EXECUTIVE SUMMARY

Airport Master Plan Update

Aurora State Airport

The Aurora State Airport Master Plan Update was undertaken to assess the Airport's role, evaluate the Airport's capabilities, forecast future aeronautical activity for the next 20 years, and plan for the timely development of any new or expanded Airport facilities needed to accommodate future aviation activity.

The owner and operator of the Airport, the Oregon Department of Aviation (ODA), obtained and matched a grant from the Federal Aviation Administration (FAA) to fund this study. ODA organized a Planning Advisory Committee (PAC), representing Airport users and neighbors, to participate in the planning process. In addition to six PAC meetings, public involvement in the master plan update included a website to disseminate information and gather comments and questions, and five open houses for the general public.

GOALS & ISSUES IDENTIFIED FOR THE PLAN - CHAPTER 1

Goals and issues for the master plan update were a subject of the first PAC meeting held on July 22, 2010. The common themes of PAC members' goal statements were divided between two categories – goals for the planning process and goals for the Master Plan itself. Issues identified by the PAC, ODA and airport users (via survey) are also included below.

Planning Process Goals

The goals for the planning process guided the conduct of ODA, ODA's consultants, and the PAC throughout the development of the master plan update. Planning process goals were:

- Be open-minded and proceed in good faith.
- Keep the focus more on the long-term future than the short-term future.
- Don't mix unrelated issues and don't be sidetracked by issues that don't relate to the master plan.
- Obtain high quality information for analysis and cite sources.
- Seek consensus for solutions that are acceptable, helpful, and clear.
- By the end of the planning process, establish a clear vision statement that defines what the Airport will be like in the foreseeable future (30 to 50 years) and that is overwhelmingly embraced by all stakeholders. The vision statement should encompass safety, noise, and development scale and flavor.

Master Plan Goals

The Master Plan goals guided the future development of the Airport. When it became time to evaluate alternative layouts for airport development, the goals were used as the evaluation criteria.

- Goal 1: Enhance safety
- Goal 2: Meet the current and projected needs of airport users, as feasible
- Goal 3: Consider all the off-airport impacts of Airport development; minimize negative impacts and maximize positive impacts

Issues

- Runway Extension
- Air Traffic Control Tower
- Impact of Airport Expansion on Surrounding Areas
- Calm Wind Runway Change
- Precision Instrument Approach
- Helicopter Operations (location on public property)

These goals and issues were used throughout the planning process to ensure the Master Plan acknowledged and incorporated concerns from the PAC and general public.

Airport Role Analysis

Aurora State Airport fits well within the OAP 2007 description of an Urban General Aviation Airport, which supports all general aviation aircraft and accommodate corporate aviation activity, including business jets, helicopters, and other general aviation activity. It is one of five GA airports in the region with facilities and services appropriate for business jets. The five airports are Aurora State, Hillsboro, McMinnville, McNary Field in Salem, and Troutdale. These airports are appropriately spaced to provide good accessibility to the population and businesses in the region without substantial service area overlap that might undermine the long-term viability of any of the airports.

The Airport has grown at a faster rate than past planning efforts expected. It has become popular for both personal and business GA use. The growth in business use is likely due to the Airport's location with access to Interstate 5, along with private development adjacent to the state-owned airport property. Considering prior investment in the Airport, its large and growing number of based aircraft, its eligibility for FAA funding, and its proven record for attracting private funding for landside facilities, it appears likely that Aurora State will remain a viable GA airport long into the future.

> Business aviation is anticipated to grow more than personal and recreational aviation, but the Airport's role in the future should not change from its current role—a busy airport handling a full range of GA, including helicopters and business jets.

The Master Plan recommends that Aurora State Airport continue to fulfill its role as an Urban General Aviation Airport.

AIRPORT INVENTORY - CHAPTER 2

An initial step in the planning effort was to collect data pertaining to the Airport and the area it serves. An inventory of the Airport was accomplished through physical observation of existing facilities, interviews with Airport users and business owners, ODA staff, and a review of previous Airport studies and records. Highlights of the information gathered included the information presented in **Table ES-1**.

Table ES-1. Aurora State Airport Inventory

Description	Existing
County	Marion
Ownership	Public (Oregon Department of Aviation)
Acreage	144
Airport Reference Code (ARC)	B-II
Runway Orientation	17/35
Runway Length x Width	5,004' x 100'
Runway Pavement Strength	30,000 lbs (single wheel gear), 45,000 lbs (dual wheel gear)
Taxiway	Parallel
Approach Capabilities	Nonprecision (not lower than 1 statute mile)
Weather Reporting	ASOS (Automated Surface Observing System)
Based Aircraft (2010 data)	354
Annual Operations (2009 data)	89,495

The information gathered as part of this initial step was the foundation for various analyses completed in subsequent chapters of the Plan. An accurate inventory helped to produce an aviation demand forecast that was reasonable and aided in identifying future facility development needs.

AERONAUTICAL ACTIVITY FORECAST - CHAPTER 3

The aeronautical activity forecasts projected were unconstrained and assume ODA or others will be able to develop the various facilities necessary to accommodate based aircraft and future aircraft operations.

ODA has chosen not to constrain the forecasts because undeveloped land to accommodate growth is available.

The primary objective of forecasting was to define the magnitude of change that can be expected over time. Because of the cyclical nature of the economy, it is impossible to predict with certainty year-to-year fluctuations in activity when looking 20 years into the future. However, a trend can be established that characterizes long-term potential. Forecasts serve only as guidelines, and planning must remain flexible to respond to unforeseen changes in aviation activity and resultant facility needs.

Table ES-2. Summary of Forecasts

		2010	2015	2020	2030
Based Aircraft	Jet	23	27	33	47
	Turboprop (Multi-Engine)	16	19	20	26
	Multi-engine Piston	24	24	25	27
	Single Engine	261	276	288	316
	Helicopter	25	28	34	43
	Other	5	5	5	5
	Total	**354**	**379**	**405**	**464**
Aircraft Operations	*Itinerant Operations*				
	Air Taxi	10,000	10,815	11,697	13,682
	GA	48,395	52,354	56,635	66,272
	Military	250	250	250	250
	Subtotal	*58,645*	*63,419*	*68,582*	*80,205*
	Local Operations				
	GA	32,264	34,902	37,756	44,181
	Total	**90,909**	**98,321**	**106,338**	**124,386**
Operations Fleet Mix	Jet	12%	13%	15%	18%
	Turboprop	10%	11%	11%	12%
	Piston	48%	44%	42%	37%
	Helicopter	30%	32%	32%	33%
Peak Operations	Peak Month	10,000	10,815	11,697	13,682
	Design Day	328	355	384	449
	Design Hour	36	39	42	49

Source: WHPacific, Inc.

FACILITY REQUIREMENTS - CHAPTER 4

The following section summarizes the development recommendations given in Chapter 4, *Facility Requirements*, needed to accommodate forecasted aeronautical activity.

Airfield Requirements

- The runway length justification process analysis followed guidance provided in FAA Advisory Circular 150/5300-13, *Airport Design*, and demonstrated it is prudent to plan[1] for a runway extension now. The runway length justification process – approved by ODA, the Oregon Aviation Board, and the FAA – was founded on actual data of aircraft currently operating with constraints, such as reduced payload or shortened stage lengths, and aircraft forecasted to operate at and/or relocate to the Airport within the next five years and exceed 500 annual constrained operations. As a result of the analysis, an extension of at least 1,000 feet was recommended and subsequently approved by the FAA on October 19, 2012 and shown on the approved Airport Layout Plan. The runway length justification process is detailed in Chapter 4[2].

- The current runway strength of 45,000 pounds (dual-wheel gear) is adequate for the existing runway length, as several of the heavier aircraft operating at the Airport are constrained (*i.e.*, reduced fuel load or payload). However, with a runway extension it was recommended the pavement strength be increased to 60,000 pounds (dual-wheel gear), which is the same pavement strength as the parallel taxiway.

- It was recommended the approach lighting system be upgraded to a precision approach path indicator (PAPI).

- ODA should continue to emphasize departure procedures for Runway 17/35, to avoid flight over noise-sensitive areas, and change the altitude limit on left turns when departing Runway 35. (Note: ODA worked with the FAA to create these procedures, which were published in the fall of 2011.)

- A run-up area should be constructed near the northern end of the parallel taxiway to enhance the traffic flow.

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[1] *Planning for a runway extension does not give justification for federal funding. Based on the number of aircraft operations constrained by runway length projected into the future, justification for funding should occur within the 20-year planning period, although not within the next five years.*

[2] *Pages 4-10 through 4-13.*

Landside Requirements

- To meet 2030 hangar demand, approximately 23.0 acres will be needed.
- 25 aircraft parking positions, or approximately 6.5 acres, will be needed for aprons and aircraft parking by 2030. This includes fixed wing and helicopter parking.
- A cargo apron was recommended, per the Oregon Aviation Plan, which requires approximately one acre of land.
- Expansion of a current fixed base operator (FBO) or establishment of a new FBO will likely be needed to accommodate growing activity.
- Fuel tanks owned by Aurora Aviation should be relocated once they have exceeded their useful life, as the current location could better be used for aircraft-related uses. Off-airport operators may want to consider impacts of current fuel tank location and their impacts from future demand
- Approximately 2 acres of land should be reserved for the air traffic control tower (ATCT), parking and security requirements.
- A suitable location for the facility the Aurora Rural Fire Protection District wants to locate at the airport should be identified.
- ODA should work with and support Marion County and the City of Aurora as improvements to Airport Road are considered. The question of funding these improvements should be part of the discussions.

AIRPORT DEVELOPMENT ALTERNATIVES - CHAPTER 5

Four alternatives for the long-term future of the Airport were presented. Generally speaking, the alternatives can be described as such:

- The No Build Alternative assumed maintenance of existing facilities and no expansion of airfield or landside facilities on State-owned property. The Airport would remain designed to ARC B-II standards (approach minima to remain at visual and not lower than 1 sm). Adjacent, through-the-fence operators would still have the option to develop their property as the market demands.
- Build Alternative 1 included a 600-foot extension to the north end of the runway and an instrument approach with visibility not lower than 1 sm. The ARC would remain B-II in this alternative.

- Build Alternative 2 incorporated a 1,000-foot extension to the south end of the runway and improved instrument approach capability (visibility greater than ¾ sm). This alternative reflected improvements to meet the design standards for ARC C-II.

- Build Alternative 3 depicted ARC C-II and instrument approaches with visibility minima lower than ¾ sm (precision approaches). No runway extension was shown on this alternative. However, in order to meet ARC C-II standards, with the lower instrument approach, the parallel taxiway would be relocated 100 feet to the east and multiple buildings would need to be removed or altered.

PREFERRED ALTERNATIVE

On March 10, 2011, the above alternatives were presented to the PAC and public. The purpose of the meeting was to gather input towards developing a preferred alternative. In addition to discussion during the meeting, comment forms were available at the meeting and on the project website, and comments were gathered for two weeks after the meeting. Comments varied greatly, from supporting the No Build Alternative to Airport expansion.

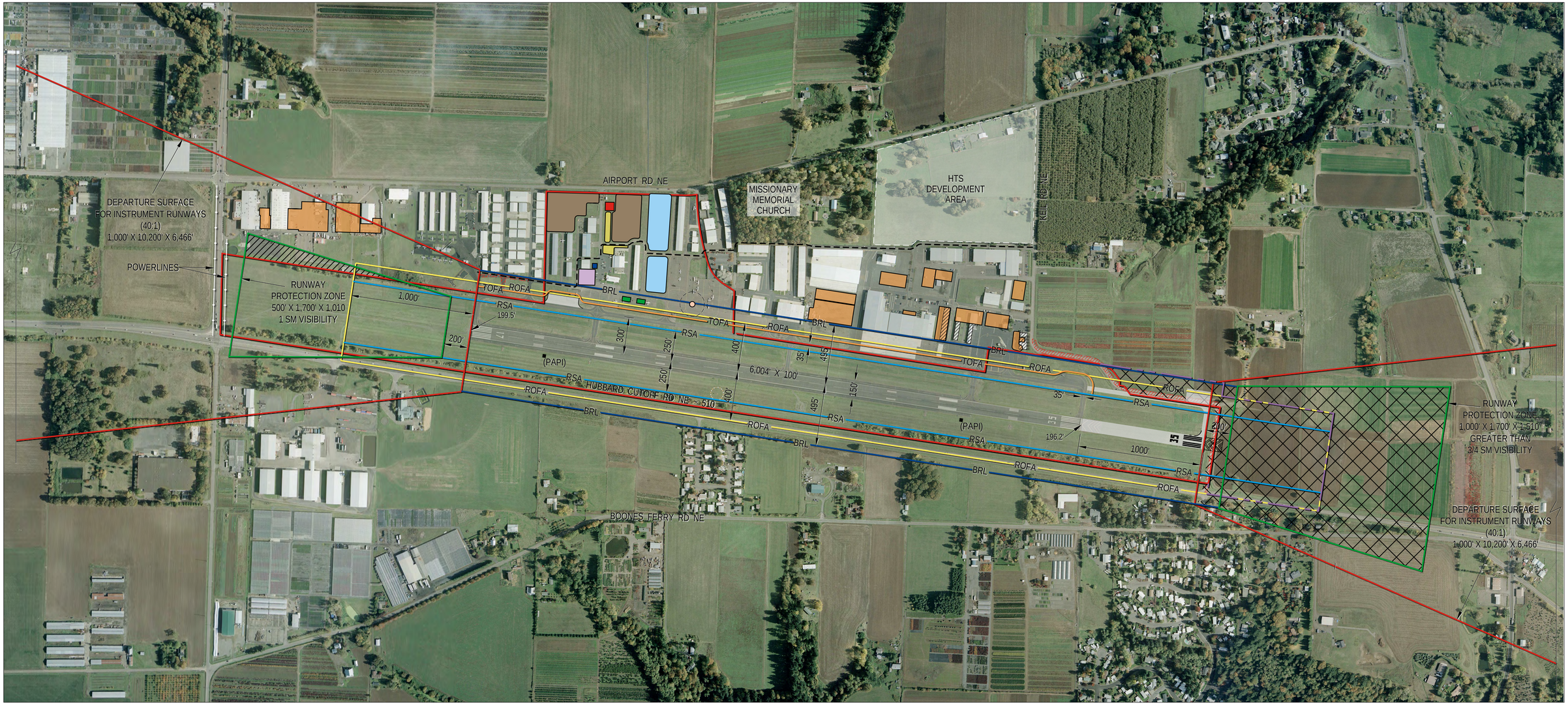
Since no consensus for a Preferred Alternative was reached at the PAC meeting, ODA considered PAC and public comments (gathered through March 24), and then presented a recommended Preferred Alternative for the Oregon Aviation Board's consideration. The Preferred Alternative **Exhibit ES-1** and presented in Chapter 5 as Exhibit 5J was the basis for revising the Airport Layout Plan, which established FAA grant funding eligibility for airport improvements and was approved by the FAA. Implementing the airfield improvements in the Preferred Alternative depends on FAA and ODA funding availability and the results of environmental analyses for individual projects. The private development of landside facilities will depend on the actual growth of aviation demand, market and financing conditions, and local laws and regulations.

AIRPORT LAYOUT PLAN DRAWING SET - CHAPTER 6

The Airport Layout Plan (ALP) drawings are a pictorial culmination of the master planning process. A major purpose of the ALP drawing set is to establish funding eligibility for the FAA's Airport Improvement Program (AIP), as capital projects must appear on an FAA-approved ALP to receive AIP grant funding.

The following sheets are included within the ALP drawing set.

- Cover Sheet. The cover sheet is an index to the airport layout plan drawing set.
- Airport Layout Plan. The ALP depicts the current airport layout and proposed improvements to the Airport for the 20-year planning period. The ALP is a development guide; the timing of development depends upon when it is needed and can be funded.
- Airport Airspace. This drawing shows the Airport Imaginary Surfaces for the future layout of the Airport with a USGS topographic map as the background.



Nov 8, 2012

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SCALE
400 0 200 400
(FEET)
1 INCH = 400 FT.

Legend

- Property Line
- Future Property Line
- BRL — 35' Building Restriction Line
- RSA — Runway Safety Area
- ROFA — Runway Object Free Area
- TOFA — Taxiway Object Free Area
- Future Service Road
- Existing Buildings
- Future Buildings
- Future Pavement
- Air Traffic Control Tower (ATCT)
- Aurora Rural Fire Protection District
- Future Apron Area
- Cargo Apron
- Vehicular Parking
- Hangar Development
- Fuel Station
- Helicopter Parking
- Precision Approach Path Indicator (PAPI)
- Existing Building Removal
- Future Property Aquisition
- Future Avigation Easement

General Notes

Airport Reference Code (ARC) - C-II
Runway strengthened to 60,000 lbs dual wheel gear

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Aurora State Airport

Aurora, OR

Exhibit ES-1

Preferred Alternative

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- Airport Approach Surfaces. This drawing presents a larger scale plan and profile view of the approach surfaces shown in the Airport Airspace Drawing.
- Inner Portion of the Runway 17/35 Approach Surfaces. This drawing provides plan and profile views of the portions of approach surfaces that are closest to the runway, encompassing the existing and ultimate RPZs.
- Terminal Area Plan. The Terminal Area Plan drawing provides a large-scale view of the terminal area.
- Land Use and Noise Contours. A land use map was developed for the Airport and the surrounding area. This map includes the land uses on and around the Airport according to Marion and Clackamas Counties, as applicable.
- Runway Departure Surfaces. The Runway Departure Surfaces Plan depicts the plan and profile views of the Runway 17/35 departure surfaces, which apply to runways with instrument departure procedures.
- Airport Property Map. This drawing provides a history of the ODA's airport property acquisition by showing and listing all land transactions.

CAPITAL IMPROVEMENT PLAN - CHAPTER 7

Through the evaluation of the facility requirements, identification of the Preferred Alternative, and the development of the Airport Layout Plan, the improvements needed at the Aurora State Airport over the next 20-year period were determined. The Capital Improvement Plan (CIP) provided the basis for planning the funding of these improvements. The planned phases of development are in the 5-, 10- and 20-year time frames.

Table ES-3. Aurora State Airport Proposed Capital Improvement Plan with Costs

Aurora State Airport CIP 2012 – 2031							
#	**Year**	**Description**	**Total Cost**	**ODA share**	**FAA Share**	**Private Share**	**Other Funding**
Phase I (2012-2016)							
1	2012	Construct ATCT[1]	3,369,000	423,800	250,000	-	2,695,200
2	2012	Service Road	1,017,000	50,850	966,150	-	-
3	2013	PMP (2013)[2]	27,000	20,250	6,750	-	-
4	2014	Helicopter Landing Pads	11,000	550	10,450	-	-
5	2014	Ramp Reconstruction - State Leased	988,000	49,400	938,600	-	-
6	2014	Taxilane Development (Hangar Access)	43,000	-	-	43,000	-
7	2015	Hangar Development	2,088,000	-	-	2,088,000	-
8	2015	Carryover Entitlements	-	-	-	-	-
9	2016	Environmental Assessment (Runway Improvements)	350,000	17,500	332,500	-	-
10	2016	PMP (2016)	27,000	20,250	6,750	-	-
		Phase I Subtotal	*$7,920,000*	*$582,600*	*$2,511,200*	*$2,131,000*	*$2,695,200*

-Continued on following page-

Aurora State Airport CIP 2012 – 2031							
#	Year	Description	Total Cost	ODA share	FAA Share	Private Share	Other Funding
Phase II (2017-2021)							
11	2017	Aurora RFPD Response Facility	570,000	-	-	570,000	-
12	2017	Carryover Entitlements	-	-	-	-	-
13	2018	Property Acquisition (R35 RPZ)	2,561,000	128,050	2,432,950	-	-
14	2019	Keil Road Relocation	1,427,000	71,350	1,355,650	-	-
15	2020	Runway Extension (R35 - 1000')	3,035,000	151,750	2,883,250	-	-
16	2020	Install Runway 17 PAPIs	65,000	3,250	61,750	-	-
17	2019	PMP (2019)	27,000	20,250	6,750	-	-
18	2019	Taxilane Development (Hangar Access)	43,000	-	-	43,000	-
19	2020	R17/35 Strengthening Overlay	2,052,000	102,600	1,949,400	-	-
20	2021	Hangar Development	2,088,000	-	-	2,088,000	-
21	2021	Master Plan Update	200,000	10,000	190,000	-	-
		Phase II Subtotal	*$12,068,000*	*$487,250*	*$ 8,879,750*	*$2,701,000*	*$ -*
Phase III (2022-2031)							
22	-	PMP (2022, 2025, 2028, 2031)	108,000	81,000	27,000	-	-
23	-	Apron Development	1,638,000	81,900	1,556,100	-	-
24	-	Taxilane Development (Hangar Access)	43,000	-	-	43,000	-
25	-	Hangar Development	2,088,000	-	-	2,088,000	-
26	-	Cargo Apron	198,000	9,900	188,100	-	-
27	-	Relocate Fuel Tanks	89,000	4,450	84,550	-	-
28	-	R17 Run-Up Area[3]	355,000	17,750	337,250	-	-
		Phase III Subtotal	*$ 4,519,000*	*$ 195,000*	*$ 2,193,000*	*$ 2,131,000*	*$ -*
		Total Capital Costs	**$24,507,000**	**$1,264,850**	**$13,583,950**	**$6,963,000**	**$2,695,200**

[1] *Other Funding is Connect Oregon III Grant*

[2] *ODA share for PMP is 75% of total cost*

[3] *If no displaced threshold project; construct R17 run-up at same time as fuel tank relocation project.*

Financial Plan Summary

Based on anticipated CIP project costs and the projected operating income, annual income from the Airport's operation was shown to be sufficient to cover the ODA share of CIP project related costs in Phase I. The ODA share of CIP Phase I costs amounts to $582,600. When projected income was interpolated from the table above for each year FY2011 through FY2016, it was estimated that the Airport could expect about $610,000 in operating income over the 6-year period to go toward CIP projects. Additionally, ODA's projected income during CIP Phases II and III was expected to cover the agency's project share.

The primary goal is for the Airport to evolve into a facility that will best serve the air transportation needs of the region while simultaneously developing into a self-sustaining economic generator. This Master Plan Update can best be described as being the road map to helping the Airport achieve these goals. But it should be recognized that planning is a continuous process that does not end with the completion of the Master Plan in that the fundamental basic issues that have driven this Master Plan will remain valid for many years. Therefore, the ability to continuously monitor the existing and forecast status of airport activity will be a key ingredient in maintaining the applicability and relevance of this study.

CONTINUATION OF THE MASTER PLAN PROCESS

The FAA approved the ALP on October 19, 2012 (included as **Appendix B**). As stated in the Master Plan, ODA should consider working with Marion County to incorporate this document into the County's Comprehensive Plan. Additionally, the Master Plan should be a living document used to aid in decision-making, especially when prioritizing future projects based on demand.