Missouri Department of Transportation (MoDOT) and Federal Highway Administration (FHWA)  
Missouri Division  
Preventive Maintenance Agreement  
September, 2018  

I. Introduction  

Preventive Maintenance (PM) is "a planned strategy of cost-effective treatments to an existing roadway system and its appurtenances that preserves the system, retards future deterioration, and maintains or improves the functional condition of the system (without significantly increasing the structural capacity)." Source: American Association of State Highway and Transportation Officials (AASHTO) Standing Committee on Highways, 1997  

PM is typically applied to pavements in good condition having significant remaining service life. As a major component of pavement preservation, preventive maintenance is a strategy of extending the service life by applying cost-effective treatments to the surface or near-surface of structurally sound pavements. Examples of preventive treatments include asphalt crack sealing, chip sealing, slurry or micro-surfacing, thin and ultra-thin hot-mix asphalt overlay, concrete joint sealing, diamond grinding, dowel-bar retrofit, and isolated, partial and/or full-depth concrete repairs to restore functionality of the slab; e.g., edge spalls, or corner breaks.  

Routine Maintenance "consists of work that is planned and performed on a routine basis to maintain and preserve the condition of the highway system or to respond to specific conditions and events that restore the highway system to an adequate level of service." Source: AASHTO Highway Subcommittee on Maintenance  

Routine maintenance consists of day-to-day activities that are scheduled by maintenance personnel to maintain and preserve the condition of the highway system at a satisfactory level of service.  

Corrective maintenance encompasses work that is performed in reaction to an event, season, or over-all deterioration of the transportation asset. Corrective maintenance work may be re-occurring as necessary until such time as the asset can be otherwise preserved, rehabilitated or reconstructed.  

Federal Aid funds may not be used on Routine or Corrective Maintenance.  

In accordance with FHWA memorandum, Guidance on Highway Preservation and Maintenance (Appendix B), dated February 25, 2016 "The State Transportation Department must demonstrate to the satisfaction of their respective FHWA Division Administrator that the activity is a cost-effective means of extending the useful life of a Federal Aid highway."  

The purpose of this document is to identify the activities that FHWA Missouri Division and MoDOT agree to be classified as PM, thus eligible for federal-aid. This document outlines MoDOT’s PM plan which uses a systematic process to identify PM activities. The plan will not modify FHWA’s program oversight and project approval responsibilities for activities such as those required under the Clean Air Act, the National Environmental Policy Act of 1969, and other related environmental laws and statutes. It
will be MoDOT’s responsibility to conduct any necessary environmental reviews to ensure all environmental requirements are met and documented prior to any ground disturbing activities taking place. In addition, as reflected in 23 CFR 625 deviations from design standards for the defined PM activities will not require design exceptions. Standards for the design and construction of all projects on the NHS, including the Interstate system, are applicable to any proposed improvement regardless of the funding source (Federal, State, local or private); therefore deviations from standards for activities classified to exceed PM must have approved design exceptions.

FHWA guidance related to Civil Rights/ADA is included as Appendix C. Alterations, as noted in this guidance includes; a change to a facility in the public right-of-way that affects or could affect access, circulation, or use. Projects altering the use of the public right-of-way must incorporate pedestrian access improvements within the scope of the project to meet the requirements of the ADA. These projects have the potential to affect the structure, grade, or use of the roadway.

Examples of alterations that trigger the requirement of upgrading curb ramps to meet Public Right of Way Accessibility Guidelines (PROWAG) include:

- Open-graded surface course
- Microsurfacing
- Thin lift overlays
- Mill/fill projects
- In-place asphalt recycling

ADA features need not be addressed on corrective maintenance or pavement preservation treatments such as:

- Crack filling and sealing
- Surface sealing
- Chip seals
- Slurry seals
- Fog seals
- Scrub sealing
- Joint crack seals
- Joint repairs
• Dowel retrofit
• Spot high-friction treatments
• Diamond grinding
• Pavement Patching

II. Preventive Maintenance Plan

MoDOT’s plan is intended to be used as a guide and process tool for planning and executing PM, by both contract and in-house (force account) methods. Use of force account methods for performing work must receive FHWA approval prior to use or implementation. The plan will also provide assurance to FHWA that we are conducting this effort in accordance with the following Federal Guidance:

Provide a systematic process for planning and executing PM.

Define all PM activities, which extend the service life of the bridge or pavement that federal aid reimbursement are being requested

Demonstrate each activity is cost effective, and for in-house (or force account) work, to demonstrate the activity is in the public’s best interest and there is a significant advantage over contracted work.

The steps in this process follow the Systematic Preventive Maintenance (SPM) guidance from FHWA, as follows:

1. Goals and Objectives: Clearly defined goals and objectives for the SPM program
2. Define Specific PM Activities: Including existing preservation condition criteria for each activity
3. Inventory and Condition Assessment: Conduct bridge and roadway inspections and evaluation for each project/location
4. Needs Assessment: Documented needs assessment process that outlines how PM needs are identified, prioritized, and programmed.
5. Cost-Effective PM Activities: Ability to demonstrate the PM activities are a cost-effective means of extending the life of a bridge or roadway.
6. Project Identification: Projects with general activity will be identified in the STIP. Detailed annual work plans will be provided with specific identification and tracking. Asphalt Pavement Repair work plans will include a process to track completion of preventive maintenance surface treatment or overlay (within 2 years of completion of asphalt pavement repairs), in addition to actual asphalt pavement repair.
7. Accomplishing the Work: Availability of tools and resources to accomplish the PM work.
8. Reporting and Evaluation: Ability to track, evaluate, and report on the planned and accomplished PM work on an annual or as-needed basis.

This plan outlines the systematic process for integrating PM into multiple aspects of MoDOT’s organization. The goals for extending the life and function of our road and bridge assets provide direction
and vision. The process starts with an inventory of assets, which is maintained primarily on our Transportation Management System (TMS) database. Condition data is collected on a periodic frequency, and stored in the TMS or other databases for use in identifying needs. PM activities are then identified, through collaboration between both District and Headquarters staff, which are both cost effective and appropriate for the condition they are addressing. Specific activities are scoped and scheduled, and may be accomplished through a combination of both contract and in-house efforts. Budgeting for this overall effort is accomplished during the annual budget planning and approval cycle, although specific tasks and priorities may change during the course of each year due to varying priorities and budget constraints or opportunities. The cycle is complete, once results are tracked and reported, and the asset condition is then updated to start this cycle once more. This process is systematic, as this represents a planned strategy of cost-effective treatments to existing assets, with the overall goal of extending the functional life of these assets. This process is also iterative, and different treatments or actions are evaluated on a recurring cycle, such that they may be altered and improved over time to increase effectiveness. This is graphically illustrated, as follows:
III. Goals and Objectives

Bridge goals and objectives - Extend the life of decks and other bridge elements through timely PM activities, including mitigation/removal of corrosion sources and sealing critical or exposed surfaces to prevent further corrosion. Mitigate corrosion through removal of de-icing or corrosive material as well as debris which may hold water/moisture and contribute to oxidation or corrosion. This includes localized repair and sealing of exposed surfaces including decks and critical superstructure and substructure elements.
Pavement goals and objectives – Extend the life of pavements by appropriately timed application of overlays or sealants to reduce weathering/oxidation/corrosion of pavement structure, correct pavement surface geometry, friction restoration and corrections, smoothness correction, promote drainage, and prevent/reduce water intrusion into pavement sections.

Other Roadway Goals and Objectives – Extend the service life of various safety features through application of timely, cyclic and performance-based measures to ensure such items as pavement markings are maintained in visible conditions at all hours throughout the year.

Specific activities which are being requested for consideration of Federal Aid include:

Bridge:

Bridge Deck Repair
Bridge Deck Sealing
Bridge Flushing

Pavement:

Asphalt Pavement Repair
Concrete Pavement Repair
Chip Seals
Crack Sealing
Pipe Culvert Repair

Other Roadway:

Striping

IV. Inventory and Condition Assessment

Bridge: MoDOT utilizes National Bridge Inventory (NBI) condition ratings and performs PM, including cyclic maintenance on select groups of bridges. MoDOT maintains a number of staff who are trained and qualified to perform these inspections, including a District Bridge Engineer in each of our seven Districts. Inspection information is stored and managed in our Bridge Division, and data is available for use in planning, programming, and design within the Transportation Management System (TMS). District Bridge Engineers work with planners to identify both project needs (STIP) and work plans for PM on an annual basis, utilizing the condition information from TMS, NBI inspection data, as well as good engineering judgment, while balancing the needs and priorities within our financial constraints. Bridge flushing is planned for all bridges on an annual basis to remove debris and chlorides. Bridge deck sealing is identified by District Bridge Engineers as a work item, and subsequently included in the annual work
plan to prevent the intrusion of water and chlorides into decks. Bridge deck repair is evaluated each spring, following annual freeze-thaw cycles. Preventive maintenance for bridge deck repair will consider fair or better ratings on bridge decks, as documented in TMS data, with partial depth repairs applicable when there is competent substrate and full-depth repairs planned where the deck has become saturated and/or cracked/weakened for the full depth.

Pavement: MoDOT obtains various measurements of road surface condition through use of the Automatic Road Analyzer (ARAN) van, including such items as rut depth and RID (International Roughness Index). This data is evaluated using a Pavement Surface and Evaluation Rating (PASER) system to produce condition ratings for road segments. This system, managed through MoDOT’s Transportation Management System (TMS), provides current condition information, as well as theoretical future conditions, packaged within the Pavement Management Tool in the TMS system. The District Pavement Specialists use this condition tool as a guide when planning STIP projects and annual maintenance work plans, where professional judgment and input from Maintenance Superintendents augment the Pavement Management Tool for decision-making. Routes in good condition will be proposed for preventive maintenance treatment, and subsequent Federal reimbursement, and will be confirmed through TMS data for both condition and Federal Aid status. Condition measurements which correspond to “Good” condition rating are noted in Appendix A-2, Pavement PM Activities. Asphalt pavement repairs are performed in a timeframe such that they are followed by other surface treatments (chip seal, cinder seal, etc.) or overlays within 2 years of the pavement repairs. Typically Major routes have activities planned and programmed in the STIP, while minor routes have activities planned such as contract overlays or other maintenance treatments which may be achieved through contracts or by in-house forces. Additional guidance on pavement maintenance is available in the Engineering Policy Guide, Section 144.5.

Other Roadway: MoDOT uses both performance-based indicators and cyclic scheduling to plan and prioritize such items as pavement marking. Visual night inspections are conducted every other year and random retro-reflectivity readings are taken to add some objective measure of condition. These random retro-reflectivity readings are presented in the MoDOT Tracker assessment. Pavement marking (types and dimension), rumble stripes, centerline stripe, etc., are inventoried on the Striping Application within TMS. Following are the EPG guidelines for acceptable retro-reflectivity readings for various conditions (units in millicandela per meter squared per lux or mcd/m²/lux).

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Structural condition of overhead signs and high-mast lighting are in the development stage at this time, however this information will be used for both condition tracking and needs assessment as this effort is implemented.

V. Needs Assessment

Needs and priorities are developed on an ongoing basis in coordination with the Regional Planning Commissions (RPC’s) and Metropolitan Planning Organizations (MPO’s). All contracts involving federal cost participation are presented in the STIP, while in-house (or force account) efforts are summarized in Section 6 of the STIP. Ongoing coordination with MoDOT Environmental also takes place to ensure all environmental requirements are completed and documented.

Bridge: Bridge inspectors identify and record needs during each bridge inspection. District Bridge Engineers work with NBI inspection data and findings to communicate priorities for rehabilitation and replacement structures for STIP programming. District Bridge Engineers also prepare PM work plans or work item lists, on an annual basis, which are used to schedule contract and in-house efforts. These lists are subject to change with changing priorities and funding opportunities. Central Office staff from Bridge and Maintenance Divisions provides technical assistance and guidelines for timing of PM as well as management of condition and NBI rating data. Preventive maintenance for bridge deck repair will consider fair or better ratings on bridge decks, as documented in TMS data, with partial depth repairs applicable when there is competent substrate (delamination only above the top raft of reinforcing steel) and full-depth repairs planned where the deck has become saturated and cracked/weakened for the full depth. MoDOT Environmental Section will need to be coordinated with on these activities to ensure they are scheduled appropriately so that any necessary consultation with the State Historic Preservation Office occurs prior to the activity taking place.

Pavement: Central Office staff from Maintenance and Planning Divisions provide annual data to districts noting IRI and condition (as presented in TMS), and the District Maintenance Staff prepare annual work plans with input of the District Pavement Specialist and Maintenance Superintendents. This pavement data is often supplemented with field observations, as-built information, and core data. Major routes are primarily addressed in STIP projects, however some major and the majority of minor routes are addressed by the condition and traffic volume to prioritize the PM treatments and the associated cycle of these treatments, which may be accomplished by either in-house forces or contract.

Other Roadway features: MoDOT evaluates a variety of other roadway features to create work plans for maintenance. Pavement marking is evaluated on a similar night time visual review with pass/fail results. Pavement marking is currently scheduled as a cyclic maintenance task, with major routes re-striped every year, and minor routes re-striped every other year. Random retro-reflectivity measurements are conducted for an overall tracker measure, and to provide a qualitative measure of the overall condition of pavement marking. Note: wet retro-reflectivity is currently evaluated subjectively through visual observations, although quantitative test methods are being evaluated on a pilot scale for limited use in product evaluation. Signs and pavement marking are evaluated by Traffic and Maintenance staff. Structural signs, high mast lighting, retaining walls, and sound walls are also candidates for evaluation of
structural condition, and this data will be integrated into this plan, when condition data and reporting are implemented. Due to resource and funding constraints, there is no current schedule forecast for this effort.

VI. Cost Effective Preventive Maintenance Activities

Overall descriptions and strategies for all activities are included in MoDOT’s Engineering Policy Guide (EPG), available at the following link: http://epg.modot.org/index.php?title=Main_Page

Specific sections of the EPG are also provided for reference within the Appendices.

Bridge: Strategies for PM activities are listed in Appendix A-1, Bridge PM Strategies. These strategies include guidance on the recommended treatment options, based on the condition and age of an asset, in order to emphasize the right treatment at the right time.

Pavement: Strategies for PM activities are listed in Appendix A-2, Pavement PM Strategies. These strategies include guidance on the recommended treatment options, based on the condition and age of an asset, in order to emphasize the right treatment at the right time.

Other Roadway Features: Strategies for PM activities are listed in Appendix A-3, Other Roadway PM Strategies. These strategies include guidance on the recommended treatment options, based on the condition and age of an asset, in order to emphasize the right treatment at the right time. This category also includes work which is required due to other causes, such as damage due to accidents, where work activity takes place to bring a safety feature back to functional condition quickly to maintain overall highway safety. Note: Federal participation is not allowed on work costs which are recovered through insurance or third parties.

General: PM activities will be executed by combination of in-house resources (force account) and contract efforts. The majority of contract efforts will be awarded based on competitive bid, with limited number including Design Build or other contract methods. Competitively bid contract formats include Job-Order Contracts, General Services Contracts/Proposals, maintenance contracts, and Performance-based maintenance contracts. In-house efforts are typically smaller in scale and geographically spread, which reduce the efficiency for contract efforts, however cost tracking is performed to demonstrate this work is advantageous to the State through lower cost and quicker response due to length of time to bid a project. Specific examples of in-house results/costs compared to competitively bid contract pricing will be submitted separately, for each major category of work. See Appendix D for FHWA memorandum, FHWA Policy on Agency Force Account Use, dated March 12, 2012 for force account eligibility.

VII. Accomplishing the Work

Bridge: Each District is staffed with a District Bridge Engineer, who manages condition rating and work plans/STIP planning efforts related to project work and PM. Bridge inspection results, including condition assessments are documented and recorded within the National Bridge Inventory inspection process, and are stored within the Transportation Management System (TMS) database. In-house efforts are accomplished with crews composed of maintenance staff throughout the District, with some Districts maintaining a limited number of dedicated staff and equipment. Supplies are provided through general
services contracts, and are delivered as needed. Each district also has access to contractor resources, currently through job-order contracts, maintenance contracts, general services contracts, and STIP projects. Additional work is anticipated through the use of performance-based maintenance contracts, as this contract model is developed.

Pavement: Each District is staffed with a District Pavement Specialist, who manages condition assessment of roadways with input from Maintenance Superintendents, Pavement Management System data, and other field observation. Pavement condition is determined through a combination of Automatic Road Analyzer (ARAN) van measurements and associated Pavement Surface Evaluation and Rating (PASER) ratings of the video collected by the ARAN van. This condition assessment data is stored within the TMS database. In-house efforts are accomplished with crews composed of maintenance staff throughout each District. Equipment is maintained for limited number of tasks (surface patching and seal coats) but may also be leased for short-term applications. Supplies are available through general services contracts. Each district also has access to contractor resources, currently through job-order contracts, maintenance contracts, and STIP projects. Additional work is anticipated through the use of performance-based maintenance contracts, as these are developed.

Other Roadway Features: District Maintenance and Traffic staff work with maintenance crews from within their Districts to perform pavement marking, sign replacement, and a limited amount of structural sign repair (note: St. Louis District is the only District with significant crew and equipment for structural sign work by in-house crews while Kansas City District has developed maintenance contracts for shoulder-mounted sign maintenance, but not overhead sign maintenance). Equipment is maintained in each District for pavement marking, while supplies are all provided through general services contract.

Note: Buy America requirements apply to all iron and steel materials permanently incorporated into federal-aid work. General Service’s contract guidelines for Federal Reimbursement items are provided in Appendix E. Quality Assurance/Quality Control guidelines and documentation are provided in Appendix F.

VIII. Reporting and Evaluation

Bridge: The District Bridge Engineers report on the progress of PM work plans on an annual basis and the District and Bridge Division report on STIP project and overall system condition progress (Tracker). This reporting will include a summary of results achieved and effort expended. Contract efforts will note contract costs, and quantity of road/bridge/other roadway condition improved, while in-house force work will be tracked through the SAM-II system, including the use of performance actual result tracking, where maintenance crews report the quantity of work completed, with their crew reports (listing labor, material, and equipment costs). The in-house system provides summary data for crew/equipment/materials used and associated results achieved. Examples of in-house reporting are provided in specific cost comparisons, submitted individually to FHWA for approval to demonstrate cost effectiveness of select in-house (or force account) efforts as compared to similar contract work.

Pavement: The District Pavement Specialists report on the progress and results of work plans and the District reports on STIP project progress. This tracking is reported in similar fashion as noted for the
Bridge category noted above. The annual updates to the Pavement Management Tool provide quality assurance of the results reporting, as this information is in turn utilized to plan future work.

Other Roadway Features: District Maintenance and Traffic staff tracks sign and striping overall condition, including retro-reflectivity. This data is compiled in TMS, with condition reporting in Tracker. Any additional condition data which may be obtained in the future will be coordinated with FHWA, as this condition data collection is developed and implemented. Work activities are reported in similar fashion as noted above.

MoDOT Chief Engineer

Date

FHWA Missouri Division Administrator

Date
Appendix A-1

Bridge PM Activities
Bridge PM Activities

Bridge PM activities and descriptions are noted in the Engineering Policy Guide (EPG), Section 771. The following is a summary of recommended activities, including reference information on condition based treatments and recommended frequency of actions.

Bridge Washing: Cyclic activity, with nearly all bridges targeted for flushing in the early spring, in order to remove salts and debris, and again in the fall to remove any accumulated debris. Flushing is also performed in advance of sealing or crack sealing operations. Bridge washing also includes a 1-2 year interval for cleaning substructure elements, including cleaning and lubrication of bearings as applicable. Bridge drains are typically cleaned during deck flushing.

Sealing: Cyclic and condition-based activity. Primary candidates for deck sealing are condition 7 or higher, and the cycle is determined based on the type of sealer applied. Specific examples include: Silane (5-7 year interval), acrylic sealers (annual), asphalt chip seal (5-10 year interval), 3-layer epoxy (12 - 25 years, depending on age of structure at time of application), methacrylate (3-4 year interval), and high molecular weight methacrylate (7 - 15 year interval, under evaluation). Other materials are under evaluation, and may be added to this list as approved. Additionally, some lower condition decks may benefit from deck sealing, and this work may be performed as recommended by District Bridge Engineers.

Crack Sealing: This activity is primarily applied to bridge decks with easily visible cracking (typically NBI deck condition 5 or higher), and is applied on a 3-15 year interval, depending on the treatment. Chip seals and asphalt emulsion crack sealer are applied on bridge decks with more extensive cracking (typically condition 4 and 5 NBI deck condition), on a 3-5 year interval. All treatments noted are planned for a minimum of 3 year service life between treatments, with some approaching 15 year life. Crack sealing need is typically identified by the bridge inspector during National Bridge Inventory inspections (recorded in the TMS database). Typically this is applied to bridge decks where cracking is evident such that sealing alone is not effective. A variety of products are available, with varying treatment intervals (reference approved materials list). Product list/frequency info includes: asphalt emulsion sealers (3-5 year interval), low viscosity epoxy in a single layer application (5-7 year interval anticipated depending on AADT, currently under review), high molecular weight methyl methacrylate (7-15 year interval, currently under review), polymer emulsions ( 3-5 year interval, under evaluation), polyurea (test sites under evaluation). Crack sealing is dependent on age, location (amount of salt application), AADT, and thermal movement/deflection. Effective life is still undergoing evaluation for a variety of products, and this listing will be updated as data is obtained for various products.

Joint Repairs/Replacement: This is currently an emphasis area, to replace joints identified on work plans during NBI inspections. Various joint types may require a mixture of both in-house forces (when approved by FHWA) and contracts to accomplish. Some example joint materials in use include: pre-compressed joint material system, preformed silicone or polyurea joint strips, but may also include finger plate, flat plate, or other more complex joint systems. Note: Field measurement and evaluation of expansion movement should be checked prior to joint repair selection.
Steel Member overcoat: Typically includes calcium sulfonate overcoat application or cleaning and repainting of structural members. If the rust code is 7 or better and pull-off tests (ASTM D3359) are acceptable for overcoat, then overcoat application is feasible.

Wearing Surface: Includes wearing surface repair or replacement performed by in-house forces (when approved by FHWA) or contract.

Bridge Approach Slab Lifting: Settlement of approach slabs is typically corrected when differential at bridge end is equal to or greater than ½ inch vertical difference. Example methods to correct approach slab settlement include mud-jacking or use of expansive urethane Scour/Channel Mitigation/Repair: Scour mitigation is provided on an as-needed basis, and is typically identified during routine maintenance staff observations or during bridge inspections. Active scour or bank erosion areas are repaired on an as-needed basis with such measures as formed pier repair, gabion installation, or rock blanket.

Deck Repairs: Includes half-sole and full depth repairs: Preventive maintenance for bridge deck repair will be considered for bridge decks which may expect extended life from the patching effort. Guidelines of <20% of total deck surface area for half-sole patching and <10% for full depth patching serve as general guidelines for effective preventive maintenance deck repairs, with rehabilitation efforts recommended above these limits. Partial depth repairs are applicable when there is competent substrate (delamination only above the top mat of reinforcing steel) and full-depth repairs planned where the deck has become saturated and/or cracked/weakened for the full depth.

Replacement or upgrade of bridge railings, transition railings, and rail end treatments.
Appendix A-2

Pavement PM Activities
Pavement PM Activities

Pavement PM activities are noted in EPG Section 413, Surface Treatments and PM and EPG Section 507 – Portland Cement Concrete Pavement Maintenance. Overall pavement maintenance direction is provided in EPG 144.5 Pavement Maintenance, which also includes ranges of condition-based treatment and life expectancy of each treatment. Following is a list of recommended activities, with associated condition basis and frequency.

Pavement condition levels are monitored by data collection within Transportation Planning, with the following criteria defining Good condition. This data is presented within the MoDOT Tracker, and is documented within the TMS database.

Major Road – Good Condition:

IRI < 100, or Speed limit < 55 AND condition_index ≥ 6

Minor Road – Good Condition:

IRI < 140, or IRI between 140 and 170 AND condition_index ≥ 6

Low Volume – Good Condition:

IRI < 170, or IRI between 170 and 220 and condition_index ≥ 6

Full lane width overlays: Condition basis where these treatments are applicable is provided in EPG 144.5, and the projected life of this treatment ranges from 8 – 15 years. Pavement selection guidance in EPG 144.5.6 provides condition based criteria for overlays and surface treatments. Since the condition of a route segment is based on a weighted average of 0.1 mile condition rating increments, we consider greater than or equal to 50% meeting the criteria set for good condition pavement to be a good condition route segment. If asphalt pavement repair alone is capable of improving poor segments of a route, such that a majority of the route is good, then a weighted average of 40% or better meeting good condition criteria will be considered for follow-on surface treatment or overlay provided no more than 15% of the route segment is rated as poor. This work is accomplished through paving contract (hot or cold mix), pavement maintenance contracts, and in-house forces. Overlays typically include hot-mix asphalt on regionally significant minor routes, major routes and interstates, while minor routes and low volume roads will be evaluated for either hot or cold-mix for the most cost-effective application. Overlay thickness is greater than or equal to 1” and less than or equal to 1-3/4”, and is applicable to good condition routes.

Asphalt pavement repair: May include full or partial lane-width patches, which are applied to address significant rutting or surface raveling on existing asphalt surfaced roadways. Patch material may be hot or cold mix asphalt. Asphalt pavement repair shall be considered for good condition routes only, as defined earlier, and a subsequent overlay or surface treatment such as fly coat, fog seal, or chip seal shall be required within 2 years of completing asphalt pavement repairs.
Concrete Pavement Repair: These repairs are performed on good condition routes, when joint repairs are less than 10 per lane-mile or if the proposed pavement repair quantities in any lane are less than 2% of the total lane area for that work activity. Full depth repairs are utilized when repairing faulted joints or edge cracks which extend through the majority of the pavement thickness. Partial depth repairs are utilized when partial depth distress is evident such as scaling or high steel delamination. Concrete crack repairs also include placement of polymer repair materials with high bond strength and reinforcement cross-stitching cracked areas.

Seal Coats: This is performed on a condition basis to good condition pavements with no significant rutting. Additional details are provided in EPG 144.5.6.1 Pavement Direction. Example seal coats include: Fog Seal/Scrub Seal (1-2 year life), Chip seal (many variations with 3-7 year life), microsurfacing (6-8 year life), slurry seal (4-6 year life), and rejuvenators (3-5 year life)

Other Surface Treatments: UBAWS (Ulthathin bonded asphalt wearing surface) is utilized where drainage and spray are a concern (with 5-9 year interval), and is performed on a contract basis. Note: Do not mill pavement edge for placement of UBAWS, as deterioration may accelerate at undrained pavement edge. Crack Sealing is used on both concrete and asphalt pavements where joints are open, reflective cracks or distress cracking are present - but not excessive. Crack sealing is applied to prevent incompressible material from entering cracks and prevent water intrusion, in order to extend pavement life until another treatment is applied (2-4 year expected life).

Pipe Culvert repair: Pipe culvert repair activities include total pipe replacement, installation of pipe liners to extend life, and extension of piping due to shoulder stabilization/widening.
Appendix A-3

Other Roadway Features
Pavement Marking: Includes placement of pavement markings, as required to maintain minimum retro-reflectivity standards. This work includes consideration of day/night, wet/dry, recessed pavement marking, and/or snow-plow able marking applications. Retro-reflectivity thresholds are noted in the table below. MoDOT crews utilize water-borne marking paint (2nd generation water-borne resin) and type L beads on major routes (ASTM type 3) and type PM beads on minor routes (combination of majority ASTM type 1, with lesser quantities of ASTM type 2 and 3 beads to produce a gradation).

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Appendix B

FHWA Memo – Guidance on Highway Preservation and Maintenance
Memorandum

Subject: Guidance on Highway Preservation And Maintenance

From: Walter C. Waidelich, Jr.
Associate Administrator for Infrastructure

To: Directors of Field Services
Federal Lands Highway Division Engineers
Division Administrators

Date: FEB 25 2016

In Reply Refer to: HIAP-30

The Moving Ahead for Progress in the 21st Century Act (MAP-21) and the Fixing America’s Surface Transportation Act (FAST Act) recognized preservation as a vital component of achieving and sustaining a desired state of good repair of highway facilities. By this memorandum, FHWA is updating our guidance on highway preservation and maintenance activities to be consistent with MAP-21 and the FAST Act. The following guidance memorandums are superseded:

- Pavement Preservation Definitions, September 12, 2005
- Preventive Maintenance Eligibility, October 8, 2004
- Preventive Maintenance Questions and Answers, December 16, 2004

Please find attached guidance for both preservation and maintenance activities in question and answer format.

If you have any questions, please contact Bryan Cawley at bryan.cawley@dot.gov or (202) 366-1333.

Attachments
Preservation

Question 1: What is preservation?
Answer 1: Preservation consists of work that is planned and performed to improve or sustain the condition of the transportation facility in a state of good repair. Preservation activities generally do not add capacity or structural value, but do restore the overall condition of the transportation facility.

Question 2: May a State transportation department use Federal-aid funds to perform preservation work?
Answer 2: Yes, section 1103 of MAP-21 adds preservation to the definition of construction in 23 U.S.C. 101. As such, preservation work is eligible and encouraged under the National Highway Performance Program and the Surface Transportation Program.

Question 3: Does MAP-21 mandate requirements for preservation programs?
Answer 3: No. However, Section 1201 of MAP-21 amended 23 U.S.C. 134 to require that the Metropolitan Planning Process "provide for consideration of projects and strategies that will ... emphasize the preservation of the existing transportation system." (23 U.S.C. 134(h)(1)(H)). In addition, the Long-range Statewide Transportation Plan "should include capital, operations and management strategies, investments, procedures, and other measures to ensure the preservation and most efficient use of the existing transportation system." (23 U.S.C. 135 (f)(8)). Preservation is a critical component of an agency’s asset management plan to achieve and sustain a desired safe state of good repair over the lifecycle of the assets.
Maintenance

**Question 1: What is maintenance?**
**Answer 1:** Maintenance describes work that is performed to maintain the condition of the transportation system or to respond to specific conditions or events that restore the highway system to a functional state of operation. Maintenance is a critical component of an agency’s asset management plan that is comprised of both routine and preventive maintenance.

**Question 2: What is routine maintenance?**
**Answer 2:** Routine maintenance encompasses work that is performed in reaction to an event, season, or over all deterioration of the transportation asset. This work requires regular reoccurring attention.

**Question 3: May a State transportation department use Federal-aid funds to perform routine maintenance?**
**Answer 3:** No. A State Transportation Department or other direct recipient is required to maintain or cause to be maintained the project constructed under the provisions of chapter 1 of title 23, U.S.C., or constructed under provisions of prior Acts. (23 U.S.C. 116 (b))

**Question 4: What is preventive maintenance?**
**Answer 4:** Preventive maintenance is a cost-effective means of extending the useful life of the Federal-aid highway. (23 U.S.C. § 116 (e))

**Question 5: May a State transportation agency use Federal-aid funds to perform preventive maintenance on highways?**
**Answer 5:** Yes. The State Transportation Department must demonstrate to the satisfaction of their respective FHWA Division Administrator that the activity is a cost-effective means of extending the useful life of a Federal-aid highway. (23 U.S.C. § 116 (e)). Preventive maintenance is a pro-active approach to extend the useful life of the highway.

**Question 6: May a State Transportation Department use Federal-aid funds to perform preventive maintenance off highways?**
**Answer 6:** No. The authorization for preventive maintenance is limited to a “Federal-aid highway.” (23 U.S.C. § 116 (e)). A Federal-aid highway is defined as “a public highway eligible for assistance under this chapter other than a highway functionally classified as a local road or rural minor collector.” (23 U.S.C. § 101 (a)(6))
Appendix C

FHWA Civil Rights/Americans with Disabilities Act Guidance
Civil Rights

Americans with Disabilities Act (ADA)/Section 504 of the Rehabilitation Act of 1973 (504)

The primary purpose of the Federal Highway Administration's (FHWA) Americans with Disabilities Act (ADA) program is to ensure that pedestrians with disabilities have opportunity to use the transportation system in an accessible and safe manner. As part of FHWA's regulatory responsibility under Title II of the ADA and Section 504 of the Rehabilitation Act of 1973 (504), the FHWA ensures that recipients of Federal aid and State and local entities that are responsible for roadways and pedestrian facilities do not discriminate on the basis of disability in any highway transportation program, activity, service or benefit they provide to the general public; and to ensure that people with disabilities have equitable opportunities to use the public rights-of-way system.

Laws and regulations require accessible planning, design, and construction to integrate people with disabilities into mainstream society. Further, these laws require that the actions of government highway entities do not discriminate in their programs and activities against persons with disabilities.

Section 504 of the 1973 Rehabilitation Act (Public Law 93-112) prohibits discrimination on the basis of disability in Federally assisted programs. Section 504 requirements for USDOT administrations are covered under 49 CFR Part 27 (USDOT), Nondiscrimination on the Basis of Disability in Programs and Activities Receiving or Benefiting from Financial Assistance. The Americans with Disabilities Act (ADA, 1990, Public Law 101-336) is a broader civil rights statute that prohibits discrimination against people with disabilities in all areas of public life.

The ADA addresses State and local government services, activities and policy making under the Department of Justice's ADA Title II implementing regulations. The ADA, under Title II, Subpart A, covers public rights-of-way. The Department of Justice (DOJ) has rulemaking authority and enforcement responsibility for Title II, while
USDOT is legally obligated to implement compliance procedures relating to transportation, including those for highways, streets, and traffic management. The FHWA Office of Civil Rights oversees the DOT requirements in these areas.

Section 504 responsibilities not detailed specifically in Title II of the ADA are: Rest areas on Interstate highways must be accessible; and pedestrian overpasses, underpasses, and ramps constructed with Federal financial assistance must be accessible.

**Key FHWA Stewardship/Oversight Responsibilities**

- Ensure that FHWA recipients and subrecipients are informed of their responsibilities to provide accessibility in their programs, activities, and facilities (i.e., public rights-of-way).
- Ensure that recipients and subrecipients are applying appropriate accessibility standards to all transportation facilities.
- Ensure that all complaints filed under Section 504 or the ADA are processed in accordance with established complaint procedures.

**Contacts/phone numbers/email addresses**

**Candace Groubline**  
ADA Program Team Leader  
(202) 366-4634  
candace.groubline@dot.gov

**Authorities**

*The Americans with Disabilities Act (42 USC 126)*

*Title II of the Americans with Disabilities Act Implementing Regulation (28 CFR 35)*

*Section 504 of the Rehabilitation Act of 1973 (29 USC 794, et seq.)*

*Section 504 of the Rehabilitation Act of 1973 Implementing Regulation 49 CFR 27*

*Americans with Disabilities Act Accessibility Guidelines (ADAAG)*


*Uniform Federal Accessibility Standards (UFAS)*

**Guidance**

https://www.fhwa.dot.gov/civilrights/programs/ada.cfm
• State DOT Transition Plan Attributes Review Guide
• Department of Justice/Department of Transportation 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
  • Glossary of Terms for DOJ/FHWA Joint Technical Assistance on the ADA Title II Requirements to Provide Curb Ramps When Streets Roads or Highways are Altered Through Resurfacing
  • Q and As 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
  • Webinar: ADA Requirements when Roads are Resurfaced: Questions and Answers, March 1, 2016
    • Presentation (PDF, 515 KB)
      • Transcript
      • Chat Transcript
• FHWA Program Administration Policy on Pedestrians and Accessible Design
• Designing Sidewalks and Trails for Access, FHWA's two-part report on pedestrian and trail accessibility.
  • Part 1, Review of Existing Guidelines and Practices, lays out the history and the practices of applying accessibility concepts to sidewalks and pedestrian trails. (Out of print, available online only)
  • Part 2, Best Practices Design Guide, provides recommendations on how to design sidewalks, street crossings, intersections, shared use paths, and recreational pedestrian trails.
• Accessible Pedestrian Signals
  • Synthesis and Guide to Best Practices Website – this website provides overall information on installation criteria and design considerations.
  • Synthesis and Guide to Best Practices Article – this article provides the latest recommended technical specifications for installing accessible pedestrian signals.
• ADA Best Practices Tool Kit for State and Local Governments (US Department of Justice – 2007)
• Questions and Answers About ADA/Section 504
• AASHTO Guide for Planning, Design, and Operation of Pedestrian Facilities
• Architectural Barriers Act (ABA - originated 1968)
• Civil Rights Restoration Act (1987)
• Americans with Disabilities Act (ADA) (1990), as Amended

Useful Links

U.S. Department of Justice's ADA website

U.S. Access Board

U.S. Department of Transportation, Office of Civil Rights

The Disability and Business Technical Assistance Center (DBTAC)

Page last modified on May 18, 2017
Appendix D

FHWA Memo – Policy on Agency Force Account Use
Order
Subject
FHWA Policy on Agency Force Account Use

Classification Code | Date | Office of Primary Interest
5060.1 | March 12, 2012 | HIPA-30

Par.

1. What is the purpose of this directive?
2. Is this a new directive?
3. What authorities govern this directive?
4. What is the scope of this directive?
5. What definitions are used in this directive?
6. What information must FHWA Division Administrators ensure they have from the agency to prove that force account is more cost effective than contracting by competitive bidding?
7. At what point does an agency's price become more cost effective in comparison with competitive prices?
8. Do the General Material Requirements of 23 CFR 635, Subpart D, apply to force account work?
9. Do the Quality Assurance Procedures for Construction provisions of 23 CFR 637, Subpart B, apply to force account work?
10. Do the prevailing wage rate requirements of 23 CFR 635.117(f) apply to force account projects?
11. Is an agency allowed to perform a portion of a Federal-aid project on a force account basis and let a competitive contract for the remainder of the project?
12. Is a cost-effectiveness finding necessary for a railroad or utility to perform minor adjustments on its own facility?
13. Is there a limitation for an agency to request programmatic force account approval?
14. What are the requirements for the approval of agency force account projects assumed by the State DOT?
15. Are FHWA Division Office and the State DOT allowed to include additional review and approval procedures for agency force account cost-effectiveness determinations?

16. Where can I obtain additional guidance?

1. **What is the purpose of this directive?** This directive clarifies the Federal Highway Administration (FHWA) policy for the approval of the use of agency force account procedures on Federal-aid projects. This directive clarifies when agency force account is permitted under law and regulation. The directive addresses the use of agency force account procedures which include the direct performance of work by any direct recipient (typically the State department of transportation (DOT)) or subrecipient of Federal-aid funding under Title 23 of the Code of Federal Regulations (CFR). It does not address the use of contract force account procedures for work performed by construction contractors as referenced in 23 CFR 635.120(d).

2. **Is this a new directive?** Yes. This is a new directive. Division Administrators are to refer to this directive for all future requests to use agency force account.

3. **What authorities govern this directive?** The FHWA’s statutes for Federal-aid construction projects require Federal-aid highway projects to be performed by contracts awarded by competitive bidding. Agency force account can be used only when a State DOT demonstrates to the satisfaction of the Secretary of Transportation that it is more cost effective than competitive bidding or an emergency exists. The following authorities govern this directive:

   a. Section 112 (a) of Title 23, United States Code (U.S.C.), states that “In all cases where the construction is to be performed by the State transportation department or under its supervision, a request for submission of bids shall be made by advertisement unless some other method is approved by the Secretary. The Secretary shall require such plans and specifications and such methods of bidding as shall be effective in securing competition.”

   b. 23 U.S.C. 112(b) states “. . . construction of each project . . . shall be performed by contract awarded by competitive bidding, unless the State transportation department demonstrates, to the satisfaction of the Secretary, that some other method is more cost effective or that an emergency exists. Contracts for the construction of each project shall be awarded only on the basis of the lowest responsive bid submitted by a bidder meeting established criteria of responsibility.”
c. 23 CFR 635.204(a) states that competitive bidding must be used unless “... the State transportation department demonstrates, to the satisfaction of the Secretary, that some other method is more cost effective or that an emergency exists.”

d. 23 CFR 635.204(c) of states “Except as provided in paragraph (b) of this section, when a State transportation department desires that highway construction work financed with the aid of Federal funds, other than the kinds of work designated under 635.205(b), be undertaken by force account, it shall submit a request to the Division Administrator identifying and describing the project and the kind of work to be performed, the estimated costs, the estimated Federal funds to be provided, and the reason or reasons that force account for such project is considered cost effective.”

e. 23 CFR 635.205(a) states “It may be found cost effective for a State transportation department or county to undertake a federally financed highway construction project by force account when a situation exists in which the rights or responsibilities of the community at large are so affected as to require some special course of action, including situations where there is a lack of bids or the bids received are unreasonable.”

f. 23 CFR 635.203 defines the terms “some other method, force account, county, cost effective and emergency” as follows:

(1) “Except as provided for as emergency repair work in 668.105(i) and in §635.204(b), the term some other method of construction as used in 23 U.S.C. 112(b) shall mean the force account method of construction as defined herein. In the unlikely event that circumstances are considered to justify a negotiated contract or another unusual method of construction, the policies and procedures prescribed herein for force account work will apply.”

(2) “The term force account shall mean the direct performance of highway construction work by a State transportation department, a county, a railroad, or a public utility company by use of labor, equipment, materials, and supplies furnished by them and used under their direct control.”

(3) “The term county shall mean any county, township, municipality or other political subdivision that may be empowered to cooperate with the State transportation department in highway matters.”
(4) “The term cost effective shall mean the efficient use of labor, equipment, materials and supplies to assure the lowest overall cost.”

(5) “For the purpose of this part, an emergency shall be deemed to exist when emergency repair work as provided for in §668.105(i) is necessary or when a major element or segment of the highway system has failed and the situation is such that competitive bidding is not possible or is impractical because immediate action is necessary to:

(a) Minimize the extent of the damage,

(b) Protect remaining facilities, or

(c) Restore essential travel.”

4. What is the scope of this directive?

   a. This directive applies to all Federal-aid highway construction projects (projects meeting the definition of “construction” in 23 U.S.C. 101 and physically located within the right-of-way of a public highway) that are proposed to be undertaken by the agency force account method of construction.

   b. This directive does not apply to the contract force account method of construction. Also, this directive does not apply to Federal-aid construction projects that are not located within a public highway right-of-way or projects that, by definition, are not considered to be highway construction projects. A State DOT may use State-approved procurement procedures, or a local public agency (LPA) may use State-approved local procurement procedures for these types of projects (see Procurement of Federal-aid Construction Projects memorandum, issued June 26, 2008). Some examples of projects that are not considered to be highway construction are as follows:

   (1) Transportation Enhancement projects that are physically located outside the right-of-way of a public highway (restoration of historic railroad stations, shared use paths, recreational trails, landscaping and scenic beautification, railroad mainline improvements, rail yard improvements, etc.).

   (2) Operational improvements or service-related projects that take place within the right-of-way of a public highway, but the scope of the contract does not meet the definition of “construction” in 23 U.S.C. 101 (e.g., operational improvement projects such as service patrols,
route diversion and evacuation routing, 911/511 telephone systems, computer-aided dispatch systems, highway advisory or other radio systems for communicating with vehicles, etc.).

5. **What definitions are used in this directive?**

   a. **Force Account.** For purposes of this directive, the term “force account” shall have the same meaning as defined in 23 CFR 635.203(c). For clarity, the term “agency force account” refers to the direct performance of work by any direct recipient (typically the State DOT) or subrecipient of Federal-aid highway funding. The term “contract force account” refers to the method of paying a contractor based on the cost of labor, equipment, and materials furnished, with consideration for overhead and profit.

   b. **Some Other Method.** For purposes of this directive, the term “some other method” shall have the same meaning as defined in 23 CFR 635.203(b).

   c. **Cost Effective.** For purposes of this directive, the term “cost effective” shall have the same meaning as defined in 23 CFR 635.203(e) and clarified in this directive.

   d. **Emergency.** For the purpose of this part, the term “emergency” shall have the same meaning as defined in 23 CFR 635.203(f).

6. **What information must FHWA Division Administrators ensure they have from the agency to prove that force account is more cost effective than contracting by competitive bidding?** As defined in 23 CFR 635.203(e), the term cost effective means “. . . the efficient use of labor, equipment, materials and supplies to assure the lowest overall cost.” Under 23 CFR 635.204(c), States must submit a request to the Division Administrator identifying and describing the project and the kind of work to be performed, the estimated costs, the estimated Federal funds to be provided, and the reasons that force account is more cost effective than competitive bidding. In evaluating the project description, the kind of work to be performed, estimated costs, and reasons agency force account is more cost effective, Division Administrators must ensure that they have the following information from the agency:

   a. **Demonstrated ability of the agency to perform the work.** Division Administrators must be able to determine that the agency has the experience, resources, and demonstrated ability to complete the work with the same level of quality as that expected on a competitively let construction contract.

      (1) **Availability of equipment.**
(a) The agency must own (or currently lease) most of the equipment that is needed to perform the work. If the agency must acquire or lease substantially more equipment than required for its normal operation, it would be difficult to justify an affirmative finding of cost-effectiveness. While no contractor, subcontractor or agency owns all of the equipment that it may need, the costs associated with leasing equipment on a force account project should be a relatively minor portion of the overall cost. The FHWA Division Office and the State may elect to limit the percentage of equipment leasing costs for differing types of work.

(b) In agency force account work, the rates on publicly owned equipment eligible for Federal participation may be the agreed unit price or actual cost. For agreed unit prices, the equipment need not be itemized on the estimate. If the project is to be performed on the basis of actual cost, the estimate should include a schedule of rates, exclusive of profit, to be charged for the use of publicly owned equipment.

(2) Use of minor agreements. It is anticipated that the agency will perform all work with its own forces. However, in some instances, it may be appropriate for the agency to enter into agreements for specific minor services associated with the scope of work (e.g., guardrail installation). Such instances should be documented and pre-approved. Any work done by contract forces would be subject to prevailing wage rate requirements as appropriate.

(3) Ability to comply with design, construction and material, quality standards. The agency must have the ability to comply with the appropriate design, construction, and material quality standards.

(4) Ability to document compliance with quality assurance requirements. The agency must be able to obtain and document the same level of quality that is required for competitively let contracts under 23 CFR 637.

(5) Schedule. The project/contract completion time is to be equal for both agency and contract work estimates in order to provide a fair comparison of prices.

b. Cost comparison. Division Administrators must obtain sufficient cost information so that a cost-effectiveness determination can be made by comparing the total cost for the agency to perform the work versus the total
cost using competitively bid prices. See the Appendix for a sample cost-effectiveness submittal.

(1) The agency's cost estimate should be prepared on a force account basis including estimated quantities and prices for material, labor, and equipment. The estimate should be based on one of two methods:

(a) Actual cost. Payment will be based on the actual cost of labor, materials, and equipment rates. Estimated hours and rates should be included and final reimbursement will be based on an audit of actual costs.

(b) Unit prices. Payment will be based on agreed unit prices and the actual number of units constructed. Agreed unit prices must be developed using quantities, man-hours, pay rates, material costs, and equipment rental rates.

(2) When an agency proposes to use previously purchased and stockpiled material, the value of the material should be the same as the price listed on the agency's cost inventory. All material must comply with FHWA's general material requirements in 23 CFR Subpart D.

(3) The agency should include all work items in the agency cost estimate (regardless of Federal participation) so that a fair comparison can be made with the estimate of contract work.

(4) The agency's total cost estimate should include an adjustment for the agency's overhead or indirect cost rates for labor, equipment, and materials. The agency's overhead or indirect costs rates must be developed in compliance with the Cost Principles for State, Local, and Indian Tribal Governments (2 CFR Part 225). More information about application of these cost principles within the Federal-aid Highway Program may be found in the Clarification of Policy on Indirect Costs of State and Local Governments memorandum issued May 5, 2004.

(5) The total agency cost estimate should not be reduced by:

(a) Potential savings resulting from use of less than complete plans,

(b) Potential savings from reduced quality assurance during construction, and
(c) Anticipated savings from reduced construction management and documentation.

c. **Assurances that the project will comply with all Federal-aid requirements.** The agency must assure that it will comply with all applicable Title 23 requirements during construction such as the applicable sections of Form FHWA-1273 (Required Contract Provisions for Federal-aid Construction Projects), job site poster requirements, environmental commitments, etc.

d. **Assurances that the performance of the project by force account will not hinder the State's attainment of its approved Disadvantaged Business Enterprise (DBE) goal.** Whenever an agency performs work by force account, contracting opportunities are not available. Thus, the agency must assure that the performance of the project by force account will not negatively affect the ability of the State to achieve its approved DBE goal.

7. **At what point does an agency's price become more cost effective in comparison with competitive prices?** There is no specific percentage or margin that defines a cost effective determination. However, when comparing the estimate of the agency's prices with competitive prices, it is reasonable to expect that the agency's prices would produce a savings considering the normal price fluctuations in a competitive market.

8. **Do the General Material Requirements of 23 CFR 635, Subpart D, apply to force account work?** Yes. Materials used to complete the work must meet the requirements in 23 CFR 635, Subpart D.

9. **Do the Quality Assurance Procedures for Construction provisions of 23 CFR 637, Subpart B, apply to force account work?** The provisions of Part 637 apply to all projects on the National Highway System (NHS). Non-NHS Federal-aid projects may use the quality assurance procedures of the contracting agency as allowed by the FHWA Division Office and State DOT Stewardship and Oversight Agreement.

10. **Do the prevailing wage rate requirements of 23 CFR 635.117(f) apply to force account projects?**

    a. Davis-Bacon prevailing wage rate requirements apply to mechanics and laborers employed by contractors and subcontractors on the site of the work. Davis-Bacon prevailing requirements apply to Federal-aid projects located within the right-of-way of a Federal-aid highway pursuant to 23 U.S.C. 113.
b. As it relates to agency force account work:

(1) Prevailing wage rate requirements do not apply to State, local, or municipal government employees of the owner-agency. Public agencies are not considered “contractors” or “subcontractors” within the meaning of the Davis-Bacon Act. (See the U.S. Department of Labor's Field Operations Handbook, Section FOH 15b06(a).) Any work that is “subcontracted” to private firms, is subject to the application of prevailing wage requirements.

(2) The U.S. Department of Labor's May 29, 2009, letter to the U.S. Department of the Interior provides an advisory opinion that Federal prevailing wage rate requirements do not apply to Federal youth programs where a Federal statute establishes specific compensation to be given participants. On the other hand, State and local youth conservation corps employees and employees of other private organizations (non-profits) are subject to prevailing wage rate requirements.

11. **Is an agency allowed to perform a portion of a Federal-aid project on a force account basis and let a competitive contract for the remainder of the project?**

Yes, however, the same principles apply to force account approvals when the agency is performing a portion of the project – there must be a finding of cost-effectiveness for that portion of the project. The FHWA must have the following assurances from the agency:

a. The agency's work must be shown to be more cost effective than competitive bidding, and

b. There must be some assurance that the agency's work will be an integral part of a functional project when completed. For example, a proposal for a State DOT to perform the final pavement markings on a roadway rehabilitation project would, by the nature of the pavement marking work, logically provide this assurance. On the other hand, a proposal for a LPA to perform utility adjustments on a roadway reconstruction project, by itself, does not provide an assurance that the force account work will result in a functional project.

12. **Is a cost-effectiveness finding necessary for a railroad or utility to perform minor adjustments on its own facility?** No. 23 CFR 635.205(b) states that it is cost effective to allow utilities and railroads to perform minor work on their own systems due to the inherent nature of the operations.
13. **Is there a limitation for an agency to request programmatic force account approval?** Yes. The approval should be limited to a specific time period, not to exceed 2 years. Consideration should be given to specific caps for projects or programs (e.g., capping the total annual value of specific preventive maintenance activities).

14. **What are the requirements for the approval of agency force account projects assumed by the State DOT?**

   a. The Stewardship and Oversight Agreement between the FHWA Division Office and the State DOT must address the assumption of this approval. Per 23 U.S.C. 106(c), the State DOTs shall assume this responsibility for all non-NHS projects and may, if appropriate, assume this responsibility for projects that are on the NHS but are not located on the Interstate System.

   b. Agency force account approval authority shall not be further assumed by subrecipients, such as local public agencies. The State DOT is responsible for the review of cost-effectiveness of all LPA requests.

   c. In all situations where this approval is assumed, the State DOT will be responsible for reviewing cost effectiveness determinations in accordance with the above procedures and ensuring that the project records adequately address any emergency or finding of cost-effectiveness.

15. **Are FHWA Division Office and the State DOT allowed to include additional review and approval procedures for agency force account cost-effectiveness determinations?** Yes. The Division Office and the State DOT may include additional review and approval procedures for cost-effectiveness determinations as long as these procedures do not conflict with this directive.

16. **Where can I obtain additional guidance?** For additional guidance, contact the FHWA's Office of Infrastructure Contract Administration Group Leader or the Office of Chief Counsel Senior Attorney Advisor on preconstruction approval procedures.

   [Signature]

   Victor M. Mendez
   Administrator

https://www.fhwa.dot.gov/legsregs/directives/orders/50601.cfm 2/14/2018
Attachment

Appendix – Sample Cost-Effectiveness Determination

Description of Work:

Smith County proposes to install pavement markings as the final work item for the overlay of 0.9 miles of Smithfield Road. Contract forces will provide for the milling and resurfacing of the project by milling and providing a 2 inch overlay throughout the project limits.

Supporting Information:

- Smith County has the necessary experience and ability to perform the work. The County has been installing pavement markings on its roadway system for the past 10 years.
- The County will use its own equipment and does not need to rent equipment.
- The County will provide 100 percent of the labor and equipment for this work.
- The material will come from existing County stockpiles and supplies at a price currently listed in the County's inventory.
- All work will comply with MUTCD, 23 CFR 637 and State DOT requirements.
- Oversight, inspection and materials acceptance will follow State LPA standards.
- The use of Smith County forces will result in an estimated savings of approximately $2,700 when considering all contract and agency costs.

Cost-Effectiveness Analysis

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<thead>
<tr>
<th>Estimate of Contract Prices</th>
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<tbody>
<tr>
<td>Mobilization</td>
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<td>Pavement Markings (11,000 lf @ $0.50/lf)</td>
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<td>Smith County Construction Engineering and Inspection at 10 percent</td>
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<td><strong>Total Project Estimate by Contract Forces</strong></td>
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## Estimate of Smith County Prices

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<td>Percentage difference</td>
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Appendix E

General Services Contract Guidelines for Federal Reimbursement Items
General Services Contract Guidelines for Federal Reimbursement Items

The following guidelines are provided for use in General Services contracts, when purchasing materials for use in Federal reimbursed maintenance activities. The Language to be included, notes 10 items which shall be added to standard Terms and Conditions (T&C). Language that is prohibited, includes 5 items which shall be removed from the standard T&C. This is considered “non-construction” per FHWA.

Language to be Included:

1. Breach of Contract (>150K only)
2. Termination for Cause & Convenience (already in T&C)
3. Rights to Invention (only on research type projects)
4. Debarment & Suspension (in 1273 Form)
5. Clean Air Act (>150K only)
6. Anti-Lobby (>100K only)
7. Buy America
8. Bonding Requirements (already in T&C)
9. DBE Language (Contact ECR Division for appropriate language depending on your type of purchase)
10. E-Verify (already in T&C)

Language that is PROHIBITED per FHWA, please remove any language related to these items!!

1. Retainage
2. Contractor Warranty (only Manufacturer Warranty allowed)
3. Local Preference
4. Proprietary Items
5. Employ MO
Appendix F

QA/QC Guidelines and Documentation
<table>
<thead>
<tr>
<th>Typical Activities</th>
<th>Material</th>
<th>Type</th>
<th>Inspection documentation</th>
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<th>Test Frequency</th>
<th>Record Frequency</th>
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<td>1 PAL ID# per product</td>
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<td>Rebar</td>
<td>ALL</td>
<td>PAL ID#</td>
<td></td>
<td>1 PAL ID# per product</td>
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<td></td>
<td></td>
<td>Cure</td>
<td>ALL</td>
<td>PAL ID#</td>
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<td>1 PAL ID# per product</td>
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<tr>
<td></td>
<td>R322</td>
<td>Deck Sealers</td>
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<td>1 per purchase</td>
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<tr>
<td></td>
<td>R221</td>
<td>Striping</td>
<td>Beads</td>
<td>Approved List/Inspection by CM</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Sprayables</td>
<td>Approved List/Inspection by CM</td>
<td></td>
<td>1 per purchase</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Tapes</td>
<td>Approved List</td>
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</tr>
<tr>
<td></td>
<td>R312</td>
<td>Asphalt Mix</td>
<td>Bagged</td>
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<td>1 per purchase</td>
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<td></td>
<td></td>
<td></td>
<td>Plant Mix &gt; X tonnes</td>
<td>Inspection by CM/Certification by Supplier</td>
<td>150 tons</td>
<td>1 per 1000 tons</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Cold Mix</td>
<td>Inspection by CM</td>
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<td>1 per day</td>
</tr>
<tr>
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<td></td>
<td></td>
<td>Plant mix &lt; X tonnes</td>
<td>Ticket/Certification</td>
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<td>1 per day</td>
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<tr>
<td></td>
<td>R31C, R315</td>
<td>Emulsions</td>
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<td>Approved List - QA/QC program AND ticket/certification</td>
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<td>1 per purchase</td>
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<td>R319, R312, R313, R31C, R315</td>
<td>Aggregates</td>
<td>&gt; X tonnes</td>
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<td>&lt; X tonnes</td>
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<td>R317</td>
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<td>R319</td>
<td>Culvert Pipe</td>
<td>CMP, RCP, Thermoplastic Pipe ID#</td>
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