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FDM 3-1-1 Overview *May 17, 2022*

1.0 Originator

The Chief of the Design Standards & Oversight Section is the originator of this chapter. Questions and comments on the contents of this chapter should initially be directed to the Region Program Control Design QA and then to the BPD Design Oversight Engineer.

1.1 General

The Facilities Development Process, as displayed in Attachment 1.1 and as described in this chapter, is a comprehensive and effective system for the prosecution of improvement projects from inception to closeout. It encompasses the various phases and identifies the key milestones in the delivery of improvement projects.

The delivery of projects is a coordinated effort between the regions and statewide bureaus. Project management principles are applied to ensure quality projects are delivered on time and on budget.

1.2 Description

Projects move through four phases during the facilities development process as milestones are achieved. The phases and milestones are matched with accounting life cycles used in the management of WisDOT programs.

1.3 Process Outline

1.3.1 Project Phases

Phase names represent the activities being worked on during that phase. (i.e. Activities occurring on a project in the Project Delivery phase are working towards completion of the design study report.)

The four phases include:

1. Program Initiation
2. Project Definition
3. Project Delivery
4. Project Proposal Execution

Key elements related to each phase include:

- life cycle (Construction ID)
- milestones
- deliverables
- phase activities
- change management
- performance measures

1.3.2 Life Cycle (Construction ID)

For this process, life cycle (Construction ID) is referring to the Financial Integrated Improvement Program System (FIIPS) accounting life cycle of let construction projects. Life cycles track progression of a project thru the phases.

1.3.3 Project Milestones

Milestones are significant points or events that must be accomplished to move a project through the Facilities Development Process.

1.3.4 Deliverables

Deliverables are products that are required to be completed before moving to the next phase or accomplishing a milestone. Deliverables listed for a particular phase may have been started in a previous phase but must be completed prior to advancing to the next phase:

Scope

- Scope is the work included in a project.

Schedule

- There are two types of schedules. One is the delivery schedule related to the design activities. The other type is related to the LET and non-let components.

Budget

- Budget is the financial resources needed to design and construct a project including non-let components.

Phase Deliverables

- Phase deliverables are specific items in addition to scope, schedule and budget that are required prior to completion of a phase.

1.3.5 Phase Activities

Phase activities are specific to a particular phase depending on a project's improvement type, scope of work and complexity. Attachment 1.2 contains a list of phase activities that should be considered when developing a project. This list is not all inclusive. Attachment 1.3 contains a summary of region-level approval delegation for documents created during the facilities development process.

1.3.6 Change Management

Change Management is a proactive process of tracking and administering changes during the delivery of a project. It includes specific policy, procedures, and performance measures for managing changes to the scope, schedule, or budget during the facilities development process. The purpose of change management is to first seek to eliminate, then control, and finally adapt to proposed changes without violating Departmental program goals or performance measures. Change management criteria differs based on program and region. WisDOT employees can refer to the Program Management Manual PMM 3-5-25 and region for guidance on monitoring the state highway rehabilitation (SHR) program, PMM 3-10-20 for SHR Large/High Cost Bridge, PMM 3-15-20 Backbone, PMM 3-1-20 Majors projects.

1.3.7 Performance Management

Performance management provides a powerful tool to inform the public and policymakers about the Department's progress in fulfilling our mission, demonstrating transparency, and being accountable for results. Performance management for the Facilities Development Process primarily measure the correlation to Departmental goals for adherence to schedules, appropriate delivery costs, accurate estimating, and quality throughout the process. WisDOT employees can find a full listing of performance measures, indicators, and business reports, along with a complete description on the internal website.

Management on the website are organized by the functional area responsible for the management of the measure. Performance management measures and indicators that have a direct connection to the scope, schedule, budget, and quality within the facilities development process are displayed on page 2 of Attachment 1.1 and include the following Table 1.1:

Table 1.1 Performance Management for the Facility Development Process

Performance Management	Name*	Description
Scope	**Program Loaded On-Time (PLOT)****	Snapshot measuring if new Program Year (PY) 6 has been loaded to acceptable percent of allocated program levels and is compliant with Program Effective Measure requirements
	Program Scoped On-Time at Scoping (PSOT)**	Snapshot measuring percentage of dollars in program year 4 and 5 which have achieved Final Scope Certification Approved (LC 11)
Schedule	**Design on Time**	Measures the ability of the department to deliver a project in the fiscal year that it is scheduled
	Program Life Cycle Report (APLP)	Monitors the program levels for the regular let and advanceable programs comparing to the established goals
	Delivery Risk Report	Used to identify, manage, and communicate region delivery risk for the State Highway Rehabilitation (SHR) program
	Achieving PS&E Milestones Measure	Indicates if DNR, Corps of Engineers (COE), Traffic Management Plan (TMP), real estate (RE), railroad (RR), railroad real estate (RRRE) and utilities (UTL) are clear for letting by the PS&E due date for both scheduled and advanceable projects
	Advertise with Holds	Monthly snapshot of the number of projects to be advertised for bid with a hold of the award restriction placed on them.
Budget	**Program On-Budget at Scoping (POBS)****	Snapshot that compares the accuracy of the Project Initiation Complete (LC 10) estimate with estimate at Final Scope Certification Approved (LC 11)
	Program On-Budget at Let (POBL)**	Compares the estimate at Final Scope Certification Approved to the let estimate
	Design on Budget Live (DOBL)	A tool to track and manage design delivery budget, which is eventually measured as the Design Delivery Cost Index (DDCI) as part of the Engineering Delivery Cost Index (EDCI) performance measure
	Engineering Estimate Accuracy	Compares the Department's construction cost estimate to the let (bid) estimate
	Engineering Delivery Cost Index (EDCI)	Delivery costs for a project expressed as a percentage of the let estimate. EDCI is made up of design delivery costs (DDCI) and construction delivery costs (CDCI).
Quality	**Quantities**	Measures the completeness and accuracy of the quantities provided annually to construction industry for upcoming construction season
	Design Quality Index (DQI) (Addenda)	Reflects the contractors and construction project leaders' evaluations of the completeness and constructability of the plan documents

* Performance Measures are shown in **bold**. All others are either Performance Indicators or Business Reports.

** DTIM Measures

LIST OF ATTACHMENTS

Attachment 1.1 Facilities Development Process

Attachment 1.2	Facilities Development Process Phase Activities
Attachment 1.3	Region Design Approval Delegation (SHR)

FDM 3-1-5 Project Initiation Phase

November 30, 2018

5.1 General

During the Project Initiation phase projects are incorporated into the program through an analytical process using a thematic approach that identifies a system need on a highway segment, prioritizes it for funding, and creates a project to address the need. WisDOT employees can refer to PMM 03-05-05.

5.2 Life Cycle

The project starts at FIIPS Life Cycle 00 (LC00). The project moves to LC10 when conceptual scope, schedule and budget are determined.

5.3 Milestone

There is no specific milestone associated with this phase.

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5.5 Deliverables

5.5.1 Scope

Conceptual scope developed during this phase defines project limits, including structures, and highway improvement type.

5.5.2 Schedule

The conceptual schedule is set during this phase. It establishes the program let schedule which is the anticipated fiscal year for the construction project and the date for the project start milestone which allows enough time for the delivery of the necessary components to LET and award the project.

5.5.3 Budget

The construction estimate developed during this phase is a cost per mile level estimate with adjustments for known add-ons.

5.5.4 Phase Deliverables

Construction and design IDs are loaded.

Design ID is authorized.

Highway Improvement Type is identified.

Structures are identified.

Signed State/Municipal Financial Agreement (SMFA) for the design portion of the costs for connecting highway projects is obtained.

5.5.5 Phase Activities

Phase activities may occur in a particular phase depending on a project's improvement type, scope of work and complexity. Attachment 1.2 contains a list of phase activities that should be considered when developing a project. This list is not all inclusive.

5.6 Change Management

Change management is not in effect during this phase.

5.7 Performance Management

Activities during this phase may impact performance measures that are recorded or reported during this phase which include:

- Program Loaded On-Time (PLOT)

See page 2 of Attachment 1.1.

FDM 3-1-10 Project Definition Phase

February 15, 2023

10.1 General

During the Project Definition Phase, existing conditions and known concerns are evaluated to develop the final scope, construction schedule and estimate, and delivery schedule and budget. Collectively these elements make up the Project Management Plan.

10.2 Life Cycle

The project is at FIIPS Life Cycle 10 (LC10) during this phase and moves to LC11 upon completion of this phase.

10.3 Milestone

The Project Initiation Complete milestone occurs at the beginning of this phase. Project start indicates the start of development of the project management plan which defines the final scope, schedule and budget.

The Preliminary Scope Complete milestone occurs during this phase. The preliminary scope is complete once the Safety Certification has been completed.

The phase ends with the Final Scope Certification Approved milestone. This includes completing necessary certificates along with the Final Scope Certification which documents the final scope, delivery and construction let schedules and delivery and construction budgets.

10.4 This section left blank

10.5 Deliverables

10.5.1 Scope

The final scope developed during this phase confirms the concept and identifies the specific work to be completed in the construction project.

10.5.2 Schedule

Milestone and work breakdown schedules are developed.

Schedules for LET and non-LET components are determined.

10.5.3 Budget

Construction estimates are major bid item (MBI) estimate with contingencies. Non-Let estimates are coordinated with the appropriate functional areas.

Design delivery budget is developed based on the scope and anticipated level of effort needed to complete the project within the Department's performance expectations for Engineering Delivery Cost Index and Design Delivery Cost Index (EDCI/DDCI).

10.5.4 Phase Deliverables

(*italics* indicate certifications required for Final Scope Certification)

Purpose and Need – FDM Chapter 20

Safety (and Operations) Certification Document - FDM 11-38, FDM 11-52-15

Bureau of Structure Certification Document - *Bridge Manual*

Improvement Strategy Determination - FDM 3-5

Resource assignments - FDM Chapter 8 (consultant contracts)

Project Development provides assignments to Section/Unit or/and consultant.

Pavement Design Report (Certification) - FDM Chapter 14

Risk Based Environmental Scoping Template (Certification) - FDM Chapter 20 & Environmental Document Forms and Tools

Utility impact determination

Initial utility Impacts are estimated after the 1077 process is completed, and preliminary scope is defined to determine areas of potential utility impacts. The facilities which could be impacted are identified and the magnitude of the effort for relocation and costs are assessed.

R/W impact determination

The existing R/W limits are established, and the impacts are identified to the extent necessary to determine the magnitude of risk associated with schedule and scope. Typical deliverables include approximate number of parcels, approximate acreage, and type of interest needed.

Railroad impact determination

Railroad impacts and potential improvements are identified to the extent necessary to determine the magnitude of risk associated with schedule and scope. Typical deliverables include Railroad Companies names identified and the level of effort to complete the railroad coordination in consultation with the Region Railroad Coordinator.

Signed SMFA and SMMA (State Municipal Maintenance Agreement)

Items requiring cost share by the municipality are identified. Draft documents for SMFA and SMMA are prepared.

Native American Lands of Interest (NALI) scoping determination (Certification) – Working With Tribal Communities

Resiliency - F4R (Certification) – FDM 3-22

Final Scope Certification - FDM 11-4-3

Risk assessment

10.5.5 Phase Activities

Phase activities may occur in a particular phase depending on a project's improvement type, scope of work and complexity. Attachment 1.2 contains a list of phase activities that should be considered when developing a project. This list is not all inclusive.

10.6 Change Management

Change management is not in effect during this phas**e.**

10.7 Performance Management

Activities during this phase may impact performance measures that are recorded or reported during this phase which include:

- Program Scoped On-Time (PSOT)
- Program Life Cycle Report (APLP)
- Delivery Risk Report (DRR)

See page 2 of Attachment 1.1.

FDM 3-1-15 Project Delivery Phase *August 15, 2019*

15.1 General

Final scope is implemented with the delivery of the project documents.

15.2 Life Cycle

The project moves thru FIIPS Life Cycles 12 (LC12) and 15 (LC 15) during this phase. Upon completion of this phase, the project moves to LC20.

15.3 Milestone

The phase begins with the Final Scope Certification approved milestone.

The Resourcing Complete/Start Final Delivery milestone identifies when the project has been resourced and work on the final project delivery begins.

The Design Study Report Complete milestone identifies when the Design Study Report approval is accomplished according to FDM 11-4-10.

15.4 This Section Left Blank

15.5 Deliverables

15.5.1 Scope

Final scope should not change during this phase.

15.5.2 Schedule

Milestone and Work Breakdown schedules set during the Project Initiation phase are monitored and managed during this phase.

Let and non-let scheduled dates should not change during this phase.

15.5.3 Budget

Construction estimates at this phase include a detail breakdown with contingencies decreased from previous estimates.

Non-let estimates at this phase are detailed based on the project specific requirements.

Delivery budgets are monitored and managed during this phase.

15.5.4 Phase Deliverables

Final delivery resourcing, including executing consultant contract if not done previously.

Preliminary and final plans

Structure Survey Report - Bridge Manual Chapter 6.2.1

Preliminary and final structure plans

Environmental Document

Design Study Report

Railroad Project Submittal Package - FDM 17-20-10

Preliminary plat is completed to the point that it is considered in recordable condition and allows real estate acquisition activities to begin.

PS&E documents (FDM Chapter 19 and region processes)

Exceptions to PS&E entered.

Required permits are received and approved. Permits may include traffic, operations, environmental, etc.

Risk assessment

15.5.5 Phase Activities

Phase activities may occur in a particular phase depending on a project's improvement type, scope of work and complexity. Attachment 1.2 contains a list of phase activities that should be considered when developing a project. This list is not all inclusive.

15.6 Change Management

Change management is in effect during this phase.

15.7 Performance Management

Activities during this phase that affect the project scope, schedule and budget may have impacts on performance measures recorded, or reported during this or other phases which include:

- Design On Time
- Program Life Cycle Report (APLP)
- Delivery Risk Report (DRR)
- Achieving PS&E Milestone Measures
- Program On-Budget at Let (POBL)
- Design On-Budget Live (DOBL)
- Quantities
- Design Quality Index (DQI)

See page 2 of Attachment 1.1.

FDM 3-1-20 Project Proposal Execution Phase

November 30, 2018

20.1 General

During this phase project PS&E documents are reviewed by Bureau of Project Development and the project is advertised and let to bid.

20.2 Life Cycle

The project is at FIIPS Life Cycle 20 (LC20) during this phase. The project moves to LC40 when the construction contract is awarded.

20.3 Milestone

The PS&E Complete milestone marks the beginning of this phase. Project Let and Project Award milestones occur during this phase. Project Let is the date when contractor bids are open. Project Award is the date when the contract is awarded to the winning bidder.

20.4 This Section Left Blank

20.5 Deliverables

20.5.1 Scope

Final scope should not change during this phase.

20.5.2 Schedule

The Milestone and Work Breakdown schedules should not change during this phase, unless the project is moved from an original programmed schedule date.

20.5.3 Budget

Changes to construction estimate during this phase are a result of plan checking or addenda.

20.5.4 Phase Deliverables

Plan check

Advertisement for bid

Addenda, if required

Risk assessment

Review bids

Design ID closed

20.5.5 Phase Activities

Phase activities may occur in a particular phase depending on a project's improvement type, scope of work and complexity. Attachment 1.2 contains a list of phase activities that should be considered when developing a project. This list is not all inclusive.

20.6 Change Management

Change management is in effect during this phase.

20.7 Performance Management

Final reporting for the following performance measures that are recorded, or reported during this phase include:

- Achieving PS&E Milestone Measures
- Advertise with Holds
- Program On-Budget at Let (POBL)
- Engineering Estimate Accuracy
- Engineering Delivery Cost Index (EDCI)

See page 2 of Attachment 1.1.

Facilities Development Process

Phase Elements / Phase Names			Project Initiation	Project Definition		Project Delivery			Project Proposal Execution		
Life Cycle (Construction ID)			00	10		11	12	15	20		40
Milestone			Project Initiation Complete	Prelim. Scope Complete		Final Scope Certification Approved	Resourcing Complete / Start Final Delivery	Design Study Report Approved	PS&E Submitted	Project LET	Project Award
Deliverables (Deliverables listed may have been started in a previous phase but must be completed prior to advancing to the next phase)	Project Management Plan	Scope	- Conceptual Scope	- Prelim. Scope	- Final Scope	- Implement Scope					
		Schedule	- Conceptual Milestone Schedule - APLP Target Goals & Schedule - Program Let Schedule	- Final Milestone Schedule - Final Work Breakdown - Final APLP Schedule - Final Let Schedule Date - Non-let Schedule Dates		- Monitor and Manage Schedules					
		Budget	- Conceptual Const.Estimate	- Design Delivery Budget - Const. Estimate - Non-Let Estimate		- Refine Const. Estimate - Refine Non-Let Estimate					
	Phase Deliverables		- Design ID(s) loaded - Construction ID(s) loaded - Design ID(s) Authorized - Improvement Type - Structures Identified - Signed SMFA (design connect.hwy.)	- Purpose and Need - Resource Assignments - Improvement Strategy	- Signed Pavement Design Report - Risk Based Environmental Scoping Template - Utility Impacts - R/W Impacts - Structure Certification - Railroad Impacts - Signed SMFA & SMMA (const.)	- Final Delivery Resourcing	- Prelim. Plan - Structure Survey Report - Prelim. Structure Plan - Signed Env. Document - Signed DSR - Railroad Proj. Submittal Package -Recordable Plat - Risk Assessment	- DT1078 Plans - PS&E package - Permits - Risk Assessment	- Plan Revisions - Bid Advertisement - Addenda (if required)	- Bid Review	- Design ID Closed - Design Files Archived
				- Safety (and Operations) Certification - Risk Assessment							
Phase Activities			see FDM Chapter 3 - Attachment 1.2								
Change Management			Establishes original baseline for applying Change Management process.			Change Management process in effect.					

Facilities Development Process

Phase Names / Phase Elements	Project Initiation	Project Definition	Project Delivery	Project Proposal Execution
Life Cycle (Construction ID)	00	10	11 12 15	20 40
Milestone	Project Initiation Complete	Prelim. Scope Complete	Final Scope Certification Approved; Resourcing Complete/ Start Final Delivery; Design Study Report Approved	PS&E Submitted; Project LET; Project Award
Program Year	7-8	6	4 2	1 0
Performance Measures – Scope	Program Loaded on-Time (PLOT)	Program Scoped On-Time at Scoping (PSOT)		
Performance Measures – Schedule		Program Life Cycle Report (APLP); Delivery Risk Report (DRR)	Design On Time; Achieving PS&E Milestones Measures	Advertise with Holds
Performance Measures – Budget		Program On-Budget at Scoping (POBS)	Program On-Budget at Let (POBL); Design On-Budget Live (DOBL)	Engineering Estimate Accuracy; Engineering Delivery Cost Index (EDCI)
Performance Measures – Quality			Quantities; Design Quality Index (DQI)	

Facilities Development Process Phase Activities

Project Initiation Phase

This is a list of activities that may occur during this phase. This list is not all inclusive. Some activities are listed under multiple phases. Improvement type will determine when activities take place and the level of effort required. Refer to appropriate FDM chapters and other manuals for specific guidance on activities.

Project Initiation Phase Activity	Reference
Improvement Type	FDM 11-1 Att. 10.1 - Improvement Strategies, Improvement Concepts, and Design Criteria Applications PMM 05-10-05 - Project Description
Concept definition	FDM 11-4-1 - Concept Definition Report
Project needs/limits	PMM 3-5-5 - Program Development *
Cost per mile estimate	PMM 3-5-5 - Program Development *
State Municipal Agreements (Financial and Maintenance)	PMM 3-25-20 - State Municipal Agreements *
FIIPS projects (design and construction)	PMM Chapter 5 - Financial Integrated Improvement Programming System (FIIPS) *
FIIPS life cycle	PMM Chapter 5 - Financial Integrated Improvement Programming System (FIIPS) *
Design ID authorization	PMM Chapter 5 - Financial Integrated Improvement Programming System (FIIPS) *

**Only WisDOT employees have access to this.*

Project Definition Phase

This is a list of activities that may occur during this phase. This list is not all inclusive. Some activities are listed under multiple phases. Improvement strategy will determine when activities take place and the level of effort required. Refer to appropriate FDM chapters and other manuals for specific guidance on activities.

Project Definition Phase Activity	Reference
Let schedule date	FDM 3-10-10 - Scheduling and Programming FDM 19-1-3 - Project Letting Process (PLP)
Purpose and need	FDM Chapter 20 - Environmental Documents, Reports and Permits
Consultant resources Prepare consultant solicitation Review NOIs Make selection Negotiate Contract	FDM 8-5 - Securing Consultant Services Utility Coordination Guide Chapter 18 - Consultant Design Contracts
In-house staff assignments	Refer to region practices
Bridge design coordination with BOS	Design and Construction Contacts - Bureau of Structures (BOS) Bureau of Structures internal website * Bridge or Structure Certification Document (BOSCD) – Bridge Manual
Project management strategies for complex project	FDM Chapter 2 - Project Management
Alternatives development	FDM 3-25-1 - Environmental Scoping, Evaluation and Documentation Overview
Value Engineering (VE) level 1 - scope study as required	FDM 3-15-15 - Value Engineering PMM 3-1-5 - (Majors) Value Engineering Process *
Public Involvement Plan	FDM 6-5-10 - Public Involvement Plan
Stakeholders list	FDM 6-5-10 - Public Involvement Plan TPMS Guidance - Transportation Project Management System guidance *
Municipality and other agencies outreach	FDM 6-5-15 - Public Involvement Techniques
State Municipal Agreements (SMFA and SMMA) for construction cost share	PMM 3-25-20 - State Municipal Agreements *

Project Definition Phase Activity	Reference
Environmental impacts Archaeological/historical resources Section 106 screening Potential park lands (4f and 6f) Natural resources Threatened and endangered species Upland habitat Wetland delineations Water bodies, streams, floodplains Hazardous materials Property impacts Agricultural Residential Commercial Noise receptors Risk Based Environmental Scoping Template Environmental document	FDM 20-5 - Federal and State Environmental Laws and Regulations and Agreements FDM Chapter 20 - Environmental Documents, Reports and Permits FDM Chapter 21 – Hazardous Materials Investigation FDM Chapter 22 - Air Quality FDM Chapter 23 - Noise FDM Chapter 24 - Land and Water Resources Impacts FDM Chapter 25 - Socio-Economic Factors FDM Chapter 26 - Cultural Resource Preservation WisDOT Environment Tools and Forms website
Agency coordination DNR initial concurrence Native American letters	FDM Chapter 6 - Public Involvement
Local Officials Meeting (LOM) or other local officials outreach	FDM 6-5-15 - Public Involvement Techniques
Public Involvement Meeting (PIM) or other public outreach	FDM Chapter 6 - Public Involvement
Mapping and initial survey (including stream crossing survey)	Follow region procedures for requesting field survey. FDM 9-5-15 - Requests for Photogrammetric Products and Services
Drainage features: County drainage boards Ditches Storm sewer Curb and gutter Culvert sizing Underdrains	FDM 5-15-1 - Local Drainage Boards FDM Chapter 13 - Drainage FDM Chapter 10 - Erosion Control and Storm Water Quality

Project Definition Phase Activity	Reference
Initial data gathering and existing conditions: Asbuilts and field conditions Lane/shoulder widths Pavement slopes Side slopes/roadside conditions Pavement thickness Right of way Access controls Intersections Permits Driveway Crosswalk Lighting Freight accommodations	 FDM 11-45-20 - Roadside Hazard Analysis FDM Chapter 7 - Access Control FDM 11-5-5 - General Design Consideration - Access Control
Access	FDM Chapter 7 - Access Control FDM 11-5-5 - Access Control FDM 11-20-10 - Driveways FDM 11-25 - Intersections at Grade
Vertical and horizontal geometrics	FDM 11-10 - Design Controls
Intersections/Interchanges	FDM 11-25 - Intersections at Grade FDM 11-26 - Roundabouts FDM 11-30 - Interchanges
Alternative Selection Intersection Control Evaluation	FDM 11-25-3 - Intersection Control Evaluation
Earthwork and slope intercepts	FDM 11-5-10 - Earthwork FDM 11-15 - Cross-section Elements for Rural Highways and Freeways FDM 11-20 - Cross-section Elements for Urban Highways
Design Justifications (formerly Exceptions to Standards)	FDM 11-1-20 - Design Justifications (formerly Exceptions to Standards)
Alternative contracting methods	FDM 11-2 - Alternative Contracting
Community sensitive design	FDM 11-3-1 - Community Sensitive Design
Traffic counts/forecasts Traffic analysis and modeling	FDM 11-5-2 - Travel Demand Forecasts Transportation Planning Manual (TPM) TEOpS 16-25 - Traffic Model Peer Review Policy
Roadside design	FDM 11-45 - Other Elements Affecting Geometric Design
Bike/pedestrian accommodations Bike Plans	FDM 11-46 – Bicycle and Pedestrian Accommodations

Project Definition Phase Activity	Reference
Traffic management methods (TMP) Detour technical memo Use of alternative contracting tools	FDM 11-50 - Traffic Control FDM 11-2 - Alternative Contracting
Scoping Intersection Control Evaluation (ICE)	FDM 11-25-3 - Intersection Control Evaluation
Safety analysis	FDM 11-38 - Safety Certification Process
Operations analysis	FDM 11-52-15 – Operations Certification Process
Barrier system evaluation	FDM 11-45 - Other Elements Affecting Geometric Design Refer to region practices
Traffic control Traffic control constrains Traffic management methods Traffic management plan (TMP)	FDM 11-50 - Traffic Control FDM 11-50-5 - Transportation Management Plan Process
Utility activities DT1077 process Field survey comparison Preliminary impact utility coordination/review meeting	FDM Chapter 18 - Utility Coordination UC Guide - Utility Coordination Guide
Roadside facility coordination Rest area(s) Safety and weight enforcement facilities (SWEF)	FDM 11-55-40 – Roadside Facilities Coordination PMM 3-15-01 – State Highway Rehabilitation, Backbone Rehabilitation Program – Overview *
Railroad activities	FDM Chapter 17 - Railroad Coordination
Beam guard inspections	FDM 11-45-30.5 – Existing Barrier System Evaluation FDM 11-45-10 – Roadside Design Applications Improvement Strategy Refer to region practices
Title searches	FDM Chapter 12 - Right of Way Plat Development
Field review	Refer to region practices
Operational issues	Refer to region practices
Soils conditions	Refer to region practices
Pavement recommendations	FDM Chapter 14 - Pavements
Storm sewer and culvert surveys	Refer to region practices
FIIPS life cycle	PMM Chapter 5 - Financial Integrated Improvement Programming System (FIIPS) *
Control and Detail schedules	PMP Manual Chapter 6 * PMM 6-1-10 - Managing Non-Let (RE, RR, UTL) * UC Guide Chapter 2 - Scheduling of Utility Projects FDM Chapter 12 - Right of Way Plat Development
Risk assessment	Transportation Project Management System (TPMS) guidance *
Final Scope Certification	FDM 11-4-3 – Final Scope Certification

**Only WisDOT employees have access to this.*

Project Delivery Phase

This is a list of activities that may occur during this phase. This list is not all inclusive. Some activities are listed under multiple phases. Improvement type will determine when activities take place and the level of effort required. Refer to appropriate FDM chapters and other manuals for specific guidance on activities.

Project Delivery Phase Activity	Reference
Value Engineering (VE) Level 2 – alternative analysis	FDM 3-15-15 - Value Engineering PMM Chapter 3 (For Majors) *
Federal grant and development review process	FDM 5-1-5 - Federal Grants and Development Process
Drainage features County drainage boards Ditches Storm sewer Curb and gutter Culvert sizing Underdrains	FDM 5-15-1 - County Drainage Boards FDM Chapter 10 - Erosion Control and Storm Water Quality FDM Chapter 13 - Drainage
Public involvement Local Officials Meeting (LOM) or other local officials outreach Public Involvement Meeting (PIM) or other public outreach	FDM Chapter 6 - Public Involvement
Public hearing	FDM Chapter 6 - Public Involvement FDM Chapter 20 - Environmental Documents, Reports and Permits
Public Involvement Plan	FDM 6-5-10 - Public Involvement Plan
Access	FDM Chapter 7 – Access Control FDM 11-5-5 – Access Control FDM 11-20-10 – Driveways FDM 11-25 – Intersections at Grade
Design Justifications (Exceptions to Standards)	FDM 11-1-20 – Design Justifications (Exceptions to Standards)
Draft preliminary plan Per FDM including: Design notes identifying proposed work (culverts, beam guard, spot improvements) Horizontal/vertical alignment OSOW turning maneuvers (temp/permanent) Sensitive areas	FDM Chapter 15 - Plan Preparation FDM 15-1 Attachment 4.1 - Preliminary Plan Worksheet Refer to region practices
Design Study Report	FDM 11-4-10 - Design Study Report UC Guide - Chapter 7 - Design Study Report

Project Delivery Phase Activity	Reference
Earthwork and slope intercepts	FDM 11-5-10 - Earthwork FDM 11-15 - Cross-section Elements for Modernization Projects on Rural Highways and Freeways FDM 11-20 - Cross-section Elements for Modernization Projects on Urban Highways
Vertical and horizontal geometrics	FDM 11-10 - Design Controls
Intersections/Interchanges	FDM 11-25 - Intersections at Grade FDM 11-26 - Roundabouts FDM 11-30 – Interchanges TSDM – Traffic Signal Design Manual
Roadside design / Roadside Hazard Analysis	FDM 11-45 - Other Elements Affecting Geometric Design FDM 11-45-20 – Roadside Hazard Analysis
Bike/pedestrian accommodations	FDM 11-46 – Bicycle and Pedestrian Accommodations
Traffic management methods (TMP)	FDM 11-50 - Traffic Control
Use of alternative contracting tools	FDM 11-2 - Alternative Contracting
Preliminary plat	FDM Chapter 12 - Right-of-Way Plat Development
Environmental activities Agricultural Impact Statement Agencies coordination DNR Final concurrence 401 permit COE 404 permit Air quality Environmental documentation	FDM 20-45-35 - Agricultural Impact Statement FDM Chapter 20 - Environmental Documents, Reports and Permits FDM Chapter 22 - Air Quality
Structures activities Structure Survey Report Preliminary structure plan	Bridge Manual Bridge Manual Chapter 6 (see 6.2.1 Structure Survey Report) Bridge Manual Chapter 6 - Plan Preparation
Control and Detail schedules	PMP Manual Chapter 6 * PMM 6-1-10 - Managing Non-Let (RE, RR, UTL) * UC Guide Chapter 2 - Scheduling of Utility Projects FDM Chapter 12 - Right of Way Plat Development
Traffic analysis and modeling	TEOpS 16-25 - Traffic analysis and modeling
System alterations Jurisdiction Transfers State Trunk Highway System Change	FDM 4-5 - System Alterations
Erosion Control and Storm Water Quality	FDM Chapter 10 - Erosion Control and Storm Water Quality
Real Estate activities Plat recorded Relocation orders Acquisition	FDM Chapter 12 - Right of Way Plat Development Real Estate Program Manual

Project Delivery Phase Activity	Reference
Final plans (plans production) Electronic plan preparation Contractor Data Package	FDM 15-5-10 - Electronic Plans FDM Chapter 15 - Plan Preparation FDM 19-10-43.2 – Contractor Data Packet Submittal
Railroad activities	FDM Chapter 17 - Railroad Coordination
Utility activities Preliminary right of way plat review Potential utility conflicts Utility projects DT1078 process Utility work plan review Utility special provisions Work plan approval/Start Work Notice process Permitting process PS&E review	FDM Chapter 18 - Utility Coordination UC Guide - Chapter 9 - Identifying Utility Conflicts UC Guide - Chapter 10 - Sending Plans to Utilities
PS&E exceptions	FDM Chapter 19 - Plans, Specifications and Estimates
Proprietary Product Justification/Public Interest Findings	FDM 19-1-5 - Proprietary Products
Quantities	FDM 19-5-3.3 - Quantities
AASHTO-ware estimate	FDM 19-5-10 - Create Estimate and Proposal
Pre-PS&E and PS&E electronic submittals	FDM 19-10-1.2 - Submitting Roadway Plans with eSubmit
Bureau review of pre-PS&E submittal	FDM 19-10-5 - Final Review
Right of Way Certification (DT1899)	FDM 19-10-35 - Right of Way Certification (DT1899)
Utility Status Report (DT1080)	FDM 19-10-40 - Utility Status Report (DT1080) UC Guide - Chapter 15 - Utility Status Report
Certificate of RR Coordination (DT1804)	FDM 19-10-42 - Certificate of Railroad Coordination with Highway Construction (DT1804)
Special provisions	FDM 19-15 - Special Provisions UC Guide - Chapter 14 - Utility Article of Special Provisions
Noise report	FDM Chapter 23 - Noise
Lighting system design	TEOpS 11-02 - Lighting System Design Review
Traffic Operation permits	Refer to region practices
State Municipal Agreements (SMFA and SMMA) for construction costs	PMM 3-25-20 - State Municipal Agreements *
FIIPS life cycle	PMM Chapter 5 - Financial Integrated Improvement Programming System (FIIPS) *
Schedules and estimates	PMP Manual Chapter 6 - Schedule Module *
Risk assessment	Transportation Project Management System (TPMS) guidance *

**Only WisDOT employees have access to this.*

Project Proposal Execution Phase

This is a list of activities that may occur during this phase. This list is not all inclusive. Some activities are listed under multiple phases. Improvement type will determine when activities take place and the level of effort required. Refer to appropriate FDM chapters and other manuals for specific guidance on activities.

Project Proposal Execution Phase Activity	Reference
Utility activities Utility project costs/schedules Plans to utilities Pre-bid meeting	FDM Chapter 18 - Utility Coordination UC Guide - Utility Coordination Guide
PS&E exceptions	FDM 19-1 - PS&E Exception Approval Schedule (Table 1.1) FDM 19-10 - PS&E Transmittal and Composition
Contractor Data Package	FDM 19-10-43.2 – Contractor Data Packet Submittal
Advertise	FDM 19-1-1 - Plans, Specifications and Estimates
Bid letting	FDM 19-1-3 - Project Letting Process (PLP)
Respond to bid inquiries	FDM 19-22-5 - Post Advertisement Q and A Process
Addenda	FDM 19-22 - Post Advertisement Activities
Plan check	FDM 19-40 - Review
Contract award and execution	Standard Spec 103 - Contract Award and Execution
Close design contracts and projects	PMM Chapter 6 - (see PMM 6-10-55) General Information - Special Considerations-Closing Improvement Contracts and Projects *

**Only WisDOT employees have access to this.*

C = Concurrence A = Approval R = Review	Region Director	PDS Chief	PDS Supervisor	Consultant Supervisor	PDS Project Manager	Other	Comments	Reference
Final Scope Certification		C				A C	Planning/Programming Chief approve; all other chiefs Concur; concurrence can be delegated	FDM 11-4-3
Safety Certification Document						X	Planning Chief	FDM 11-38
Risk-Based Environmental Scoping Template					X	X	PM or Planning/Programming	Env Doc Forms and Tools
Native American Lands of Interest scope determination						X	Tribal Liaison	Working with Tribal Communities
F4R						X	Planning Chief or delegate	FDM 3-22
Public Involvement Plan					X	X	Regional Communication Manager	FDM 6-5-10
Project Agreement/MOU/MOA with local municipalities					X		After consultation with supervisor/chief	
State Municipal (Financial/ Maintenance) Agreement						X	SPO Chief	
Environmental Document type: Categorical Exclusions (PCE/CEC)					X	X	Region Environmental Coordinator	FDM 20-35-1
Environmental Document type: Environmental Report (ER)			X			X	Region Environmental Coordinator	FDM 20-35-1
Environmental Document type: All others (EIS, EA, FONSI)		X				X	Region Environmental Coordinator	FDM 20-35-1
Pavement Design Report (PDR)			X			X	PDS and TSS designees	FDM 14-15-25
Encroachment Report			X				(delegated from chief)	FDM 12-1-20
Design Study Report (DSR)		X						FDM 11-4-10

C = Concurrence A = Approval R = Review	Region Director	PDS Chief	PDS Supervisor	Consultant Supervisor	PDS Project Manager	Other	Comments	Reference
Propriety Product Justification (PPJ)		X						FDM 19-1-5
Traffic Management Plan (TMP)/ Incident Management Plan (IMP)		X			X	X	Region Traffic	FDM 11-50-5
WPDES Permit					X		Or delegated agent	FDM 10-1-2
ROW Cert w/o new Right of Way ROW Cert with new Right of Way			 X		X	 X	 TSS-RE representative	FDM 19-10-35
Cert of Railroad Coordination						X	TSS-Railroad Coordinator	FDM 19-10-42
Utilities Status Report						X	TSS-Utility representative	FDM 18-10-40
PS&E Exceptions (in pseTrak)		C			X	C X	PDS/TSS chief concur; PM/Functional Lead entry	FDM 19-1-1
Plan title sheet					X		As designated by region	FDM 15-1-10
Right of Way title sheet						X	RE/Plat Supervisor or TSS Chief	FDM 12-10
Local Force Account (LFA) LFA under $5000	X					 X	 Maintenance Supervisor	FDM 19-25
Consultant contracts under $3000				X				FDM 8-20-1
Consultant contracts over $3000				R				FDM 8-20-1
Consultant contract amendment /work order master under $50,000				X				FDM 8-20-1
Consultant contract amendment/ Work order master over $50,000				R				FDM 8-20-1

FDM 3-5-1 Asset Management

May 17, 2021

Asset management is a data driven decision making process that blends financial reality with technical analysis to produce prioritized infrastructure improvement and maintenance recommendations. It may not result in the least-cost outcome, but rather one which optimizes the balance between cost effectiveness and long-term system infrastructure health. Data-driven, iterative logic in asset management allows the balance between current treatments, long-term conditions, and minimal backlog of unmet needs to be recalibrated as variables such as funding change.

Asset management is not exclusive to any one group of infrastructure assets. The goal is to operate in a financially sustainable manner while providing a framework to improve long term system health; achieving preservation of assets while minimizing the whole life costs to do so.

The preservation focus is a practical design approach to system management of the assets that maintains acceptable serviceability using improvement strategies that optimizes to the best possible system-wide service at the lowest practicable cost. Improvement projects can include corrective, preventative or restorative maintenance work as defined in the Highway Maintenance Manual HMM 02-10-15. Typically, items that include grading (e.g. ditch and pipe cleaning, grubbing, etc.) and clearing would not be included with improvement projects. It is the responsibility of the Maintenance Workplan to prioritize and schedule work such that it meets the intent of asset management and harmonizes well with the improvement program. This will result in the best long-term conditions and lowest number of unmet needs that can be achieved with available funding. See Asset Management by a Practical Design System Preservation Approach FDM 11-1-5.

1.1 Improvements Strategies

1.1.1 Perpetuation

Perpetuation projects preserve the existing assets and utilize the existing facilities, staying within the existing subgrade shoulder points or curb and gutter. See FDM 11-1-10 for application of design criteria.

1.1.2 Rehabilitation

Rehabilitation projects are Perpetuation projects with corrective actions at specific locations as identified and justified through safety, operations, environmental or ancillary factor evaluations. See FDM 11-1-10 for application of design criteria.

1.1.3 Modernization

Modernization is construction on a new horizontal alignment or where a roadway through travel lane(s) did not previously exist or constructing a new bridge. See FDM 11-1-10 for application of design criteria.

FDM 3-5-5 Federally Funded Preventive Maintenance Projects

May 15, 2019

5.1 Introduction

Preventive Maintenance (PM) is the 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 and safety of the system without increasing structural or operational capacity. The work on a PM project must not degrade existing roadway geometrics or appurtenances.

The criteria used to develop the Streets and Highways agreement are based on guidance issued by FHWA on October 8, 2004, “Preventive Maintenance Eligibility”, https://www.fhwa.dot.gov/preservation/100804.cfm; the September 12, 2005, “Pavement Preservation Definitions”, https://www.fhwa.dot.gov/pavement/preservation/091205.cfm; and the follow-up on February 25, 2016, “Guidance on Highway Preservation and Maintenance”, https://www.fhwa.dot.gov/preservation/memos/160225.cfm; as well as current AASHTO guidance on Preventive Maintenance.

An agreement between WisDOT and the FHWA Wisconsin Division allows for the use of Federal-aid Highway Funding for Preventive Maintenance activities as authorized in 23 USC 116 (e), “Preventive Maintenance” on all eligible Federal-aid highways in the State of Wisconsin. WisDOT and FHWA have signed two documents that allow for the use of federal funds for preventive maintenance activities:

1. *"Agreement for the use of Federal Funds for Preventive Maintenance of Streets and Highways*", (Exhibit 5.1), which is limited to Preventive Maintenance (PM) activities on roadways (except PM projects are not currently eligible on the local roads system). Preventive Maintenance on Structures is not covered by this agreement.
2. "*Agreement for the use of Federal Funds for Preventive Maintenance of Structures*", (Exhibit 5.2), which is limited to Preventive Maintenance (PM) activities on Structures. Limits for bridge preventive maintenance projects will include the bridge plus nominal approach roadway lengths on each end to include the bridge approach guardrail. Advance load posting signs beyond these limits may be included.

PM projects preserve and maintain existing roadways and structures and are not intended to upgrade or improve highway facilities, except as provided in the agreements.

Federal PM funding is only allowable for roads (except roads on the local roads system) and structures that are eligible for federal funding on the interstate, NHS, and non-NHS systems.

To optimize the value of performing PM activities, combine the various types of preventive maintenance work needed to restore a given section of highway (or combined sections of highway, bridges, or both) into one PM project whenever practical.

5.2 Requirements

PM work must meet all applicable requirements listed in the agreements, unless both WisDOT and FHWA agree to waive one or more of the requirements on a project. Document the waiver and agreement in the DSR for that project.

Review the agreements in Exhibit 5.1 and Exhibit 5.2 to determine whether the proposed work is eligible for federal PM funding, and the activities that are required on the PM project. The use of federal funds for PM work is limited to the eligible work types listed in the agreements, unless:

- A non-listed work type meets the eligibility requirements for PM, and
- WisDOT and FHWA both agree that it is eligible on a project. Document the work type and agreement in the DSR for that project.

The activities required on a PM project vary depending on the work type(s) used on that project.

5.2.1 Federal Aid Requirements and WisDOT Procedures

PM projects are WisDOT improvement projects. Work must follow all normal and applicable Federal Aid and WisDOT requirements and procedures.

5.3 Preventive Maintenance on Streets and Highways - Eligible Work Types

See section III of the agreement in Exhibit 5.1 for types of PM work on streets and highways that are eligible for federal funds, Eligible work types on streets and highways fall into six (6) broad categories:

1. Group 1 Pavement Strategies
2. Group 2 Pavement Strategies
3. Group 3 Pavement Strategies
4. Drainage Restoration
5. Safety Appurtenances
6. Other

5.3.1 FHWA Pavement Preservation Strategies

FHWA defines a pavement preservation program as a network level, long-term treatments program that enhances pavement performance by using an integrated, cost-effective set of strategies to extend pavement life, improve safety, and meet motorist expectations. A comprehensive pavement preservation program includes preventive maintenance, minor rehabilitation (non-structural), and routine maintenance activities. An effective pavement preservation program will address pavements while they are still in good condition and before the onset of serious damage (see section below, "Determining Pavement Condition").

There are three (3) groups of PM pavement preservation strategies:

1. Group 1 strategies consist of higher type construction with a longer expected life than either Group 2 or Group 3 strategies.
2. Group 2 strategies are relatively less expensive than Group 1 strategies and help to maintain the pavement in good condition. Group 2 strategies have a shorter expected life than Group 1 strategies and a longer expected life than Group 3 strategies.
3. Group 3 strategies involve less construction effort and have a shorter expected life than either Group 1 or Group 2 strategies.

Confer with the region pavement design engineer on the appropriate strategy to use.

Note: Pothole filling is routine maintenance and not eligible for preventive maintenance.

Determining if pavement treatment qualifies as a capital improvement

Several of the Group 2 and Group 3 strategies are only eligible as federally funded preventive maintenance if they are capital improvements, i.e., there is an appreciable extension to the capital life of an asset. This means that the treatment must have a rehabilitation effect on the pavement and extend the service life of the pavement by four (4) years or more. Again, confer with the Program Development and Analysis Section of DTIM's Bureau of State Highway Programs (BSHP) and with the region pavement design engineer.

Provide documentation in the project DSR that the treatment qualifies as a capital improvement.

5.3.1.1 Group 1 Pavement Preservation Strategies

Group 1 Pavement Preservation Strategies are:

- Resurfacing
- Milling and resurfacing
- Portland cement concrete (PCC) dowel bar retrofitting with diamond grinding

Resurfacing is eligible for preventive maintenance (PM) subject to the following:

- A maximum of 2 inches of new asphalt pavement can be placed, including all leveling and wedge courses, unless correcting cross slope deficiencies, and
- If the existing lane width and finished shoulder width have not been reduced from those that were built under new construction / reconstruction and the sideslopes contiguous with the finished shoulder are 4:1 or flatter than the new surface can be a maximum of 2 inches above the existing profile at the shoulder point. Otherwise, the new surface cannot be raised above the existing profile at the shoulder point.

Additional pavement thickness is allowed in the middle of a pavement section to correct for cross slope deficiencies. For example, correcting a cross-slope from 1.5% to a 2.0% over a 12-foot lane will increase the overlay thickness in the middle to about 2.75 inches while thickness at the edge of pavement is 2 inches (see Attachment 5.1).

5.3.1.2 Group 2 Pavement Preservation Strategies

Group 2 Pavement Strategies are:

- Asphaltic patching – full depth
- PCC joint restoration
- PCC patching – full depth
- PCC cross-stitching
- Shoulder restoration/paving
- Paved shoulder addition
- Diamond grinding

Asphaltic patching-full depth and PCC patching–full depth are not eligible for federally funded PM if performed as routine maintenance of random or isolated spot locations. However, combining locations to establish a reasonable sized project is eligible.

Asphaltic patching-full depth, PCC joint restoration, and PCC patching–full depth are only eligible for federally funded preventive maintenance (PM) if they can be shown to be capital improvements (see guidance in FDM 3-1-5.3.1 for determining if work qualifies as a capital improvement).

5.3.1.3 Group 3 Pavement Preservation Strategies

Group 3 Pavement Strategies are:

- Milling
- Rut filling
- Seal coating
- Micro-surfacing
- Crack filling

Group 3 Pavement Preservation Strategies are not eligible for federally funded PM if performed as routine maintenance of random or isolated spot locations. However, combining locations to establish a reasonable sized project is eligible.

In addition, three of the Group 3 Pavement Preservation Strategies - Seal coating, Micro-surfacing, and Crack filling - are only eligible for federally funded preventive maintenance (PM) if they can be shown to be capital improvements (see section 5.3.1, “Determining if pavement treatment qualifies as a capital improvement”).

LIST OF ATTACHMENTS

Attachment 5.1	Allowable Overlay on Existing 2% Cross Slope

LIST OF EXHIBITS

Exhibit 5.1	Agreement for the Use of Federal Funds for Preventive Maintenance of Streets & Highways (Except Structures)
Exhibit 5.2	Agreement for the Use of Federal Funds for Preventive Maintenance of Structures

FDM 3-5-10 Force Account Agreements

May 15, 2019

10.1 Introduction

Although WisDOT policy is to let construction contracts through a competitive bidding process, under special circumstances the department may enter into an agreement directly with local governments, railroads, and utilities for the performance of construction work. Several types of "force account" agreements are used to this end and they are discussed in this procedure. (Note: the “force account” agreements discussed below are different than the Force Account work described in Section 2.46 of the Construction and Materials Manual.)

10.2 Wisconsin Statutes

The statutory basis for WisDOT's policy to let contracts through bidding lies within Section 84.06(2) which states in part:

> *"All such highway improvements shall be executed by contract based on bids unless the department finds that another method as provided in sub. (3) or (4) would be more feasible or advantageous."*

Subsection (3) allows the department to forgo the bidding process and enter into an agreement directly with local governments by stating in part:

> *"If the department finds that it would be more feasible and advantageous to have the improvement performed by the county in which the proposed improvement is located and without bids, the department may, by arrangement with the county highway committee of the county, enter into a agreement satisfactory to the department to have the work done by the county forces and equipment."*

The same allowance is made for cities, towns and villages:

> *"The provisions of this subsection relating to agreements between a county and the state shall also authorize and apply to such arrangements between a city, town or a village and the state."*

Utilities and railroads may also enter into a force account agreement with the state as allowed by Subsection (4)

which states in part:

> *"If an improvement undertaken by the department will cross or affect the property or facilities of a railroad or public utility company, the department may, upon finding that it is feasible and advantageous to the state, arrange to perform portions of the improvement work affecting such facilities or property or perform work of altering, rearranging or relocating such facilities by agreement with the railroad or public utility. Such agreement shall be between the railroad company or public utility and the state and need not be based on bids."*

10.3 Types of Force Account Agreements

The department has developed several agreement types for the administration of the force account agreements allowed by 84.06 (3) & (4). The type of agreement to be used for a particular project is primarily dependent on the organization performing the work. Other criteria of interest are the funding program and the jurisdictional system on which the work will be done. These considerations are outlined in the following table.

Table 10.1 Agreements

Type of Agreement	System	Funding Source	Funding Program
STATE FORCE ACCOUNT	STH	Fed/State	Any
LOCAL FORCE ACCOUNT (on the STH system)	STH	Fed/State/Local	Any
LOCAL FORCE ACCOUNT (on the local system)	LOCAL	Fed/State/Local	STP/HES/BR/CMAQ/TE
Utility Agreement	Any	Any	Any
Railroad Agreement	Any	Any	Any

10.3.1 State Force Account and Local Force Account (State System) Agreements

A State Force Account (SFA) agreement is used when the department performs work on the State Trunk Highway System with its own forces and equipment and the work is funded under an improvement project. Local Force Account (State System) agreements are used when a local unit of government does work for the department on the State Trunk Highway System.

The type of work associated with SFA projects is generally traffic, safety or other minor roadway related items such as traffic signals, signing, pavement marking, lighting and guardrail. The work is funded with federal or state funds. It is typically low cost and can be done by state, county or local forces with minimal plan detail and with only short lead-time

10.3.2 Local Force Account Agreements (Local System)

Local Force Account (LFA) agreements are used when a local unit of government does work on their own local highway system. Local units cannot use Federal-aid funds to have another local unit perform construction work on their own system. Under these agreements the locals are reimbursed for the actual costs incurred in performing the work up to an agreement maximum (as amended by any change orders); however, the labor, material, and machinery rates are projected in advance and must be determined to be cost effective. These agreements are to be based on the actual cost required to perform the work so that they cannot result in profit or loss for the unit of government performing the work. Any state, local or federal funding program for which the project is eligible may be used with this agreement type.

The type of work associated with LFA (Local System) will typically be limited to locally maintained traffic signal, lighting, signing, pavement markings, guardrail and utility work related to WisDOT improvement projects that can’t be accommodated through the project letting or utility adjustment processes. Very narrow LFA exceptions may be made at WisDOT discretion; decisions will be made by on a case by case basis.

10.3.3 Utility & Railroad Agreements

Utility (UTL) and railroad (RR) agreements are used when railroad companies or public utilities perform portions of road improvement work that affect their facilities, or work to alter or relocate their facilities. Any available funding source may be used for these agreements and the work may be done on any jurisdictional system.

These types of agreements have been deemed to be in the public interest by definition and need not be justified on an individual project basis.

10.4 Policy Regarding Agreements

If a municipality (county or other unit of local government) wishes to construct a highway project with its own work force and equipment, it must comply with the Wisconsin Department of Transportation's "A Policy on Construction of State and Federal-Aid Highway Projects by Forces and Equipment of Counties or Other Local Governmental Units." The policy has been written to define WisDOT's position, regarding non-competitive bid agreements (force account agreements) with municipalities. The policy establishes general procedures and criteria for entering into force account agreements.

This policy is shown in Attachment 10.1.

This policy also defines the items necessary to show a force account agreement with a local unit of government is cost effective. FDM 3-5-10.9 describes how a Cost Effectiveness Finding is developed as well as other cost documentation for a force account agreement.

10.4.1 Contracted Work (Federal Funded)

Municipalities that wish to perform work with their own forces on their own system using federal funds must be “adequately staffed and suitably equipped” to undertake and satisfactorily complete the work. “Adequately staffed” means that all work must be completed by the municipality itself (unless let via a competitive contract). If the municipality requires assistance from a contractor, then by definition, they do not have adequate forces to complete the work.

10.5 Project Oversight Requirements for Components of Project Listed in State/ Municipal Agreement (Local System)

As noted above, portions of a project may be federally funded and other portions may be entirely locally funded. Development oversight as defined in this Facilities Development Manual by the MC or other consultant is required for all federally funded components of work performed.

10.6 Development Oversight (Local System)

Environmental: The entire project must meet NEPA requirements Purchase of Real Estate: Real estate purchased for the project must follow the process per the Uniform Act.

Design Standards: LFA project development must follow the regulatory standards (for town road, as outlined in TRANS 204, for county roads, as outlined in TRANS 205), and appropriate guidance as outlined in FDM 11-40 for Perpetuation and Rehabilitation projects as applicable.

10.6.1 Project Development

Regions are responsible for developing SFA or LFA projects on the state system. Local Units of Government are responsible for developing LFA projects on their local system. A PS& E will not be prepared for submittal to the central office for any SFA project or for state funded LFA projects. A PS&E is required for all federally funded LFA projects. The process to follow is summarized in Table 10.2. The details of the LFA and the PS&E procedure, when required to be submitted to Central Office, are contained in FDM 19-25-5.

Table 10.2 SFA/LFA Development Process

	Action Required		
Project Type & Size	**PS&E to C.O.**	**Agreement & DT25 to C.O.**	**Agreement Execution by Region**
SFA	No	No	Yes
LFA≤ $5,000	No	No	Yes
LFA>$ 5,000 (Local)	Yes	Yes [1]	No
LFA>$5,000 (State)	Yes	Yes	No

[1] DT25 not required for CMAQ or TE projects.

SFA and LFA projects that have certain levels of involvement (include signals, lighting, electrical work, etc.) should be coordinated with the appropriate region staff and central office bureau (refer to Table 10.3).

***Table 10.3* Region Staff and Central Office Bureau Coordination Contacts**

Project Involvement	Manual Reference	Region Contact	Central Office Contact
Design Standards	FDM - Chapter 11	Project Development Section or LPPM	DTSD/BPD - Design Standards and Oversight Section or Local Project Delivery Section
Environmental Documentation	FDM - Chapters 20 - 26	Region Environmental Coordinator, LPPM	DTSD/BTO - Environmental Process and Documentation Section
Real Estate Acquisition	Real Estate Program Manual	TS Section, Real Estate Services Unit, LPPM	DTSD/BTO - Acquisition and Services Section
Structures	Bridge Manual	NA, LPPM	DTSD/BOS
Lighting, Signals, Electrical Work	Traffic Engineering, Operations and Safety Manual (TEOpS) - Chapters 4 and 11	Traffic Systems and Management, Traffic Systems Unit, LPPM	DTSD/BTO
Signing	TEOpS - Chapters 2	Traffic Engineering and Safety, Traffic Design Unit, LPPM	DTSD/BTO
Railroads	FDM - Chapter 17	Region Railroad Coordinator, LPPM	DTIM/BTLRRH - Rails and Harbors Section
Utility Coordination	FDM - Chapter 18	Region Utility Coordinator, LPPM	DTSD/BTO - Acquisition Section, Utility and Access Unit

DTSD = Division of Transportation System Development

BPD = Bureau of Project Development

BOS = Bureau of Structures

BTO = Bureau of Traffic Operations

DTIM = Division of Transportation Investment Management

BTLRRH = Bureau of Transit, Local Roads, Rails, and Harbors

LPPM = Local Program Project Manager

10.7 Documentation for LFA Local and State Agreements ≤ $5,000 and > $5,000

If a project does not require a PS&E to be submitted to central office then the region shall keep a project folder with the following items and complete the actions listed below.

1. Project concept and estimate. The subject project may be part of a larger improvement project or it may be a stand-alone project. If it is a stand-alone project, the region will submit either a separate Concept Definition Report and Design Study Report or they may submit a combination Concept Definition Report / Design Study Report. Send an informational copy to the Design Standards and Oversight Section in the Bureau of Project Development (BPD). The DSR format (FDM 11-4 Attachment 10.1) needs to be reviewed and those items that apply to the project need to be addressed. Include a statement identifying the environmental action, which would normally be a Categorical Exclusion or programmatic Environmental Report.

2. A cost effectiveness finding is required to justify doing the work with state, county or local forces. If over $50,000, prepare a cost effectiveness finding and submit it in accordance with FDM 3-5-10.9. The analysis needs to be only as detailed as necessary to show that it will cost less to do the work with state, county or local forces than with private forces. If the project is $50,000 or less, the finding is

programmatic and no cost comparison is prepared. Just document in the project folder that the project meets the programmatic criteria for cost effectiveness. For LFAs less than $50,000 include the Justification for Negotiated Agreements $50,000 or less form, Attachment 10.4. Indicate the results of the cost effectiveness finding on form DT25, "Recommendation to Governor for Contract and Bond Approval."

3. If proprietary materials are proposed to be used, document in the project folder that they are on the product selection list in FDM 19-1-5. Otherwise, justification is required to be approved by BTO or BPD (and FHWA for oversight projects).
4. If federal funds are proposed to be used, an FHWA-37 authorizing the use of federal aid funds is required to be submitted and signed by FHWA prior to charging any costs.
5. Sufficient plan details or sketches need to be prepared to show the location of the work, what work will be done, what materials will be used and any notes that will be issued to direct the construction staff.
6. Nondiscrimination, Buy America, and Records Retention provisions are required per FDM 19-25 Attachment 10.3.
7. Actual project construction costs (i.e. labor, materials, equipment, etc.) need to be documented.
8. If the LFA project is within policy guidelines (see FDM 3-20 Attachment 1.1) the Region Project Development Chief shall formally approve the proposed work prior to initiating any construction activities. If a project element does not meet policy guidelines, the Chief of BPD's Design Standards and Oversight Section should be contracted to discuss the possible exception.
9. If the LFA - Local project agreements ≤ $5000, include a copy of the executed LFA agreement in the project file. Send a copy of the signed LFA agreement directly to the Bureau of Financial Services to obligate funding. For LFA - Local agreements >$5000, submit completed Forms DT25 and DT2056 to central office. Typically plan details as specified in #5 above are attached to DT2056. Central office will coordinate agreement execution and notify the region.
10. If the LFA - State project agreements ≤ $5000, include a copy of the executed LFA agreement in the project file. Send a copy of the signed LFA agreement directly to the Bureau of Financial Services to obligate funding and to the Bureau of Traffic Operations (BTO at StateLFASubmittal@dot.wi.gov). For LFA - State agreements >$5000, submit completed Forms DT25 and DT2056 to BTO at the email listed above. BTO will coordinate agreement execution and notify the region. Refer to PMM 06-10-05 for State LFA process details.

10.8 Developing a Local Force Account Agreement

The municipality, through interaction with the region, may proceed to develop an agreement after being informed by the region that the cost effectiveness finding and any exceptions to policy criteria have been approved. Agreement forms and guidance are located in FDM 19-25-5. See FDM 3-5-10.9 for information for developing a Cost Effectiveness finding.

10.9 Cost Effectiveness Findings

Guidelines for the preparation and approval of a cost effectiveness finding are discussed in Attachment 10.1 "A Policy on construction of state and Federal Aid Highway Projects by Forces and Equipment of Counties or Other Local Government Units." Questions about the policy should be directed to the staff of the Design Standards and Oversight Section in the Bureau of Project Development (BPD) for LFA's on local system, federally funded improvement projects, or the staff in the Traffic Systems Unit in the Bureau of Traffic Operations (BTO) for state funded maintenance projects.

10.9.1 Policy Requirements

Before a municipality will be allowed to enter into a force account agreement with WisDOT, it must show that the interests of the public will be best served by using municipality forces and equipment rather than those of a private contractor. This is done by making a Cost Effectiveness Finding (CEF), which documents the efficient use of labor, equipment, and materials and supplies to assure the lowest overall cost benefits the public's general interests.

The "Cost Effectiveness Finding" section of WisDOT policy lists two requirements.

1. The costs will be less than those costs that would be obtained through competitive bidding. This means that the municipality must show that they can do the work at less cost than under a let agreement, and

2. The municipality is properly staffed and equipped to perform the work. This means that they will not have to specially train their employees or buy equipment to do the force account agreement work. This provision does not preclude municipality from the limited use of specialized rental equipment (subject to the limitations discussed in the policy).

Additional guidance on the appropriateness of work for a force account agreement is included in Attachment 10.2 entitled "Summary Guidelines for Force Account Agreements."

A cost effectiveness finding will not be needed in certain cases where there is a finding of cost effectiveness on a program basis. The FHWA and WisDOT have determined that it is cost effective and in the public interest to use the force account agreement method on any highway system for these types of work:

1. Projects to adjust utilities and railroad facilities owned or operated by a public agency, railroad company, or a utility company, provided they are qualified to perform the work in a satisfactory manner. See Part 635.205 of the Federal-Aid Policy Guide (FAPG).
2. Emergency repairs to restore services or to protect facilities, with the concurrence of the FHWA on federally funded agreements. See 23 CEF 635.204.

A programmatic cost effectiveness study has been approved for low-cost state or federally funded projects estimated at $50,000 or less. Attachment 10.4, "Justification for Force Account Agreements for $50,000 or Less," is required for all projects, including small HSIP projects to show they fall under the programmatic cost effectiveness study. A copy of the justification must be placed in the project files It should be noted that the state Cost Effectiveness Finding serves the same purpose as the federal Cost Effectiveness Finding.

10.10 Compliance Procedure

The municipality or WisDOT region, as appropriate, should follow these general steps when developing a force account agreement with WisDOT that is expected to cost more than $50,000.

1. Prepare a cost effectiveness finding and submit it to the appropriate region office of WisDOT.
2. Have the finding accepted by the Region Local Program Project Manager.
   - For LFA (Local System) projects, the region-accepted CEF shall be approved by the Chief of the Project Development Section in the region. For proposed projects, outside of current policy parameters (see Attachment 10.1) contact the Chief of the Design Standards and Oversight Section in the Bureau of Project Development.
   - For LFA (State System) projects, the region-accepted CEF shall be submitted for approval to the Bureau of Traffic Operations (StateLFASubmittal@dot.wi.gov).
3. Develop a force account agreement.
4. Submit a final agreement and final construction plans, specifications, and estimates (P.S. & E.) for approval. This includes forms DT25 and DT2056. These steps are described in detail below.

10.11 Prepare and Submit a Cost Effectiveness Finding

Very early in the development of a highway project, the sponsoring municipality should decide if it has the capability and wishes to construct the project with its own work force and equipment. For federally funded LFAs if the municipality feels the answer is yes, it should follow the Prequalification process discussed in Attachment 10.1. Once approved for a particular work category (or categories) the municipality should prepare (and submit to the appropriate Region Local Program Manager) a written cost effectiveness finding. For state funded LFAs the regions should prepare a written Cost Effectiveness Finding (CEF). CEFs must contain the following information.

1. Project location
2. Nature of the project
3. Proposed funding
4. Cost analysis
5. Total cost estimate
6. Private Contract Cost Comparison
7. Justification

Project Location: Describe where the project is located, its termini, and its length. Include a location map.

Nature of the Project: State what type of construction is proposed. Describe project concept in its entirety. Include work to be completed by LFA and work not included in the LFA. This includes locally funded completed with local forces, locally let and state let.

For federally funded LFAs, note that the policy states the types of work that are allowed and requires that a municipality be prequalified for the type of construction anticipated.

Proposed Funding: State the type of anticipated funding and the amount or percentage of construction costs that the municipality expects to pay. If there is some special interest or arrangement that may affect the amount the municipality will pay, it should be stated. This should be consistent with the State/Municipal Agreement (SMA). If funding options have changed since the SMA was signed, the SMA may need to be updated/revised.

Cost Analysis: All CEFs must include a cost analysis which is to be prepared in the manner set forth in the ten-set method shown below. This involves estimating the unit cost of individual work items and multiplying these unit costs by the estimated quantity of each item to obtain item costs. The policy does not require a detailed cost analysis of force account agreement prices at this stage. Rather, the cost analysis needs to be only as detailed as it is necessary to show that it will cost less to do the work with municipality forces than with private forces. The use of rough but reasonable estimates of work quantities is acceptable. (It should be noted the preparer should complete the cost analysis as completely and accurately as possible to avoid having to update a previously approved CEF as detailed in Section 3.3).

This cost analysis will be updated later when the final cost analysis is completed as discussed in FDM 19-25-5. Current rates for wages and machinery rental may be used without updating to the construction year. Municipality experience under recent and comparable projects may be used to set production rates for personnel and equipment. An acceptable alternative method of making a cost analysis is to select realistic unit prices that resulted from a recent and comparable project done by the municipality's work force and equipment.

Because of the shorter time frame that generally exists for LFA projects on the STH system between the preparation of the cost effectiveness finding and the preparation of the agreement, it may be advisable to prepare the Final Cost Estimate required for the agreement at this stage.

To make a detailed cost analysis:

1. Isolate a work item and estimate its quantity.
2. Determine equipment that is needed to do that work.
3. Determine the number of personnel and their job classifications needed to do the work.
4. Determine the production rate of personnel and equipment.
5. Calculate hours of production by dividing the quantity by the production rate.
6. Calculate equipment cost by multiplying the hours of production by the current machinery rental rate.
7. Calculate personnel cost by multiplying the hours of production by the current labor rate for that classification.
8. Determine cost of materials.
9. Add the cost of equipment, personnel, and materials to get the total work item cost.
10. Divide the total work item cost by the quantity to get the cost per unit of work (unit price). This process is then repeated for each work item.

The cost analysis is an important part of agreement development, since it forms the factual basis for determining total cost of the project. An example is found in FDM 19-25-5. The example in FDM 19-25-5 is also applicable to LFA (STH) using Perpetuation and Rehabilitation Funding unless a process based on historical data as shown in Attachment 10.6 of this procedure is used instead.

Borrow pits, gravel pits, and quarries on federally funded LFA projects are to be located and details of loading and hauling determined at the time the cost analysis is prepared. The region should review changes in pit location as they may affect the analysis and subsequently require a change order to a LFA agreement.

Reimbursement for street lighting and traffic signal work performed by municipalities is also based on actual cost. The materials cost can be an actual purchase cost from a supplier or, if the municipality fabricates the signal or lighting equipment based on average unit cost from a supplier or, if the municipality fabricates the signal or lighting equipment, based on average unit costs supported by historical data. This average unit cost shall include the cost of labor, equipment, and materials to fabricate the signal or lighting equipment (which would be the material cost under an LFA project). Components of unit costs must be allowable under Office of Management and Budget Chapter II, Part 200 - Uniform Administrative Requirements, Cost Principles, and

Audit Requirements for Federal Awards (2 CFR 200. Average unit cost proposals submitted by a municipality are subject to audit and approval by the Bureau of Financial Services prior to execution of agreements.

Total Cost Estimate: This is the sum of item costs estimated above. The method of selecting unit prices from municipality experience will require multiplying each work item quantity by its unit price. The estimate should state the quantity, cost of each work item, and total agreement cost. An example is shown in FDM 19-25 Attachment 5.3. While unit costs may be used to estimate item costs and total agreement cost, it should be remembered that final reimbursement for work performed will be based on actual costs, limited to the total agreement cost (as amended by change orders as discussed in CMM 2-42.2, no change in scope for Local Force Account State).

Note that the policy sets criteria for the allowable dollar size of projects. Exceeding these limitations on federally funded projects must be justified and approved by the Bureau of Project Development Director. The Chief of Design Standards and Oversight Section will facilitate the review of exceptions.

Specialized Equipment Rental: Summarize the specialized equipment to be used to complete the project. Include total cost for each piece of specialized equipment and an overall percentage of the agreement amount. Remember; specialized equipment may be rented up to a maximum of $25,000 or 25% of the agreement amount, whichever is less.

Private Agreement Cost Comparison: After determining the total cost if the municipality constructs the project, municipal officials must compare that total with the estimated cost if the project was done by a private agreement or under a competitive bidding process. Unit prices may be established by review of recent and comparable WisDOT let contracts and/or locally let contracts awarded to private firms. WisDOT let contract information is available in the region offices or can be accessed at the DOT website:

https://wisconsindot.gov/Pages/doing-bus/contractors/hcci/bid-let.aspx

Local cost information is acceptable but will require a reason for using the local cost information and a submittal of source information for verification. The source of the comparable information must be documented in a narrative detailing the source of comparables, methods used in estimating the unit prices and any differences in comparables/items. Lack of available contractors in the area or a lack of interest on their part should be considered in setting unit prices and documented. From these unit prices, the municipality should develop a private contract cost estimate. Comparison of the two totals must show a cost savings under a force account agreement.

Any difference in the project items or quantities between the cost analysis and the private contract cost comparison must be supported by a detailed explanation.

Design engineering and construction administration costs should not be considered when determining cost effectiveness.

Justification: This part of the cost effectiveness finding will consist of positive statements addressing each of the two requirements of the "Cost Effectiveness Finding" section of the policy. Emphasis should be placed on the cost effectiveness of the municipality's proposal.

Attachment 10.3 shows a standard format that addresses each of the above points for LFA (Federal Funded) on Agreements greater than $50,000.

Attachment 10.5 shows a format that the region can use to forward the local request to the central office for final approval of the cost effectiveness finding.

If the LFA agreement on the STH system will exceed cost limits contained in FDM 3-5-10.7, add a paragraph to the letter to the BTO Traffic Systems Unit to acknowledge that the limit(s) are exceeded, note the amount by which exceeded, state the necessity for it and request an exception to the individual project limit. LFAs on the local system that exceed the cost limits should be forwarded to the Design Standards and Oversight Section in the Bureau of Project Development with similar documentation.

10.11.1 Approving a Cost Effectiveness Finding

LFA (State System): The Division Administrator has authorized the Supervisor of the Traffic Systems Unit in BTO to approve or disapprove all CEFs for LFAs on the STH system except as noted below.

LFA (Local System): Municipalities will submit the CEF to the region Local Program Project Manager (LPPM) for LFAs managed through the MC. The MC will review the CEF, ensuring that the CEF contains all required documentation, and cost estimates are realistic. If the review is satisfactory, the MC will recommend approval of the CEF to the WisDOT region Local Program Project Manager. If the proposed project is within policy limits and the Region Local Program Project Manager concurs with it, the CEF will approved by the Chief of Project Development Section in the region.

The Division Administrator has authorized the Chief of the Program Development Section in the region to approve or disapprove all CEFs for LFAs on the local system except as noted below.

The Administrator will approve or disapprove those cost effectiveness findings proposing to exceed policy limits for project type, cost, or region quota. Action by the Administrator will be considered an approval or disapproval of both the cost effectiveness finding and the exception.

As stated previously in this procedure, certain types of projects do not require a separate cost effectiveness finding as they are covered by a prior determination made by the FHWA. However, the Director of either the Bureau of Project Development or Bureau of Traffic Operations is to be advised by the region of the project location, type of work, estimated quantities, total cost, and anticipated savings over a let agreement. This is to be done before preparation of a force account agreement is begun.

10.11.2 Updating an Approved Cost Effectiveness Finding (Federal Funded)

In most cases once the CEF is approved it will not need to be revised. However, if the Final Cost Estimate total costs are more than 10% greater than the cost as shown in the approved CEF, or there is a change in scope from the approved CEF, or if the year of construction is more than two years past the date of the approved CEF, the previously approved CEF will need to be revised and re-submitted for approval. The update should be similar in format to the initial CEF and include both the revised total cost estimate and an updated private cost comparison. The updated CEF is to be submitted to the Region MC for review. The Region MC will review the justification and, if satisfactory, will recommend approval to the Region Local Program Project Manager for approval. The Region Local Program Project Manager will have approval authority for any updates to the CEF.

10.11.3 Submitting the Agreement and PS&E

Refer to FDM 19-25-5 for the composition and processing of LFA agreements and P.S. & E. submittals. Necessary agency approvals are discussed in FDM Chapter 19.

10.12 Region Limitations on Force Account Agreements

Refer to Attachment 10.1, "A Policy on Construction of State and Federal-Aid Highway Projects by Forces and Equipment of Counties or Other Local Governmental Unit" for limitations on Force Account Agreements

10.13 Cost Effectiveness Findings for Contract Modification for Local Force Account Local (Federal Funded)

During construction, if new items are added to the agreement, documentation should follow the same process as a contract modification on a let project. The documentation should follow the CEF process, including detailing the Municipality's estimated costs as compared to a private contract cost for the new items.

10.14 Cost Effectiveness Findings at Completion of Construction for Local Force Account Local (Federal Funded)

Upon review of the final actual cost at the completion of construction, the project engineer should evaluate the municipality's final actual cost and compare it to the final cost estimate submitted at PS&E. For any cost increases from the original or modified agreement amount, the Municipality should provide justification. The cost over the agreement amount should be reviewed to determine if they are eligible for reimbursement.

10.15 Periodic Evaluation of Cost Effectiveness Findings (Federal Funded)

The information from the review of individual projects at the completion of construction should be summarized as part of a periodic evaluation of CEFs. The purpose of the periodic evaluation is to ensure the process is working as intended and that LFA projects completed are cost-effective.

10.16 Filing Cost Effectiveness Findings

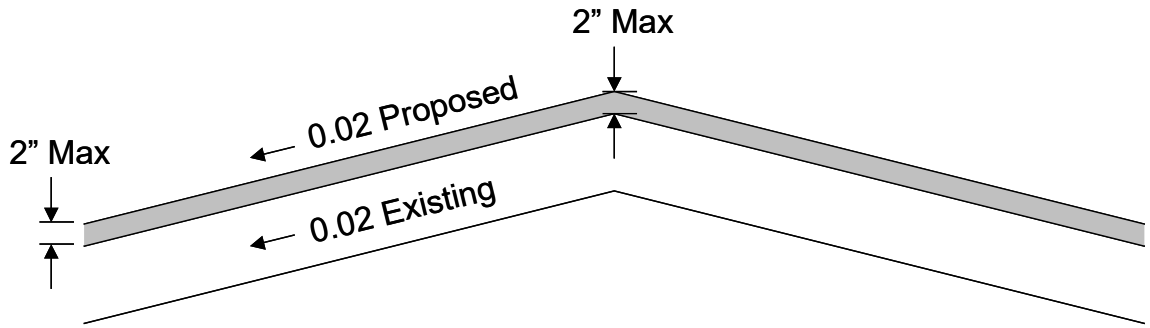
Each CEF should be filed in the region files (for LFAs on the local system) or with BHM (for LFAs on the STH system).

LIST OF ATTACHMENTS

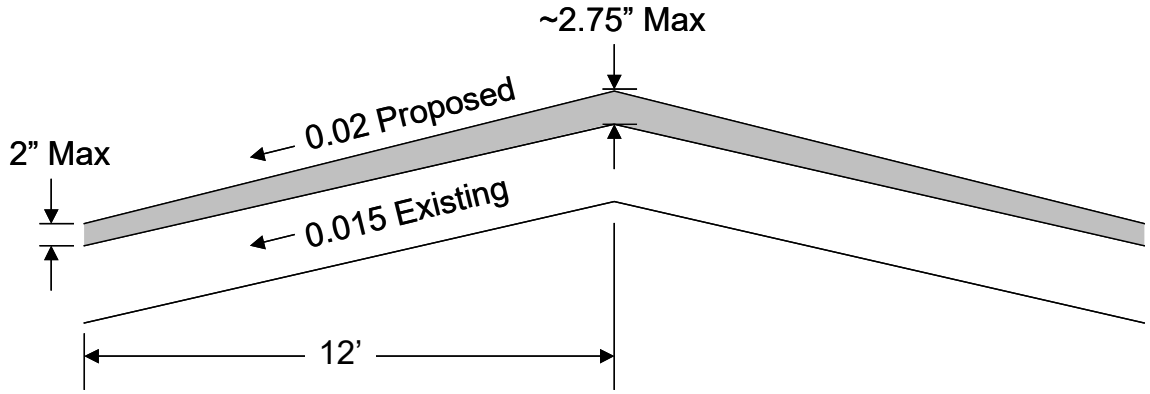
Attachment 10.1	A Policy on Construction of State and Federal-Aid Highway Projects by Forces and Equipment of Counties or Other Local Governmental Units
Attachment 10.2	Summary Guidelines for Force Account Agreements
Attachment 10.3	Justification for Force Account Agreements more than $50,000 (LFA Federal Funded)

Attachment 10.4	Justification for Force Account Agreements $50,000 or Less (LFA Federal Funded)
Attachment 10.5	Correspondence/Memorandum (Local System)
Attachment 10.6	Correspondence/Memorandum (State System)

Allowable Overlay on Existing 2% Cross Slope



Allowable Overlay on Existing 1.5% Cross Slope



A Policy on Construction of State and Federal-Aid Highway Projects by Forces and Equipment of Counties or Other Local Governmental Units

(July 1, 2015)

The following policy applies to the construction of all highway improvement projects that will be financed with state or federal funds, constructed by the forces and equipment of a county or other local governmental unit (hereinafter referred to as the "Municipality") and administered by the Wisconsin Department of Transportation, (hereinafter referred to as the "Department").

This policy applies to all Local Force Account (LFA) agreements, which are referred to as "Force Account Agreements". The work under this policy shall be constructed to the same specifications as if the project was let to contract.

This policy is intended to allow more effective use of the existing forces and equipment of a Municipality. It is intended to discourage the expansion of the Municipality forces and equipment beyond the level needed for normal maintenance and traffic services. It is also intended to promote the concept of a competitive private highway construction industry.

Allowable Types of Work

The types of work which may be approved for construction by Municipality forces and equipment will be those types of work for which the Municipality has the appropriate equipment and properly trained personnel and which it has been the Municipality's normal practice to perform.

LFA's will typically be limited to locally maintained traffic signal, lighting and utility work related to WisDOT improvement projects that can't be accommodated through the project letting or utility adjustment processes. In addition, LFA's may also be utilized on a limited amount of minor safety improvements within the Highway Safety Improvement Program. Very narrow LFA exceptions may be made at WisDOT discretion; decisions will be made by on a case by case basis.

An LFA may be used for corrective maintenance work (non-pavement or bridge). LFA agreements for corrective maintenance activities cannot be anticipated with any certainty in advance. It is in response to unplanned or unforeseen events or conditions of accelerated deterioration. Corrective maintenance actions are only performed on an as-needed basis. County forces may perform corrective maintenance operations under an LFA agreement if the repair costs are not prohibitively high and the nature of the necessary repair work allows.

Almost always, this corrective maintenance requires timely attention and are performed to quickly restore the roadways, roadsides, structures or facilities to an acceptable level of service due to unforeseen conditions necessitated by accidents, storms and other weather-related conditions, premature failures, malfunctions, or other unusual or unexpected damage. For example, situations requiring corrective maintenance activities include road washouts, culvert and inlet repairs. Corrective maintenance LFAs (non-pavement or bridge) may also be implemented to correct a defect or damage in advance of an improvement project. The defect or damage may be beyond the scope of the improvement project and therefore it may be beneficial to take corrective action prior to the construction project.

Urban type construction will only be permitted when the quantity of any such work is a minor part of the total project or is incidental to major items of the project or is of a size and scope that would not be attractive to private industry.

<u>LFA Program Contacts:</u>

1. State projects that impact locally maintained signal and lighting systems:

   Mark Lloyd, Bureau of Traffic Operations, (414) 224-1947 mark.lloyd@dot.wi.gov

2. Corrective maintenance:

   Jim Hughes, Bureau of Highway Maintenance, (608) 246-3876 james.hughes@dot.wi.gov

3. Freight mitigation:

   Dan Mulder, Bureau of Highway Maintenance, (608) 266-3471 daniel.mulder@dot.wi.gov

4. Highway Safety Improvement Program (HSIP):

   Darren Schoer, DTIM, Bureau of State Highway Programs, Program Development Unit, (608) 266-1167 darren.schoer@dot.wi.gov

5. Local road projects:

   Wayne Chase, Bureau of Project Development, (608) 267-7774, wayne.chase@dot.wi.gov

LFA requirements and tracking under the Local Roads Improvement Program (LRIP) will continue to be managed by the Chief of the DTIM Local Programs and Finance Section, LRIPWebSystem@dot.wi.gov.

Contracted Work (LFA Federal Funded)

Municipalities that wish to perform work with their own forces on their own system using federal funds must be "adequately staffed and suitably equipped" to undertake and satisfactorily complete the work. "Adequately staffed" means that all work must be completed by the municipality itself (unless let via a competitive contract).

Prequalification (LFA Federal Funded)

In order to be eligible for state or federal funding to perform design or construction work using municipality forces and equipment, a municipality must be "adequately staffed and suitably equipped" to do the work. "Adequately staffed and suitably equipped" applies only to work being done under the LFA portion of the project. While this does not mean all work under the LFA must be done with municipal employees and equipment, it is expected that the municipality is capable of doing the primary work with only some limited work accomplished by renting specialized equipment.

"Prequalification System", similar in concept to the one used for private contractors, will be used to judge whether a municipality is "adequately staffed and suitably equipped". A number of work type categories have been established and individual municipalities will be judged whether they are eligible to do work within one or more of these categories. The categories and their definitions are:

Engineering – Design

The development of project plans and specifications including following the appropriate statutory requirements, policy, procedural requirements, and guidance for the improvement of county or municipal street/highway systems for which federal-aid highway funds may be used.

Construction Inspection

Only local units that are prequalified may provide inspection staff for an LFA. The inspection staff would be under the responsible charge of the project engineer designated by the department.

Electrical Construction

Work involving trenching and underground duct work, placing electrical cable on or under the ground, placing light bases and fixtures, furnishing and installing visual and instrument aids to navigation (i.e. VASI, REIL, VOR, NDB, ILS/ALS, etc.), to include generators, regulators, transformers and related equipment as required.

Incidental Construction

Work involving sidewalks, curb and gutter, small concrete structures, storm sewers, guard rail, fencing, pavement marking, furnishing and planting of plant materials, cutting and spraying weeds, signing and other work of a minor or incidental character.

The presence of qualified individuals will determine if a Municipality is qualified to perform the design engineering and construction inspection. This would be documented on the Prequalification Form.

To perform Design Engineering, the Municipality must have at least one staff person that is registered as a professional engineer. Holding a current Certificate of Authorization to practice professional engineering in the state of Wisconsin (per. s.s. 443.08) is satisfactory evidence of professional engineering registration. The Municipality would be responsible for the development of project plans and specifications including following the appropriate statutory requirements, policy, procedural requirements, and guidance for the improvement of county or municipal street/highway systems eligible for federal-aid highway funds.

To perform Construction Inspection, the Municipality must have past experience in inspecting the construction work and be certified as part of the Highway Technician Certification Program for inspecting the construction materials. The Municipality would support the WisDOT project engineer (or consultant project engineer representing WisDOT) who is responsible for and has the delegated authority to obtain work that fulfills the requirements of the agreement. Under direction of the project engineer, Municipality staff would supplement the field administration of the agreement, enforce the terms of the agreement, and determine the amount of work performed and materials furnished.

Once prequalified for Design Engineering or Construction Inspection work types, a Municipality would indicate their desire to provide those services on a particular LFA project by submitting a "Letter of Interest" to the department. That letter would state their desire to provide the services, discuss the staff available for the project,

detail the staff's experience in either highway design or inspection of the particular type of construction associated with the project, estimate the time each of the staff would be needed, and request approval to provide the services. Region Local Program Project staff would review the "Letter of Interest" to be sure the correct number of staff are planned to be used, that the staff are available for the correct time, and that the staff are qualified for the work type. If all of these elements were in order, the Municipality would be authorized to provide the requested services.

For the work types to be constructed under an LFA Agreement, a Municipality must own or control suitable equipment, have staff capable of properly operating the equipment, have financial and organizational ability, and have prior experience in the construction of one or more of the work types. This would be documented in the Prequalification Form. When evaluating the submitted form, Region Local Program Project staff may review the existing inventory of owned equipment and determine the presence of sufficiently trained operators. The term “owned” equipment also applies to Municipality equipment procured under a long term (at least one construction season) lease for use on other projects the local unit undertakes. Jointly owned equipment (where each Municipality has a 50% ownership share) will be considered “owned” by each Municipality. The department will also consider the Municipality’s performance on similar projects in the past.

The first two categories (Engineering – Design and Construction Inspection) will be reimbursed under a two-party agreement and will not require a Cost Effectiveness Finding. The Municipality should submit a “Letter of Interest” to begin the approval process for those two types. The remaining work categories will be reimbursed under an LFA. The Municipality must be prequalified in a specific category to do that type of work. The requirements to be prequalified are listed in form DT2300, Prequalification – Local Force Account Projects.

An approved work type prequalification is valid for three (3) years and, in the case of the latter work types, must be approved prior to submitting a Cost Effectiveness Finding for a proposed LFA project to the department.

If municipality staffing or equipment is reduced or eliminated from that available when the prequalification status was approved, the municipality will immediately notify the department. The municipality may submit a revised request at any time if their staff or equipment resources in an approved work category increase or if they desire to be prequalified in another work category.

After prequalification, the department will perform periodic site reviews to verify the municipality’s continuing capabilities.

Cost Effectiveness Finding

Work may be performed by Municipality forces and equipment in accord with provisions of this policy. Force account agreement requests received by the Department must show that the performance of the work by the Municipality is in the public interest on the basis that:

1. The anticipated cost of labor, equipment and material will be less than that which could be expected to be obtained through the competitive bidding process, and
2. The Municipality is currently qualified to satisfactorily perform the proposed work.

Any request for a LFA agreement over $50,000 on the Local System shall be submitted for approval to the Region Project Development Section Chief. Any request for an LFA agreement over $50,000 on the STH system shall be submitted for approval to the Bureau of Traffic Operations, Traffic Systems Unit Supervisor. These submittals should be made prior to execution of an agreement by Municipality officials and is to be accompanied by justification under the preceding criteria. It will not be necessary to submit detailed estimates of labor, materials and equipment at this stage.

The final determination to approve or to disapprove any force accounts agreement with a Municipality shall remain with the Administrator of the Division of Transportation System Development. Agreements of $50,000 or less are covered by a programmatic cost effectiveness finding, therefore, an individual cost effectiveness finding is not required.

Additional Information on Cost Effectiveness Findings can be found in FDM 3-20-12.

Equipment

The purchase of equipment in anticipation of a force account agreement is not considered to be in the best interests of the public. However, the replacement of old or obsolete equipment in order to maintain an inventory of modern construction equipment will not be construed to be expansion.

Rental Equipment (LFA Federal Funded)

On a limited basis, the rental of some specialized equipment may be appropriate as part of a LFA agreement. The overall intent is to assure a municipality is suitably equipped to perform the LFA work.

Specialized equipment may be rented up to a maximum of $25,000 or 25% of the agreement amount, whichever is less, for all rental equipment used as part of a LFA agreement.

The maximum amount of allowable rental equipment may be exceeded if a piece of municipality owned equipment breaks down unexpectedly and its timely replacement is needed to keep a project on schedule. The municipality must notify the project engineer, in writing, immediately if this occurs.

For LFA (State) - Equipment may be leased to perform minor items of work such as pavement marking, concrete curb and gutter, beam guard installation, etc. The leased equipment may include an equipment operator. Equipment may also be leased to perform larger items of specialized work. Again, the cost of an operator may be included in the leased equipment item.

Excluded Work

The statewide, region and individual agreement limits shown below pertain only to labor, equipment and materials provided by the municipality; i.e., only to labor provided by employees on the Municipality payroll and to equipment and natural materials owned and provided by the Municipality. They also apply only to that portion of any manufactured materials that the Municipality produces with its own labor, equipment and natural materials. For LFA (Federal Funded) the cost of purchased materials and limited rental of specialized equipment (up to a maximum of $25,000 or 25% of the agreement amount, whichever is less) will be excluded prior to determining the cost to be applied toward the statewide, region and individual agreement limits. For LFA (State Funded) the cost of purchased materials and supplies, and leased equipment will be excluded prior to determining the cost to be applied toward the statewide, region and individual agreement limits. FDM 3-20-12 and FDM 19-25-5 describe how excluded costs are to be shown in the agreement. It is the responsibility of the Municipality to identify excluded costs in the agreement documents.

The cost of work performed by the Municipality should be at least 30% of the total value of the work in the agreement. Stated another way, the value of the excluded work should be no greater than 70% of the total cost of the labor, equipment and materials used in the project. For instance, if the cost of an agreement is $900,000 then at least $270,000 of the work should be provided directly by the Municipality. While excluded costs for individual force account agreements may be at or near the 70% mark, on a program basis they should be well below that. Due to the nature of some LFA agreements municipalities may not be as well staffed and equipped to perform the work themselves, therefore; some individual agreements may exceed the 70% limitation. However, the proportion of excluded work in the statewide and individual region programs should be less than 70%.

For LFA (Federal Funded), purchased materials and limited rental equipment, including materials and equipment acquired under on-going agreements for delivery or performance, should be competitively bid whenever possible. If not possible, they may be based on three price quotations instead. If it is impossible to obtain three quotations, a minimum of two quotations and an explanation as to why a third is not available will suffice.

For LFA (State Funded), purchased materials and supplies and leased equipment, including materials and services acquired under on-going contracts for delivery or performance, should be competitively bid whenever possible. If not possible, they may be based on three price quotations instead. If it is impossible to obtain three quotations, a minimum of one quotation and an explanation as to why more are not available will suffice.

Statewide Limitation of Force Account Agreements

The statewide force account agreement limit is $9,000,000 annually for LFA agreements on the local system. This does not include LFA agreements on the local system which are funded through the Highway Safety Improvement Program.

Regions may include force account agreement work in their total program (state and local) up to the limits noted below.

Region Limitations on Force Account Agreements

The $9,000,000 distribution for LFA's on the local system is based on a combination of lane miles of rural and urban County Trunk Federal Aid highways in each region.

LFAs on the Local System	
Region	Cost ($)
NW	2,535,000
NC	1,973,000
NE	1,440,000
SE	964,000
SW	2,088,000
TOTAL	9,000,000

The department may adjust the region allocations during the year as events occur and as the department may determine such adjustments to be in the public interest, but the annual statewide limits will not be exceeded. Authority will not be transferred between agreement types.

Individual Agreement Limitations

The total value of labor, equipment and materials (provided by both the Municipality and excluded costs) for an individual LFA agreement may not exceed $1,000,000 unless a request to exceed this agreement limitation, together with justification, is submitted to and approved by the Director, Bureau of Project Development for LFA agreements on the Local System and by the Director, Bureau of Traffic Operations for LFA agreements on STH Systems. Execution of the force account agreement by the Municipality officials is not to precede action on such exception to individual agreement limitations. Exceptions are expected to be very infrequent and will be approved only in the most unusual situations. Approval of an exception also constitutes approval of the Cost Effectiveness Finding if a comparison to let prices is included.

Responsibility for Agreement Routing, Approval and Execution

Agreement Type	Responsible Organizations
LFA Agreements on the Local System (including connecting highways)	Region to Bureau of Project Development, Proposal Management Section
LFA Agreements on the STH System	Region to Bureau of Traffic Operations, Traffic Systems Unit
LFA Agreements < $5,000	Region

Region Systems Planning and Operations Section should be notified before PS&Es are completed and sent to the Bureau of Project Development or Bureau of Traffic Operations for agreement execution.

Cost Analysis

All LFA agreements shall be accompanied by a detailed, realistic final cost estimate (FDM 19-25-5), which shall be supported and determined by an analysis based upon the materials, equipment, and amount of labor by classification that is to be used on each item of work. Estimates for LFA's funded by SHRM need not be detailed provided that there is historical data for the county performing recent projects containing comparable items of work by which the materials, labor and equipment may be estimated. In the event no such data exists for WisDOT agreements, historical data for a county's own work may be used. If that also is not available the normal process for estimating should be followed. Payment for work performed will be based upon the actual costs incurred in the performance of the work, except that reimbursement of incurred costs will be limited to the agreement estimated total cost unless supported and authorized by a change order, approved prior to the performance of the work. Excluded costs such as purchased materials, supplies, and limited specialized equipment rental shall be identified.

Borrow Pits

Gravel pits, quarries for base course, and borrow pits shall be located and the method of loading and hauling

determined prior to execution of the force account agreement by Municipality officials. Any subsequent changes in location for pits and quarries must be reviewed and a new cost analysis prepared to support any proposed contract change order.

Annual Report

Each year in August, the Bureau of Project Development and the Bureau of Traffic Operations will prepare a summary of expenditures of all force account agreement activity for the previous fiscal year.

Policy Effective Date

The effective date of this policy is July 1, 2015.

SUMMARY GUIDELINES FOR FORCE ACCOUNT AGREEMENTS

Force account agreements are a sensitive matter and need to be critically evaluated. Following is a brief outline of the philosophy/policy governing all agreements:

1. Generally, work should be let. The statutes allow limited use of force account agreements.
2. Force account agreements are appropriate when work is small, scattered, and inefficient for letting.
3. Work involved in any force account agreement should meet the following criteria.
    a. Should match the capabilities of the Municipality.
    b. Shall not include work that needs to be purchased or leased from others (applies only to LFA Federal Funded).
    c. Cannot result in hiring of additional staff or purchasing of additional equipment.
4. Force account agreements must be cost effective compared to the "let contract" alternative.
5. Projects should not be divided to avoid the $1,000,000 limit. This includes:
    a. "Layering" - Doing grading one year and surfacing another in order to stay under the limits, when in fact the total project is actually well in excess of the limits.
    b. “Segmenting” – Doing a short segment each year at an amount near the dollar limits when the total project is clearly in excess of the guidelines.

_____, Region Local Project Manager

Transportation Region _____

_____

_____, WI _____

From: _____

_____

_____, WI _____

Subject: Project ID _____

_____

_____County

We hereby request approval to construct the subject project with our own forces and equipment under the following local force account contract:

The following information is provided to support this request:

1. Project location and length:
2. Nature of the proposed project:
3. Proposed Funding:
4. Cost analysis and Total cost estimate: $_____
   (see attached cost analysis)
5. Specialized equipment rental:
6. Private contract cost comparison: $_____

We consider the performance of this work with our forces and equipment to be in the public interest on the basis that:

1. The anticipated cost of labor, equipment and material will be less than that which could be expected to be obtained through the competitive bidding process.
2. We are properly staffed with well trained and experienced personnel and suitably equipped to satisfactorily perform the proposed work.
3. We have completed projects of this nature, completed the DT2300 and have been prequalified for this work type dated _____ in order to submit a CEF for this project.
4. Prior commitments to perform other work will not impact the Municipality's ability to perform the work under this agreement.

_____ _____

Requester's signature Date

_____, Region Local Project Manager

Transportation Region _____

_____

_____, WI _____

From: _____

_____

_____, WI _____

Subject: Project ID _____

_____

_____County

We hereby request approval to construct the subject project with our own forces and equipment under the following local force account contract:

The following information is provided to support this request:

1. Project location and length:
2. Nature of the proposed project:
3. Proposed funding:
4. Total cost estimate: $_____

   (see attached cost estimate)
5. Specialized equipment rental

We consider the performance of this work with our forces and equipment to be in the public interest on the basis that:

- We are properly staffed with well trained and experienced personnel and suitably equipped to satisfactorily perform the proposed work.
- The nature or size of the proposed work, cost or circumstances relating to the work make it unsuitable for economic performance under the competitive bidding process as previously documented by the Department of Transportation and FHWA for low-cost projects.
- We have completed projects of this nature, completed the DT2300 and have been prequalified to submit a CEF for this work type.
- Prior commitments to perform other work will not impact the county's ability to perform the work under this agreement.

_____ _____

Requester's signature Date

FOR FORCE ACCOUNT CONTRACTS ON THE LOCAL SYSTEM

CORRESPONDENCE/MEMORANDUM _____State of Wisconsin

Date:

To: Project Development Section Chief
_____ Region

From: _____
Local Program Project Manager, _____ Region

Subject: COST EFFECTIVENESS FINDING
Project ID #_____
_____
_____
_____ County

Attached is a letter from (name of municipality, county or local unit of government) requesting permission to construct the above project with local forces under a Local Force Account (LFA) agreement. The work involves;_____
_____

(Municipality) has submitted the attached estimate showing a cost of $_____which represents a _____% savings from the estimated cost to let the work. The included cost is estimated at $_____ and the excluded cost is estimated at $_____. The approval of this CEF does not exceed the allowed fiscal allocation for LFAs in the _____ Region.

Funding for this project is in the legislative program _____ and if _____% federal and _____ % local.

Your approval of doing this work by LFA agreement is requested.

RECOMMENDED APPROVAL:

_____ _____
Management Consultant Date

CONCUR:

_____ _____
Local Program Project Manager, _____ Region Date

APPROVED:

_____ _____
Chief Project Development Section Date

Cost Effectiveness Finding for Force Account Agreements
Local Force Account on the State System

DATE: _____

TO: Bureau of Traffic Operations
Traffic Systems Unit Supervisor

FROM: _____

Region _____

SUBJECT: Cost Effectiveness Finding
Project I.D:_____
Roadway Name:_____
Termini:_____
County Name:_____
Type of Maintenance:_____

Excluded Cost: _____
Eligible Cost: _____

Attached are two copies of two "Cost Effectiveness Finding" for the subject project. The _____County Highway Department hereby requests permission to undertake the construction of the subject project with county forces and equipment under a Local Force Account (LFA).

Project Location and Nature:

- Brief statement of project location
- Brief statement of project length (Mile and STA. to STA.)
- Brief statement of proposed maintenance work
- Proposed traffic control

Proposed Funding:

- Brief statement of type and percentage of funding

Cost Analysis:

- Private contractor cost estimate (showing quantities, unit prices, sub total cost, % E &C and total project cost)
- County cost estimate (showing quantities, unite prices, sub total cost, % E &C and total project cost)
- Included Work (only labor, equipment and materials provided by the municipality according to FDM 3-20-11)
- Excluded work (purchased materials and limited rental equipment)

Justification:

- Comparison between the county cost and private contract cost showing the saving in dollars and percentage.
- Staring work date and finishing work date (approximately)
- Closing statement showing the county capability

FDM 3-5 Exhibit 5.1 Agreement for the Use of Federal Funds For Preventive Maintenance of Streets & Highways (Except Structures)

Signature Date: November 10, 2010

Updated: September 19, 2014

AGREEMENT FOR THE USE OF FEDERAL FUNDS FOR PREVENTIVE MAINTENANCE OF STREETS & HIGHWAYS (Except Structures)

This agreement between the Wisconsin Department of Transportation (WisDOT) and the Wisconsin Division of the Federal Highway Administration (FHWA), is intended to implement the use of Federal-aid Highway Funding for Preventive Maintenance activities as authorized in 23 USC 116 (d), "Preventive Maintenance" on all eligible highways in the State of Wisconsin.

The criteria used to develop this agreement are based on the FHWA guidance issued by FHWA on September 12, 2005 (Pavement Preservation Definitions) and October 8, 2004 (Preventive Maintenance Eligibility) as well as current AASHTO guidance on Preventive Maintenance.

This agreement is limited to Preventive Maintenance (PM) activities on Roadways, except Preventative Maintenance projects are not currently eligible on the local roads system.

This agreement does not cover PM activities on Structures. A separate agreement addresses PM activities on Structures.

By signing this agreement, WisDOT and the FHWA incorporate by reference the laws, regulations, policies, standards, and procedures that govern or are applicable to Federal-aid projects. WisDOT certifies that it will comply with all provisions of 23 USC 133, "Surface Transportation Program," for non-National Highway System PM projects.

Nothing in this agreement shall be construed to relieve WisDOT from ultimate accountability for compliance with Federal Laws and regulations with respect to the expenditure of Federal-aid highway funds for PM activities in the State of Wisconsin

One or more requirements of this agreement may be waived on a project-by-project basis if agreed to by both FHWA and WisDOT Bureau of Project Development (BPD).

This agreement supersedes the previous preventive maintenance agreement dated December 5, 2008.

This agreement may be canceled or modified at any time by either WisDOT or the FHWA given 90 days notices.

Wisconsin Department of Transportation

Wisconsin Department of Transportation

Kevin Chesnik 11/10/10

Kevin Chesnik, P.E., Administrator
Division of Transportation System Development

Date

Federal Highway Administration

11-30-10

George Poirier, Division Administrator
Wisconsin Division

Date

I. DEFINITION AND PURPOSE OF PREVENTIVE MAINTENANCE

Preventive maintenance (PM) is the 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 and safety of the system without increasing structural or operational capacity. In order to optimize the value of performing PM activities, the various types of PM work needed to restore a given section of highway (or combined sections of highway for a given activity) should be combined into one PM project whenever practicable.

Preventive Maintenance (PM) Pavement Preservation (PP) strategies have an ultimate goal of lengthening the time interval between original construction and reconstruction. To achieve a cost-effective delay of reconstruction through use of PM/PP strategies, the sum of the present values of preventive maintenance activities must be substantially less than the present value of the rehabilitation that they are preventing / delaying. For this to occur, PM/PP strategies typically must occur while the pavement is in good to very good condition.

A “good condition” pavement that is a viable PM/PP candidate can generally be defined as a pavement in which the dominant distress types present are expected pavement surface distress manifestations of age and environmental stress factors – typically temperature cracking and perhaps some surface wear, and spalling. Viable PM/PP candidates in good to very good condition would have little, if any, structural distresses; hence, these pavements can be classified as structurally sound pavements.

PM/PP activities typically do not satisfactorily address structural deficiencies; and are therefore unlikely to be cost-effective treatments for pavements exhibiting more than very minor structural deficiencies.

Due to the numerous combinations of pavement distresses that can occur simultaneously, it is not foolproof to define “good” condition pavement solely by a Pavement Condition Index (PCI) Number. However, PM/PP projects would very likely have a PCI >65, and in the majority of cases, the PCI would likely be greater than 75.

II. CONDITIONS APPLYING TO THE USE OF FEDERAL FUNDS FOR PREVENTIVE MAINTENANCE WORK ON STREETS & HIGHWAYS (Except structures and except roads on the local roads system)

The following conditions 1-6 apply to the use of federal funds for all preventive maintenance work on IH, NHS, and non-NHS routes:

1. The highway must be eligible for federal funding. Federal funds can be used only for roadway, roadside work and safety hardware, traffic signs, pavement markings, traffic signal systems, roadway lighting, and railroad crossing warning devices under this agreement. PM work on bridges (i.e. abutment to abutment) and local roads system are not covered by this agreement.
2. Work must follow all regular Federal Aid requirements, i.e., TIP/STIP, Environmental, ADA, TMP, PS&E, etc.
3. Work must follow all regular WisDOT FDM procedures, i.e., abbreviated DSR, etc.
4. Any non-let work must be approved in accordance with the requirements of FDM 3-20-11: Local Force Account Agreements and FDM 3-20-12: Cost Effectiveness Finding (i.e. Public Interest Documentation).
5. PM treatments must be appropriate for when the project is actually constructed. Review the scope of work if the project let is delayed to determine if the proposed treatment is still appropriate, and still eligible for federally funded PM.
6. Roadway geometrics and appurtenances (i.e. guardrail, sign bridges, drainage structures, etc.) shall not be degraded by the preventive maintenance work.

III. WORK TYPES ELIGIBLE FOR FEDERAL PM FUNDING, AND REQUIRED ACTIVITIES FOR EACH WORK TYPE

The table below shows types of work that are eligible for federal PM funding, and the activities that are required on a PM project. The activities required on a PM project vary depending on the work type(s) used on that project. Required activities can include the following:

1. <u>Crash Information and Safety Improvements Evaluation</u>:

- Evaluate and analyze crash information using the Safety Screening Analysis (SSA) described in FDM 11-1-4 to determine if geometric or safety enhancements are warranted.

2. <u>Capacity Evaluation</u>:

- Determine projected capacity needs.
- Needs should be no less than one level-of-service (LOS) grade below the required LOS per FDM 11-5-3 within ten (10) years of the date of construction. (See FDM 11-5-3 for acceptable capacity calculation methods).
- If the LOS is not acceptable within this time frame, FHWA pre-approval is required.

3. Guardrail Assessment / Upgrades

- Upgrade guardrail and end treatments to current standards. Eliminate all blunt end and turndown guardrail sections.
- Ensure that damaged guardrail elements, as defined in FDM 11-45-1, are repaired or replaced.
- Adjust rail height of guardrail to meet the criteria in FDM 11-45-1.
- Upgrade all guardrail transitions to fixed objects to meet criteria in FDM 11¬45-1.
- Upgrade guardrail installations with 12'-6" post spacing or with no block-outs.
- Remove strong-post cable guard installations, replace with compliant barrier if needed.

4. Clear Zone Restoration

- Remove vegetation within the clear zone that can reasonably be expected to exceed 4 inches in diameter at maturity.
- Clear zone per 3R and 4R design standards applies. See FDM 11-40-1, FDM 11-40-2, and FDM 11-44-1.

5. Signing and Marking Upgrades

- Remove vegetation obscuring any highway signing.
- Replace all permanent signs unless exceptions are coordinated with the WisDOT Region Traffic Engineering Supervisor. See FDM 15-1-20, section 20.10.
- Upgrade deficient pavement marking.

6. Median Crossover Side Slope Regrading

- Flatten median crossover side slopes steeper than 6:1 to meet current design standards (see SDD 11-A-1)

7. Railroad Crossing Safety Review

Bracketed number [#] means see note below

REQUIRED ACTIVITIES FOR EACH ELIGIBLE PM WORK TYPE

(See Section II for Conditions 1-6 applying to all PM work)

Eligible Work Types [6]	1. Crash Information and Safety Improvements Evaluation [5]	2. Capacity Evaluation	3. Guardrail Assessment / Upgrades	4. Clear Zone Restoration	5. Signing and Marking Upgrades [4]	6. Median Crossover Side Slope Regrading	7. Railroad Crossing Safety Review
Group 1 Pavement Strategies Resurfacing [1] [8] Milling and resurfacing [1] [8] Portland cement concrete (PCC) dowel bar retrofitting with diamond grinding	**Required** Full Safety Screening Analysis (SSA): Do all 3-steps of the SSA as described in FDM 11-1-4. [5]	**Required**	**Required [7]**				
Group 2 Pavement Strategies Asphaltic patching – full depth [2] [3] PCC joint restoration [2] PCC patching – full depth [2] [3] PCC cross-stitching Shoulder restoration/paving [8] Paved shoulder addition [8] Diamond grinding	**Required** Abbreviated SSA: Do step 1 of the SSA as described in FDM 11-1-4. If there are Improvement Flags with LOP >=10 then complete steps 2 & 3 of the SSA. If there are no Improvement Flags with LOP >=10 then the SSA is satisfactorily completed and the project development continues. [5]	**Not required**	**Required** if existing guardrail within the project limits was installed more than twenty (20) years before the PS&E date of the PM project. [7]	**Required [7]**			**Not required**
Group 3 Pavement Strategies Milling [3] Rut filling [3] [8] Seal coating [2] [3] Micro-surfacing [2] [3] [8] Crack filling [2] [3]	**Not required**				**Not required,** except to restore pavement markings that are disturbed / obliterated by PM work	**Not required**	
Drainage Restoration Ditch restoration Storm drain restoration Culvert pipe restoration/replacement Traversable Grates Culvert pipe liners Box culvert restoration	**Not required**				**Not required,** except to replace missing culvert delineator posts	**Required** if the culvert being replaced is under a median crossover **Not Required** otherwise	**Not required**

Bracketed number [#] means see note below

REQUIRED ACTIVITIES FOR EACH ELIGIBLE PM WORK TYPE

(See Section II for Conditions 1-6 applying to all PM work)

Eligible Work Types [6]	1. Crash Information and Safety Improvements Evaluation [5]	2. Capacity Evaluation	3. Guardrail Assessment / Upgrades	4. Clear Zone Restoration	5. Signing and Marking Upgrades [4]	6. Median Crossover Side Slope Regrading	7. Railroad Crossing Safety Review
Safety Appurtenances Beamguard/cable guard restoration/ installation/upgrading [3] Terminal End upgrading [3] Highway signing restoration/ installation/upgrading [4] Pavement marking restoration/upgrading [4] Traffic signal restoration/upgrading/ retiming [4] Highway lighting restoration/upgrading [4] Railroad Crossing Warning Device restoration/upgrading	**Not required**		**Required** for Beamguard/cable guard restoration/ installation/upgrading and for Terminal End upgrading. **Not required** for other work types	**Required** if there is vegetation in the vicinity of Beamguard/cable guard restoration/ installation/upgrading or Terminal End upgrading. **Not required** for other work types	**Required** for work types involving signing or pavement marking; **Not required** for other work types	**Required** if a median crossover location coincides with Beamguard/cable guard restoration/ installation/upgrading or Terminal End upgrading **Not required** for other work types	**Required** for Railroad Crossing Warning Device restoration/upgrading **Not required** for other work types
Other: Shoulder rumble strips Erosion prevention/slope restoration Clear zone restoration (tree/shrub removal) Rip-rap restoration or addition Curb, gutter, sidewalk restoration [3] Edge drop-off mitigation: - Gravel Edge drop-off; - Shoulder Restoration – Asphalt wedge Traffic Operations Infrastructure Plan (TOIP) items [4]	**Not required**			**Required** for Erosion prevention/slope restoration and for Clear zone restoration (tree/shrub removal); **Not required** for other work types	**Not required**	**Required** for slope restoration; **Not required** for other work types	**Not required**

Notes:

1. Resurfacing is eligible for preventive maintenance (PM) subject to the following:
   - A maximum of 2 inches of new asphalt pavement can be placed, including all leveling and wedge courses, unless correcting cross slope deficiencies, and
   - If the existing lane width and finished shoulder width have not been reduced from those that were built under new construction / reconstruction and the sideslopes contiguous with the finished shoulder are 4:1 or flatter then the new surface can be a maximum of 2 inches above the existing profile at the shoulder point. Otherwise, the new surface cannot be raised above the existing profile at the shoulder point.
     [**NOTE**: The existing lane width, finished shoulder width and side slopes are not corrected as part of the PM project. If there are improvement flags or crash flags then these are handled per note 5 below.]
2. These treatments are only eligible for preventive maintenance (PM) if they can be shown to be capital improvements, i.e., there is an appreciable extension to the capital life of an asset. This means that the treatment must have a rehabilitation effect on the pavement and extend the service life of the pavement by 4 years or more.
3. Does not include routine maintenance of random or isolated spot locations. Combining locations to establish a reasonable sized project is eligible. Pothole filling is routine maintenance and not eligible for preventive maintenance.
4. Highway signing, pavement marking, traffic signals, Traffic Operations Infrastructure Plan (TOIP) items and highway lighting are not eligible for State Improvement funding as a stand-alone project, but must be incidental to another project, including a preventive maintenance project.
   Highway signing, pavement marking, traffic signals, Traffic Operations Infrastructure Plan (TOIP) items and highway lighting can be completed as a stand-alone project using State Operations funding and Federal Preventive Maintenance funding, but not State Improvement funding.
   For purposes of this agreement, the restoration of pavement markings and traffic signs along substantial section lengths, or area and corridor wide segments are eligible as preventive maintenance stand alone projects. Routine maintenance of these items at isolated or spot locations, regardless of the number of locations is not eligible.
5. A PM project may still include segments with Crash Flags, Improvement Flags, or sub-standard features that are not eligible for a programmatic exception to standards, even though correcting these segments is not included because it is not eligible as PM work. Address these segments as follows:
   - Incorporate operational improvements into the PM project at those spot/segment locations that are consistent with the scope of the preventive maintenance work and appropriate based on the analysis of crash types. Use measures listed in FDM 11-40-1, Attachment 1, "Alternatives to Reconstruction to Enhance Safety", or other proven measures that are acceptable to FHWA, WisDOT Bureau of Project Development (BPD), WisDOT Bureau of Highway Maintenance (BHM) and WisDOT Bureau of Traffic Operations (BTO).
   - Document in the PM project DSR that construction is required for safety improvements or to correct sub-standard features. The region will either consider this construction for HSIP funding or address this construction with future programming. The PM project may proceed without delay.

   Document the SSA in the DSR for the PM project per FDM 11-1-4, except the special documentation for National Highway System (NHS) routes is not required for an Abbreviated SSA if step 1 did not identify any Improvement Flags with LOP >=10.
6. In addition to the work types shown in the table, other work may be considered as agreed upon by WisDOT and FHWA.
7. Assessment is required as part of the PM project. Construction work may either be included in the PM project or be included as part of another improvement project. Document the assessment and the needed construction in the DSR for the PM project. If the construction is not included in the PM project then the region will address the needed construction with future programming.
8. Work type is ADA Alteration per "*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*" and "*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*" (see FDM 11-46 Attachments 1.2 and 1.3). Provide/update curb ramps where "...street level pedestrian walkways cross curbs". Work types not shown as ADA alteration are considered ADA Maintenance.

FDM 3-5 Exhibit 5.2 - Agreement for the Use of Federal Funds for Preventive Maintenance of Structures

Agreement Date: *May 1, 2016*

Publication Date: June 24, 2016

AGREEMENT FOR THE USE OF FEDERAL FUNDS FOR PREVENTIVE MAINTENANCE OF STRUCTURES

This agreement between the Wisconsin Department of Transportation (WisDOT) and the Wisconsin Division of the Federal Highway Administration (FHWA), is intended to further implement the use of Federal-aid Highway Funding for Preventive Maintenance (PM) and Preservation activities as authorized in 23 USC 116 (e), and the FHWA Memorandum dated February 25th, 2016 titled "Guidance on Highway Preservation and Maintenance" on all eligible Federal Aid Highways in the State of Wisconsin.

The criteria used to develop this Agreement is based on the FHWA Bridge Preservation Guide (FHWA-HIF-11042) published in August 2011, which is the basis for the Wisconsin Bridge Preservation Policy Guide. The Wisconsin Bridge Preservation Policy Guide documents consistent and systematic criteria to identify Structure PM and Preservation activities that are eligible for the use of Federal-aid Highway Funded Projects.

This agreement is limited to PM and Preservation activities on Structures. This agreement includes inspection and training activities to support data driven application of Preventative Maintenance (PM) and Preservation. It does not cover PM activities on Roadways. A separate agreement has been developed for PM activities on Roadways.

By signing this agreement, WisDOT and the FHWA incorporate by reference the laws, regulations, policies, standards, and procedures which govern or are applicable to Federal-aid projects. WisDOT certifies that it will comply with all provisions of 23 USC 133(b), "Surface Transportation Block Grant Program" and 23 USC 119(d) "National Highway Performance Program".

Nothing in this agreement shall be construed to relieve WisDOT from ultimate accountability for compliance with Federal Laws and regulations with respect to the expenditure of Federal-aid highway funds for PM activities in the State of Wisconsin, including those funds used for local government projects.

This agreement shall become effective May 1st, 2016. It may be canceled or modified at any time by mutual agreement of WisDOT and the FHWA.

Wisconsin Department of Transportation

Joseph S. Olson, P.E., Administrator
Division of Transportation System Development

05/13/16
Date

Federal Highway Administration

Michael Davies, P.E., Division Administrator
Wisconsin Division

4/25/16
Date

I. DEFINITION AND PURPOSE OF PREVENTIVE MAINTENANCE

A PM program for structures can be defined as a planned strategy of cost-effective treatments to existing structures that are intended to maintain or preserve the structural integrity and functionality of elements and/or components, and retard future deterioration, thus maintaining or extending the useful life of the structure.

Preventive maintenance and preservation activities should extend the useful life of the existing structure without degrading safety or roadway geometrics. The evaluation of geometric features and accident information, in order to determine if geometric or safety enhancements are warranted is required, however some actions may be beyond the scope of many structures preventive maintenance and preservation work. However, installation or upgrading of guardrail and end treatments, restoring or upgrading bridge parapets, rails, approach signing, and approach and deck pavement marking to meet the minimum criteria may also be supported by this agreement where they are determined to be cost-effective.

Limits for bridge preventive maintenance will include the bridge plus nominal approach roadway lengths on each end to include the bridge approach guardrail. Advance load posting and vertical clearance signs beyond these limits may be included.

II. SYSTEMATIC CRITERIA, TOOLS, AND PROCESS FOR IMPLEMENTATION OF PREVENTIVE MAINTENANCE (PM)

WisDOT's systematic PM program stems from the goals, measures, and criteria outlined in the WisDOT Bridge Preservation Policy Guide. The identification of our structures PM needs is accomplished with our structures management systems that include Highway Structures Information System (HSIS) and Wisconsin Structures Asset Management System (WiSAMS). These tools serve for identification, planning, and implementation of PM work by contract (LET) and county forces (RMA/DMA/PBM or equivalent). Our overall PM program will assure FHWA that WisDOT is compliant with the requirements of a Systematic Preventive Maintenance (SPM) Program as outlined in the August 2011 FHWA publication "Bridge Preservation Guide" Section VI as follows:

1. **Goals and Objectives** – The goals and objectives for the SPM program as outlined in the WisDOT Preservation Policy Guide, Section 4.
2. **Inventory and Condition Assessment** – WisDOT has a well-documented structures inspection program that utilizes Bridge Management Data System (HSIS).
3. **Needs Assessment** – The WiSAMS application conducts needs assessment based on Bridge Management Data (HSIS) and Preservation Policy criteria to identify, prioritize, and support programming of structures work.
4. **Cost Effective PM Activities** –WisDOT Bridge Preservation Policy documents that the proposed PM and Preservation activities are a cost-effective means of extending the life of a bridge.
5. **Accomplishing the Work** – WiSAMS supports Program and Project Level identification and programming of work to be accomplished through contract (LET) and county forces (RMA/DMA/PBM or equivalent).
6. **Reporting and Evaluation** – The combination of Structures Inspection Program, HSIS, WiSAMS, and FIIPS will have the ability to track, evaluate, and report on the planned and accomplished PM work on an annual and/or as-needed basis.

III. CONDITIONS APPLYING TO THE USE OF FEDERAL FUNDS FOR PREVENTIVE MAINTENANCE (PM) AND PRESERVATION WORK ON STRUCTURES

The application of the Bridge Preservation Policy Guide and the Structures Management system comprised of the Highway Structures Information System (HSIS) and Wisconsin Structures Asset Management System (WISAMS) represent comprehensive structures (bridge) management policy and systems. Therefore, the use of Surface Transportation Block Grant Program and National Highway Performance Program funds are included in this agreement for Preservation and Preventive Maintenance Work actions.

The following conditions apply to the use of Federal funds for PM and Preservation work:

1. A structure is defined as a bridge or culvert which carries highway traffic.
2. The structure on which the work is to be done must be eligible for Federal funding.
3. For structures located off of the Federal Aid System (Local Road or Rural Minor Collector or less), the structures must have an opening measured along the centerline of the roadway of 20 ft. or greater to be eligible for Federal funding.
4. Work should be by competitive bid. Any non-let work must be approved in accordance with the requirements of FDM 3-20-11: Force Account Agreements and FDM 3-20-12: Cost Effectiveness Finding (i.e. Public Interest Documentation).
5. Federal funds can be used only for structure work and appurtenances to the structure under this agreement. PM work on the roadway is not covered by this agreement with the exception of installation or upgrading of guardrail and end treatments and advanced signage.
6. Roadway geometrics and appurtenances (i.e. guardrail, sign bridges, drainage structures, etc.) should not be degraded by the preventive maintenance work.
7. Bridge parapets and rails, approach guardrail, approach signing, and approach and bridge deck pavement markings must be evaluated and as practical be restored or upgraded to meet the criteria included in Section VI of this agreement.

IV. ELIGIBLE ACTIVITIES & TYPES OF WORK

This agreement acknowledges the data driven requirements for systematic PM and Preservation programs under 23 USC 144 (a) and the funding eligibility of Inspection and associated training for Structures Inspectors in accordance with 23 USC 119 (d) & (e).

The following types of work are eligible for the use of federal funds for preventive maintenance and preservation. In order to optimize the value of performing these activities, the various types of preventive maintenance and preservation work needed to restore a given structure (or combined structures for a given activity) should be combined into one project whenever practicable.

Examples of PM and Preservation to structures may include but are not limited to the following:

• Power washing decks or bridges to remove chlorides & de-icing chemicals • Sealing cracks or joints • Sealing decks • Concrete deck patching • Thin Polymer Overlay • Asphalt deck overlay with membrane • Polymer Modified Asphalt deck overlay (low permeability) • Concrete deck overlay • Installation of a Cathodic Protection System • Chloride Extraction	• Repair bridge length culverts (aprons, barrels, slope protection) • Riprap placement • Channel Restoration • Removing large debris from channels • Channel scour mitigation & repair • Slope protection repair • Significant erosion around abutments, wing-walls, and slope paving
• Clean Expansion Joints • Open expansion joint replacement with a waterproof joint • Joint gland repair and replacement • Expansion joint repair or joint replacement • Expansion joint elimination	• Bridge approach restoration • Structural concrete and steel repairs including wing walls (except vehicle damage) • Bridge Rail Restoration/Retrofit to New Standards • Installing vehicle warning systems • Bridge sign placement and repair to include Load and Clearance Posting and protective Tiger Board on Bridge
• Spot painting • Zone repainting • Complete repainting • Spot repainting with complete overcoat • Bearing repairs, painting, or replacements • Railing spot & zone painting • Railing retro-fit and replacement	• Repair Anchor Rod • Repair Galvanizing (rails & bearings) • Pin & Hanger replacement • Retrofit of Fracture Critical details and Fatigue Prone details

Other structure restoration activities when justified through a design study report and concurred by the WisDOT Bureau of Structures and FHWA will be acceptable on an individual basis.

Bundling (combining projects) locations to establish a reasonable sized cost effective project is encouraged and eligible under 23 USC 144 (j).

V. SPECIAL LIMITATIONS

The following actions are usually considered routine maintenance and are not allowed under this agreement.

- Vehicle damage repair
- Asphalt deck patching
- Asphalt Overlay without Membrane
- Graffiti Removal
- Flood damage & minor channel debris removal

The following actions are usually considered as Improvements and are not considered Preventive Maintenance or Preservation under this agreement:

- Bridge replacement
- Deck replacement
- Box culvert extensions

VI. SAFETY CRITERIA FOR BRIDGE APPROACH GUARDRAIL, HIGHWAY SIGNING, AND PAVEMENT MARKING

The bridge parapets and rails, bridge approach guardrail, bridge approach signing, and bridge deck and approach pavement markings within the limits of a PM project must be evaluated and should be restored or upgraded when practical to meet the following minimum criteria (however it may not be practical or cost effective to include these elements on some PM projects):

- Restore damaged bridge parapet and rail elements.
- Replace damaged approach guardrail elements.
- Adjust rail height of guardrail to meet the criteria in FDM 11-45-1 and FDM 11-45-2.
- Transition and connect stand-alone bridge guardrail installations to the bridge rails.
- Eliminate all blunt end approach guardrail sections.
- Upgrade all approach guardrail installations with 12’-6” post spacing or with no block-outs.
- Upgrade all approach strong-post cable guard installations.
- Remove all vegetation obscuring any highway signing.
- Upgrade all deficient bridge approach signing and pavement marking.
- On Interstate Highways, bridge approach guardrail and end treatments must be upgraded to current standards for all overlays or similar projects; unless otherwise justified in the Design Study Report, and concurred in by the WisDOT Bureau of Highway Operation and FHWA prior to the submittal of the PS&E.

In addition, projects on the National Highway System (NHS) will be subject to the January 7th, 2016 FHWA Memo **“AASHTO/FHWA Joint Implementation Agreement for Manual for Assessing Safety Hardware (MASH)”** This memo encourages to upgrade existing safety hardware to comply with the 2016 addition of the MASH either when it becomes damaged beyond repair, or when an individual agency’s policies require an upgrade to the safety hardware. This memo contains details on implementation requirements and timelines for NHS Federal Aid LET contracts.

VII. DEFINITIONS

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 substantially increasing structural capacity).

Bridge preservation is defined as actions or strategies that are planned and preformed to prevent, delay, or reduce deterioration of bridges or bridge elements, restore the function of existing bridges, keep bridges in good condition and extend their life. Preservation actions may be preventive or condition-driven. Preservation activities improve, sustain, or restore the condition of transportation facilities.

WisDOT Bridge Preservation Policy Guide provides goals, measures, and strategies for the preservation of bridges. This document contains criteria that is used to identify condition based and non-condition based cyclical preservation, maintenance, and improvement actions that promote cost effective structure work actions that maximize project and system-wide life cycle cost and performance.

Highway Structures Information System (HSIS) is a web-based software developed by the Wisconsin Department of Transportation (WisDOT) that stores bridge and other ancillary structures' inventory and inspection related information.

Wisconsin Structures Asset Management System (WiSAMS). Automated application to determine optimal work candidates for improving the condition of structures. This application serves as a programming and planning tool for structures improvements, rehabilitations, maintenance, and preservation. This application coupled with the Highways Structures Information System (HSIS) serves as a comprehensive Structures (Bridge) Management system.

Routine Maintenance Agreement (RMA). Maintenance of state highways is performed by county highway departments under annual calendar year contracts called the Routine Maintenance Agreement (RMA) document. The RMA document provides each county with a state highway maintenance budget and the approval for expenditure within that budget.

Discretionary Maintenance Agreement (DMA). This is a contracting mechanism initiated by the department with a county highway department for specific projects and locations. DMAs are typically entered in response to highway or services maintenance research opportunities, or awarded as part of a targeted maintenance initiative.

Performance-based Maintenance (PbM) pilot. Performance-based highway maintenance is based on the authority to contract with counties to perform specific highway maintenance tasks. Unlike Discretionary Maintenance Agreements which are paid based on actual cost reimbursement basis, PbM contracts are paid based on a negotiated contract price.

FDM 3-10-10 Scheduling and Programming

May 15, 2019

10.1 Engineering Authorization, Scheduling, and Programming

The concept definition phase culminates in the authorization to incur engineering costs for the project. This involves the scheduling of necessary manpower and funding resources for the project, and is dependent upon present or anticipated inclusion of the project in an appropriate construction program.

During authorization activities, a separate project I.D. is established for each phase of the work having different financing arrangements. Authorization is typically given on such project activities as pre-construction engineering, right-of-way, construction, performance of engineering or right-of-way services by the region for a local unit, responsibility of local unit for costs not eligible for federal participation, etc.

Important to note is that the development of funding for engineering, right-of-way, construction, etc., occurs in various stages throughout the process and is subject to continual review and update as those aspects of the project are refined.

10.2 Letting Guidelines

10.2.1 Objectives

1. Deliver entire annual program to letting.
2. Maximize utilization of available funds.
3. Distribute work load.
4. Allow industry to efficiently schedule forces and equipment.
5. Maximize competition.
6. Reduce risk for bidder.

10.2.2 Assumptions

- Annual volume $600 million
- 11 lettings annually
- Firm quotes from suppliers allow letting work as early as August for next spring start.

10.2.3 Constraints

There are several constraints that could limit the overall funding available for let contracts within any given fiscal year. Some of those constraints include:

- Federal appropriation bills, such as ISTEA, are valid for only a specific time period. Federal funds cannot be obligated beyond the end of the legislation. Therefore, there may be times when the funds available for let contracts will be significantly less than in the past because they reflect only projects that are totally state funded.
- In addition to federal legislative constraints there are also state budget constraints. The state budget allocates expenditures of federal and state funds. It is possible to have federal funds within a program category but not have state budget authority to spend them. Thus, there is a potential for reduced let contract size compared to let goals.

10.2.4 Letting Size

Based on the foregoing assumptions and considering the following factors, target letting sizes and division of work are proposed in Attachment 10.1.

The percentages shown in the "Total" column are the percent of the target program for the fiscal year. The values shown in parentheses represent the target size in millions of dollars based on an assumed $600 million program. These guidelines are intended to show target letting sizes under normal conditions and are not intended to limit the letting size or number of projects because of an occasional exceptionally large contract.

Under the columns for specific work areas, the terms High, Moderate and Low are indicators of level of emphasis, i.e. High indicates most desirable time to let this type of work. The numbers shown refer to the following factors.

10.2.5 Factors

1. Maximum size letting of 60 proposals and $100 million, but not two such size lettings in a row unless exceptional circumstances mandate such.
2. If possible, some of each type of major category of work should be included in each letting.
3. Projects need to be critically assessed as to whether work has to be completed in a single season or if a suspension may be allowed, if proper provisions for traffic handling, erosion control, and winter maintenance are made. This will allow greater flexibility in scheduling letting dates.
4. All types of contractors and suppliers need to schedule forces and equipment, thus they all need work in early lettings.
5. After a contract is executed, the industry feels secure in ordering materials, thus earlier lettings allow early ordering of materials.
6. To assure that local road and bridge projects can be financed in a given fiscal year, they should be scheduled for letting basically in the November through April time frame each year. Local road projects using federal aid will not use the Advance Construction concept. The reason is that WisDOT does not have the ability to fund local projects with state funds in the event that federal funds do not become available.
7. Smaller asphalt surfacing projects should be let early to allow contractors to schedule work around major asphalt paving projects.
8. Electrical and signalization type projects receive better competition if let prior to May.
9. Contracts containing electronic components for signals should be scheduled with about a six-month lead time for delivery of the signal components. Contracts containing light poles or standards and significant quantities of electrical wire should be scheduled to allow a four-month lead time for materials delivery.
10. Projects containing large fills or poor soils should, if possible, be designed for stage construction and scheduled for suspension after completion of the fills. This will allow settlement over the winter prior to construction of the pavement.
11. Utility accommodation
    - Clearing and grubbing contracts can be let separately to allow utility work in the fall or winter.
    - Grading contracts can be scheduled to allow clearing and grubbing in late fall or winter to accommodate early utility work.
12. Best if grading contractors can look at ditches etc. on rehabilitation contracts in fall without snow cover. Also, it’s easier to get boring rigs into fields for relocated sections without snow cover.
13. Earth subgrades need to be covered with base course and appropriate erosion control measures must be in place prior to winter suspension to reduce erosion potential.
14. Small steel bridges should be scheduled to allow about five months for steel fabrication.
15. Large steel bridges. Consider separate contract let sufficiently early to allow time for steel fabrication.
16. Reconstruction projects. Ideally the grading contract should be let prior to the structure and paving contracts.
17. "Package Contracts" are probably the best choice for:
    - Very small projects
    - Urban reconstruction
    - Whenever traffic control requires complex staging and coordination.

    Otherwise the best competitive bidding situation is obtained by breaking the proposed contract into similar categories of construction as the construction industry, i.e.
    - Grade and base course
    - Structures
    - Pavement
    - Lighting and signing, when appropriate.
18. Large or complex asphaltic paving contracts requiring grading, culverts or structure rehabilitation should be scheduled for the earlier lettings. (prior to March)

19. Routine resurfacing or pavement replacement contracts requiring minor (less then six weeks) preparation prior to paving may be scheduled for later lettings. (March and later)
20. Large, complex concrete paving contracts requiring grading, structure rehabilitation, etc. should be scheduled for the earlier lettings. (prior to March)
21. Separate concrete paving contracts following a grading contract and routine concrete pavement repair contracts may be scheduled for later lettings. (March and later)
22. Structures that span warm water fisheries should be emphasized in the July through January lettings.
23. Structures that span cold water fisheries should be emphasized in the February through June lettings.
24. Bridges with nesting swallows cannot be removed, or the nests otherwise disturbed, during the nesting season. This is generally mid-May through early August. Contracts which will require disturbing existing swallow nests should not be scheduled for lettings in April through June unless this restriction has been taken into account in the project work schedule or arrangements made to prevent nesting.
25. Bridge Painting contracts should be scheduled for letting in January through March.
26. Pavement Marking projects should be scheduled for March or earlier lettings if possible. This allows early summer work and lessens conflict with construction project pavement marking needs.
27. Spring and fall climatic windows need to be considered when scheduling planting projects. Major planting projects should be scheduled for letting in August or earlier for the following spring planting season. Suppliers of plant materials inventory their fields in late summer and book most of their orders in August and September.
28. In all cases, cold weather work restrictions and the need to establish erosion control measures prior to suspension of work, need to be considered in determining letting dates.

For further discussion of this activity, refer to the Program Management Manual.

LIST OF ATTACHMENTS

Attachment 10.1 Letting Guidelines

LETTING GUIDELINES (2, 3, 4, 5, 17, 26, 27, 28)

MONTH	TOTAL (1)	GRADE (10, 11, 12, 16)	STRUCTURE (24, 25)	CONCRETE	ASPHALT
July	8 % ($40-50 M)	Low 10,13	Low 6,22	Low	Low
August	7 % ($35-45 M)	Low 10,13	Low 6,22	Low	Low
September	6 % ($30-40 M)	Moderate 10,13,11b	Moderate 6,22	Low	Low
November	15 % ($85-95 M)	High	High 14,15,22	High 20	High 7,18
December	13 % ($70-80 M)	High	High 14,15,22	High 20	High 18
January	12 % ($68-78 M)	High	High 22	High 20	High 18
February	10 % ($55-65 M)	Moderate	Moderate 23	High 20,21	High 19
March	13 % ($70-80 M)	Moderate	Moderate 23	High 21	High 19
April	6 % ($30-40 M)	Low	Low 23	Moderate 21	High 19
May	5 % ($25-35 M)	Low	Low 23	Moderate	Moderate 19
June	5 % ($25-35 M)	Low	Low 23	Low	Moderate

FDM 3-15-1 Definitions and Documentation *February 15, 2023*

1.1 Definitions

1.1.1 Federal Major Projects

A Federal Major project is defined as a project that is "a recipient of federal financial assistance with an estimated total cost of $500 million or more."

A project with an estimated total cost below $500 million can also be designated by FHWA as a Federal Major project if FHWA determines the project will require a substantial portion of the transportation agency's program resources; has a high level of public or congressional interest; is unusually complex; has extraordinary implications for the national transportation system; or is likely to exceed $500 million in total cost."

1.1.2 High-Profile Projects

Projects that are not a Federal Major, but that Department management has decided needs additional oversight and reporting are considered High-Profile projects. State Major Highway Development program projects enumerated by the legislature's Transportation Projects Commission may be considered a High-Profile project.

Typically, projects over $100 million in total cost and/or that have significant public, outside agency and legislative issues and interest may also be considered a High-Profile project. Department management may choose to utilize some Federal Major management reporting and controls on High-Profile projects. Other smaller, tightly scheduled, and sensitive projects may also require additional oversight and management.

1.1.3 Conventional Projects

Projects that are not Federal Major projects or High-Profile projects are considered to be conventional projects. These projects:

- follow the WisDOT Facilities Development Process as outlined in FDM Chapter 3 and project management activities per FDM Chapter 2
- do not require additional oversight and reporting
- typically fall under a Categorical Exclusion Environmental Document that defines these projects as not individually or cumulatively having a significant environmental impact as defined in FDM Chapter 20
- typically have a total cost well under $100 million and do not have significant public, outside agency or legislative issues nor require special reporting tools

Occasionally some of these projects can have isolated situations that are unique or complex in which application of one or a few of the Federal Major or High-Profile Project tools or "Best Practices" may be appropriate to consider.

1.2 Project Documentation

Federal law establishes additional oversight and reporting requirements for Federal Major projects. Accordingly, the Department utilizes defined management tools and resources for all projects that fit the Federal Major project definition or are designated as Federal Majors by FHWA.

This section establishes the framework for appropriate Federal Major project documentation. Based on the associated project guidance matrix (Attachment 1.1), this framework reflects the best practices and lessons learned from every Federal Major project designed and built in Wisconsin. It is intended to help efficiently allocate resources, encourage continuous improvement, and to provide the tools needed to allow the Department to prepare for the next generation of Federal Major project development.

The purpose of project documentation is to provide guidance and consistency concerning roles and responsibilities and management of Federal Major projects on the Wisconsin Highway System.

The Department's goal is to strengthen the project team's ability to forecast challenges and proactively manage Federal Major projects, so that decision-makers can recognize the need for (and then act upon) meaningful and timely changes. This is accomplished using proven Federal Major project practices, processes, resources, and tools.

In addition to providing guidance for all Federal Major projects, it is intended that this documentation can be scaled appropriately to provide guidance to High-Profile and conventional projects as well.

LIST OF ATTACHMENTS

FDM 3-15-5 Project Management Plans *February 15, 2023*

5.1 Background

Federal law requires that a Federal Major project, shall submit a project management plan (PMP) for review. The project management plan must document the procedures and processes to provide timely information to the project - decision makers. This will facilitate effective management of project scope, costs, schedules, and quality, as well as federal requirements applicable to the project.

5.2 Initial Project Management Plan – General

WisDOT Federal Major projects are monitored from planning to operations. The project management plan helps the management team maintain focus on major project delivery according to the customers' needs, wants, and expectations. Federal Major projects must be delivered as to capture the public's trust and confidence in the state and federal transportation agencies' ability to deliver quality products effectively and efficiently.

For most projects, WisDOT is the recipient of federal financial assistance and will prepare the project management plan. A draft project management plan must be submitted to Federal Highway Administration (FHWA) for review prior to approval of the National Environmental Policy Act (NEPA) decision document. FHWA provides comments and WisDOT must submit a project management plan for approval within 90 days of the date of the signed NEPA decision document.

For the first project management plan, FHWA Major Projects Team must concur before FHWA division office approval. Then, either the Division or Headquarters Office may request FHWA Headquarters review and concurrence prior to the Division's approval of subsequent project management plan revisions. The project

management plan is a living document in which revisions are issued as the project progresses to add, modify, or delete provisions that result in effective project management. At a minimum, the project management plan should be revised and approved prior to the authorization of federal-aid funds for right-of-way (ROW) acquisition and prior to authorization of federal-aid funds for construction.

5.3 Purpose

The project management plan is the guide for implementing Federal Major projects that documents assumptions and decisions regarding communication, management processes, execution, and overall project control. The ultimate purpose of the project management plan is to clearly define the roles, responsibilities, procedures, and processes that result in the Federal Major project being managed such that it is completed:

- on-time,
- within budget,
- with the highest degree of quality,
- safely for project workers and the traveling public, and
- in a way the public trust, support, and confidence in the project are maintained.

The project management plan addresses all phases of the Federal Major project life cycle and ensures that the project is managed holistically and as a continuum, not incrementally as the project progresses. It is essential that the project management plan establish the metrics by which the success of the project is defined. It is expected that all sponsoring agencies will endorse the project management plan.

5.3.1 PMP Guidance

The PMP is a federal requirement that is developed and used by WisDOT to effectively manage the Federal Major project.

See https://www.fhwa.dot.gov/majorprojects/pmp/guidance17.cfm for Project Management Plan Guidance for Major Projects (including "Project Management Plan Checklist").

5.3.2 WisDOT Information

Federal Major projects are discussed in the Program Management Manual; PMM 03-01 (Major Highway Development Program) and PMM 03-30 (Southeast Wisconsin Freeway Federal Major Projects). (*Only WisDOT employees have access to these hyperlink).

Another source of information is FHWA's Risk Management Tool for Managing the Planning / Environmental Phases of Prospective Major Projects which provides a thorough series of questions to ask when considering what risks might be present on a project:

Risk Management Tool for Managing the Planning / Environmental Phases of Prospective Major Projects - Issuance Major Project Guidance - Major Projects - Federal Highway Administration (dot.gov)

FDM 3-15-10 Project Financial Plans *February 15, 2023*

10.1 Background

Federal law requires an annual financial plan on Federal Major projects. The timeline for submitting the project financial plan to Federal Highway Administration (FHWA) is shown in FDM 3-15 Attachment 13.1.

10.2 Process for $100 to $500 Million Projects

Federal law requires that recipients of federal financial assistance for projects with a total cost of between $100 million and $500 million in year-of-expenditure dollars, to prepare an annual financial plan. Unlike financial plans for projects costing more than $500 million, FHWA does not formally approve the plan, but it must be available for review by the FHWA Wisconsin division office before federal funds may be authorized for construction. For determining whether the project costs exceed $100 million, the Department will examine the estimated total cost in year of expenditure dollars from the cost and schedule risk assessment (CSRA) workshop completed prior to finalizing the NEPA document.

FHWA could identify the project as a Project of Division Interest (PoDI) if the total cost in year of expenditure dollars is less than $500 million. If the project is identified as a PoDI, it will follow the steps identified in FDM 19-10-3.

10.2.1 Initial Financial Plan

For projects in the $100 to $500 million range, the initial financial plan (IFP) must be finalized before requesting FHWA authorization to obligate federal funds for the first significant construction contract for the project. Therefore, the financial plan is submitted to the FHWA Wisconsin division office before the PS&E due date in the Proposal Preparation Process Schedule shown in FDM 19-1 Attachment 1.5.

The total cost of the project reported in the IFP typically matches the cost of the 70th percentile level of confidence generated during the CSRA. The IFP presents costs in year of expenditure dollars.

To ensure timely completion of the initial financial plan, the following steps must be completed:

- Six months prior to the letting date for the first significant construction project, staff from the Bureau of Budget (BOB) and the Bureau of State Highway Programs (BSHP) will contact the project manager regarding the need to complete the initial financial plan.
- Staff from the project team draft the required financial plan and meet with BOB and BSHP to review the document.
- The director of the BOB and the administrator of DTIM sign the letter of certification included with the plan on behalf of the Department. BOB staff then submits the plan to the FHWA Wisconsin division office. BOB retains a signed copy of the financial plan.

10.2.2 Annual Update to the Financial Plan

To ensure timely completion of the annual update to the financial plan, the following steps should be completed:

- The required annual update is to be completed by March 31st of each year using financial information from December 31st of the prior year.
- Staff from the project team compile an updated draft of the financial plan and meet with the BOB and BSHP to review the document.
- The director of the BOB and the administrator of DTIM sign the letter of certification included with the plan on behalf of the Department. BOB staff then submits a copy of the plan to the FHWA Wisconsin division office.

10.3 Process for Projects in Excess of $500 Million

Federal law requires FHWA to formally approve the financial plan before federal funds are authorized for construction.

For determining whether the project costs exceed $500 million, the Department will look at the estimated total cost in year of expenditure dollars from the CSRA workshop completed prior to finalizing the NEPA document.

10.3.1 Initial Financial Plan

For projects estimated to cost more than $500 million in year of expenditure dollars or are identified as a PoDI, the IFP must be finalized before requesting FHWA authorization to obligate federal funds for the first significant construction contract for the project. Therefore, the financial plan must be approved by FHWA no later than PS&E submittal for the first significant construction project. For additional information, refer to FDM 19-1 Attachment 1.5.

To ensure timely completion of the financial plan, the following steps must be completed:

- Conduct a CSRA workshop no more than 12 months before submittal of the IFP. The total cost of the project reported in the IFP typically matches the cost of the 70th percentile level of confidence generated during the CSRA. The IFP presents costs in year of expenditure dollars.
- 12 months prior to the letting date for the first significant construction project, staff from BOB and BSHP will contact the project Manager regarding the need to complete the initial financial plan. FHWA Wisconsin division staff is also invited to participate in the development of the initial financial plan.
- BOB staff coordinates the development of the financial plan document and works with the project team to schedule a review of the plan by the Oversight committee.
- The Secretary of the Department will sign the letter of certification included with the plan on behalf of the Department. BOB staff will then submit a copy of the plan to the FHWA Wisconsin division office.

10.3.2 Annual Update to the Financial Plan

To ensure timely completion of the annual update to the financial plan, the following steps must be completed:

- A project will follow one of two update cycles. One cycle is to be completed by March 31st using financial information from December 31st of the prior year. The other cycle is to be completed by September 30th of each year using financial information from June 30th. Staff from BOB will inform the

project team which annual update cycle the project will follow.

- Staff from BOB, BSHP, and the Project team meet, as needed, during the year to review and discuss significant changes to the project cost and estimate.
- The Secretary of the Department will sign the letter of certification included with the plan update on behalf of the Department. BOB staff will then submit a copy of the plan update to the FHWA Wisconsin division office.

FDM 3-15-15 Value Engineering

May 15, 2019

15.1 Originator

The originator of this chapter is the Chief of the Design Standards and Oversight Section, Bureau of Project Development.

15.2 Introduction to Value Engineering

Value Engineering (VE) is defined by the Society of American Value Engineers[1] as "the systematic application of recognized techniques which identify the function of a product or service, establish a value for that function, and provide the necessary function at the least overall cost. In all instances, the required function should be achieved at the lowest possible life-cycle cost consistent with requirements, performance, maintainability, safety, and aesthetics." Value can be increased by improving function or reducing costs.

Wisconsin Department of Transportation (WisDOT) recognizes the need for the prudent use of resources while delivering a quality transportation program. The goals of a VE study can include improving quality, minimizing total ownership costs, reducing construction time or cost, simplifying construction, increasing safety, enhancing operations, and meeting environmental and ecological goals. While VE is relevant to many processes and is used across many sectors, this chapter focuses on transportation projects.

States with active VE programs have realized additional benefits beyond design improvements and cost savings, such as continual improvement of standards and policies, accelerated incorporation of new materials and construction techniques, employee enthusiasm through participation in agency decisions, and increased skills obtained from team participation.

Value engineering analysis is accomplished through a workshop, during which a multidisciplinary panel of peers led by a qualified VE Team Leader reviews a project according to a prescribed job plan and recommends changes to increase value. Workshops often occur over 3 to 5 days, take place near the proposed project site, and are staffed by individuals with expertise relevant to the project but not immediately involved with the project's design.

This procedure provides guidance on the use of VE by explaining when a study is required, various stages of a project's life where VE may be applied, how to set up a VE study and the roles of various WisDOT staff in VE.

15.3 Policy and Application

15.3.1 Federally Required Value Engineering Studies

Pursuant to Federal Highway Administration (FHWA) requirements under MAP-21[2], a VE analysis shall be conducted on:

- Each project on the National Highway System (NHS) receiving Federal Aid with an estimated total cost of $50 million or more
- Each bridge project on the NHS receiving Federal Aid with an estimated total cost of $40 million or more
- Any other project the USDOT Secretary determines to be appropriate

A project is defined by the scope identified in the NEPA Environmental document, which includes the portion of a highway that a state or local unit of government proposes to construct, reconstruct, or improve. The total cost includes all design, right-of-way, construction, and associated costs from all project phases, as reported in the

[1] https://www.fhwa.dot.gov/ve/

[2] https://www.fhwa.dot.gov/legsregs/directives/orders/13111a.htm

environmental document. A project may consist of several contracts or phases over several years. A VE analysis is required on either the whole project, a segment of the project, or on an element of the project, during some phase of the Department's Facilities Development Process.

Best practice is to review and determine VE requirements with FHWA as soon as the estimated total project cost is determined. There are no provisions in MAP-21 that authorize FHWA to grant a waiver or exemption to the requirement to conduct VE analyses.

Regions are responsible for implementing the VE program and complying with its requirements. Central Office facilitates the statewide VE program and uses the results of VE studies to prepare the Department's required annual VE summary report, evaluate the VE program guidance, cost effectiveness, and recommend changes to the program as needed.

Note: Thresholds for required VE studies were changed with MAP-21. All projects authorized for Federal funding before October 1, 2012 are required to provide VE according to previous requirements:

- *Each project on the Federal Aid system with an estimated total cost of $25 Million or more, or*
- *Each bridge project with an estimated total cost of $20 Million or more, and*
- *Any other project the Secretary determines to be appropriate.*

15.3.2 Value Engineering on Projects Beyond Federal Requirement

A VE study may be beneficial to a project with an estimated total cost between $25 million and $50 million (authorized for Federal funding on or after October 1, 2012). In this case, contact the State VEPM to review the scope of the project to determine whether VE is likely to yield a return on its investment.

Consider a VE analysis for any project involving:

- Scopes or estimates that substantially exceed initial values, or that grow complex over a long period of time
- Complex traffic control or staging/phasing, or right-of-way or utility requirements
- Extensive or expensive environmental, geotechnical, or structural requirements
- Other multidisciplinary workshops such as road safety audits, context sensitive solution workshops, etc.
- Complex technical issues, challenging project constraints, unique requirements, or competing community and stakeholder objectives

15.3.3 Other Value Engineering Applications

VE analysis may be applied to policies, standards, procedures or specifications. VE may be performed on a Region-wide basis, along a corridor, along several projects, or on a network of roadways (major, interstate, local, etc.)

When a VE study is not required but is performed because of its potential to improve value, follow the procedures in this chapter and report the results of the study to the State VEPM.

15.4 Scheduling a Value Engineering Study

When a VE study is warranted under FDM 3-15-15.3, contact the State VEPM to set up a VE study. Following are the steps for selecting a team and structuring the study.

Most VE studies are conducted by consultant firms under Master Contract. However, if a project's design contract includes VE services, follow all procedures in this chapter.

See Attachment 15.1 and Attachment 15.2 for a description of the roles and responsibilities of Consultant, Region, and Central Office personnel.

15.4.1 Project Identification/Selection

WisDOT personnel complete a VE Work Order Request Form and submit it to the State VEPM as soon as a VE need is identified. The State VEPM selects a VE consultant, completes the request, and submits it to the Contract Administration Section for approval, then returns the approved copy to the Project team. Each VE study is performed under one Work Order, which is executed between the VE consultant and the WisDOT Region / Project Manager. See FDM 8-20 for consultant contracting procedures.

The scope of a VE study may include one project or a series of projects. Adjacent projects that share geometric elements or construction staging, or projects on a corridor, can sometimes be combined into one VE analysis. Review the proposed scope with the State VEPM and the VE Team Leader, and determine the appropriate scope of each VE study, and confirm the scope in writing with FHWA.

Apply VE as early as practical in project development. In doing so, the VE study is less likely to conflict with the project schedule, recommendations are less likely to require extensive design re-work, and the project team is more likely to be receptive to VE recommendations. However, adequate project data and preliminary design must be available for the VE team to analyze. Work with the State VEPM and FHWA VE coordinator to determine the most appropriate time to hold the VE study.

Common project development stages when VE is applied with the best results include:

- Scoping of project concepts and alternatives to be studied – this is often referred to as a "Value Planning" study
- Development and evaluation of alternatives and alignments, and their environmental impacts
- Development of preliminary roadway and bridge design, typically near 30% design

Examples of VE applications for Major Projects are discussed Attachment 15.3. At a minimum, any VE analysis required per FDM 3-15-15.3.1 shall be conducted prior to completing the project's final design.

15.4.2 Team Leader Selection

For Federally-required VE studies, the VE firm selected must not be the same as the design or environmental firm selected for the project under study.

WisDOT retains several VE consultants on two-year Master Contracts for quick access to qualified VE Team Leaders and participants. The State VEPM is responsible for soliciting and maintaining the VE master contracts. The number of Master Contracts in each biennium is based on the probable amount of work anticipated. To be considered for a Master Contract, a VE firm must employ qualified Team Leaders.

To be eligible to lead a WisDOT VE study, a VE Team Leader must:

- Not be employed by the same firm as the design or environmental firm for the project under study
- Be certified by the Society of American Value Engineers as a Certified Value Specialist (CVS)
- Be fluent with the current VE Job Plan (Attachment 15.2) and FHWA VE requirements
- Demonstrate past performance leading VE studies, with references
    - Have a record of presenting practical solutions, indicated by a high number of recommendations implemented compared to the number of recommendations made.
    - Be skilled in facilitating workshops and motivating a diverse group to produce creative solutions
- Have engineering background, with experience in transportation projects
    - Be familiar with the requirements, standards, and policies of the affected regulatory and environmental agencies
- Be employed by a firm on or eligible for WisDOT's roster of engineering consultants. See FDM 8-5-45

The State VEPM facilitates connecting VE Team Leaders with project teams based on schedule, work load, areas of expertise, and likelihood of success.

Convey relevant project information to VE Team Leader
In order to define the objectives of a VE study and select an appropriate team, the WisDOT project team must provide basic information to the VE Team Leader. To the extent practicable, provide the VE Team Leader with current design information such as plans, alternatives, estimates, and other reports. Discuss with the VE Team Leader any specific project concerns or constraints, and objectives for the VE study. At a minimum, provide the Team Leader with a project overview to help the VE team leader select an appropriate VE team.

15.4.3 Team Selection

A VE team is a multidisciplinary group of individuals, none of whom may be directly involved in the day-to-day design or management of the project being studied. The team's expertise should include the major areas anticipated to be evaluated. Representatives from diverse disciplines other than engineering may provide greater objectivity to the study.

The VE Team Leader is responsible for selecting and managing the VE team and will recommend relevant individuals from their network of subject matter experts. Team members can also include experts from other agencies, elected officials, or interested citizens.

Each VE team should include WisDOT staff, from any region or Statewide Bureau, to contribute expertise on subject matter, State policies, and procedures. Consider inviting personnel from the Bureau of Traffic Operations and Bureau of Structures to participate in each VE study. Including WisDOT personnel on VE study teams results in more relevant, implementable VE recommendations.

The VE consultant shall obtain the approval of the region Project Manager and State VEPM on the scope of the

VE study, as well as the study team members included.

15.4.4 Study Set-up

Coordinate the VE study details with the VE Team Leader. Some of these elements influence the cost of the VE study and need to be determined prior to executing a Work Order.

- Date and time of study: VE studies vary in length based on project complexity, are often 3 to 5 days long and occur during one week. The VE team leader will recommend an agenda for the study. Structure the agenda to accommodate travel by VE team participants, and attendance by key WisDOT personnel.
- Location of study: Some studies are held in conference rooms at region offices, but are often effective when moved offsite, to a nearby conference or meeting facility of any kind. The study location must be conducive to the VE team focusing fully on the study, without distractions.
- Site Visit: Many VE project teams greatly benefit from a site visit. When a site visit is part of the agenda, a study location near the project site is recommended. A representative from WisDOT who is familiar with the site should act as a guide for the VE study team. Site visits are usually made in a State van (arranged by WisDOT PM) or rented van (arranged by VE Team Leader.)
- In-brief meeting: At the beginning of each VE study, the project/design team briefs the VE team on the project design and decisions to-date, as well as constraints and goals for the VE study. The in-brief meeting is a valuable opportunity to solicit input and participation from project stakeholders, which can include WisDOT, FHWA, local municipalities, and others. At a minimum, the Project Manager shall establish a meeting for the in-brief session, and invite the State VEPM, the project's FHWA representative, the project's Design Oversight liaison (BPD), and representatives from the Bureau of Traffic Operations and Bureau of Structures. Provide this invitation as soon as possible after the VE agenda is determined.
- Out-brief meeting: At the end of each VE study, the VE team presents its recommendations to WisDOT. In coordination with the VE Team Leader, the project manager shall establish a meeting time and place for the out-brief and invite interested or affected stakeholders (as described below in FDM 3-15-15.6).

15.5 Conduct a Systematic Functional Analysis VE Study

The VE study itself is administered in accordance with a standard Job Plan (Attachment 15.1), by the VE Team Leader. During the study, involvement by the WisDOT project team is usually minimal. Designate an individual on the project team as a point of contact for the VE team, to answer questions or furnish additional information requested.

15.6 Presentation of Recommendations

At the end of each VE study, the VE Team presents its recommendations to the WisDOT project team and other interested stakeholders. It is imperative that project personnel, region managers, and other interested decision-makers attend the out-brief meeting and ask any questions directly of the VE team.

At a minimum, the Project Manager in coordination with the VE Team Leader shall establish a meeting for the out-brief session, and invite the State VEPM, FHWA, Bureau of Project Development, Bureau of Traffic Operations, and Bureau of Structures (if the project includes any structures), and region managers.

After the VE study is completed, the VE consultant shall prepare and deliver to WisDOT a complete draft report of the VE study. It is recommended that the draft report be furnished to WisDOT in electronic (PDF) format. The report must be completed in a timely manner (as specified in the Work Order), and give a complete, clear, and thorough account of the VE study considerations and recommendations.

15.7 Implement Approved Recommendations

The WisDOT project team is responsible for implementing accepted VE recommendations.

After the completion of the VE study and receipt of the draft VE report, the Project team, in consultation with region management, must determine which VE recommendations to implement. It is desirable for the project team convene an additional meeting to review the VE recommendations. Give serious consideration to all VE recommendations, even those that represent significant changes to the project design. Revise the estimated savings, if necessary, and note any conflicts with project parameters. Contact the VE Team Leader, if necessary, for corrections to the draft report or for additional clarifications.

Likewise, understand that the VE team works with limited information; do not accept VE recommendations that violate previous commitments or other project objectives or parameters not adequately considered by the VE team.

Ultimately, determine which recommendations to accept or reject, and document rationale for each decision alongside each recommendation on the VE summary worksheet (Attachment 15.4). Provide a list of these decisions to the VE Team Leader for inclusion in the final VE report and to the VEPM for statewide reporting.

Approved VE recommendations shall be implemented through revision of the project design documents. Changes made as a result of the VE study should be noted in design documentation, including the DSR.

15.8 Reporting Requirements

For each VE study, the VE Consultant shall provide the Department a complete final report of the VE study. The report must thoroughly document each phase of the VE study, along with summary information.

Provide a full electronic (PDF) copy and one full paper copy to the State VEPM, to be retained in Central Files. Additional copies should be distributed at the Project Manager's discretion.

For each VE study, all VE alternatives shall be summarized on Attachment 15.4. This worksheet consists of a summary description and details of each VE alternative considered, their acceptance status, and final VE estimated cost avoidance. A draft of form DT1342 (Value Engineering Summary) shall be included with each VE final report, which the Project team will update with implementation data.

The State VEPM retains records of all VE studies completed and compiles the required annual report to FHWA. This report helps keep stakeholders aware of VE accomplishments and results and serves to promote VE as a team effort of the entire department.

LIST OF ATTACHMENTS

Attachment 15.1	Value Engineering Job Plan
Attachment 15.2	Roles and Responsibilities
Attachment 15.3	Value Engineering Studies on Major Projects
Attachment 15.4	VE Recommendations Summary Worksheet

Removed FDM 3-15-20 Accelerated Construction Technology Transfer Section

Guidance Matrix for Project Organization, Tools, Management and Reporting

The matrix beginning on the next page lists key management resources and strategies that are critical to the success of any project while highlighting how those items differ between conventional projects, high-profile projects, and federal major projects.

The matrix is comprised of 40 processes separated into 7 categories. Processes and categories may be added, deleted, or edited over time as needed.
For each process, the matrix provides a process ID and name, definition, functional areas involved, applicability for different project types, links to supporting documentation, and clarifying comments.

Index

Project Types			
Type	**Conventional**	**High-Profile**	**Federal Major**
Definition	• FDM 3-15-1.1.3 Conventional Projects	• FDM 3-15-1.1.2 High-Profile Projects	• FDM 3-15-1.1.1 Federal Major Projects
Cost Thresholds	• Total cost < $100 million	• $100 million < total cost < $500 million or, • Total cost < $100 million – Identified by Department management as a High-Profile project because of special interest.	• Total cost > $500 million (YOE), includes preliminary engineering, or • Total cost < $500 million (YOE) - Identified by the USDOT Secretary of Transportation as a Federal Major because of special interest.
Examples	• Other than those projects identified as High-Profile and Federal Major	• Major Highway Development Program ○ https://docs.legis.wisconsin.gov/document/statutes/84.013(3) ○ Wisconsin Department of Transportation Major Highway Development subprogram (wisconsindot.gov) • Interstate Bridge Construction • High-cost State Bridge	• Southeast Wisconsin Freeway Megaproject ○ https://docs.legis.wisconsin.gov/document/statutes/84.014(5m)(ag) • Major Highway Development Program ○ https://docs.legis.wisconsin.gov/document/statutes/84.013(3) ○ Wisconsin Department of Transportation Major Highway Development subprogram (wisconsindot.gov) • Major Interstate Bridge Construction • High-cost State Bridge
Resources and Tools	• Resources and tools as needed to plan, design and construct project in accordance with applicable federal and state manuals and policies	• Project magnitude and complexity may require additional resources (e.g., dedicated staff vs. shared staff, special expertise, etc.) and tools (e.g., proprietary software, etc.)	• Project magnitude and complexity usually requires additional resources (e.g., dedicated staff vs. shared staff, special expertise, etc.) and tools (e.g., proprietary software, etc.)

Organization Acronyms	
Divisions	**Bureaus**
DBSI - Division of Budget and Strategic Initiatives	BOB - Bureau of Budget
DTIM - Division of Transportation Investment Management	BSHP - State Highway Programs Bureau
DTSD - Division of Transportation System Development	AO - Administrator's Office
	BHM - Bureau of Highway Maintenance
	BOS – Bureau of Structures
	BPD – Bureau of Project Development
	BTO – Bureau of Traffic Operations
	BTS – Bureau of Technical Services
	OBOEC – Office of Business Opportunity and Equity Compliance

Other Acronyms Not Defined Elsewhere	
DBE – Disadvantaged Business Enterprise	TMP – Transportation Management Plan
DIN – Design Issue Notice	TPC – Transportation Projects Commission
MAPSS – Mobility, Accountability, Preservation, Safety, Service	WTBA – Wisconsin Transportation Builders Association
RFI – Request for Improvement	YOE – Year of Expenditure

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
A-01	Construction Planning and Submittal Workshops (aka Mobilization Workshops)	Preconstruction workshops (after contract award) between the prime contractor, major subcontractors, and department staff to discuss critical aspects and areas of the project.	Construction	BHM, BOS, BPD, BTO, BTS, OBOEC, Region	Typically not needed	Strongly Recommended	Required (WisDOT)	A, B and C: FDM 3-15-1, Attachment 1.15 Preconstruction Workshop Topics.docx	

A-02	Construction Safety Management System (CSMS)	A CSMS provides a single overall approach to managing Safety activities that allows for efficient, prioritized program execution with key performance measures. A CSMS is a system that: 1. Incorporates people, procedures, and work practices in a formal structure to ensure that the important Safety impacts of the organization are identified and addressed; 2. Promotes continual improvement by periodically evaluating Safety performance; 3. Involves all members of the organization and its partners, as appropriate; and 4. Actively involves Senior Management in support of the CSMS programs. An Owner Controlled Insurance Program (OCIP) is an insurance policy held by WisDOT during construction, which is typically designed to cover virtually all liability and loss arising from the construction project unless specifically excluded. It should be considered for high profile and mega projects.	Construction	BOS, BPD, BTO, BTS, Region	Consider	Strongly Recommended	Strongly Recommended	**TO BE ADDED**	

Processes			Functional Areas Involved (WisDOT)	Organizational Areas Involved (WisDOT)	Project Types			Links	Comments
ID	Name	Definition			A. Conventional	B. High-Profile	C. Federal Major		
A-03	Dispute Review Board (DRB)	Established after execution of the contract to render decisions on unresolved claims quickly and impartially during construction of the project.	Construction	BOS, BPD, BTO, BTS, Region	Consider	Recommended	Strongly Recommended	B and C: FDM 3-15-1, Attachment 1.5 Dispute Resolution	
A-04	Escrow Bid Documents	Require the lowest responsible bidder to submit the documents they used to determine the costs shown in their bid into escrow. These remain sealed unless the bidder and the department mutually agree to release the documents to aid in dispute and claim resolution.	Design, Construction	BPD, Region	Typically not needed	Consider	Consider		
A-05	Partnering	Open communications between the Department and contractor's leadership at regularly scheduled meetings where issues are discussed, and resolutions reached. Includes Consultants, Contractors, FHWA, and other stakeholders.	Design, Construction	BOS, BPD, BTO, BTS, OBOEC, Region	Consider	Recommended	Strongly Recommended	B and C: FDM 3-15-1, Attachment 1.2 Partnering	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
B-01	3D Automated Machine Guidance (AMG)	Create a 3D Automated Machine Guidance (AMG) contractor model from the design files and paper plans. The AMG model should include finish grade and subgrade surfaces. Check average end area volumes with a surface-to-surface comparison. Provide surfaces in DWG, XML, and TTM format for the contractor and construction management team.	Design, Construction	BOS, BPD, BTS, Region	Recommended	Required (WisDOT)	Required (WisDOT)		
B-02	3D Building Information Modeling (BIM)	Create a 3D Construction model (3D lines and points of elements needed for construction layout) from the design files and paper plans. Leverage the 3D Construction model to prepare a 3D Building Information Model (BIM) for Infrastructure for the contractor and construction manager utilizing 3D solid objects to represent all proposed final construction. Do not include interim staged construction. Provide surfaces in DWG, XML, and TTM format. Provide set up and construction layout data in DWG and CSV format.	Design, Construction	BOS, BPD, BTS, Region	Consider	Strongly Recommended	Strongly Recommended		

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
B-03	3D Model with Clash Detection	Create a 3D clash detection model for inter-discipline checks to enhance plan quality. Plan elements to be included are existing utilities, proposed public and private utilities, roadway paving and grading, bridges including piles and foundations, retaining walls including tiebacks and backfill zones, sign structures, storm sewer structures and pipes, lighting, traffic signals, FTMS, sanitary sewer, and water main.	Design, Construction	BOS, BPD, BTS, Region	Consider	Strongly Recommended	Strongly Recommended		
B-04	Cloud-Based CADD File Management	**TO BE ADDED**	Design, Construction	BOS, BPD, BTS, Region	Consider	Strongly Recommended	Strongly Recommended		
B-05	Utility Coordination	Proper upfront coordination and review of utility work plans, utilization of subsurface utility exploration methods, and completion of work in advance of construction to decrease delays and costs to the project.	Design, Construction	BOS, BPD, BTS, Region	Required (WisDOT)	Required* (WisDOT)	Required* (WisDOT)		* Appoint lead contact for utility coordination in both design and construction phases of the project. Leads should be dedicated to full time oversight of utility process.

B-06	Innovation	Innovative design, construction, and other functional proposals are often considered for pilot testing and implementation on Major projects. This is done in coordination with the Statewide DTSD Innovation Program, which is dedicated to identifying opportunities that generate efficiencies and improve policies, practices and procedures. Three major focal areas of the innovation program include the rapid identification and adoption of innovative best practices, modernization of IT tools and data systems, and creation of a culture of innovation that prioritizes continuous process improvement. Often policy, procedure, specifications, administrative rule, and statutory consideration are involved, and decision making can involve areas outside of the department.	Design, Construction	BOS, BPD, BTO, BTS, Region	Consider	Consider	Consider	B and C: FDM 3-15-1, Attachment 1.3 Innovation	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
B-07	Lessons Learned Process	The purpose of a lessons learned process is to develop a collaborative culture, use enhanced risk mitigation strategies, integrate innovation into program and project delivery in an effort to minimize change management values over the life a project/program. The goal is to capture lessons learned throughout the life of the project, which provide opportunities for team members to discuss successes, unintended outcomes, and recommendations. A continuous feedback process elevates issues from the project level to the program level, where the cause of the issue can be addressed for future projects and statewide manuals/specifications. After project/program completion, there should be a thorough evaluation done to ensure a comprehensive list of the most important and applicable lessons learned are documented.	Design, Construction	BHM, BOS, BPD, BTO, BTS, OBOEC, Region	Consider	Recommended	Strongly Recommended	B and C: Lessons Learned - Major Projects - Federal Highway Administration (dot.gov) B and C: REFERENCES 23 U.S.C §106(h): Major Projects 23U.S.C.106(h): Major Projects _ GPO B and C: FHWA Office of Infrastructure Major Projects Website FHWA Major Projects	

Processes			Functional Areas Involved (WisDOT)	Organizational Areas Involved (WisDOT)	Project Types			Links	Comments
ID	Name	Definition			A. Conventional	B. High-Profile	C. Federal Major		
								B and C: 2017 FHWA Project Management Plan Guidance Project Management Plan Guidance for Major Projects	
B-08	Project Design Best Practices Guide	A database of best practices for ensuring consistent and effective Special Provisions and detailed drawings for unique situations specific to Major projects.	Design	BOS, BPD, BTO, BTS, Region	Typically not needed	Recommended	Strongly Recommended	**TO BE ADDED**	
C-01	Disadvantaged Business Enterprise & Worker Programs	Mentoring programs to assist DBE firms through the certification and bidding process as well as educational opportunities for minority and female workers for entry-level work required for construction projects.	Design, Construction	OBOEC, Region	Consider	Recommended	Strongly Recommended	A, B and C: FDM 3-15-1, Attachment 1.9 DBE and Small Business Responsibilities	
C-02	Title VI	Reviews demographic data reports from public involvement efforts and relocation efforts for disparate impact analysis to mitigate risk of potential disparate impacts upon Title VI populations.	Design, Construction	OBOEC, Region	Required	Strongly Recommended	Strongly Recommended	A, B and C: FDM 3-15-1, Attachment 1.10 Title VI Demographic Data Collection and Reporting	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
C-03	Public Involvement	The goal is to streamline the public involvement process, provide a framework to use the most effective outreach tools, and reduce costs. The use of multiple and varied tactics, based on each project's required Public Involvement Plan (PIP), is used to communicate project information to stakeholders, including businesses, general public, and local officials, to obtain feedback and to provide information. Examples of outreach tools include, but not limited to, project websites for design or construction, written and e-based correspondence, news releases, in-person meetings, etc.	Design, Construction	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Required	Required	Required		**THIS SECTION IS UNDER CONSTRUCTION - BTS, RCMs and OBOEC are working to develop single source for this information**
C-04	Traffic Mitigation Strategies	A plan developed with input from business stakeholders, agencies, institutions and first responders to maximize the safe and efficient movement of traffic through construction zones. Developed as part of TMP.	Construction	BPD, BTO, OBOEC, Region	Required	Required	Required	A, B and C: FDM 11-50 Traffic Control A, B and C: Traffic Engineering, Operations and Safety Manual (TEOpS) https://wisconsindot.gov/Pages/doing-bus/local-gov/traffic-ops/manuals-and-standards/teops/default.aspx	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
D-01	Reports **This section to be revised to indicate to whom the reports are prepared for, submitted to, and/or approved by**	Executive Summary	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Typically not needed	Strongly Recommended	Required		Monthly
		Change Management Report	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Required	Required	Required		Monthly
		PS&E/Let Schedule	Design, Construction, Financial, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Required	Required	Required		Federal Major – Monthly High-Profile – Quarterly Conventional – Quarterly
		Project Construction Schedule	Construction, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Typically not needed	Strongly Recommended	Required		Federal Major – Baseline and Monthly High-Profile – Baseline and Monthly

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		DBE/Labor Compliance Reporting	Construction, Financial, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Typically not needed	Strongly Recommended	Required		Federal Major – Monthly High-Profile – Monthly
D-01	Reports **This section to be revised to indicate to whom the reports are prepared for, submitted to, and/or approved by**	Unprogrammed Cost Reporting	Financial, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Recommended	Strongly Recommended	Required		Monthly
		Project Maps	Construction, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Recommended	Required	Required		Yearly, or as needed for programming changes.
		Expenditure / Encumbrance (Design/Construction)	Design, Construction, Financial, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Recommended	Strongly Recommended	Required		Monthly
		Design Project Risk Reporting	Design, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Recommended	Strongly Recommended	Required		Federal Major – Monthly High-Profile – Monthly Conventional – Quarterly

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		Finals Tracking	Construction, Controls	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Required	Required	Required		Monthly
		Issues/RFI/DIN Logs	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Recommended	Required	Required		Monthly
		R/W Progress Reports	Design, Financial, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Typically not needed	Recommended	Required		Monthly
D-01	Reports **This section to be revised to indicate to whom the reports are**	Risk Register	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Required	Required	Required		Monthly

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
	prepared for, submitted to, and/or approved by	Contract Administration	Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Typically not needed	Recommended	Required		Monthly
		Statewide Mega/Major FHWA Dashboard	Design	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Typically not needed	Required	Required	B and C: https://wisdot.box.com/s/qiig9jf3jxaap6445optdwnu8auyig03	Quarterly
		TPC Report	Financial	AO, BOB, BSHP, Region	Typically not needed	Most Likely Required	Required		The TPC report is for projects that are in either the Majors or SE Mega program. Projects in other programs are not included in this report.
E-01	Material Quality Assurance	Steps taken to validate quality control, documentation and verification of materials and placement methods.	Design, Construction, Controls	BOS, BPD, BTS, Region	Required	Required	Required		
F-01	Project Field Office	Project office needs are dictated by the magnitude and complexity of the project or program, number of staff involved on a daily basis, and conference/meeting room space needs.	Design, Construction	BPD, Region	Required	Required	Required		

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
F-02	Estimating Team Process	A Validation Team including a cross section of Transportation estimating experts: WisDOT, Consultant, design/construction/ economists, Industry, and FHWA to perform estimate reviews at 60%, 90% and just prior to letting.	Design, Financial	BOB, BOS, BPD, BSHP, BTO, BTS, Region	Typically not needed	Recommended	Recommended	B and C: Majors projects estimating tool (https://wisconsindot.gov/Pages/doing-bus/eng-consultants/cnslt-rsrces/tools/estimating/est-tools.aspx)	
F-03	Road Safety Audits (RSA)	A Road Safety Audit (RSA) is the formal safety performance examination of an existing or future road or intersection by an independent, multidisciplinary team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users. Some projects have included an RSA with the Value Engineering (VE) study.	Design	BOS, BPD, BTO, BTS, Region	Typically not needed	Recommended	Strongly Recommended		

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
F-04	Value Engineering	Value Engineering (VE) is a systematic process for creatively enhancing the value of a project. The Federal Highway Administration (FHWA) requires VE on all highway projects over $50 million and all bridge projects over $40 million, with additional study requirements for major highway and bridge projects. VE is the application of a step-by-step, systematic job plan based on specific industry-wide standards.	Design	BOS, BPD, BTO, BTS, Region	Consider	Required (WisDOT; FHWA - based on specific dollar threshold)	Required (WisDOT; FHWA - based on specific dollar threshold)	B and C: FDM 3-15-15 Value Engineering	
G-01	Program/Project Management Plan	*The preparation of the project management plan (PMP) helps to ensure successful project delivery and the maintenance of public trust, support, and confidence throughout the life of the project. The purpose of the PMP is to clearly define the roles and responsibilities of the agency leadership and management team; to document the procedures and processes that are in effect (such as identifying project requirements and establishing communication protocols) to provide timely information to the project decision makers to effectively manage the scope, quality, schedule, cost, resources, and risks; and to document the Federal requirements applicable to the delivery of*	Design, Construction, Financial	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Required	Required	Required	A – FDM 2-15-5: Project Management Plans A, B and C: FDM 2-20-1 Scope Management B and C: FDM 2-20-30 Resource Management B and C: FDM 3-15-5 Project Management Plans C: FDM 3-15-1, Attachment 1.6 Federal Level Management and Reporting C: FDM 3-15-1, Attachment 1.11 FHWA Major Projects Requirements Timeline	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		the project.						C: FDM 3-15-1, Attachment 1.14 FHWA Division PMP Flowchart	
G-02	Project Design Document	Includes project-specific design requirements and guidance if different or unique to the project.	Design, Controls	BOS, BPD, Region	Required (FHWA and WisDOT)	Required (FHWA and WisDOT)	Required (WisDOT)		
G-03	Change Management	Define and adopt strategies, structures, procedures and technologies to deal with changes and determine how they impact the project's scope, schedule and cost. With the goal of cost and schedule maintenance, the process allows for issue identification, assessment/evaluation, resolution, and mitigation.	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, Region	Required if more than 4% (WisDOT)	Required (FHWA and WisDOT)	Required (FHWA and WisDOT)	A, B and C: FDM 2-20-45 Change Management	Documented in PMP
G-04	Document and Decision Control	A framework or system to provide and track the collection, storage, and distribution of information for timely and effective decision-making throughout the project.	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Required (though less formalized process)	Required	Required	A, B and C: FDM 2-20-10 Communication Management	
G-05	Financial Plan	Initial Financial Plan (IFP): This initial document helps to ensure that necessary financial resources are identified, available	Financial			Required (WisDOT; FHWA -	Required (WisDOT; FHWA -	A: FDM 2-15-10: Project Financial Plans	Complete to FHWA standards. Current FHWA guidance cutoff

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		and managed throughout the life of the project. The IFP includes scope, cost estimate, schedule, funding, and reasonable assurance that there are adequate resources to complete the project. The IFP is required before authorization of federal funds for construction. Financial Plan Annual Update (FPAU): This annual document helps to ensure that the necessary financial resources are identified, available, and managed through life of project. Similar to the IFP, the FPAU includes scope, cost estimate, schedule, funding and reasonable assurance that there are adequate resources to complete the project. The FPAU is required before additional authorization of federal funds for construction can be made. ***Delays in FPAU approvals could put further project authorizations at risk.***		AO, BOB, BPD, BSHP, OBOEC, Region	Required (though less formalized process)	based on specific dollar threshold)	based on specific dollar threshold)	B and C: FDM 2-15-10: Project Financial Plans B and C: FDM 2-20-15 Budget Management C: FDM 3-15-1, Attachment 1.6 Federal Level Management and Reporting C: FDM 3-15-1, Attachment 1.11 FHWA Major Projects Requirements Timeline C: FDM 3-15-1, Attachment 1.13 FHWA Division Financial Plan Flowchart B and C: PMM 03-01-07	point is $500M. Projects with a total cost greater than $500 million require a full financial plan. FHWA requires a shortened plan for projects between $100 and $500 million. These projects are documented in the WisDOT Single Financial Plan.
G-06	Cost and Schedule Risk Assessment (CSRA)	The development of a build out budget cost in year of expenditure values for a project or program. Includes risk & uncertainty identification. Conducted during NEPA phase and just prior to construction during	Design	BOB, BOS, BPD, BSHP, BTO, BTS, Region	Typically not needed	WisDOT may request a CSRA review for any high interest projects in the	Required for projects $500M or	C: FDM 3-15-1, Attachment 1.11 FHWA Major Projects Requirements Timeline	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		final design.				majors program	greater (FHWA)	C: FDM 3-15-1, Attachment 1.12 FHWA Division CSRA Flowchart	
G-07	Issue Management	Creation of an issues report (also referred to as an issue log), actively managing and updating the report throughout the project. Report should include name of issue, definition, status, impact, action required, target completion date to resolve and ball-in-court. Issues are items of concern that are being managed by the project team with specific sequential actions required to mitigate the least impactful resolution. Issues may become Risks and should be tracked through that process.	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Consider	Recommended	Strongly Recommended	A, B and C: FDM 2-20-5 Stakeholder Management	
								A, B and C: FDM 2-20-10 Communication Management	
								A, B and C: FDM 2-20-20 Risk Management	
								A, B and C: FDM 2-20-30 Resource Management	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
G-08	Risk Management	Creation of a risks report, actively managing and updating the report throughout the project. Report should include name of risk, definition, status, impact, action required, target completion date to resolve and ball-in-court. Complex projects may require additional resources to actively manage risks. Risks are uncertain events or conditions that if they occur have a positive or negative effect on a project's objective. Risk items of concern that are outside the direct control of the project team that are being monitored to mitigate the impact wherever possible.	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BSHP, BTS, OBOEC, Region	Consider	Recommended	Strongly Recommended	A, B and C: FDM 2-15-1 Project Integration Management A, B and C: FDM 2-20-20 Risk Management	
G-09	Risk Workshop	Working meeting involving project team and wide array of functional experts (i.e., structures, geotech, construction, design, traffic control, etc.) to identify project risks and develop well-written description of risks. Risk workshops shall be held approximately 2 months before each	Design	AO, BOB, BOS, BPD, BSHP, BTO, BTS, OBOEC, Region	Typically not needed	Recommended	Strongly Recommended	C: FDM 3-15-1, Attachment 1.11 FHWA Major Projects Requirements Timeline	

Processes			Functional Areas Involved (WisDOT)	Organizational Areas Involved (WisDOT)	Project Types			Links	Comments
ID	Name	Definition			A. Conventional	B. High-Profile	C. Federal Major		
		respective CSRA.						C: FDM 3-15-1, Attachment 1.12 FHWA Division CSRA Flowchart	
G-10	Program Controls	Documentation, tracking and reporting related to the overall program's schedule, quality, scope, material, and cost issues. Program Controls are generally in-house or a part of prime consultant's contract. Plan reviews should be completed by an independent entity. See Budget Estimation and Management	Design, Construction, Financial	AO, BOS, BPD, BTO, BTS, OBOEC, Region	Recommended	Required	Required	A, B and C: FDM 2-20-1 Scope Management A, B and C: FDM 2-20-15 Budget Management A, B and C: FDM 2-20-25 Schedule Management A, B and C: FDM 2-20-35 Quality Management	
G-11	Program Management	Monitoring and oversight of program controls, document controls, financial controls, schedule controls and contract			Recommended	Required	Required	A, B and C: FDM 2-20-1 Scope Management	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		management.	Design, Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region				A, B and C: FDM 2-20-15 Budget Management	
								A, B and C: FDM 2-20-25 Schedule Management	
								A, B and C: FDM 2-20-35 Quality Management	
G-12	Project Controls	Documentation, tracking, and reporting related to cost, schedule, quality, scope, and material issues of a specific project within the overall program. RFI's, DIN's, etc. Includes utilization of proven cost control systems and software to track program delivery during planning and design, as well as to ensure the contractor is in control of the performance of the work within the contract completion deadlines, production rates, and the critical path of activities.	Design, Construction, Financial, Controls, Change Mgmt	AO, BOB, BOS, BPD, BSHP, BTO, BTS, OBOEC, Region	Required (WisDOT)	Required (FHWA and WisDOT)	Required (FHWA and WisDOT)	A, B and C: FDM 2-20-1 Scope Management	Regions may utilize processes for balancing contract modifications and equalizing contract modifications. As part of the cost controls system, there should be regularly updated project cost to complete estimates considering budgeted cost of work performed, budgeted cost of work scheduled, over/underrun
								A, B and C: FDM 2-20-15 Budget Management	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		Also includes utilization of proven schedule control systems and software to track program and project delivery during planning, design, and construction to ensure the contractor is in control of the performance of the work within the contract completion deadlines, production rates, and the critical path of activities.						A, B and C: FDM 2-20-25 Schedule Management	quantities, design fees including public outreach, approved and anticipated contract modifications, real estate, utilities, construction delivery, and non-Let projects.
								A, B and C: FDM 2-20-35 Quality Management	

G-13	Quality Management	An enhanced plan review process that includes identification of key design elements, such as earthwork/cross sections, staging, geometrics, temporary drainage etc., and review of these elements by small teams of subject experts for each of those topic areas. Same group of experts to review all in-house and consultant plans at major design milestones such as preliminary scope complete, final scope complete and 90% complete. Process involves key stakeholders and subject matter experts early and throughout the project development process which creates a feedback loop with experienced construction oversight and other subject levels experts to identify issues, develop solutions and ensures early availability of the plan set to the construction industry for review prior to bid. For projects with highly complicated staging or potential conflict with contractors means/methods also consider reaching out to industry (WTBA/Contractors) when these conflicts are identified to discuss the issues and determine resolutions during design.	Design, Construction	BOS, BPD, BTO, BTS, Region	Required*	Required*	Required*	A, B and C: FDM 2-20-35 Quality Management	* Quality Management is required for all project types. Enhanced PS&E Review is strongly recommended for Project Types B and C. Less formalized review process is recommended for Project Type A.
G-14	Accountability Matrix	Identifies who is involved in various tasks needing FHWA action, including who is	Design,		Recommended	Strongly	Required	A, B and C: FDM 2-20-5 Stakeholder Management	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
		responsible, accountable, consulted, and informed for each task. See PMPs, see MAPSS-CORE Goal, see FHWA-Oversight and Stewardship Agreement. Also referred to as Roles and Responsibilities Matrix.	Construction, Financial, Controls, Change Mgmt	AO, BOS, BPD, BTO, BTS, OBOEC, Region		Recommended	(WisDOT)	A, B and C: FDM 2-20-20 Risk Management A, B and C: FDM 2-20-30 Resource Management A, B and C: FDM 2-20-45 Change Management C: FDM 3-15-1, Attachment 1.4 Accountability (Matrix)	

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
G-15	Staffing	If project or program resource load increases beyond Region staff capacity, additional dedicated staff may be needed. Projects may need to supplement the department's (owner's) expertise by hiring additional outside guidance. Areas in which additional expertise is typically needed include Structures, Traffic Mitigation, Constructability Reviews, Scheduling, Utility Coordination, etc. This effort may also include the evaluation of work by others to ensure that technical processes being applied or developed meet the department's needs, meet the standards of professional practice, and/or meet federal, state or local planning requirements.	Design, Construction, Financial, Controls, Change Mgmt	BOS, BPD, BTO, BTS, Region	Required	Required	Required	A, B and C: FDM 2-20-30 Resource Management	Documented in PMP

Processes			Functional Areas Involved	Organizational Areas Involved	Project Types			Links	Comments
ID	Name	Definition	(WisDOT)	(WisDOT)	A. Conventional	B. High-Profile	C. Federal Major		
G-16	Bureau Liaisons	One or more dedicated liaisons to act as single points of contact to facilitate clear communication between the project team and the Bureaus, and to serve as an engineering resource and advisor to the project team. Help to mitigate project costs, quality issues, and schedules by providing real time assistance to allow timely decision making by the project team.	Design, Construction	AO, BOB, BOS, BPD, BSHP, BTO, BTS, OBOEC, Region	Typically not needed	Required (FHWA and WisDOT)	Required (FHWA and WisDOT)		
G-17	Design Liaison/ Transparency Contract	Contract with the design consultant to • answer plan questions during construction • provide design expertise through construction continuity provide plan revisions	Design, Construction	BOS, BPD, BTO, BTS, Region	Typically not needed	Strongly Recommended	Required (WisDOT)		

Partnering

Partnering is a crucial early step in managing project expectations. Partnering offers a framework for conflict resolution and improved communications. Adopting a partnering approach, all parties agree from the beginning, in a formal structure to focus on creative cooperation and teamwork in order to avoid adversarial confrontation. Working relationships are carefully and deliberately built, based on mutual respect, trust and integrity.

- Partnering can provide the basis for participants to re-orient themselves towards a “win-win” approach to problem solving and can foster synergistic teamwork
- Partnering represents a proven approach to project management and project control.

Project Teams can address partnering informally or formally. For Federal Major Projects formal and facilitated partnering meetings shall be utilized in the design and construction phases of projects.

Federal Major Projects Partnering should include:

I. Normal/Traditional partnering efforts
II. Bi-weekly partnering meetings between WisDOT managers, FHWA, design consultants and contractors.
III. Meeting agenda should include:
    a. Design update from design consultant
        i. Issues and/or problems with design, schedule, budgets, etc.
        ii. Decisions the design team needs from WisDOT, FHWA, contractors or others
        iii. Potential design change orders or disputes
        iv. Issues to be considered for change management log
        v. Any items that can be considered as “value engineering” or “cost reduction” initiatives
    b. Construction update from contractor
        i. Issues and/or problems with construction, schedule, budgets, etc.
        ii. Decisions the contractor needs from WisDOT, FHWA, design team or others
        iii. Potential construction change-orders or disputes
        iv. Issues to be considered for change management log
        v. Any items that can be considered as “value engineering” or “cost reduction” initiatives

Innovation

The project manager is responsible for ensuring collaboration and communication occurs at the innovation inception between the project team, the region and the statewide bureaus. It is important this communication happens early to raise awareness, provide guidance, get buy-in and potentially change policy and standards.

Accountability

Working in accordance with partnering and dispute resolution processes, the project team and team members are responsible for seeing decisions are made. In simplest terms they are accountable for the successful delivery of the project.

Roles, Responsibility, and Accountability should be part of every project meeting. This ensures proper ownership of project-related tasks, as well as accurate and timely execution of those tasks. The region, bureau, and division staff, leads, project managers, supervisors, and chiefs are critical to ensure roles, responsibilities, accountability, and decision responsibilities are defined and followed up on.

With current workloads associated with the many Department Federal Major Projects and other High-Profile projects, development of an Accountability Matrix may be overly resource intensive. However, the concept has value and should be considered for use in part or whole by Project Chiefs when setting up a Federal Major Project or a High-Profile Project.

An Accountability Matrix should be considered a living document. The appropriate time to begin developing this tool is during the data gathering process. Generally, the project manager would facilitate the discussion and create the matrix in accordance with what was agreed upon by the project stakeholders.

In-order to keep the document living and up to date, an annual review is recommended, as well as any time there is a significant shift in personnel.

(SAMPLE) *Public Information Outreach Accountability Matrix*

ID	Task	Region Federal Majors PDS Team	FHWA	Region
1	Overall PI Outreach Effort	A	C	PS
2	Spokesperson	A	C	PS
3	Theme Identity	A	C	PS
4	Market Research	PS	C	A
5	PI Product Development	A	C	PS
6	Sensitive Issues	PS	A	C
7	Open Records Requests	A	C	PS

A = Accountable for **PS** = Participate in/Support **C** = Communicate with

Dispute Resolution

Dispute resolution plays a crucial role in project management. A dispute resolution plan is designed to prevent opposing parties from arriving at an impasse. A dispute resolution plan, when properly implemented, helps to establish a common understanding of the process you will use to efficiently and effectively, resolve issues. Successful dispute resolution requires a win-win attitude from all parties, common-objectives, and compromise.

The process of dispute resolution starts at the lowest possible level for each organization and proceeds up through both organizations' hierarchy, until the dispute is resolved.

A dispute is only elevated to the next level when 1) an agreement cannot be reached at the current level within the agreed upon time, or 2) if more than the agreed upon time has passed without a solution, or 3) by request of one of the parties at the current level (after first informing the other party), and with concurrence of those in the next higher level. Elevating a dispute to the next level should not be considered a failure, but rather an attempt to resolve the issue expeditiously and without impacting a project's schedule or budget.

Sample Dispute Resolution Plan WisDOT Disputes

	Design/Surveys/Lab	Subs/Suppliers	
Level	**WisDOT**	**Contractor**	Time to Evaluate
I	Project Manager	Bureau staff	1 day
II	Supervisor	Bureau BPD Liaison or Supervisor	1 week
III	Chief	Bureau Chief(s)	1 week
IV	Region Director, Deputy Director	Bureau Director(s)	2 weeks
V	Deputy Administrator Regions	Deputy Administrator Bureaus	2 weeks

Note: If a dispute cannot be resolved by Deputy Administrators the Division Administrator will make a final decision.

Sample Dispute Resolution Plan for Design

	Design/Surveys/Lab	Subs/Suppliers	
Level	**WisDOT ***	**Consultant**	Time to Evaluate
I	Project Manager	Consultant staff, task leads	1 day
II	Supervisor	Project Manager	1 week
III	Chief	Project Manager	1 week
IV	Region Director, Deputy Director, Bureau Director	Principal	2 weeks
V	Deputy/Division Administrator	Principal	2 weeks

Note: Region Project Managers, Supervisors, and Chiefs shall utilize BPD Liaison and Bureau Counterparts as part of Dispute Resolution Process.

Sample Dispute Resolution Plan for Construction

	Design/Surveys/Lab	Subs/Suppliers	
Level	**WisDOT ***	**Contractor**	Time to Evaluate
I	Project Manager	Foreman/Superintendent	1 day
II	Supervisor	Project Manager	1 week
III	Chief	Area Manager	1 week
IV	Region Director, Deputy Director, Bureau Director	Operations Manager	2 weeks
V	Deputy/Division Administrator	Owner; President	2 weeks

Note: Region Project Managers, Supervisors, and Chiefs shall utilize BPD Liaison and Bureau Counterparts as part of Dispute Resolution Process.

Federal Level Management and Reporting

FHWA has developed guidance and reporting requirements for states managing a Federal Major Project. See FDM 2-1-1.3.

According to Federal Law 23 USC 106(h), projects receiving federal financial assistance that have an estimated total cost of $500,000,000 in year of expenditure (with inflation) dollars or more shall have:

- A Project Management Plan
  - A project management plan shall document the procedures and processes that manage the scope, costs, schedules, quality, and applicable federal requirements. See FDM 2-15-5.
- An Annual Financial Plan
  - A financial plan shall be based on detailed estimates of the cost to complete the project and assumptions of future increases in the cost to complete the project.
- A Cost and Schedule Risk Assessment
  - Total program cost estimate includes construction, engineering, acquisition of right-of-way, and related costs using Probabilistic Risk-Based Estimating.

A simplified federal financial plan is required for projects receiving federal financial assistance that have an estimated total cost of $100,000,000 to $500,000,000 in accordance with Federal Law USC 106(i). Annual financial plans prepared under this subsection shall be made available to FHWA for review upon request. The Wisconsin Single Financial Plan meets this reporting requirement. See FDM 2-15-10.2 and FDM 2-15-10.5.

An additional, more detailed federal guidance outline can be found at: http://www.fhwa.dot.gov/ipd/

Department Level Management and Reporting

Projects that meet the definition of a Federal Majors Project report on a pre-determined basis (currently quarterly) to the Department's Mega/Major Committee. Other High-Profile projects that utilize some of the Mega/Major Project reporting and management tools may also report out at the committee meeting.

This Department level meeting provides an opportunity for all parts of the organization that play a role in Federal Majors and identified High Profile Projects to share information on budget, schedule, best practices, lessons learned, work completed and planned, significant issues and risks, public involvement and legislative communication and coordination, and disadvantaged business enterprise and labor initiatives. These meetings provide an opportunity to discuss potential disputes, political issues, public concerns and other potentially sensitive issues. This format is a significant tool to effectively, efficiently, equitably, and consistently managing these projects.

Managing Federal Majors and other High-Profile Projects as defined, means that the modal divisions (DTSD and DTIM), DBSI Bureau of Budget, and FHWA need to work in collaboration from initial project identification through the completion of construction, and the close-out of the project's finances.

A typical agenda and monthly executive level report have been developed to assist the Oversight Team with fulfilling its mission.

The Department's Mega/Major Oversight Committee consists of:

Chairperson Secretary

Meeting Facilitator: Deputy Administrator – Division of Transportation Systems Development

Members: Deputy Secretary, Executive Assistant, DTSD Administrator, DTSD Deputy Administrators, DTIM Administrator, Bureau of Budget Director, FHWA Administrator, Region Directors and Deputy Directors with Federal Majors or High-Profile projects

Typical Attendees: Oversight Members, Federal Majors/High Profile Project Chiefs, Bureau Director DTIM BHSP

Projects Included: Federal Majors and other High-Profile projects or programs that warrant a higher level of department level discussion

Meeting Frequency: The meetings are currently held quarterly (March, June, September, and December) on the 1st Friday of these months from 9-11am in Madison at Hill Farms, in the Secretary's office

Typical Agenda & Reports: Executive level reports and meeting materials are generally submitted to the Oversight Team the Friday prior to the meeting. The agenda and handouts are submitted by the Division Administrator's office or their designee (current SE Region Director).

Region, Bureau, and Team Management and Reporting

Extensive planning and organization on an ongoing basis are required to meet the needs for delivering a Federal Majors Project, Department Oversight Committee and to fulfill FHWA requirements.

A team working on a Federal Majors Project will typically have multiple daily or weekly meetings focused on immediate project needs along with issues and risks.

The project team should hold a Change Management and Progress Meeting on a bi-weekly to monthly basis**.** FHWA, DTSD Bureaus, DTIM, and Bureau of Budget should be represented at these meetings when and where appropriate. Topics covered at the meeting should cover components required in the Department's Project Management Plan.

The Project Management Plan (https://www.fhwa.dot.gov/majorprojects/pmp/guidance17.cfm) is comprised of the following topics:

Project descriptions and scope of work (See Contents of the Project Management Plan B. Project Management Plan Checklist)

1. Goals and objectives
2. Project organizational chart, roles and responsibilities
3. Project phases
4. Procurement and contract management
5. Cost budget and schedule
6. Reports
7. Internal and stakeholder communications
8. Project and program management controls – *see list below*
9. Design quality assurance/quality control
10. Construction quality assurance/quality control
11. Environmental monitoring
12. Right of way
13. Safety and security
14. Traffic management
15. Communications/public information
16. DBE Program
17. Title VI demographic data collection and reporting
18. Closeout Plan
19. Project documentation

Reports that the Project Team should utilize include:

A. Executive summary development for Oversight Committee
B. Activities and deliverables
C. Issues/action items
D. Schedule
E. Cost
F. Quality
G. Other status reports, such as DBE/minority participation and contractor safety

Project and Program Management Controls the project team should utilize include:

A. Risk management plan
B. Scope management plan
C. Scheduling software
D. Cost tracking software
E. Project metrics
F. Contracting strategies (new and innovative)
G. Value engineering, value analysis, constructability reviews
H. Contractor outreach meetings
I. Partnering
J. Change order/extra work order procedures
K. Claims management procedure
L. Other programs, such as Owner Controlled Insurance Programs (OCIP)

Many of these tools and practices are defined in more detail in the section on Federal Majors Project Best Practices and on the FHWA website.

DBE and Small Business Responsibilities, Management, and Reporting

The Department has federal and state responsibilities on all of its improvement program projects to fulfill Disadvantaged Business Enterprise (DBE) and Small Business Enterprise responsibilities. The Bureau of Budget in DBSI oversees and manages these responsibilities for the Department.

For all types of projects, but particularly High Profile and Federal Majors projects, the staff involved are encouraged to become more aware and participate in DBE and Small Business efforts.

Selected High Profile and Federal Majors projects may have project specific activities that for some, or all of these areas.

DBSI Bureau of Budget carries out a-number-of ongoing responsibilities for the department that cover all programs. These include:

Inclusive DBE Goal Setting Technique:

Utilize the industry stakeholders participating in the business committee to seek input on DBE goals that balance supply, demand, and community expectations with project needs. Analysis team and technical subcommittee, use project engineer data to analyze and estimate realistic opportunity for DBE participation. This is done through the Department's Transportation Advisory Committee (TRANS-AC), and the Department's Transportation Consultant Advisory Committee (TRANS-CAC). Individual goal setting is sometimes done on high profile and mega projects.

DBE Firm Pre-Assessment:

The DBE office offers DBE firms the opportunity for 'Early Intervention Assessment' to identify potential problem areas and customize training and resources in advance of contracting opportunity. Participation is not mandatory but recommended.

Encouraging Formalized Partnering Relationships:

This is often done through the TRANS-AC and TRANS-CAC groups but can also be done at the individual Federal Majors project level.

- **Mentoring Connections Arrangements**: 6-month informal networking relationship, participation is monitored but no DBE credit granted.
- **Mentor Protégé Agreement**: a formal document outlining the agreement between the mentor (prime contractor) and protégé (a DBE subcontractor) to develop DBE firm capacity. The agreement is submitted to Wisconsin Department of Transportation (WisDOT) for approval for predetermined DBE goal attainment. Usually 3 years in duration.
- **Joint Venture Agreements**: a formal, legally binding agreement, between firms creating a venture desiring to compete on a single project for its duration. Agreement requires an LLC designation, clarification of responsibility, liability, and staff on the advice/review of legal counsel. DBE credit is assigned based on work performed by DBE certified firm and reaffirmed before project is awarded.

Bullseye Marketing Strategy:

Bullseye Marketing strategies are utilized informally when and as the opportunities are identified.

(1) Mail/email contract information to list of firms, pre-advertisement outlining when and where to find opportunity

(2) Mail/email project information, resources once advertised; advise where to find plans
(3) Distribute list of potential primes (plan holders list) to DBE firms for solicitation

Strategies for Supplemental DBE Contracting Opportunities

Creating Stand-Alone Projects:

a. Contract packages unbundled because the work areas have a significant pool of ready, willing and able firms for competition. These unbundled packages are let separately to stimulate opportunity for smaller, nontraditional businesses to compete as prime contractors. Goal is to create new, small business primes

b. Previously identified contracts: landscaping, fencing, advanced traffic control, security, raze & removal

Creating Mandatory Subcontracts:

Work items in a contract are identified as mandatory subcontract items based on the size of the contract, specialty work areas that WisDOT traditionally utilizes, and a significant pool of firms exist to compete for the work. Goal is to increase WisDOT competition and firm capacity as subcontracting.

Outreach to lateral certifying agencies:

Examine other agencies that certify minority, female, or small businesses for potential WisDOT DBE Firm Certification. Review contractor lists for firms that perform WisDOT work to encourage them to apply for DBE Certification. Conduct certification workshops for interested firms

Project related meetings include structured networking for prime and subcontractors:

This is done at various conferences and at project meetings as, where, and when appropriate (ex. Pre-Bid meetings, or consultant solicitation meetings.

- *Speed Networking:* a timed, facilitated, rotational exercise that allows DBE firms 'face time' with numerous primes in a single setting. DBE firms market themselves while primes clarify subcontracting needs. The goal is to network, educate, and personalize DBE firms (and program). Anticipated result is a follow-up meeting that leads to a subcontract or partnership.
- *Mosaic Exercise:* facilitated, small group discussion including Prime, DOT, community, DBE and labor stakeholders to brainstorm responses to predetermined questions to generate strategies for inclusion and best practices.

DBE Contracting Update:

- Email newsletter to keep the community informed about upcoming project opportunities
- Maintain tallies of DBE participation and labor participation for review and accountability.

DBE Certification workshops and individual assistance:

Explains certification requirements and process to potential DBE firms and provides referral to DBE resources that can assist or support potential DBE firms with the application submittal.

Expedited DBE certification:

Firms who identify themselves as seeking DBE certification to compete on WisDOT Federal Majors projects will be prioritized for certification review. The standard 3-month processing time is cut to 6 weeks and certification staff will confirm that firms are in process if prime inquires.

Civil Rights and Compliance Tracking System (CRCS):

- WisDOT DBE staff hosts contractor training for the Certified Electronic Payroll portion of CRCS. They learn about entering payments to first tier subcontractors and all DBE firms.
- System allows subcontractors to confirm receipt of payments to and from the prime.
- Contractors enter certified electronic payrolls into the system documenting and tracking employees' hours, wages and demographics, giving WisDOT just-in-time labor participation data.

Development & Inclusion of Contract Specifications:

- **DBE condition of award:** WisDOT requires prime contractors to submit their DBE percentage when they submit their bid. When recognized as low bid, the prime contractor has 48 hours to submit their DBE commitment before the contract is awarded.

- **Additional Special Provisions (ASP) 1:** The prime contractor receives a $5.00 payment per hour for every TrANS graduate hired for up to two years from their hiring date and for TrANS graduates who become apprentices for their entire length of their apprenticeship.
- **Contractors must use the Civil Rights and Compliance Tracking System (CRCS)** to submit electronic certified payrolls and payments to first tier and all DBE Subcontractors (ASP 7).

Training Workshops:

- DBE Certification: Inform prospective contractors how to qualify for DBE status.
- WisDOT bidding process: Highway Construction Contract Information Site (HCCI), which helps navigate contractors and DBE firms through the project advertisement and award.
- How to bid & quote as a Subcontractor and/ Prime:
  - Contractor's perspective: describes what they look for when receiving bid or quotes.
  - WisDOT perspective: how to bid DOT projects.
- Civil Rights and Compliance Tracking System (CRCS): Describes/explains to contractors how to enter their payrolls and payments for 1st tier subcontractors and all DBE.
- Trucking guidelines (federal & state): Explains to trucking firms which laws apply for DBE trucking credit.
- DBE bonding workshops: Educates DBE firms in bonding requirements and issues.
- Certified Electronic Payroll Training: Provides instruction on requirements and use of electronic payrolls

The Division continually evaluates the need for and opportunities for providing training.

Title VI Demographic Data Collection and Reporting

General Responsibilities

The Wisconsin Department of Transportation (WisDOT) has federal Title VI obligations on Federal Majors projects, major projects, and high-profile projects. To assure Title VI compliance throughout the various stages of each, individual federally funded project, WisDOT in partnership with the Federal Highway Administration (FHWA) has organized a Title VI Program with service under the following definitions:

Title VI is a touchstone for several Nondiscrimination Authorities. It is not restricted to any specific issue or any specific program. Title VI issues may emerge at any stage of a Project with potentially far-reaching consequences. Title VI assures that no person in the United States shall on the grounds of race, color, or national origin be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving federal financial assistance. Title VI requires the collection of demographic data (race, color, and national origin including Limited English Proficiency) of populations impacted by federally funded projects.

Limited English Proficiency (LEP) is an issue that falls under National Origin of Title VI. An LEP person is defined as a person who does not speak English as a primary language and has limited ability to read, write or understand English. Failure to provide LEP persons services or meaningful access may constitute national origin discrimination.

The Americans with Disabilities Act (ADA) provides that persons with bona fide disabilities be provided with meaningful access to program services and information, and/or be provided with reasonable accommodations that they may obtain equal benefits and privileges of those who are able.

Title VI in the Planning Process

Public involvement is required at the Planning Stage to forestall future problems. Public involvement should be performance-oriented and not process-oriented, communication must always be a two-way street. It is very important that public concerns and views are considered in decision-making. All plans must be tailored to fit local conditions and ensure involvement of the transportation disadvantaged. An effective public involvement and participation program may contain the following issues:

- Recognition of specific and prominent community issues and circumstances
- Availability of mechanisms for eliciting and soliciting minority involvement
- Availability of and accessibility to information for all impacted minority and low-income communities
- Multiple mechanisms for involving the public
- Openness and complete accessibility to process
- Coordination with Indian Tribal Governments
- Off-setting impacts across investments

Title VI and Project Development

The data-gathering process in the Project Development Phase is critical. Were the appropriate number of public hearings conducted? Were they held as open forums? Is there adequate identification of social, economic, and environmental impacts? Was consideration given to increase access to facilities and services, upgrading affected communities or creating positive change in the tax base and property values?

Adverse impact in the Project Development Phase involves diminished access to facilities and services, disruptions of community cohesion, disruptions of people, businesses, and farms. There should be at this stage budgeting for equitable mitigation. Examples of mitigation include:

- Restoration of circulation and pedestrian and pedestrian patterns
- Relocation assistance and advisory services, replacement housing and moving payments for displaced families and businesses
- Aesthetic and visual improvements

- Traffic signalization and street lighting improvements
- Employment, training, and contracting opportunities
- Noise barriers and buffer zones
- Landscaping

Title VI and Right-of-Way

Title VI aspects of Right-of-Way involve appraisal reviews, negotiations, and acquisitions. It also involves nondiscrimination in such aspects as relocation assistance and payments and property management. Appraisals provide a basis for payment on estimates of fair market value. Negotiations may be highly sensitive and must take into consideration all fair market conditions. Acquisition of properties through fair negotiations requires agencies to make full amount offers on amounts believed to be just compensation. Coercion is strictly prohibited. Relocation and assistance payments require written agreements and notices including full disclosure of agency policies, provision of agency services, and appropriate notice timelines. Property management involves property leased or rented acquired for highway purposes and careful and judicious selection of management firms and demolition contractors. Common Title VI issues in Right-of-Way include:

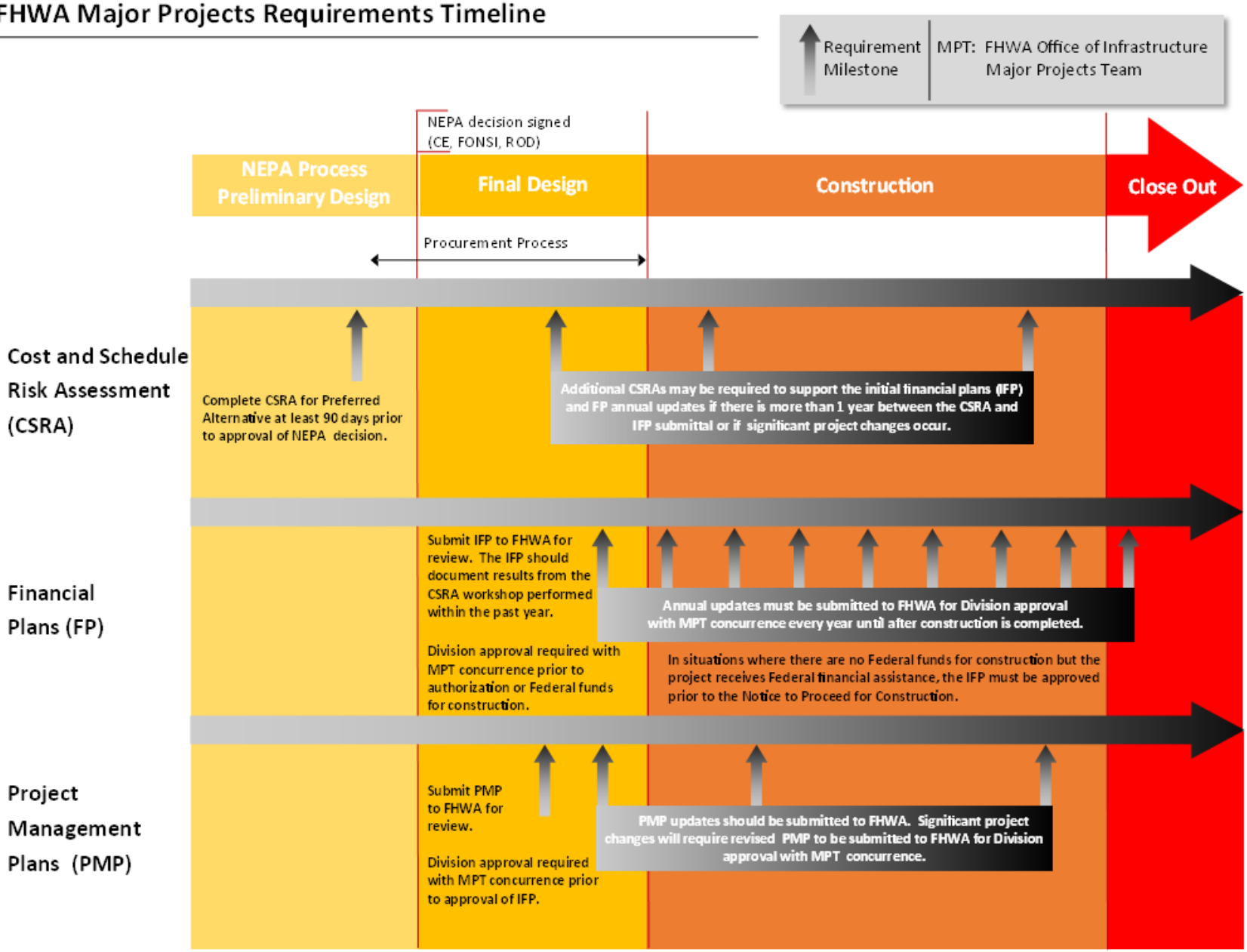
- Use of Fee Appraisers
- Selection of Comparables
- Adjustments to subjects without bias
- Accelerated or advanced condemnation
- Offer of less than approved appraisal amount
- Degree of relocation services provided
- Selection of replacement housing
- Determination of rent amounts
- Maintenance of rental property

Title VI and Construction

Construction and Title VI issues cover the broad spectrum from plan preparation, specifications, and estimates to final inspection and acceptance. The agency advertises for bids and then awards contracts to the lowest bidder. After sub-contract approvals, the work begins and under Title VI, there are multiple issues that involve implementation of the DBE Program, monitoring of work, and the implementation of mitigation measures. Title VI issues in Construction include:

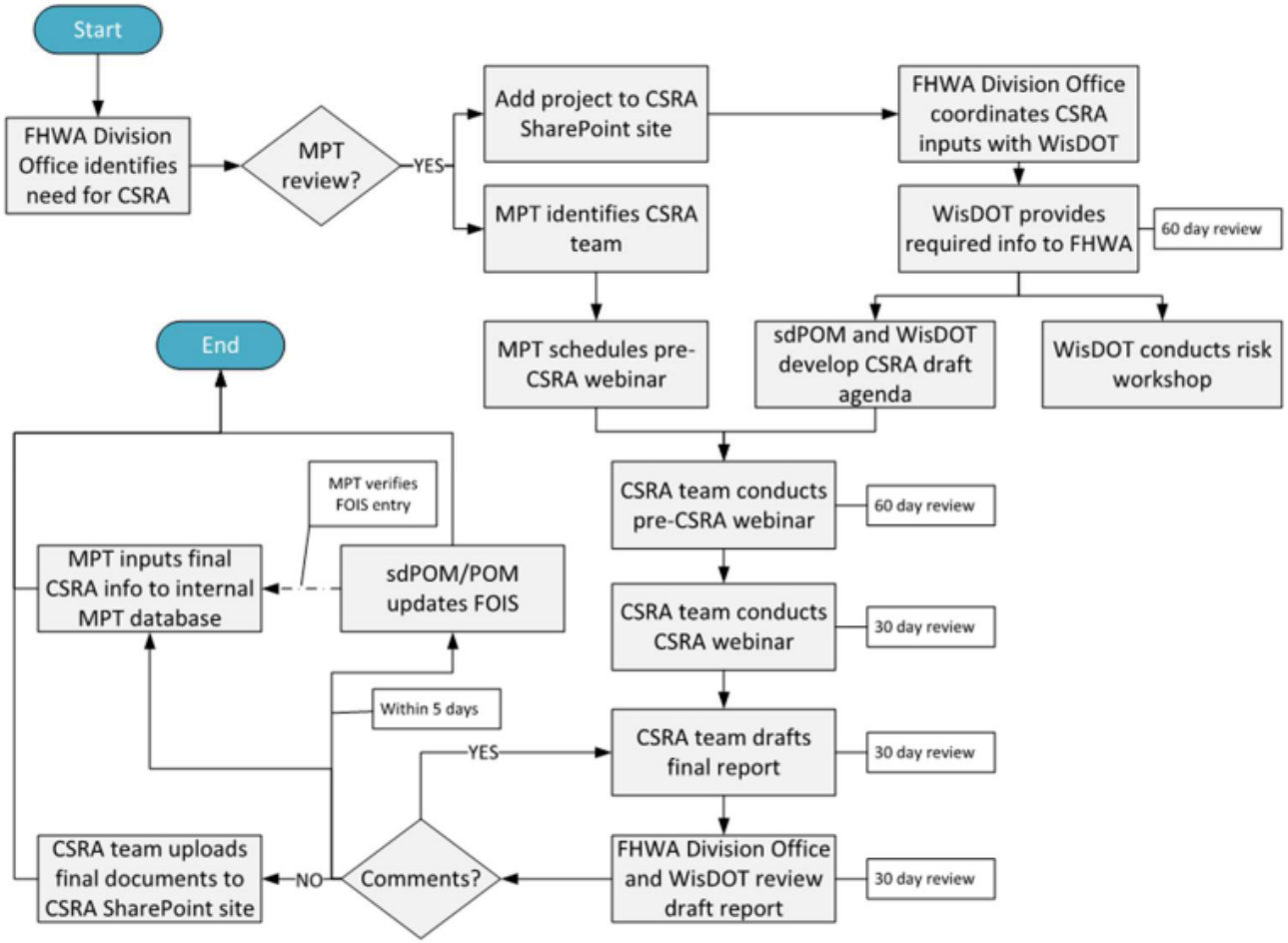
- Safety through construction zones
- Noise and air impacts
- Employment and contracting goals
- Prequalification, bonding, licensing requirements
- Approval of subcontracts
- Approval of plan changes and supplemental agreements
- Suspension or termination of contracts
- Withholding payments of de-certification

FHWA Major Projects Requirements Timeline



For additional information about the Major Project Requirements, please visit www.fhwa.dot.gov/majorprojects

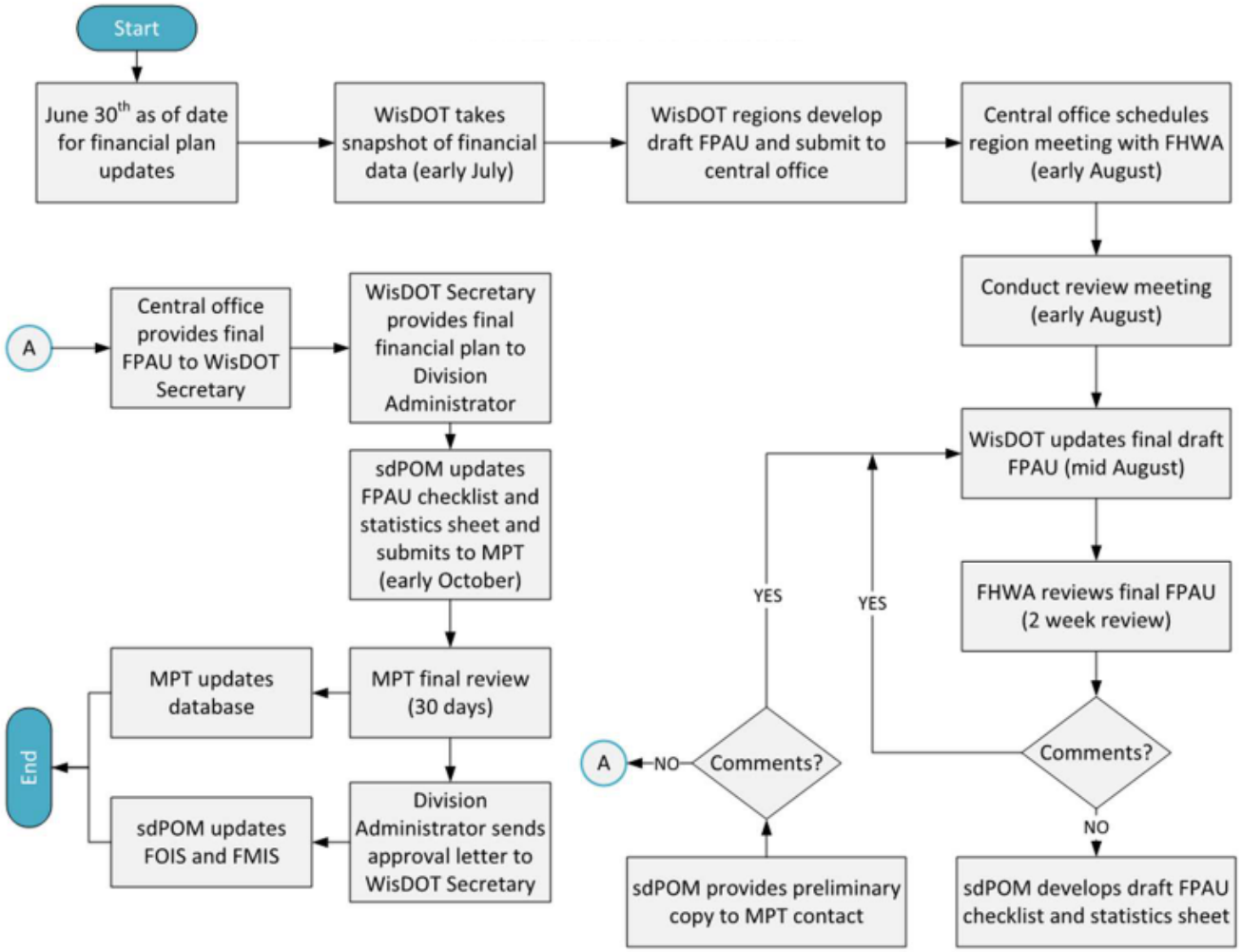
FHWA Cost and Schedule Risk Assessment Flowchart



Abbreviations

CSRA	Cost and Schedule Risk Assessment	POM	Project Oversight Manager
MPT:	FHWA Office of Infrastructure Major Projects Team	sdPOM	Specially Designated Project Oversight Manager

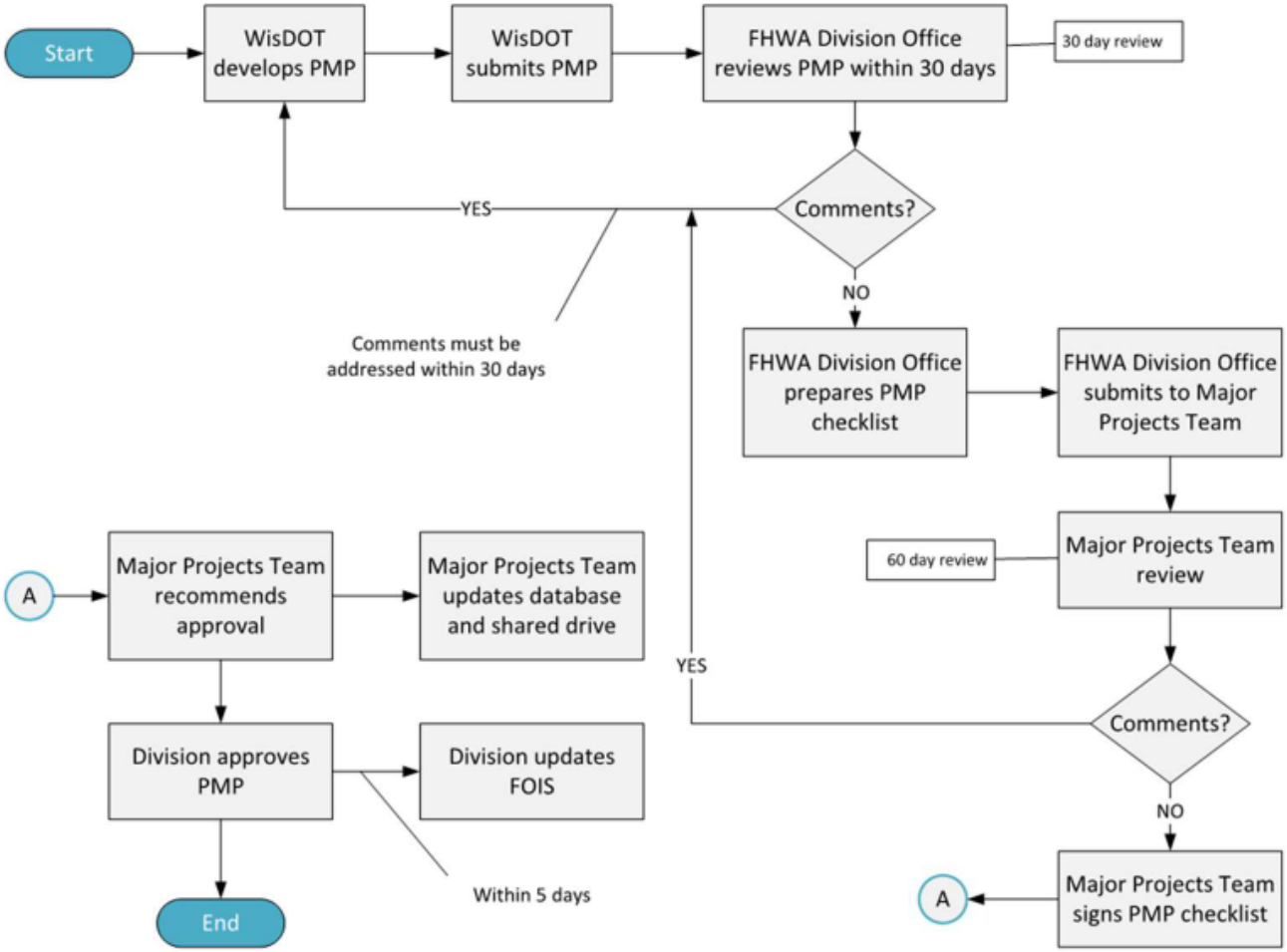
FHWA Financial Plan Flowchart



Abbreviations

FMIS	Federal Management Information System
FOIS	FHWA Organizational Information System
FPAU	Financial Plan Annual Update
MPT	FHWA Office of Infrastructure Major Projects Team
sdPOM	Specially Designated Project Oversight Manager

FHWA Project Management Plan Flowchart



Abbreviations

FOIS	FHWA Organizational Information System
PMP	Project Management Plan

Preconstruction workshop topics include, but are not limited to:

1. Project Kickoff and Initial Work Plan
2. Cost Reduction Incentives
3. Utility/Railroad Coordination
4. Submittals
5. CPM Scheduling
6. Leadership Partnering (Initial Session)
7. Work Force Opportunities
8. Incident Crisis Communications Plan
9. Notice to Proceed

Value Engineering Job Plan

Introduction

Value Engineering studies are conducted according to a standard series of steps known as the Job Plan, recognized by AASHTO and codified by FHWA in 23 CFR 627. All WisDOT VE studies shall follow the VE Job Plan. A summary is provided below for reference but is not meant to substitute the requirements of AASHTO or Federal Law. A trained and CVS-certified VE Team Leader must be experienced in the Job Plan described below.

The level of effort spent on each phase varies depending on the anticipated scope and complexity of the VE study being performed.

1. Information

Gather project information including project commitments and constraints.

Determine what needs to be known from readily available information about the project or element being studied, and what needs to be known to define or solve the potential problems.

The key questions to answer in this phase are:

- What must this project do to be successful?
- What are the problems?
- What do we know?
- What do we need to know?

This phase is meant to familiarize the team with the project and develop an understanding of the project's purpose, needs, history, circumstances, and objectives. This phase requires background information, technical reports (such as concept definition, design study, traffic, soils, hydraulics, environmental, or crash reports), design plans, alternatives considered, estimates, field data, and often a site visit. It redefines focus areas and objectives in addition to determining what are the issues, what is known, and what still needs to be known.

All available information, including stakeholder constraints and commitments, should be collected during this phase. The VE team should become thoroughly knowledgeable about the project or anticipated problem.

2. Function Analysis

Analyze the project to understand the required functions.

Identify the elements with the greatest potential for value improvement. This phase brings the three fundamental concepts of VE (function, cost, and worth) to bear on the problem.

The key questions to answer in this phase are:

- What is the element?
- What does it do? (What is the function?)
- What must it do? (Is its function basic?)
- What is it worth?
- What does it cost?

By the end of the function analysis phase, the VE team has identified the high-cost elements, functionally analyzed them, and assessed their cost/worth relationships.

3. Creative

Generate ideas about how to accomplish the required functions which improve the project's performance, enhance quality, and lower costs.

Use brainstorming and other creative techniques to develop alternatives to the proposed design. These techniques usually generate a list of potential creative solutions to the problems identified in the investigation phase, and the function/cost/worth determinations made during the analysis phase. In order for the creative phase to be successful, the team must avoid evaluating the ideas while they are being generated.

The key questions to answer in this phase are:

- What else will perform the function?
- Where else may the function be performed?
- How else may the function be performed?

4. Evaluation (Judgment)

Evaluate and select feasible ideas for development.

Determine the best alternatives by listing the advantages and disadvantages of each. The objective is to identify the best blend of performance, life-cycle cost, and schedule, while maintaining safety, quality, and environmental constraints. If the disadvantages far outweigh the advantages of an alternative, it is dropped from further consideration.

The key questions to answer in this phase are:

- How might each alternative work?
- What might be the cost?
- Will the alternative perform the basic function?

5. Development

Develop the selected alternatives into fully-supported recommendations.

Select the best alternatives and fully develop them through sketches, cost estimates, validation of test data, and other technical work to determine if the assumptions made during the study are valid. The team develops final recommendations and formulates an implementation plan.

The key questions to answer in this phase are:

- Will the recommendations meet the requirements?
- Why is the recommended change better than the original design?
- What will be the total cost?

The team develops final recommendations for long-term and interim solutions, defines how each recommendation will meet the requirements, and describes why each recommendation is advantageous to the original design. Often the team develops mutually exclusive recommendations; in this case, the team should present both alternatives, but select a preferred alternative.

The number of recommendations made is not as important as their ability to be implemented.

6. Presentation

Present the VE recommendations to the project stakeholders.

Make a brief and concise presentation of the recommendations, with ample time allocated for questions. The audience includes agency executives, managers, stakeholders, appropriate staff, and project team, who are collectively authorized and responsible for evaluating and determining whether to implement the findings. In many cases, the way the findings are presented is as important as the findings themselves.

The key questions to answer in this phase are:

- To whom should the findings be presented?
- How should the recommendations be presented?
- What were the problems?
- What are the recommendations?
- What is needed to implement the recommendations?

All recommendations should receive serious consideration by management. However, it may not be possible to implement all recommendations. Unless documented in the final VE Study Report, Management should separately document all decisions on the recommendations. If a decision on all the recommendations is not reached during the presentation, the Region project manager should set a timeline for final decisions. A written report is provided following the completion of the VE study.

7. Resolution

Evaluate, resolve, document, and implement all approved recommendations.

At the completion of every VE study, complete WisDOT Form DT1342. Submit electronic copies to the State VEPM and region VE coordinator. Form DT1342 enables statewide consistency in the documentation of VE cost savings. The State VEPM summarizes all VE results into the annual report to FHWA, as per Federal requirements.

Each VE study required per FDM 3-15-15.3.1 must complete a VE study report. Compile the VE study report as

a step-by-step record of the VE analysis, including documentation of the team's deliberations, assumptions, and rationale for recommendations. The report aids in implementing recommendations and can be referenced for future VE studies or design efforts. The VE report should describe the analysis procedures used, the changes recommended, the recommendations incorporated into the project, the estimated cost-savings or improved quality of all changes recommended, and the resources/costs incurred to perform the study. Typically, this report is developed by the VE team leader. Copies of the VE report shall be furnished to the WisDOT project manager and the State VEPM, as PDF files, and paper copies if requested.

For smaller, ad-hoc or non-mandatory VE studies, a working file should be established to support the completed WisDOT VE Summary Form DT1342.

Roles and Responsibilities

Region Project Development Chief

- Ensures that Project Manager applies VE study at appropriate time
- Evaluates and determines whether to implement VE Study recommendations
- For any VE recommendation not implemented, ensures rationale is documented

Region Project Manager

- Defines study scope and focus
- Consults with VE Team Leader, State VEPM, and Supervisor/Manager to select and approve VE team members
- Supplies all available project data and cost estimates to VE Study Team, and works with VE team as a technical advisor
- Ensures that interested Statewide Bureau representatives have an opportunity to attend relevant portions of the VE study
- Assures VE study report is accurate and completed
- Works with management to implement VE recommendations (ensures plans are updated)

VE Team Leader

- Recommends study scope and focal areas, and VE team members
- Manages all aspects of the required VE Job Plan
- Responsible for meeting all Federal VE requirements
- Presents VE recommendations and makes any resulting changes to the VE report
- Completes VE report and VE Summary forms DT1342 for each study, and sends them to region project manager and State VEPM

State VE program manager (VEPM)

- Assists Regions and central office in VE coordination efforts as needed
- Solicits and manages Master Contracts with VE consultants for statewide use; assists with selection of VE Team Leaders and VE team members
- Collects Summary forms DT1342 and Reports for all VE studies
- Develops and submits Annual FHWA VE report to FHWA; distributes report to Bureau Directors, Oversight Engineers, and other interested stakeholders
- Receives and compiles feedback on the VE program for ongoing evaluation and revisions
- Meets periodically to review practices and programs with Region VE coordinators, Central Office Project Oversight Engineers, and FHWA

Region VE Coordinator

- Assists region personnel in identifying projects requiring VE
- Assesses other projects (below the required cost thresholds) for possible VE studies
- Offers ideas and guidance for VE studies on projects
- Reviews/evaluates VE program and cost savings with Region management
- Makes recommendations for VE program improvements to State VE Coordinator

Central Office Project Oversight Engineer

- Helps identify candidate projects and coordinate VE project efforts with Region and central office staff
- Ensures that VE is performed on required projects, as a condition for DSR approval
- Reviews/evaluates VE cost savings achieved on each project for application statewide
- Makes project and program VE recommendations as needed
- Shares VE best practices with region and central office staff

FHWA VE Coordinator

- Reviews and comments on VE study reports and VE Summary results
- Evaluates projects below required thresholds for possible VE needs
- Evaluates Annual FHWA VE report and program for quality and cost effectiveness
- Recommends VE program improvements as needed
- Provides national VE perspective and information to State VEPM and individual project teams

Value Engineering on Major Projects

WisDOT Major projects are large and complex and offer numerous opportunities for the effective application of Value Engineering. Work with Central Office and FHWA to determine the specific requirements, timing, and content for each study.

Following are three examples of timing and content for VE studies on WisDOT Major projects:

Major Project Value Engineering/Value Planning Study # 1

An early study can be held for a project being considered for recommendation to the Transportation Projects Commission (TPC) to begin the EIS. The purpose of this study is to validate the scope of the project and initial estimate.

Objectives:

- Review anticipated scope
- Clearly define the measures of project success
- Validate economic and business decisions on the project need
- Identify and assess elements for inclusion/exclusion
- Review initial estimate

Major Project Value Engineering/Value Planning Study # 2

On a project that has been recommended by the TPC for environmental study, a VE Study can be performed at the Draft EIS/EA stage of the project, before any environmental commitments have been made. The study could be used to determine alternatives or to evaluate alternatives in the Draft EIS/EA, or review and analyze technical improvements to the design.

Objectives:

- Develop and review project functional needs
- Determine whether functional needs are met
- Remove extraneous project elements
- Investigate different approaches to project elements

Major Project Value Engineering/Value Planning Study # 3

This VE study can be used on a project that has completed environmental study and is being considered for recommendation to the TPC for enumeration. The study is performed primarily to validate the project estimate (design, real estate and construction) but may also review technical improvements and construction staging.

Objectives:

- Review preliminary quantities and estimate
- Review design changes within the recommended alignment
- Review construction staging and relationship of construction contracts
- Consider long-term maintenance of project

To obtain a working copy of this form go to FDM 3-15 A15.4 File 1

VE Recommendations Summary Worksheet

VE Study Recommendations [1]			*VE Study Cost Estimates*			*WisDOT Response & Updated Costs*			
Number	Description	Functional Benefit [2]	Initial Savings	Life Cycle Savings (PW)	Total Savings (PW)	Decision [3]	Proposed Savings (Revised) [4]	Approved (Implemented) Savings	Comments [5]
						TOTAL #	0	0	
						TOTAL $	$0	$0	

[1] VE Study recommendations that are mutually exclusive should be listed as one recommendation with alternatives.
[2] Choose all that apply – "Safety", "Operations", "Environment", "Construction" or "Other" (per FHWA Annual VE Summary Report).
[3] A – Accept; R – Reject; PA – Partially Accept; IV - Invalid Recommendation (Not feasible or doesn't meet project purpose and need.); DS - Design Suggestion (Minor item more consistent with a design suggestion.); DA - Dismissed Alternative (Recommendation applies to a dismissed environmental alignment / alternative).
[4] Estimated cost savings from VE report may be revised by Region project staff. DO NOT LIST PROPOSED SAVINGS for IV, DS or DA recommendations.
[5] Discuss reasons for not accepting a recommendation.

FDM 3-20-1 Local Program Bridge Approach Length Eligible for Federal Funding

February 15, 2023

1.1 Introduction

FHWA and WisDOT limits local bridge approach costs to only those approach costs that are necessary to render the bridge serviceable (to reach the attainable touchdown points using current standards). The reason for this eligibility restriction is that local bridge funds are meant for bridge work only. If bridge funds are used for extended approaches or other non-bridge work, then there are fewer local bridges that can be replaced or rehabilitated. For projects on the Federal-aid system (functionally classified above a minor collector), FHWA allows for other eligible funding (such as STP funds) for extended bridge approaches. However, for many local bridges, the roadway is not on the Federal-aid system and there are no federal funds available for bridge approach work beyond that which is described above.

Any county or other unit of local government desiring to include a local bridge in the Local Bridge Program must comply with the Wisconsin Department of Transportation's Local Bridge Improvement Assistance Program Funding Policy and "*Performance Based Practical Design (PBPD)*." The funding policy has been written to help facilitate more projects through the Local Bridge Program by being more efficient with the dollars spent. As a result, this Local Bridge Improvement Assistance Program Funding Policy and PBPD will define the desirable touchdown points as being no longer than 50 feet on each side (100-feet total) from the structure, unless appropriate design data and/or sound engineering judgement has been provided to justify a longer touchdown point.

The Local Bridge Improvement Assistance Program Funding policy is shown in Attachment 1.1. Questions about the policy should be directed to the region Local Program Project Managers (LPPMs). The WisDOT PBPD perspective is described in FDM 11-1-5.2.

At program cycle project application review, if approaches are anticipated to be longer than the desirable 50 feet on each side (100-feet total), then the sponsor should indicate the estimated length of the approaches in the application. Examples of justification can include, but are not limited to:

- hydrology reports
- historical flood data
- safety data
- AADT data
- environmental considerations, or
- other appropriate data points.

Bridge approach lengths up to 300-feet total (150-feet on each side) can be approved at the application stage. Bridge approach lengths beyond 300-feet total will require an Approach Length Justification Report.

The cost estimate contained in the project application must reflect the estimated approach lengths, even if they are longer than the desirable length (50 feet on each side). Bridge approach lengths beyond 300-feet, or 150-feet on each side, should be identified as non-participating costs in the project application. Approach lengths, and other bridge geometrics can be altered after the initial application by presenting the appropriate design modification with supporting justification at project milestones. Requests for funding increases as a result of the design modification will require the sponsor to follow the WisDOT Change Management Procedure. Change Management requests for approaches longer that what was estimated in the application will not be approved unless engineering justification is provided.

1.2 Touchdown Points on Local Program Bridge Projects

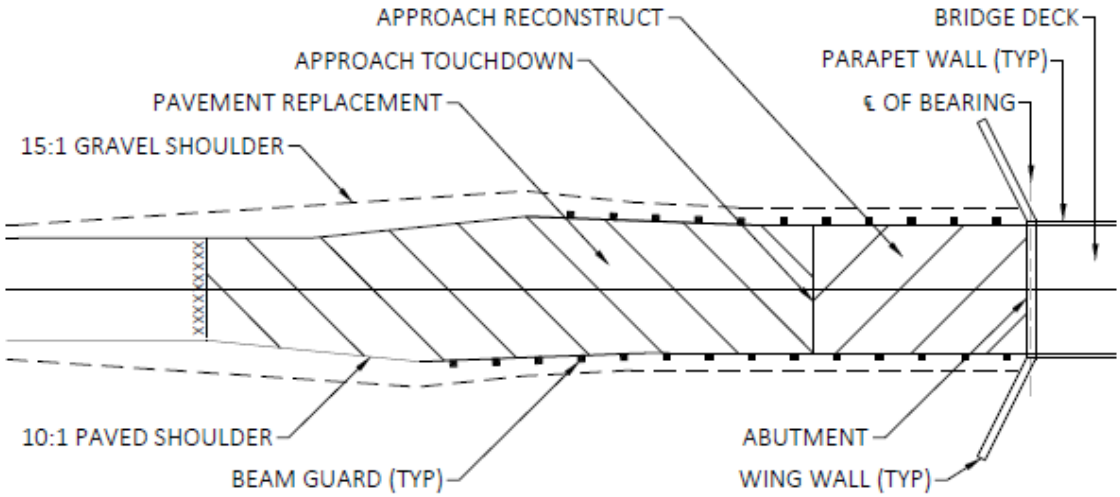
Design local bridge projects in accordance with the appropriate design criteria discussed elsewhere in the FDM and in the Bridge Manual. The point where a proposed bridge approach roadway matches into the existing roadway is the touchdown point and the sum of the lengths from each touchdown point to the bridge abutments is the "approach length."

As indicated above, 50-feet on both sides of the structure (100-feet total) is the desirable approach length, however longer approach lengths up to 150 feet on both sides of the structure (300-feet total) can be approved at project application based on sound engineering judgement. The cost estimate contained in the project

application must reflect the estimated approach lengths, even if they are longer than the desirable length. Bridge approach lengths beyond 300-feet should be identified as non-participating costs in the project application.

1.2.1 Roadside Barrier on Local Program Bridges

Design roadside barrier at bridge abutments as described in FDM 11-45-20. It is acceptable for the end of this barrier system to extend beyond the touchdown point. When the beam guard is exclusively protecting the parapets, or a feature related to the bridge replacement, pavement replacement is eligible for federal funding from the start of the asphalt shoulder taper for the EATs to the touchdown point of the approach reconstruction. Pavement replacement is not eligible for federal funding if beam guard is protecting steep slopes or other existing conditions that are not part of the bridge reconstruction.



1.3 Local Program Bridge Design Study Report

The Design Study Report (DSR) for Local Program bridges is found at the Local Program Procedures and Tools webpage. DSR section directions are found in FDM 11-4.

LIST OF ATTACHMENTS

Attachment 1.1 Local Bridge Improvement Assistance Program Funding Policy

Local Bridge Improvement Assistance Program Funding Policy

Horizontal Alignment

- Project design remains on existing alignment.
- If horizonal realignment of bridge is intended, the realignment cost difference is a local cost share[1]
- During preliminary design, if a scope change is needed, submit Change Management request.

Vertical Alignment

- Start project scope with 50-foot approach lengths in each direction[1]
- If an increase in vertical profile is needed, match to existing bridge design speed as closely as possible. Approach lengths in excess of 50-feet on each side of the structure (100-feet total) must be identified in the project application and the cost estimate must reflect the longer approach lengths. Bridge approach lengths up to 300-feet can be approved at the application stage. Bridge approach lengths beyond 300-feet should be identified as non-participating costs in the project application.
- During preliminary design, if the vertical profile requires changes that vary from the original scope, submit Change Management. Sound engineering justification will be necessary to obtain additional funding due to approach lengths longer that what is indicated in the project application.
- If the combined approach lengths are more than 300-feet, submit a Bridge Approach Length Justification Report to Bureau of Project Development (BPD) for approval and Change Management request if additional funding is requested.[2]

Cross Section

- Cross section width should match existing facility width, applicable TRANS code, or FDM lower minimum design criteria, whichever is larger[1]
- If the existing structure is wider than the lower minimum design criteria required, the structure may be replaced at the current width or to a width between minimum and existing.
- Designing to below lower minimum design criteria requires an approved Design Justification (DJ).
- During preliminary design, if the cross section needs to be changed, submit Change Management request.

If the sponsor chooses to build a project outside of Local Bridge Funding Policy design criteria, they do so with an increased local cost share and the designer would need to process the Modernization Design Study Report found in FDM 11-4 Attachment 10.1.

NOTES:

[1] Please note that Local Bridge Funding Policy is a starting point for project scoping and estimating. At the program cycle application stage, if an exception to the project funding policy is required for engineering reasons, a request to approve the exception should be requested so that the funding is included in the original estimate. If the project design changes based on engineering principles (i.e., hydraulics, crash data, etc.) a Change Management Request for additional funding can be submitted to the Bureau of Transit, Local Roads, Railroads and Harbors (BTLRRH).

[2] Approval of the Bridge Length Justification Report (BLJR) approves the engineering changes to the approaches but does not approve additional project funding. Change Management is required to secure additional funding to the project. The Local Bridge Improvement Assistance Program (s84.18(2)(e)) limits eligible funding to the structure and minimum approaches, which are here defined as the shortest lengths necessary to make the bridge serviceable. As a result, an approved BLJR could increase the local cost share.

Process for Determining Bridge Approach Length Eligible for Federal Funding Work

It is the WisDOT's objective to minimize approach lengths on structures being replaced or rehabilitated in the Local Bridge Program. The approach lengths should be the minimum to render the bridge serviceable, i.e. the minimum to reach attainable touchdown points using current bridge design standards. The following describes the process for determining bridge approach lengths.

If long approaches are anticipated (beyond 100-feet or 50-feet on each side), this must be identified at project application and prior to the approval of the project in the Local Bridge Program. We must ensure the use of good design practice to determine the appropriate attainable touchdown point. Long approaches to correct major safety deficient geometrics must be reviewed and approved by **WisDOT** for the project to be able to expend federal funds.

A new process will be used to obtain approval for bridge approach lengths. This process separates bridge projects into four categories: desirable, short, and long approaches. The fourth category of bridges are for approach lengths greater than 600 feet – these will now be funded by the Local Sponsor unless some other Federal/State funding source is available to fund the additional approach lengths, or WisDOT approves additional funding through a Change Management (CM) request for the additional funds necessary for the cost over 600 feet.

Approach lengths up to 300-feet, or 150-feet on each side of the structure, can be approved at the project application stage. Sufficient justification must accompany the request and the cost estimate must include the entire proposed approach length. Bridge approach lengths beyond 300-feet should be identified as non-participating costs in the project application. Applications with approach lengths greater than 300-feet will require an Approach Length Justification Report to be approved prior to Design Study Report. Sound engineering judgement must be employed to justify long (300 feet or greater) approaches.

Bridge Replacement Desirable and Short Approaches - Total Approach Lengths are Less than 300 feet

The following will apply if it is determined at project scoping that approach lengths of less than 300 feet are expected:

- An approach length justification is not required for total approach lengths up to 100-feet.
- Justification must be provided at application for total approach lengths greater than 100-feet.
- Documentation shall be included in the Design Study Report (DSR).

Bridge Replacement Long Approaches - Total Approach Lengths are Between 300 and 600 feet

The following will apply if it is determined at project scoping that total approach lengths between 300 and 600 feet are expected:

- Bridge approach lengths beyond 300-feet should be identified as non-participating costs in the project application.
- An Approach Length Justification Report is required. The approach cost justification shall be submitted to the LPPM and approved by the WisDOT Regional Chief. If the justification shows that the approach length is warranted and the WisDOT BPD Design Chief approves, the Local Program Project Manager (LPPM) will approve the extended approach length.
- The justification and approvals shall be documented in the DSR.

Bridge Replacement Long Approaches - Total Approach Lengths Greater than 600 feet

The following will apply if it is determined at project scoping that approach lengths greater than 600 feet are expected:

- Concurrence from the WisDOT BPD Design Chief is necessary before the project can be approved in the Local Bridge Program.
- An approach cost justification must be created, recommended for approval by the LPPM, and then approved by the WisDOT Regional Chief.
- The justification and approvals shall be documented in the DSR.

The table below summarizes when concurrence or justification is needed depending upon the approach lengths.

Cumulative Approach Length	**Needs Preliminary Concurrence from WisDOT Regional Chief**	**Needs WisDOT approval of approach cost justification by WisDOT BPD Design Chief**	*** Local Sponsor will have to pay 100% of the Costs for Approaches beyond this length.**
100 feet or less (Desirable)	No	No	No
Over 100-feet but less than 300-feet (Short)	No	No	Justification required at application
Between 300-feet and 600-feet (Long)	Yes	Yes	Will be determined through the Approach Justification Report
* Greater than 600 feet (100% funded by the Local Sponsor)	Yes	Yes	Yes

** Unless other type of Federal/State funding is available or approved for the approach costs over this length, or WisDOT approves additional funding through a Change Management (CM) request for the additional funds necessary for the cost over what was approved at application.*

FDM 3-22-1 Overview

February 18, 2020

1.1 Background

23 CFR Part 667.1 requires that state DOTs, "…shall conduct statewide evaluations to determine if there are reasonable alternatives to roads, highways, and bridges that have required repair and reconstruction activities on two or more occasions due to emergency events."

23 CFR Part 667.3 further defines 'emergency events' as, "…natural disaster or catastrophic failure resulting in an emergency declared by the Governor of the State or an emergency or disaster declared by the President of the United States."

23 CFR Part 667.5 sets forth the requirement that states must identify any road, highway, or bridge that, on or after January 1, 1997, required repair and reconstruction on two or more occasions due to emergency events. The Department has created a database of those sites that would prompt an evaluation pursuant to definitions and criteria in Part 667 and 667.9.

23 CFR Part 667.7 sets forth the policy enforcement as, "Beginning on November 23, 2020…State DOT must prepare an evaluation…for the affected portion of the road, highway, or bridge prior to including any project relating to such facility in its STIP."

1.2 Purpose

The purpose of this Section is to set forth the conforming evaluation process that WisDOT will use on those proposed projects that meet the criteria stated in 23 CFR Part 667.7.

FDM 3-22-5 Process and Procedures to Document Compliance with 23 CFR 667

November 17, 2020

5.1 F4R Database

WisDOT has compiled a digital database of all state highway assets meeting the 23 CFR 667 definition of an 'emergency event' site since January 1, 1997. It is referred to as the F4R (Facilities Repeatedly Requiring Repair and Reconstruction) database.

The F4R database is maintained by the Division of Transportation Investment Management – Bureau of Planning and Economic Development, Planning Section. For further information about the database, email: bop.dtim@dot.wi.gov.

5.2 F4R Site Review Documentation

F4R site review is required for any LET project using Department funding of any type. The review is constrained within the identified limits of the project. The review process and documentation will be different depending on whether the project is funded and scheduled under State Highway Rehabilitation (SHR), the Majors Program, or Local Program and other uniquely-funded projects. Those variants are described as follows.

5.2.1 SHR Projects

For SHR projects, review for presence of F4R sites located within the proposed project limits occurs at each of these phases of the Facilities Development Process;

- WisDOT Scope Certification pursuant to **FDM 3-1-10**, **Project Definition Phase**.

  The 23 CFR 667 Resiliency Scope Certification Form shall be completed and included as part of scope certification for a proposed project.

- WisDOT environmental document preparation pursuant to **FDM 3-1-15**, **Project Delivery Phase**.

  The **Categorical Exclusion Checklist** template and **Environmental Report and Environmental Assessment** template include verbiage to indicate if the proposed project includes a known F4R site within the proposed projects limits. If an Environmental Impact Statement (EIS) will be prepared for the proposed project, the discussion of a known F4R site within the limits of a proposed project shall be included in the Alternatives Section of the EIS.

If the presence of a F4R site within the proposed project limits is identified during either phase, a discussion is required, and final determination must be made about the evaluation and decision on alternatives that would either eliminate or substantially mitigate a repeat of previous damage, or substantially reduce the level of effort necessary to recover from that damage should it recur.

5.2.2 Major/Mega Projects

For Major/Mega projects, review for the presence of F4R sites located within the proposed project limits occurs at these points in the project development process;

- The requirement to identify the presence of F4R sites is described in **PMM 3-1-5, Project Evaluation and Ranking for Study**. The process identified in PMM 3-1-5 is required for the Transportation Project Commission (TPC) to approve a proposed project for study (TPC Step One).

- The requirement to review for a known F4R site within the proposed project limits of a proposed project approved for study by the TPC shall also be included as a part of the **Process Initiation Letter** template. This template is sent to FHWA for proposed projects requiring preparation of an Environmental Impact Statement or an Environmental Assessment.

If the presence of a F4R site within the proposed project limits is identified during the Major/Mega project development process, a discussion about the evaluation and decision on alternatives that would either eliminate or substantially mitigate a repeat of previous damage, or substantially reduce the level of effort necessary to recover from that damage should it recur is required as part of the appropriate environmental document type being prepared for the proposed project.

5.2.3 Local Program and Other Uniquely-funded Projects

For Local Program and other uniquely-funded projects (e.g., Transportation Economic Assistance, Transportation Alternatives Program, etc.) not covered by FDM Chapter 3, review for the presence of F4R sites located within the proposed project limits shall occur in this method:

- The requirement to review for the presence of F4R sites within the proposed limits of a project is the responsibility of the project sponsor and shall be accomplished before the project is included in the State Transportation Improvement Program (STIP), STIP amendment or Regional Plan Commission or Metropolitan Planning Organization Transportation Improvement Program (TIP) or TIP amendment.

- **The 23 CFR 667 Resiliency Scope Certification Form** shall be completed and included as part of the administrative record for a proposed project.

If the presence of a F4R site within the proposed project limits is identified during the project development process for these proposed project types, prior to inclusion of the project in the STIP or TIP, a discussion and final determination must be made about the evaluation and decision on alternatives that would either eliminate or substantially mitigate a repeat of previous damage, or substantially reduce the level of effort necessary to recover from that damage should it recur. This determination shall also be included as part of the appropriate environmental document type being prepared for the proposed project.

FDM 3-22-10 23 CFR 667 Conforming Evaluation for F4R Sites *November 17, 2020*

10.1 Evaluation Methodology

23 CFR 667 does not explicitly prescribe the method or metrics for the conforming evaluation therein described, allowing each state to develop its own methodology. However, the one implied evaluation requirement is that it must analyze an option(s) that would either eliminate or substantially mitigate a repeat of previous damage, or significantly reduce the level of effort necessary to recover from that damage should it recur.

These resolving or mitigatory solutions must be appropriately analyzed within the context of the statistical frequency of the previous damage events and life cycle cost to construct and maintain the solution being proposed. And, must then be compared to a same analysis on replace-in-kind or incrementally graduated solutions. The resultant benefit/cost comparison from each option becomes the determining factor in choosing a recommended solution.

The most significant criterion is the frequency of the damage event. A more frequent event will raise the cost threshold for repairs, while a less frequent event would do the opposite. For example:

- If asset damage was a result of a 10-year frequency event, you have reasonable risk probability of incurring similar damage to replace-in-kind solutions every 10 years. If the replace-in-kind cost to repair that damage is $1,000,000, the 10-year frequency would accrue $5,000,000 sunk costs in 50 years.

This means your resolving options could go as high as $5,000,000 provided they had a 50-year asset life and were designed to withstand at least a 50-year frequency damage event.

- If on the other hand, asset damage was a result of a 100-year frequency event, you have reasonable risk probability of incurring similar damage to the replace-in-kind solution every 100 years. If the replace-in-kind cost is $1,000,000, the 100-year frequency would only accrue $1,000,000 sunk costs in 100 years. This means your resolving options could only go as high as $1,000,000 **provided** it they had a 100-year asset life and were designed to a 100-year frequency event.

Thus, is it extremely important that supportable research is done to attribute the correct event frequency to **the past damage events** at the F4R site. Local sponsors document past damage event benefit/costs within their project notes using a methodology and criteria of their choosing.

All non-let costs are to be included as well as costs associated with environmental mitigation, real estate, utilities, railroads, etc.

10.2 Evaluation Process

What 23 CFR 667 describes as the metrics for its evaluation process is a basic engineering economic and impact alternative analysis that arrives at a singular preferred alternative. FDM 3-1-10 and FDM 11-4-3 detail the Department's Scope Certification requirements which are the milestones that any STIP or TIP project must complete to have a programmatically valid preferred alternative.

The WisDOT F4R Evaluation Process would therefore be identified as that process described in FDM 3-1-10 and FDM 11-4-3, and where the F4R Evaluation Completion documentation would be the Scope Certification Document and supporting documentation therein referenced.

10.2.1 Completed Conforming Evaluations

23 CFR 667 states FHWA can require review of any evaluation done on a F4R site at any time. It is therefore imperative that any completed conforming evaluations be kept on file and readily accessible. The WisDOT F4R database includes a field for 'Completed Conforming Evaluations' and is where such evaluations should be filed.

A PDF file of all documents relevant to the F4R conforming evaluation should be created and then stored in the 'Completed Conforming Evaluations' field of the evaluated site. The PDF file should be sent via email to the Division of Transportation Investment Management – Bureau of Planning and Economic Development, Planning Section at bop.dtim@dot.wi.gov. For further information about the F4R database or F4R evaluations, contact BPED at this email address.

10.2.2 Emergency Events Occurring After Completion of Resiliency Scope Certification

It is possible emergency event(s), as defined in 23 CFR 667.3, could occur after the 23 CFR 667 Resiliency Scope Certification is completed.

When environmental document preparation is initiated, the document preparer should review the F4R Database included on WisDOT's website at: https://wisconsindot.gov/Pages/doing-bus/local-gov/astnce-pgms/highway/f4r.aspx.

If a review of the F4R Database indicates any portion of the project termini includes an F4R site and an F4R Conforming Evaluation was not completed as part of the Department's Scope Certification process as identified in FDM 3-22-10, an evaluation should occur as part of the environmental document as soon as possible. If applicable, the alternatives discussion in the environmental document must also include an analysis of alternatives that could either eliminate or substantially mitigate a repeat of previous damage, or substantially reduce the level of effort necessary to recover from that damage should it recur in the same manner that a Conforming Evaluation would be completed in FDM 3-22-10.

23 CFR 667 RESILIENCY SCOPE CERTIFICATION

Wisconsin Department of Transportation
DT1895 1/2020

Provide the following information about the project.

Design and Construction IDs	Funding Source(s) (check all that apply) ☐ State ☐ Federal ☐ Local
Project Name	Project Termini/Location Being Evaluated by the form
Name of Route or Facility to be Improved	Facility Classification

This form provides certification that the above subject project has been correctly reviewed pursuant to requirements of FDM Section 3-22 for facilities repeatedly requiring repair and reconstruction (F4R) with the following results:

☐ There were no F4R sites identified within the limits of this project.

☐ There was one or more F4R site(s) identified within the limits of this project. The F4R database unique site identifier for the site(s) is/are:

If no F4R sites were identified within the limits of this project, the Regional Planning Chief, Project Sponsor or their delegate can sign the document where noted below, and file it as part of the Scope Certification documentation package.

If one or more F4R sites are identified within the limits of this project, a conforming evaluation pursuant to FDM Procedure 3-22-10 is required before Scope Certification on this project can occur. When the conforming evaluation is completed, it shall be:

- Made part of this project's Scope Certification documentation for SHR projects.
- Made part of this project's administrative record for Local Program and other uniquely-funded projects
- Uploaded to the F4R data base for the site(s) evaluated. If more than one site was evaluated, the evaluations should be uploaded separately for each site. Instruction for this uploading procedure is found in FDM Procedure 3-22-10.5.

Once the steps have occurred, the Regional Planning Chief, Project Sponsor or their delegate shall sign this certification document where noted below and file it as part of the Scope Certification documentation package.

I hereby certify that 23 CFR 677 certification process pursuant to FDM Section 3-22 has been followed and correctly completed.

_____
(Signature)

_____
(Print Name, Title)

_____
(Date)

FDM 3-25-1 Environmental Scoping, Evaluation and Documentation Overview

May 15, 2019

1.1 General

Environmental scoping, evaluation, and documentation are integral elements of preliminary engineering and design functions including; surveying and mapping, right-of-way, traffic, highway design, pavements, utilities, railroad, hydraulics, geotechnical, structural design, maintenance, and construction.

Successful completion of the environmental process ensures that requirements of the Wisconsin Environmental Policy Act (WEPA) and the National Environmental Policy Act (NEPA), as applicable, are satisfied as defined under state and federal law.

The environmental process requires various levels of design activities and sound engineering decisions to identify the potential environmental effects of a proposed project and avoidance and minimization measures. The project team needs to determine the level of engineering and design activities by asking the question "How much engineering and design do we need to tell the story about the need for the project, proposed project alternatives' impacts and potential mitigation measures?" For all projects, the appropriate amount of preliminary engineering is needed to ensure the proposed scope addresses the project's purpose and need. For complex projects and projects with unique resources, a higher level of design detail may be required to define the significance of environmental impacts and potential options for mitigation.

Environmental evaluation and documentation should be completed early in project development.

The first point of contact for questions related to environmental scoping, evaluation and documentation should be the Region Environmental Coordinator. The Environmental Process and Documentation Section liaison should be contacted for projects being developed in Central Office.

FDM Chapter 20 provides specifics about the environmental scoping, evaluation and documentation processes. FDM Chapters 21 through chapter 26 provide detailed explanations and processes to evaluate and document specific environmental resources present in the project area.