

## 475. Preventive Maintenance (PM) Projects

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### 475.1. Introduction

Preventive maintenance (PM) is a cost-effective way to extend the service life of Alaska's highway facilities. PM retards future deterioration and maintains or improves the functional condition of highway facilities. FHWA supports the increased flexibility for using Federal-aid funding for cost-effective preventive maintenance.

PM represents a proactive approach to maintaining existing highways as it addresses roadway surfaces while they are still in relatively good condition. PM performed before the onset of serious damage, delays or eliminates the need for major rehabilitation or reconstruction.

### 475.2. Definition

Preventive maintenance projects are normally those that focus on *pavement preservation*, but may include gravel-to-pavement and non-pavement related items identified by FHWA in Reference 5, including:

1. Crack Sealing
2. Profiling
3. Milling
4. Guardrail and Guardrail End Treatments
5. ADA Improvements
6. Lighting and Signals
7. Striping
8. Signs
9. Drainage
10. Bridge Work

Pavement preservation is further categorized into three groups:

1. **Minor Rehabilitation** with no capacity improvements and only minor structural section improvements. Minor structural section improvements are allowable provided that the improvement area(s) is less than 25% of the total project surface area.

2. **Preventive Maintenance** to restore serviceability and reduce aging
3. **Routine Maintenance** to restore serviceability

### 475.3. Project Development and Design

PM projects generally follow the Project Development (Chapter 4) and Design (Chapter 11) procedures contained in this manual and the Alaska Flexible Pavement Design Manual (AKFPD.) This subsection will note any special procedures or considerations.

#### 475.3.1 Project Identification

PM projects are identified in planning and/or scoping of the project. The Project Information Sheet (see Section 420) and/or the Design Designation form (see Section 1100) provide documentation that the project is categorized as Preventive Maintenance.

#### 475.3.2 Environmental and Public Involvement

PM projects are developed following the *Alaska Environmental Procedures Manual (AEPM)*. By their nature, PM projects will normally qualify for a "d" list programmatic CE. This type of environmental document generally has a short timeline and, under Section 6004 of SAFETEA-LU, the department can self-certify and approve them.

Per the May 2, 2006 letter from FHWA Alaska Division regarding limited delegation authority under Section 106 (see Reference 1), as long as the PM project stays within the toe of existing slopes (and other terms of the agreement), DOT&PF can self-determine and certify there is no potential to cause effects to historic properties and can eliminate a Section 106 review. The exception to this is gravel-to-pavement projects, which may affect the visual character of a roadway and; therefore, are not included within the May 2, 2006 delegation authority.

Conduct public involvement activities in accordance with the AEPM and Chapter 5 of this manual. Inform and involve the public of potential construction impacts and traffic control issues in accordance with Chapter 14 of this manual.

#### 475.3.3 Design

PM projects do not require a formal 3R analysis per Section 1160, but they should consider appropriate ways to maintain or enhance the current level of safety and mobility. Isolated or obvious deficiencies should

be addressed; however, safety enhancements can be deferred to a future STIP project.

PM projects are required to

- a. Replace existing striping and delineation
- b. Replace existing rumble strips removed by grinding, resurfacing, or overlaying, to the extent practicable
- c. Follow vertical clearance policy for structures and utility lines per Table 1130-1
- d. Consider installation or upgrading of guardrail
- e. Consider removing or shielding roadside obstacles
- f. Assure warning devices for highway-rail grade crossings within the project limits or near the project terminus are installed and functioning properly per 23 CFR 646.214
- g. Upgrade guardrail end treatments in accordance with Table 1130-12
- h. Upgrade non-crashworthy sign supports in the clear zone
- i. Mitigate pavement edge drops per Section 1160.3.7
- j. Maintain functionality of traffic signal vehicle detection
- k. Adjust appurtenances (i.e., manholes, valve boxes, monuments, etc.) in pavement as necessary
- l. Complete a Design Study Report (see following discussion)
- m. Complete a pavement design analysis (see following discussion)

PM projects do not require

- a. A 3R Analysis
- b. Hydraulic investigation/report
- c. Geotechnical investigation/report

Consider ADA improvements on PM projects. Projects making alterations to a facility trigger the requirement for simultaneous ADA improvements. Resurfacing of vehicular ways is considered an alteration per ADA Accessibility Guidelines (see reference 6.)

If a project resurfaces a street, the curbs and pavement at pedestrian crosswalks are considered in the scope of the project for accessibility purposes, but the sidewalks are not. Chip seals are not considered

resurfacing. Any features disturbed by construction must be replaced so they are accessible.

Except for resurfacing, most maintenance activities are not considered alterations and, therefore, do not require simultaneous ADA improvements.

Communicate any known remaining accessibility improvements within the public right-of-way to the Civil Rights office for inclusion into the transition plan. The Transition plan, maintained by Statewide Civil Rights Office, identifies non-compliant facilities and serves as a guide for future ADA improvements.

#### **Design Study Report (DSR)**

DSRs are required on PM projects. Certain procedures and sections may be scaled back or eliminated per Table 475-1 on the following page.

#### **Pavement Design**

Use a minimum pavement design life of 5 years. The pavement design life equals the project design life for PM projects. Strive for a longer design life whenever possible. The minimum pavement overlay thickness is 2" per AKFPD Section 4.5.

Comply with Section 2.2.3 of the AKFPD (Design of Overlays) and use the mechanistic design method to compare alternatives and verify design assumption. Use the presumptive material property values in AKFPD Section 5.1 when actual field data is not available.

#### **475.4. References**

1. May 2, 2006 letter from FHWA Alaska Division regarding limited delegation authority under Section 106  
[http://www.dot.state.ak.us/stwddes/desenviron/assets/pdf/resources/section\\_106\\_nopotential.pdf](http://www.dot.state.ak.us/stwddes/desenviron/assets/pdf/resources/section_106_nopotential.pdf)
2. FHWA memo dated Oct. 8, 2004 regarding *Preventive Maintenance Eligibility*  
<http://www.fhwa.dot.gov/preservation/100804.cfm>
3. FHWA memo dated Sept. 12, 2005 regarding *Pavement Preservation Definitions*  
<http://www.fhwa.dot.gov/pavement/preservation/091205.cfm>
4. FHWA Office of Civil Rights memo dated Sept. 12, 2006 *clarifying FHWA's Oversight Role in Accessibility*.  
[http://www.fhwa.dot.gov/civilrights/memos/ada\\_memo\\_clarificationa.htm](http://www.fhwa.dot.gov/civilrights/memos/ada_memo_clarificationa.htm)

5. FHWA memo from King W. Gee to David C. Miller dated Nov. 26, 2001, regarding *Preventive Maintenance Eligibility*.  
<http://www.fhwa.dot.gov/preservation/memos/011126.cfm>
6. ADA Accessibility Guidelines – Definition of Alteration, et. al.  
<http://www.access-board.gov/adaag/html/adaag.htm>
7. FHWA Office of Civil Rights. FAQs on ADA and Section 504. Discussion of transition plans, timing of accessibility improvements, et. al.  
[http://www.fhwa.dot.gov/civilrights/programs/ada\\_sect504qa.htm](http://www.fhwa.dot.gov/civilrights/programs/ada_sect504qa.htm)

**Table 475-1  
Modified DSR Requirements for PM Projects**

<b>DSR Section</b>	<b>Section Title</b>	<b>Instructions (n/c = no change)</b>
<b>1</b>	Project location, existing facilities, and purpose and need for project	n/c
<b>2</b>	Design standards, including design designation and design criteria	Comply with 475.3.3 Design criteria form not required – project design life = pavement design life.
<b>3</b>	Alternatives analysis	Not required
<b>4</b>	Discussion of preferred alternative	Not required
<b>5</b>	Typical sections	n/c
<b>6</b>	General horizontal and vertical alignment	Not required
<b>7</b>	Erosion and sediment control	n/c
<b>8</b>	Drainage	Only consider drainage maintenance or improvements necessary to preserve the structural pavement section.
<b>9</b>	Soil conditions	Not required
<b>10</b>	Access control features	Not required
<b>11</b>	Traffic analysis	a. Speed study not required b. Accident analysis not required c. ESAL data needed for pvmt. design.
<b>12</b>	Single lane roundabout analysis	Not required
<b>13</b>	Safety improvements	Comply with 475.3.3
<b>14</b>	ROW requirements	n/c
<b>15</b>	Pedestrian and bike facilities	Discuss ADA improvements only.
<b>16</b>	Utility relocation and coordination	n/c
<b>17</b>	Preliminary work zone traffic control	n/c
<b>18</b>	Pavement design	Follow modified pavement design per Section 475.3.3
<b>19</b>	Cost estimate	n/c
<b>20</b>	Environmental commitments and mitigation	n/c
<b>21</b>	Preliminary bridge layout	Not required
<b>22</b>	Exceptions to standards	Required for Vertical Clearance. All others not required.
<b>23</b>	Maintenance considerations	n/c
<b>Appdx</b>	Approved design designation and design criteria	Project design criteria not required as noted above in DSR Section 2.
<b>Appdx</b>	Approval memo for variation from Standards for other than controlling criteria.	Required for items listed as required in Section 475.3.3. All others not required.
<b>Appdx</b>	Traffic analysis and speed studies	Not required
<b>Appdx</b>	Single lane roundabout analysis	Not required
<b>Appdx</b>	3R Analysis	Not required
<b>Appdx</b>	ITS systems engineering analysis	Not required, unless ITS elements are included
<b>Appdx</b>	Approved environmental document	n/c