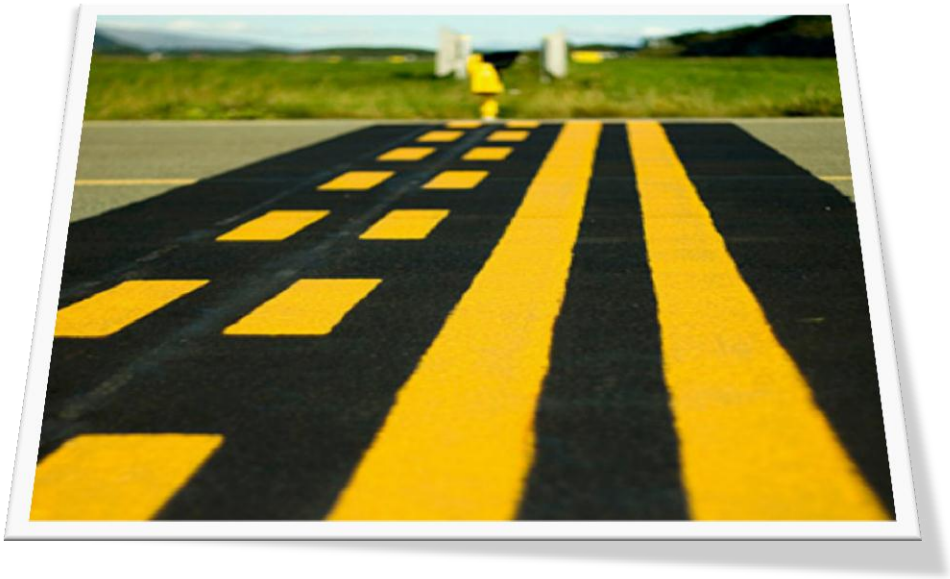

Pavement Maintenance Program PMP

Policy Guidance – 2013

Oregon Department of Aviation

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Background

In 1999, the Oregon Legislature authorized the Airport Pavement Preservation Program, which designates funds for the Oregon Department of Aviation (ODA) to implement two related efforts, the Pavement Maintenance Program (PMP) and the Pavement Evaluation Program (PEP). The PMP is a multi-year program aimed at assisting Oregon public-use airports throughout the state with maintenance and preservation of their existing pavement infrastructure. The deciding factor for this program was the compelling economics associated with extending the life of pavements and thereby saving money in larger capital projects and meeting airport sponsor's maintenance needs, while also assisting with FAA grant assurance requirements; further benefiting the infrastructure of statewide system of airports. A ten year program performance review was conducted in 2012 showing that pavement life could be extended up to 20 years with the Pavement Maintenance Program.

The overall goal of the PMP is to protect Oregon's airport investments by preserving airfield pavements through preventative maintenance to extend the life of pavement infrastructure. Furthermore, the 2007 OAP cited the program is needed to address stop-gap and inconsistent maintenance, to provide many smaller airports with the funding to address pavement maintenance issues, and to preserve the system's airport pavements through a cost-effective means. Prior to the year 2000, Oregon airport sponsors generally had not performed pavement maintenance using airport revenues, general funds or Airport Improvement Program (AIP) funds. Rather, the sponsors would wait for the pavements to reach a point of failure then utilize AIP funds along with a local match to either overlay, rehabilitate or totally reconstruct the pavement feature such as a runway or taxiway at a greatly increased cost. This PMP program created a scheduled pavement maintenance program for all qualifying airports that is performed on a regularly scheduled basis, using consistent methods and reporting based upon technical data. The PMP program provides statewide continuity and oversight with a 10 year track record and uniform baseline. Airport sponsors receiving PMP program funds for maintenance projects are required to agree to keep the airport open for a minimum of ten years and continue to maintain their airport infrastructure.

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. **As costs increase, the overall program funding should be evaluated routinely.**

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PMP Program Overview

The ODA PMP Program (ORS 836.072) is a state funded aid program to assist public use airports in the undertaking of pavement maintenance using a needs based approach.

How and why?

1. **Asset Management – Maintain airfield pavements to a minimum condition standard statewide.**
2. **Economy of Scale – Create a single program to benefit numerous airports statewide.**
3. **Maximize Funding – Create a federal, state, and local partnership to maximize airport pavement improvement funds.**
4. **Grant Compliance – Create a program that gives airport sponsors an avenue to comply with FAA Airport Sponsor Grant Assurance #11.**

Program Goals

- A systematic approach which identifies optimum strategies to maintain the Oregon System of Airport pavements at an adequate level of serviceability
- Includes systematic procedures for scheduling maintenance and rehabilitation activities
- Optimizes benefits while minimizing cost
- Provide an objective and consistent evaluation of the condition of a network of pavements
- Provide a systematic and documentable basis for determining maintenance and rehabilitation needs
- Identify budget requirements necessary to maintain pavements at various levels of serviceability
- Provide documentation on the present and future condition of the pavements in the state
- Determine life-cycle costs for various maintenance and rehabilitation alternatives
- Maximize and extend the life of airport pavements
- Address statewide maintenance needs and assistance with sponsor maintenance grant assurances

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PMP provides pavement maintenance activities to public use airports within the state. These activities have been proved to prolong the life of paved surfaces while also fulfilling federally funded airports' grant obligations/assurances of maintaining a Federal Aviation Administration (FAA) approved pavement maintenance program. The program steps are as follows:

1. **ODA Conducts pavement evaluation activities utilizing ODA and FAA funds (FAA AIP System Planning Grant funds are used for National Plan of Integrated Airport Systems (NPIAS) airport evaluations and planning). AIP Grants reimburse ODA for 90% of the associated work performed. For the states Non-NPIAS airports, ODA funds the pavement evaluation activities to ensure all airports in the PMP program can address pavement maintenance needs and for ODA to keep a valid and up to date aviation transportation system plan (known as the Oregon Aviation Plan (OAP)).**
2. **ODA and PMP consultant engineers develop yearly scope of work for pavement activities required as a part of PMP. PMP work and activities are developed using the latest pavement condition index (PCI) reports and analyzing the PCI data and generating a report from Micropaver. The details include exactly what type of maintenance work needs to be done for the targeted overall program dollar amount in**

conjunction with the program requirements, as-built records, on-site evaluations and analysis and engineering determinations.

3. ODA and FAA have a pre-construction meeting. ODA reviews the yearly draft program and associated cost shares and work included.
4. Consultant inspectors conduct on-site inspections to finalize the quantities in order to bid the associated contractor work activities.
5. ODA and consultant finalize the yearly PMP construction work and associated work activities and schedule.
    - NPIAS Airport sponsors may request additional work not eligible for PMP funding that is eligible for FAA AIP funding. This work MUST relate to pavement maintenance and preservation activities. This work is 100% local sponsor's responsibility. FAA may approve the work and add it to the grant specific for that airport and work to be paid at a 90% / 10% split and be paid for with NPE's as well, in such case ODA administers these specifics within the program and is reimbursed by the FAA at 90% and 10% by the airport sponsor, airport sponsor billings for this work will be invoiced upon completion of the associated activities and final quantities are verified.
    - All airport sponsors may request additional work not eligible for PMP funding. If the work is also not additional FAA AIP eligible or if the work is requested by a Non-NPIAS airport the additional work is to be paid for 100% by the sponsor, 50% of the estimated additional costs must be submitted to ODA in advance of the contractor work.
6. Aviation Board approves the final yearly PMP program and bidding the program work.
7. ODA enters into IGA's with non-state airports to allow ODA to administer consulting engineering and contractor work on their behalf. As per the PMP Policy, local sponsors agree to provide project match based upon each airport's categorization within the Oregon Aviation Plan. Local match may derive from sources including but not limited to: municipal funds, port funds, sponsor federal grant funds (Non-Primary Entitlement (NPE) only), sponsor NPE transfers or other airport operating funds.
8. ODA bids work (ODA develops an "Invitation to Bid", submits to DOJ for approval, publishes/advertises bid documents and specifications).
9. ODA contracts with the successful low bid Contractor. Contractor completes required airport safety training (prior to start of site work).
10. ODA submits FAA AIP grant application for the FAA AIP eligible portion of work. (ODA applies for and administers grant funds on behalf of the sponsor.)
11. The final yearly PMP program is completed by administering and managing the following activities through completion and final acceptance by ODA and the FAA: Inspecting, monitoring and verifying construction activities and unit measurements, compiling weekly project & inspection reports, reviewing weekly contractor work complete and contractor's progress billings, administering FAA federal grant funds and associated grant draw and procedures, final sponsor quantity updates and billings, project close out documentation.

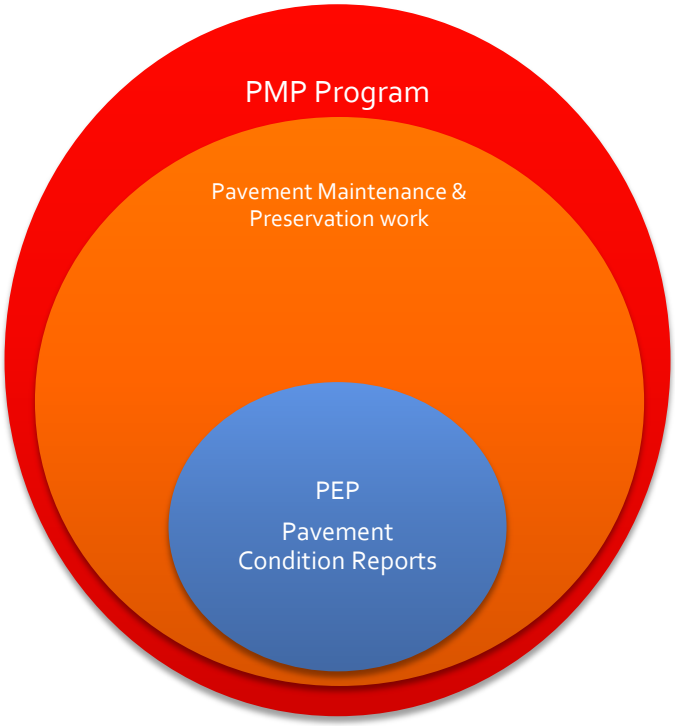
The following documentation provides details of the 2 phases of the Program; Pavement Evaluation Program (PEP) and the Pavement Maintenance Program (PMP) and the policy guidance required to implement and administer the program. Included are the program funding and guidelines, type of work funded, specific funding information and program management. The PEP and PMP programs occur at each public use airport once every three years, with the PEP defining the limits of the maintenance and construction work to be performed in the following year. This Program Policy Guidance shall be reviewed every two years during the agency budget cycle.

* All airports recognized as General Aviation airports in the 2007 Oregon Aviation Plan qualify for both the PEP and PMP programs. The details of program qualifications are further explained in the policy details of this document.

Overall Program Map

PMP/PEP

The PMP Program consists of two separate processes/phases that combine to set the overall deliverables using a needs based approach. PEP (Pavement Evaluation Program) which provides pavement condition reports; technical pavement condition index reports and PMP (Pavement Maintenance Preservation) which is responsible for the work associated with the required/recommended maintenance (engineering analysis, quantity verification, bidding & solicitation, construction contracting, safety training and construction management).



PEP

The principal objective of the PEP is to maintain a statewide pavement management program that assesses relative pavement condition at the included airports.
The PEP serves to:

- Assist ODA and the FAA to identify system needs,
- Make and justify program decisions for project funding,
- Provide information to assist in legislative decision making, and
- Help local jurisdictions with their capital planning.

For each airport, the PEP develops a pavement inventory and identifies needed pavement maintenance, rehabilitation and reconstruction projects. ODA has been conducting the PEP since the mid-1980s.
In 1995 the FAA began requiring airports requesting federal funds for pavement-improvement projects to have an implemented pavement-maintenance management program. ODA was already ensuring that eligible Oregon airports met this requirement through the PEP.

Nonetheless, a review of the PEP was conducted at that time to formalize the work scope for each PEP project completed under the Oregon Continuous Aviation System Planning effort. Under the PEP, every participating paved public use airport in the state is evaluated once every three years. Airports are grouped based on three geographic regions to ensure efficiency in completing the yearly program.

*****PEP is a technical visual analysis, in some cases there may be a need to perform additional non-destructive testing or geotechnical analysis to show a structural failure.*****

The following are the primary steps undertaken during each PEP update:

PEP YEARLY PROCESS

- ODA contracts the airports to be inspected based upon the 3 year regional map and schedule.
- Develop the pavement inspection schedule and coordinate with each individual airport.

RECORDS REVIEW

Gather relevant data on pavement design, construction and maintenance history from FAA, ODA, sponsors or airport consultants, as available. The focus is to obtain project plans and As-Builts from AIP, PMP and other projects completed in the last three years, or since the last evaluation. Update the airport layout plan for each site using the new information obtained from the project plans. This drawing becomes the base that is used for several subsequent purposes. These efforts are completed using the current version of AutoCAD.

NETWORK DEFINITION

- Review the updated airport layout plan drawing and divide each airport pavement network into branches, sections and sample units.
- Develop a drawing that shows each branch, section and sample unit locations based on the updated airport layout plan prepared.

VISUAL CONDITION SURVEY

- Visually inspect all pavements at each project airport in accordance with ASTM D5340, *Standard Test Method for Airport Pavement Condition Index Surveys* and FAA Northwest Mountain Region handout, *Pavement Condition Survey Program* (6/11/88). Following these standards maintains consistency in the pavement management database.

MICROPAVER™ IMPLEMENTATION

- Once the records review and visual inspections are complete, the data are entered into MicroPAVER™ which has been utilized for the PEP for over two decades. Below is a description of MicroPAVER™ from the U.S. Army Engineer Research and Development Center who developed the program:
  MicroPAVER™ is a microcomputer version of PAVER™—a validated pavement maintenance management system for military installations, airports, cities, and counties, designed to optimize funds allocated for pavement maintenance and rehabilitation (M&R). MicroPAVER™ uses inspection data and a pavement condition index (PCI) rating from 0 to 100 (where a score of 100 represents the optimal condition) to consistently describe a pavement's condition and predict its M&R needs many years into the future. The PCI for airfield pavements became an ASTM standard in 1993. The PCI for roads and streets became an ASTM standard in 1999. The PAVER™ program performs multiple levels of analysis to show where to best allocate scarce M&R dollars, determine budget requirements for different levels of service, and help organizations formulate pavement M&R projects. For more information, see the link at http://www.cecer.army.mil/paver/
- Input the new data gathered into MicroPAVER™. This includes the following:

Updating the existing conditions for each pavement

- Updating unit price costs
- Updating the network definition for the pavement sections
- Entering the new data from the Visual Condition Survey
- Calculate the Pavement Condition Index (PCI) for each pavement sample unit
- Calculate an area-weighted average PCI for each pavement section.
- Develop a pavement condition drawing showing the PCI and its associated Pavement Condition Rating PCR) for each pavement section. The drawing is color-coded for each category for ease of use.

COMPLETE PAVEMENT ANALYSIS REPORT

A pavement analysis (pavement condition index report) for each airport is completed through condition analysis and prediction modeling. The prediction modeling is based on performance curves for the surface type, use, and airport functional category.

EXAMPLE PEP PAVEMENT CONDITION INDEX REPORT COVER

PMP/PEP Details & Airport Specifics
Airport Functional Categories

PAVEMENT INSPECTION CYCLE & CATEGORY (# per OAP)
Note: Sponsor Program Match % is determined by the airport functional category

EASTERN REGION (OAP CATEGORY)	NORTHWESTERN (OAP CATEGORY)	SOUTHERN (OAP CATEGORY)
Baker City Municipal (3)	Albany Municipal (4)	Ashland Municipal (3)
Bend Municipal (2)	Astoria Regional (2)	Bandon State (3)
Boardman (5)	Aurora State (2)	Brookings Municipal (4)
Burns Municipal (3)	Chehalem Airpark (5)	Cape Blanco State (5)
Cascade Locks State (5)	Corvallis Municipal (2)	Chiloquin State (5)
Columbia Gorge Regional / The Dalles (3)	Country Squire Airpark (5) Hillsboro (2)	Christmas Valley (4)
Condon State (4)	Independence State (4)	Cottage Grove State (4)
Enterprise Municipal (5)	Lebanon State (4)	Creswell Hobby Field (4)
Hermiston Municipal (3)	Lenhardt Airpark (4)	Florence Municipal (4)
Ken Jernstedt / Hood River (4)	McMinnville Municipal (2)	Gold Beach Municipal (4)
Grant County Regional (3)	Mulino (4)	Grants Pass (3)
Joseph State (4)	Nehalem Bay State (5)	Illinois Valley (4)
La Grande / Union County (3)	Newport Municipal (2)	Lake County (3)
Lexington (4)	Pacific City State (5)	Myrtle Creek Municipal (4)
Madras City-County (4)	Salem McNary Field (2)	Oakridge State (5) Pinehurst
McDermitt State (5)	Scappoose Industrial Airpark (2)	State (5) Prospect State (5)
Ontario Municipal (3)	Seaside Municipal (4)	Roseburg Regional (2)
Prineville (4)	Siletz Bay State (4)	Sunriver (4)
Sisters Eagle Air (4)	Sportsman Airpark (4)	Paisley (5)
Wasco State (4)	Stark's Twin Oaks Airpark (5)	-
Pendleton – Eastern Oregon Regional (1b)	Tillamook (3)	-
-	Toledo State (5)	-
-	Troutdale (2)	-
-	Valley View (5)	
-		

Notes: No primary airports were included in the inspection cycle, they have their own pavement maintenance programs and access to greater funding sources, nor were several Category 5 airports that have turf/gravel runways (Alkali Lake State, Arlington Municipal, Beaver Marsh, Owyhee Reservoir State, Rome State, Crescent Lake, McKenzie Bridge State, Miller Memorial Airpark, Santiam Junction State, Toketee State, and Vernonia Airfield). Pendleton shall be added in the 2014 PEP cycle.

All GA airports qualify for both PEP & PMP. Primary non-hub commercial service airports may qualify for PMP however those airports shall 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 or PMP programs. For non-hub primary airport qualifications contact the ODA PMP Program Manager.

PMP LOCAL MATCH BY AIRPORT CATEGORY (2007 OAP)

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 Service	5%

Category I - Commercial Service

- Function: accommodate scheduled major/national or regional/commuter commercial air carrier service.
- Design Criteria: scheduled commercial service.

Category II - Business or High Activity General Aviation

- Function: accommodate corporate aviation activities, including business jets, helicopters, and other general aviation activities.
- Design Criteria: 30,000 or more annual operations, of which a minimum of 500 are business related aircraft; business use heliports.

Category III - Regional General Aviation

- Function: accommodate a wide range of general aviation users for large service areas in outlying areas of Oregon. Many also accommodate seasonal regional fire response activities.
- Design Criteria: generally less than 30,000 operations. Geographically significant location with multiple communities in the service area. Nearest Category 1 or 2 Airport is more than 90 minutes average travel time by road.

Category IV - Community General Aviation

- Function: accommodate general aviation users and local business activities.
- Design Criteria: 2,500 or more annual operations or more than ten based aircraft.

Category V - Low Activity General Aviation

- Function: accommodate limited general aviation use in smaller communities and remote areas of Oregon. Provide emergency and recreational use function.
- Design Criteria: less than 2,500 annual operations and 10 or fewer aircraft.

Critical PCI Values

	Airport Functional Category				
	1a & 1b	**2**	**3**	**4**	**5**
Runway	65	65	60	60	55
Taxiway	60	60	55	55	50
Apron / Helipad	50	50	50	50	45

Critical PCI Values = Pavement Failures

*At or below the Critical PCI Value, pavement should be scheduled for replacement.

Critical PCI values are based upon Oregon specific deterioration curves in additional to the type of airport and functional needs and attributes of that airport type. While the original critical PCI index was set in 2000, analysis shows the critical PCI value has remained consistent with the airport functional category. The Ten- Year Program Performance Review confirms that there is a significant increase in the rate of pavement condition deterioration and much higher maintenance costs as PCI falls below the Critical PCI range (see the 10 Year Performance Review for additional information).

Prioritization of projects is ranked technically using the PCI data. A prioritization table is used to identify which "projects" will be based on a budget scenario of $1,000,000/year. MicroPAVER evaluates those pavements below the critical PCI value separately from those above the critical PCI value. MicroPAVER will allocate funds to fixing those pavements below the critical PCI value before it allocates funds to fixing those pavements above the critical PCI value.

PAVEMENT CONDITION MEASURES

PCI Rating Scale	
Pavement Condition Rating (PCR)	Pavement Condition Index (PCI)
GOOD	**85-100**
SATISFACTORY	**70-85**
FAIR	**55-70**
POOR	**40-55**
VERY POOR	**25-40**
SERIOUS	**10-25**
FAILED	**0-10**

PMP – Pavement Maintenance & Preservation Details

Since its inception in 2000, the intent of the PMP has been simple: keep pavements in a serviceable condition by decelerating the decline of pavement. The program is designed so that pavements are maintained to a level above failure, so as to defer the need for costly pavement reconstruction or rehabilitation. The PMP program work has shown that this pavement maintenance can in fact add many years to the pavement life cycle.

PMP (IMPLEMENTATION of PEP)

PMP is implemented by completing approximately $1M in maintenance projects each year. Each year, the PMP completes work at all the airports in one of the three geographic regions in the state, a year after the region has been evaluated by the PEP consultant. This combines the maintenance work at an average of 15 airports into a single package. To complete this work, ODA selects an architectural/engineering (A/E) consultant to provide engineering services through a qualifications-based selection process for a five-year. Flexible-services price agreement. Once a year, ODA issues a work order contract to the A/E consultant for the work that year. The A/E consultant then performs associated work leading up to bid documents. ODA puts the project out for public bid and hires the successful low-bid contractor to complete the maintenance work. This work is explained in detail in the following steps:

YEARLY RESEARCH

– Research and obtain background materials (including PCI reports), airport-layout plans, aerial photos, FAA records, ODA files, and airport contact information. (This would already have been accomplished for the airports on the PEP prioritized list.)

– Contact the airport sponsors, their A/E consultants, ODA and the FAA to identify the capital improvement projects on airside pavements planned at each airport in the next two to three years (or up to five years if possible). These projects provide an opportunity to coordinate maintenance work with major construction work. For example, if the airport is planning a runway-pavement-rehabilitation project in two years, then maintenance work on the runway would be eliminated or significantly minimized.

– ODA will then set the funding amount that will be available for the project that year. Generally, this has been between $900,000 and $1,000,000 of funding from aviation fuel taxes collected by ODA in the previous year.

YEARLY PMP PRELIMINARY PROGRAM DEVELOPMENT

– Review the PEP reports and generate a list that includes the prioritized list of pavement. maintenance recommendations at each airport and the program priorities as defined.
– From that list, airports with less than $3,000 of work due to cost-prohibitive soft costs are eliminated from the cycle.
– Engineering analysis and recommendations of the existing condition of every runway, taxiway and apron pavement and the related maintenance. Options to be reviewed and AIP and PMP program eligibility defined.
– Finalize draft recommended project list.
– Using the recommended project list, a draft spreadsheet is prepared to estimate the cost of the work and assemble the preliminary program and costs. It involves the following:

- Maintenance recommendations for each airport according to the PEP reports
- Contingency factors for various work types:
- Approximately 32% for crack sealing and repair, joint sealing and repair, asphalt concrete patching
- Approximately 45% for surface sealing work and associated pavement marking
- Engineering costs
- Airport sponsor local match percentages
- If patching work is greater than 10% of the overall projector area work additional analysis will be required to determine program eligibility. Patching over 10% is generally no longer considered routine maintenance and

therefore does not qualify for PMP.

- Engineering analysis and judgment decisions regarding surface sealing work is required, especially the runways.
- Regional engineering analysis using historical data and as-builts.

Key output:

- Total cost of work at each airport
- Airport sponsor local match amount for each airport
- FAA coordination for NPIAS airports
- Total cost of PMP Program funding needed for the maintenance recommendations included

SOLICIT AIRPORT SPONSOR PARTICIPATION

Once the preliminary program is flushed out, ODA contacts the airport sponsors to solicit participation in the project. ODA can provide the following information:

- Airport inclusion in the program
- Preliminary scope of the maintenance work
- Estimated amount of the airport sponsor local match
- Discuss how the match will be funded (local money or FAA entitlement grants)
- Explain the project schedule
- Notify sponsors of pending engineering inspections and schedule needs
- Answer questions.

*** If any airports drop out and significantly decrease the program (for example, changes greater than $50,000), then the process goes back to the PEP evaluations and more maintenance work is added to the other airports using the PEP priority list.

FIELD INSPECTIONS

- Contact airport sponsors to notify them of pavement inspection
- Conduct an airport manager kick-off meeting (in person)
    - Obtain important information about the airport (see Airport Manager PMP Interview Checklist in Appendix D)
    - Answer sponsor and FAA questions about the PMP work recommendations
- Conduct airport inspections to verify maintenance recommendations included in the preliminary program
- Create photo log of existing conditions
- Measure quantities of maintenance work to firm up the cost estimate (cracks 1/4" or greater are program eligible for crack seal & repair). Cracking smaller than ¼" can be addressed via fog and slurry seal or other surface treatments if work is deemed program priority.

PRELIMINARY DESIGN

- Update the preliminary program estimate based on actual field quantities obtained in the inspections and adjust the program until the estimate matches the funding.
- ODA Program Manager finalizes yearly preliminary program and budget and obtains director approval.
- Aviation Board shall approve preliminary program after director approval.
- ODA and consultant identify project needs for additional Closing X's and Unicom radios.
- Preparation of preliminary plans and draft technical specifications by consultant. ODA and FAA review and approve.

EXECUTE INTERGOVERNMENTAL AGREEMENT (IGA) WITH AIRPORT SPONSORS

- Prepare draft IGA documents for two options:
    - Local funding option, or
    - FAA entitlement funding option.

- Obtain Oregon Department of Justice (DOJ) legal assistance if needed to support IGA process.
- Prepare a summary cost estimate to supplement the IGA, called an Exhibit A.
- Coordinate FAA entitlement amounts with FAA representatives.
- Send IGA to airport sponsors for signature.

YEARLY PROJECT FINAL DESIGN

- Prepare final project plans.
- Prepare final technical specifications.
- Prepare the final engineer's estimate.
- Prepare the invitation to bid document (ITB):
    - Obtain the most recent state contract documents for Oregon (state boilerplates)
    - Obtain the most recent federal contract requirements for FAA (federal boilerplates)
    - Prepare supplemental general conditions (as necessary)
    - Prepare the final bid schedule
- Submit final bid documents to ODA and DOJ for review and approval. Revise as necessary.
- Prepare hard copies and electronic copies for bidding.

BIDDING AND CONTRACT AWARD PERIOD

- Advertise project and upload the bid documents to the state procurement system (ORPIN)
- Answer bidder questions and prepare addenda as necessary for the three-week bid period
- Conduct pre-bid meeting
- Conduct bid opening and review bids
- Post notice of intent to award
    - After protest period and DOJ review, award contract(s)
- Send out Notice to Proceed

CONSTRUCTION MANAGEMENT

- Conduct pre-construction conference.
    - Conduct safety and operations training for contractor's staff on (see Appendix F for further details of the training program):
    - Airport operations (especially towered airport operations if applicable)
    - Temporary work zone management, with special focus on runway safety
    - Radio use & Protocol
    - Written and verbal exams for lead workers
- Review contractor submittals required by project specifications.
- Complete work at each airport according to the project schedule:
    - Coordinate requests to close specific pavement areas and create contractor work zones using Notices to Airmen (NOTAMs)
    - Conduct mini-pre-con meetings at each airport
    - Provide construction observation to verify conformance with the contract documents
    - Prepare daily inspection reports and take photo log
    - Measure pay quantities
        - Coordinate work with airport stakeholders (airport manager, fixed-base operators (FBOs), pilots, tenants, on-airport businesses, emergency services, others)
- Prepare monthly pay estimates and change orders (as needed). Final approval by ODA and the FAA.
- Provide engineering support and answer requests for information (RFI's) from the contractor.
- Prepare close-out documents, including record drawings and close-out report.

- Prepare final Exhibit A cost summary to illustrate final cost sharing amounts for airport sponsors, ODA and the FAA.
- Conduct final acceptance inspections.
- Manage & update Intergovernmental agreements / finalize quantities at close out. Prepare any necessary sponsor billings for match that was not covered with NPE AIP transfers.
- Construction administration documentation.
- Close-out documents for yearly program and copy to FAA.

Overall Program Schedule

The PEP and PMP build upon each other and must be coordinated for seamless project delivery. PEP inspections and final reporting schedule runs from July through October. PMP programming and construction generally happens February through October (preliminary programming starts in January – February, inspections and field quantity verification for bid schedule is scheduled in March and April – Final program and bid in May- June then wrapping up with the maintenance construction June - September.

TYPE OF WORK FUNDED

The type of work funded includes but is not limited to the following airport pavement maintenance:

- Crack Seal Treatments
- Fog Seal Treatments
- Wide Crack Repair
- AC Patching
- PCC Crack/Joint Seal
- PCC Repair
- Slurry Seal
- Pavement Marking - (pavement markings will be paid for under the program if deemed necessary as a part of the worked performed in accordance with engineering guidelines and FAA Advisory Circulars. Engineering, ODA and FAA approval may be necessary. Marking not approved will be paid for by the sponsor at 100% share.)
- Small Area Maintenance Rehabilitation or Reconstruction - Patching

Project Eligibility & Criteria

Airport pavement maintenance projects will be prioritized based upon the type of facility. The facility priorities are as follows: Primary Runway, Primary Taxiway, Secondary Runway, Secondary Taxiway and other Secondary facilities, Apron. Exclusive Use and Privately Owned areas are not eligible to be included in this program. Program priorities follow FAA AIP guidelines.

The following criteria will be used in considering and determining project eligibility and funding the pavement maintenance projects:

- Pavement Condition Index (PCI) data must be provided through the PEP program and current.
- Project MUST be a technically warranted need based upon pavement condition.
- Airport is recognized as a Public Use Airport and categorized in the 2007 Oregon Aviation Plan.
- The need is not and will not be met through other programs or committed in upcoming FAA AIP projects.
- Aggregated project costs must exceed $3,000 at a given airport to warrant mobilization in a particular year.
- Airport sponsor MUST submit a signed IGA and MOU.
- Non-NPIAS airport sponsors MUST submit 50% of the estimated local match prior to the start of the project.
- The sponsor and/or local jurisdiction has established an airport overlay zoning and current with OAR 660-013, airport planning.
- All AIP eligible maintenance.
- For NPIAS airports; Maintenance that is not AIP eligible will not be eligible for use of Non-Primary Entitlement funds for sponsor match. For non-AIP eligible work, sponsor shall fund 100% match.
- Airports utilizing non-federal funds as match are invoiced upon the contractor final project completion.

* This will assist the engineer to ensure nothing is overlooked in planning the work

* If a slurry or thin overlay is scheduled out two years in the future - crack sealing can be completed as part of regional crack sealing bid and completed in advance of slurry seal. Actual work will be determined by the computer run (Micropaver), in conjunction with field verifications and a review of the airport's 5 year CIP and coordination with the FAA.

Once all airports in the PMP scheduled region have been evaluated for maintenance work based on the latest PCI report, a more in-depth computer run will be completed which will include all gross global work anticipated in the future at each airport.

Final Project Planning & Programming Protocols

1) The current ALP & Airport 5 Year CIP will be used to assist in determining the preventative maintenance work to be scheduled. CIP coordination is critical. Preventative maintenance will not occur in an area that is scheduled for a CIP project. ODA will confirm 5 year CIP with FAA and the state SCIP Coordinator.
2) The PEP consultant will include an airport specific report and either a video or more extensive photos along with a computer run (Micropaver) to assist ODA and the consulting engineer in estimating current year project.
3) The PMP consulting engineer finalizes the identified and anticipated PMP work at each participating airport. This information is then field verified and quantified for bidding purposes, ODA and FAA programming, NPE Transfer coordination with the FAA and preparing IGA's with sponsors.
4) Final pavement inspections and some additional on-site engineering visits will be necessary to determine each repair strategy.
5) Construction Management:
   On-site consultant inspector will travel with contractor to:
   a) ensure quality control and safety compliance
   b) verify final quantities and report condition changes
   c) observe contractor performance, provide final inspection, note irregularities and issue acceptance of work
   additional inspectors or monitors may be required per FAA requirements

Additional / Extra Work

The PMP Program can facilitate additional or extra work to be combined with program set work. This is a dynamic program and allows for additional and extra work to be added to a project to maximize the benefit of pavement preservation and utilize economy of scale. Additional or extra work shall be identified during the pre-construction inspection process and will be verified and quantified for bidding purposes. Extra sponsor requested "add-on" work will not be funded through the program but only facilitated through the program. Additional work can be requested by the sponsor or the FAA (if AIP eligible) and will either be funded by sponsor at 100% or through additional FAA AIP funding at a 90% FAA – 10% sponsor share. All additional work MUST be approved by the ODA Program Manager and FAA Project Manager if the additional work is AIP eligible. Additional work MUST be added prior to finalizing the yearly program. No add on work is accepted after the bid or during construction – no change orders will be issued for sponsor add-on work. All additional work must added into an IGA with the sponsor and clarify payment obligation. Sponsor or FAA requested additional work is called "add on" work and quantified separately for tracking and billing purposes.

Sponsors Program Requirements

An Airport Sponsor receiving an FAA grant has a legal and binding obligation to keep all aspects of its airport in a safe operating condition. This includes all pavement areas as well as areas adjacent to the active pavements such as shoulders, safety areas, overruns, Runways Protection Zones, and so on. In order to stay qualified for participation in the PMP, ALL Airport Sponsors must perform routine maintenance.

It is recommended that the following strategies be considered for a successful airport maintenance program:
1. Regularly inspect all safety areas of the airport and document all inspection activity.
2. Provide ODA a method of tracking all maintenance activities that occur as a result of your inspections.
3. Conduct an aggressive campaign against weed growth through timely herbicide applications and/or mowing programs for the safety areas. Vegetation growing in pavement cracks is very destructive and significantly increases the rate of pavement and shoulder deterioration.
4. Implement a periodic crack sealing and joint sealing program. Keeping water and debris out of the pavement system by sealing cracks and joints is a proven method for cost-effectively extending the life of the pavement system.
5. Closely monitor the movement of heavy equipment, such as construction equipment, emergency equipment, and fueling equipment, to make sure that it is only operating on pavement designed to accommodate the heavy loads this type of equipment often applies. Failure to restrict heavy equipment to appropriate areas may result in the premature failure of airport pavements.

**** Refer to: AC 150/5380-6B or go to: http://rgl.faa.gov for more information. ****

PROGRAM ADMINISTRATION & FUNDING

PMP Funding & Airport Sponsor Match

The majority of airport sponsors use either locally derived funds (budget) for the PMP match or federal Airport Improvement Program (AIP) 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. The PMP Program funding is based upon an assumption of $1 million per year including engineering and administration costs. Actual program funding will vary depending upon program request revenue and projections of work anticipated.

ODA Program Manager shall review the preliminary program estimate and compare it to the available funding and adjust the scope of work until the estimate matches the available funding. For example, if the preliminary program estimate requires $900,000 of PMP funding but there is $1,000,000 available, then the scope of maintenance work needs to be increased by $100,000. ODA Program Manager will analyze the PEP reports and data.

PEP Funding

The PEP Program is funded by the PMP Program funds and FAA AIP System Planning Grant funds. Funding is inclusive of the final work product of the individual Pavement Condition Index Reports and all associated consulting contract services. Non-NPIAS Public Use Airports, PMP funds pay 100% of PEP costs. NPIAS GA airports PEP costs are funded through a yearly FAA AIP System Planning Grant. This FAA grant is for statewide system needs facilitated by the Oregon Department of Aviation. FAA AIP Grants are funded at a 90% (FAA)/ 10% (sponsor) share. The ODA 10% sponsor share (match) for the PEP as identified in individual System Plan grants is funded through PMP.

- NPIAS GA Public Use Airports – 100% funded through PMP - Public Use NPIAS General Aviation Airports can use funding as follows. FAA AIP System Planning Grant, which is completely administered through ODA System Planning AIP grant funds (90% FAA – 10% ODA/PMP). NPIAS Primary Airports do not qualify for the PEP program funding.
- Non-NPIAS Public Use Airports – Sponsor pays Local Match defined by airport category. The PMP Program shares the cost at that split percentage.

PMP Funding & Airport Sponsor Match

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PMP & PEP LOCAL MATCH BY AIRPORT CATEGORY (2007 OAP)

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 Service	5%

LOCAL FUNDING

Local funds for a city, county or port authority airport sponsor are typically sourced from on-airport generated revenue, such as fuel sales or lease revenues. The funds may also be derived from the local jurisdiction's general fund. Local funds for a privately owned airport are sourced similarly with the exception of receiving any funding from a local jurisdiction or public general fund. NPIAS airport sponsors may use their FAA Non-Primary Entitlement (NPE) funds or receive a NPE transfer. NPIAS airport sponsors may also choose to pay their match with another source of airport operating funds and not use their NPE funds.

AIP FUNDING

The pavement work performed under PMP at National Plan of Integrated Airport Systems (NPIAS) airports is eligible for AIP funding participation. Many sponsors of AIP-eligible airports request that their non-primary entitlement (NPE) funds be used to fund a portion of the eligible costs associated with PMP. This federal portion usually amounts to the PMP local match. NPIAS airports are allocated $150,000 per year in NPE funds and PMP work is an eligible expenditure. In recent years, the FAA has combined the AIP NPE funding for the PMP into one grant to ODA each year, rather than issuing several small grants to each individual NPIAS airport sponsor for the PMP. This method has evolved over the life of the PMP to enable a more streamlined grant, payment and reimbursement process. This is by far the most popular and convenient method for sponsors to match the PMP, which is typically done when local funds are not sufficient to fund the work. All that is required is correspondence to the FAA and ODA stating it is the sponsor's intention to match the PMP with NPE funds; then the FAA and ODA arrange the paperwork to administer the grant. FAA grant funds may be used for NPIAS airports to pay for their match/share and approved additional work. Eligible FAA funding is through NPE's only, AIP state apportionment and AIP discretionary funds may not be used as they do not qualify for use in this program.

PRIMARY AIRPORTS

Primary airports that qualify (non-hub), must contract and pay for a Pavement Condition Index (PCI) Report and provide the report to ODA on the regional reporting cycle. Primary airports may get reimbursed for this cost from the FAA using their primary entitlement funds if available and approved by the FAA. The data provided to ODA must be consistent with the current PEP program and use the same data sourcing in order to properly determine PMP project needs and priorities for that airport. The primary airport must also accept the current program determinations set for critical PCI to participate. PMP recommendations and work will then be reviewed using the PCI data to set project priorities or determine if any pavement maintenance work qualifies. Primary airports that are considered small, medium or large hub DO NOT QUALIFY for either program.

NON-NPIAS AND PRIVATE AIRPORTS

Public-use non-NPIAS and privately-owned airports must utilize other funding to provide the PMP match, as they are not eligible for FAA AIP funding. *Note: While Sportsman and Sunriver airports are both considered NPIAS airports, they are not eligible for FAA funding at this time. ODA to confirm with FAA this at each PMP cycle.*

NPIAS - The National Plan of Integrated Airport Systems (NPIAS) identifies nearly 3,400 existing and proposed airports that are significant to national air transportation throughout the US (there are 57 in Oregon) and thus eligible to receive Federal grants under the Airport Improvement Program (AIP). It also includes estimates of the amount of AIP money needed to fund infrastructure development projects that will bring these airports up to current design standards and add capacity to congested airports. The FAA is required to provide Congress with a 5-year estimate of AIP eligible development every 2 years. NPIAS Airports receive federal funding and are required to comply with FAA grant assurances to receive federal funding. For more information go to www.FAA.GOV

FUNDING EXAMPLES

The following examples are a general overview to show funding. Actual project accounting detail is based upon individual airport specific verified data including; field verified quantities, contractor billings signed off by the project engineer and construction manager, engineering services invoices, etc. Actuals are used for all billings, FAA grant reimbursements, IGA & NPE transfers.

EXAMPLE 1 - Category 3 Airport 10% Match/Share – NPIAS Airport
Using Sponsor FAA Non-Primary Entitlements for Local Match/Share

		TOTAL WORK $	PMP Program Funded	Local Share (out of pocket)	Local Share - FAA Sponsor Using NPE's
PMP Program Work – FAA AIP Eligible	Description, Quantity & Unit Cost of Work	$100,000	$90,000	$0	$10,000
Additional Work - None	Description, Quantity & Unit Cost of Work	$0	$0	$0	$0
		$100,000	$90,000	$0	$10,000

EXAMPLE 2 - Category 3 Airport 10% Match/Share – NPIAS Airport w/ additional work
Using Sponsor FAA Non-Primary Entitlements for Local Match/Share

		TOTAL WORK $	PMP Program Funded	Local Share (out of pocket)	Local Share - FAA Sponsor Using NPE's
PMP Program Work FAA AIP Eligible	Description, Quantity & Unit Cost of Work	$100,000	$90,000	$0	$10,000
Additional Work (AIP Eligible & approved)	Description, Quantity & Unit Cost of Work	$20,000	$0	$2,000	18,000
		$120,000	$90,000	$2,000	$28,000

*Airport sponsor shall be invoiced for $2,000 by ODA

EXAMPLE 3 - Category 4 Airport 10% Match/Share – Non NPIAS Airport

		TOTAL WORK $	PMP Program Funded	Local Share (out of pocket)	Local Share - FAA Sponsor NPE
PMP Program Work	Description, Quantity & Unit Cost of Work	$100,000	$90,000	$10,000	N/A
Additional Work	Description, Quantity & Unit Cost of Work	$0	$0	$0	N/A
		$100,000	$90,000	$10,000	N/A

*Airport sponsor shall be invoiced for $10,000 by ODA

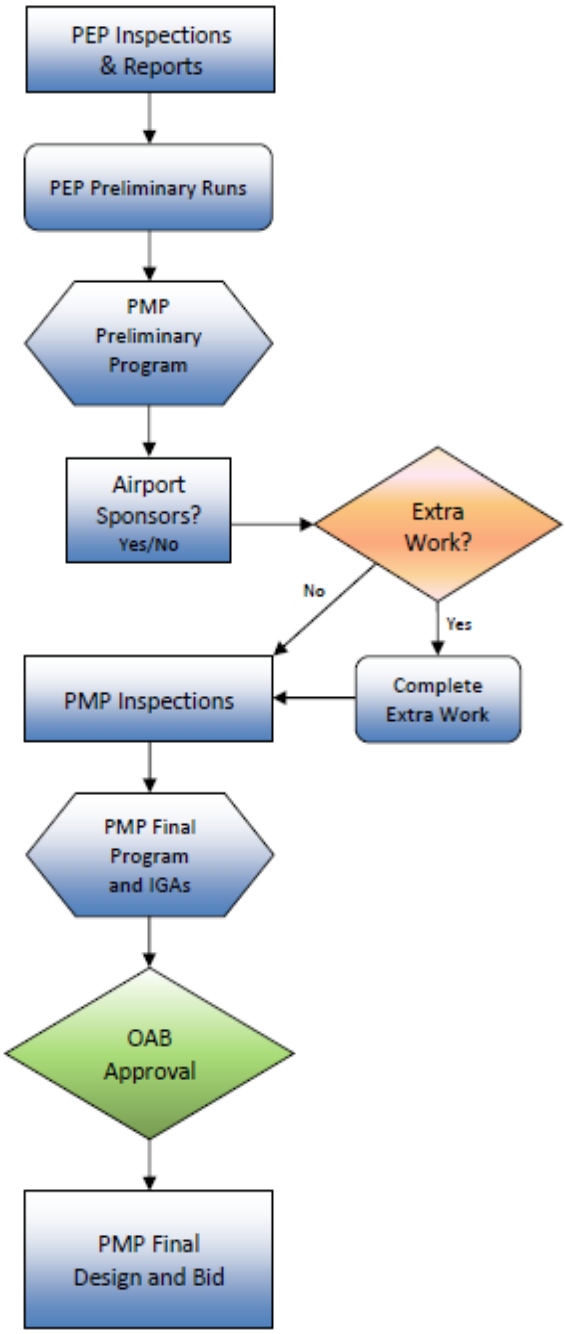
EXAMPLE 3 - Category 4 Airport 10% Match/Share – Non NPIAS Airport w/ additional work

		TOTAL WORK $	PMP Program Funded	Local Share (out of pocket)	Local Share - FAA Sponsor NPE
PMP Program Work	Description, Quantity & Unit Cost of Work	$100,000	$90,000	$10,000	N/A
Additional Work	Description, Quantity & Unit Cost of Work	$20,000	$0	$20,000	N/A
		$120,000	$90,000	$30,000	N/A

*Airport sponsor shall be invoiced for $30,000 by ODA (sponsor shall pay 50% of anticipated additional work costs prior to the work being performed)

** PMP Funds will not be distributed or dispersed from the program to an individual airport or airport sponsor directly to do maintenance work outside of the PMP Program or with any other maintenance project. **

PROGRAM FLOW CHART



Average PMP Activity Costs (contractor work items)

Activity	FY 2000 Cost	FY 2013 Updated Cost
Deep AC Patching	$4.55/sf	$15.00/sf
AC Patching – Joint Repair		$12.00/sf
Shallow AC Patching	$3.25/sf	Not Performed
Full Depth PCC Patching	$8.45/sf	$17.00/sf
PCC Spall Repair		$11.00/sf
Partial Depth PCC Patching	$5.85/sf	Not Performed
Leveling AC Patching	$2.60/sf	Not Performed
Patching w/ Coal Tar Seal	$1.48/sf	Not Performed
PCC Crack Sealing	$1.95/lineal foot	$5.00/lineal foot
AC Crack Sealing	$1.30/lineal foot	$1.00/lineal foot
Slurry Seal		$0.22/sf
Fog Seal	$0.03/sf	$0.12/sf
Pavement Marking		$1.00/sf
Pavement Marking Removal		$1.50/sf

This data is included to show original program construction activity costs. The FY 2000 activity costs listed above were validated and used to calculate work associated with this program at the program's inception and following 1st year. These FY 2000 activity costs were included in the original PMP policy document of FY 2000. The FY 2013 Activity costs are a revised current average update of the activity rates (actuals are regionally influenced – see latest bid for documents for specific costs information).

This policy document has been approved by the Oregon Board of Aviation 7/2013