PORT OF PORTLAND

Chapter Seven

CAPITAL IMPROVEMENT PROGRAM

CAPITAL IMPROVEMENT PROGRAM

The analyses conducted in the previous chapters evaluated airport development needs based upon safety, security, potential aviation activity, and operational efficiency. Through these analyses, a plan for the use and development of the airport was defined. The purpose of this chapter is to identify the projects to implement the proposed plan for the use and development of Hillsboro Airport, and those capital needs required to operate and maintain the airport in a safe and environmentally acceptable manner.

The presentation of the financial plan and its feasibility has been organized into two sections. First, funding sources on the federal and local levels are identified and discussed. Second, the airport's capital needs, costs, and funding eligibility are presented in narrative and tabulated form.

CAPITAL IMPROVEMENTS FUNDING

Financing capital improvements at the airport will not rely exclusively upon the financial resources of the Port of Portland (Port). Capital improvement funding is available at the federal level for many airport projects. The following discussion outlines the key sources for capital improvement funding.

FEDERAL GRANTS

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 most recent legislation, *Vision 100 – Century of Aviation Reauthorization Act* (Vision 100), was signed into law on December 13, 2003.

Vision 100 is a four-year bill covering federal fiscal years 2004, 2005, 2006, and 2007. Vision 100 provides national funding levels to the FAA of $3.4 billion in 2004, increasing $100 million annually, until reaching $3.7 billion in 2007.

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.

Proceeds from the Aviation Trust Fund are distributed each year by the FAA, from appropriations by Congress. A portion of the annual distribution is to primary commercial service airports (e.g., Portland International Airport), based upon enplanement levels. Commercial service airports enplaning more than 10,000 passengers annually are provided a minimum $1,000,000 annual entitlement. For eligible general aviation airports, *Vision 100* provides up to $150,000 of funding each year. As a general aviation airport, Hillsboro Airport does not qualify for the commercial service entitlement; however, it does qualify for the annual $150,000 entitlement. An airport can consolidate four years of entitlement funding for a total of $600,000. However, these annual entitlement levels can be reduced if Congress does not appropriate the full funding levels specified above.

After meeting entitlement obligations, the remaining Airport Improvement Program (AIP) funds are distributed via grants issued by the FAA, based upon the priority of the project for which airport sponsors have requested federal assistance through discretionary apportionments. A national priority ranking system is used to evaluate and rank each project for which an airport sponsor seeks federal assistance for. Those projects with the highest priority are given preference in funding. Each project for Hillsboro Airport is required to follow this procedure and compete with other airport projects in the state for AIP State Apportionment dollars, and across the country for other federal AIP funds. An important point to consider is that most funding for Hillsboro Airport is not guaranteed, as the airport is currently only eligible for the $150,000 annual entitlement under Vision 100 legislation. Therefore, the Port must rely on federal discretionary funding.

Airport development that meets the FAA's eligibility requirements can receive 95 percent of the total eligible project cost from the FAA. This is a five

percent increase from past funding, which only provided 90 percent funding for eligible projects. The 95 percent funding level is currently only provided by law until 2007. After 2007, the funding level would revert back to 90 percent (the federal share for the past two decades), unless extended by Congress. Funding at 95 percent for AIP-eligible projects has been assumed to extend through the planning period, as it is expected that subsequent legislation would make permanent the 95 percent funding level. Property acquisition, airfield improvements, aprons, perimeter service roads, and access road improvements are examples of eligible items.

Vision 100 does provide for the Secretary of Transportation to fund revenue-generating developments such as hangars and fuel facilities, which have historically not been eligible for federal funding. Vision 100 limits this funding eligibility to non-primary airports such as Hillsboro Airport, and the airports must use their annual entitlement dollars. Vision 100 also requires that all airside needs at the airport are met prior to an airport receiving funding for revenue-generating development.

LOCAL FUNDING

The balance of project costs, after consideration has been given to federal grants, must be funded through local resources. There are several alternatives for local finance options for future development at the airport. The Port can fund the local share, after FAA grants, through airport revenues, Port Cost Center cost center income (aviation) and/or bonds. The Post 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 have relied on a combination of public and private investments in the past. The Port has funded many of the grant-eligible items for general aviation at the airport including taxiways, apron, access roads, and automobile parking. Private individuals or businesses have typically 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 shown on **Exhibit 7A** assumes the Port will be able to fully pursue all the grant-eligible improvements to accommodate general aviation growth in the future. This includes apron development, hangar ac-

cess taxiways, public roadways and automobile parking, and land acquisition.

The T-hangars, Fixed Base Operator (FBO) hangars, and corporate hangars are all assumed to be funded 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 such 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.

CAPITAL NEEDS AND COST SUMMARIES

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 capital needs presented in this chapter outline the costs and timing for implementation. The program outlined on the following pages has been evaluated from a variety of perspectives and represents the culmination of a comparative analysis of basic budget factors, demand, and priority assignments by both the Port and Consultants.

DEMAND-BASED PLAN

The Master Plan for Hillsboro Airport has been developed according to a demand-based schedule. Demand-based planning refers to the intention to develop planning guidelines for the airport, based upon airport activity levels, instead of guidelines based on points in time. By doing so, the levels of activity derived from the demand forecasts can be related to the actual capital investments needed to safely and efficiently accommodate the level of demand being experienced at the airport. More specifically, the intention of this Master Plan is that the facility improvements needed to serve new levels of demand should only be implemented when the levels of demand experienced at the airport justify their implementation.

For example, the aviation demand forecasts projected that the addition of 101 more based aircraft could be expected through the Year 2025. This forecast was supported by the local community's growing economy and population and historical trends which yielded a growing number of based aircraft levels at the airport.

Future based aircraft levels will be dependent upon a number of economic factors. These factors could slow or accelerate based aircraft levels differently than projected in the aviation demand forecasts. Since changes in these factors cannot be realistically predicted for the entire forecast period, it is difficult to predict, with the level of accuracy needed to justify a capital investment, exactly when an improvement will be needed to satisfy demand level.

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No.	DESCRIPTION	TOTAL COST	FEDERALLY ELIGIBLE	LOCAL SHARE
SHORT TERM PLANNING HORIZON				
2005				
1.	Construct Shoulders Taxiway A - Phase II	**$ 1,443,000**	**$ 1,370,850**	**$ 72,150**
2006				
2.	Construct Terminal Apron Taxiway	$ 372,000	$ 353,400	$ 18,600
3.	Construct T-Hangar Taxilanes	946,000	898,700	47,300
4.	Acquire Backup Generator	100,000	95,000	5,000
Subtotal 2006		**$ 1,418,000**	**$ 1,347,100**	**$ 70,900**
2007				
5.	Environmental Assessment/EIS for Parallel Runway	$ 500,000	$ 475,000	$ 25,000
6.	Crack Fill and Slurry Seal Taxiway AA	214,000	203,300	10,700
7.	Runway 2-20 and Taxiway B Fog Seal	286,000	271,700	14,300
8.	Reconstruct West Perimeter Service Road	600,000	570,000	30,000
9.	Construct Northeast Corporate Hangar Access Taxiway F	1,303,000	1,237,850	65,150
10.	Construct Northeast Corporate Hangar Access Roads	466,000	442,700	23,300
11.	Construct Aircraft Wash Rack	150,000	142,500	7,500
Subtotal 2007		**$ 3,519,000**	**$ 3,343,050**	**$ 175,950**
2008				
12.	Overlay Taxiway H	$ 140,000	$ 133,000	$ 7,000
13.	Environmental Assessment/EIS for Parallel Runway	500,000	475,000	25,000
14.	Taxiway A3 Extension	2,129,000	2,022,550	106,450
15.	Taxiway Access to Northwest Corporate Center	900,000	855,000	45,000
16.	Construct Runway 12-30 High Speed Exit Taxiways	2,433,000	2,311,350	121,650
17.	Storm Water Quality Facility	500,000	475,000	25,000
Subtotal 2008		**$ 6,602,000**	**$ 6,271,900**	**$ 330,100**
2009				
18.	Slurry Seal West Local Tiedown	$ 57,000	$ 54,150	$ 2,850
19.	Environmental Assessment/EIS for Parallel Runway	500,000	475,000	25,000
20.	Construct Taxiway C Extension	2,104,000	1,998,800	105,200
21.	Construct T-Hangar Access Taxilanes - Phase I	4,458,000	4,235,100	222,900
22.	Construct East Perimeter Service Road	2,102,000	1,996,900	105,100
Subtotal 2009		**$ 9,221,000**	**$ 8,759,950**	**$ 461,050**
2010				
23.	Construct Runway 12L-30R - Phase I	$ 3,261,000	$ 3,097,950	$ 163,050
24.	Land Acquisition Reimbursement	4,645,000	4,412,750	232,250
Subtotal 2010		**$ 7,906,000**	**$ 7,510,700**	**$ 395,300**
2011				
25.	Construct Runway 12L-30R - Phase II (Taxiway D)	$ 3,662,000	$ 3,478,900	$ 183,100
26.	Master Plan Update	300,000	285,000	15,000
27.	Runway 12-30 Pavement Preservation (Slurry Seal)	596,000	566,200	29,800
28.	Taxiway A Pavement Preservation (Slurry Seal)	326,000	309,700	16,300
29.	Taxiway B Pavement Preservation (Slurry Seal)	66,000	62,700	3,300
30.	Taxiway F Pavement Preservation (Slurry Seal)	14,000	13,300	700
Subtotal 2011		**$ 4,964,000**	**$ 4,715,800**	**$ 248,200**
Subtotal Short Term Planning Horizon		**$ 35,073,000**	**$ 33,319,350**	**$ 1,753,650**
INTERMEDIATE TERM PLANNING HORIZON				
1.	Reconstruct/Shift/Extend Runway 2-20, Taxiway C, and Taxiway B 386' East	$ 10,649,000	$ 10,116,550	$ 532,450
2.	Relocate Taxiway C	3,088,000	2,933,600	154,400
3.	Construct Taxiway M - Phase I	4,499,000	4,274,050	224,950
4.	Construct Southeast Corporate Hangar Access Taxiway	1,470,000	1,396,500	73,500
5.	Land Acquisition	6,795,000	6,455,250	339,750
6.	Construct East Access Road	1,558,000	1,480,100	77,900
7.	Construct East Apron - Phase I	2,710,000	2,574,500	135,500
8.	Construct T-Hangar Automobile Parking - Phase I	457,000	434,150	22,850
9.	Construct East Apron Automobile Parking - Phase I	626,000	594,700	31,300
10.	Relocate Taxiway AA / Extend to Taxiway A4	1,520,000	1,444,000	76,000

No.	DESCRIPTION	TOTAL COST	FEDERALLY ELIGIBLE	LOCAL SHARE
INTERMEDIATE TERM PLANNING HORIZON (continued)				
11.	Construct Compass Calibration/Engine Run-Up Pad	709,000	673,550	35,450
12.	Relocate Charlie Pattern Landing Area	981,000	931,950	49,050
13.	Extend Taxiway B West	1,513,000	1,437,350	75,650
14.	Construct Terminal Apron - Phase I	11,907,000	11,311,650	595,350
15.	Construct Terminal Area Automobile Parking	2,811,000	2,670,450	140,550
16.	Runway 12-30 Pavement Preservation (Overlay)	1,901,000	1,805,950	95,050
17.	Runway 2-20 Pavement Preservation (Slurry Seal)	701,000	665,950	35,050
18.	Taxiway A Pavement Preservation (Overlay)	1,042,000	989,900	52,100
19.	Taxiway B Pavement Preservation (Overlay)	212,000	201,400	10,600
20.	Taxiway F Pavement Preservation (Overlay)	45,000	42,750	2,250
21.	Taxiway C Pavement Preservation (Overlay)	115,000	109,250	5,750
22.	Runway 12L-30R Pavement Preservation (Slurry Seal)	121,000	114,950	6,050
23.	Construct New Terminal Building	3,000,000	300,000	2,700,000
24.	Taxiway D Pavement Preservation (Slurry Seal)	135,000	128,250	6,750
25.	Northwest Corporate Taxiway Pavement Preservation (Slurry Seal)	11,000	10,450	550
26.	T-Hangar Access Taxilane Pavement Preservation (Slurry Seal)	196,000	186,200	9,800
27.	West Local Tiedown Apron Pavement Preservation (Slurry Seal)	57,000	54,150	2,850
Subtotal Intermediate Term Planning Horizon		**$ 58,829,000**	**$ 53,337,550**	**$ 5,491,450**
LONG TERM PLANNING HORIZON				
1.	Construct Terminal Apron - Phase II	$ 10,300,000	$ 9,785,000	$ 515,000
2.	Construct T-Hangar Access Taxilanes - Phase II	845,000	802,750	42,250
3.	Construct T-Hangar Automobile Parking - Phase II	457,000	434,150	22,850
4.	Construct East Apron/Aircraft Wash Rack - Phase II	2,630,000	2,498,500	131,500
5.	Construct East Apron Automobile Parking - Phase II	579,000	550,050	28,950
6.	Construct Taxiway M - Phase II	11,517,000	10,941,150	575,850
7.	Runway 12-30 Pavement Preservation (Overlay)	1,901,000	1,805,950	95,050
8.	Runway 2-20 Pavement Preservation (Overlay)	771,000	732,450	38,550
9.	Runway 12L-30R Pavement Preservation (Overlay)	385,000	365,750	19,250
10.	Taxiway A Pavement Preservation (Overlay)	1,146,000	1,088,700	57,300
11.	Taxiway B Pavement Preservation	258,000	245,100	12,900
12.	Taxiway F Pavement Preservation	45,000	42,750	2,250
13.	Taxiway M-South Pavement Preservation	106,000	100,700	5,300
14.	Compass Calibration Pad Pavement Preservation	17,000	16,150	850
15.	Taxiway C Pavement Preservation	307,000	291,650	15,350
16.	Taxiway AA/Taxiway A3 Pavement Preservation	66,000	62,700	3,300
17.	Charlie Pattern Landing Area Pavement Preservation	32,000	30,400	1,600
18.	East Apron Pavement Preservation	100,000	95,000	5,000
19.	T-Hangar Access Taxilane Pavement Preservation	661,000	627,950	33,050
20.	Southeast Corporate Taxiway Pavement Preservation	35,000	33,250	1,750
21.	Southwest Apron Pavement Preservation	280,000	266,000	14,000
22.	West Local Tiedown Apron Pavement Preservation	181,000	171,950	9,050
23.	Taxiway D Pavement Preservation	432,000	410,400	21,600
24.	Northwest Corporate Taxiway Pavement Preservation	36,000	34,200	1,800
Subtotal Long Term Planning Horizon		**$ 33,087,000**	**$ 31,432,650**	**$ 1,654,350**
Total All Programmed Development		**$ 126,989,000**	**$ 118,089,550**	**$ 8,899,450**

NOTES:

1. This is an anticipated schedule for the airport to meet projected demand. Neither the FAA or the Port has committed funding to these projects. The Port's actual costs may vary depending upon final construction costs and FAA funding. The date of implementation may also vary depending upon funding availability.
2. Some projects noted in this schedule are not shown on Exhibit 7B as they are not physical improvements or may be obscured by ultimate facility layouts.

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Exhibit 7A

DEVELOPMENT SCHEDULE

For these reasons, the Hillsboro Airport Master Plan has been developed as a demand-based plan. The Master Plan projects various activity levels for short, intermediate, and long term planning horizons. When activity levels begin to reach or exceed the level of one of the planning horizons, the Master Plan suggests the Port begin to consider the development necessary to support the projected demand in the next planning horizon. This provides a level of flexibility in the Master Plan, as the development program can be accelerated or slowed to meet demand. This can extend the time that elapses between Master Plan updates.

A demand-based Master Plan does not specifically require implementation of any of the demand-based improvements. Instead, it is envisioned that implementation of any Master Plan improvement would be examined against demand levels prior to implementation. In many ways, this Master Plan is similar to a community's comprehensive plan. The Master Plan establishes a plan for the use of the airport facilities, consistent with potential aviation needs and the capital needs required to support that use. However, individual projects in the plan are not implemented until the need is demonstrated and the project is approved by the Port. **Table 7A** summarizes the key activity milestones for each planning horizon.

Exhibit 7A summarizes capital needs for Hillsboro Airport improvement projects through the planning period of this Master Plan. Individual project cost estimates account for engineering, Port administrative costs, and other contingencies that may be experienced during implementation of the project, and are in current (2005) dollars. Due to the conceptual nature of a Master Plan, implementation of capital improvement projects should occur only after further refinement of their design and costs through engineering and/or architectural analyses. Capital costs in this chapter should be viewed only as estimates subject to further refinement during subsequent phases of project implementation. Nevertheless, these estimates are considered sufficient for performing the feasibility analyses in this chapter.

It is important to recognize that while many of the projects shown below are AIP grant eligible, their funding is uncertain. Hillsboro Airport is only entitled to $150,000 annually from the FAA, which needs to be directed towards all capital improvement needs at the airport, most importantly, airfield safety and maintenance. Exhibit 7A depicts funding eligibility only and not the actual level of federal or Port funds available for the project. The FAA makes funding decisions on an annual basis and funding is not guaranteed. Based on national priorities and the national AIP funding provided by Congress, the FAA will decide the level of funds available each year to the Port for improvements at Hillsboro Airport. This can include the entire amount of funding eligibility shown in each year, or a reduced level. Should the FAA provide a reduced level of funding, the Port would need to decide whether to delay project implementation or fund the project with Port funds entirely.

TABLE 7A
Planning Horizon Activity Levels
Hillsboro Airport

	2003	Short Term Planning Horizon (0-5 years)	Intermediate Term Planning Horizon (6-10 years)	Long Term Planning Horizon (11-20 years)
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**
Annual Operations				
Itinerant				
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
Subtotal Itinerant	**93,445**	**111,200**	**120,800**	**137,700**
Local				
General Aviation	160,261	158,500	166,900	184,700
Military	141	600	600	600
Subtotal Local	**160,402**	**159,100**	**167,500**	**185,300**
Total Annual Operations	**253,847**	**270,300**	**288,300**	**323,000**

The capital needs for the airport can be categorized as follows:

1) **Maintenance -** Maintaining or preserving the existing infrastructure is a priority. The capital needs program provides for the continued maintenance and rehabilitation of the airport's pavement areas through the application of sealants, minor rehabilitations and major reconstructions.

2) **Safety -** Of utmost importance with any transportation facility is safety. All projects in the plan are designed according to FAA design standards. This is carried throughout the other areas of focus. The safety needs in the capital needs program 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 of Portland's environmental policy of achieving its mission through responsible environmental stewardship and to integrate environmental considerations into all aspects of the its 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 varying levels of aviation demand. The implementation of these projects should occur only when demand for these needs are verified.

Each capital need is categorized using one of these five categories. Hillsboro Airport projects and their applicable category are included in a table at the end of this chapter.

Table 7B summarizes capital improvement costs by category and planning term. As shown in the table, collectively over the planning period of the Master Plan, demand improvements represent nearly 47 percent of the programmed development costs. As discussed earlier, these improvements will only be completed should the actual need for these facilities be demonstrated by new levels of based aircraft or increases in operations.

TABLE 7B
Total Projects By Type
Hillsboro Airport

	Short Term	Inter-mediate 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**	477.0%
Other	300,000	0	0	**300,000**	0.2%
Total	**$35,073,000**	**$58,829,000**	**$33,087,000**	**$126,989,000**	**100.0%**

Capacity improvements represent approximately 25 percent of total development costs. Since the Master Plan is focusing on segregating the large, business class aircraft and smaller general aviation aircraft operations, several

new taxiways and a parallel runway are planned. These capacity improvements are represented in this category. Some taxiway improvements are demand-based; in particular, the extension of Taxiway M north of Taxiway C. The need for this taxiway will be dependent on the number of aircraft based east of Runway 12-30, which will need to access the Runway 12 end.

Maintenance projects represent the third largest category. Maintenance projects include crack filling and pavement surface seals, and pavement overlays at regular schedules, in accordance with the Airport's Pavement Management Plan. A regular pavement maintenance program is a condition of the airport receiving federal funding.

Due to the role of the FAA in the planning process, compliance with the federal National Environmental Policy Act (NEPA) is necessary. The scope and scale of NEPA compliance will depend on the nature of the project being evaluated, and the extent to which projects are interrelated and interdependent. An Environmental Assessment will be required prior to the construction of the parallel runway. Should significant impacts be found, an Environmental Impact Statement (EIS) would be needed. Stormwater quality improvements may be needed at the airport to comply with applicable water quality regulations. Specific stormwater improvements have not been designed because they must take into account the regulatory structure as it exists at the time of project implementation. Therefore, only a general budgeted amount has been programmed. Other environmental compliance will be a component of each proposed improvement. This can include local, state, and federal permits for such improvements. These costs are anticipated in each specific development item. Safety improvements include compliance with federal design standards.

SHORT TERM CAPITAL NEEDS

The Short Term Planning Horizon covers fiscal years 2005 through 2011, and includes $35.1 million in capital needs. Since these projects represent the most immediate needs for the airport, it is important that a year-by-year implementation program be developed so that both the Port and the FAA can arrange funding. The Short Term Planning Horizon is the only planning horizon organized by years, as the actual sequencing of projects needs to be more fully examined as one gets closer to implementation.

A summary of the projects included in the Short Term Planning Horizon, by category, is presented below. **Exhibit 7B** graphically depicts development staging.

Maintenance Projects: Maintenance projects in the Short Term Planning Horizon total approximately $4.2 million, representing 12 percent of total Short Term Planning Horizon improvements. The completion of the construction of shoulders on Taxiway A is programmed for 2005. Stabilized taxiway shoulders are the areas adjacent to the sides of the taxiway surface that

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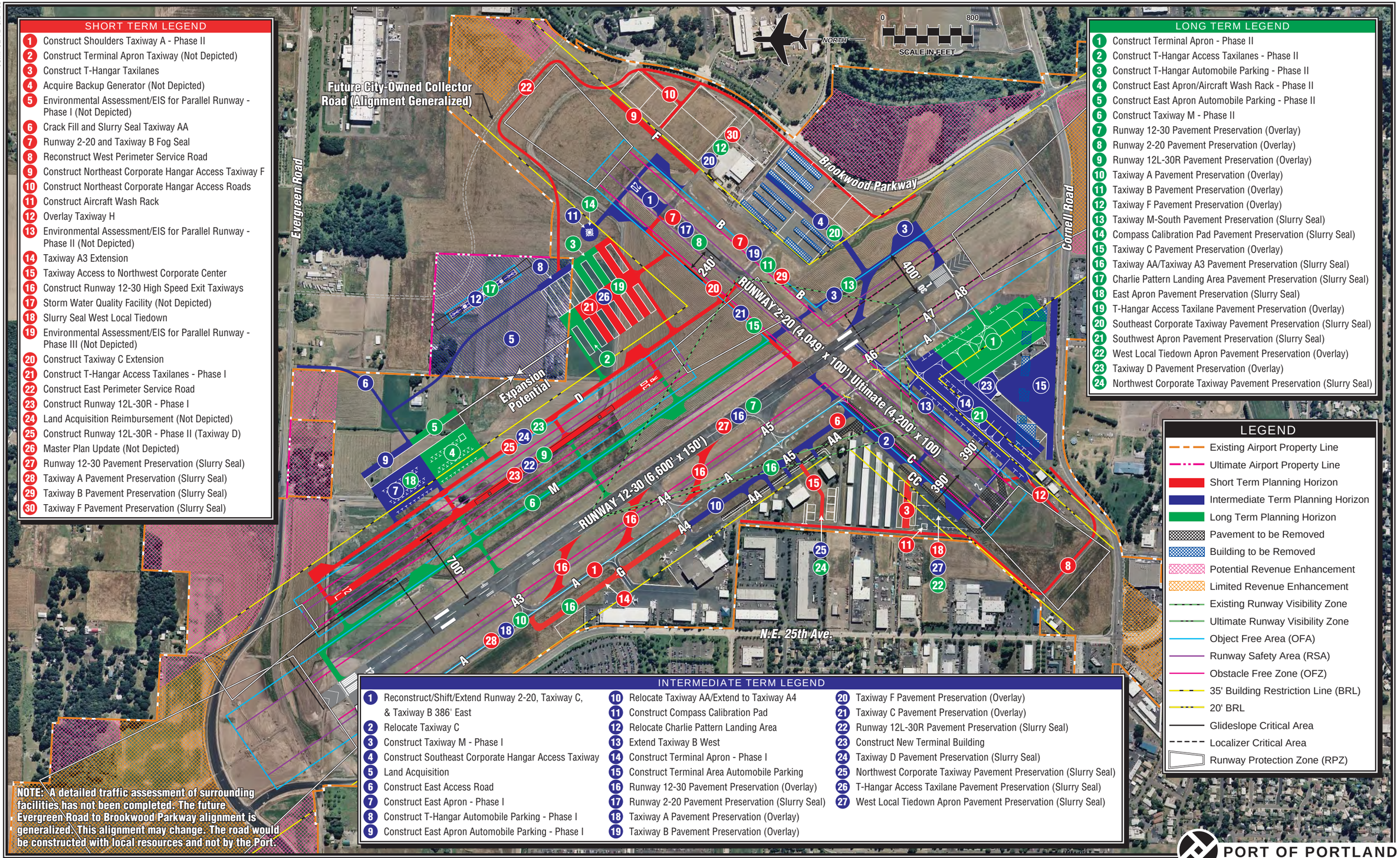
SHORT TERM LEGEND

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)



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)

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)

INTERMEDIATE TERM LEGEND

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

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.

PORT OF PORTLAND

Exhibit 7B

DEVELOPMENT STAGING

help prevent soil erosion and support aircraft that veer off the taxiway centerline. A taxiway leading to the terminal building is programmed for reconstruction in 2006, to support the type of aircraft currently using the terminal. Fog and crack sealing for Runway 2-20, Taxiway AA, and Taxiway B is programmed in 2007. The west perimeter service road that extends along the western airport boundary around the Runway 20 end is programmed to be reconstructed in 2007, due to pavement deterioration. Taxiway H is programmed to be overlaid in 2008, due to pavement deterioration. Fog and crack sealing for the west tiedown apron is programmed in 2009. Fog and crack sealing for Runway 12-30, Taxiway A, Taxiway B, and Taxiway F is programmed in 2011.

Environmental Projects: Environmental projects in the Short Term Planning Horizon total approximately $2.1 million, representing 6 percent of total Short Term Planning Horizon improvements. An Environmental Assessment (EA) will need to be completed before the FAA can approve grant funding for the development of the parallel runway and taxiways, reimbursement of land previously purchased by the Port for the construction of the parallel runway, and land acquisition on the east side of the airport for the relocated Charlie Pattern landing pads. Depending upon the results of the EA, an Environmental Impact Statement (EIS) may be required. While it is uncertain the level of environmental review that will be needed at this time, a total of $1.5 million has been programmed in this planning horizon for environmental compliance. This covers three fiscal years, beginning in 2007. As new pavement areas are added at the airport, impervious surfaces are increased. This requires stormwater and water quality improvements to handle the extra loads and meet water quality standards. A total of $500,000 has been programmed for 2008, to improve stormwater handling and meet water quality regulations. The specific types of improvements have not been determined at this time. An aircraft wash rack is programmed along the west tiedown apron in 2007. An aircraft wash rack allows for the collection and proper disposal of the cleaning fluids and debris as aircraft are cleaned. An aircraft wash rack could also be designed to accommodate deicing activities and collect excess deicing fluids during application.

Safety Projects: Safety projects in the Short Term Planning Horizon total approximately $2.1 million, representing 6 percent of total Short Term Planning Horizon improvements. This includes the construction of the east perimeter service road. This new roadway would connect with the existing perimeter service road, extending around the Runway 30 end. It would terminate at the east T-hangar facilities. This roadway keeps vehicles from using the runways/taxiways to move around the airport and provide vehicle access to the T-hangars until the east access road is developed.

Capacity Projects: Capacity projects in the Short Term Planning Horizon total approximately $18.2 million, representing 52 percent of total Short Term Planning Horizon improvements. Ca-

pacity projects include the construction of the parallel runway, its associated taxiways, and Runway 12-30 exits to reduce delay. As examined in detail in this report, the current level of aircraft operations exceeds the annual service capacity, increasing delay to both arriving and departing aircraft. The capacity analysis revealed that the addition of three high-speed exits to Runway 12-30 could increase annual capacity by 9,000 operations and lessen the chances that the average delay per aircraft operation would increase in the short term, as operational levels grow. These taxiways are programmed for 2008. The capacity analysis concluded that the best means available to reduce delay and improve capacity was to segregate small aircraft from larger business class aircraft, with the development of a parallel runway east of Runway 12-30. The parallel runway is programmed in two phases in 2010 and 2011. Phase I would include the construction of the runway and the portion for Taxiway D from the Runway 30R end to Taxiway C. Phase II would include the construction of the remaining portions of Taxiway D, including the exit taxiways. The construction of Taxiway C is programmed to precede the development of the parallel runway in 2009. Taxiway C is necessary to provide access to the parallel runway. Without Taxiway C, most aircraft would be required to cross both runways to access the parallel runway, as Taxiway B would be the only taxiway connecting to the parallel runway. For example, aircraft located in the southeast and northeast quadrants of the airport would need to cross both Runway 12-30 and Runway 2-20. However, with Taxiway C, aircraft located in the northwest quadrant of the airport would only need to cross Runway 12-30. A new taxiway between Taxiway A3 and Taxiway G is programmed for 2008, to improve access and egress in the northwest corner of the airport. The portion of the taxiway extending from Taxiway G north to Taxiway A3 would be developed at the minimum separation distance provided by FAA standards, to ensure automobile parking can be retained along N.E. 25th Avenue.

Demand Projects: Demand projects in the Short Term Planning Horizon total approximately $8.0 million, representing 23 percent of total Short Term Planning Horizon improvements. These projects support future aircraft storage needs and are dependent upon based aircraft growth. A project in 2006 provides taxilane access for hangar development parcels north of the west tiedown apron, along Taxiway C. The construction of vehicle access roads and the extension of a taxiway east of Taxiway F to support corporate hangar development are programmed in 2007. Currently, there are approximately three development parcels available along Taxiway F. This taxiway would only be needed once these parcels are fully developed or a larger parcel is needed. Following the construction of Taxiway C from Taxiway A to the Runway 20 end, T-hangar development on the east side of the future parallel runway could proceed. A project in 2009 allows for the construction of T-hangar access taxilanes supporting the relocation of the 112 T-hangars located in the southeast quadrant of the airport to free up the

airport's southeast quadrant for corporate hangar development.

INTERMEDIATE TERM CAPITAL NEEDS

Intermediate Term Planning Horizon development needs support projected aviation demand, continued pavement maintenance, and add taxiways for capacity and efficiency. Intermediate Term Planning Horizon improvements are estimated to cost approximately $58.8 million.

A summary of the projects included in the Intermediate Term Planning Horizon, by category, is presented below.

Maintenance Projects: Maintenance projects in the Intermediate Term Planning Horizon total approximately $15.1 million, representing 26 percent of total Intermediate Term Planning Horizon improvements. This includes the complete reconstruction of Runway 2-20 to replace the aging pavement. Concurrent with the reconstruction is the shifting of the Runway 20 end to the east, to clear the obstructions from the runway visibility zone (RVZ) and extend the Runway to 4,200 feet. All pavements surfaces are planned for regular maintenance which may include fog sealing, crack sealing, and pavement overlays, as needed.

Safety Projects: Safety projects in the Intermediate Term Planning Horizon total approximately $4.6 million, representing eight percent of total Intermediate Term Planning Horizon improvements. This includes the relocation of Taxiway C from the Runway 2 end to Runway 12-30, 40 feet east, to meet FAA design requirements and clear the obstacle free zone (OFZ). Once relocated, Taxiway CC will be too close to Taxiway C to allow for simultaneous operations; therefore, Taxiway CC is planned to be removed. The relocation of Taxiway AA is programmed to provide for a perimeter service road in the northwest quadrant of the airport.

Capacity: Capacity projects in the Intermediate Term Planning Horizon total approximately $13.87 million, representing 23 percent of total Intermediate Term Planning Horizon improvements. This includes the first phase construction of Taxiway M. This portion of the taxiway would extend from Runway 2-20 to the Runway 30 end, allowing the corporate aircraft located in the southeast quadrant of the airport access to the runway end most used by these types of aircraft. The land acquisition for the relocation of the Charlie Pattern landing pads and the construction of the relocated Charlie pattern landing pads is also programmed in this planning period. The relocated Charlie Pattern landing pads would move the helicopter operations from Taxiway D (constructed in the Short Term Planning Horizon), for greater segregation between fixed wing and helicopter operations. Moving the Charlie Pattern east also places the helicopters over existing and planned compatible uses.

Demand Projects: Demand projects in the Intermediate Term Planning Horizon total approximately $25.3.3 million, representing 43 percent of total Intermediate Term Planning Horizon im-

provements. This includes the reconstruction of a portion of the southwest apron for Airplane Design Group (ADG) II aircraft. This apron would extend parallel with Runway 2-20. The terminal building would be removed and replaced to the north along the apron. The existing automobile parking area would be expanded along Cornell Road. The east apron for small aircraft operations, including the necessary access roads, is programmed for this planning period. A taxiway serving corporate hangar parcels in the southeast portion of the airport is programmed, as well as the addition of tiedown aprons on the west side of the airport. A compass calibration/engine run-up pad is programmed in the northeast quadrant of the airport.

LONG TERM CAPITAL NEEDS

Projects in the Long Term Planning horizon are focused on meeting projected demand and maintaining the airfield pavements. Long Term Planning Horizon improvements are estimated to cost approximately $33.1 million. Maintenance projects in the Long Term Planning Horizon total approximately $6.7 million, representing 20 percent of total Long Term Planning Horizon improvements. All pavement surfaces are planned for regular maintenance which may include fog sealing, crack sealing, and pavement overlays as needed.

Demand projects in the Long Term Planning Horizon total approximately $26.3 million, representing 80 percent of total Long Term Planning Horizon improvements. Demand improvements include the expansion of the east apron, T-hangar taxilanes, and automobile parking. The second phase construction of the terminal apron for ADG III aircraft is also programmed. The extension of Taxiway M north of Taxiway C is included as a demand project. The need for this taxiway will be dependent on the number of aircraft based east of Runway 12-30, which will need to access the Runway 12 end.

PLAN IMPLEMENTATION

The successful implementation of the Hillsboro Airport Master Plan will require sound judgment on the part of the Port of Portland to meet future activity demands, while maintaining the existing infrastructure and improving this infrastructure to support new development. While the projects included in the capital improvement program have been “placed” in short, intermediate, and long term planning periods, the Port will need to consider the scheduling of projects in a flexible manner and add new projects from time-to-time to satisfy safety or design standards, or newly created demands. In summary, the planning process requires that the Port continually monitor the need for new or rehabilitated facilities, since applications (for eligible projects) must be submitted to the FAA each year.

Projects by Type		
Description	**Project Type**	**Total Cost**
SHORT TERM PLANNING HORIZON		
Construct Shoulders Taxiway A - Phase II	Maintenance	$1,443,000
Reconstruct Terminal Apron Taxiway	Maintenance	372,000
Integrate Backup Generator with airfield lighting	Maintenance	100,000
Crack Fill and Slurry Seal Taxiway AA	Maintenance	214,000
Runway 2-20 and Taxiway B Fog Seal	Maintenance	286,000
Reconstruct West Perimeter Service Road	Maintenance	600,000
Overlay Taxiway H	Maintenance	140,000
Slurry Seal West Local Tiedown	Maintenance	57,000
Runway 12-30 Pavement Preservation (Slurry Seal)	Maintenance	596,000
Taxiway A Pavement Preservation (Slurry Seal)	Maintenance	326,000
Taxiway B Pavement Preservation (Slurry Seal)	Maintenance	66,000
Taxiway F Pavement Preservation (Slurry Seal)	Maintenance	14,000
Total Maintenance		**$4,214,000**
Construct East Perimeter Service Road	Safety	$2,102,000
Total Safety		**$2,102,000**
Construct Aircraft Wash Rack	Environ-mental	$150,000
Environmental Assessment/EIS for Parallel Runway - Phase I	Environ-mental	500,000
Environmental Assessment/EIS for Parallel Runway - Phase II	Environ-mental	500,000
Storm Water Quality Facility	Environ-mental	500,000
Environmental Assessment/EIS for Parallel Runway - Phase III	Environ-mental	500,000
Total Environmental		**$2,150,000**
Land Acquisition Reimbursement	Capacity	$4,645,000
Taxiway A3 Extension	Capacity	2,129,000
Construct Runway 12-30 High-Speed Exit Taxiways	Capacity	2,433,000
Construct Taxiway C Extension	Capacity	2,104,000
Construct Runway 12L-30R - Phase I	Capacity	3,261,000
Construct Runway 12L-30R - Phase II (Taxiway D)	Capacity	3,662,000
Total Capacity		**$18,234,000**
Construct T-Hangar Taxilanes	Demand	$946,000
Construct Northeast Corporate Hangar Access Taxiway F	Demand	1,303,000
Construct Northeast Corporate Hangar Access Roads	Demand	466,000
Taxiway Access to Northwest Corporate Center	Demand	900,000
Construct T-Hangar Access Taxilanes – Phase I	Demand	4,458,000
Total Demand		**$8,073,000**
Master Plan Update	Other	$300,000
Total Short Term Planning Horizon		**$35,073,000**

Projects by Type		
Description	**Project Type**	**Total Cost**
INTERMEDIATE TERM PLANNING HORIZON		
Reconstruct/Shift/Extend Runway 2-20, Taxiway C, and Taxiway B 386' East	Maintenance	$10,649,000
Runway 12-30 Pavement Preservation (Overlay)	Maintenance	1,901,000
Runway 2-20 Pavement Preservation (Slurry Seal)	Maintenance	701,000
Taxiway A Pavement Preservation (Overlay)	Maintenance	1,042,000
Taxiway B Pavement Preservation (Overlay)	Maintenance	212,000
Taxiway F Pavement Preservation (Overlay)	Maintenance	45,000
Taxiway C Pavement Preservation (Overlay)	Maintenance	115,000
Runway 12L-30R Pavement Preservation (Slurry Seal)	Maintenance	121,000
Taxiway D Pavement Preservation (Slurry Seal)	Maintenance	135,000
Northwest Corporate Taxiway Pavement Preservation (Slurry Seal)	Maintenance	11,000
T-Hangar Taxilane Pavement Preservation (Slurry Seal)	Maintenance	196,000
West Local Tiedown Apron Pavement Preservation (Slurry Seal)	Maintenance	57,000
Total Maintenance		**$15,185,000**
Relocate Taxiway C	Safety	$3,088,000
Relocate Taxiway AA	Safety	1,520,000
Total Safety		**$4,608,000**
Construct Taxiway M – Phase I	Capacity	$4,499,000
Land Acquisition	Capacity	6,795,000
Relocate Charlie Pattern Landing Area	Capacity	981,000
Extend Taxiway B West	Capacity	1,513,000
Total Capacity		**$13,788,000**
Construct Southeast Corporate Hangar Access Taxiway	Demand	$1,470,000
Construct East Access Road	Demand	1,558,000
Construct New Terminal Building	Demand	3,000,000
Construct East Apron – Phase I	Demand	2,710,000
Construct T-Hangar Automobile Parking - Phase I	Demand	457,000
Construct East Apron Automobile Parking - Phase I	Demand	626,000
Construct Compass Calibration\Engine Run-Up Pad	Demand	709,000
Construct Terminal Apron - Phase I	Demand	11,907,000
Construct Terminal Area Automobile Parking	Demand	2,811,000
Total Demand		**$25,248,000**
Total Intermediate Term Planning Horizon		**$58,829,000**

Projects by Type		
Description	**Project Type**	**Total Cost**
LONG TERM PLANNING HORIZON		
Runway 12-30 Pavement Preservation (Overlay)	Maintenance	$1,901,000
Runway 2-20 Pavement Preservation (Overlay)	Maintenance	771,000
Runway 12L-30R Pavement Preservation (Overlay)	Maintenance	385,000
Taxiway A Pavement Preservation (Overlay)	Maintenance	1,146,000
Taxiway B Pavement Preservation (Overlay)	Maintenance	258,000
Taxiway F Pavement Preservation (Overlay)	Maintenance	45,000
Taxiway M-South Pavement Preservation (Slurry Seal)	Maintenance	106,000
Compass Calibration Pad Pavement Preservation (Overlay)	Maintenance	17,000
Taxiway C Pavement Preservation (Overlay)	Maintenance	307,000
Taxiway AA/Taxiway A3 Pavement Preservation (Slurry Seal)	Maintenance	66,000
Charlie Pattern Landing Area Pavement Preservation (Overlay)	Maintenance	32,000
East Apron Pavement Preservation (Slurry Seal)	Maintenance	100,000
T-Hangar Taxilane Pavement Preservation (Overlay)	Maintenance	661,000
Southwest Corporate Taxiway Pavement Preservation (Slurry Seal)	Maintenance	35,000
Southwest Apron Pavement Preservation (Slurry Seal)	Maintenance	280,000
West Local Tiedown Apron Pavement Preservation (Overlay)	Maintenance	181,000
Taxiway D Pavement Preservation (Overlay)	Maintenance	432,000
Northwest Corporate Taxiway Pavement Preservation (Slurry Seal)	Maintenance	36,000
Total Maintenance		**$6,759,000**
Construct Terminal Apron - Phase II	Demand	$10,300,000
Construct T-Hangar Access Taxilanes - Phase II	Demand	845,000
Construct T-Hangar Automobile Parking - Phase II	Demand	457,000
Construct East Apron - Phase II	Demand	2,630,000
Construct East Apron Automobile Parking - Phase II	Demand	579,000
Construct Taxiway M - Phase II	Demand	11,517,000
Total Demand		**$26,328,000**
Total Long Term Planning Horizon		**$33,087,000**
Total All Projects		**$126,989,000**