Asset Management – FDM Revisions Question and Answers

General Topics

What's do all the new acronyms mean?

PBPD – Performance-Based Practical Design

BOSCD – Bridge or Structure Certification Document

CGA – Controlling Geometric Analysis

SCP – Safety Certification Process

SCD – Safety Certification Document

FSC – Final Scope Certification

DJ – Design Justification

FDP – Facilities Development Process

Is Perpetuation the same as Replace-in-Kind?

The term perpetuation is being used instead of Replace-in-Kind since it better represents the concept and intent of WisDOT's Perspective on Performance-Based Practical Design (see new FDM 11-1-5.2).

When will the new FDM guidance be available and which projects will it be applied to?

The principles can start being applied before the FDM update is published. The new forms and processes will be available as soon as the FDM update is published. Projects that started under the old process/philosophy may need to be reevaluated on a case-by-case basis depending on the stage of the project. For the most part, projects with a signed environmental document and approved DSR will proceed as currently proposed.

Where should questions on SCP and SCD be directed?

There is training coming up for the Safety Certification Process. A limit number of people will take part in the first round of classroom training. The training session will also be made available via a voice-over presentation on the LearnCenter for those who don't attend the classroom training. There will be region points-of-contact and subject experts as the process gets implemented. BTO will be available to those region points-of-contact to answer questions on SCP and SCD.

What is the records retention requirements for SCD, BOSCD, and FCS?

That is still being worked out. The records retention document will need to be updated. It will most-likely similar to that of the DSR since these documents will now be used by the DSR as documentation of decisions made.

Are Improvement Concepts in the PMM (Program Management Manual) being revised?

The table in FDM 11-1 attachment 10.1 uses the Improvement Types, Improvement Concept Codes and Improvement Concept Definitions from the PMM. The Improvement Concept Definitions are statutory definitions that have not been changed at this time.

Will project management tools like Masterworks and PMP be updated to reflect the new FDM Chapter 3 process and Asset Management terminology?

PMP and Masterworks is currently being reviewed and updates are being identified. Coordination is ongoing with those needed to make the changes.

Who should be contacted if an inconsistency if found after the FDM is published?

Point of contacts related to asset management updates in the FDM or other DTSD manuals include the region Program Control Design QA and the BPD Design Oversight Engineer assigned to the region.

Who will interpret the new FDM requirements or provide guidance to the regions if there are questions on how the changes should be implemented?

The region Program Control Design QA and the BPD Design Oversight engineers assigned to the region will serve as resources for interpretation of FDM guidance. BPD and other DTSD staff with particular areas of expertise may be brought into discussions on a case-by-case basis. Region Programming and Safety engineers will serve as resources for interpretation of theme and safety related topics.

Project Specific/Design Criteria Questions

Where did the 18-year pavement service life come from? How will pavement service life be identified for a specific project?

Generally, with input from BTS, the 18-year threshold was derived by looking at the typical expected life of various pavement treatments and balancing the fiscal considerations and other risks. Pavement service life for a particular project will be a derived value based on the asset management prioritization theme, pavement distress inventory, pavement layer and base, and the Department Pavement Management Decision Support System and the life expected from the pavement design of the proposed treatment. It should be documented in the Pavement Design Report (PDR) or the Final Scope Certification (FSC) document. The intent is that longer term improvements would require more extensive evaluation/inclusion of features independent of safety needs.

How much soil information is needed in the Project Definition phase (prior to Final Scope Certification complete)?

Enough soil investigation/analysis should be completed prior to Final Scope Certification to determine pavement service life of the proposed pavement treatment and the typical section that will require. Enough information must be available to provide a reasonable a level of confidence that the scope/schedule/budget identified in the FSC document is not going to be impacted by potential outcomes from further soils investigations.

Can the pavement elevation be changed on Perpetuation projects?

When pavement needs require a thicker pavement structure, pavement elevation can be raised on Perpetuation projects as long as it can be done without widening the existing subgrade. Tables have been created to help scoping teams determine how much pavement elevations can be raised. See Appendix A of this document. These table will be published in the FDM with a future Transmittal.

What about road diets/lane reconfigurations – what design criteria will be used?

Since most road diets or lane reconfigurations do not impact the footprint (shoulder point-shoulder point or curb & gutter limits) S-1 application would be used for most features. Safety Certification Document recommendations will determine lane widths and other features based on safety needs.

How will requirements for NHS routes related to pedestrian accommodations and paved shoulders be handled on Pavement Replacement projects that fall under S-1 application of design criteria?

This is one of the areas of discrepancy that was mentioned in the training. Since developing the FDM guidance we have requested a change that FHWA is still reviewing. The proposal is S-1 design criteria would match existing, S-2 areas would evaluated based on treatment type, and S-3 would follow full FDM criteria requirements. These situations should be coordinated with BPD Oversight on a case-by-case basis.

When should PIMs be held in the new Facilities Development Process?

Process for public involvement thru the environmental process has not changed. Enough outreach needs to be done prior to the Final Scope Certification to set the final scope.

When are environmental documents to be completed and how will the SCP analyses and alternatives be coordinated with the environmental process?

The SCP takes place early in the scoping process and results in options to be considered for the project to address specific safety issues. The SCD will identify the most cost beneficial alternative, the most operationally preferred alternative, and all the alternative analysis that lead to those identifications. However, those alternatives and explanation of the process (i.e. SCP) that led to those alternatives must go through the necessary environmental public review and comment process before they can be officially documented in the environmental document and DSR as the final project alternative. Some of the SCP and environmental processes can happen concurrently. A documented review of applicable environmental elements must be completed prior to the Final Scope Certification, with a purpose of providing a reasonable level of confidence that the scope/schedule/budget identified in the FSC has minimal risk of being impacted by unknown or non-assessed environmental impacts later in the delivery process. potential outcomes from further evaluation.

What happens if something comes up after the Final Scope Certification is complete?

This depends on when the change occurs. If the change occurs prior to final environmental document or DSR signature, then a revised FSC will be required before the change can be considered final scope. All subsidiary scope certification documents (i.e. pavement, environmental, structure, et.al.) that are part of the original FSC will need to be reviewed to determine if the change impacts their original certification. If not, the FSC will so note this and original documents are fine. If they are impacted, then revised and approved subsidiary scope certification documents will also be required.

If the change occurs after the final development of the environmental documentation or DSR, those documents will serve as the change management documentation. They will be revised and re-signed accordingly. No revision to the FSC is required. If the proposed change is not safety related, no changes to SCD is needed. Justification for work beyond what's determined in the SCD needs to be documented in the Design Study Report. If change is related to pavement treatment, the Pavement Design Report may need to be updated. Decisions that vary from the PDR need to be documented in the DSR.

What types of contracts can aesthetics be included on?

Aesthetics and other add-ons requested by the locals may be considered in any project if the inclusion does not impact the let schedule or delivery schedule needed to meet the needs thematic pavement needs.

How will aesthetics and add-ons be funded?

Aesthetics are fundable if part of mitigation in the environmental document. Aesthetics beyond this must be locally funded.

Will locals be able to add utility or other work to Perpetuation and Rehabilitation projects? How should the constraints for what can be included be conveyed to them?

Whether local utilities or other local driven work can be included in Perpetuation or Rehabilitation projects will depend on the schedule impacts and the type of work to be included and if the proposed work would change the work type to fall into a higher improvement strategy. Locals should be encouraged to schedule utility work to coincide with a pavement replacement project or a project with a longer-term service life such as a pulverize and relay or full depth cold-in-place recycle.

If Local Program Agencies (LPAs) are allowed to schedule improvements prior to a long-term service life project, they will be financially responsible for covering the cost of remaining service life of existing pavements or any other asset that would require removal and replacement solely due to the added work of the local agency. A financial spreadsheet is being developed to aid in determining cost-share requirements. In the interim regions should use the same type of process to evaluate remaining life costs as is described for jurisdictional reassignment in FDM Chapter 4.

How is the life of a culvert going to be determined?

The Culvert Asset Management Program has been implemented statewide. This provides for routine inspection of all culverts on the state system. This will be used in determining the expected life of culverts. Regions will need to determine who will be making that determination based on resources and expertise.

How is the condition of beam guard going to be determined?

The FDM contains guidance on evaluating beam guard condition. Regions will need to determine who will be making that determination based on resources and expertise. See FDM 11-45-2.5.

On projects with no crash flags where the existing roadway doesn't have [CL rumbles/EAT/Safety Edge/wet reflective edge line/shoulder rumble strips on 5' paved shoulders], does project replace exactly what was there (i.e. without those things) or do those things need to be added?

Follow FDM guidance for non-SCD required elements. The intent is not to discourage the installation of proven (safety edge, rumble strips) safety-beneficial treatments on improvement projects outside the SCP process as long as their inclusion:

- is supported in the FDM
- is documented in the FSC or DSR
- retains a thematically compliant treatment
- meets the project specific Purpose and Need

Can improvements be made to address other roadway issues on Perpetuation or Rehabilitation Projects? (i.e., frost heaves, sloughing slopes, ditch cleaning, spot curb and gutter repair, spot storm sewer repair)?

Work related to maintaining the integrity of the core roadway for the proposed pavement treatment life can be done under Perpetuation or Rehabilitation work types. This work needs to be documented in the Final Scope Certification and must be thematically compliant.

Can paved shoulders be added/widened on a perpetuation project?

A project stays within the perpetuation definition if the proposed pavement design stays within the footprint of the existing road (subgrade shoulder points). Therefore, safety-driven shoulder widening can be done under a Perpetuation work type if that work stays since work will still be within the subgrade shoulder points. If not needed for safety, they could only be included if they are determined necessary through the environmental process to meet the project specific Purpose and Need and stay within the existing points. If mitigation-required work to go outside the existing subgrade shoulder point, they could still be added but it would require a revised, approved treatment type of recondition. Otherwise shoulders should maintain existing widths.

If there is a safety flag and added/widened paved shoulders is the solution, will they only be added where the flags where?

If the flags are related to a unique geometric feature, the treatment can be applied just in that area as recommended in the SCD. If the flags are not associated to a unique geometric feature (a specific curve or specific typical section), they should be applied systemically on the project and the SCP will consider the improvement for the entire/applicable portion of the project.

If a project does work outside the “footprint of the roadway” (shoulder points/curb & gutter) will it always be a Rehabilitation work type?

If the work outside the “footprint of the roadway” is related to geometric improvements, requiring S-2 application of design criteria, it will fall into one of the Rehabilitation work types. An exception to this would be that work related to maintaining existing features with remaining life less than the proposed pavement treatment life (example drainage – culverts or spot curb and gutter) or other FDM required improvements not identified through the SCP (example beam guard end treatments) can be done under Perpetuation work types (S-1 Criteria Application). This work needs to be documented in the Final Scope Certification.

How will capacity be address when there are not safety concerns identified in the SCP?

If there are no discernable safety concerns, capacity is not expected to be addressed unless the need is driven by other factors identified through the environmental process.

How are treatments/improvements needed for congestion going to be handled?

Improvements will be based on safety. Safety issues generated by congestion will be evaluated through the safety certification process (SCP). Predictive analysis will be performed to determine the appropriate treatment for the project. This portion of the SCP will likely develop as the department gets more experience and knowledge from using the SCP.

Additionally, it should be noted that the SCP does not apply to the Majors program. Majors projects will be enumerated and funded by traditional methods.

However, a Region has the discretion to propose rehabilitation treatments if they can identify objective cost criteria resulting from congestion issues. User delay is alone NOT one of those objective criteria. Ancillary crashes or inability to access to and from the system for emergency services could be. Any objective cost criteria would then need to have a cost benefit analysis to support any proposed solution.

Will LOS analysis still need to be completed with the new process?

Perpetuation projects will not require a separate project-level LOS analysis or review as they will not change the geometry of the roadway or intersections. Rehabilitation projects may need LOS analysis depending on the proposed improvement (for example changes to intersection control). Modernization projects may also need LOS analysis if the proposed improvements will impact the capacity/operations of the roadway or intersections.

Where will the ICE (Intersection Control Evaluation) fit into the new process? Why isn't it shown in the FDP chart?

Not all tasks are included in the table in FDM 3-1 (FDM 3-1 attachment 1.1) for reasons of legibility/usability. Tasks related to each phase can be found in the Phase Activity List (FDM 3-1 attachment 1.2).

When the Safety Certification Process recommendations result in a geometric change to an intersection, the ICE will be part of the Safety Certification Process. If geometric changes to an intersection are not safety driven, but are determined necessary through the environmental process to meet the project specific Purpose and Need, the ICE would be done outside the SCP.

How will any operational concerns be addressed through the process?

Geometry improvements will need to be based on safety. If safety is impaired because of operation then it will be addressed by the alternatives documented in the SCD. If not needed for safety, improvements could only be included if they are determined necessary through the environmental process to meet the project specific Purpose and Need.

Will Asset Management principles need to be applied to Traffic Impact Analysis (TIA) studies? Will TIA roadway improvements fall into the Modernization improvement strategy and require S-3 application of design standards?

TIA are not subject to the SPC and need to adhere to S-3 design criteria.

How will deferred OSOW improvements be tracked?

If OSOW is not addressed on a project with a pavement treatment life of <18 years, it should be documented in the DSR. Previous DSRs should be reviewed during the scoping process. The goal is to implement an electronic format of the DSR which will facilitate the retrieval of this information in the future.

What about HISP and Major projects?

HSIP and Major projects are unaffected in the new Facility Design Process. They will follow the existing process which is covered by the Modernization improvement strategy and S-3 design criteria application. The Safety Certification Process does not apply with these programs currently. Design Justifications will be documented in the DSR for these projects same as the 3R/Backbone process.

Can HSIP funded improvements be added to Perpetuation or Rehabilitation projects to provide for safety improvements not identified in the Safety Certification Document?

Yes, this has not changed. The addition of this work should be documented in the DSR (and FCS if known at that time). The HSIP application information may be used as reference for the DSR documentation.

What about the Local Program?

Most local program projects will follow the process covered by the Modernization improvement strategy and the S-3 design criteria application and as such will not follow the SCP. Crash data is available from UW TOPS lab for all local roads. If the local sponsor wishes to use the SCP it will be considered on a case-by-case basis. Design Justifications will be documented in the DSR for local program projects same as the 3R/Backbone process.

Will the old SSA/PES guidance still be available for projects that were started before the SPC?

The former FDM guidance the Safety Screening Analysis (SSA) and Programmatic Exception to Standards (PES) will still be available for reference and use on projects that do not use the SPC. Location for the SSA/PES guidance is being determined.

Is a re-evaluation of the crash data going to be needed if the design process for a given project is extended or a shelf-project doesn't get advanced in a timely manner?

Unless there are physical changes within the project limits that might impact the safety of the roadway (changes to geometrics or adjoining land use), there should be no reason to reevaluate Meta-Manager safety data and redo the SCP analysis.

Staffing/Resources

Why do we need engineers/designers if we are just putting back what's there and not designing any improvements?

Each project is unique and will have aspects that need to be analyzed. Performance-Based Practical Design requires decisions to be made and justified to meet project specific Purpose and Need. Since the design criteria is not a specific min or desirable standard, engineering judgement must be used to ensure that the design is meeting the expectations of asset management and performance-based practical design as well as the project specific Purpose and Need.

What does this mean for staffing?

This process will affect day-to-day tasks. The guidance is not prescriptive regarding resourcing. This offers the maximum amount of flexibility for individual regions to meet the challenges presented by this change. Region management are aware of the changes and will work with staff on the necessary changes in each region's current practices to achieve the desired results. In some instances, the process may dictate a required level of expertise to be responsible for a certain activity but will not mandate specific positions or sections within the region to perform the activity. Exception is signatory requirements – but even those may be delegated in certain situations. Talk to your Supervisor or Manager if you have questions.

Won't the new timing of Life Cycle and the new requirements place additional workload demand on in-house staff?

While some work has been shifted to be completed prior to LC 11, this is not additional work. It is only an adjustment of the timing of when that existing work is to be completed. Realignment of milestone schedules may realign when and how regions apply their resources. Region management will work with staff on scheduling changes to appropriately realign existing resources.

It is anticipated that in the future less time spent on a larger number of projects. The addition of the SCD is offset by elimination of the Exception to Standards Report and Programmatic Exceptions to Standards process.

Changes to operating procedures need to occur to implement PBPD. Region management teams will be working on identifying where that may require realignment of resourcing.

Can consultants be used to do work prior to Life Cycle 12 if resourcing is shown on the chart after LC12?

BPD's understanding is that outsourcing remains an option for all the same purposes it has been used in the past. The Facilities Development Process chart (FDM 3.1 attachment 1.1) shows items that are required to be provided before completing a milestone or moving to the next phase. Deliverables listed for a phase may have been started in a previous phase. Resourcing must be completed before a project is changed to Life Cycle 12, but resourcing efforts may begin prior to LC 11 if needed.

Appendix A

These tables will be added to FDM Chapter 11 in a future transmittal. Future FDM transmittals supersede these tables.

10 FT SHOULDER (5 FT PAVED INTEGRAL), 6% UNPAVED SHOULDER SLOPE

Original Pavement Structure Depth	Total Lifecycle Pavement Height Increase (in.)																									
	0	0.5	1	1.5	2	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
	Resulting Shoulder Foreslope (%)																									
12-inch	4.00		3.65	3.50	3.36	3.23	3.17	3.11	3.00	2.89	2.80															
16-inch	4.00			3.63	3.52	3.42	3.37	3.33	3.24	3.15	3.07	2.99	2.92	2.85												
20-inch	4.00				3.62	3.54	3.50	3.46	3.38	3.31	3.24	3.17	3.11	3.05	2.99	2.93	2.87									
24-inch	4.00				3.69	3.62	3.58	3.55	3.48	3.42	3.36	3.30	3.24	3.19	3.13	3.08	3.03	2.98	2.94	2.89	2.85					
30-inch	4.00				3.75	3.69	3.66	3.64	3.58	3.39	3.48	3.43	3.38	3.33	3.29	3.24	3.20	3.16	3.12	3.08	3.04	3.00	2.96	2.93		

10 FT SHOULDER (3 FT PAVED INTEGRAL), 6% UNPAVED SHOULDER SLOPE

Original Pavement Structure Depth	Total Lifecycle Pavement Height Increase (in.)																									
	0	0.5	1	1.5	2	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
	Resulting Shoulder Foreslope (%)																									
12-inch	4.00			3.80	3.64	3.49	3.42	3.35	3.22	3.10	2.99	2.88	2.79	2.70												
16-inch	4.00				3.74	3.62	3.57	3.52	3.42	3.32	3.23	3.14	3.06	2.98	2.91											
20-inch	4.00				3.80	3.70	3.66	3.62	3.53	3.45	3.38	3.30	3.23	3.17	3.10	3.04	2.98	2.93								
24-inch	4.00				3.83	3.76	3.72	3.68	3.61	3.54	3.48	3.41	3.35	3.29	3.24	3.18	3.13	3.08	3.03	2.98	2.93	2.89	2.85			
30-inch	4.00				3.87	3.81	3.78	3.75	3.69	3.63	3.58	3.52	3.47	3.42	3.38	3.33	3.28	3.24	3.20	3.15	3.11	3.07	3.03	3.00	2.96	2.92

8 FT SHOULDER (5 FT PAVED INTEGRAL), 6% UNPAVED SHOULDER SLOPE

Original Pavement Structure Depth	Total Lifecycle Pavement Height Increase (in.)																									
	0	0.5	1	1.5	2	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
	Resulting Shoulder Foreslope (%)																									
12-inch	4.00	3.67	3.52	3.39	3.26	3.14	3.09	3.03	2.93	2.84	2.75															
16-inch	4.00	3.76	3.65	3.54	3.44	3.35	3.30	3.26	3.17	3.09	3.02	2.94	2.87	2.81												
20-inch	4.00		3.72	3.63	3.55	3.47	3.43	3.40	3.33	3.26	3.19	3.13	3.07	3.01	2.95	2.90	2.84									
24-inch	4.00			3.70	3.62	3.56	3.53	3.49	3.43	3.37	3.31	3.26	3.20	3.15	3.10	3.05	3.00	2.96	2.91	2.87	2.82					
30-inch	4.00				3.70	3.64	3.62	3.59	3.54	3.49	3.44	3.39	3.34	3.30	3.25	3.21	3.17	3.13	3.09	3.05	3.01	2.98	2.94	2.91		

8 FT SHOULDER (3 FT PAVED INTEGRAL), 6% UNPAVED SHOULDER SLOPE

Original Pavement Structure Depth	Total Lifecycle Pavement Height Increase (in.)																									
	0	0.5	1	1.5	2	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
	Resulting Shoulder Foreslope (%)																									
12-inch	4.00	3.99	3.82	3.66	3.51	3.38	3.31	3.25	3.13	3.03	2.92	2.83														
16-inch	4.00			3.75	3.64	3.53	3.48	3.43	3.34	3.25	3.17	3.09	3.01	2.94	2.87											
20-inch	4.00				3.71	3.63	3.59	3.54	3.47	3.39	3.32	3.25	3.19	3.12	3.06	3.00	2.95	2.89								
24-inch	4.00				3.76	3.69	3.65	3.62	3.55	3.49	3.43	3.37	3.31	3.25	3.20	3.15	3.09	3.05	3.00	2.95	2.91	2.86	2.82			
30-inch	4.00				3.81	3.75	3.72	3.69	3.64	3.59	3.53	3.48	3.43	3.39	3.34	3.30	3.25	3.21	3.17	3.13	3.09	3.05	3.01	2.97	2.94	2.90

Appendix A

These tables will be added to FDM Chapter 11 in a future transmittal. Future FDM transmittals supersede these tables.

6 FT SHOULDER (5 FT PAVED INTEGRAL), 6% UNPAVED SHOULDER SLOPE

Original Pavement Structure Depth	Total Lifecycle Pavement Height Increase (in.)																									
	0	0.5	1	1.5	2	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
	Resulting Shoulder Foreslope (%)																									
12-inch	4.00	3.55	3.42	3.30	3.18	3.08	3.03	2.98	2.88	2.80																
16-inch	4.00	3.66	3.56	3.46	3.37	3.28	3.24	3.20	3.12	3.04	2.97	2.90	2.84	2.78												
20-inch	4.00		3.65	3.57	3.49	3.42	3.38	3.35	3.28	3.21	3.15	3.09	3.03	2.98	2.92	2.87	2.82									
24-inch	4.00			3.63	3.57	3.50	3.47	3.44	3.38	3.33	3.27	3.22	3.16	3.11	3.07	3.02	2.97	2.93	2.89	2.84	2.80					
30-inch	4.00				3.65	3.60	3.57	3.55	3.50	3.45	3.40	3.36	3.31	3.27	3.23	3.18	3.14	3.10	3.07	3.03	2.99	2.96	2.92	2.89		

6 FT SHOULDER (3 FT PAVED INTEGRAL), 6% UNPAVED SHOULDER SLOPE

Original Pavement Structure Depth	Total Lifecycle Pavement Height Increase (in.)																									
	0	0.5	1	1.5	2	2.5	2.75	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12
	Resulting Shoulder Foreslope (%)																									
12-inch	4.00		3.68	3.54	3.41	3.29	3.23	3.17	3.07	2.97	2.88															
16-inch	4.00			3.65	3.55	3.45	3.40	3.36	3.27	3.19	3.11	3.04	2.97	2.90												
20-inch	4.00				3.64	3.56	3.52	3.48	3.41	3.34	3.27	3.21	3.15	3.08	3.03	2.97	2.92									
24-inch	4.00				3.70	3.63	3.60	3.56	3.50	3.44	3.38	3.32	3.27	3.21	3.16	3.11	3.06	3.01	2.97	2.92	2.88					
30-inch	4.00				3.76	3.70	3.68	3.65	3.59	3.54	3.49	3.45	3.40	3.35	3.31	3.26	3.22	3.18	3.14	3.10	3.06	3.03	2.99	2.95		