



7. COST ESTIMATING AND PROJECT FUNDING

7.1 Introduction

Based on the analysis of the recommended airport system's performance, the Oregon Aviation Plan (OAP or the system plan) identifies specific projects for airports in the Oregon system. These projects relate to improving the airport system's performance, especially as it relates to facility and service objectives set as part of this study.

Estimated costs for each project were developed using broad assumptions appropriate for system level planning. Details of these assumptions are explained in **Appendix E**. Circumstances at individual airports vary considerably, often requiring additional expenditures not covered by these broad assumptions. With that in mind, these cost estimates are best viewed as a starting point for understanding overall project costs.

7.2 Cost Estimates Methodology

The methodology used to estimate costs for projects included in the recommended plan includes:

- Compare existing facilities at each individual airport to facility/service objectives identified for each airport's recommended OAP v6.0 role; OAP v6.0 roles are as follows:
 - Category I: Commercial Service
 - Category II: Urban General Aviation
 - Category III: Regional General Aviation
 - Category IV: Local General Aviation
 - Category V: Remote Access Emergency
- Identify specific airport projects or actions needed to reach the airport's applicable objectives.
- Estimate project quantities.
- Use estimated unit costs, applying these costs to specific airport needs/projects.

In this process, costs were first identified on an airport-by-airport basis, and then compiled at the system-level by project type. Costs presented in this chapter are based on unit costs for each type of facility. Unit costs used in the system plan's analysis were obtained from current airport construction costs in Oregon; unit costs were increased to allow for contingency expenses related to planning, engineering, and design. Importantly, the costs identified in this chapter will vary based on site-specific conditions that may require significant site preparation efforts or other mitigation to allow for construction.

Wherever possible, actual costs were used as a baseline in the development of unit costs. The range of airports and their specific settings in the state may cause actual costs to vary. Further, costs presented in this chapter are based on 2018 US dollars without increases to reflect future inflation. If a project identified by the system plan is already included in an airport's individual capital improvement plan (CIP), the cost for that project, as included in the CIP, was adopted for use in this analysis.

Costs associated with system plan recommendations are aggregated for the following project types (with detailed sub-components included in parenthesis):

- Runways (Runway Width, Runway Length)
- Runway Pavement Strength



- Runway Pavement Maintenance (Primary Runway Pavement Condition Index [PCI])
- Apron expansion
- Auto Parking (General Aviation Auto Parking)
- Fuel (Jet A fuel availability and 24-hour fuel pumps for AvGas)
- Hangars (Hangared Aircraft Storage)
- Lighting, Navigation Aids (NAVAIDs), and Visual Aids (Runway Lighting, Taxiway Lighting, Approach Lighting System, Approach Type, Weather Reporting, Rotating Beacon, Segmented Circle/Wind Cone)
- Safety (Runway to Taxiway Separation, Taxiway Geometry)
- Fencing (Wildlife/Security)
- Taxiways
- General Aviation Terminal Buildings

Pavement project costs associated with the information in Oregon’s most current Statewide Pavement Maintenance Program are aggregated for the following project types:

- Runways
- Taxiways
- Apron

CIP project costs are aggregated by the following project types:

- | | |
|------------------------------------|--------------------------------------|
| • Runway Length | • Hangared Aircraft Storage |
| • Runway Width | • Apron Parking Storage |
| • Primary Runway Pavement Strength | • General Aviation Terminal Building |
| • Primary Runway PCI | • General Aviation Auto Parking |
| • Taxiways | • Fencing |
| • Visual Approach Aids | • Air Cargo |
| • Instrument Approach Aids | • Deicing pads |
| • Runway Lighting | • Snow Removal Equipment |
| • Taxiway Lighting | • Fuel AvGas |
| • Rotating Beacon | • Fuel Jet A |
| • Wind Cone (Lighted) | • FBO services |
| • Weather Reporting | • Ground Transportation |

In order to present all of the above categories in a single, concise table and/or chart for combined development costs across all plans and analyses, several project types were collapsed into the following simplified types:

- | | |
|--------------------------------|--------------------------------|
| • Taxiways | • Pavement Condition |
| • Terminal Buildings | • Auto Parking & Ground Access |
| • Fence-Security/Wildlife | • Aprons |
| • Lighting, NAVAIDs, & Signage | • Deicing |
| • Hangars | • Air Cargo |
| • Fuel | • Snow Removal Equipment |
| • Runways | |

For detailed cost information on a particular airport, see the Individual Airport Summaries. Each airport’s report card lists all projects and their associated costs, as well as project source (system plan projects, CIP projects, and statewide pavement projects).

7.3 Costs Associated with System Plan Recommendations

The system plan cost estimates, by project type and airport role (OAP v6.0 Category I-V), are summarized in **Table 7-1** and **Table 7-2**. The totals by airport role are identical in **Table 7-1** and **Table 7-2**. However, **Table 7-1** presents a summary of system plan costs by detailed project type, whereas **Table 7-2** presents a summary of system plan costs by reduced/collapsed project type.

TABLE 7-1: SUMMARY OF SYSTEM PLAN COSTS BY DETAILED PROJECT TYPE AND OAP V6.0 ROLE/CATEGORY

Facility/Service Item	Category I	Category II	Category III	Category IV	Category V	Total	Percentage of Total
Runway Length	\$10,700,000	\$0	\$12,100,000	\$19,000,000	\$6,400,000	\$48,200,000	29.2%
Runway Width	\$0	\$0	\$2,900,000	\$4,000,000	\$29,000,000	\$35,900,000	21.7%
Primary Runway Pavement Strength	\$0	\$7,900,000	\$0	\$10,200,000	\$2,200,000	\$20,300,000	12.3%
Primary Runway PCI	\$9,500,000	\$0	\$0	\$0	\$0	\$9,500,000	5.7%
Taxiways	\$0	\$4,200,000	\$0	\$0	\$0	\$4,200,000	2.5%
Visual Approach Aids	\$0	\$0	\$0	\$700,000	\$0	\$700,000	0.4%
Instrument Approach Aids	\$0	\$0	\$0	\$0	\$0	\$0	0.0%
Runway Lighting	\$0	\$0	\$0	\$0	\$0	\$0	0.0%
Taxiway Lighting	\$0	\$4,964,000	\$10,100,000	\$800,000	\$0	\$15,864,000	9.6%
Rotating Beacon	\$0	\$0	\$100,000	\$400,000	\$0	\$500,000	0.3%
Wind Cone (Lighted)	\$0	\$0	\$15,000	\$45,000	\$0	\$60,000	0.0%
Weather Reporting	\$0	\$0	\$400,000	\$0	\$0	\$400,000	0.2%
Hangared Aircraft Storage	\$1,743,750	\$0	\$522,000	\$0	\$0	\$2,265,750	1.4%
Apron Parking Storage	\$604,159	\$1,678,038	\$435,142	\$415,058	\$0	\$3,132,397	1.9%
General Aviation Term. Building	\$0	\$500,000	\$500,000	\$0	\$0	\$1,000,000	0.6%
General Aviation Auto Parking	\$0	\$95,000	\$0	\$150,000	\$0	\$245,000	0.1%
Fencing	\$998,000	\$2,554,000	\$1,132,000	\$0	\$0	\$4,684,000	2.8%
Cargo	\$3,000,000	\$200,000	\$0	\$0	\$0	\$3,200,000	1.9%
Deicing	\$11,250,000	\$0	\$0	\$0	\$0	\$11,250,000	6.8%
Aviation Services						\$0	0.0%
Fuel AvGas	\$400,000	\$800,000	\$400,000	\$1,400,000	\$0	\$3,000,000	1.9%
Fuel Jet A	\$0	\$0	\$200,000	\$0	\$0	\$200,000	0.1%
FBO*						\$0	0.0%
Ground Transportation*						\$0	0.0%
Snow Removal Equipment	\$0	\$0	\$75,000	\$375,000	\$0	\$450,000	0.0%
Total	\$38,395,909	\$22,891,038	\$28,879,142	\$37,485,058	\$37,600,000	\$165,251,147	100%
Percentage of Total	23%	14%	17%	23%	23%	23%	

Source: Aviation, Century West

Note: * FBO and Ground Transportation improvements are market driven so no public funds are applicable.



TABLE 7-2: SYSTEM PLAN COSTS SUMMARIZED BY PROJECT TYPE AND OAP V6.0 CATEGORY ROLE

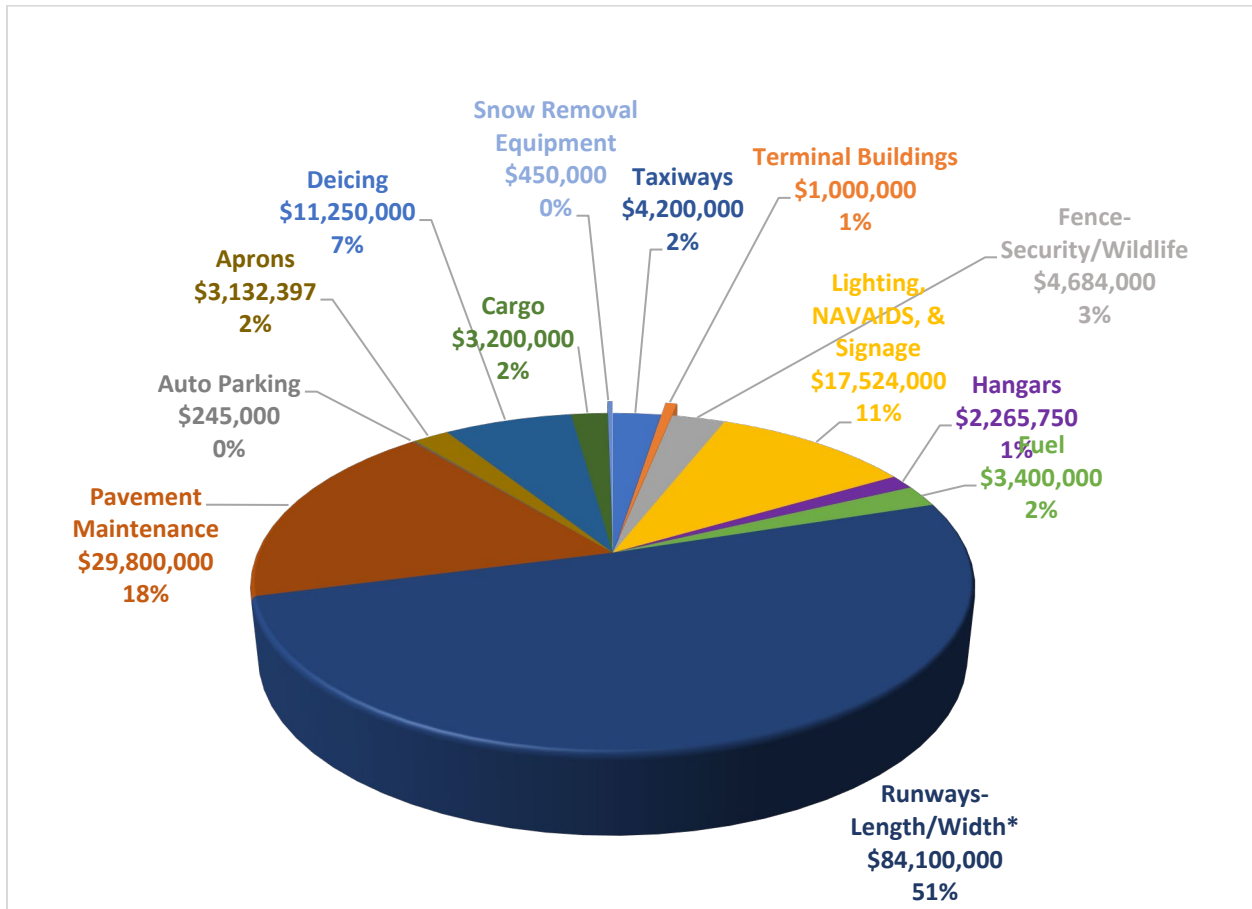
Costs by Project Type	Category I	Category II	Category III	Category IV	Category V	Total	Percentage of Total
Taxiways	\$0	\$4,200,000	\$0	\$0	\$0	\$4,200,000	2.5%
Terminal Buildings	\$0	\$500,000	\$500,000	\$0	\$0	\$1,000,000	0.6%
Fence-Security/Wildlife	\$998,000	\$2,554,000	\$1,132,000	\$0	\$0	\$4,684,000	2.8%
Lighting, NAVAIDs	\$0	\$4,964,000	\$10,615,000	\$1,945,000	\$0	\$17,524,000	10.6%
Hangars	\$1,743,750	\$0	\$522,000	\$0	\$0	\$2,265,750	1.4%
Fuel	\$400,000	\$800,000	\$600,000	\$1,400,000	\$0	\$3,200,000	2.1%
Runways-Length/Width*	\$10,700,000	\$0	\$15,000,000	\$23,000,000	\$35,400,000	\$84,100,000	50.9%
Runway Pavement Strength/PCI	\$9,500,000	\$7,900,000	\$0	\$10,200,000	\$2,200,000	\$29,800,000	18.0%
Auto Parking	\$0	\$95,000	\$0	\$150,000	\$0	\$245,000	0.1%
Aprons	\$604,159	\$1,678,038	\$435,142	\$415,058	\$0	\$3,132,397	1.9%
Deicing	\$11,250,000	\$0	\$0	\$0	\$0	\$11,250,000	6.8%
Cargo	\$3,000,000	\$200,000	\$0	\$0	\$0	\$3,200,000	1.9%
Snow Removal Equipment	\$0	\$0	\$75,000	\$375,000	\$0	\$450,000	0.3%
Total	\$38,395,909	\$22,891,038	\$28,879,142	\$37,485,058	\$37,600,000	\$165,251,147	100.0%
Percentage of Total	23.2%	13.9%	17.5%	22.7%	22.8%	100.0%	

Source: Jviation, Century West

Note: * Runway length and width projects include related taxiway costs, lighting installation, marking and signage costs.

Altogether, the costs associated with system plan recommendations for all project types total approximately \$165.3 million. **Figure 7-1** illustrates the distribution of total estimated system plan costs by project type. As shown, the most significant costs for recommended system improvements relate to Runway Length and Width projects, followed by Runway Pavement Strength/PCI.

FIGURE 7-1: SYSTEM PLAN COSTS BY PROJECT TYPE

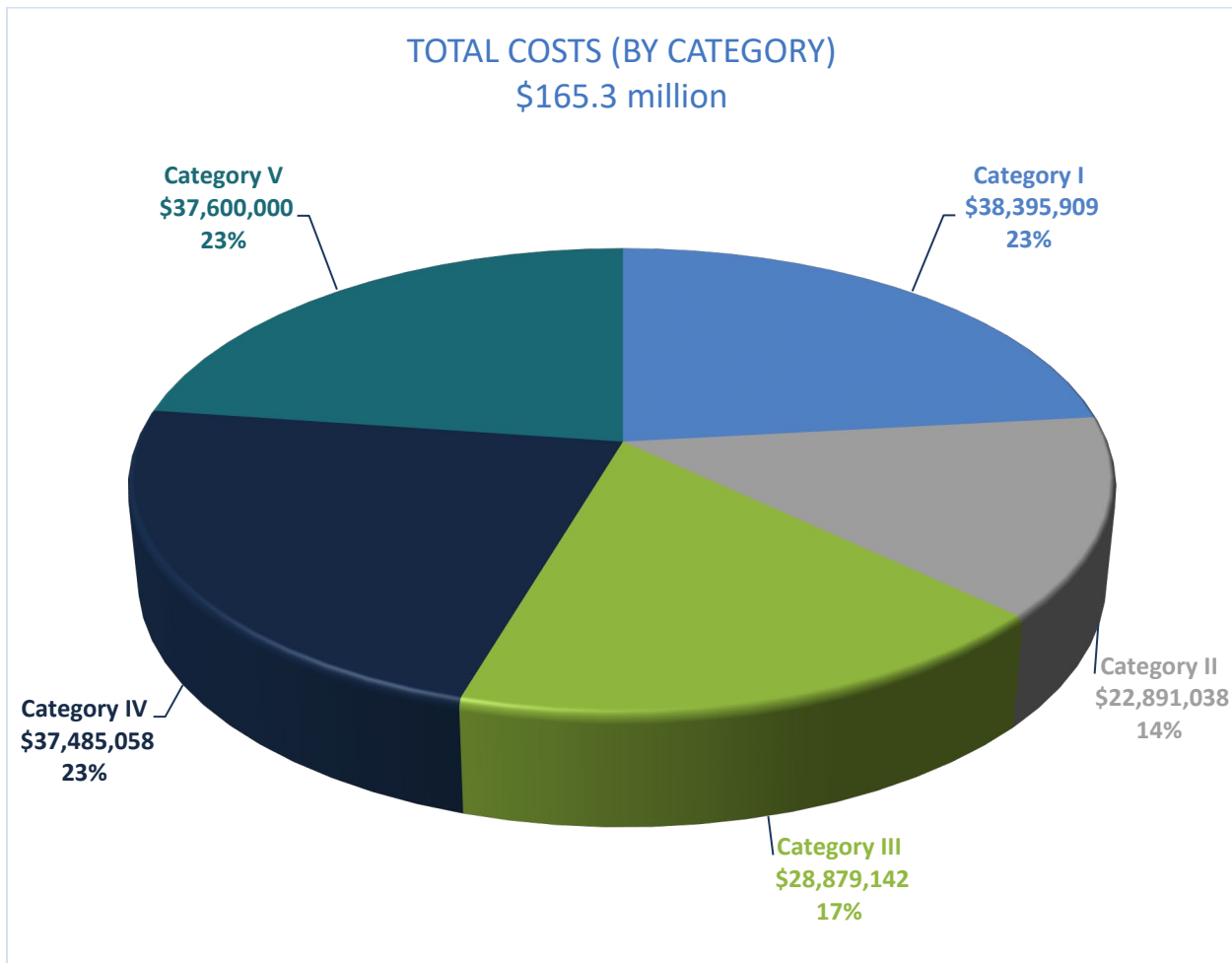


Source: Jviation, Century West

Note: * Runway length and width projects include related taxiway costs, lighting installation, marking and signage costs.

In addition to the estimated system development costs by project type, a summary of estimated costs by airport role (OAP v6.0 Category I to V) was developed and is shown in **Figure 7-2**. This graphic was developed with airport-specific projects from the OAP v6.0, with costs summarized by project type. As shown in **Figure 7-2**, Category I airports have the largest share of estimated costs associated with system plan deficiencies followed by airports in Category V, IV, III, and II. OAP v6.0 facility objectives are focused primarily on meeting the needs of general aviation airports. Analysis indicates that 77 percent of the deficiency-related projects are for general aviation airports (Category II to V).

FIGURE 7-2: OAP V6.0 PROJECT COSTS BY CATEGORY/ ROLE



Source: Jviation, Century West

7.4 Other Development Costs for System Airports

Projects identified in the deficiencies analysis from the system plan represent a portion of the total development and maintenance costs that Oregon airports could require in the near term. In order to have a better picture of total investment needs for Oregon’s airport system, it is important to also consider projects identified in each airport’s current Statewide Capital Improvement Program (SCIP) and in Oregon’s most recent Statewide Pavement Evaluation Program (PEP).

The SCIP was developed and implemented by the Oregon Department of Aviation (ODA) in partnership with the Federal Aviation Administration’s (FAA) Northwest Mountain Region and Seattle Airports District Office and airport sponsors. The development and implementation of the SCIP is consistent with and will support airport sponsors and FAA objectives of implementing a continuous aviation system planning program. The purpose of the OAP v6.0 is to implement and manage an integrated, sustainable statewide airport planning process, ensuring the Oregon state public-use airport system remains responsive to national and state public air transportation needs. Furthermore, the SCIP is consistent with the current Oregon Aviation Plan and the foundation of the OAP. The OAP will be revised and/or amended to include any SCIP needs that are visualized through the development of the SCIP. While SCIP costs have been included for consideration in this analysis, it

is worth stating that SCIP requests are unvetted and often reflect an optimistic/unconstrained level of development for each airport.

Current SCIPs were reviewed to provide ODA with a general understanding of what projects are already being considered on the local level that would address deficiencies noted in the system plan. A review was performed to ensure project costs were not duplicated between the system plan and current SCIP projects for each airport. Projects identified in the state’s PEP were also reviewed to determine if any of the recommendations from that study are already included in an airport’s current CIP or in a system plan related recommendation. The combined costs from all three sources (facility deficiency analysis, PMP, and SCIP) provide a more holistic picture of anticipated financial needs.

7.4.1 Costs Associated with Pavement Evaluation Program Projects

ODA’s systematically identifies maintenance, repair, and rehabilitation projects needed to sustain functional pavements at Oregon airports. The PEP provides a thorough evaluation of current conditions and future projections of condition in terms of pavement condition indices (PCI) for all eligible pavements on all paved airports across the state. For NPIAS airports receiving federal monies, this work assists the airports in meeting their grant assurances. Projects identified by the PEP that have not been addressed and their associated costs were identified as additional costs to be considered as part of the system plan’s recommendations. **Table 7-3** presents a summary of these pavement related costs for system airports by project type and by airport role. Projects range from surface sealants to complete pavement rehabilitation. It is worth noting that some airports could have additional pavement-related projects that are not captured in the statewide PEP. Therefore, actual costs related to improving and maintaining the condition of pavement at Oregon airports could be higher than the \$67.7 million shown in **Table 7-3**. With weather and use, pavement conditions at Oregon airports continually change and ODA updates each of the three PEP regions on a three year rotation to capture these changing conditions. Pavement costs estimated in this plan do not reflect all pavement maintenance and replacement needs that have to be addressed in the next five years. Additionally, most Category I airports are not included in the PEP, with the exception of Eastern Oregon Regional Airport at Pendleton, a Non-Primary airport eligible only for Non-Primary Entitlement funds from the FAA, (\$150,000 annually).

TABLE 7-3: SUMMARY OF PAVEMENT COSTS BY PROJECT TYPE AND OAP V6.0 CATEGORY/ROLE

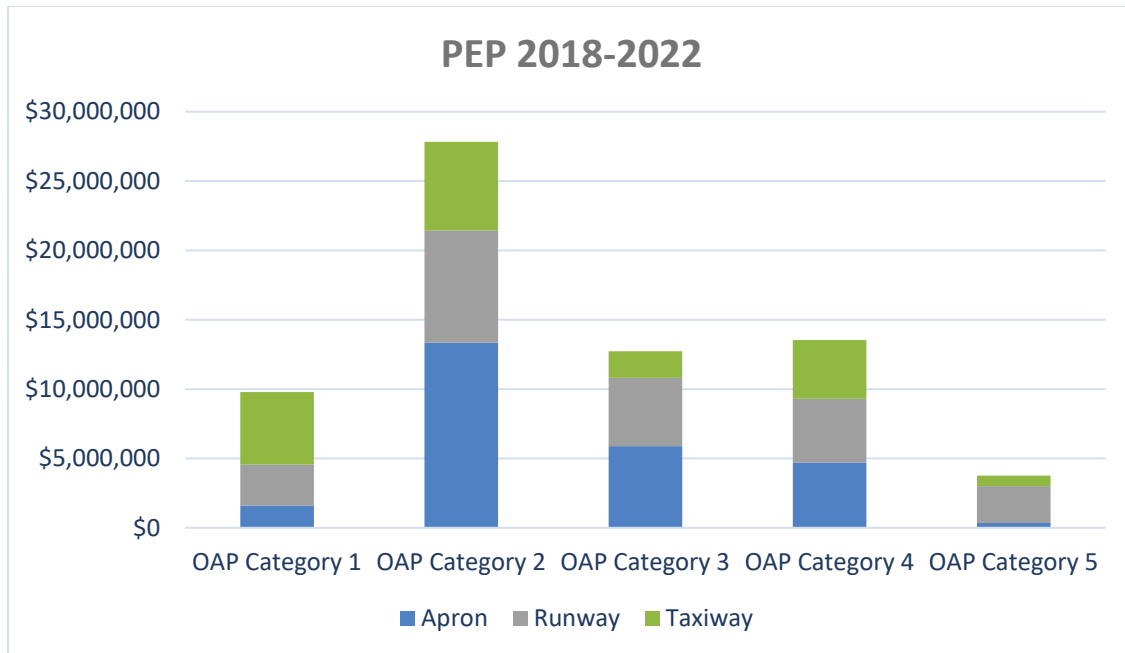
2018 - 2022	Apron	Runway	Taxiway	Total	Percentage of Total
OAP Category I	\$1,612,899	\$2,944,863	\$5,225,749	\$9,783,511	14.5%
OAP Category II	\$13,356,102	\$8,080,123	\$6,398,410	\$27,834,635	41.1%
OAP Category III	\$5,884,204	\$4,932,760	\$1,912,260	\$12,729,224	18.8%
OAP Category IV	\$4,707,404	\$4,595,803	\$4,235,837	\$13,539,044	20.0%
OAP Category V	\$345,465	\$2,659,925	\$764,793	\$3,770,183	5.6%
Total	\$25,906,074	\$23,213,474	\$18,537,049	\$67,656,597	100%
Percentage of Total	38.3%	34.3%	27.4%	100%	

Source: ODA PEP 2018, Aviation analysis

As **Table 7-3** shows, pavement projects require significant investment, totaling approximately \$67.7 million. By pavement project type, apron projects account for the largest share of the pavement-related costs, followed by runway projects and taxiway projects. Category II airports have the highest estimated PMP costs, followed by Category IV and Category III airports. Category I airports, with the exception of Eastern Oregon Regional Airport at Pendleton, are not included in this summary.

Figure 7-3 graphically depicts the share of pavement-related costs by project type and OAP v6.0 airport role. Apron projects at Category II airports are nearly \$13.4 million and have the largest share of pavement related projects.

FIGURE 7-3: PAVEMENT COSTS BY OAP V6.0 AIRPORT CATEGORY/ROLE AND PROJECT TYPE



Source: ODA PMP 2018, Aviation analysis

7.4.2 Costs Associated with Airport SCIP Projects

A summary of SCIP project costs for all 97 system airports, including Category I – Commercial Service¹ (gathered for 2018) is presented in **Table 7-4**, by project type and by airport role.

TABLE 7-4: ODA SCIP COSTS BY AIRPORT CATEGORY/ROLE, 2018 TO 2030

CIP Project*	Category I	Category II	Category III	Category IV	Category V	Total	Percentage of Total
Runways	\$39,063,131	\$61,818,820	\$19,161,113	\$6,505,554	\$3,003,343	\$129,551,961	33.2%
Taxiways	\$105,874,503	\$31,241,927	\$4,619,831	\$17,142,480	\$763,466	\$159,642,207	40.9%
Land Acquisition	\$4,595,948	\$8,101,050	\$0	\$0	\$0	\$12,696,998	3.3%
Apron	\$11,033,750	\$5,999,754	\$16,567,496	\$11,905,494	\$0	\$45,506,494	11.6%
Fence	\$0	\$0	\$513,778	\$1,170,015	\$305,556	\$1,989,349	0.5%
NAVAIDS	\$3,197,078	\$188,889	\$1,573,601	\$422,223	\$0	\$5,381,791	1.4%
Stormwater	\$1,073,561	\$2,644,445	\$0	\$0	\$0	\$3,718,006	0.9%
Obstructions	\$0	\$1,078,889	\$333,334	\$463,319	\$166,667	\$2,042,209	0.5%
Fuel Farm	\$0	\$0	\$0	\$502,500	\$0	\$502,500	0.1%
Weather reporting	\$0	\$488,889	\$0	\$850,000	\$0	\$1,338,889	0.3%

¹ Category 1 airports do not receive ODA funding for nearly all projects as these Primary airports receive AIP entitlement funds.

CIP Project*	Category I	Category II	Category III	Category IV	Category V	Total	Percentage of Total
Snow Removal Equipment/Storage	\$7,093,352	\$0	\$22,222	\$0	\$0	\$7,115,574	1.8%
Aircraft Rescue and Firefighting (ARFF)	\$5,500,000	\$0	\$0	\$0	\$0	\$5,500,000	1.4%
Studies	\$8,634,861	\$1,293,289	\$2,231,331	\$2,418,364	\$638,886	\$15,216,731	3.9%
Total	\$186,066,184	\$112,855,952	\$45,022,706	\$41,379,949	\$4,877,918	\$390,202,709	100.0%
Percentage of Total	47.7%	28.9%	11.5%	10.6%	1.3%	100.0%	

Source: ODA SCIP 2018, Aviation analysis

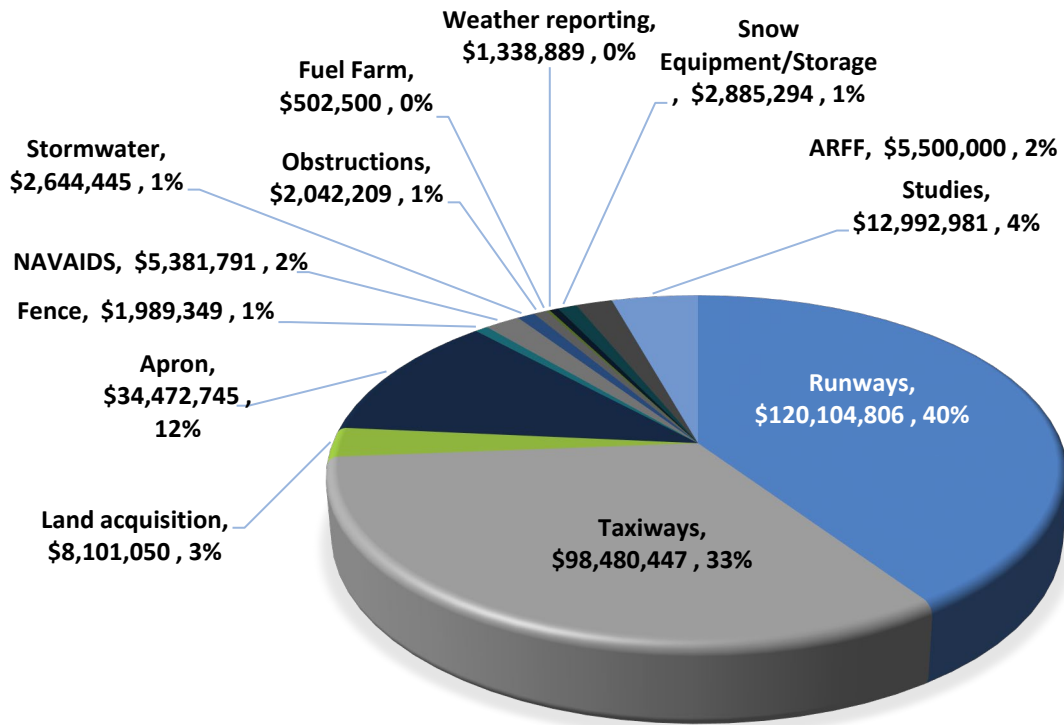
Note: *SCIP Projects for runways and taxiways range from extensions to lighting to rehabilitation. Projects costs often include environmental studies, geotechnical work as well as engineering design and construction.

As shown in **Table 7-4**, if fully implemented, SCIP projects for system airports also require a significant investment, totaling over \$390 million² over the next 10 years; on average, \$39 million per year will be required to fund all existing SCIPs. By SCIP project type, taxiway projects make up the largest share of costs, followed by runway projects, and apron projects. The remaining 10 project types each represent approximately 15 percent of the total cost. Category I, Commercial Service Airports represent the largest share of SCIP costs, followed by Category II, Urban General Aviation Airports and Category III, Regional General Aviation Airports.

Figure 7-4 and **Figure 7-5** graphically depict the share of SCIP-related costs by project type and OAP v6.0 role.

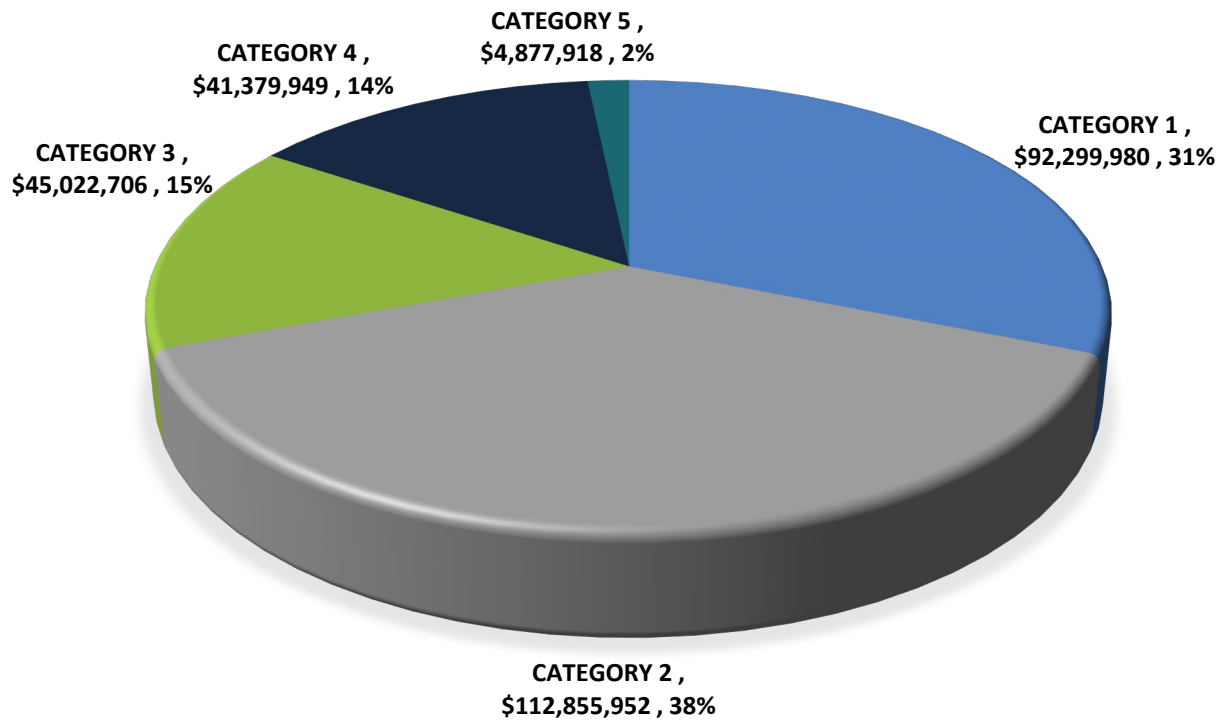
² Some projects on the CIP may be currently underway. The SCIP database includes PMP and fund transfers. These were removed for this analysis to avoid double counting.

FIGURE 7-4: SCIP COSTS BY PROJECT TYPE



Source: ODA SCIP 2018, Aviation analysis

FIGURE 7-5: SCIP COSTS BY ROLE



Source: : ODA SCIP 2018, Aviation analysis

7.5 Combined Estimated Development Costs

Combining all cost estimates (system plan facilities and services deficiencies, pavement projects identified by the PEP, and airport SCIPs) results in total development costs of nearly \$623.1 million over the next 10 years.

Table 7-5 presents a summary of the combined development costs by project type and airport role.

TABLE 7-5: SUMMARY OF COMBINED DEVELOPMENT COSTS BY PROJECT TYPE AND ROLE

Project Type	Category I	Category II	Category III	Category IV	Category V	Total	Percentage of Total
Runways	\$62,207,994	\$77,798,943	\$39,093,873	\$44,301,357	\$43,263,268	\$266,665,435	42.8%
Taxiways	\$111,100,252	\$46,804,337	\$16,632,091	\$22,178,317	\$1,528,259	\$198,243,256	31.8%
Land Acquisition	\$4,595,948	\$8,101,050	\$0	\$0	\$0	\$12,696,998	2.0%
Apron	\$13,250,808	\$21,033,894	\$22,886,842	\$17,027,956	\$345,465	\$74,544,965	12.0%
Fence	\$998,000	\$2,554,000	\$1,645,778	\$1,170,015	\$305,556	\$6,673,349	1.1%
NAVAIDS	\$3,197,078	\$188,889	\$1,688,601	\$1,567,223	\$0	\$6,641,791	1.1%
Stormwater	\$1,073,561	\$2,644,445	\$0	\$0	\$0	\$3,718,006	0.6%
Obstructions	\$0	\$1,078,889	\$333,334	\$463,319	\$166,667	\$2,042,209	0.3%
Fuel Farm	\$600,000	\$800,000	\$600,000	\$1,902,500	\$0	\$3,902,500	0.6%
Weather Reporting	\$0	\$488,889	\$400,000	\$850,000	\$0	\$1,738,889	0.3%

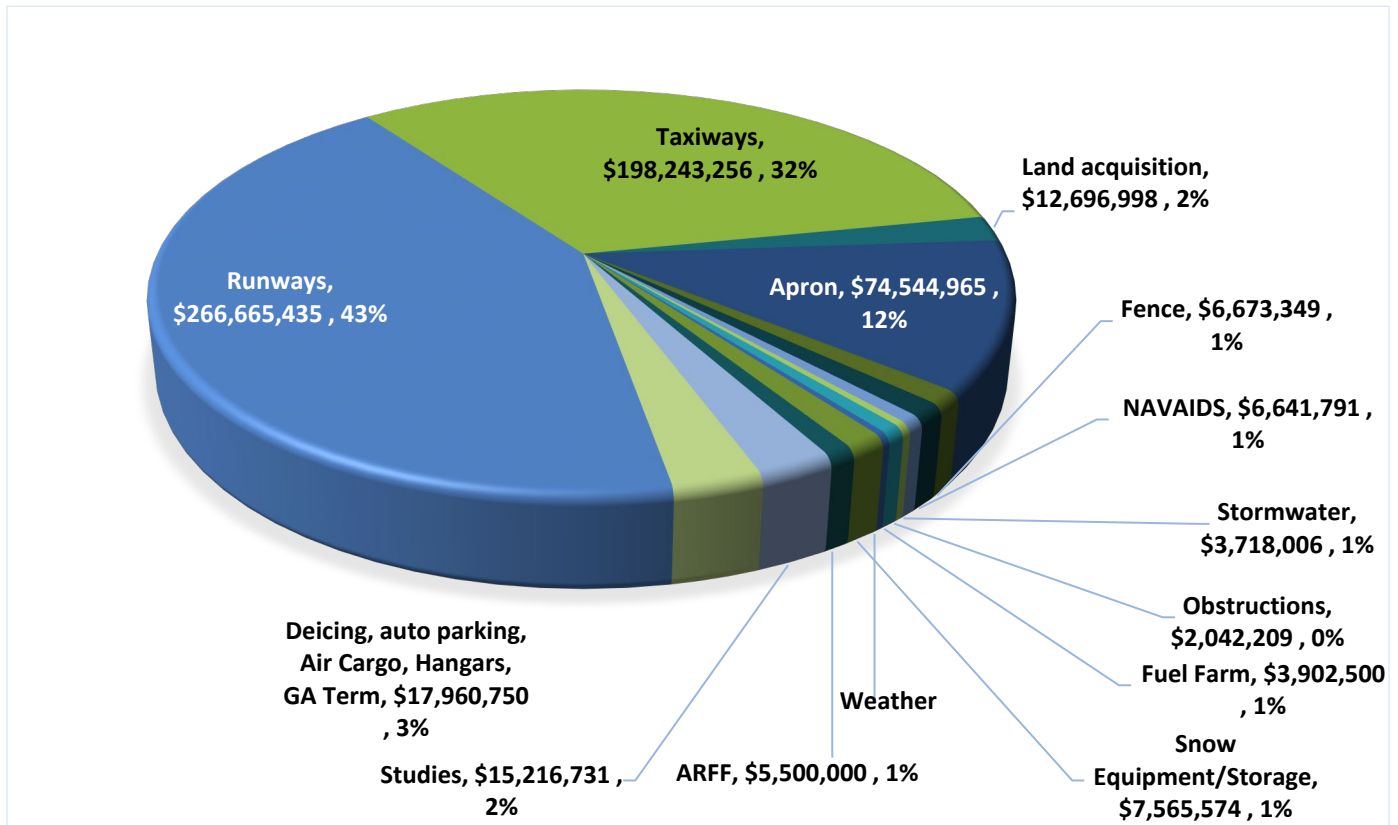
Project Type	Category I	Category II	Category III	Category IV	Category V	Total	Percentage of Total
Snow Removal Equipment/Storage	\$7,093,352	\$0	\$97,222	\$375,000	\$0	\$7,565,574	1.2%
ARFF	\$5,500,000	\$0	\$0	\$0	\$0	\$5,500,000	0.9%
Studies	\$8,634,861	\$1,293,289	\$2,231,331	\$2,418,364	\$638,886	\$15,216,731	2.4%
Deicing, Auto Parking, Air Cargo, Hangars, General Aviation Terminal	\$15,993,750	\$795,000	\$1,022,000	\$150,000	\$0	\$17,960,750	2.9%
Total	\$234,245,604	\$163,581,625	\$86,631,072	\$92,404,051	\$46,248,101	\$623,110,453	100.0%
Percentage of Total	37.6%	26.3%	13.9%	14.8%	7.4%	100.0%	

Source: Jviation, Century West, ODA 2018 SCIP and PEP

As shown in **Table 7-5**, by consolidated project type the largest share of costs is for Runways and Taxiways followed by Apron projects. The remaining project types each represent less than 15 percent of the total cost. by Category I, Commercial Service represent the largest share of combined development costs, followed Category II, Urban General Aviation Airports.

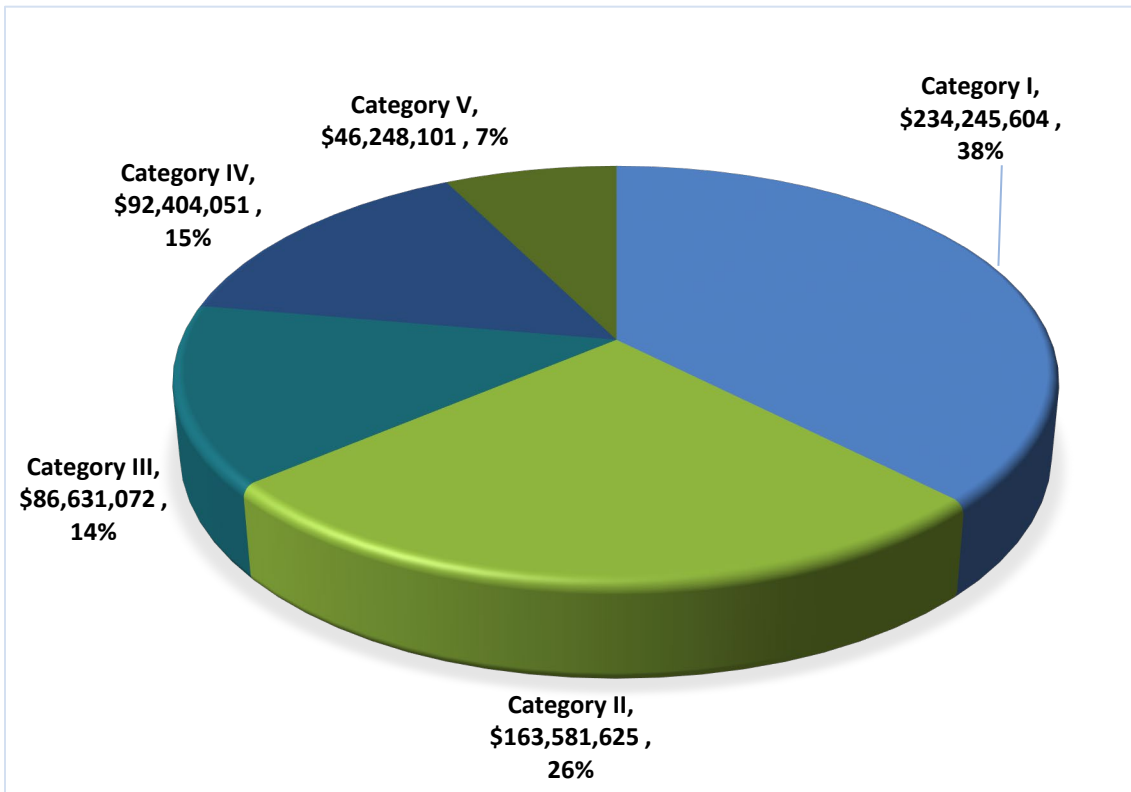
Figure 7-6 and **Figure 7-7** graphically depict the share of combined development costs by project type and OAP v6.0 role.

FIGURE 7-6: COMBINED DEVELOPMENT COSTS BY PROJECT TYPE



Source: Jviation, Century West, ODA SCIP and PEP

FIGURE 7-7: COMBINED DEVELOPMENT COSTS BY OAP V6.0 AIRPORT CATEGORY/ROLE



Source: Jviation, Century West, ODA SCIP and PEP

Table 7-6 presents a summary of the combined development costs identified by role and plan. As shown, costs associated with system plan recommendations make up the second largest share with 27 percent of the total. SCIP project costs represent the largest share with nearly 63 percent of the total estimated development costs over the next five to 10 years. It is worth noting that any duplication in projects between the source documents was removed. When just system planning related projects are considered, total estimated costs are \$623.1 million.

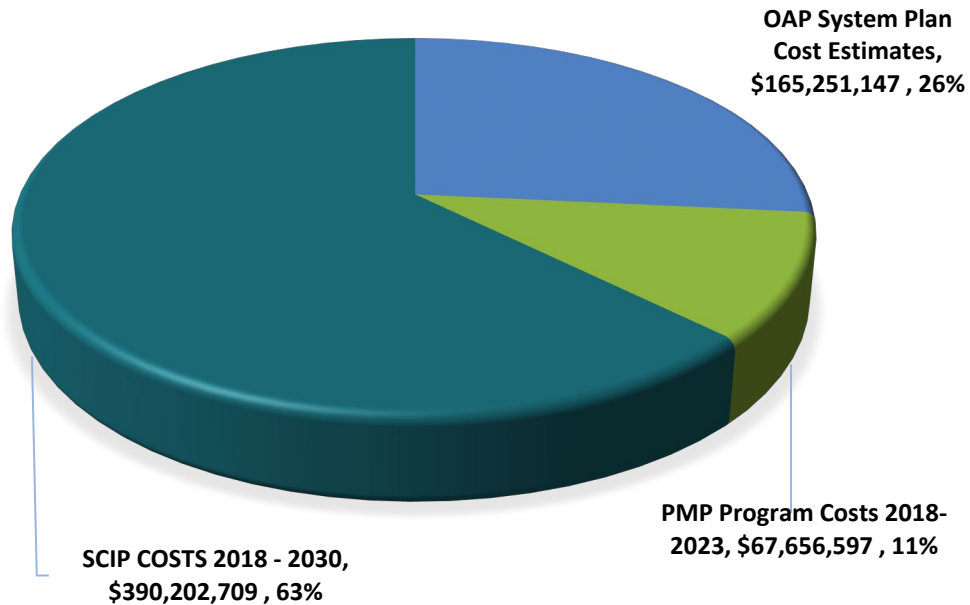
TABLE 7-6: SUMMARY OF COMBINED DEVELOPMENT COSTS BY ROLE AND PLAN

Plan	Category I	Category II	Category III	Category IV	Category V	Total	Percentage of Total
OAP Deficiencies Plan Cost Estimates	\$38,395,909	\$22,891,038	\$28,879,142	\$37,485,058	\$37,600,000	\$165,251,147	26.5%
PMP Costs 2018- 2023	\$9,783,511	\$27,834,635	\$12,729,224	\$13,539,044	\$3,770,183	\$67,656,597	10.9%
SCIP COSTS 2018 - 2030	\$186,066,184	\$112,855,952	\$45,022,706	\$41,379,949	\$4,877,918	\$390,202,709	62.6%
Total	\$234,245,604	\$163,581,625	\$86,631,072	\$92,404,051	\$46,248,101	\$623,110,453	100.0%
Percentage of Total	37.6%	26.3%	13.9%	14.8%	7.4%	100.0%	

Source: Jviation, Century West, ODA SCIP and PEP

Figure 7-8 depicts the share of development costs by plan.

FIGURE 7-8: COMBINED DEVELOPMENT COSTS BY PLAN



Source: Jviation, Century West, ODA SCIP and PMP

7.6 Funding Sources for Capital Improvement Projects

7.6.1 Federal Aviation Administration Airport Improvement Program Funding

The federal government started an airport grants-in-aid program to units of state and local government at the end of World War II to support the needs of the nation’s public airports. After several early versions of federal funding programs, the Airport Improvement Program (AIP) was established through the Airport and Airway Improvement Act of 1982. The initial AIP provided funding legislation through fiscal year 1992; since then, it has been authorized and appropriated on a yearly or even quarterly basis. AIP funding is generated through taxes on airline tickets, freight way bills, international departure fees, general aviation fuel, and jet fuel.

AIP funds must be spent on FAA-eligible projects as defined in FAA Order 5100.38D, *Airport Improvement Program (AIP) Handbook*. In general, this reference document states that:

- An airport must be in the currently approved National Plan of Integrated Airport Systems (NPIAS).
- Most public-use general aviation airport improvements are eligible for 90 percent federal funding, with the remaining 10 percent coming from local or state matching funds.
- Non-primary entitlement funds of \$150,000 per year can be accumulated for up to four years; It should be noted that Unclassified airports are not eligible for these funds.

In addition, revenue-producing items (such as hangars) are typically not eligible for federal funding unless certain conditions are met. All eligible projects must be depicted on an FAA-approved airport layout plan.

Entitlement Funding

AIP grants include entitlement grants, which are allocated among airports by a formula that is driven by passenger enplanements, and by discretionary grants that are awarded in accordance with specific guidelines. Generally, primary airports receive entitlements based on the number of enplaning passengers and landed cargo weights, while non-primary airports, which include general aviation airports, likewise may receive entitlement funding.

Discretionary Funds

General aviation and commercial service airports also compete for federal discretionary funds. These funds are awarded based on priority ratings given to each potential project by the FAA. The prioritization process makes certain that the most important and beneficial projects (as viewed by the FAA) are the first to be completed, given the availability of adequate discretionary funds. Federal funding is limited to development that is justified to meet aviation demand according to FAA guidelines. Each NPIAS airport development project is subject to eligibility and justification requirements as part of the normal AIP funding process.

State Apportionment Funding

FAA funds are made available to states under various conditions and are apportioned based on an area/population formula. The distribution of these grants is decided through a collaborative effort by the FAA and each state.

7.6.2 Oregon State Funding

Several programs are administered by the Oregon Department of Aviation (ODA) ODA for funding airport planning, construction, and maintenance projects. A brief description of each funding program is presented below.

Pavement Evaluation Program

State funding for pavement maintenance projects begins with the information gathered during the State's Pavement Evaluation Program (PEP). The PEP provides technical pavement condition index reports and an assessment of pavement maintenance needs for one third of the State's airports each year in the form of a MicroPAVER database and individual airport reports. The PEP consultant also generates a list of pavement maintenance priorities to be addressed with that year's PMP.

All airports recognized as General Aviation airports in the 2007 Oregon Aviation Plan qualify for the PEP program. Primary non-hub commercial service airports contract and pay for PEP inspections separate from the PEP program and provide the report to ODA. Primary airports that are considered small, medium or large hub do not qualify for the PEP programs.

Pavement Evaluation Program (PEP) Funding: The PEP Program is funded by ODA and FAA AIP System Planning Grant funds. Funding is inclusive of the final work product of the individual PCI reports and all associated consulting contract services. For non-NPIAS public-use airports, ODA funds pay 100 percent of PEP costs. NPIAS general aviation airports PEP costs are funded through a yearly FAA AIP system planning grant. This FAA grant is for statewide system needs facilitated by ODA. FAA AIP grants are funded at a 90 percent (FAA)/10 percent (sponsor) share. The ODA 10 percent sponsor share (match) for the PEP as identified in individual system plan grants is funded through the PMP.



Pavement Maintenance Program (PMP)

Oregon’s PMP funds pavement maintenance and associated improvements such as crack filling, pavement repair, surface sealants, etc., that have not traditionally been eligible for FAA funding. Funding for the PMP is generated through a collection of aviation fuel taxes. ODA manages the PMP through an annual consultant services contract, and maintenance work is programmed on a three-year regional rotation by specialty contracting procured directly by the State. The PMP includes a regular schedule of inspection and subsequent field work with benefits such as economy of scale in bidding contracts for specialty work and creating federal/state/local partnerships that maximize airport improvement funds.

The PMP typically includes approximately 12-20 airports per year, depending on funding levels, and is limited in scope to patching pavements, crack sealing, fog sealing, slurry sealing, and striping. The PMP is responsible for execution of the work (engineering analysis, quantity verification, bidding & solicitation, construction contracting, safety training and construction management) associated with the required/recommended maintenance identified by the PEP and within the available budget.

All airports recognized as General Aviation airports in the 2007 Oregon Aviation Plan qualify for the PMP. Primary non-hub commercial service airports also may qualify for PMP. Primary airports that are considered small, medium or large hub do not qualify for the PMP programs. For non-hub primary airport qualifications contact the ODA PMP Program Manager³.

Pavement Maintenance Program (PMP) Funding and Airport Sponsor Match: The majority of airport sponsors use either locally derived funds (budget) for the PMP match or federal Non-Primary Entitlement (NPE) funds. The amount of match required by the local airport sponsor is determined by the Oregon Aviation Plan airport classifications, and ranges from 5% to 50% of the individual airport’s project cost. Overall PMP funding is based upon an assumption of \$1 million per year plus match amounts and minus engineering and administration costs. The PMP program was originally funded by increasing the aviation gas tax by 3 cents in the first year (FY 1999) and 3 cents in the second year (FY 2000) and increasing the jet fuel tax by 1/2 cent in the first year. The PMP program has not received additional revenue since its inception.⁴ Actual program funding will vary depending upon program revenue and projections of revenue anticipated.

Table 7-7 shows the local match required for PMP, by airport category.

TABLE 7-7: PMP LOCAL MATCH BY AIRPORT CATEGORY

Category	Description	Recommended Local Match
1a	Commercial Service (Primary)	50%
1b	Other Commercial Service	35%
2	Urban General Aviation	25%
3	Regional General Aviation	10%
4	Local General Aviation	10%
5	Remote Access Emergency	5%

Source: Pavement Maintenance Program PMP Policy Guidance – 2013

³ Pavement Maintenance Program PMP Policy Guidance – 2013, page 8, Oregon Department of Aviation

⁴ https://www.oregon.gov/aviation/docs/meetings/AVB_13_07_18_PMP_Policy_Update_2013.pdf

Aviation System Action Program

During the 2015 legislative session, House Bill 2075 was passed to increase aviation fuel taxes and to mandate ODA to distribute the revenues. The Aviation System Action Program (ASAP) fund allows for the distribution of a two cent per gallon fuel tax for the purpose of financing grants to fund aviation and airport projects that involve:

1. Providing assistance for federal grant match support, airport safety and emergency preparedness enhancements, services critical and essential to aviation, aviation-related business development, and airport development for local economic benefit.
2. Rural commercial air service development.
3. Safety improvements and infrastructure projects at State-owned airports.

The ASAP is scheduled to end in 2022.

There are three programs under the ASAP; general characteristics of each are listed below.

State-Owned Airports Reserve Program

Twenty-five percent of the ASAP fuel taxes are dedicated to the State-Owned Airports Reserve (SOAR) program. This program funds needed improvements at state-owned airports, including runway repairs, obstruction removal, drainage, facilities, and planning. The first SOAR cycle was conducted in 2016-2017 and funded 19 projects worth \$1.9 million. Cycle 2 (2018-2019) is expected to total nearly \$3 million. Cycle 3 (2020-2021) projects are currently being identified, scoped, and prioritized.

Critical Oregon Airport Relief Program (COAR)

Fifty percent of the ASAP fuel tax increase shall be distributed for the following purposes:

- To assist airports in Oregon with match requirements for FAA AIP grants.
- To make grants for emergency preparedness and infrastructure projects, in accordance with the Oregon Resilience Plan, including seismic studies, emergency generators, etc.
- To make grants for:
 - Services critical or essential to aviation including, but not limited to, fuel, sewer, water and weather equipment.
 - Aviation-related business development including, but not limited to, hangars, parking for business aircraft and related facilities.
 - Airport development for local economic benefit including, but not limited to, signs and marketing.

Rural Oregon Aviation Relief Program (ROAR)

Twenty-five percent of the ASAP fuel tax increase are distributed for the purpose of assisting commercial air service in rural Oregon. The application period for this program is open-ended; applications are subject to state board review and selection.

Connect Oregon

Connect Oregon is an initiative to invest in air, rail, marine, and bicycle/pedestrian infrastructure to ensure Oregon's transportation system is strong, diverse, and efficient. For the \$427 million available through Connect Oregon I through VI (including CORA) there have been:



- 603 project applications received
- 282 projects funded
- \$1.003 billion in grants and loans requested

Important changes to Connect Oregon resulted from the passage of HB 2017 by the 2017 Legislature:

- Public transit projects are no longer included in Connect Oregon.
- The Connect Oregon Fund now has a portion of the new vehicle dealer privilege fee and the new \$15 bicycle excise tax in addition to lottery-backed bonds as funding sources. The bicycle excise tax will only go towards bicycle/pedestrian projects.
- The Oregon Transportation Commission is directed to distribute Connect Oregon funds to four specific projects:
 - Treasure Valley Intermodal Facility (\$26 million)
 - Rail expansion in East Beach Industrial Park at the Port of Morrow (\$6.55 million)
 - Brooks rail siding extension (\$2.6 million)
 - Mid-Willamette Valley Intermodal Facility (\$25 million)

Because available funds must first go to these projects, it is not anticipated that there will be funding available in the 2017-2019 biennium. After these four projects have been funded, and if funding is available, a competitive grant process in the 2019-2021 or 2021-2023 biennia may be announced

U.S. Department of Agriculture Wildlife Services Program

Wildlife strikes cause more than 590,000 hours of aircraft downtime and cost the nation's civil aviation industry approximately \$937 million annually. American military aircraft sustain losses exceeding \$10 million annually. The Department of Agriculture has assisted most of Oregon's major airports and associated Air National Guard Units by providing technical assistance, conducting wildlife hazard assessments, writing wildlife hazard management plans, dispersing or removing wildlife, and training airport staff. Wildlife hazard assessments are eligible for AIP funding.

7.7 Summary of Airport Cost Estimates and Funding

The combined development cost of ODA's three plans indicates that current aviation system needs far outweigh available funding. ODA's mission is to preserve and enhance aviation through safety, infrastructure maintenance and development, education, and keeping people and business moving by operating and improving Oregon's airport system. The SCIP and PMP support this mission by identifying and prioritizing aviation-related projects. To this end, the SCIP and PMP are intended to be a continuous, multi-year funding programs that will primarily assess short-term (0-5-year) airport improvement needs for the Oregon airport system. The OAP v6.0 Facilities and Services Deficiencies analysis indicates additional facility needs to improve the airport system based on each airport's assigned role (OAP v6.0 Category I to V). All three programs help agencies including ODA, FAA, and airport sponsors to anticipate future airport development capital needs and to target and make strategic investments with the goal of maximizing limited federal, state, and local financial resources.