway centerline 600' prior to landing threshold 1,000' beyond each runway end	Same Same Same ***Clear obstructions behind Runway 29 end***	Same Same Same
Object Free Area (OFA)		
400' each side of runway centerline 1,000' beyond each runway end	Same ***Clear obstructions behind Runway 29 end***	Same Same
Obstacle Free Zone (OFZ)		
200' each side of runway centerline 200' beyond each runway end	Same Same	Same Same
Precision Obstacle Free Zone (POFZ) Each End		
400' each side of runway centerline 200' beyond each runway end	Same Same	Same Same
Runway Protection Zone (RPZ) Each End		
Inner Width - 1,000' Outer Width - 1,700' Length - 2,500'	Same Same Same	Same Same Same
Runway 18-36		
ARC B-II ≥ 1 mile visibility approach minimums each end 5,001' x 150' No Surface Treatment 75,000# SWL 165,000# DWL 300,000# DTWL	***ARC B-III*** Same ***6,100' x 150'*** ***Grooved Surface*** Same Same Same	Same Same Same Same Same Same Same
Runway Safety Area (RSA)		
75' each side of runway centerline 300' prior to landing threshold 300' beyond each runway end	***150' each side of runway centerline*** ***600' prior to landing threshold*** ***600' beyond each runway end*** ***Clear obstructions behind each runway end***	Same Same Same

EXISTING	SHORT TERM NEED	LONG RANGE NEED
Runway 18-36 (continued)		
Object Free Area (OFA)		
250' each side of runway centerline 300' beyond each runway end	***400' each side of runway centerline*** ***600' beyond each runway end***	Same Same
Obstacle Free Zone (OFZ)		
200' each side of runway centerline 200' beyond each runway end	***Clear obstructions each end***	Same Same
Runway Protection Zone (RPZ)		
Inner Width - 500' Outer Width - 700" Length - 1,000'	***Inner Width - 500' (Rwy 18); 1,000' (Rwy 36)*** ***Outer Width - 1,000' (Rwy 18); 1,700' (Rwy 36)*** ***Length - 1,700' (Rwy 18); 1,700' (Rwy 36)***	Same Same Same

EXISTING	SHORT TERM NEED	LONG RANGE NEED
TAXIWAYS		
Runway 11-29		
Full-length Parallel Taxiway A 60' wide 400' from runway centerline Connecting Taxiways B & D 75' wide each	Same ***75' wide*** Same ***Add exit taxiway*** Same	Same Same Same Same Same ***Taxiway connecting Runway 29 end with Runway 36 end***
Runway 18-36		
Full-length Parallel Taxiway C 60' wide 400' from runway centerline Connecting Taxiway E 60' wide Connecting Taxiways G & H 75' wide each No holding aprons	Same Same Same Same Same ***Add holding apron Runway 36 end*** ***Relocate portion of Taxiway C from Runway 36 end to Taxiway A 400' from runway centerline to facilitate aviation development in southwest quadrant of airport***	Same Same Same Same Same Same ***Partial parallel taxiway from Taxiway H to Taxiway A 400' from centerline***
HELIPAD		
None	***Helipad*** ***2 lighted parking positions***	Same

KEY

ARC - Airport Reference Code
SWL - Single Wheel Loading
DWL - Dual Wheel Loading
DTWL - Dual Tandem Wheel Loading

PDX PORTLAND INTERNATIONAL JETPORT

Exhibit J
AIRCRAFT OPERATIONAL AREA REQUIREMENTS

	EXISTING	SHORT TERM NEED	LONG TERM NEED
Instrument Approach Procedures 	ILS Runway 11 - CAT II	Same	Same
	ILS Runway 29 - CAT I	Same	Same
	GPS APV Runway 11	Same	***Upgrade to GLS***
	GPS APV Runway 29	Same	***Upgrade to GLS***
	GPS Runway 18 LNAV	***Upgrade to APV***	Same
	GPS APV Runway 36	Same	Same
Airfield Lighting 	Rotating Beacon	Same	Same
	Lighted Airfield Directional Signs	Same	Same
	Medium Intensity Taxiway Edge Lighting (MIRL)	Same	Same
	Pilot Controlled Lighting	Same	Same
	Runway 11-29		
	High Intensity Runway Edge Lighting (HIRL)	Same	Same
	Centerline Lighting	Same	Same
	Touchdown Zone Lighting (TDZL) - Rwy. 11	Same	Same
	ALSF-2 - Runway 11	Same	Same
	MALSR - Runway 29	Same	Same
	PAPI-4 - each end	Same	Same
	Distance Remaining Signs	Same	Same
	Runway 18-36		
	Medium Intensity Runway Edge Lighting (MIRL)	Same	Same
	VASI-4 - each end	***Convert to PAPI-4***	Same
	REIL - each end	Same	Same
	Distance Remaining Signs	Same	Same
Airfield Markings 	Taxiway Centerline, Hold Positions	Same	Same
	Land and Hold Short Positions	Same	Same
	Runway 11-29		
	Precision	Same	Same
	Runway 18-36		
	Nonprecision Marking	Same	Same
Weather Facilities 	Automated Surface Observation System (ASOS)	Same	Same
	Runway Visual Range - Runways 11 & 29	Same	Same
	Lighted Wind Socks	Same	Same
Air Traffic Control 	Airport Traffic Control Tower (ATCT)	Same	Same
	Radar Approach Control	Same	Same
	Radar Departure Control	Same	Same
	Airport Surveillance Radar (ASR-9)	Same	Same
			Add Airport Surface Detection Equipment (ASDE) Ground Radar

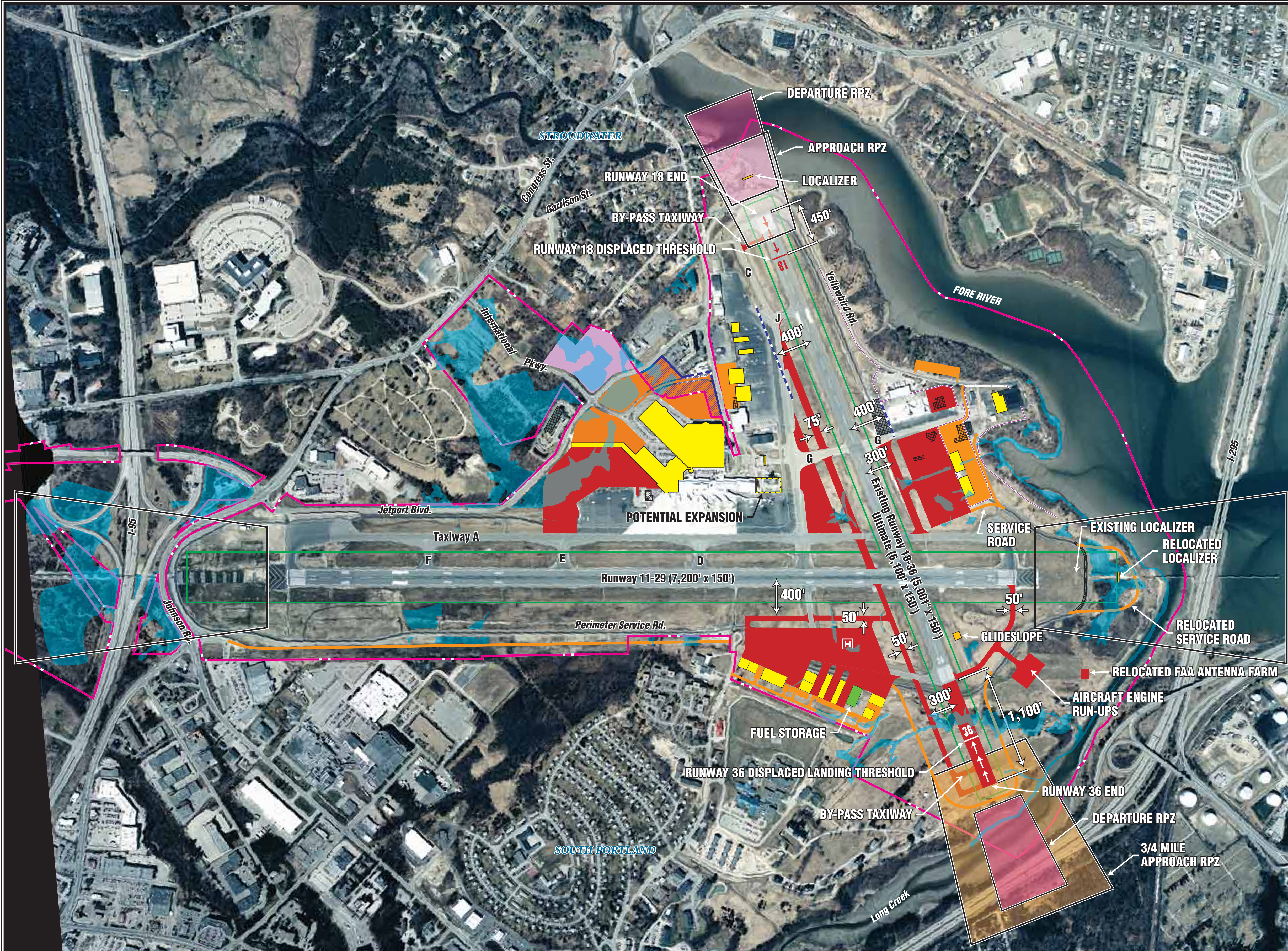
Key:

ILS - Instrument Landing System
GPS - Global Positioning System
GLS - Global Navigation Satellite System (GNSS) Landing System
APV - Approach with Vertical Guidance
LNAV - Lateral Navigation
CAT I - Category I Standards
CAT II - Category II Standards
ALSF-2 - Approach Lighting System with Sequenced Flashing Lights
MALSR - Medium Intensity Approach Lighting System with Runway Alignment Indicator Lights

PDX PORTLAND INTERNATIONAL JETPORT

Exhibit K
AIRFIELD SUPPORT REQUIREMENTS

04MP17-L-2/6/07



DEPARTURE RPZ
APPROACH RPZ
STROUDWATER
Congress St.
Garrison St.
RUNWAY 18 END
LOCALIZER
BY-PASS TAXIWAY
450'
RUNWAY 18 DISPLACED THRESHOLD
C
18
Yellowbird Rd.
FORE RIVER
J
400'
International Pkwy.
400'
75'
G
300'
Existing Runway 18-36 (5,001' x 150')
Ultimate (6,100' x 150')
Jetport Blvd.
POTENTIAL EXPANSION
SERVICE ROAD
EXISTING LOCALIZER
RELOCATED LOCALIZER
I-295
I-95
Taxiway A
F
E
D
Runway 11-29 (7,200' x 150')
400'
50'
50'
50'
Johnson Rd.
Perimeter Service Rd.
RELOCATED SERVICE ROAD
GLIDESLOPE
RELOCATED FAA ANTENNA FARM
AIRCRAFT ENGINE RUN-UPS
300'
1,100'
FUEL STORAGE
36
RUNWAY 36 DISPLACED LANDING THRESHOLD
RUNWAY 36 END
BY-PASS TAXIWAY
DEPARTURE RPZ
3/4 MILE APPROACH RPZ
SOUTH PORTLAND
Long Creek

LEGEND

- Existing Airport Property Line
- Ultimate Airport Property Line
- Property Acquisition
- Ultimate Fence
- Aircraft Parking Limit Line
- Wetlands
- Runway Safety Area (RSA)
- Runway Protection Zone (RPZ)
- Ultimate Airfield Pavement
- Building/Pavement to be Removed
- Ultimate Road/Parking
- Ultimate Building
- Airport Business

DECLARED DISTANCES	RUNWAY 18	RUNWAY 36
ASDA	5,600'	5,650'
LDA	5,150'	5,150'

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available

NORTH

0 1000 2000
SCALE IN FEET

PWM PORTLAND INTERNATIONAL JETPORT

Exhibit L
AIRFIELD CONCEPT

behind each end, and an instrument approach with vertical guidance to Runway 36.

An instrument approach to Runway 36 with visibility minimums as low as three-quarters-of-a-mile, providing both lateral and vertical navigation capabilities, is also considered. This type of approach to Runway 36 will require a larger runway protection zone (RPZ). As shown on **Exhibit L**, the RPZ is a trapezoidal area at the end of the runway to protect people and property on the ground. The RPZ is two-dimensional and is required to be kept clear of structures and land uses that could cause the congregation of people and/or property on the ground. Portions of the RPZs at each end of Runway 18-36 will extend beyond the existing airport property line. The City of Portland will need to pursue land use control measures to protect these future RPZs from future incompatible development. Land control measures can include land use zoning, the acquisition of avigation easements, or fee simple acquisition of the limits of the RPZ.

Taxiway C is ultimately planned to be relocated 300 feet from the Runway 18-36 centerline to create a uniform and standard distance from the Runway 18-36 centerline. By-pass taxiways are planned for each end of Runway 18-36 to allow aircraft ready for departure to pass aircraft holding for clearance or still preparing for departure. This reduces departure delays.

A taxiway connecting the Runway 36 and Runway 18 ends is also included in the airfield plan. This taxiway will provide direct access to the Runway 29 end, primarily for aircraft located in the future southern general aviation area.

This taxiway could ultimately provide access to an aircraft engine run-up area. The run-up area would support on-the-ground engine runs that are sometimes required after maintenance. This area is suitable for maintenance run-ups as this is a remote part of the airport that is segregated from residential development. The run-up apron would also orient the aircraft emissions toward Highway 295 and the tank farm southeast of the airport.

PASSENGER TERMINAL AREA

The passenger terminal area plan is shown on **Exhibit M** and includes improvements to the functional elements within the terminal building, additional automobile parking areas, changes to roadway circulation patterns, and provisions for airport business development along Jetport Boulevard.

The plan for the functional elements of the passenger terminal building was developed through a nine-month planning process specific to the terminal building. A primary conclusion of the terminal planning process was that the existing terminal building has capacity and circulation deficiencies that need to be addressed and cannot be resolved without expanding the facility.

The terminal building plan extends the departure concourse to the west to

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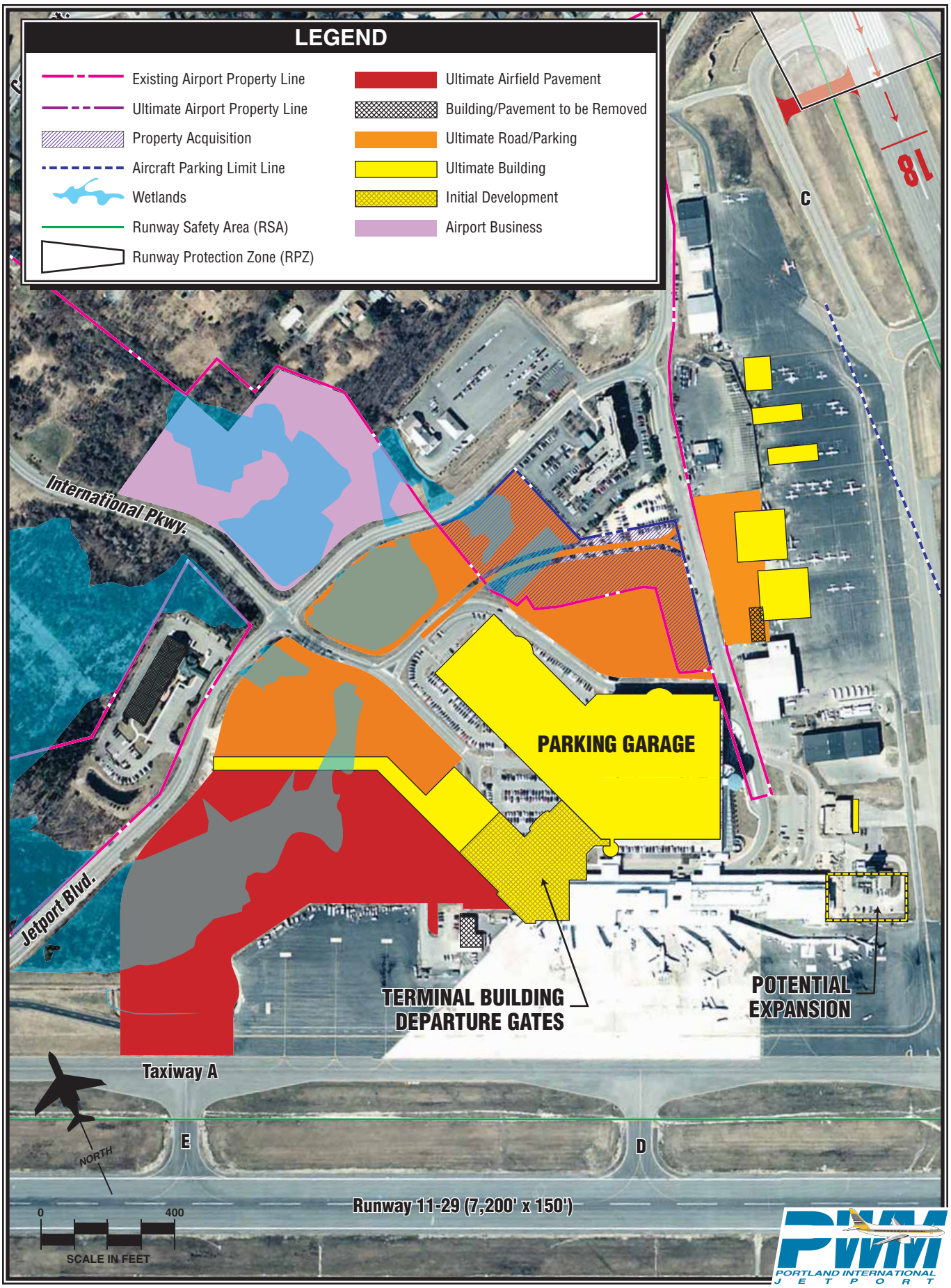

PWM
PORTLAND INTERNATIONAL JETPORT

Exhibit M
TERMINAL BUILDING CONCEPT

add additional aircraft contact gates. A new core structure west of the existing building is planned to accommodate new ticketing and baggage make-up with in-line explosive detection devices. The second floor would provide larger passenger screening points, secure holdroom, and concessions areas.

To accommodate future public automobile parking needs and provide convenient access to the terminal, the parking garage is expanded to the northwest. The parking garage plan includes removal of the existing three-level parking garage and replaces it with a new five-story structure similar to the parking structure built in 2003. This portion was under development in 2008.

Additional surface parking is provided along Jetport Boulevard and northeast of the existing terminal circulation roadway as shown on **Exhibit M**. The terminal circulation roadway that currently extends around the northern side of the parking garage would be relocated to the north to allow a larger portion of the surface parking area to be included within the terminal loop system. This allows this surface parking area to be served by the same ticketing and payment booths used for the parking garage.

The area northeast of the Jetport Boulevard/International Parkway intersection is reserved for airport business development. This could include a wide variety of uses supporting terminal services including, but not limited to: rental car storage and maintenance, hotel/motel, and office.

AIR CARGO

Future air cargo requirements are shown on **Exhibit N**. As shown on **Exhibit P**, future air cargo development to meet forecast demand is continued east of Runway 18-36 along Taxiway G. This was the area established for air cargo development in the last Master Plan. The air cargo apron is reconfigured parallel to Runway 18-36. Air cargo sort buildings, vehicle parking, and related truck courts would be developed on the east side of the apron. The configuration of this apron allows for a larger apron area and for easier circulation on the apron. A new taxiway between Taxiway G and Taxiway A is intended to reduce the number of runway crossings and the potential for runway incursions.

A goal of this plan is to develop this area exclusively for air cargo activity. The plan relocates all existing general aviation facilities from this area to other general aviation areas on the airport. This will segregate uses on the airport and allow air cargo development exclusively east of Runway 18-36.

Additional truck staging and automobile parking for the northern cargo sort building is created along Yellowbird Road. Access to the air cargo apron is via a dedicated road connecting with Yellowbird Road. The existing interior airport service road is relocated to provide contiguous access to the airport maintenance facility. Expansion potential for the airport maintenance building is reserved on the west side of the building.

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Air Cargo

	Available	Short Term Need	Intermediate Term Need	Long Range Need
Apron Area (square yards)	13,000	13,100	15,600	21,400
Cargo building (square feet)	19,500	26,500	30,300	39,500
Air freight building (square feet)	3,600	Adequate through planning period		
Truck staging/automobile parking (square yards)	7,000 *	8,800	10,100	13,200

* DHL parking and staging occurs on apron area.

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Exhibit N
AIR CARGO REQUIREMENTS

04MP17-P-2/6/07

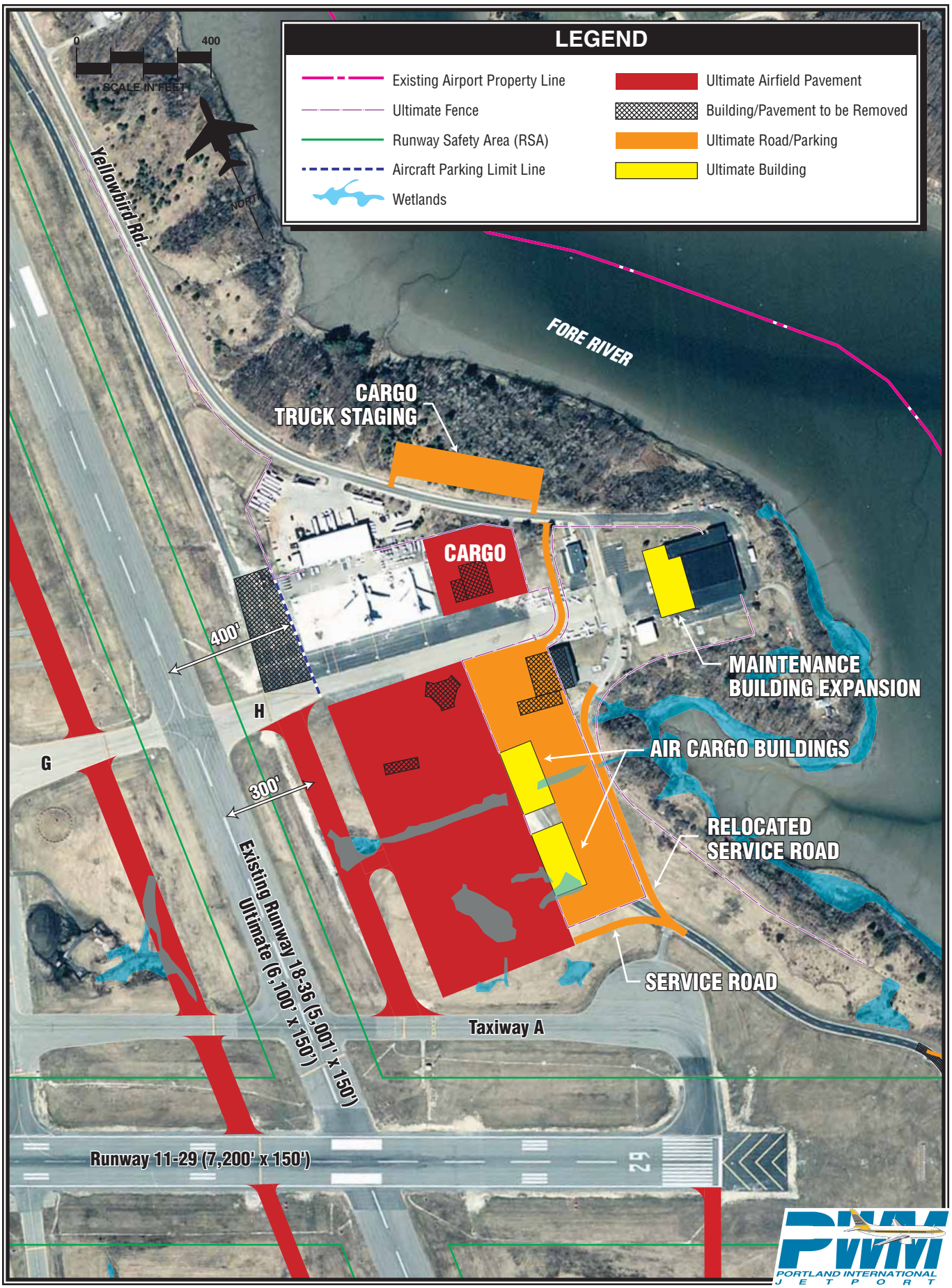

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Exhibit P
AIR CARGO CONCEPT

GENERAL AVIATION PLAN

Future general aviation hangar, apron, terminal, and support facility needs are shown on **Exhibit Q**. As shown on **Exhibit R**, general aviation development is reserved in two separate areas on the airport. General aviation development is continued along the apron area west of Runway 18-36. A new general aviation area is under development southwest of the Runway 11-29/Runway 18-36 intersection.

The south general aviation area includes hangars for small and large aircraft storage and for providing general aviation services such as refueling and maintenance. Vehicle access would be via a connection with Westbrook Street and the recently completed Jetport Plaza Road, which extends along the southern airport boundary.

The potential 20-foot expansion of the airport rescue and firefighting (ARFF) building to the east is shown on **Exhibit R**. This expansion will allow for the building to more easily accommodate the new ARFF vehicles, which now extend the full width of the building, leaving little room for movement around the vehicles. The ARFF building can remain in this location for the foreseeable future.

This concept also provides for the relocation of the airport traffic control tower (ATCT) along the airport's southern boundary, should this be required in the future. This location provides ATCT personnel with a segregated location that orients the tower with a line-of-sight of all potential aircraft movement areas.

A number of federal services are located within existing general aviation areas on the airport. This includes the FAA Flight Standards District Office (FSDO), U.S. Customs Service, and FAA Airway Facilities management offices. Some of these offices will be relocated as a result of the air cargo development along Taxiway G. The general aviation plan proposes to consolidate all these federal services near the ATCT.

A helipad is located along the south general aviation apron area. The helipad is an operational area for the takeoff and departure of helicopters, which is segregated from the runway approach and departure paths used by the fixed-wing aircraft. There is currently no such designated area for helicopters at the Jetport.

ENVIRONMENTAL EVALUATION

A review of the potential environmental impacts associated with the proposed airport projects is an essential consideration in the Airport Master Plan process. The primary purpose of this evaluation is to review the proposed improvement program for Portland International Jetport to determine whether the proposed actions could, individually or collectively, have the potential to significantly affect the quality of the environment.

This evaluation considers all environmental categories required for the NEPA process as outlined in FAA Order 1050.1E, *Environmental Impacts: Policies and Procedures* and FAA Or-

Aircraft Storage Hangars

	Available	Short Term Need	Intermediate Term Need	Long Range Need
Aircraft to be hangared	25	31	37	50
Hangar storage area (s.f.)	47,700	58,000	69,100	92,500
Maintenance area (s.f.)	18,800	22,900	27,200	36,500
Total hangar area (s.f.)	**66,500**	**80,900**	**96,300**	**129,000**

Aircraft Parking Apron

	Available	Short Term Need	Intermediate Term Need	Long Range Need
Single, multi-engine transient aircraft positions		46	52	58
Apron area (s.y.)		37,000	41,300	46,300
Transient business jet positions		2	2	3
Apron area (s.y.)		3,200	3,200	4,800
Locally-based aircraft positions		23	24	26
Apron area (s.y.)		11,500	12,000	13,000
Total positions	**85**	**71**	**78**	**87**
Total apron area (s.y.)	**57,000**	**51,700**	**56,500**	**64,100**

General Aviation Terminal Area Facilities

	Available	Short Term Need	Intermediate Term Need	Long Range Need
Area (s.f.)	9,000	6,000	8,200	9,100

Other Facilities

		Aircraft Wash Rack	Same	Same

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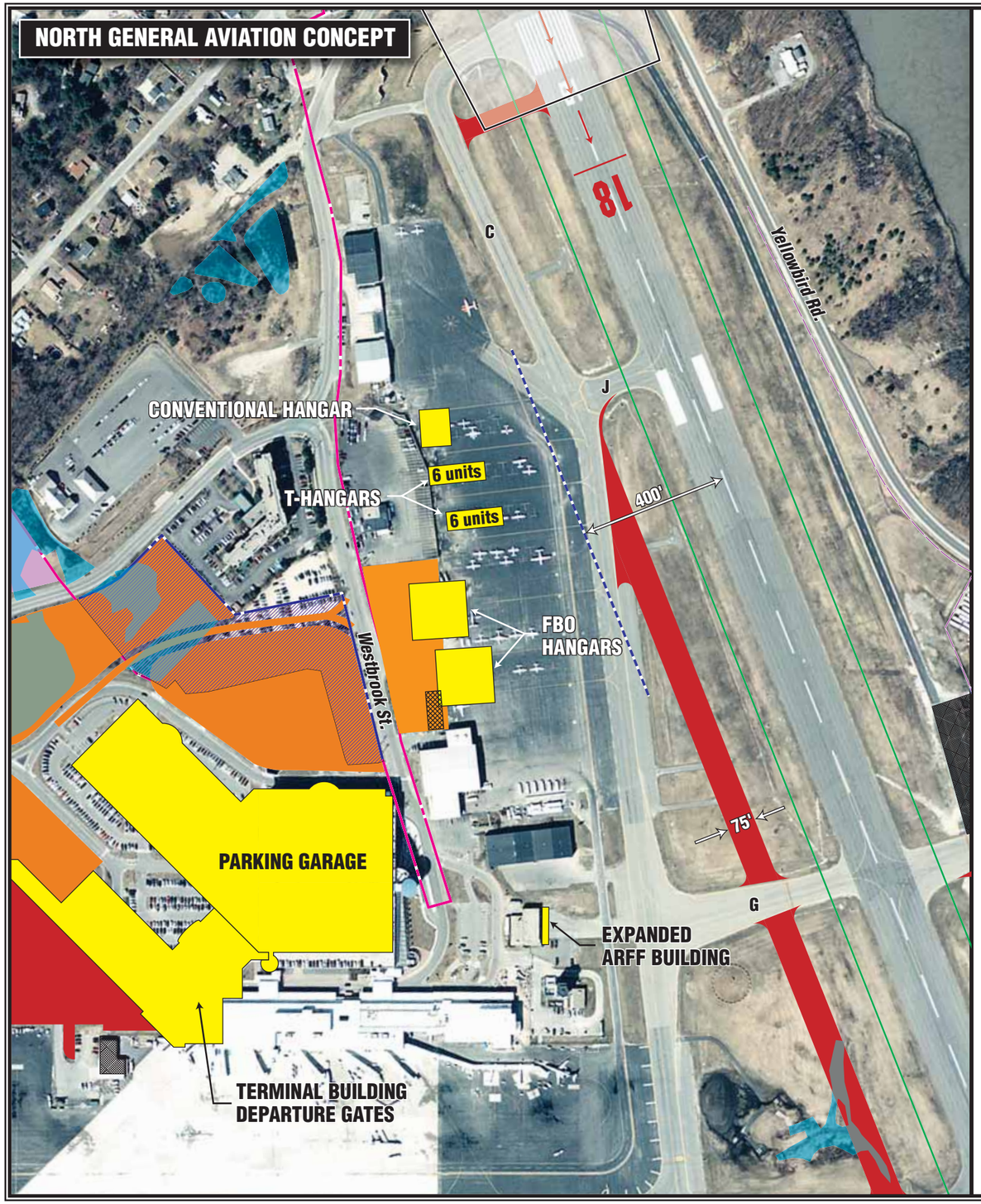
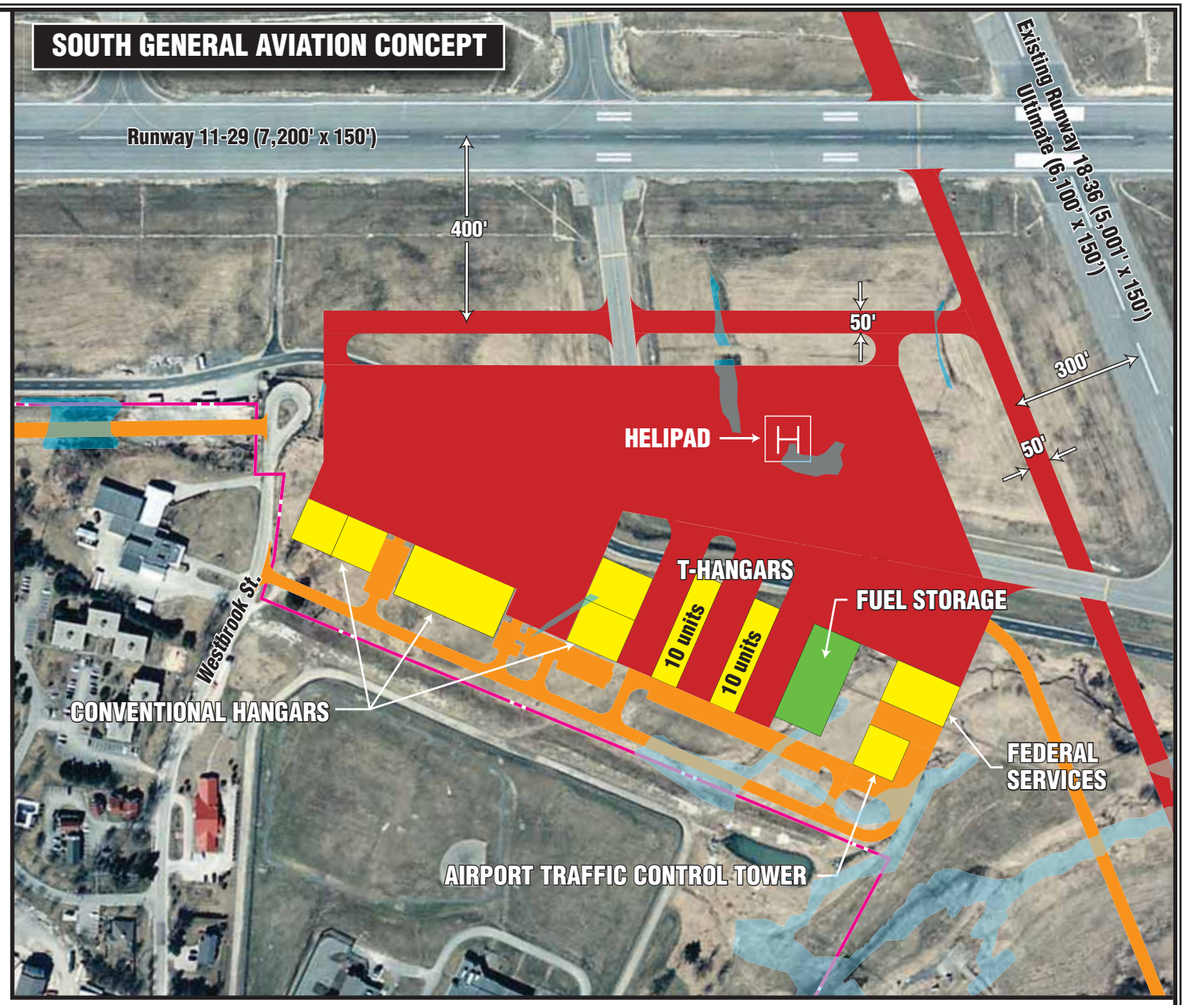
Exhibit Q
GENERAL AVIATION
FACILITY REQUIREMENTS

04MP17-R-2/6/07

NORTH GENERAL AVIATION CONCEPT



SOUTH GENERAL AVIATION CONCEPT



LEGEND

- Existing Airport Property Line
- Ultimate Airport Property Line
- Property Acquisition
- Ultimate Fence
- Aircraft Parking Limit Line
- Wetlands
- Runway Safety Area (RSA)
- Runway Protection Zone (RPZ)
- Ultimate Airfield Pavement
- Building/Pavement to be Removed
- Ultimate Road/Parking
- Ultimate Building
- FBO — Fixed Based Operator

NORTH

0 300

SCALE IN FEET

PDX PORTLAND INTERNATIONAL JETPORT

Exhibit R
GENERAL AVIATION CONCEPT

der 5050.4B, *National Environmental Policy Act* (NEPA) *Implementing Instructions for Airport Actions.* Of the 20-plus environmental categories, the following resources are not found within the airport environs:

- Wild and Scenic Rivers
- Prime or Unique Farmland
- Floodplains
- Environmental Justice Areas

Exhibit S contains a matrix which outlines the potential environmental impacts of all projects programmed to be undertaken in the Short Term Planning Horizon. This matrix will assist the FAA and City in determining the level of NEPA documentation warranted for each of the projects. Also contained within the matrix is a list of permits which will likely be needed for the implementation of each programmed project.

NOISE EMISSIONS

To determine the noise-related impacts that the proposed development could have on the environment surrounding Portland International Jetport, noise exposure patterns were analyzed for both existing airport activity conditions (September 2005 to August 2006) and projected Intermediate Term Planning Horizon and Long Range Planning Horizon activity conditions.

The basic methodology employed to define aircraft noise levels involves the use of a mathematical model for aircraft noise predication. The Yearly Day Night Average Sound Level (DNL) is used in this study to assess aircraft noise. DNL is the metric currently accepted by the FAA, Environmental Protection Agency (EPA), and Department of Housing and Urban Development (HUD), as an appropriate measure of cumulative noise exposure. These three federal agencies have each identified the 65 DNL noise contour as the threshold of incompatibility, meaning that noise levels below 65 DNL are considered compatible with underlying land uses. Most federally funded airport noise studies use DNL as the primary metric for evaluating noise.

DNL is defined as the average A-weighted sound level as measured in decibels (dB) during a 24-hour period. A 10-dB penalty applies to noise events occurring at night (10:00 p.m. to 7:00 a.m.). DNL is a summation metric which allows objective analysis and can describe noise exposure comprehensively over a large area.

The noise contours were developed utilizing the same study files developed as part of the *2004 14 CFR Part 150 Noise Compatibility Plan* for Portland International Jetport. The study files for the *14 CFR Part 150 Noise Compatibility Plan* for the Portland International Jetport model accounts for each aircraft along flight tracks during an average 24-hour period. These flight tracks are coupled with separate tables contained in the database of the INM, which relate to noise, distances, and engine thrust for each make and model of aircraft type selected. Computer input files for the noise analysis contain operational data, runway utilization, aircraft flight tracks, and fleet mix as projected in the plan.

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PROGRAMMED SHORT-TERM PROJECTS	Historic and Cultural Resources/Section 4(f)	Wetlands	Water Quality	Coastal Resources	Biotic Resources	Air Quality	Noise/Compatible Land Use	Potential Environmental Permits
Apron, taxiway, runway rehabilitation projects								None
Construct air cargo taxiway								COE, WATER, MPDES, NRPA
Terminal apron construction								MPDES
Terminal building construction-Phase I								MPDES
Construct parking garage								MPDES
Improve runway 29 runway safety area								COE, WATER, MPDES, NRPA
Extend runway 18-36 and Taxiway C 1,100', Improve Runway 18-36 RSA, Displace landing thresholds								COE, WATER, MPDES, NRPA
Relocate services/access road								COE, WATER, MPDES, NRPA
Construct air cargo apron Phase I								COE, WATER, MPDES, NRPA
Construct South General Aviation Apron - Phase I								COE, WATER, MPDES, NRPA
Expand airport rescue and fire fighting building								None

LEGEND

- No Impact Anticipated
- Potential Impact or Field Surveys Needed
- Impact Due to Construction, not Airport Operations

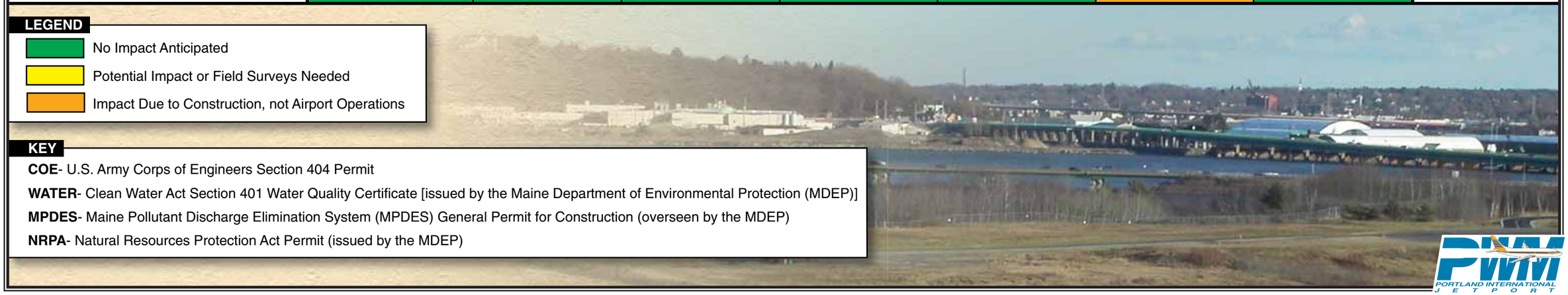
KEY

COE- U.S. Army Corps of Engineers Section 404 Permit

WATER- Clean Water Act Section 401 Water Quality Certificate [issued by the Maine Department of Environmental Protection (MDEP)]

MPDES- Maine Pollutant Discharge Elimination System (MPDES) General Permit for Construction (overseen by the MDEP)

NRPA- Natural Resources Protection Act Permit (issued by the MDEP)



PWM PORTLAND INTERNATIONAL JETPORT

Exhibit S
ANTICIPATED ENVIRONMENTAL IMPACTS OF
PROGRAMMED SHORT-TERM PROJECTS

The aircraft noise contours generated using the aforementioned data for Portland International Jetport are depicted on **Exhibit T**. For existing activity levels, the 70 and 75 DNL contours remain entirely on airport property. A portion of the 65 DNL contour extends outside the eastern and western airport boundaries. However, it does not appear to contain any incompatible land uses.

When considering the Intermediate Term and Long Range forecast activity at the airport, the 70 and 75 DNL contours continue to remain entirely on airport property. However, the 65 DNL contour extends beyond the airport boundaries off each runway end. The Long Range 65 DNL contour may encompass residential land uses adjacent to the northern airport boundary.

CAPITAL NEEDS AND FUNDING

Once the specific needs for the airport have been established, the next step is to determine a realistic schedule and costs for implementing each project. The recommended improvements are grouped into three planning horizons: short, intermediate, and long range. Each year, the City of Portland will need to re-examine the priorities for funding, adding, or removing projects on the capital programming lists.

While some projects will be demand-based, others will be dictated by design standards, safety, or rehabilitation needs. In putting together a list of projects, an attempt has been made to include anticipated rehabilitation needs through the planning period and capital replacement needs.

Exhibit U summarizes capital needs for Portland International Jetport through the planning period of this master plan. An estimate has been included with each project of federal and state funding eligibility, although this amount is not guaranteed. For larger capital projects, it may be necessary for the City of Portland to apply for discretionary funds (discussed in more detail in the following paragraphs). **Exhibit V** graphically depicts development staging.

Capital needs for the airport can be categorized as follows:

1) **Safety** - these are capital needs required to implement Code of Federal Regulations (CFR), Title 14, Part 139, certification; meet FAA design standards; or are considered necessary for operational safety and protection of aircraft and/or people and property on the ground near the airport.

2) **Environmental** - these are capital needs which are identified to enable the airport to operate in an environmentally acceptable manner, or meet needs identified in the Environmental Overview (Chapter Five).

3) **Demand** - these are capital needs required to accommodate levels of aviation demand. The implementation of these projects should only occur when demand for these needs is verified.

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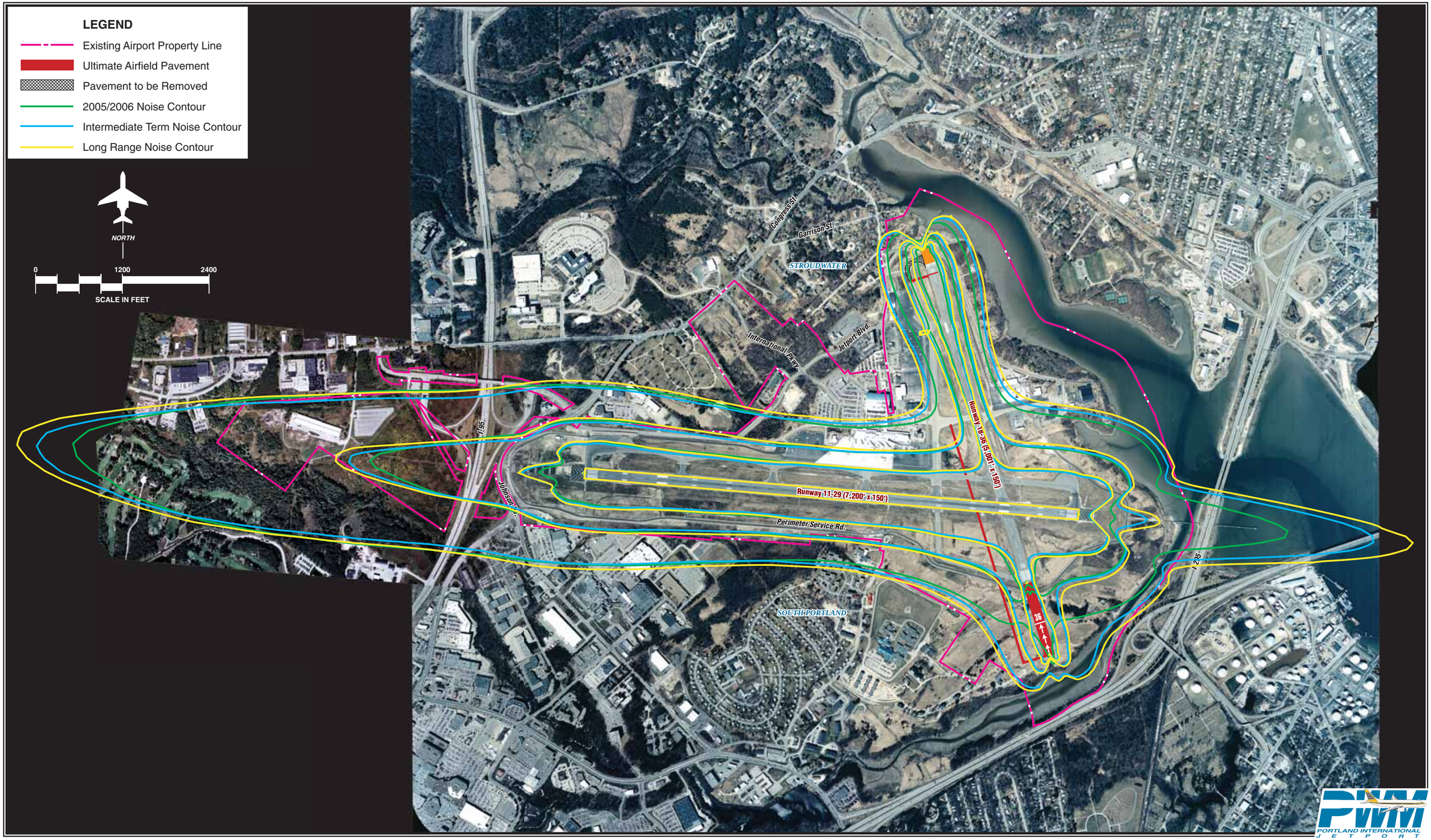


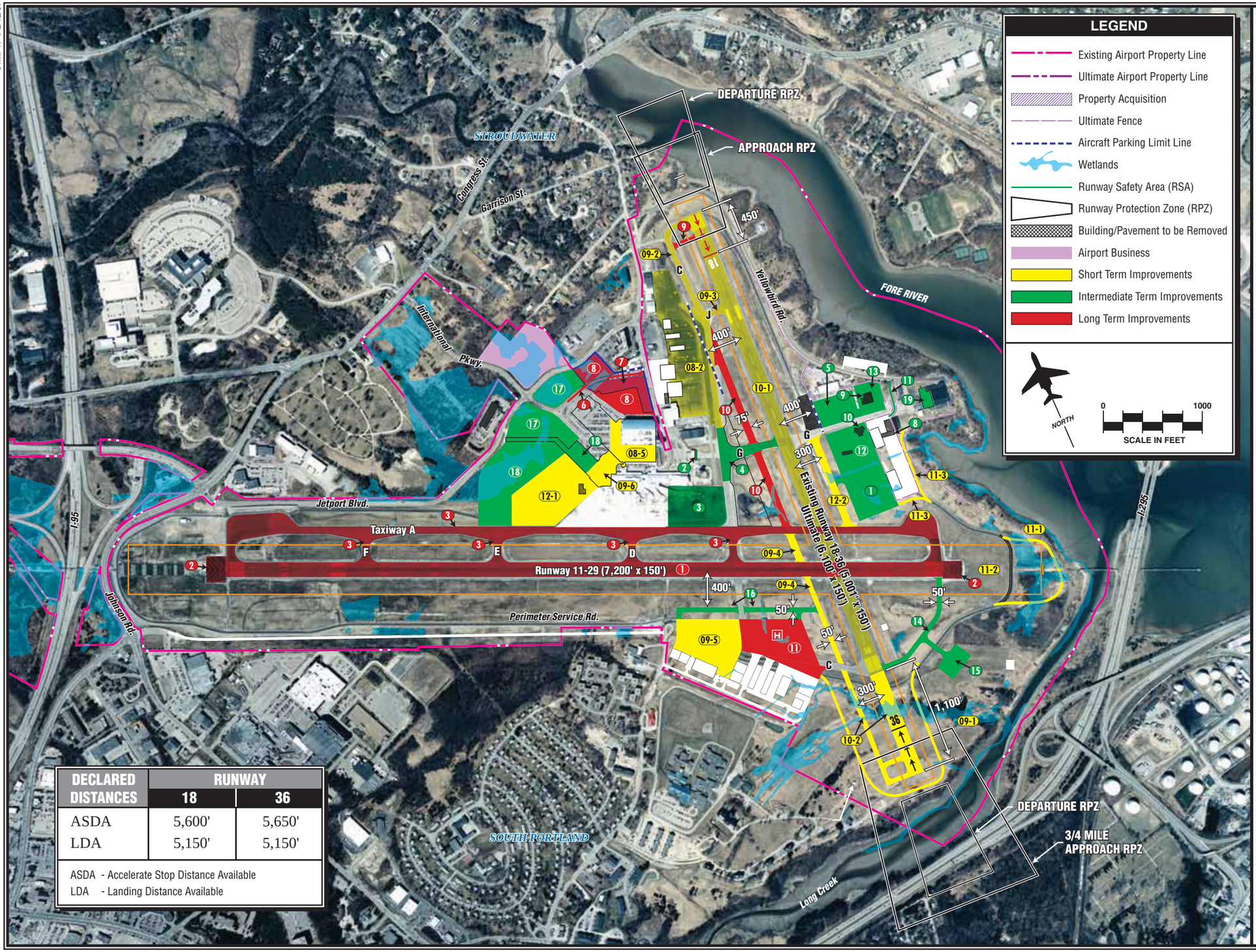
PWM
PORTLAND INTERNATIONAL JETPORT

Exhibit T
NOISE CONTOURS

Description	Total Cost	FAA Eligible	Passenger Facility Charge	State Eligible	Local Share	Category
SHORT TERM PLANNING HORIZON (First 6 years)						
2007						
1. Environmental Assessment (RSA Improvements)	$ 6 50,000	$ 6 17,500	$ -	$ 16,250	$ 16,250	Environmental
2008						
1. Design and Permit Runway 18-36 Improvements	$ 3 00,000	$ 2 85,000	$ -	$ 7,500	$ 7,500	Environmental
2. General Aviation Apron Rehabilitation	2 ,000,000	1 ,900,000	-	5 0,000	50,000	Reconstruction/Rehabilitation
3. Acquire Snow Removal Equipment	2 ,000,000	-	2 ,000,000	-	-	Safety
4. Acquire Airport Rescue and Fire Fighting (ARFF) Equipment	6 0,000	-	-	-	60,000	Safety
5. Construct Parking Garage	25,000,000	-	-	-	2 5,000,000	Demand
Subtotal 2008	**$ 29,360,000**	**$ 2 ,185,000**	**$ 2 ,000,000**	**$ 57,500**	**$ 2 5,117,500**	
2009						
1. Wetlands Mitigation (9 Acres)	$ 5,850,000	$ 5 ,557,500	$ -	$ 146,250	$ 1 46,250	Environmental
2. Taxiway C (Alpha to Juliet) Rehabilitation	1 ,437,500	1 ,365,625			71,875	Reconstruction/Rehabilitation
3. Taxiway J Rehabilitation	2 00,000	190,000	-	5 ,000	5,000	Reconstruction/Rehabilitation
4. Relocate Taxiway C - Phase I	1 ,646,800	1 ,564,460	-	4 1,170	41,170	Demand
5. Construct South General Aviation Apron - Phase I (291,100 s.f.)	3 ,776,600	-	-	-	3 ,776,600	Demand
6. Terminal Building Construction - Phase I	52,330,000	-	4 6,050,400	-	6 ,279,600	Demand
Subtotal 2009	**$ 65,240,900**	**$ 8 ,677,585**	**$ 4 6,050,400**	**$ 192,420**	**$ 1 0,320,495**	
2010						
1. Runway 18-36 Rehabilitation	$ 5,562,500	$ 5 ,284,375	$ -	$ 139,063	$ 1 39,063	Reconstruction/Rehabilitation
2. Extend Runway 18-36 and Taxiway C 1,100', Improve Runway 18-36 RSA, Displace Landing Thresholds	6 ,336,500	6 ,019,675	-	158,413	158,413	Safety
Subtotal 2010	**$ 11,899,000**	**$ 1 1,304,050**	**$ -**	**$ 297,475**	**$ 2 97,475**	
2011						
1. Wetlands Mitigation (6 Acres)	$ 1,650,000	$ 1 ,567,500	$ -	$ 41,250	$ 41,250	Environmental
2. Improve Runway 29 Runway Safety Area (RSA)	2 ,012,500	1 ,911,875	-	5 0,313	50,313	Environmental
3. Relocate Service/Access Road	2 81,800	267,710	-	7 ,045	7,045	Safety
Subtotal 2011	**$ 3 ,944,300**	**$ 3 ,747,085**	**$ -**	**$ 98,608**	**$ 98,608**	
2012						
1. Terminal Apron Construction	$ 8,000,000	$ 7 ,600,000	$ 2 00,000	$ 200,000	$ -	Demand
2. Construct Air Cargo Taxiway (1,000 feet x 75 feet)	1 ,592,800	1 ,513,160	-	3 9,820	39,820	Capacity
Subtotal 2012	**$ 9 ,592,800**	**$ 9 ,113,160**	**$ 2 00,000**	**$ 239,820**	**$ 39,820**	
Total Short Term Planning Horizon	***$ 120,687,000***	***$ 3 5,644,380***	***$ 4 8,250,400***	***$ 902,073***	***$ 3 5,890,148***	
INTERMEDIATE TERM PLANNING HORIZON						
1. Construct Air Cargo Apron Phase I (210,500 s.f.)	$ 3,105,000	$ 2 ,949,750	$ -	$ 77,625	$ 77,625	Demand
2. Expanded Airport Rescue and Fire Fighting (ARFF) Building	3 24,300	-	-	-	324,300	Capacity
3. Terminal Apron and Taxiway Rehabilitation	2 ,375,000	2 ,256,250	-	5 9,375	59,375	Reconstruction/Rehabilitation
4. Taxiway G and Taxiway C Rehabilitation	3 ,187,500	3 ,028,125	-	7 9,688	79,688	Reconstruction/Rehabilitation
5. Cargo Apron Rehabilitation	1 ,399,000	1 ,329,050	-	3 4,975	34,975	Reconstruction/Rehabilitation
6. Acquire Airport Rescue and Fire Fighting (ARFF) Equipment	7 50,000	712,500	-	1 8,750	18,750	Safety
7. Acquire Snow Removal Equipment	1 ,400,000	-	1 ,400,000	-	-	Safety
8. Remove General Aviation Hangar	1 26,500	-	-	-	126,500	Demand
9. Remove General Aviation Hangar	2 35,800	-	-	-	235,800	Demand
10. Remove General Aviation Hangar	9 2,500	-	-	-	92,500	Demand
11. Construct Air Cargo Access Road	1 26,500	120,175	-	3 ,163	3,163	Demand
12. Construct Air Cargo Apron Phase II (184,200 s.f.)	2 ,300,000	2 ,185,000	-	5 7,500	57,500	Demand
13. Extend Cargo Apron East (8,300 s.y.)	9 50,000	902,500	-	2 3,750	23,750	Demand
14. Construct Taxiway Between Runway 36 and Runway 29 (1,165 x 50 feet)	9 53,400	905,730	-	2 3,835	23,835	Demand
15. Construct Aircraft Engine Run-Up Pad (75,000 s.f.)	1 ,024,700	973,465	-	2 5,618	25,618	Demand
16. Construct South Apron Taxiway (1500 x 50 ft.)	1 ,672,100	1 ,588,495	-	4 1,803	41,803	Demand
17. Construct Public Terminal Building Surface Parking - Phase I	6 ,842,500	-	-	-	6 ,842,500	Demand
18. Terminal Building Construction - Phase II	62,100,000	-	5 4,648,000	-	7 ,452,000	Demand
19. Expand Maintenance Building	2 ,327,600	2 ,211,220	-	5 8,190	58,190	Capacity
Total Intermediate Term Planning Horizon	***$ 91,292,400***	***$ 1 9,162,260***	***$ 5 6,048,000***	***$ 504,270***	***$ 1 5,577,870***	
LONG RANGE PLANNING HORIZON						
1. Runway 11-29 Rehabilitation	$ 10,187,500	$ 9 ,678,125	$ -	$ 254,688	$ 254,688	Reconstruction/Rehabilitation
2. Runway 11-29 Blast Pad Rehabilitation	637,500	605,625	-	15,938	15,938	Reconstruction/Rehabilitation
3. Taxiway A, D, E, & F Rehabilitation	8 ,062,500	7 ,659,375	-	201,563	201,563	Reconstruction/Rehabilitation
4. Acquire Airport Rescue and Fire Fighting (ARFF) Equipment	6 0,000	-	-	-	60,000	Safety
5. Acquire Snow Removal Equipment	9 00,000	-	9 00,000	-	-	Safety
6. Relocate Terminal Loop Road	2 ,200,000	2 ,090,000	-	5 5,000	55,000	Demand
7. Land Acquisition	5 00,000	475,000	-	1 2,500	12,500	Demand
8. Construct Public Terminal Building Surface Parking - Phase II	1 ,552,500	-	-	-	1 ,552,500	Demand
9. Construct By-Pass Taxiway (250 x 50 feet)	431,300	409,735	-	1 0,783	10,783	Demand
10. Relocate Taxiway C - Phase II (850 x 75 ft, 1100 x 75 ft)	2 ,857,800	2 ,714,910	-	7 1,445	71,445	Capacity
11. Construct South GA Apron - Phase II (559,000 s.f.)	6 ,265,200	5 ,951,940	-	156,630	156,630	Demand
Total Long Range Planning Horizon	***$ 33,654,300***	***$ 29,584,710***	***$ 9 00,000***	***$ 778,545***	***$ 2,391,045***	
TOTAL ALL DEVELOPMENT	**$ 245,633,700**	**$ 8 4,391,350**	**$ 105,198,400**	**$ 2,184,888**	**$ 5 3,859,063**	

RSA - Runway Safety Area
s.f. - square-foot

04MP17-V-2/12/07



LEGEND

- Existing Airport Property Line
- Ultimate Airport Property Line
- Property Acquisition
- Ultimate Fence
- Aircraft Parking Limit Line
- Wetlands
- Runway Safety Area (RSA)
- Runway Protection Zone (RPZ)
- Building/Pavement to be Removed
- Airport Business
- Short Term Improvements
- Intermediate Term Improvements
- Long Term Improvements

NORTH

0 1000

SCALE IN FEET

DECLARED DISTANCES	RUNWAY 18	RUNWAY 36
ASDA	5,600'	5,650'
LDA	5,150'	5,150'

ASDA - Accelerate Stop Distance Available
LDA - Landing Distance Available

SHORT TERM IMPROVEMENTS

2007
- (07-1) Environmental Assessment (RSA Improvements)

2008
- (08-1) Design and Permit Runway 18-36 Improvements
- (08-2) General Aviation Apron Rehabilitation
- (08-3) Acquire Snow Removal Equipment
- (08-4) Acquire Airport Rescue and Fire Fighting (ARFF) Equipment
- (08-5) Construct Parking Garage

2009
- (09-1) Wetlands Mitigation (9 Acres)
- (09-2) Taxiway C (Alpha to Juliet) Rehabilitation
- (09-3) Taxiway J Rehabilitation
- (09-4) Relocate Taxiway C - Phase I
- (09-5) Construct South General Aviation Apron - Phase I
- (09-6) Terminal Building Construction - Phase I

2010
- (10-1) Runway 18-36 Rehabilitation
- (10-2) Extend Runway 18-36 and Taxiway C 1,100', Improve Runway 18-36 RSA, Displace Landing Thresholds

2011
- (11-1) Wetlands Mitigation (6 Acres)
- (11-2) Improve Runway 29 Runway Safety Area (RSA)
- (11-3) Relocate Service/Access Road

2012
- (12-1) Terminal Apron Construction
- (12-2) Construct Air Cargo Taxiway

INTERMEDIATE TERM IMPROVEMENTS

1. Construct Air Cargo Apron Phase I
2. Expanded Airport Rescue and Fire Fighting (ARFF) Building
3. Terminal Apron and Taxiway Rehabilitation
4. Taxiway G and Taxiway C Rehabilitation
5. Cargo Apron Rehabilitation
6. Acquire Airport Rescue and Fire Fighting (ARFF) Equipment
7. Acquire Snow Removal Equipment
8. Remove General Aviation Hangar
9. Remove General Aviation Hangar
10. Remove General Aviation Hangar
11. Construct Air Cargo Access Road
12. Construct Air Cargo Apron Phase II
13. Extend Cargo Apron East
14. Construct Taxiway Between Runway 36 and Runway 29
15. Construct Aircraft Engine Run-Up Pad
16. Construct South Apron Taxiway
17. Construct Public Terminal Building Surface Parking - Phase I
18. Terminal Building Construction - Phase II
19. Expand Maintenance Building

LONG TERM IMPROVEMENTS

1. Runway 11-29 Rehabilitation
2. Runway 11-29 Blast Pad Rehabilitation
3. Taxiway A, D, E, & F Rehabilitation
4. Acquire Airport Rescue and Fire Fighting (ARFF) Equipment
5. Acquire Snow Removal Equipment
6. Relocate Terminal Loop Road
7. Land Acquisition
8. Construct Public Terminal Building Surface Parking - Phase II
9. Construct By-Pass Taxiway
10. Relocate Taxiway C - Phase II
11. Construct South GA Apron - Phase II

PWM PORTLAND INTERNATIONAL JETPORT

Exhibit V
DEVELOPMENT STAGING

4) **Rehabilitation/ Reconstruction** - these are capital needs required to maintain the existing infrastructure at the airport.

5) **Efficiency** - these are capital needs intended to improve aircraft ground operations or passengers' use of the terminal building.

Each capital need is categorized according to this schedule. **Table E** summarizes development needs by category. As shown in the table, nearly three-quarters of the development program is dependent upon future levels of demand. While four percent is currently shown as related to environmental needs, environmental compliance costs have been included in all future development costs. Rehabilitation/reconstruction and safety costs represent 14 percent and 5 percent of the total costs, respectively. Three percent of total project costs are related to capacity projects to increase the efficiency of the airfield system. The applicable categories for each project are shown on **Exhibit U**.

TABLE E
Development Needs By Category

Category	Short Term Planning Horizon	Intermediate Term Planning Horizon	Long Range Planning Horizon	Totals	% Of Total
Safety	$10,325,100	$2,150,000	$960,000	**$13,435,100**	5%
Environmental	10,162,500	-	-	**10,162,500**	4%
Demand	89,106,600	79,529,000	10,949,000	**179,584,600**	73%
Reconstruction/Rehabilitation	9,200,000	6,961,500	18,887,500	**35,049,000**	14%
Capacity	1,592,800	2,651,900	2,857,800	**7,102,500**	3%
Totals	**$120,387,000**	**$91,292,400**	**$33,654,300**	**$245,333,700**	**100%**

CAPITAL IMPROVEMENT PROGRAM FUNDING

Exhibit U shows gross project costs for the CIP and the estimated sources of funding. For purposes of projecting the financial results for Portland International Jetport, the project costs shown on the exhibit include allowances for Portland International Jetport costs allocable to capital projects and the acquisition of land; design, construction, and program management fees and contingencies; and allowances for inflation.

Sources of funding for the CIP are as follows:

- Federal grants under the Airport Improvement Program (AIP);
- PFC revenues;
- State grants; and
- Proceeds from the sale of airport revenue bonds.

The amount of funding available from these sources will depend primarily on future levels of aviation activity at Portland International Jetport and future federal reauthorizations.

Federal Grants

The Airport Improvement Program is authorized by the *Airport and Airway Improvement Act of 1982* (the Act). The Act authorized funding for the AIP from the Airport and Airway Trust Fund for airport development, airport planning, and noise compatibility planning and programs. The Airport and Airway Trust Fund is funded through several aviation user taxes on airline fares, air freight, and aviation gasoline.

Under the AIP, Portland International Jetport receives annual entitlement grants based on numbers of enplaned passengers and cargo tonnage and is eligible to receive discretionary grants. Other sources of funds under the AIP are also available to Portland International Jetport; however, entitlement and discretionary funds are the primary sources. In general, AIP grants can be used for land acquisition, noise mitigation, airfield improvements, on-airport roadways, public areas of terminal buildings, safety and security systems, and equipment. In allocating its discretionary funds, the FAA gives priority to projects that enhance airport capacity where capacity constraints have been demonstrated.

On April 5, 2000, the U.S. Congress approved passage of the *Wendell H. Ford Aviation Investment and Reform Act for the 21st Century* (AIR-21). Among several provisions, AIR-21 provided four years of AIP authorization, including Federal Fiscal Years (FFY) 2000 – 2003. The AIP was reauthorized for fiscal years 2000-2003 in legislation enacted in April 2000, and in the 2003 FAA Reauthorization Act for Federal Fiscal Years 2004-2007. For purposes of this analysis, it was assumed that federal programs similar to the AIP program would continue throughout the planning period.

The federal grants shown on **Exhibit U** reflect the receipt of entitlement funds beginning in FY 2007 through the Long Term Planning Horizon to finance projects in the CIP up to 95 percent of project costs. No discretionary grants are assumed for this analysis.

Passenger Facility Charges

PFCs are authorized by Title 14 of the Code of Federal Regulations, Part 158, and the PFC program is administered by the FAA. PFCs are collected from qualified enplaned passengers, and PFC revenues are used to fund eligible projects. A PFC of up to $4.50 per eligible enplaned passenger can be imposed by an airport operator. Once a PFC is imposed, it is included as part of the ticket price paid by passengers enplaning at the airport, collected by the airlines, and remitted to the airport operator, less an allowance for airline processing expenses. Portland International Jetport currently imposes a $3.00 PFC. The PFC legislation stipulates that if a medium- to large-hub airport institutes up to a $3.00 PFC, they must forego 50 percent of their AIP entitlement funds, which increases to 75 percent if they charge a $4.50 PFC. Since Portland International Jetport is a small-hub airport, it does not have to forego any of its annual AIP entitlement funds.

Projects that are eligible for PFC funding are those that preserve or enhance the capacity, safety, or security of the air transportation system; reduce noise or mitigate noise effects; or furnish opportunities for enhanced competition between or among air carriers. PFCs cannot be used for commercial facilities at airports, such as restaurants and other concession space, rental car facilities, public parking facilities, or construction of exclusively leased space or facilities.

In August 2005, Portland International Jetport received the FAA's authorization to collect up to $34,389,032 through a $3.00 PFC. In May 2006, this approval amount was increased by $1,190,731 to $35,579,763. Portland International Jetport expects that the first PFC authorization will expire on September 1, 2012.

For purposes of this analysis, it was assumed that PFC revenues at the $3.00 level would not be available to fund the CIP until FY 2013, when the initial PFC authorization is projected to expire. The PFCs shown on **Exhibit U** assume that Portland International Jetport would receive authorization to increase its PFC to $4.50 per enplaned passenger and would be used to fund PFC-eligible project costs in the CIP. These monies would be available beginning in 2009 for the amount of the increase in the collection ($1.50) and, beginning in September 2012, for the entire amount ($4.50). Since PFCs will not be available at the time the eligible projects are being constructed, this analysis assumed that general airport revenue bonds will be issued and future PFCs will be applied to pay down that eligible debt service.

State Grants

The AIP legislation stipulates that states fund half the local share percentage for eligible projects in an airport's capital program. Since Portland International Jetport is a small-hub airport, the formula for grants is 95 percent federal and 5 percent local. As a result, it is assumed that the State of Maine will fund 2.5 percent of the eligible projects in the CIP.

Local Share
(General Airport Revenue Bonds)

Portland International Jetport has one series of outstanding bonds. The Series 2003A Bonds were issued in June 2003 for $35 million. These bonds were issued to primarily fund the parking garage that was completed in March 2003.

As shown on **Exhibit U**, the local share of the CIP equals approximately $53.9 million. Included in this amount is the construction of a south general aviation apron totaling approximately $3.8 million. This project is assumed to be funded by a third party and is not included in the financial results presented in the next section. The remaining $50.1 million of the local share is assumed to be funded with additional revenue bonds. Assumptions used to determine annual principal and interest payment on those future revenue bonds are described in the next section.

PROJECTED FINANCIAL RESULTS

Debt Service

Exhibit W presents the Jetport's debt service requirements for general obligation (GO) bonds, Series 2003A Bonds, and future airport revenue bonds (Future Bonds). The Future Bonds are anticipated to be issued to fund the remaining local share of the CIP costs in the three planning periods, as presented in **Exhibit W**, in the total amount of $50.1 million.

Estimated debt service requirements on Future Bonds issued for the CIP were based on the following allowances and assumptions:

- 30-year maturities (which is consistent with past practices at Portland International Jetport);
- Allowances for increases in bond interest rates through the long term;
- Allowances for capitalized interest;
- Funding of the Debt Service Reserve Account; and
- Allowances for costs of issuance.

The Debt Service Requirements are allocated to Portland International Jetport's divisions on the basis of project costs financed with such bonds.

Maintenance and Operation (M&O) Expenses

M&O Expenses at Portland International Jetport are assigned to the divisions described in the section entitled "Airport Financial Structure." Within each division, there are line items to which the M&O Expenses are assigned, which include, but are not limited to, the following categories:

- Payroll
- Benefits
- Administrative Services
- Contractual Services
- Maintenance and Repairs
- Rentals
- Insurance
- Supplies
- Utilities
- Contributions
- Capital Outlay

Exhibit X presents historical and projected M&O Expenses by line item and cost center for FY 2004 through the long-term planning period. M&O Expenses are projected to increase at an average annual growth rate of 7.1 percent from 2007 through the long-term planning period, reflecting an increase due to inflation of 4.0 percent and allowances for additional expenses associated with certain projects in the CIP, such as the terminal expansion, roadways, and public parking projects.

Revenues

- NON-AIRLINE REVENUES

Non-airline revenues accounted for nearly 60 percent of total revenues in FY 2006. Non-airline revenues are projected to increase at an average annual growth rate of 5.9 percent from 2007 through the long-term planning period, reflecting an increase in the

	Historical			Projected						
				Short Term					Intermediate Term	Long Term
	2004	2005	2006	2007	2008	2009	2010	2011		
GENERAL OBLIGATION BONDS										
Jetport Administration (01)	$245,334	$224,492	$211,038	$200,224	$189,414	$178,596	$107,794	$80,267	$0	$0
TOTAL	$245,334	$224,492	$211,038	$200,224	$189,414	$178,596	$107,794	$80,267	$0	$0
SERIES 2003 BONDS										
Parking (09)	$743,826	$2,255,949	$2,253,625	$2,255,310	$2,255,809	$2,255,119	$2,253,241	$2,255,175	$11,269,095	$22,544,931
TOTAL	$743,826	$2,255,949	$2,253,625	$2,255,310	$2,255,809	$2,255,119	$2,253,241	$2,255,175	$11,269,095	$22,544,931
FUTURE REVENUE BONDS										
Jetport Administration (01)	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Jetport Field (02)	0	0	0	0	0	0	316,752	316,752	1,907,311	6,508,314
General Aviation (03)	0	0	0	0	0	0	41,176	41,176	228,868	666,326
Fringe & Indirect Costs (04)	0	0	0	0	0	0	0	0	0	0
Security (05)	0	0	0	0	0	0	0	0	0	0
Terminal (06)	0	0	0	0	0	0	5,025,721	5,025,721	31,217,349	112,264,948
Jetport Surplus (07)	0	0	0	0	0	0	0	0	0	0
Marketing (08)	0	0	0	0	0	0	0	0	0	0
Parking (09)	0	0	0	0	0	0	1,955,351	1,955,351	10,868,472	31,642,411
TOTAL	$0	$0	$0	$0	$0	$0	$7,339,000	$7,339,000	$44,222,000	$151,082,000
TOTAL DEBT SERVICE										
Jetport Administration (01)	$245,334	$224,492	$211,038	$200,224	$189,414	$178,596	$107,794	$80,267	$0	$0
Jetport Field (02)	0	0	0	0	0	0	316,752	316,752	1,907,311	6,508,314
General Aviation (03)	0	0	0	0	0	0	41,176	41,176	228,868	666,326
Fringe & Indirect Costs (04)	0	0	0	0	0	0	0	0	0	0
Security (05)	0	0	0	0	0	0	0	0	0	0
Terminal (06)	0	0	0	0	0	0	5,025,721	5,025,721	31,217,349	112,264,948
Jetport Surplus (07)	0	0	0	0	0	0	0	0	0	0
Marketing (08)	0	0	0	0	0	0	0	0	0	0
Parking (09)	743,826	2,255,949	2,253,625	2,255,310	2,255,809	2,255,119	4,208,592	4,210,526	22,137,567	54,187,343
TOTAL	$989,160	$2,480,441	$2,464,663	$2,455,534	$2,445,223	$2,433,715	$9,700,035	$9,674,442	$55,491,095	$173,626,931

Sources: Jetport records for G.O. and Series 2003B Bond debt service, MAC Consulting, LLC for future debt service requirements

	Historical			Projected						
				Short Term					Intermediate Term	Long Term
	2004	2005	2006	2007	2008	2009	2010	2011		
Summary by Line Item										
Payroll	$1,719,620	$1,724,901	$1,860,790	$1,997,298	$2,076,000	$2,159,000	$3,291,000	$3,424,000	$20,369,000	$65,537,000
Benefits	898,996	965,420	1,035,803	1,067,776	1,110,000	1,154,000	1,210,000	1,258,000	7,088,000	19,152,000
Administrative Services	436,915	471,363	484,162	512,947	533,000	556,000	769,000	799,000	4,688,000	14,562,000
Contractual Services	1,505,846	1,498,482	1,584,244	1,713,898	1,783,000	1,854,000	3,598,000	3,743,000	22,779,000	77,942,000
Maintenance & Repairs	665,729	529,655	714,501	649,408	675,000	701,000	1,121,000	1,165,000	6,943,000	22,559,000
Rentals	155,156	213,899	153,541	221,953	230,000	238,000	263,000	273,000	1,549,000	4,304,000
Insurance	120,324	120,366	127,064	147,232	153,000	159,000	165,000	172,000	968,000	2,607,000
Supplies	439,141	534,552	571,938	594,895	619,000	645,000	873,000	908,000	5,316,000	16,245,000
Utilities	499,754	497,486	623,134	707,064	735,000	763,000	1,686,000	1,754,000	10,816,000	38,334,000
Contributions	1,791,986	2,004,969	1,872,061	1,871,669	1,946,000	2,024,000	2,105,000	2,189,000	12,335,000	33,276,000
	$8,233,467	$8,561,093	$9,027,239	$9,484,140	$9,860,000	$10,253,000	$15,081,000	$15,685,000	$92,851,000	$294,518,000
Summary by Cost Center										
Jetport Administration (01)	$1,395,319	$1,360,636	$1,532,908	$1,639,080	$1,704,000	$1,772,000	$1,843,000	$1,917,000	$10,796,000	$29,027,000
Jetport Field (02)	1,484,833	1,516,131	1,699,588	1,852,234	1,925,000	2,001,000	2,080,000	2,163,000	12,181,000	32,802,000
General Aviation (03)	16,142	21,320	40,954	28,306	31,000	32,000	33,000	34,000	185,000	445,000
Fringe & Indirect Costs (04)	37,213	29,407	0	0	0	0	0	0	0	0
Security (05)	1,594,703	1,493,237	1,522,232	1,259,319	1,308,000	1,360,000	1,415,000	1,472,000	8,285,000	22,332,000
Terminal (06)	2,176,283	2,086,735	2,338,142	2,549,626	2,652,000	2,757,000	7,170,000	7,458,000	46,542,000	169,906,000
Jetport Surplus (07)	0	0	0	0	0	0	0	0	0	0
Marketing (08)	0	153,057	132,429	151,756	157,000	164,000	171,000	178,000	1,001,000	2,697,000
Parking (09)	137,011	111,008	51,239	193,509	201,000	209,000	333,000	346,000	1,937,000	5,165,000
ARFF	1,310,761	1,697,716	1,709,746	1,810,310	1,882,000	1,958,000	2,036,000	2,117,000	11,924,000	32,144,000
Roadways	81,202	91,845	0	0	0	0	0	0	0	0
	$8,233,467	$8,561,093	$9,027,239	$9,484,140	$9,860,000	$10,253,000	$15,081,000	$15,685,000	$92,851,000	$294,518,000

Sources: Jetport Records, 2004 through 2007; MAC Consulting, LLC, 2008 - long-term projection period

PWM PORTLAND INTERNATIONAL JETPORT

Exhibit X
M & O EXPENSES

number of enplaned passengers and price increases. In general, it was assumed that Portland International Jetport would renegotiate leases that expire during the planning period with terms and conditions reflective of a new terminal, and would implement changes in rate structures and business practices, as necessary, to maintain positive financial performance.

Exhibit X presents historical non-airline revenues from FY 2004 through FY 2006 and projected non-airline revenues for the three planning periods.

- PASSENGER AND CARGO AIRLINE REVENUES

The Airline Agreement provides the basis for the annual recalculation of passenger and cargo airline rates and charges, which are compensatory-based formulas that recover the costs of operating the Jetport Field and Terminal cost centers. For purposes of this analysis, it was assumed that similar methodologies for recalculating airline rates and charges would be used by Portland International Jetport following expiration of the leases on December 31, 2006.

In general, the projections of passenger and cargo airline revenues shown on **Exhibit Y** were based on the following assumptions:

- The calculation of airline rates and charges in the future would include the additional Debt Service Requirements, M&O Expenses, and amortization of internally generated cash flow associated with projects in the CIP;
- Current amounts of airline rented space and gate use would form the basis for the use of existing facilities; and
- Additional space leased by the passenger airlines would be based on assumptions regarding existing gate use, the ratio of space leased, on average, to the number of gates leased, and the forecasts of aviation activity presented in Chapter Two.

As shown on the table, the total of all passenger airline payments (terminal rentals, landing fees, and other charges), expressed on a per enplaned passenger basis for the same period, is projected to increase from $6.25 in FY 2006 to $23.06 in the long-term planning period (from $6.25 to $12.76 in FY 2006 dollars).

Debt Service Coverage

Exhibit Z also presents the estimated debt service coverage ratio. In Section 705 of the Certificate, the City covenants that for each Fiscal Year, it will adjust Rates and Charges with respect to the Jetport for the services and facilities furnished by the Jetport so that Net Revenues in each Fiscal Year will equal at least 125 percent of the Required Debt Service Fund Deposits. As shown on the table, Net Revenues (Revenues less M&O Expenses) are projected to increase from $3.1 million in FY 2006 to $191.8 million in the long-term planning period, resulting in debt service coverage ratios that ex-

ceed the requirements of the Certificate.

FINANCIAL SUMMARY

Exhibit U presents the CIP and funding sources. As previously indicated, it was assumed that project costs would be funded with a combination of federal grants, PFC revenues, state grants, and future airport revenue bonds. Beyond the short-term planning period, Portland International Jetport will continue to be developed as required to meet the needs of increasing passenger demand, consistent with future funding sources available to Portland International Jetport at the time of project implementation. The financial feasibility of future projects will be determined by the provisions of existing or future leases, funding levels and participation rates of federal grant programs, the availability of PFC revenues (pay-as-you-go and leveraged), bonding capacity, and the ability to generate internal cash flow from Portland International Jetport operations.

The financial projections were prepared on the basis of available information and assumptions set forth in this chapter. It is believed that such information and assumptions provide a reasonable basis for the projections to the level of detail appropriate for an airport master plan. Based on these assumptions, the CIP could be financed in the future by Portland International Jetport and result in key financial indicators that are consistent with the historical results of the Jetport and industry comparables. However, some of the assumptions used to develop the projections will not be realized, and unanticipated events and circumstances may occur. Therefore, the actual results will vary from those projected, and such variations could be material.

	Historical			Projected						
				Short Term					Intermediate Term	Long Term
	2004	2005	2006	2007	2008	2009	2010	2011		
Summary by Line Item										
Payroll	$1,719,620	$1,724,901	$1,860,790	$1,997,298	$2,076,000	$2,159,000	$3,291,000	$3,424,000	$20,369,000	$65,537,000
Benefits	898,996	965,420	1,035,803	1,067,776	1,110,000	1,154,000	1,210,000	1,258,000	7,088,000	19,152,000
Administrative Services	436,915	471,363	484,162	512,947	533,000	556,000	769,000	799,000	4,688,000	14,562,000
Contractual Services	1,505,846	1,498,482	1,584,244	1,713,898	1,783,000	1,854,000	3,598,000	3,743,000	22,779,000	77,942,000
Maintenance & Repairs	665,729	529,655	714,501	649,408	675,000	701,000	1,121,000	1,165,000	6,943,000	22,559,000
Rentals	155,156	213,899	153,541	221,953	230,000	238,000	263,000	273,000	1,549,000	4,304,000
Insurance	120,324	120,366	127,064	147,232	153,000	159,000	165,000	172,000	968,000	2,607,000
Supplies	439,141	534,552	571,938	594,895	619,000	645,000	873,000	908,000	5,316,000	16,245,000
Utilities	499,754	497,486	623,134	707,064	735,000	763,000	1,686,000	1,754,000	10,816,000	38,334,000
Contributions	1,791,986	2,004,969	1,872,061	1,871,669	1,946,000	2,024,000	2,105,000	2,189,000	12,335,000	33,276,000
	$8,233,467	$8,561,093	$9,027,239	$9,484,140	$9,860,000	$10,253,000	$15,081,000	$15,685,000	$92,851,000	$294,518,000
Summary by Cost Center										
Jetport Administration (01)	$1,395,319	$1,360,636	$1,532,908	$1,639,080	$1,704,000	$1,772,000	$1,843,000	$1,917,000	$10,796,000	$29,027,000
Jetport Field (02)	1,484,833	1,516,131	1,699,588	1,852,234	1,925,000	2,001,000	2,080,000	2,163,000	12,181,000	32,802,000
General Aviation (03)	16,142	21,320	40,954	28,306	31,000	32,000	33,000	34,000	185,000	445,000
Fringe & Indirect Costs (04)	37,213	29,407	0	0	0	0	0	0	0	0
Security (05)	1,594,703	1,493,237	1,522,232	1,259,319	1,308,000	1,360,000	1,415,000	1,472,000	8,285,000	22,332,000
Terminal (06)	2,176,283	2,086,735	2,338,142	2,549,626	2,652,000	2,757,000	7,170,000	7,458,000	46,542,000	169,906,000
Jetport Surplus (07)	0	0	0	0	0	0	0	0	0	0
Marketing (08)	0	153,057	132,429	151,756	157,000	164,000	171,000	178,000	1,001,000	2,697,000
Parking (09)	137,011	111,008	51,239	193,509	201,000	209,000	333,000	346,000	1,937,000	5,165,000
ARFF	1,310,761	1,697,716	1,709,746	1,810,310	1,882,000	1,958,000	2,036,000	2,117,000	11,924,000	32,144,000
Roadways	81,202	91,845	0	0	0	0	0	0	0	0
	$8,233,467	$8,561,093	$9,027,239	$9,484,140	$9,860,000	$10,253,000	$15,081,000	$15,685,000	$92,851,000	$294,518,000

Sources: Jetport Records, 2004 through 2007; MAC Consulting, LLC, 2008 - long-term projection period

PWM PORTLAND INTERNATIONAL JETPORT

Exhibit X
M & O EXPENSES

Airline Revenues

	Historical			Projected						
				Short Term					Intermediate Term	Long Term
	2004	2005	2006	2007	2008	2009	2010	2011		
Terminal Areas	$2,836,094	$2,696,633	$2,275,025	$2,262,572	$2,648,000	$2,733,000	$9,400,000	$8,437,000	$51,512,000	$201,211,000
Landing Fees	1,884,664	2,283,332	1,969,475	2,391,388	2,511,000	2,574,000	2,847,000	2,893,000	16,084,000	43,251,000
Total	$4,720,758	$4,979,964	$4,244,499	$4,653,960	$5,159,000	$5,307,000	$12,247,000	$11,330,000	$67,596,000	$244,462,000
Enplanements	638,674	744,513	679,458	754,000	777,000	801,000	825,000	850,000	4,574,000	10,880,000
Airline Cost Per Enplanement	$7.39	$6.69	$6.25	$6.17	$6.64	$6.63	$14.84	$13.33	$23.20	$23.06
Airline Cost Per Enpl (PV at 3%)	$7.39	$6.69	$6.25	$5.99	$6.26	$6.06	$13.19	$11.50	$17.26	$12.76

Sources: Jetport Records, 2004 through 2007; MAC Consulting, LLC, 2008 - long-term projection period

Cash Flow

	Historical			Projected						
				Short Term					Intermediate Term	Long Term
	2004	2005	2006	2007	2008	2009	2010	2011		
REVENUES										
Airline Revenues	$4,720,758	$4,979,964	$4,244,499	$4,653,960	$5,159,000	$5,307,000	$12,247,000	$11,330,000	$67,596,000	$244,462,000
Nonairline Revenues	6,488,857	8,029,972	7,488,551	9,026,837	9,423,000	9,837,000	12,553,000	13,207,000	76,702,000	229,098,000
Non-Operating [1]	132,326	250,600	440,305	271,600	277,000	282,000	728,000	734,000	5,575,000	12,725,000
TOTAL REVENUES	$11,341,940	$13,260,537	$12,173,354	$13,952,397	$14,859,000	$15,426,000	$25,528,000	$25,271,000	$149,873,000	$486,285,000
M&O Expense	$8,233,467	$8,561,093	$9,027,239	$9,484,140	$9,860,000	$10,253,000	$15,081,000	$15,685,000	$92,851,000	$294,518,000
NET REVENUES	$3,108,473	$4,699,443	$3,146,116	$4,468,257	$4,999,000	$5,173,000	$10,447,000	$9,586,000	$57,022,000	$191,767,000
Equipment & Capital Outlays	$207,780	$372,767	$237,492	$582,650	$26,490	$26,490	$26,490	$26,490	$132,450	$264,900
Prior G.O. Bond Dbt Svc	245,334	224,492	211,038	200,224	189,414	178,596	107,794	80,267	0	0
Series 2003 Bond Debt Service	743,826	2,255,949	2,253,625	2,255,310	2,255,809	2,255,119	2,253,241	2,255,175	11,269,095	22,544,931
Future Revenue Bond Debt Service	0	0	0	0	0	0	7,339,000	7,339,000	44,222,000	151,082,000
LESS: PFCs Applied to Debt Service	0	0	0	0	0	0	(1,127,000)	(1,760,000)	(16,796,000)	(46,258,000)
Net Surplus/(Deficit)	$1,911,534	$1,846,236	$443,960	$1,430,073	$2,527,288	$2,712,796	$1,847,476	$1,645,069	$18,194,455	$64,133,169
M&O Reserve Fund	$758,367	$81,907	$116,536	$114,225	$93,965	$98,250	$1,207,000	$151,000	$1,980,500	$2,823,250
NET REMAINING REVENUES	$1,153,167	$1,764,329	$327,424	$1,315,848	$2,433,323	$2,614,546	$640,476	$1,494,069	$16,213,955	$61,309,919
DEBT SERVICE COVERAGE RATIO										
Net Revenues	$3,108,473	$4,699,443	$3,146,116	$4,468,257	$4,999,000	$5,173,000	$10,447,000	$9,586,000	$57,022,000	$191,767,000
PLUS: Rollling Coverage	0	0	0	0	0	0	855,515	855,515	5,431,642	20,308,569
Adjusted Net Revenues	$3,108,473	$4,699,443	$3,146,116	$4,468,257	$4,999,000	$5,173,000	$11,302,515	$10,441,515	$62,453,642	$212,075,569
Revenue Bond Debt Service	$743,826	$2,255,949	$2,253,625	$2,255,310	$2,255,809	$2,255,119	$9,592,241	$9,594,175	$55,491,095	$173,626,931
LESS: PFCs Applied to Debt Service	0	0	0	0	0	0	(1,127,000)	(1,760,000)	(16,796,000)	(46,258,000)
Net Debt Service	$743,826	$2,255,949	$2,253,625	$2,255,310	$2,255,809	$2,255,119	$8,465,241	$7,834,175	$38,695,095	$127,368,931
DEBT SERVICE COVERAGE RATIO	**N/A**	**2.08**	**1.40**	**1.98**	**2.22**	**2.29**	**1.34**	**1.33**	**1.61**	**1.67**

[1]Non-operating revenue includes interest income. Source: Jetport Records, 2004 through 2007; MAC Consulting, LLC, 2008 - long-term project period

PORTLAND INTERNATIONAL JETPORT MASTER PLAN PLANNING ADVISORY COMMITTEE

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