

1140. Preservation Projects

1140.1. Introduction

Preservation projects are those that extend the service life of existing roadways and bridges by restoring them to a state of good repair. Preservation is a proactive approach to maintaining highway facilities while they are still in relatively good condition.

Preservation performed before the onset of serious damage delays or eliminates the need for major rehabilitation or reconstruction.

FHWA recognizes preservation as an essential and cost-effective tool for achieving and sustaining highway facilities in a state of good repair and supports the increased flexibility in using federal-aid funds for cost-effective preservation.

Preservation projects are categorized as follows:

1. Preventive Maintenance (PM) Projects
2. Resurfacing (1R) Projects
3. Resurfacing and Minor Restoration (2R) Projects

Resurfacing, Restoration and Rehabilitation (3R) projects are covered in Section 1160.

Routine Maintenance is not eligible for federal-aid funding.

1140.2. Project identification

Highway segments and bridges needing preservation are identified and prioritized through the Pavement Management System (PMS) and Bridge Management System. The policy and procedure for these are contained in P&P 07.05.020 and P&P 07.05.025, respectively.

Predictive modeling software uses information from the PMS, Bridge Management System and the Maintenance Management System (MMS) to identify locations that would benefit from preservation. The Pavement Management Engineer and the Bridge Management Engineer select from the software output to create a list of proposed locations, including recommended preservation actions. In addition, segments that are not candidates for preservation (i.e. needing a more substantial treatment) are submitted to Planning for consideration in the STIP. Finalized recommendations are included in the Annual Preservation Plan (APP). The final selection of locations are made by the Regions, which then feeds

projects into the Preservation Projects development pipeline.

1140.3. Project Scope

Preservation project scope depends on the preservation treatments needed. It is important to apply the right preservation treatment at the right time. Pavement Preservation projects do not add capacity or alter existing road geometry.

See Table 1140-1 for a summary of Pavement Preservation categories.

All pavement preservation projects are required to:

1. Assure replacement striping is in accordance with the *Alaska Traffic Manual* (ATM).
2. Assure rumble strips are replaced or installed to meet current DOT&PF policy.
3. Follow vertical clearance policy for structures and utility lines per Table 1130-1. If the existing vertical clearance is less than 18 feet or the resulting project improvements will result in a vertical clearance less than 18 feet, relocate the overhead utility with a minimum clearance of 20 feet. When mitigating factors exist, the relocated utility may be installed with a vertical clearance no less than 18 feet.
4. Include required ADA improvements (see Section 1140.4.3.).
5. Assure warning devices for any highway-rail grade crossings within the project limits or near the project terminus are installed and functioning properly per 23 CFR 646.214.
6. Maintain functionality of traffic signal vehicle detection and other ITS elements.
7. Adjust appurtenances (i.e., manholes, valve boxes, monuments, etc.) in pavement as necessary.
8. Approach bridge work in accordance with Section 1140.4.2.

Pavement preservation projects may also include mitigation of pavement edge drop offs per Section 1160.3.7, installation of a safety edge or safety improvements.

**Table 1140-1
Pavement Preservation Project Categories**

Project Scope	Category	Purpose	Work Types
Pavement Preservation	Preventive Maintenance (PM)	Keep good roads in good condition	Typically pavement seals - fog, sand, scrub, chip seals
	Resurfacing (1R)	Restore fair roads to good condition. Address surface defects beyond preventive maintenance, such as ruts, or areas of high roughness	Mill/fill, overlay or other resurfacing treatment limited to 2" of new HMA
	Resurfacing & Minor Restoration (2R)	Restore roads beyond preventive maintenance or resurfacing to good condition	Mill/fill, overlay or reclamation with an overlay limited to 2" of HMA. Reclamation can include base stabilization.

1140.3.1. Preventive Maintenance Projects

Preventative Maintenance (PM) is the lowest level preservation strategy utilized by the PMS and a cost-effective, proactive means of extending the useful life of highways and bridges. PM slows or delays future deterioration and maintains or improves the functional condition of highway and bridge facilities. PM projects should consider maintaining or enhancing the current level of safety and accessibility. Consider addressing isolated or obvious deficiencies.

Typical activities performed on PM projects include:

1. Crack sealing
2. Profiling
3. Milling
4. Microsurfacing
5. Fog sealing
6. Sand sealing
7. Chip sealing
8. Scrub sealing
9. Roadway surface (gravel) replacement
10. Area-wide or system-wide activities:
 - a. Systematic replacement and/or upgrade of light and signal poles, light fixtures, signal heads, signal bulbs or LEDs near the end of their service life, and bases

- b. Area-wide striping
- c. Systematic sign replacement

This list is only a summary of work items previously determined to be federal-aid eligible after consultation with FHWA. Consult with FHWA regarding eligibility on work items not included in this list.

1140.3.2. 1R Projects

1R projects focus on resurfacing and typically have a pavement design life of five to 10 years. A capacity screening analysis is not required for this short duration design life. A safety screening is not required, but addressing known safety issues or enhancing the existing level of safety may be considered.

1R projects:

- May include any work allowed on PM projects
- Do not alter roadway geometry
- Minimizes fill beyond the existing slope limits
- Do not typically include guardrail work, unless approved by the Preconstruction Engineer
- May include structural section replacement, or digout, limited to 25% of the project area(s) – (example: digout existing structural section to 48 inch depth and replace with new structural section for 25% of project area).

1140.3.3. 2R Projects

2R projects focus on resurfacing and minor restoration, and may include minor rehabilitation

work. Minor rehabilitation consists of enhancements to eliminate age-related, top-down surface cracking in flexible pavements that develop due to environmental exposure. Thin overlays (of 2 inches or less) over recycling treatments (hot in-place recycling or cold recycling) are considered minor rehabilitation activities.

2R projects:

- Are cost-effective preservation projects done on facilities that are in a state of good repair and do not require rehabilitation (3R) or Reconstruction
- Do not alter roadway geometry
- Address safety through a Safety Screening
- Check capacity through a Capacity Screening. Projects needing capacity improvements are not good candidates for 2R
- Consider installing, replacing or upgrading guardrail and guardrail end treatments

Work allowed on 2R projects includes:

- Any work allowed on a PM or 1R project.
- Treatment of roadside obstacles
- Upgrade non-crashworthy sign supports in the clear zone, except those permitted under 17 AAC 10 and 17 AAC 60
- Repair drainage, but only as required for the structural integrity of the roadway, or to restore function which has deteriorated

2R projects typically have a 10-year minimum pavement design life. This design life length warrants both a capacity screening and safety screening.

Safety Screening

Regional Traffic and Safety will review the latest available Safety Screening lists summarized through the HSIP Program. Use this data to identify those segments or intersections that need to be addressed on the project, based on the following criteria:

- The overall five-year crash rate or crash frequency (concentration) exceeds 1.5 times the statewide average*
- The overall fatal and serious injury crash rate or crash frequency (concentration) exceeds 1.5 times the statewide average*

* Notes (to the bulleted list above):

1. Obtain the statewide crash rate from Statewide Traffic & Safety.

2. A three-year rate or frequency may be used in the absence of five years of available data.
3. Crash rate screening is not applicable for ADT's of less than 2,000 vehicles per day.
4. Crash frequency (concentration) applies at all traffic volumes.

Other safety elements to consider for improvement include:

- Segments or intersections listed on other HSIP Program screening lists for serious injury and fatal crashes. These may include crash strategies listed in the Alaska Strategic Highway Safety Plan.
- All affected railroad crossings, school zones, and marked non-motorized crossings

In addition, review other recent Reconnaissance and Design Study Reports in the project location to identify segments of safety concern. Any other safety concerns previously raised by the public or other stakeholders may also be considered for inclusion during design development.

If a 2R project is unable to address the issues identified in the Safety Screening, a 3R, HSIP, or other type of project should be developed.

Capacity Screening Analysis

A simplified highway capacity calculation method (such as FHWA Report PL-18-003) may be used to determine if there is sufficient capacity to support existing and projected vehicular traffic volumes for the design life of the project.

If the Capacity Screening analysis indicates the roadway cannot handle projected traffic volumes, develop it as a 3R or Reconstruction project.

1140.4. Project Development and Design

Preservation projects generally follow the project development and highway design standards detailed in Chapter 4 and Chapter 11 of this *Manual*, respectively, and those found in the *Alaska Flexible Pavement Design Manual* and the *Alaska Bridges and Structures Manual*.

1140.4.1. Pavement Design

The Pavement Management Engineer provides recommendations for pavement preservation needs. Regional staff may contact the Pavement Management

Engineer for treatment recommendations. If there is no recommendation, the project manager develops the preservation strategy and pavement design. Prepare pavement designs in accordance with the *Alaska Flexible Pavement Design Manual*. Per general policy statement GP-1, a pavement design analysis is only required on arterials and interstates.

1140.4.2. Bridge Work

Evaluate bridges in *fair* or *good* condition located within the limits of Preservation Projects. Bridges in poor condition may also be considered; however, they will generally require major rehabilitation or replacement, which are beyond the scope of preservation.

See Table 23-1 of the *Alaska Bridges and Structures Manual* (ABSM) for bridge railing criteria for all project types.

See the *FHWA Bridge Preservation Guide, Maintaining a Resilient Infrastructure to Preserve Mobility, Spring 2018*, for criteria for bridge preservation goals and activities.

PM and 1R Projects

Apply cost-effective deck surface treatments to bridges in *fair* or *good* condition to extend their service life. These treatments are typically either cyclical or condition-based maintenance activities.

Cyclical maintenance is performed at predetermined intervals and includes cleaning bridge decks, joints, drains and applying concrete sealers. Condition-based maintenance is commonly identified from bridge inspection reports and may include:

- Expansion joint cleaning, repair and replacement
- Deck sealing, overlays and wearing surfaces
- Railing repair

Note, routine maintenance activities (snow and trash removal, crash damage repair, storm damage repair, etc.) are not typically eligible for federal funding.

Evaluate existing surfacing and its impact on load ratings and bridge rail height. Remove existing asphalt surfacing and install waterproofing membrane on concrete decks that do not already have membrane or show signs of excessive leakage. Limit new surfacing thickness to avoid significantly changing load ratings and bridge rail height.

Evaluate vertical clearances at all overcrossings and undercrossings regardless of bridge condition.

Consider the impact of new surfacing on the vertical clearance beneath these structures.

2R Projects

Perform the same evaluations as for PM and 1R Projects. Additionally, consider the following preservation treatments, rehabilitation and replacement strategies as defined in Section 10.2.3 of the ABSM:

- Crack sealing and concrete spall repairs
- Channel debris removal
- Scour countermeasures
- Railing retrofit and replacement
- Painting and metalizing structural steel

1140.4.3. ADA Improvements

Projects considered alterations are required to make certain simultaneous ADA upgrades while projects considered maintenance are not.

Maintenance includes:

- Chip seals
- Crack filling and sealing
- Diamond grinding
- Dowel bar retrofitting
- Fog seals
- Joint crack seals
- Joint repairs
- Pavement patching
- Scrub sealing
- Slurry seals
- Spot high-friction treatments
- Surface sealing

Alterations include:

- Addition of a new layer(s) of asphalt
- Cape seals
- Hot in-place recycling
- Microsurfacing / thin-lift overlays
- Mill & fill / mill & overlays

If a project is considered an alteration, and there are adjacent pedestrian walkway amenities, then curb ramps and crosswalks must be constructed or improved to current ADA standards as part of the alteration project, except as noted in the following paragraphs.

If a curb ramp was built or altered prior to March 15, 2012, and complies with the requirements for curb ramps in either the 1991 ADA Standards for

Accessible Design or Uniform Federal Accessibility Standards (UFAS), it does not have to be modified to comply with the requirements of the 2010 ADA Standards. However, if that existing curb ramp did not comply with either the 1991 Standards or UFAS as of March 15, 2012, then the “safe harbor” provision does not apply and the curb ramp must be brought into compliance with the requirements of the 2010 ADA Standards concurrent with the road alteration.

Any features disturbed by construction must be replaced so they are accessible, even on maintenance projects. Pedestrian amenities other than curb ramps and crosswalks, such as sidewalks, paths, bus stops, etc., do not require upgrading as part of an alteration project, but should be evaluated for accessibility and any identified deficiencies noted.

When existing curb ramps and crosswalks meeting 1991 ADA Standards or UFAS will remain in place, transmit this information to the Civil Rights Office (CRO). Inform the CRO of any known accessibility deficiencies within the public right-of-way for inclusion into the Transition Plan. The Transition Plan identifies non-compliant features and serves as a guide for future planning and prioritization of ADA improvements.

1140.4.4. Design Study Report (DSR)

Preservation projects do not require a DSR. On 2R projects, safety and capacity analyses are retained in the project design files.

1140.5. References

1. FHWA Guidance on Highway Preservation and Maintenance, dated Feb. 5, 2016
2. US DOJ/US DOT joint technical assistance on requirement to upgrade curb ramps on resurfacing projects:
3. Q & A for Supplement to the 2013 DOJ/DOT Joint Technical Assistance on the Title II of the Americans with Disabilities Act Requirements To Provide Curb Ramps when Streets, Roads, or Highways are Altered through Resurfacing (Safe Harbor provisions discussed in Q1/A1)
4. FHWA Office of Civil Rights guidance document. FAQs on ADA and Section 504. Discussion of transition plans, timing of accessibility improvements, and other relevant topics.

5. FHWA Good Practices: Incorporating Safety into Resurfacing and Restoration Projects, dated Dec. 2006.

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