



FDM 11-4-1 Concept Definition Report

August 17, 2020

1.1 General

The concept definition phase of the process begins with the decision that "...something must be done..." From this point on, the designer formulates recommendations based upon what is already known about the problem area under consideration. The first action taken in this regard is the region's preparation of a decision document called the Concept Definition Report (CDR). Its purpose is to establish initial agreement between the Region Project Development (PD), System Planning and Operations (SPO), Technical Services (TS) and other sections as to the timing and scope of the project, and to initiate authorization to incur engineering charges. The CDR also provides various central office sections information about the project and an opportunity to offer their comments and perspectives.

The Concept Definition Report also identifies whether the project is located on a National Highway System route and whether the project will be subject to oversight by the Federal Highway Administration. [FDM 5-5-15](#) describes the WisDOT-FHWA relationship in the development of federally-funded projects.

On local road projects, the CDR or approved application establishes initial agreement between the WisDOT and the Municipality. For local road projects, the approved application may serve as the initial CDR.

Prior to Final Scope Certification, Region and BPD Design Oversight Engineers shall review all previous documentation and agreements that fall within the proposed project limits. These include past Design Study Reports (DSRs), Design Justifications (DJs), Exceptions to Standards, etc. and when they exist; Interstate Conversions, Municipal Agreements, etc. where available. The objective of this review is to identify and incorporate any previous commitments to external agencies and evaluate any previously identified deficiencies or intended enhancements to the facility.

1.2 Content

Limit the length of the CDR to one sheet and present the basic project concepts in as brief and concise a manner as possible. The necessary elements of a CDR are as follows:

1. Where - Describe the project location.
2. Why - State the justification for establishing a project.
3. What - State the project concepts that the region is proposing.

Bicycle and pedestrian needs and the potential type(s) of accommodations should be made part of this report.

[Attachment 1.1](#) is a recommended format for presenting the text information required in a CDR.

Include a map that is appropriate to the scope of the project within the report. For rural projects, this should be a county map showing the project termini. For urban projects, this should be a street map, again showing project termini. For spot improvements like bridge projects, it can be either a county or street map with the project location circled. Typically, this map is printed on the reverse side of the CDR.

1.3 CDR Process

The CDR is typically prepared by region SPO staff for regular improvement projects, based on information gathered during program development (needs identification, evaluation, etc.). Procedures for acceptance vary among regions, but generally indicate agreement between SPO, PDS, TSS, and others involved. A statement of anticipated environmental documentation type serves to alert FHWA, Bureau of Technical Services Environmental Section, and other central office sections of the extent of involvement or, in the case of Categorical Exclusions, completes the documentation.

Updated CDR's are prepared and distributed when there is a change in concept, such as project description (revised length or limits), scope of improvement or improvement type (e.g. Perpetuation to Rehabilitation) or a significant change in combined scope, special features, or cost that could cause a change in federal oversight status. For local road projects, the approved updated application may serve as the updated CDR.

Treat CDRs written before project scoping is completed as an initial document until the scoping process is completed. At that time, the project manager shall decide if the current CDR is accurate or if it needs to be updated to reflect pertinent changes in project scope resulting from the scoping process.

The region should forward copies of the completed CDR to the individuals listed below for purposes indicated.

Table 1.1 CDR Distribution

Organization, Attention	Which Projects	Purpose
Bureau of Project Development, Design Standards and Oversight Section Chief	All	Information and comment. This copy and notation will be maintained in C.O. File.
Bureau of Structures, Structures Design Section Chief	Projects involving bridgework	Information and comment.
Bureau of Traffic Operations, Traffic Engineering and Safety Section Chief	Projects involving signals, lighting, special traffic issues	Information and comment.
Bureau of Highway Maintenance, Highway Maintenance and Roadside Management Section Chief	All projects.	Information and comment
Region Railroad Coordinator (RRC)	All projects with a railroad crossing located within the project limits or within 1000 feet of the project location. All projects with grade separations between highway and railroad. All projects that parallel a railroad on adjacent right of way.	Information and comment. Begin railroad coordination efforts. The RRC will send a copy to the affected railroads and to the Bureau of Railroads and Harbors.
Bureau of Technical Services - Environmental Section Chief	All	Preparation of “quarterly listing” of ER and pER
USDA - Forest Service	All projects located within the Chequamegon and Nicolet National Forest	Information and Comment (see FDM 5-5 Attachment 5.1 , M.O.U.)
FHWA, “Point of Contact”	All projects located on the National Highway System with an estimated project cost of \$2,000,000 or more intended to be eligible for federal participation in any phase.	Information, reference, and to establish responsibility for oversight of 23 USC requirements.

NOTE: TOIPS or other special interest projects may warrant wider or targeted distribution as appropriate. See the Maintenance or Traffic Manuals regarding these.

1.4 Community Sensitive Design

Community Sensitive Design (CSD) is a philosophy of involving the “community” impacted by an improvement project early in the design process. See [FDM 11-3-1](#) for a detailed explanation of Community Sensitive Design.

During the Concept Definition phase, meetings with the public should be used to determine the “community values” which will be used to assess various alternatives. At the same time, the community should be informed that there are certain physical and legal requirements that WisDOT and other agencies must meet when developing an improvement project. Each party needs to learn the issues important to the others. WisDOT and their consultant should host the meeting and both the public and other key agencies affected by the project should be invited to attend. At the public meeting:

WisDOT reports: “This is what the design criteria suggest we do” by providing a range of alternatives.

Other agencies report: “These are the non-highway related legal requirements for a project of this type.”

Community reports: “This is what is important to us.”

The goal of a public meeting held during this phase is to reach consensus on the project scope.

1.5 Notes to Design

The region Systems Planning & Operations Section will include a “Notes to Design” document as an

attachment to the CDR. The “Notes to Design” document is a means of providing the people involved in scoping and design with background information that was gathered by SPO staff in the development of the project CDR. It also describes the local desires and commitments that may have been made when a project was put into the program. The document consists of 1 or 2 pages of text providing information on the most important factors affecting the projects schedule, cost and concept. Subjects that it might address are:

- Community growth, planning and development issues
- Corridor-specific issues that the community or public may have with this route
- Summary of public inquiries received or Safety Commission comments made
- Current pavement condition and history and where it is in its life cycle
- Any known desires on pavement type or roadway treatments requested by local government
- Any legislative interest in the project
- Any known detour issues
- A generic statement on guidelines in place at the time the project was originally programmed
- Any traffic capacity or access control issues
- Any other information relevant to project development, cost or schedule
- Recommendations to incorporate or not incorporate bicycle and pedestrian accommodations.

LIST OF ATTACHMENTS

[Attachment 1.1](#) Concept Definition Report Template

FDM 11-4-3 Final Scope Certification

November 15, 2023

3.1 General

The purpose of the Final Scope Certification (FSC) document is to establish final agreement between the Region System Planning and Operations (SPO-PLN and SPO-OPS), Project Development (PDS), Technical Services (TSS), and the Bureau of Project Development (BPD) Design Standards and Oversight Section as to the scope, schedules, and budgets of the project. The FSC also provides various Statewide Bureaus and Division Offices with information about the project.

The Final Scope Certification is to be completed prior to moving a project to Life Cycle 11.

The Final Scope Certification includes confidential estimate information that should be redacted prior to sharing the document outside WisDOT (including design consultants).

[Attachment 3.1](#) shows the format for the FSC Standalone Curb Ramp Program projects are to use the [Standalone Curb Ramp Project Final Scope Certification](#)* template. **Only WisDOT employees have access to this.*

3.2 Concurrence

Region SPO-Planning/Programming chief approves the FSC after concurrence from PDS, SPO-Ops, TSS, and BPD chiefs or their delegates.

3.3 Content

3.3.1 Cover Sheet

The cover sheet includes project identification information and approval signatures. The signature page includes the concurrence by the chiefs, or their delegates as determined by the regions, with the SPO-Planning/Programming chief approval being the final signature.

Improvement Concept Code: corresponds to the improvement scope of the project (example RSRF10).

Improvement Strategy: determined by [FDM 3-5-1](#). (Update field in FIIPS as needed. See PMM 05-10-05).

3.3.2 Project Information

Purpose and need – enter description of the project’s purpose and need.

Summary of scope of work – Include a summary of the proposed work including bridge or structures, pavement, safety, and operational improvements. Also include items that may have come up through the environmental process or other FDM required actions. Items may include but not be limited to:

- Sidewalk
- Curb and gutter

- ADA improvements
- Bike and pedestrian accommodations
- Drainage
- Ancillary Structures
- Local/municipality requested work

Milestone Schedule (milestones shown in [FDM 3-1 Attachment 1.1](#)) – enter dates. See [FDM 3-1](#) for definitions of milestone dates.

Detail work breakdown schedules – enter link to detail schedule (typically PMP detail schedule).

Major Bid Item estimates - enter link to construction estimate.

Non-Let schedules and estimates – include FIIPS values for RE, RR and UTL non-let components.

3.3.3 Certifications

Safety (and Operations) Certification Document - enter date, include hyperlink to the file location.

- For the Safety Certification Process, indicate the presence of Safety Sites of Promise, and safety countermeasures analyzed. See [FDM 11-38](#).
- For the Operations Certification Process, if completed, provide a brief summary of the improvement recommendations. See [FDM 11-52](#).

Bureau of Structure Certification Document (BOSCD) – Indicate the presence of structures within the project limits and whether structure work is included in separate projects. Enter date of BOSCD, include hyperlink to applicable document, and provide a brief summary of treatment recommendation.

Pavement Design Report – enter date of the signed Pavement Design Report, include hyperlink to the report and provide a brief summary of treatment recommendation.

Risk Based Environmental Scoping Template (RBEST) or draft environmental document – enter date, include hyperlink to the RBEST or draft environmental document, and provide a brief summary of significant issues and expected final environmental type.

Native American Lands of Interest (NALI) Scoping Determination – enter date, include hyperlink to NALI, and provide a brief summary of significant information noted in NALI. Indicate if Native American Hiring Provision is needed. Contact Region Tribal Liaison. See [Working with Tribal Communities](#).

Resiliency Scoping Certification F4R – enter date, include hyperlink to Resiliency Scoping Certification, and provide a brief summary of F4R determination. See [FDM 3-22](#).

3.3.4 Risk and Performance Management

This checklist is a series of questions related to the status of the project as compared to certain performance management goals for scope, schedule, and budget. Identification of risk and mitigation strategies are included in this section.

Scope

Program Effectiveness Measure (PEM) – Is the project in compliance with the Department’s current asset management theme for appropriate highway treatment? This question is applicable only to 3R Allocated and Backbone funded projects. If not a 3R Allocated or Backbone funded project, use the Justification field to identify what type of project this is and skip the other questions in this Program Effectiveness Measure section.

Schedule

Delivery Risk - Is the project scheduled to be compliant with current Project Letting Plan (PLP) and Advanceable Project Letting Plan (APLP) programmatic guidelines for LC 12 and LC 15 Delivery Risk? Are there risks that may impact the project schedule?

Budget

Delivery Budget – Is the established project delivery budget within 9% of Design Delivery Cost Index (DDCI) for that project treatment type (DDCI%+9%)? This question should be addressed, and justification made, within the delivery budget worksheet. Only include a link to the delivery budget that is saved in a secure location. Do not enter a value in the FSC as delivery budget should be kept confidential. Are there risks that may impact the delivery budget?

Project Budget –Are there risks that may impact the project budget, either let or non-let. If not a 3R Allocated or Backbone funded project, review the current project estimate to the approved funding.

3.3.5 Supplemental Data

Region process will determine the format and content of the supplemental data to be linked to the document. This may include but not limited to:

- Scoping notes
- Supporting documents (Intersection Control Evaluation, technical memos, preliminary drawings)

ATTACHMENTS

[Attachment 3.1](#) Final Scope Certification Template

FDM 11-4-5 Location Study Report

May 15, 2019

5.1 General

One report used for major projects is a Location Study Report. This is used to document the factors affecting the selection of an alignment alternative and to solicit concurrence with that selection.

Concurrence in the corridor selection is required by the Administrators of the Divisions of Transportation System Development (DTSD) Regions, the Division of Transportation System Development, and the Division of Transportation Investment Management. The preferred method of securing concurrence is to prepare and forward to the Design Standards and Oversight Section of the Bureau of Project Development a Location Study Report containing a map which shows the alternative corridors or alignments, very briefly describes them, identifies the selected alternative, describes any controversial issues, and indicates which issues have and have not been resolved as well as the nature of the resolution. The report should be brief, no more than 2-3 typewritten pages plus maps. If the administrators did not attend the selection meeting, the cover letter should indicate whether a meeting with the administrators is recommended at this point. That recommendation should be based primarily on whether unresolved controversy still exists.

The staff of the Design Standards and Oversight Section will contact the three administrators, provide them with a copy of the Location Study Report and determine whether they desire to meet. If a meeting is not desired, the Chief of the Design Oversight and Standards Section will sign the report indicating that he and the administrators have been informed of the selected alternatives and concur with them.

If the administrators do wish to meet, the Design Standards and Oversight Section will schedule the meeting. The region should be prepared to discuss the scope of the project, the alternatives, their pros and cons and the controversial issues. They should also discuss timing of the notification of local and state elected officials prior to announcing the preferred location to the public.

If there is significant controversy associated with the preferred corridor, the concurrence of the Secretary of the Department is required prior to announcing the choice to the public. The coordination with the Secretary will be handled by the Administrator of the DTSD who will advise the region what information is necessary and whether or how they will be expected to participate. After concurrence of all parties has been secured, the Chief of the Design Standards and Oversight Section will sign the report as noted above.

FDM 11-4-10 Design Study Report

May 15, 2024

10.1 General

All projects in the improvement program require a Design Study Report (DSR) to be completed. The purpose of the DSR is to document the decisions and rationale for decisions in the development of an improvement project. The DSR, at a minimum, shall address the following:

- Design criteria proposed.
- Geometric and Safety aspects to be addressed by the project improvements
- Summary and Synopsis of important project approvals and decisions and rationale for decisions

Other things about DSRs to be aware of:

- Must be approved before Final Project Delivery can begin on a project. See [FDM 3-1](#) for project phases.
- Must be approved before Real Estate Relocation Orders can be approved and Real Estate acquisition can begin on a project

- Will be kept in the Central Office files per records retention policy, or until a future DSR replaces it, as defense against potential legal actions
- Serves as the bridging document between Project Definition and Project Delivery phases.
- Serves as a good “check box” for designers as to what needs to be completed in Project Definition phase.
- Serves as a good summary of project decisions and source of project information when staff changes occur.

A DSR is approved upon completion of the hearing(s) or hearing opportunity(ies) and finalization of the environmental document and approval of the initial Transportation Management Plan (TMP). For those projects not requiring a hearing or an opportunity for a hearing, the final DSR can be submitted shortly after the approval of the environmental document and Transportation Management Plan (TMP). When the DSR originates outside the department, the report shall be signed and sealed by the professional engineer in responsible charge of its preparation. Draft DSRs can be submitted to the WisDOT region office and Bureau of Project Development staffs for review at any time for comments. This can be especially important when review comments are needed before significant effort or time is expended in finishing the preliminary right-of-way plats and design plans for a project.

The regions will develop DSRs for improvement projects designed in-house and will involve the appropriate region and bureau personnel while doing so. The regions will also review and approve DSRs for improvement projects on the STH system that are designed by consultants or local municipalities.

10.2 Approval/Concurrence Process

Region Project Development Chiefs will approve all DSRs for STH improvement projects within their region. Concurrence with the DSR from the Bureau of Project Development, Design Standards and Oversight Section, is required for all state trunk highway (STH) and National Highway System (NHS) projects. Project oversight engineers in the Design Standards and Oversight Section have been delegated authority to concur with these DSRs.

Local Public Agency (LPA) will recommend or approve all DSRs for Local improvement projects, depending on the project type (see Table 10.1). The Region Local Program Project Manager (LPPM) will concur or approve on all DSRs on Local highway improvement projects, depending on the project type (see Table 10.1) ^(a).

Table 10.1 Authorizing Signature

Project Type	Authorizing Signatures Required
Local (non-NHS)	LPA recommendation and Region LPPM concurrence (state let) ^(a)
	LPA approval and Region LPPM approval (local let, i.e. “non-traditional”)
	LPA approval and Region LPPM concurrence (“Low Risk”)
STH and NHS (local and state)	LPA recommendation (local NHS only), Region approval and Bureau of Project Development (BPD), Design Standards and Oversight Section concurrence ^(b)

(a) Final concurrence on DSRs for Local Improvement projects on NHS routes shall be by the Bureau of Project Development (BPD), Design Standards and Oversight Section.

(b) The regions shall provide a minimum of one (1) signed copy to the BPD, Design Standards and Oversight Section as shown in the table. Send additional signed copies if the region, locals or consultant desire a signed copy for their files. Otherwise, a copy of the signed cover sheet will be sent back to the region and the region will need to provide additional copies, if desired.

If the Design Standards and Oversight Section Oversight Engineer or Chief, or Region Project Develop Section Project Manager or Chief, or Region Local Program Project Manager do not concur in a DSR then section staff will initiate discussions with the appropriate region staff to resolve the differences. This shall begin within thirty days of receipt of the DSR in the Design Standards and Oversight Section or Local Program Section. If the issue cannot be resolved at the staff level, the Bureau Director shall seek resolution with the appropriate Region Director. Add an additional 30 days to the concurrence timeline if FHWA signature is required for a Design Justification within a DSR.

These concurrences are required prior to proceeding with the delivery of final design plans or approval of the

relocation order. Under certain circumstances right of way may be appraised or acquired prior to concurrence in the DSR. See Real Estate Program Manual Chapter 3 for further guidance.

10.3 Distribution

BPD Design Standards and Oversight Section and Region Local Program Project Management staff will forward to FHWA points of contact electronic copies of all signed DSR's for all projects that have been designated for Federal Oversight in accordance with the Federal Oversight Agreement. Region staff must check FIIPs or consult with their Region Planning section to determine if a project has been designated as Federal Oversight or not.

10.4 Content

The following is intended to explain in more detail the DSR topics. Two separate DSR format documents have been created as attachments for the following project types:

[Attachment 10.1](#) - Perpetuation

[Attachment 10.2](#) – Modernization and Rehabilitation

Use the DSR format attachments in the following ways:

1. **Perpetuation DSR format ([Attachment 10.1](#))** - Use for Perpetuation ([FDM 11-40](#)) Projects which, by definition, only utilizes S-1 application of design criteria. See FDM 3-5-1 and [FDM 11-1-10](#) for definition of Perpetuation S-1 Projects. All sections of Attachment 10.1 DSR need to be filled out completely for these project types.
2. **Modernization and Rehabilitation DSR format ([Attachment 10.2](#))** - Use for Modernization ([FDM 11-10](#), [FDM 11-15](#) and [FDM 11-20](#)) and Rehabilitation ([FDM 11-10](#) and [FDM 11-40](#)) projects which, by definition, contain S-2 or S-3 application of design criteria areas. See FDM 3-5-1 and [FDM 11-1-10](#) for definitions of Modernization S-3 and Rehabilitation S-2 areas. All sections of [Attachment 10.2](#) DSR format need to be filled out completely for all these project types except for the following:
 - Section 2.0 Subsections 2.2, 2.3 and 2.4 for Rehabilitation Projects only fill out for S-2 Areas identified in the Safety and Operations Certification Document (SOCD) or where not identified in the SCOD but where other justified reasons related to environmental impacts or excessive costs requires a change in existing geometric or cross-sectional features. For Modernization Projects either remove these tables or just state "None" in these sub-sections.
 - Section 4.0 – fill out the related sub-sections for Modernization Projects and for S-2 areas in Rehabilitation Projects. Sub-sections 4.3.1 and 4.3.2 only need to be filled out if Design Justification (DJ) documentation is required for the project. If no DJs are required for the project, then remove the sections or just state "None".
 - Section 5.0 - fill out all Section 5.0 Subsections for Modernization Projects S-3 and all Rehabilitation S-2 areas generally documenting the proposed cross-sectional, geometric, intersection, or interchange improvements proposed. S-1 areas on Rehabilitation Projects require no documentation in these subsections. If the SCOD or FSC contain all the required documentation, then refer to those documents. Any information not fully documented in the SCOD or FSC, such as documentation associated with new or significant changes to proposed improvements due to newly obtained information not realized during scoping or due to environmental document process evaluations not covered in the SCOD or FSC, need to be further documented as needed in these sections.

For Perpetuation DSR format documents, only provide the information asked for in those sections shown in [Attachment 10.1](#). The Perpetuation DSR format document follows the same format as the Modernization and Rehabilitation DSR format except that the sections not applicable to these types of projects were removed, thus the numbering of the sections are not always in sequential order. However, both of these DSR formats refer to the same sections of this FDM chapter for information related to filling them out. It is not necessary to address every topic in depth for every DSR. Label topics that do not apply to the project as either;

- Do not exist on the project (e.g., no railroads exist within the project limits),
- Will not be affected by the project,
- Is not required for the project.

Information may be provided in either text, tabular or attachment form as explained in the topic sections that follow or as shown in [Attachment 10.1](#) and [Attachment 10.2](#). Any tables shown in Attachment 10.1 and Attachment 10.2 that do not apply to the project or in which the information is provided on an attachment (e.g., typical cross sections) may be deleted if not needed. Just note "See Attachment ___" under the section titles

where tables are deleted.

Design Justifications (DJs) are required for engineering decisions which fall outside design criteria and are not justified to remain by the SOCD. SOCD decisions which fall outside design criteria do not require additional documentation as DJs. For any project that does not use the Safety Certification Process, DJs are required for all engineering decisions which fall outside design criteria and must be validated with an alternative safety analysis completed as part of scoping. Department and region approvals of DJs are integrated in the approvals of the DSR. FHWA approvals of DJs require a separate signature on the DSR title page. See [FDM 11-1-20](#).

Attach a map that is appropriate to the project as an appendix to every DSR. That would typically be a county map with termini marked on it for a rural project, a city street map for an urban project, or a county map with the location circled for a bridge or spot location project. If desired to convey information, attach individual typical cross sections, as-built or preliminary plan sheets, encroachment reports, etc. as appendices rather than verbally describing this information within the text or tables of the DSR. Do not include attachments that duplicate information that is narratively documented in the DSR unless needed to better convey information.

Transmittal/ Cover Letter Sheet

A transmittal/ cover letter sheet from the Region to Bureau of Project Development (BPD) is required. It will contain two to three signature blocks:

- one for either the Region Project Development Chief or Local Public Agency,
- one for either the BPD Design Standards and Oversight Section or Local Program Project Manager, and
- one, if required, for either BPD Design Standards and Oversight Section for Local Program Projects on NHS Routes or for FHWA approval of Controlling Criteria Design Justifications for projects with Federal Oversight.

[Attachment 10.1](#) and [Attachment 10.2](#) provide a format for these memos with imbedded Word shells. Use the titles of Region Project Development Chief, Local Public Agency, Design Standards and Oversight Section Chief, and/or Local Program Project Manager, even though others may be authorized to sign for them. Do not place these signature blocks within the report.

Title Sheet - All DSR's prepared by consultants must contain their seal. The purpose of this sheet is to identify the project and provide a separate location for the seal. If DOT personnel prepare the DSR, this sheet is not required. Project identification on this sheet should include the design I.D. number, route number or road name, Structure ID number (when structures are part of the project), termini, and county.

1.0 Project Description and Need

- 1.1. Federal Oversight – State if project is a Federal oversight project (Yes or No). Check FIIPs or with Region Planning Sections to determine if a project has been designated as Federal Oversight.
- 1.2. Project Length and Termini - State the length of the project. If generalized termini are used on the cover sheet define the limits more precisely here or attach a map or project overview with the termini labeled. Also provide beginning and ending stations for the project if stationing will be used in the document to describe locations of various features in the DSR.
- 1.3. Existing Roadway Information - Indicate whether the roadway is an arterial, collector, or local service facility; whether the project or segments of the project are Rural, Urban or Transitional and whether the roadway is a [Corridors 2030 Backbone Route or Connector Route](#). Indicate if the road is an NHS route: <https://wisconsin.gov/Pages/projects/data-plan/plan-res/nhs.aspx> (click on the city name for a local map) or not, part of a Federal (<http://www.fhwa.dot.gov/legsregs/directives/fapg/cfr06581.htm>) or State (<https://wisconsin.gov/Documents/dmv/shared/truck-routes.pdf>) Long Truck Route or not, and what Access Control Tier Category (see [FDM 7-5-1](#)) the project falls under. Also note if the roadway is on an approved bicycle or pedestrian transportation plan:

<https://wisconsin.gov/Documents/projects/multimodal/bike/coord-map.pdf>

- 1.4. Need for Project - Describe those deficiencies in the present facility that caused the project to be programmed. Generally, focus on pavement condition, safety, or traffic capacity. The list below describes some of these.
 - Age and condition of roadway, pavement, bridges, etc.
 - Traffic congestion (levels of service, operating conditions, etc.)
 - Significant crash locations and crash patterns
 - Other safety considerations

- High maintenance costs
- Public concern
- Construction staging (one phase of a much bigger improvement)
- Other considerations

1.5 Proposed/Selected Alternative, Improvement Type and Description – Indicate the Selected Alternative, Improvement Type and give a brief description of the project.

2.0 Existing Facility Information

2.1. Posted Speed - State the regulatory speed limit(s) and provide any advisory speeds.

2.2. Geometrics (S-2 Location Information Only in Attachment 10.2 DSR format) - Only provide information for S-2 area(s) that are outside design criteria or are not documented in the Safety and Operations Certification Document (SOCOD) or Final Scoping Certification (FSC).

Identify the following for each of these S-2 areas:

- Where the S-2 area(s) are located relative to physical features
- How much the geometry is outside of the S-2 application of design criteria

If all the S-2 area(s) on the project are inside design criteria or fully documented in the SCOD and FSC, then the table can be removed or just state “None” in the table.

The information for S-2 area(s) may either be given in the text/tables of the DSR or on individual as built plan sheets attached to the DSR with the required feature information labeled.

2.2.1. For horizontal alignment feature information required in this table, provide feature type (curve, P.I. deflection, etc.), location, size (radius, P.I. deflection, etc.), super-elevation rate and speed rating.

2.2.2. For vertical alignment feature information required in this table, provide feature type (curve, grade deflection, etc.), location, whether sag or crest, grades, k value or grade deflection, speed rating and whether stopping sight distance (SSD) and decision sight distance (DSD) is met or not.

2.2.3. For vertical grades and clearance feature information required in this table, provide the location, percent grade and vertical clearance for steep tangent grades and low vertical clearance locations. For the Abbreviated, Preventative Maintenance and Perpetuation DSRs, documentation of grade information is not required. Provide vertical clearances as measured from the roadway to bridges passing over the mainline, to overhead trusses on bridges carrying the mainline, and as measured from the bottom of mainline bridges to the surface of features below (e.g., RR tracks, water level in streams, etc.).

2.3. Side roads / Intersection / Interchanges Information/Geometrics (S-2 Location Information Only in Attachment 10.1 DSR format) – Provide existing side road, intersection and interchange information in the DSR. If there are either no S-2 location features contributing to crash issues or no side roads, intersections, or interchanges on the project then either remove the appropriate tables or just state “None”.

The intersection information for these features may either be given in the text/tables of the DSR or on individual as-built plan sheets attached to the DSR with the required feature information labeled.

2.3.1. Side road information (S-2 Locations Information Only in Attachment 10.2 DSR format) should include roadway name, functional classification, posted speed, existing traffic (AADT), intersection approach grade and whether pedestrian or bicycle facilities are present. If existing traffic volumes are not known, state whether the AADT is assumed to be < 100 or > 100.

2.3.2. Intersection information (S-2 Locations Information Only in Attachment 10.2 DSR format) (For Attachment 10.2 DSR format only provide information or any additional information required at S-2 Location(s) in which information is not already documented in the SCOD or FSC) should include intersecting roadway names, intersection types (Rural (A1/A2/B1/B2/C/D), urban, roundabout, etc. as described in FDM 11-25-1 and FDM 11-26-1), intersection angles, traffic control (2 or 4-way stop, signal, roundabout, etc.), stopping sight distance, intersection sight distance, decision sight distance, vision triangles, and corner clearance to driveways.

2.3.3. Interchange information (S-2 Locations Information Only in Attachment 10.2 DSR format) (For

[Attachment 10.2](#) DSR format, only provide information or any additional information required on S-2 Location(s) in which information is not already documented in the SCOD or FSC) should include intersecting roadway names, interchange types (diamond, cloverleaf, etc. as described in [FDM 11-30-1](#)), ramp types (exit or entrance and whether tapered, parallel, collector/distributor, left side ramps, etc.), ramp design speed(s), what horizontal or vertical curves exist on the ramp, ramp grades, stopping sight distance and decision sight distance.

- 2.4. Cross Section(s) Information – Identify cross section features (S-2 Location Information Only in Attachment 10.2 DSR Format) (For [Attachment 10.2](#) DSR format only provide information or any additional information required on S-2 area(s) in which information is not already documented in the SCOD or FSC) by either attaching individual existing typical cross section(s) as an attachment(s) to the DSR or by providing the information in the text of the DSR. Indicate ranges where applicable. Identify on-road bicycle facilities (bike lanes, paved shoulders, or wide lanes for bicyclists). Identify presence of sidewalks and curb ramps or shared-use paths. Identify widths outside design criteria. See [Attachment 10.9](#) for the format of information to be provided on attached typical cross sections¹.
- 2.5. Pavement Structure / Condition - Provide types and thickness of pavement layers, including base course. Give a physical description of the pavement (e.g., rutting, transverse/longitudinal cracking, etc.) Information on type and thickness of pavement layers can be shown on either individual attached existing typical cross section(s) or in the text or tables of the DSR. See [Attachment 10.9](#) for the format of information to be provided on attached typical cross sections.
- 2.6. Right of Way - For projects with TTP or ROW plat, attach the project's list of encroachments (see [FDM 12-1-20](#)). Identify any existing R/W issues that are unique to the project.
- 2.7. Structures - Indicate existing structure I.D. number, feature crossed, type of structure, sufficiency rating, clear roadway width, and railing type. Large drainage structures (box culverts and multiple pipe installations) with span lengths less than 20 feet should also be described and their condition noted if they are to be replaced. Also, identify other types of structures such as sign bridges, tunnels, etc.
- 2.8. Utilities - List names, types and general locations of existing utility facilities and whether underground or overhead. Any utilities that will add to the complexity of the project or are attached to an existing bridge should be mentioned in the comments section.
- 2.9. Railroad Crossings - Indicate where they exist on the project and provide the name of the railroad, the number of tracks, their function (e.g., mainline, siding or spur, switching, etc.), and crossing type (arms, signals, cross-buck signing, grade separation, etc.). If a run-out lane is present at the crossing, then provide a description of its design in the comments section.
- 2.10. Special Soils Conditions – Describe only special or unique soils conditions (such as rock, marsh, or frost susceptible soils) that have a direct effect on the design features chosen for the project. If there are no special soil conditions, then state “None”.
- 2.11. Unique Project Features - Describe features of environmental significance on the project including historic, archeological, hazardous materials, or things that have been identified by a community or the public as being important to their community's identity or vitality.

3.0 Traffic Information

3.1. Traffic Volumes / Conditions

3.1.1. If a forecast is required, attach the forecast report to the DSR. See [FDM 11-5-2](#) for more information on traffic forecasting. If a forecast is not required, provide the current AADT volume(s) in the DSR. Current Annual Average Daily Traffic (AADT) can be found at the [Traffic Counts](#) webpage in TCMap.

3.1.2. If a highway capacity analysis was completed for the project, provide the existing and design year levels of service. (See [FDM 11-5-3](#), [FDM 11-15-1](#), and [FDM 11-20-1](#) for guidance on when a level of service analysis needs to be completed.)

3.2. Safety and Operations Analysis - Answer questions found in Attachments 10.1 and 10.2.

4.0 Proposed Design Criteria (S-2/S-3 areas only for Attachment 10.2)

Any items listed under "Section 1.0 Project Description and Need, Sub-Section 1.4 Need for Project" should be resolved by the project proposal or this section should explain why the project cannot correct them.

¹ The cross sections in Attachment 25.4 and others are available as CADD cells in a folder called cdtyps.cel.

- 4.1. Design Class - Indicate appropriate design class from:
- [FDM 11-15-1](#), for rural Modernization projects
 - [FDM 11-20-1](#), for urban Modernization projects
 - [FDM 11-40-1](#), for rural and urban Perpetuation and Rehabilitation projects
- 4.2. Design Speed(s) - Indicate design speeds and posted speeds pertinent to the various portions of the facility. Features outside design criteria retained through SCOD or DJs do not establish the design speeds.
- 4.3. Design Justifications (DJs) - Identify all features for which DJs are proposed. Document why the DJs are proposed.
- 4.3.1 Controlling Design Criteria DJs - For Controlling Design Criteria DJs include the following information:
- Document the existing highway conditions and proposed improvement project in general terms. Discuss type and extent of work, project length, existing and design year AADT, percent trucks, anticipated future work, etc. Indicate if the road in question is a Long-Truck Route.
 - Thoroughly describe the feature(s) which fall outside the design criteria, providing specific data identifying the degree of deficiency. Proposed design features should be compatible with programmed improvements of adjacent roadway segments.
 - Provide crash data and indicate the time-period for which the data applies. A 5-year minimum period should be used. This information should match the time period used within the Scoping Phase of the project. Breakdown crashes into property damage, injury, and fatality types when pertinent. Review crash reports as necessary. Provide numbers and severity of crashes attributable to each individual feature outside design criteria.
 - Identify any high hazard locations.
 - Provide applicable cost data for alternative solutions.
 - Give the overall cost of the improvement project as proposed.
 - Present the additional cost to bring each individual feature within design criteria. Include construction, real estate and utility costs as applicable.
 - Describe other adverse impacts that would result from upgrading each feature to be within design criteria.
 - Describe safety countermeasures/enhancements that will be made by the project. Specifically describe improvements that will address safety issues. Include low-cost mitigation features such as improved signing and marking, delineation, etc. Restoration of existing markings, etc., do not constitute enhancements. Discuss compatibility of the proposed improvement with adjacent roadways.
 - Include maps, charts, photographs, tables or other graphical data as necessary to enhance clarity and understanding and to reduce the length of the discussion.
 - See chapter 2 of FHWA SA-07-011(1) (https://safety.fhwa.dot.gov/geometric/pubs/mitigationstrategies/fhwa_sa_07011.pdf) for information on the Design Justification (design exception) process.
 - **For Local Program, include [FDM 11-1 Attachment 20.1](#), and supporting documents. See [FDM 11-1-20.5](#).**
- 4.3.2 Non-Controlling Design Criteria DJs - For Non-Controlling Design Criteria DJs include the following information:
- The social/environmental factors and impacts involved.
 - Estimated cost to upgrade existing features to meet design criteria or estimated cost comparisons between different options using design criteria within or outside of design criteria or both.
 - Review of crash history to assess the relative safety of existing roadway features.
 - Any other information necessary to justify the use of design criteria outside of FDM values.
 - Any mitigation measures proposed for use in conjunction with the DJs.
 - If bicycle and pedestrian facilities are not being proposed, the reasons for not providing the facilities documented in this section. The documentation must show that these facilities were given due consideration but were later eliminated due to such factors as significant right-of-way constraints or community impacts, excessive costs to construct the facilities, complete lack of

anticipated use (not uncommon for rural projects, especially sidewalks).

4. 4. Typical Cross Section Alternative Features Considered – On Modernization and Rehabilitation projects where not discussed in the SCOD or FSC, describe typical cross section alternative features considered and explain what was chosen and what was not and why. Some of the most common typical cross section alternative features to consider are number of driving lanes, paved shoulders, parking lanes, median or no median, median widths, turn lanes, two-way left turn lanes (TWLTLs), bicycle lanes or accommodations, sidewalks and terrace widths. For Perpetuation projects, this section may be left blank. The extent of this section should be proportional to the magnitude of the project.

5.0 Proposed Design Improvements

If the clearest and efficient method of providing the required geometric design information is on attached individual preliminary plan sheets, then these sheets should label the following information:

- Mainline information: horizontal geometrics (radii, bearings, P.I. deflections, etc.), vertical geometrics (curve lengths, k values, grades, vertical clearance under structures, etc.),
- Side road / intersection / interchange information: intersection angles, side-road alignments and profiles, lane widths, median widths, shoulder widths or curb & gutter type, turn lane information (widths, bay lengths and taper lengths).

If the information is shown and labeled on the proposed plan sheets, the same information is not required to be included in the text or tables of the DSR.

- 5.1. Improvement Type(s) - Provide the FIIPs Legislative program number and improvement program type definition (See [PMM 5-10-5](#) for improvement program type definitions).
- 5.2. Proposed Geometrics Information (For [Attachment 10.2](#) only provide for S-2/S-3 areas) - Provide the information for the sections listed below on any attached plan sheets or as text/tables in the DSR
- 5.2.1. Horizontal alignments - list any information not shown on any attached plan sheets
- 5.2.2. Vertical alignments/stopping sight distances - list any information not shown on any attached plan sheets
- 5.2.3. Grades and Vertical Clearances - list any information not shown on any attached plan sheets
- 5.3. Side-roads / Intersections / Interchanges Information (For [Attachment 10.2](#) only provide for S-2/S-3 locations) - In locations where work is proposed at or alongside-roads, provide the proposed side-road, intersection and interchange information shown below. Information is not needed at those locations where no work at or alongside-roads is proposed (i.e., milling and resurfacing the mainline pavement across an intersection without any work along the side-road).
- 5.3.1. Side-road information should include the roadway name, functional classification, design speed, design year traffic (AADT), design class, approach grades and pedestrian and bicycle facilities proposed. If design year traffic volumes are not known, state whether the AADT is assumed to be < 100 or > 100.
- 5.3.2. Intersection information should include names of intersecting roadways, intersection types [Rural (A1/A2/B1/B2/C/D), Urban, Roundabout, etc. as described in [FDM 11-25-1](#) and [FDM 11-26-1](#)], proposed intersection angles, proposed traffic control (2 or 4-way stop, signal, roundabout, etc.), stopping sight distance, intersection sight distance, decision sight distance, vision triangles, and corner clearances to driveways.
- 5.3.3. Interchange information should include the names of intersecting roadways, interchange types (Diamond, Cloverleaf, etc. as described in [FDM 11-30-1](#)), ramp types (exit or entrance, tapered, parallel, collector/distributor, left handed ramps, etc.), ramp design speeds, ramp grades, Stopping Sight Distance, Decision Sight Distance and Vision Triangles.
- 5.4. Roundabout(s) Information – State if the construction or reconstruction of a roundabout(s) is part of the recommended design. If so, then include the critical design parameters chart as an attachment to the DSR. See [FDM 11-26-20](#) for definitions of the parameters. A template of this chart is shown in [FDM 11-26 Table 5.1](#). The values to be shown are those determined at the 60% plan complete stage. This chart may be omitted if a roundabout is not part of the recommended design or there are no changes proposed in the geometric features of a pre-existing roundabout (e.g., for resurfacing or pavement replacement projects).
- 5.5. Cross Section / Pavement Structure Information (For [Attachment 10.2](#) only provide for S-2/S-3 areas) -

Describe those features listed in [Attachment 10.2](#). Provide types and thickness of pavement layers for both driving lanes and shoulders. Note what type of bicycle and pedestrian accommodation (paved shoulders, bicycle lanes, wide curb lanes, paths, sidewalks, etc.) are being provided. Discuss the project with the region bicycle and pedestrian coordinators for assistance on facility selection:

<https://wisconsin.gov/Documents/projects/multimodal/bike/coord-map.pdf>

The information may either be described in the written text of the DSR or provided on individual attached finished/proposed typical cross section(s). See [Attachment 10.9](#) for the format of information to be provided on attached typical cross sections.

5.6. Street Lighting Improvements - If street lighting is proposed for the project, describe its' general location(s) and type and identify any breakaway requirements for light poles within the clear zone. (see [FDM 11-50-15](#))

5.7. Structure Improvements Information - Provide the information requested below for all structures on which work is to be completed on the project. Information is not required for existing structures on which no work is to be completed on the project.

5.7.1. Bridge Structures – For each bridge structure provide the structure I.D. #, location, type, length, clear roadway width, number of spans, vertical clearance, horizontal clearance under the structure and proposed improvement. Describe the proposed treatment of existing deficient bridges. Also address the inclusion and location of items such as pedestrian over-passes, and bicycle and pedestrian accommodations.

5.7.2. Box Culverts and Multiple Pipe Structures – For each box culvert or multiple pipe structure, provide the structure I.D. #, location, size/type, length, number of culverts or pipes and proposed improvement. Also address the inclusion and location of items such as cattle passes, pedestrian under-passes and bicycle and pedestrian accommodations.

5.7.3. Retaining Walls and Noise Barrier Structures - For each retaining wall or noise barrier structure, provide structure I.D. #, location, type, length, height and proposed improvement.

5.7.4. Sign Bridge Structures – For each sign bridge structure, provide the structure I.D. #, location, type, length, clear roadway width, vertical clearance, horizontal clearance, clear zone width under the structure and proposed improvement.

5.7.5. Tunnel Structures – For each tunnel structure, provide the structure I.D. #, location, type (vehicular, bicycle, pedestrian, etc.) length, type of lighting, vertical clearance and horizontal clearance in the tunnel, safety features required (stand pipes, video surveillance, ventilation, call boxes, etc.) and proposed improvement. State what coordination has occurred with local emergency responders.

5.7.6. Touchdown Points on Local Bridge Program Projects - For each local bridge project that is included in the Local Bridge Program, provide the approach lengths calculated in accordance with the Policy on Local Program Bridge Approaches ([FDM 3-20 Attachment 1.1](#)). For “short” approaches, document the lengths on the DSR template in the “Comments” area of 5.7.1, Bridge Structures. For “medium” and “long” approaches, document the justification and approvals for the lengths in the same area.

5.8. Permanent Traffic Control – Indicate whether permanent signs will be installed as part of the project. Indicate if non-standard sign layout details are needed. (Examples of signs needing layout details are large freeway/expressway guide signs and other signs with unique messages.)

5.9. Safety and Operations – provide a summary of the safety and operational improvements included with the project.

Safety Countermeasures/Enhancements - Describe features expected to improve safety and address crash patterns on the facility. Include features such as increased lane widths, increased shoulder widths, wider clear zones, modified intersections (e.g., adjust skew angle), constructing alternative intersection types (e.g. roundabout), safety barrier installation, etc. Safety countermeasures or enhancements must be addressed for all areas on the project where safety issues are evaluated through the SCOD or where DJs are proposed.

Operational Improvements – Describe features expected to improve operations on the facility. Include information from the Operations Certification Summary, if it was completed for the project.

5.10. Real Estate – If no real estate is required on the project then just state that.

- 5.10.1. If real estate is required on the project, then provide the R/W Plat I.D. #. If known, indicate general acreage to be acquired and whether permanent or temporary. Include easements and construction permits as well as fee acquisitions. If acreage is not known, provide some other indicator of the extent of acquisitions (i.e. strip takings). Indicate the number and type of relocations.
- 5.10.2. Attach a list of encroachments to the DSR, if applicable. Describe access control proposals, if applicable. (see [FDM 12-1-20](#))
- 5.11. Utilities – State whether the project is a Trans 220 utility project or not. Explain any unique or special design features that result from the need to accommodate any existing or planned utility facilities. Identify major utility agreements when required. A description of proposed utility locations need not be given unless they are unique or add significantly to the complexity of the project.
- 5.12. Railroads - Describe any improvements to railroad facilities needed. If a run-out lane is needed at the crossing, then provide a description of its design. Identify railroad agreements when required.
- 5.13. Financing and Scheduling – Provide construction ID #s, most recent project cost estimate, the type of funding and their percentages (Federal, State, Local, etc.), proposed time frame for construction, ties to other work or projects (tied contracts), description of Alternative Contracting; and any major amounts of non-participating work.
- 5.14. Unique Project Features
- 5.14.1. Hazardous Materials – Describe the DNR approved materials handling plan and any specific requirements regarding management or disposal of contaminated soil or groundwater. Describe the results of bridge asbestos inspections and any required notifications or asbestos abatement work.
- 5.14.2. Environmental Commitments – Describe features incorporated due to historic, archeological, or other environmental commitments. Attach the Environmental Commitments Basic Sheet of the Environmental Screening Worksheets as an appendix to the DSR when applicable. Identify and describe the locations of environmentally sensitive areas and any unusual erosion control and storm water management measures.
- 5.14.3. Community Sensitive Design/Public Involvement - Describe any features to be incorporated into the project due to community sensitive design/public involvement coordination.
- 5.14.4. Value Engineering - Describe the results of any value engineering (V.E.) studies and what V.E. recommendations are to be incorporated on the project.

6.0 Synopsis

Provide completion/approval dates for the following. Provide other relevant information as needed.

- Concept Definition Report (CDR) (see [FDM 11-4-1](#))
- Safety (and Operations) Certification Document (See [FDM 11-38](#) and [FDM 11-52](#))
- Bureau of Structure Certification Document (BOSCD) (If needed)
- Risk Assessment (RA) (If needed)
- Signed Pavement Design Report (PDR) (see [FDM 14-15-1](#))
- Public Involvement Plan (PIP)
- Structure Survey Report (SSR)
- Public Hearing/Public Information Meetings (PH/PIM) (see [FDM 6-10-1](#) and [FDM 6-5-10](#))
- Signed State Municipal Agreement (SMA(s)) (If needed)
- Final Scope Certification (FSC) (See [FDM 11-4-3](#))
- Historical/Archaeological Coordination Complete (Section 106, etc.) (SHPO) (see [FDM 5-10-5](#))
- DNR Coordination Acceptance (401 Cert., etc.) (DNR) (see [FDM 5-10-1](#))
- Preliminary Plan Review Complete (PPRC)
- Preliminary Structure Plan Review Complete (PSPRC) (If needed)
- Signed Environmental Document (ED) – Indicate document type (see [FDM 20-15-1](#))
- Transportation Management Plan (TMP) (see [FDM 11-50-5](#))
- Freight/OSOW Accommodations Coordination (FOAC)
- Roadside Hazard Analysis Sheet (RHA) (If needed)

- Drainage Design Report (DDR) (If needed)
- Status of Statutory Actions (If needed) (e.g. STH change) - Indicate type of action and who approved or accomplished it. (see [FDM 4-5-1](#), [FDM 4-5-5](#), [FDM 4-5-10](#), and [FDM 4-5-15](#))
- For Local Program, include the approved Local Program Project Controlling Criteria Design Justification Request. See [FDM 11-1-20.5](#) (If needed)

7.0 Attachments

- Project Location / Overview Map
- Existing Typical Cross Section(s)/ Finished / Proposed Typical Cross Section(s)
- Encroachment Report (If applicable) (see [FDM 12-1-20](#))
- Safety Certification and Operations Document (SCOD) (see [FDM 11-38](#))
- Traffic Forecast Report (see [FDM 11-5-2](#))
- Preliminary Plan Sheet(s)
- Critical Design Parameters Chart for each proposed roundabout (If applicable) (see [FDM 11-26-5](#))
- Environmental Commitments Basic Sheet (If applicable) Include coordination letter
- DNR Approved materials handling plan and special provisions (if applicable)
- Roadside Hazard Analysis form template (if applicable) (see [FDM 11-45-20](#))
- ADA Technically Infeasible documentation
- Non-Compliant Roadside design
- For Local Program, include the approved Local Program Project Controlling Criteria Design Justification Request, including supporting documentation. See [FDM 11-1-20.5](#) (if applicable)

LIST OF ATTACHMENTS

Attachment 10.1	Perpetuation Design Study Report Template (formerly Attachment 10.5)
Attachment 10.2	Modernization and Rehabilitation Design Study Report Template (formerly Attachment 10.1)
Attachment 10.3	FHWA Design Justification Approval Signature Page (formerly Attachment 10.6)
Attachment 10.4	Non-Local Program Signature Sheet (formerly Attachment 10.7)
Attachment 10.5	NHS Local Program Signature Sheet (formerly Attachment 10.8)
Attachment 10.6	Sample Cross Sections (formerly Attachment 10.9)