CORRESPONDENCE/MEMORANDUM **State of Wisconsin**

Date: September 4, 2019

To: Beth Cannestra
Director, Bureau of Project Development
Attn: David Stertz

From: Matt Bronson
Project Development Chief
North Central Region

Subject: DESIGN STUDY REPORT
Project I.D. 6220-00-02
Waupaca - Clintonville
STH 110S-STH54E/S BR Little Wolf
STH 22
Waupaca County

Having considered the economic and social effects of this project, its impact on the environment, and its consistency with the goals of community planning, we request your approval of the attached design study report.

9/4/2019

Region Project Development Chief — Date

Concur:

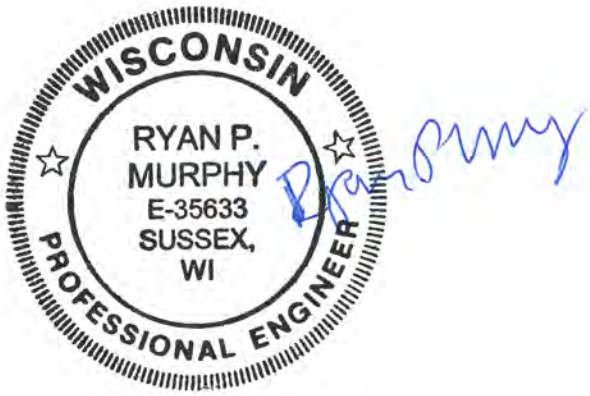
09/04/2019

for Bureau of Project Development — Date
Project Services Chief

DESIGN STUDY REPORT

Project I.D. 6220-00-02
Waupaca - Clintonville
STH 110S-STH 54E/S Br Little Wolf
STH 22
Waupaca County

September 2019



Prepared by:

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DESIGN STUDY REPORT

1.0 Project Description, Need and General Information

The proposed project extends 2.5 miles along State Trunk Highway (STH) 22 between STH 110 Southbound and STH 54 East and STH 110 Northbound / South Branch of Little Wolf River in the Town of Royalton, in Waupaca County. STH 22 is classified as a minor arterial with an average annual daily traffic volume of 4,220 vehicles/day. STH 22 is not an oversize/overweight route and is not part of the National Highway System. STH 22 and STH 54 eastbound are designated long truck routes. A project location map is included as Attachment A.

The proposed project would mill off two inches of the existing asphaltic pavement and replace it with two inches of new asphaltic pavement. The roadway shoulders will also be regraded to correct substandard cross slopes. No other grading or ground disturbing activities would be included with the proposed project. No right of way acquisition is anticipated.

1.1 Federal Oversight Project (Yes or No): No

1.2 Project Length and Termini

Project Length: 2.656 miles

Termini/Limits: STH 110 South to STH 54 East/110 North, South Branch Little Wolf River

(Sta. 331+00 to Sta. 462+07, Sta 10+00'W' to Sta 19+19'W')

1.3 Functional Classification/Access Control

Roadway	Functional Class (Principal or Minor Arterial, Collector or Local)	Surrounding Development Type? Rural, Urban or Transitional	Corridors 2020 or Backbone (No or State Which)	NHS Route (Yes or No)	Long Truck Route (No or State Federal or State)	Access Control Tier	On Ped. Trans. Plan (Yes or No)	On Bike Trans. Plan (Yes or No)
STH 22	Minor Arterial	Rural	No	No	State	2B	No	No

Comments: N/A

1.4 Project Purpose and Need

The purpose of the project is to restore the ride quality of the existing pavement and extend its useful service life. The existing pavement was constructed in 2010. Pavement Condition Index (PCI) is used to measure the condition of the roadway. It is based on the type, extent, and severity of pavement distress as well as the smoothness and ride comfort of the road. PCI is based on a numerical scale with 0 being the worst and 100 the best. The PCI for STH 22 is 66.2, which is considered fair. Keeping the pavement in good condition using a right time resurfacing (thin mill and overlay) provides the best cost/benefit ratio for maintaining minor arterials.

2.0 Present Facility

2.1 Posted Speed

Roadway or Roadway Segment	Posted Speed	Advisory Speed
STH 22 (STH 110 South to STH 54 East/STH 110 North)	55 MPH	None
STH 110 (STH 54 to South branch Little Wolf River Bridge)	45 MPH	None

2.2 Geometrics

2.2.1 Horizontal Alignment Features Outside of Desirable or Minimum Design Standards*

None

* Controlling Criteria

Comments:

2.2.2 Vertical Alignment Features/SSD Outside Desirable or Minimum Design Standards*

None

* Controlling Criteria, **SSD = Stopping Sight Distance

Comments:

2.2.3 Grades and Vertical Clearance Outside Desirable or Minimum Design Standards*

Location (Stationing, Overpass Structures, etc.)	% Grade*	Vertical Clearance*
STH 22, Just west of STH 110 South (approx. Sta. 132+00 to Sta. 134+00)	4.4%	N/A

*Controlling Criteria

Comments:

The existing grade just west of STH 110 South is 4.4%, which exceeds the design standard maximum grade of 3.0% for a rural arterial. Safety Screening Analysis does not show any crash flag in this area, meets programmatic exception to standards. See Attachment B for the Safety Screening Analysis.

2.3 Side-Roads/ Intersections/ Interchanges

2.3.1 Side-Roads

Roadway	Functional Class	Posted Speed (MPH)	Existing Traffic*** (AADT)	Approach Grades	Pedestrian Facilities (Yes or No)	Bicycle Facilities (Yes or No)
STH 110 South	Major Collector	55	1900	0.2%	No	Yes
Kuenzi Road	Local	Not Posted	<100	-	No	No
Bigalke Road	Local	Not Posted	<100	-	No	No
STH 110 North	Minor Arterial	55	2700	0.7%	No	Yes

*** If Existing Traffic volumes are not available, then state at a minimum whether AADT is assumed to be <100 or >100.

Comments:

2.3.2 Intersections

Intersecting Roadway	Intersect. Type	Intersect. Angle	Traffic Control	SSD** Met* (Y/N)/ Length	ISD** Met (Y/N)/ Length	DSD** Met (Y/N)/ Length	Vision Triangle (Y/N)	Corner Clearance to Driveways Present (Y/N)
STH 110 South	B2	90°	One-way Stop Control	Y/570’	Y/750’ Y/840’	N/990’	Y	N
Kuenzi Road	D	120°	One-way Stop Control	Y/570’	Y/750’ Y/840’	Y/990’	Y	N
Bigalke Road	D	85°	One-way Stop Control	Y/570’	Y/750’ Y/840’	Y/990’	Y	N
STH 110 North	B2	104.5°	One-way Stop Control	Y/570’	Y/750’ Y/840’	Y/990’	Y	Y

* Controlling Criteria

** SSD=Stopping Sight Distance, ISD=Intersection Sight Distance, and DSD=Decision Sight Distance (See FDM 11-25-1).

Comments: STH 110 South did not meet DSD northeast of the intersection at STH 110 South. STH 110 South, Kuenzi Road and Bigalke Road have driveways in close proximity to the intersection. The Safety Screening Analysis did not identify any crash issues at these locations.

Has intersection control evaluation (ICE) worksheet been coordinated (Yes or No)? No

2.3.3 Interchanges

None

* Controlling Criteria

**SSD = Stopping Sight Distance, DSD = Decision Sight Distance (See FDM 11-25-1).

Comments:

2.4 Cross Section – see Attachment C for existing typical section

Number of roadways: 1

Number of lanes: 2

Median width: None

* Lane width: 12-feet

* Shoulder width (Total and Paved or Curb & Gutter): 10-feet total (3-feet paved)

Bicycle Facility Type: 3-foot paved shoulder

Sidewalk and curb ramps: None

* Cross slope: 2%

* Super-elevation: 6.0% maximum

* Horizontal clearance: 10-feet

Clear Zone: 18-feet

* Vertical clearance: N/A

Side-slopes and Ditch sections: varies

*Controlling Criteria

2.5 Pavement Structure/Condition

Roadway	Pavement Types and Thicknesses	Physical Description
STH 22	6” HMA pavement over variable thickness crushed aggregate base course	Fair with longitudinal and transverse cracking

Comments:

2.6 Right-of-Way

2.6.1 Encroachments

None

2.6.2 Unique Right-of-Way Issues

None

2.7 Structures

None

* Controlling Criteria

Comments:

2.8 Utilities

Utility Name	Type of Utility	General Location	Underground/ Overhead/Both
CenturyLink	Communication Line	Parallel to STH 22 from begin	Underground

		project to Bigalke Rd	
Solarus	Communication Line	Parallel to STH 22 from Bigalke Rd to end project	Underground
WE Energies	Electricity	Parallel to STH 22 from Bigalke Rd to end project	Overhead

Comments:

2.9 Railroad Crossings

None

Comments:

2.10 Special Soils Conditions

None

2.11 Unique Project Features

None

3.0 Traffic Information

3.1 Traffic Volumes/Conditions

The existing Average Annual Daily Traffic (AADT) volume is 4,400 – 5,900 vpd (2020, Construction Yr)

3.1.1 Traffic Forecast Report Attachment

The forecast Average Annual Daily Traffic (AADT) volume is 5,600 – 7,300 vpd (2040)

3.1.2 Highway Capacity Analysis

Location (Roadway Segment or Intersection)	Existing Level of Service	Design Year Level of Service Under Existing Roadway	Design Year Level of Service Under Proposed Roadway
STH 22 (Project)	Not computed	Not computed	Not computed

Comments:

The project is not anticipated to affect corridor level of service.

3.2 Crash Analysis

3.2.1 Project Crash Information

Roadway	Crash Rate(1) (Year)	Statewide Crash Rate(1) (Year)	Number and Severity of Crashes			
			Fatal	Injury	Property Damage	Total No. Crashes
STH 22 (STH 110 South)	37.2 (2012-2016)	75.8 (2016)	0	0	3	3
STH 22 (Bigalke Rd)	81.6 (2012-2016)	75.8 (2016)	1	2	4	7
STH 22 (STH 54 E / STH 110 N)	196.5 (2012-2016)	75.8 (2016)	0	4	9	13
STH 54	0 (2012-2016)	75.8 (2016)	0	0	0	0

(1) Crash rate based on 100 million vehicles miles traveled (100 MVMT)

Comments:

There were a total of 23 crashes within the project limits on STH 22 during the study period. Of those crashes,

one was fatal, six were injury and sixteen were property damage crashes. The third segment has a higher crash rate than the state wide average, with no substandard controlling criteria, and meets programmatic exception to standards.

3.2.2 Significant Crash Locations or Patterns

STH 22 from STH 54 intersection north (1.15 mile segment).

(2) Crashes per million entering vehicles (MEV)

Comments:

There is a crash flag for the 1.15 mile segment of STH 22 from STH 54 north; no spots were flagged at Tier 1. There were 13 total crashes along this segment, but only eight occurred at the intersection of STH 22 and STH 54. Of these eight, only four were rear-end crashes. The project limits only extend 0.2 miles north of the intersection, and the other five crashes on the segment occurred outside the project limits.

4.0 Proposed Design Criteria

4.1 Design Class

Roadway or Roadway Segment	Design Class
STH 22	A2

4.2 Design Speed*

Roadway or Roadway Segment	Design Speed	Posted Speed
STH 22 (Project)	60 MPH	55 MPH

* Controlling Criteria

4.3 Design Criteria Outside of Desirable Standards

The existing grade just west of STH 110 South is 4.4%, which exceeds the design standard maximum grade of 3.0% for a rural arterial. Since the Safety Screening Analysis does not show any crash flag in this area, improvements will not be made to the grade. See Attachment B for the Safety Screening Analysis.

4.4 Exceptions to Standards

None

4.4.1 Safety Screening Analysis (SSA) and Programmatic Exception to Standards (FDM 11-1-40), 3R projects and Preventive Maintenance (PM) Group I and Group II pavement strategy projects (FDM 3-5 Exhibit 5.1)

See Attachment B for the Safety Screening Analysis worksheet. A crash flag was identified at the intersection of STH 22 and STH 54 due to inattentive rear ends. There were no substandard design features identified at this location.

4.5 Typical Cross Section Elements Considered

No action
The pavement surface would continue to deteriorate. The continued deterioration of the pavement would minimize the life of the pavement structure. It would likely result in the need for a more expensive fix sooner than anticipated. Although this option does not meet the project purpose and need, it has been carried forward as a baseline comparison.

Pavement Resurfacing
This option would mill two inches pavement off the roadway and replace it with two inches of new pavement. This solution is a cost effective solution to improve the surface and increase the lifespan of the pavement. This is the preferred alternative.

Pavement replacement
This option would replace the full pavement depth and provide any necessary improvements to the base course. While this solution would meet the identified needs, it is a high-cost solution that is not required.

5.0 Proposed Design Improvement

5.1 Improvement Type

Legislative Subprogram: 303 – State Highway Rehabilitation

WisDOT Program: State 3R – Allocated

Improvement concept: RSRF10 – Resurfacing (Overlay < 2.5 inches)

5.2 Geometrics

5.2.1 Horizontal Alignment*

The proposed horizontal alignment matches the existing alignment. The alignment meets current desirable design standards for horizontal curvature, superelevation, and sight distance. See Attachment D for preliminary plan sheets.

5.2.2 Vertical Alignment/Stopping Sight Distance*

The proposed vertical alignment matches the existing vertical alignment and meets current desirable design standards.

5.2.3 Grades*

Proposed grades match existing grades, and vary from 0.5% to 4.4%. The existing grade just west of STH 110 South is 4.4%, which exceeds the design standard maximum grade of 3.0% for a rural arterial. Since the Safety Screening Analysis does not show any crash flag in this area, improvements will not be made to the grade.

*Controlling Criteria

5.3 Sideroads/Intersections/Interchanges

5.3.1 Side-Roads

Roadway Name	Functional Class	Design Speed (MPH)	Design Year Traffic (AADT)	Design Class	Approach Grades	Ped. Facilities (Y/N)	Bike Facilities (Y/N)
STH 110 South	Major Collector	55	1900	C3	0.2%	N	Y
Kuenzi Road	Local	Not Posted	<100	L1	-	N	N
Bigalke Road	Local	Not Posted	<100	L1	-	N	N
STH 110 North	Minor Arterial	55	2700	A2	0.7%	N	Y

Comments:

5.3.2 Intersections

Intersecting Roadway Names	Intersect. Type	Intersect. Angle	Traffic Control	SSD** Met* (Y/N)/ Length	ISD** Met (Y/N)/ Length	DSD** Met (Y/N)/ Length	Vision Triangles Proposed (Y/N)	Corner Clearance to Driveways Met (Y/N)
STH 110 South	B2	90°	One-way Stop Control	Y/570’	Y/750’ Y/840’	N/990’	Y	N
Kuenzi Road	D	120°	One-way Stop Control	Y/570’	Y/750’ Y/840’	Y/990’	Y	N

Bigalke Road	D	85°	One-way Stop Control	Y/570’	Y/750’ Y/840’	Y/990’	Y	N
STH 110 North	B2	104.5°	One-way Stop Control	Y/570’	Y/750’ Y/840’	Y/990’	Y	Y

* Controlling Criteria

** SSD = Stopping Sight Distance, ISD = Intersection Sight Distance, DSD = Decision Sight Distance (See FDM 11-25-1).

Comments: STH 110 South did not meet DSD northeast of the intersection. STH 110 South, Kuenzi Road and Bigalke Road have driveways in close proximity to the intersection. The Safety Screening Analysis did not identify any crash issues at these locations.

Has intersection control evaluation (ICE) worksheet been coordinated (Yes or No)? No

5.3.3 Interchanges

None

*Controlling Criteria

**SSD = Stopping Sight Distance, DSD = Decision Sight Distance (See FDM 11-25-1).

Comments:

5.4 Roundabouts

None

5.5 Cross Section/Pavement Structure– see Attachment C for proposed typical section and Attachment D for preliminary plan sheets

Number of roadways: 1

Number of lanes: 2

Median width/Type: None

* Lane width/Type (Driving, Parking, Bike Lane, etc.): 12-feet

* Shoulder width (Total & Paved or Curb & Gutter): 10-feet total (3-feet paved)

Bike facilities: 3-foot paved shoulder

Pedestrian facilities / sidewalk: None

* Cross slope: 2%

* Super-elevation: 6.0% maximum

* Horizontal clearance: 10-feet

* Vertical clearance: N/A

Pavement Structure: 2” HMA pavement over 4” HMA pavement, and variable thickness crushed aggregate base

Clear Zone: 18-feet

Side-slope / Ditch Sections: varies; slopes are generally 3:1 or flatter

* Controlling Criteria

5.6 Street Lighting

None

5.7 Structures

5.7.1 Bridge Structures

None

* Controlling Criteria

Comments:

5.7.2 Box Culverts and Multiple Pipe Structures

None

Comments:

5.7.3 Retaining Walls and Noise Barrier Structures

None

Comments:

5.7.4 Sign Bridge Structures

None

* Controlling Criteria

Comments:

5.7.5 Tunnel Structures

None

* Controlling Criteria

Comments:

5.8 Permanent Traffic Control

Will permanent signs be installed (Yes or No)? No

Are non-standard sign layout details needed (Yes or No)? No

Comments:

5.9 Transportation Management Plan

See Attachment E for the Transportation Management Plan 60% approval. The full TMP can be found in the database.

5.10 Safety Enhancements/Mitigation Measures

Centerline rumble strips will be added for the entire project length.

5.11 Real Estate

5.11.1 Real Estate Acquisition

Plat I.D.: N/A

None

Comments:

5.11.2 Encroachment Actions

None

Comments:

5.12 Utilities

Is Project Trans 220 Utility Project (Yes or No)? Yes

Describe any special design features to accommodate utilities:

None

Major Utility Agreements:

None

Comments:

5.13 Railroads

Describe improvements to Railroad Facilities:

None

Railroad Agreements:

N/A

Comments:

5.14 Financing and Scheduling

Construction I.D.	Cost Estimate	Type of Funding			Proposed Timeframe for Construction	Ties to Other Work or Projects	Incentive/ Disincentive Clauses (Yes or No)
		% Fed.	% State	% Local			
6220-00-72	$610,000	80	20	0	2020	N/A	No

Describe Incentive/Disincentive Clauses:

None

Non-participating Work:

None

Deferred Construction Work (Preventative Maintenance projects):

None

5.15 Unique or Non-Standard Features

5.15.1 Hazardous Waste

None

5.15.2 Environmental Commitments

See Attachment F for the Environmental Commitments sheet.

5.15.3 Public Involvement

A project mailing was sent to residents; an additional mailing will be sent prior to the start of construction.

5.15.4 Value Engineering

N/A

6.0 Synopsis

Reports, Documents and Coordination	Completion/ Approval Dates (xx/xx/xxxx)	Status of Coordination or Other Information as Needed
Concept Definition Report (CDR)	01/09/2018	
Safety Certification Documentation (SCD)	03/20/2019	

Reports, Documents and Coordination	Completion/ Approval Dates (xx/xx/xxxx)	Status of Coordination or Other Information as Needed
Bridge or Structure Certification Documentation (BOSCD) (if needed)	*	*
Signed Pavement Design Report (PDR)	10/23/2018	Limited Life Fast Track Project
Public Involvement Plan (PIP)	-	Pending
Structure Survey Report (SSR) (if needed)	N/A	
Public Information Meeting(s) (PIM(s))	N/A	
Signed State Municipal Agreement(s) (SMA(s)) (if needed)	N/A	
Final Scope Certification Document Approval (FSC)	**	**
SHPO Coordination Acceptance (Section 106, etc.) (SHPO)	N/A	Screening List
DNR Coordination Acceptance (401 Cert., etc.) (DNR)	10/19/2018	Initial Review Letter
Preliminary Plan Review Complete (PPRC)	04/09/2019	60% review pending
Preliminary Structure Plan Review Complete (PSPRC) (if needed)	N/A	
Signed Environmental Document (ED) (Type: PCE)	02/28/2019	
Transportation Management Plan (TMP(s)) (Type: 2)	08/30/2019	60% approval
Freight/ OSOW Accommodations Concurrence (FOAC)	N/A	
Roadside Hazard Analysis Sheet (RHA) (if needed)	N/A	
Drainage Design Report (DDR) (if needed)	N/A	
Status of Statutory Actions (SSA) (if needed)	N/A	

Comments:

* Project achieved LC11 prior to the development of the BOSCD or BOSCD process. BOSCD will be supplanted with PMP phase report (located in project records)

** Project achieved LC 11 prior to development of FSC or FSC process. To meet FSC intent of establishing final agreement on scope, schedule, and budget; FSC document will be supplanted with the project: scoping notes, LC10 and LC11 major bid item estimates, justification document *(if available)*, PMP phase report, and LC11 revision request (located in project records)

7.0 Attachments

Attachment A – Project Location Map

Attachment B – Safety Certification Documentation

Attachment C – Existing and Proposed Typical Sections

Attachment D – Preliminary Plan Sheets

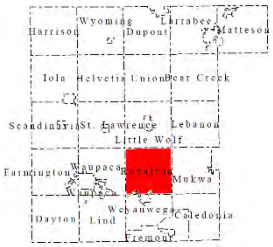
Attachment E – Transportation Management Plan 60% Approval

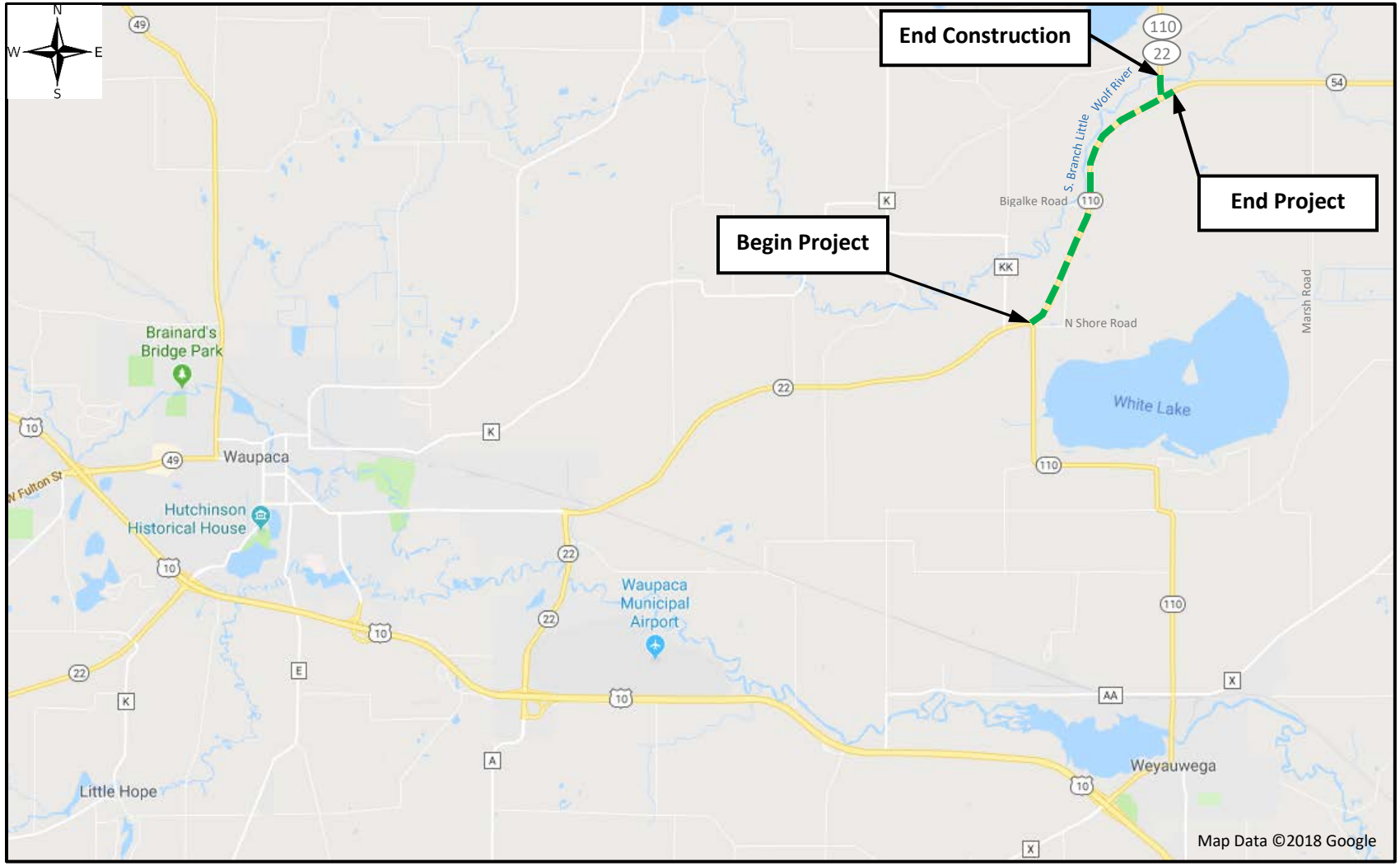
Attachment F – Environmental Commitments Basic Sheet

Attachment A

Project Location Map

Project ID 6220-00-02
WIS 22
Waupaca – Clintonville
WIS 110 South to S Br Little Wolf
Waupaca County





PROJECT LOCATION

Attachment B

Safety Certification Documentation

Safety Certification Document
Project ID 6220-00-02

1. **Did the project have Meta-Manager Safety Flags?** Yes ☒ No ☐

   Comments: One segment was flagged for crash rate in the 2012-2016 data used for scoping.

2. **Did relevant crashes remain after initial Crash Vetting Process?** Yes ☐ No ☒

   Comments: No crashes remained after vetting. SCP concluded.

3. **Are safety improvements needed to address concerns after the CGA Process?** Yes ☐ No ☐

   Comments:

4. **Were safety mitigation alternatives analyzed in this project?** Yes ☐ No ☐

   4.1. **Provide narrative of existing geometric conditions**

   4.2. **Provide narrative of crash history that was used to begin the SMCP**

   4.3. **Provide narrative of safety mitigation alternatives analyzed in SMCP**

   4.4. **Analysis Results**

   4.5. **Provide narrative of reasonable and acceptable safety mitigation alternatives for consideration in the project improvement process**

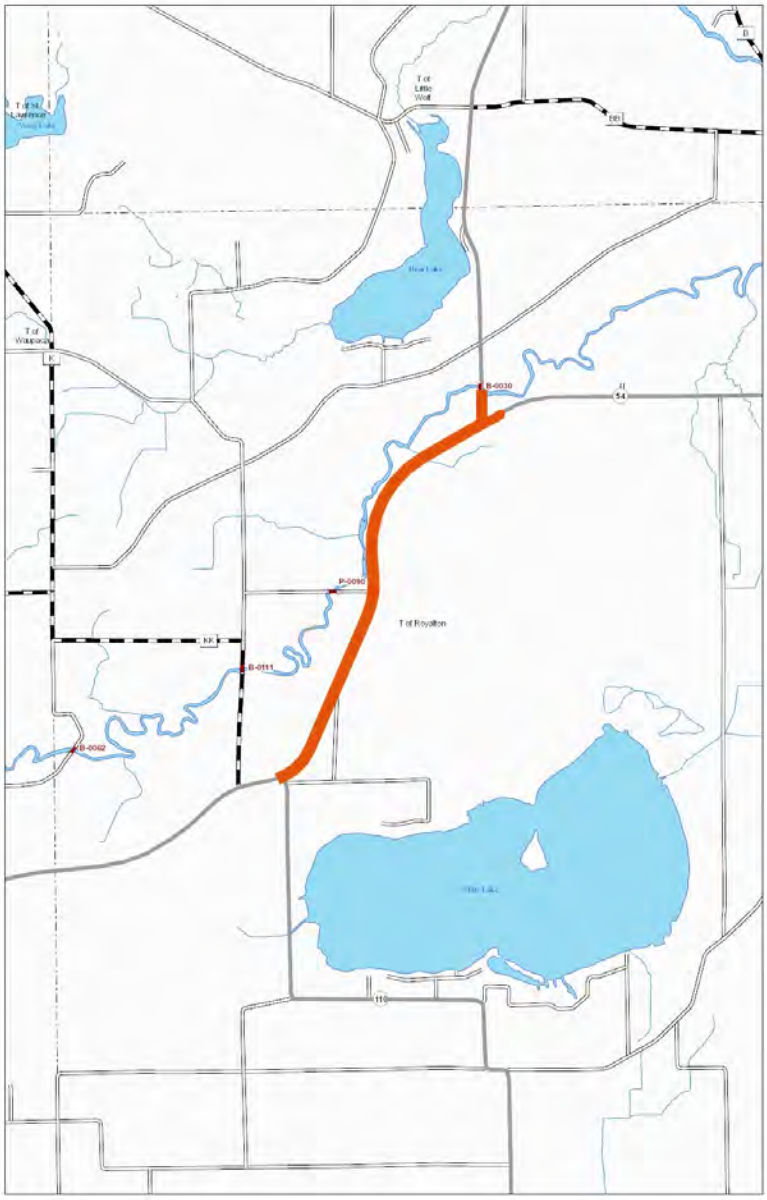
5. Approval

Michael B. Wendt	3/20/2019
Region Planning Chief	Date

ATTACHMENTS

A. Project Location/Overview Map (from CDR)
B. Project Justification/Scoping Document
C. Sites of Promise Documentation
   a. Tabular data illustrating safety flags
   b. Meta-Manager file (XLS kept in electronic file)
D. Crash Vetting Documentation
E. Safety Certification Worksheet
F. Design Criteria & SSA Worksheets

CDR Map



Scoping Document

Design ID: 6220-00-02 **Delivery:** $120,000 (16%)

Construction ID: 6220-00-72 **Amount:** $750,000 **Delivery:** $78,000 (11%)

Highway: STH 22/54 **County:** Waupaca **Work Type**: Resurface 10

Title: Waupaca - Clintonville

Subtitle: STH 110S to 54E/Waupaca River Bridge

Photolog: 022N_2016; 054E_2015

Begin Frame (PLM): 022N: 6758 (63.85); 054E: 7359 (69.43)

End Frame (PLM): 022N: 7007 (66.34); 054E: 7369 (69.53)

Begin RP: 022N113 **End RP:** 022N115+0.15

NHS Route: No **OSOW Route:** No **OSOW High Route:** No

State Truck Route: **Functional Classification**: Minor Arterial

Connections 2030: No

Existing Cross Section **Travel Lanes:** 2 **Travel Lane Width:** 12 ft

Total Shoulder Width: 10 ft **Paved Shoulder Width:** 3 ft **Existing Speed Limit:** 55 mph

Past Work Done:

- 2010: 2" mill and overlay
  - 12' lanes, 10'shoulder which 3'is paved
- 1990: Reconstruct 6" HMA over 12" base
  - 12' lanes, 10'shoulder which 3'is paved
- 1958: 4" HMA over concrete pavement
  - 11' lanes, 4'shoulder

Construction Year (2020) ADT: 4,400 – 5,900 vehicles/day

Design Year (2040) ADT: 5,600 – 7,300 vehicles /day

Percent Truck Traffic: 20.1%

Bridge Number: B-68-30 **Feature Over/Under:** S Br Little Wolf River **Roadway Width:** 36.8 ft

Deck Length: 74.3 ft **Sufficiency Rating:** 79.9 **Inventory Load Rating:** HS13

- Bridge is having a concrete overlay and polymer overlay with project 6220-00-32 (FY 19 fast track project) EPS&E 2/1/19; Programmed PS&E 2/1/22 and Let 7/12/22
- Guardrail on the bridge will need to be evaluated with this project (6220-00-02).

Need: The existing pavement has longitudinal and transverse cracking.

Proposed Improvement: It is proposed to remove the top layer of pavement and apply a new surface.

2017 PMDSS Recommendation: Patch, Structural Overlay (>4 in)

2024 PMDSS Recommendation: Patch, Structural Overlay (>4 in)

Pavement Treatment Discussion

PMDSS, which provides recommended improvements to maximize the longevity of the existing pavement structure, is recommending "Patch, Structural Overlay (>4 in)" in 2017 and a "Patch, Structural Overlay (>4 in)" in 2024 for the Low Cost Solution.

Theme X' provides WisDOT's guiding principles for asset management, project scoping and project prioritization. Theme X' places the highest priority (after safety) on doing "Right Time Resurfaces" (thin mill & fill), defined as having a PCI greater than 70. This is based on the assumption that by keeping the pavement in "good" condition or better that it will provide the best benefit/cost ratio.

By 2020 it is anticipated the PCI will be 54 and will qualify for a "PCI > 50 and < 70" in Theme X'.

Projects in the Theme X' category "PCI > 50 and < 70" are assumed to follow the PMDSS recommendation. But this category allows for great flexibility so that all PSRS, RSRF and RCND work types will be compliant.

The Theme X' "Downshift" principle is applied to lower function roadways (Minor Arterial or below) with a PCI less than 50. The goal is to maintain a state of good repair using low cost treatments (when a Service Life Extension is projected to be greater than 4 years) in lieu of more costly improvements, thus freeing up funding to invest in other projects.

Though the proposed improvement may not always meet the PMDSS recommendation, it will still be compliant with Theme X' and will still provide a good Service Life Extension. After 2022 the proposed improvement is anticipated to meet the Downshift criteria.

EPSE: 2/1/2020 **PSE:** 5/1/2024 **Let:** 8/13/2024

Current PCI: 66.2 **Projected PCI at EPSE:** 54

Theme X' Category at EPSE: PCI > 50 and < 70 **Theme X' Compliant at EPSE:** Yes

Proposed Design Class: 3RA2-1

General Notes

- Guardrail needs will be determined per project
    - Guardrail replacement will be included in the scoping estimate but will need to be determined in design
- Expect to pave around to the back of radius on intersections or to a logical point.
- 3R project and a full DSR is needed. The scoping document should be attached to the DSR.

Traffic

- No flagged segments
- 1 spot flag at intersection of STH 22 & STH 54. (Inattentive rear ends)

Substandard Controlling Criteria

- Maximum grade at one location.

Proposed Traffic Control

- Daytime lane closures with flagging.

Maintenance

- No culvert cleanings with this project
- Replace endwalls on culverts 680220730 and 680220731.
- Might be able to retie culvert endwalls or install a concrete collar instead of replacing the endwalls.

Environmental

- CEC checklist is anticipated. See PMP for additional information.
- Wetland delineations at endwall replacements.
- KBB survey needed outside of top of shoulders.

Access

- No access modifications are anticipated for this project.

Real Estate

- No real estate anticipated for this project.

Survey and Mapping

- No survey requests by programming.

Structures

- Evaluate and replace if necessary the guardrail at B-68-30.

Pavement

- 2” mill and overlay with no grade increases
- An abbreviated pavement report will be provided

- No cores or borings anticipated

Railroad

- No railroads within 1,000 ft of the project.

Bike-Ped

- No proposed bike/pedestrian improvements.

Planning

- Traffic forecasts have been requested and are in the Planning folder.

Public Involvement

- Public involvement is expected to be a LOM with mailings.

Draft Limits

- Start south of STH 110 (S) intersection to match up with project 6590-02-05.
- End project at Little Wolf River Bridge and continue on STH 54 approximately 500 ft east of STH 22 intersection to match the start of Project 6220-03-74 which was completed in 2017.

Agreed to Scope

- 2-inch mill and overlay, evaluate guardrail, culvert endwalls,

Action Items/Unresolved Issues

- Waiting for OPS unit to find out if signs need to be replaced.

Scoping Meeting Date: 2/8/2018

Attended: Richard Simon, Tom Krizenesky, Cole Dineen, Lindsey Heineck, Mike Kretschmer, Cheryl Simon, Kevin Garrigan, Jordan Kelbly, Wendy Arneson, Nick Vos, Mark Steidl, John Motquin

Called In: Dan Tyler, Rich Handrick, Tom Nelson, Kristin McHugh, Cara Abts

SEGMENT #	PDP_ID	ISEQNO	TRAF_SEG_ID	RECKEY	FOS_PROJ_ID	PDP_FRM	ACSI_INTS_NM	PDP_TO	PDP_MILE	DIVUND	HWY_DIR	CRASH RATE - formula	CRASH RATEFLAG - formula	CRASH RATE	CRASH RATE FLAG	UCL_CRSH_RT - formula	CRASHES - formula	MMGR_KAB_CRSH_RT - formula	MMGR_KAB_CRSH_RT_FL - formula	MMGR_KAB_CRSH_RT	MMGR_KAB_CRSH_RT_FL	UCL_KAB_CRSH_RT	UCL_KAB_CRSH_RT - formula	MMGR_FATAL_CRSH_TOT	MMGR_INCAP_INJ_CRSH_TOT	MMGR_NONINCAP_INJ_CRSH_TOT	CRSHSPOT	HSTL_AADT_5_YR	YRS_OTT	SEVINDX	SIREDUC	LOP	IMPFLAG	SFTY_TRVL_CLS_CD
NOTE: As of 10/30/17																																		
NOTE: violet shaded cells are manually input, orange cells are connecting highway																																		
1	4150	25870	3877	450652		022N113 000	STH 110 NB	022N114 000	1.10	U	022N	37.17	0.36	37.17	0.00	104.59	3	0.00	0.00	0.00	0.00	32.26	32.13	0	0	0	0	4020	5	4				420
2	4151	25880	3877	450652		022N114 000	BIGALKE RD	022N115 000	1.17	U	022N	81.55	0.79	81.55	0.00	103.67	7	34.95	1.10	34.95	1.10	31.82	31.68	1	0	2	0	4020	5	22	12	12	YES	420
3	4152	25890	6650	450653		022N115 000	STH 54 EB	022N115 115	1.15	U	022N	196.52	1.82	196.52	1.79	107.76	13	30.23	0.90	30.23	0.00	33.80	33.66	0	0	2	2	3152	5	21	23	18	YES	420
4	12037	75310	5794	451881		054E185 000		054E185 070	0.70	U	054E	0.00	0.00	0.00	0.00	110.36	0	0.00	0.00	0.00	0.00	0.00	34.92	0	0	0	0	4460	5	0				420

SPOT #	PDP_ID	SPOT_RP_KY	FEATURE_NEAR	SFTY_TRVL_CLS	DOT_CNTY_CD	CMTY_TY	CMTY_NM	TIER	RTE_SORTER	SPOT_ADT_5YR_AVG	SPOT_CRSH_TOT	SPOT_FATAL_CRSH_TOT	SPOT_INCAP_INJ_CRSH_TOT	SPOT_KAB_CRSH_TOT	SPOT_ROR_TOT	SPOT_CRSH_RT_FL_ADJ	SPOT_FATAL_CRSH_RT_FL_ADJ	SPOT_INCAP_INJ_CRSH_RT_FL_ADJ	SPOT_KAB_CRSH_RT_FL_ADJ	SPOT_ROR_CRSH_RT_FL_ADJ	SPOT_INTS_TOT	SPOT_NONINTS_TOT	SPOT_WTHR_CRSH_TOT
	NOTE: As of 11/27/17																						
	NOTE: *italics has not been determined*																						
	NOTE: violet shaded cells are manually input, orange cells are connecting highway, gray shaded cells are manually entered ADT, green shaded cells are manually combined intersections that were split due to RI																						
1A	4150	022N113 000	STH 110 NB	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1820	4020	1	0	0	0	1	0.32	0.00	0.00	0.00	0.56	0	0	0
1B	4150	022N113 050	KUENZI RD	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1821	4020	1	0	0	0	1	0.32	0.00	0.00	0.00	0.56	0	0	1
1C	4150	022N113 060		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1822	4020	1	0	0	0	1	0.32	0.00	0.00	0.00	0.56	0	0	0
2A	4151	022N114 010		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1823	4020	1	0	0	1	1	0.32	0.00	0.00	0.95	0.56	0	0	0
2B	4151	022N114 060		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1824	4020	1	0	0	0	1	0.32	0.00	0.00	0.00	0.56	0	0	1
2C	4151	022N114 080		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1825	4020	1	0	0	0	1	0.32	0.00	0.00	0.00	0.56	0	0	0
2D	4151	022N114 100		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1826	4020	1	0	0	0	1	0.32	0.00	0.00	0.00	0.56	0	0	0
2E	4151	022N114 110		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1827	4020	3	1	0	2	2	0.96	4.93	0.00	1.90	1.12	0	1	0
3A	4152	022N115 000	STH 54 EB	420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	2	1828	3152	8	0	0	2	0	3.11	0.00	0.00	2.25	0.00	8	0	0
3B	4152	022N115 050		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1829	3152	1	0	0	0	1	0.39	0.00	0.00	0.00	0.67	0	0	0
3C	4152	022N115 060		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	2	1830	3152	3	0	0	0	1	1.16	0.00	0.00	0.00	0.67	1	1	1
3D	4152	022N115 070		420: Rural 2-lane Highways with 2,000 < AADT = 7,000	68	T	ROYALTON	3	1831	3152	1	0	0	0	0	0.39	0.00	0.00	0.00	0.00	0	1	0

DOCTNMBR	ACCDDATE	NTFYHOUR	ONHWY	ONSTR	ATHWY	ATSTR	ATNMBR	INTDIR	INTDIS	ACCDTYPE	MNRCOLL	RLTNRDWY	ROADCOND	ACCDSVR	INJSVR	ALCFLAG	TOTVEH	TRVLDIR1	DRVRDO1	TRFCNTL1	POSTSPD1	DRVRPC1	TRVLDIR2	DRVRDO2	TRFCNTL2	POSTSPD2	DRVRPC2	LATDECDG	LONDECDG	SEGMENT	NOTE
REMOVED																															
FMCVBLL	4/11/2012	17	22			BEAR LAKE RD	N4668	N	20		ANGL	ON		INJ	C		2	S	LT TRN	NONE	45	FTY	N	GO STR	NONE	45		0	0	4152	LT FTY, STRAIGHT SECTION, NO SIGHT OBSTRUCTION
FMCVBM2	6/21/2012	12	22		54			N	1		REAR	ON		PD			2	S	BACKNG	SS	55	UB	S	STOPED	SS	55		0	0	4152	BACKING
FMC8KBW	7/6/2012	2	54		22				0		HEAD	ON		PD		Y	2	W	RT TRN	SS	77	DC	E	SL/ST	NONE	55		0	0	4152	OWI TURNED WIDE
FMBLKHP	7/16/2012	14	22			E Z RD			0	DITCH	NO	LTSH		PD			1	N	GO STR	NONE	45	FVC						0	0	4152	TIRE BLEW
FMC72X4	12/5/2012	19	22			E Z RD		N	10	FIRE	NO	ON		PD			1	S	GO STR	NONE	45							0	0	4152	FIRE
FMCFQV2	2/17/2013	6	22		54				0	TFSIGN	NO	ON		PD			1	S	SL/ST	SS	45	ID,DTC						0	0	4152	DROVE THROUGH SS, no reason given why
C4SBDRD	5/27/2013	17	22		54			N	1		REAR	ON		PD			2	S	SL/ST	SS	55		S	SL/ST	SS	55	ID	0	0	4152	INATTENTIVE DRIVING, REAR-END
FMDC4V7	6/16/2013	2	22		54			N	2	OTH NC	NO	ON		INJ	B	Y	1	S	GO STR	SS	55	DC						0	0	4152	OWI MC SWERVED TO AVOID DEER, TIPPED
FMCFQWS	1/31/2014	11	22			E Z RD		S	18	TREE	NO	SHLD	SNOW	PD			1	N	LT TRN	NONE	45	FVC						44.409505	-88.935958	4152	LOST CTRL ON SNOWY RD
FMCFQXP	9/8/2014	14	22		54				0		REAR	ON		INJ	C		2	S	RT TRN	SS	55	ID	S	RT TRN	SS	55		44.400561	-88.935922	4152	U2 PULLED FORWARD FOR BETTER VIEW, STRUCK BY U1
FMC99NJ	9/29/2014	14	54		22				0		ANGL	ON		INJ	B		2	S	LT TRN	SS	45	FTY,IT	W	GO STR	NONE	55		44.400561	-88.935922	4152	LT FTY FROM SS, sight distance met
FMCFR0V	8/14/2015	9	22		54			N	1		REAR	ON		PD			2	S	SL/ST	SS	55		S	SL/ST	SS	55		44.400561	-88.935922	4152	U2 PULLED FORWARD FOR BETTER VIEW, STRUCK BY U1
FMC8KP8	9/4/2016	11	22	SB		BEAR LAKE RD	N4715	N	11		SSS	ON		PD			2	S	LT TRN	NONE	45	IT	S	OVT LT	NONE	45		44.408257	-88.935964	4152	U1 RT BLINKER ON & TURNED LT, U2 PASSING

Safety Certification Worksheet

Worksheet ID: _____ **Highway:** STH 22

Design ID: 6220-00-02 **Project Title:** Waupaca-Clintonville, STH 110S to 54E/Waupaca River Bridge

Date of Analysis: 1/23/2019 **Project Description:** Resurfacing

Meta Manager Version _____ **Meta Manager Crash Years** 2012-2016

System Screening - Sites of Promise									Crash Vetting - Sites of Promise	Contributing Geometric Analysis	
See FDM 11-38-10.2 for guidance									See FDM 11-38-10.3 for guidance	See FDM 11-38-10.4 for guidance	
PDP ID	**From RP**	**RP Description**	**To RP**	**Length** (PDP_Mile)	**Crash Rate Flag** (RATEFLAG) (Insert value if ≥ 1.0)	**KAB Crash Rate Flag** (MMGR_KAB_CRSH_RT) (Insert value if ≥ 1.00	**Intersection Crash Rate Flag** (MM Database Name) (Insert value if ≥ 1.0)	**Intersection KAB Crash Rate Flag** (MM Database Name) (Insert value if ≥ 1.0)	**Summarize the contributing factors for ALL crashes in the flagged segment or intersection.**	**Which geometric features contribute to the type and severity of the crashes?**	**Possible Countermeasures for Safety Mitigation Process**
4150	022N113 000	STH 110 NB	022N114 000	1.1					N/A	N/A	
4151	022N114 000	BIGALKE RD	022N115 000	1.17					N/A	N/A	
4152	022N115 000	STH 54 EB	022N115 115	1.15	1.82				13 of 13 crashes removed because no engineering countermeasures exist. These include driver error or mechanical failure. No crash patterns evident.	N/A	
12037	054E185 000		054E185 070	0.7					N/A	N/A	

Design Criteria Evaluation Worksheet

Project ID:	6220-00-02/72
Highway:	STH 22/54
Project Limits:	STH 110S to 54E/Waupaca River Bridge
Project Description:	Waupaca - Clintonville
Design Year:	

Functional Class	Minor Arterial
NHS Route?	No
FED Truck route?	
rural or urban	Rural
no. of travel lanes	2
divided or undivided	undivided
Posted Speed	55 mph
Design Speed	
Design Year AADT	
Percent trucks	
Design Class	3RA2-1

source	MetaManager Safety Analysis	MetaManager Safety Analysis	MetaManager Safety Analysis	MetaManager Safety Analysis				See List on p.2 of Att. 4.3	See List on p.2 of Att. 4.3	See List on p.2 of Att. 4.3	See List on p.2 of Att. 4.3				FDM 11-40-6 11-20-1, 11-15-1	FDM 11-40; 11-44 11-10, 11-15		see Att. 4.1, Table A4.1		Col. 15 of SSA WORKSHEET	FDM 11-40, 11-44		
destination								Col. 11 of SSA WORKSHEET											Col. 10 of SSA WORKSHEET				
notes	Segmentation for MetaManager Safety Analysis	STN Reference Point	Physical location of STN Reference Point	STN Reference Point					Some design criteria have different standards depending on their function For example, Lane width requirements are different for travel lanes and turn lanes	Unit of measurement for design criteria - For example, lane width is measuered in feet	Is standard for design criteria a minimum (Min.) or maximum (Max.)standard? For example, lane width is a MIN standard; maximum grade is a MAX standard Some criteria have both MIN and MAX (e.g., superelevation rate)	Use if checking multiple criteria for the same geometric element For example,. max and min cross slope; curve radius and superelevation)					**Yes** = Existing is substandard based on 3R Design Standard without a PES in col (16) **No** =**PES is not Needed** - Existing meets 3R Design Standard without a PES in col (16) (Neither a PES nor an ES is needed)	**Yes** = Design Criteria is both Controlling and eligible for PES **No** = **PES cannot Apply** - Design Criteria is either non-Controlling or Design Criteria is Controlling but is not eligible for PES	SS-CC = Sub-Standard Controlling Criteria **Yes** if both col (17) and col (18) are Yes **No** if either col (17) or col (18) are No	SS-CC = Sub-Standard Controlling Criteria **Yes** = **PES Applies** - if col (19) of this worksheet is Yes and col (15) of the 'Safety Screening Analysis (SSA) Worksheet' is Yes **No** = **PES does not Apply** - if col (19) of this worksheet is Yes and col (15) of the 'Safety Screening Analysis (SSA) Worksheet' is No **NA** (not applicable) = PES is not needed or PES cannot apply * NA if col. (17 & 19) = No (PES is not needed) * NA if col. (18 & 19) = No (PES cannot apply)	Applicable only for controlling criteria that are eligible for a PES NA if col. (18) = No	**Yes** = PES applies (i.e., col. (20) ="Yes") and existing in col. (14) does not meet standard in col. (21) (Improve existing to meet standard in col. (21) unless approved ES) **No** = PES applies (i.e., col. (20) ="Yes") and existing in col. (14) meets standard in col. (21) **NA** (not applicable) = PES is not needed or PES cannot apply or PES does not apply * NA if col. (17 and 19) = No --- PES is not needed * NA if col. (18 and 19) = No --- PES cannot apply * NA if col. (20) = No --- PES does not apply (If existing in col. (14) is does not meet standard in col. (16) then Improve to meet standard in col. (16) unless approved ES)	
col. No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)	(21)	(22)	(23)
Heading:	**PDP ID**	**From RP**	**RP Description**	**To RP**	**From Proj. Sta** (if known)	**To Proj. Sta** (if known)	**Length**	**Design Criteria**	**Design Criteria Element**	**unit**	**MIN or MAX?**	**Multiple-criteria-ID**	**Describe Existing Condition**	**Existing dimension**	**Design Class**	**3R Design Standard without a PES**	**Is Existing Dimension in col. (14) substandard compared to Design Standard in col. (16)? (Yes / No)**	**Is Design Criteria eligible for a PES? (Yes / No)**	**Are there existing SS-CC in the roadway segment that are eligible for a PES? (Yes / No)**	**Did the Safety Screening Analysis (SSA) determine that a PES applies for the eligible SS-CC? (Yes / No / NA)**	**3R Design Standard with a PES**	**Does Existing Dimension in col. (14) Need to be improved to meet Design Standard in col. (21)? (Yes / No / NA)**	**Comments**
		022N113	STH 110	022N114				Maximum Grade	Maximum Grade Level	Percent	Max		The existing grade is 4.4%.	4.40%	3RA2-1	3%	Yes	Yes	Yes	Yes		No	No substandard controlling criteria
		022N114	Bigalke Rd	022N115				None															No substandard controlling criteria

Safety Screening Analysis (SSA) Worksheet

Project ID:	6220-00-02/72
Highway:	STH 22/54
Project Limits:	STH 110S to 54E/Waupaca River Bridge
Project Description:	Waupaca - Clintonville
Design Year:	

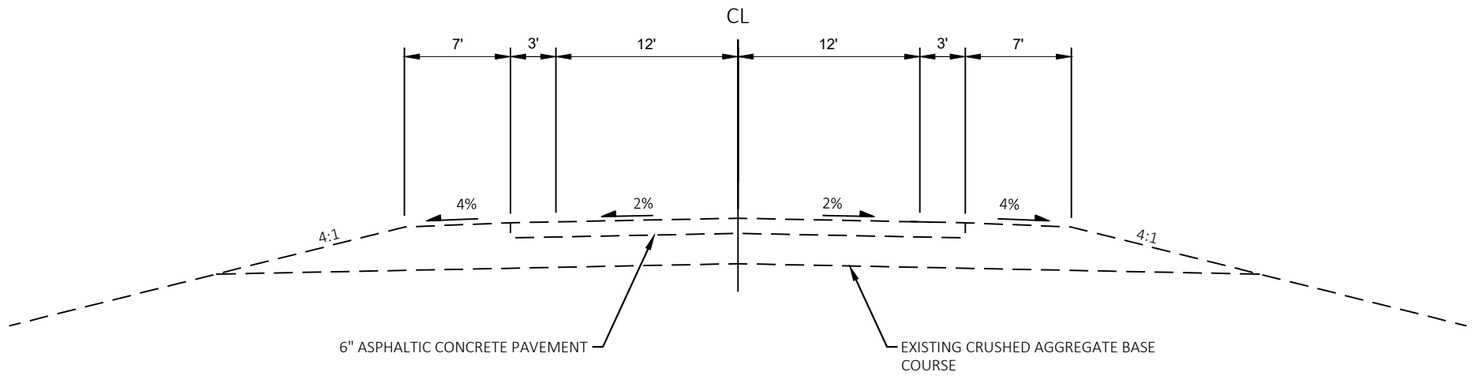
Identify Investigation Flags (IF) from MetaManager Safety Analysis (Meta-SA)

Conduct Manual Safety Analysis (Man-SA) to validate MetaManager Safety Analysis (Meta-SA)

source			(from STN Log)		PDP_Mile' in MetaManager	RATEFLAG' in MetaManager	MMGR_KAB_CRSH_RT' in MetaManager	RORFLAG' or 'INTFLAG' or 'CRSHSPOT' or 'MMGR_DRV_FL' in MetaManager		(pull from col. 19 in SS-CC worksheet)	(pull from col. 8 in SS-CC worksheet)						
destination															Col. 20 of the Design Criteria Evaluation worksheet		
notes						(Insert value if ≥ 1.0, otherwise leave blank)	(Insert value if ≥ 1.0, otherwise leave blank)	(Insert column name and value(s) if ≥ 1.0, otherwise leave blank)	**Yes** = Crash Rate Flag or KAB Crash Rate Flag ≥ 1.0	**SS-CC** = Sub-Standard Controlling Criteria		Using engineering judgement, validate the crashes that produced the Investigation Flag. If additional crashes are identified or if crashes were identified to be removed, explain why in column 13.	Identify the most likely cause(s) of the crashes including roadway, human and vehicle factors. If crashes were added or removed, explain why. This information should include a justification for how it was determined whether the existing SS-CC contributed to the Investigation Flag.	**Yes** if improving the eligible SS-CC would help to reduce the frequency or severity of the crashes that generated the IF **No** if improving the eligible SS-CC would NOT help to reduce the frequency or severity of the crashes that generated the IF **N/A** (not applicable) if there is no eligible SS-CC in the roadway segment (i.e., col. (10) = No	Yes = PES Applies * if col. (14) = No * OR, if there is an eligible SS-CC but there is no IF No = PES does not Apply * if col. (14) = Yes N/A (not applicable) * if there is no eligible SS-CC in the roadway segment (i.e., col. (10) = No	Yes * if there is no eligible SS-CC and no countermeasures have been employed to address the causes of the IF * OR,if a PES Applies and no countermeasures have been employed to address the causes of the IF * OR, if a PES does not Apply and improving the SS-CC is not sufficient to address the causes of the crashes No * if there is no IF * OR, if a PES Applies and other countermeasures have been employed to address the causes of the IF * OR, if a PES does not apply and improving the SS-CC is a sufficient countermeasure	What are proposed countermeasures for IF? Consider countermeasures such as geometric improvements, education, enforcement, other low-cost safety treatments, etc., either singly or in combination Explain if Existing Dimension in col. (14) of Design Criteria Evaluation Worksheet needs to be improved
col. No.	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)
Heading:	**PDP ID**	**From RP**	**RP Description**	**To RP**	**Length**	**Crash Rate Flag**	**KAB Crash Rate Flag**	**Possible Contributing Factors identified in MetaManager**	**Did MetaManager generate Investigation Flag? (Yes / No)**	**Are there existing SS-CC in the roadway segment that are eligible for a PES? (Yes / No)**	**Which SS-CC Exist?**	**If Crash Rate Flag or KAB Crash Rate Flag ≥ 1.0, was the flag verified? (Yes / No / N/A)**	**What are possible causes of the crash trend?**	**Does the existing eligible SS-CC contribute to the Investigation Flag (i.e. crashes)? (Yes / No / N/A)**	**Does PES Apply for eligible SS-CC? (Yes / No / N/A)**	**Does roadway segment contain un-addressed Investigation Flags? (Yes / No)**	**Proposed Recommendation from SSA**
	4150	022N113 000	STH 110 NB	022N114 000	1.1					Yes	Maximum grade	N/A		No	Yes	No	Meets programmatic exception to standards.
	4151	022N114 000	BIGALKE RD	022N115 000	1.17		1.1	Segment-wide severe injury/fatality problem, with segment-wide run-off-road problem.	Yes	No		No		N/A	N/A	No	
	4152	022N115 000	STH 54 EB	022N115 115	1.15	1.82		Segment crash rate and severe injury/fatality problem, with segment-wide intersection problem, and at least one problem spot identified. SERIOUS	Yes	No		No		N/A	N/A	No	
	12037	054E185 000		054E185 070	0.7					No		N/A		N/A	N/A	No	

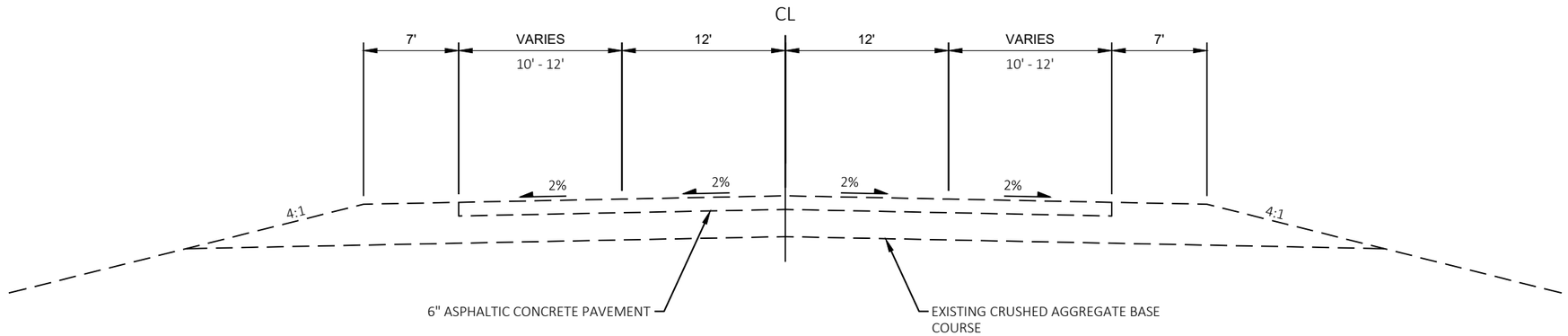
Attachment C

Existing and Proposed Typical Sections



EXISTING TYPICAL SECTION

STA 331+00 TO STA 332+38
STA 339+68 TO STA 456+80



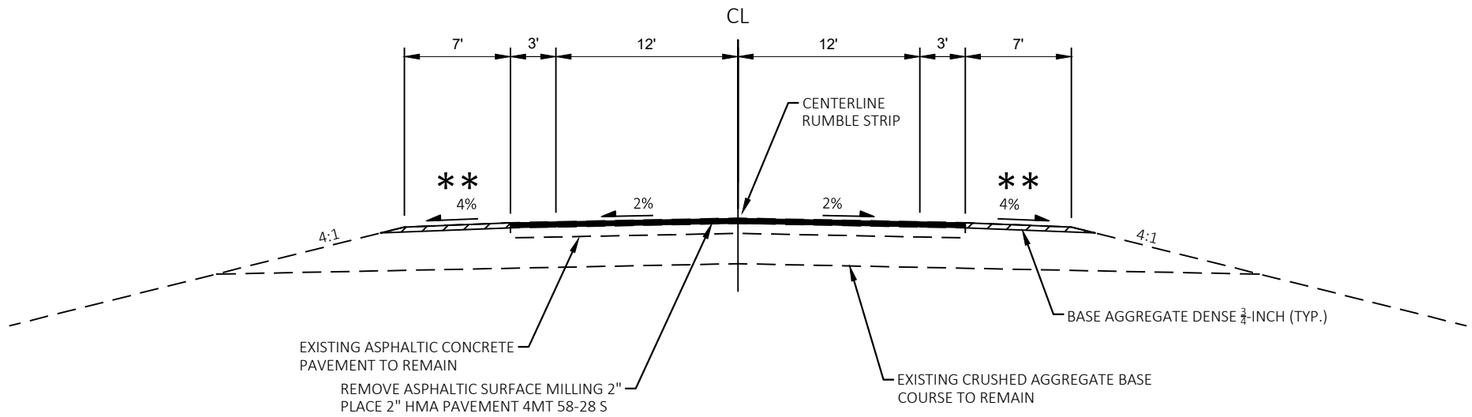
EXISTING TYPICAL SECTION

STA 332+38 TO STA 339+68
STA 456+80 TO STA 462+07

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET	E

FILE NAME : Q:\2018 PROJECTS\5018043 - WISDOT NCR_STH 22 DESIGN\CIVIL3D\SHEETSPLAN\020301_TS.DWG
LAYOUT NAME - 01
PLOT DATE : 5/30/2019 9:52 AM
PLOT BY : PATRICK SMITH
PLOT NAME :
PLOT SCALE : 1 IN:10 FT

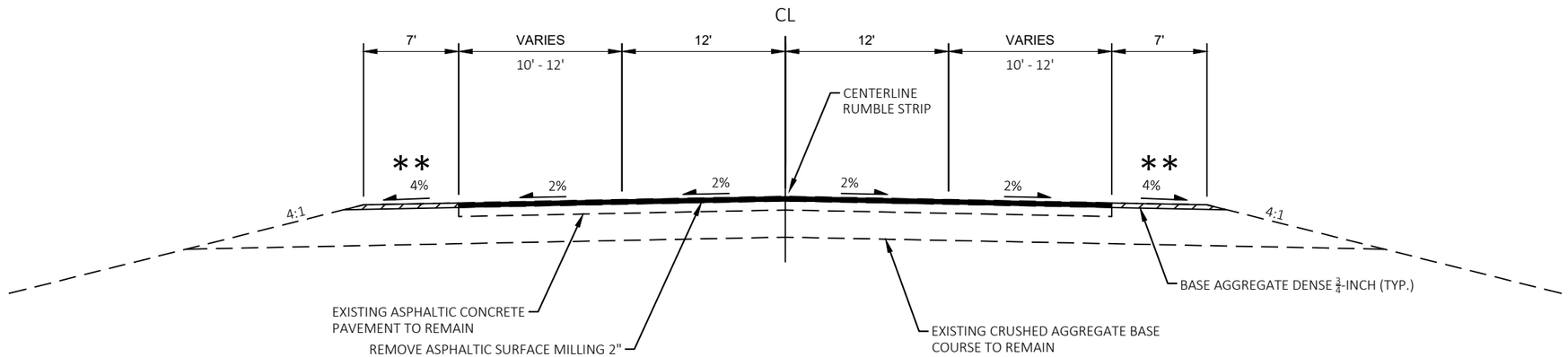
2



FINISHED TYPICAL SECTION

STA 331+00 TO STA 332+38
STA 339+68 TO STA 456+80

** RESTORE SHOULDERS TO INDICATED SLOPE AND DIMENSION. SHOULDER RESTORATION WILL BE PAID UNDER BASE AGGREGATE DENSE 3/4-INCH AND FINISHING ROADWAY

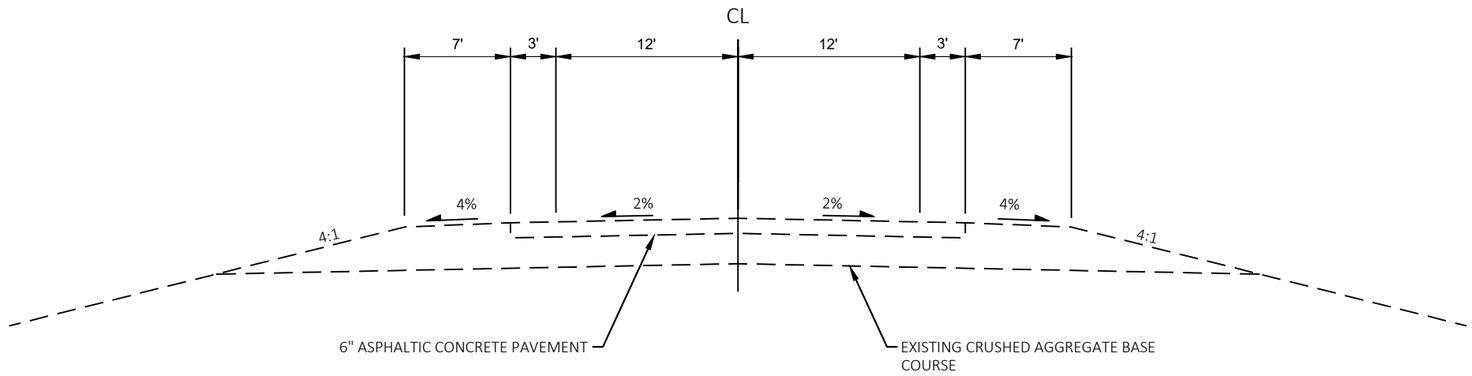


FINISHED TYPICAL SECTION

STA 332+38 TO STA 339+68
STA 456+80 TO STA 462+07

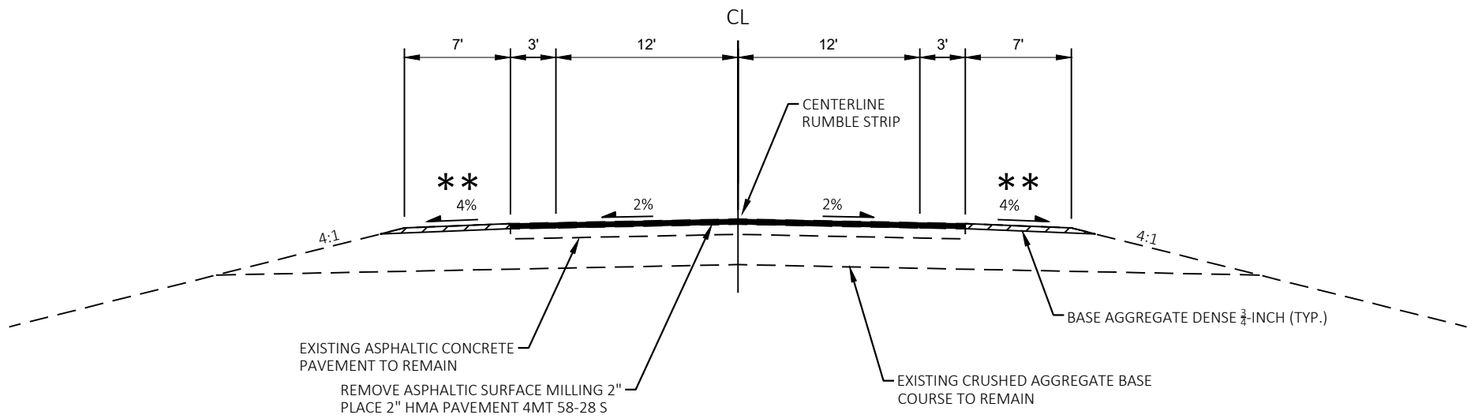
PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET	E

2



EXISTING TYPICAL SECTION

STA 10'W'+00 TO STA 19'W'+19
(STH 22 & STH 110)



FINISHED TYPICAL SECTION

STA 10'W'+00 TO STA 19'W'+19
(STH 22 & STH 110)

** RESTORE SHOULDERS TO INDICATED SLOPE AND DIMENSION. SHOULDER RESTORATION WILL BE PAID UNDER BASE AGGREGATE DENSE ¾-INCH AND FINISHING ROADWAY

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	TYPICAL SECTIONS	SHEET	E

Attachment D

Preliminary Plan Sheets

PI STA = 341+59.60
Y = 347780.505
X = 570640.344
Δ = 54°59'40"
D = 4°00'00"
T = 745.57'
L = 1374.86'
R = 1432.39'
PC STA = 334+14.03
PT STA = 347+88.89

STATION	LT SLOPE	RT SLOPE	STATION
332+54.02	-2.0%	-2.0%	NORMAL CROWN
333+07.36	-2.0%	0.0%	LEVEL CROWN
333+60.69	-2.0%	+2.0%	REVERSE CROWN
334+67.36	-6.0%	+6.0%	BEGIN FULL SUPER
347+35.56	-6.0%	+6.0%	END FULL SUPER
348+42.22	-2.0%	+2.0%	REVERSE CROWN
348+95.56	-2.0%	0.0%	LEVEL CROWN
349+48.89	-2.0%	-2.0%	NORMAL CROWN

NOTE:
SEE SDD 15C8-A (PAVEMENT MARKING, MAINLINE AND TURN LANES, LONGITUDINAL MARKING MAINLINE) AND SDD 15C35-A (PAVEMENT MARKING INTERSECTIONS) FOR PAVEMENT MARKING DETAIL

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E

NOTE:
SEE SDD 15C8-A (PAVEMENT MARKING, MAINLINE AND TURN LANES, LONGITUDINAL MARKING MAINLINE) AND SDD 15C35-A (PAVEMENT MARKING INTERSECTIONS) FOR PAVEMENT MARKING DETAIL

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E

FILE NAME : Q:\2018 PROJECTS\5018043 - WISDOT NCR_STH 22 DESIGN\CIVIL3D\SHEETSPLAN\050201_PN.DWG
LAYOUT NAME - 02

PLOT DATE : 3/19/2019 7:36 AM PLOT BY : PATRICK SMITH PLOT NAME : PLOT SCALE : 1 IN:200 FT

PI STA = 393+41.71
Y = 352614.466
X = 572809.619
Δ = 27°32'28"
D = 2°30'00"
T = 561.68'
L = 1101.64'
R = 2291.84'
PC STA = 387+80.03
PT STA = 398+81.68

STATION	LT SLOPE	RT SLOPE	STATION
386+36.03	-2.0%	-2.0%	NORMAL CROWN
386+89.36	-2.0%	0.0%	LEVEL CROWN
387+42.69	-2.0%	+2.0%	REVERSE CROWN
388+25.36	-5.1%	+5.1%	BEGIN FULL SUPER
398+36.35	-5.1%	+5.1%	END FULL SUPER
399+19.01	-2.0%	+2.0%	REVERSE CROWN
399+72.35	-2.0%	0.0%	LEVEL CROWN
400+25.68	-2.0%	-2.0%	NORMAL CROWN

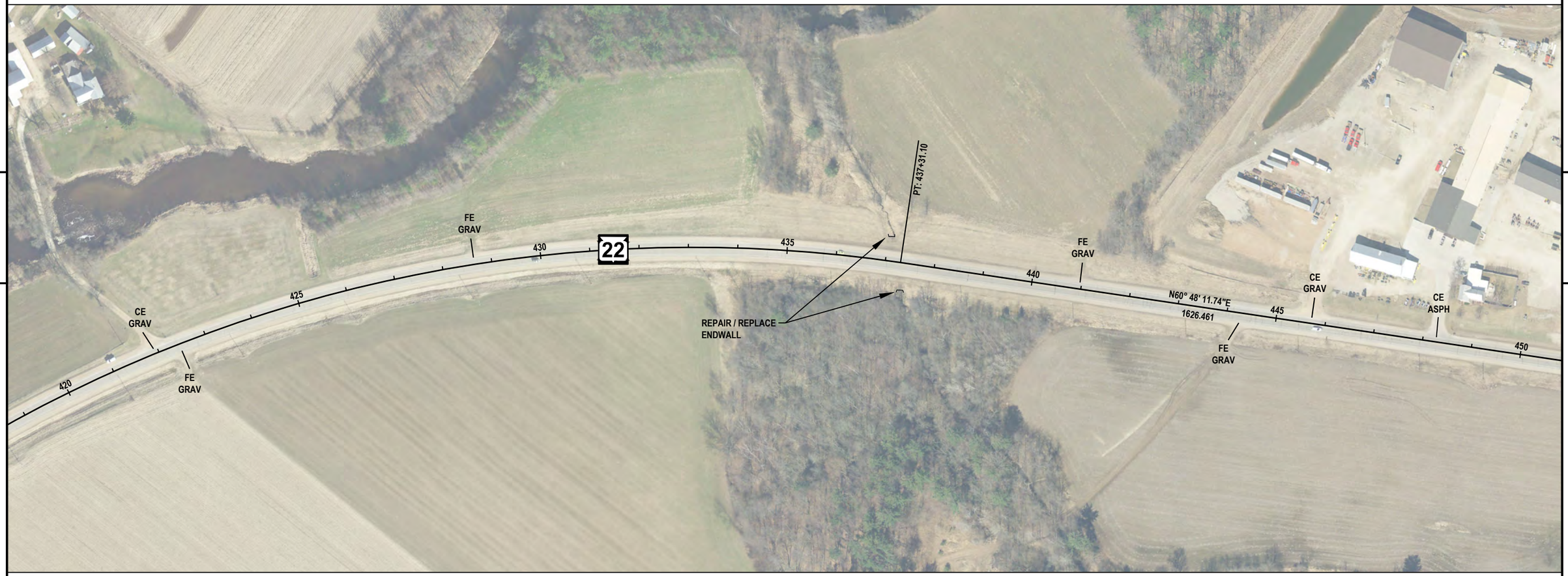
PI STA = 423+18.55
Y = 355607.824
X = 572633.223
Δ = 64°10'33"
D = 2°00'00"
T = 1796.23'
L = 3208.78'
R = 2864.78'
PC STA = 405+22.32
PT STA = 437+31.10

NOTE:
SEE SDD 15C8-A (PAVEMENT MARKING, MAINLINE AND TURN LANES, LONGITUDINAL MARKING MAINLINE) AND SDD 15C35-A (PAVEMENT MARKING INTERSECTIONS) FOR PAVEMENT MARKING DETAIL

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E

PI STA = 423+18.55
Y = 355607.824
X = 572633.223
Δ = 64°10'33"
D = 2°00'00"
T = 1796.23'
L = 3208.78'
R = 2864.78'
PC STA = 405+22.32
PT STA = 437+31.10

STATION	LT SLOPE	RT SLOPE	STATION
403+88.98	-2.0%	-2.0%	NORMAL CROWN
404+42.31	0.0%	-2.0%	LEVEL CROWN
404+95.65	+2.0%	-2.0%	REVERSE CROWN
405+62.31	+4.5%	-4.5%	BEGIN FULL SUPER
436+91.10	+4.5%	-4.5%	END FULL SUPER
427+57.77	+2.0%	-2.0%	REVERSE CROWN
438+11.10	0.0%	-2.0%	LEVEL CROWN
438+64.43	-2.0%	-2.0%	NORMAL CROWN



NOTE:
SEE SDD 15C8-A (PAVEMENT MARKING, MAINLINE AND TURN LANES, LONGITUDINAL MARKING MAINLINE) AND SDD 15C35-A (PAVEMENT MARKING INTERSECTIONS) FOR PAVEMENT MARKING DETAIL

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E

FILE NAME : Q:\2018 PROJECTS\5018043 - WISDOT NCR_STH 22 DESIGN\CIVIL3D\SHEETSPLAN\050201_PN.DWG
LAYOUT NAME - 04
PLOT DATE : 3/19/2019 7:37 AM
PLOT BY : PATRICK SMITH
PLOT NAME :
PLOT SCALE : 1 IN:200 FT

PI STA = 13+22.72'W'
Y = 357747.056
X = 575830.427
Δ = 13°34'19"
D = 4°05'33"
T = 166.59'
L = 331.63'
R = 1400.00'
PC STA = 11+56.12'W'
PT STA = 14+87.75'W'

END CONSTRUCTION
STA 462+07

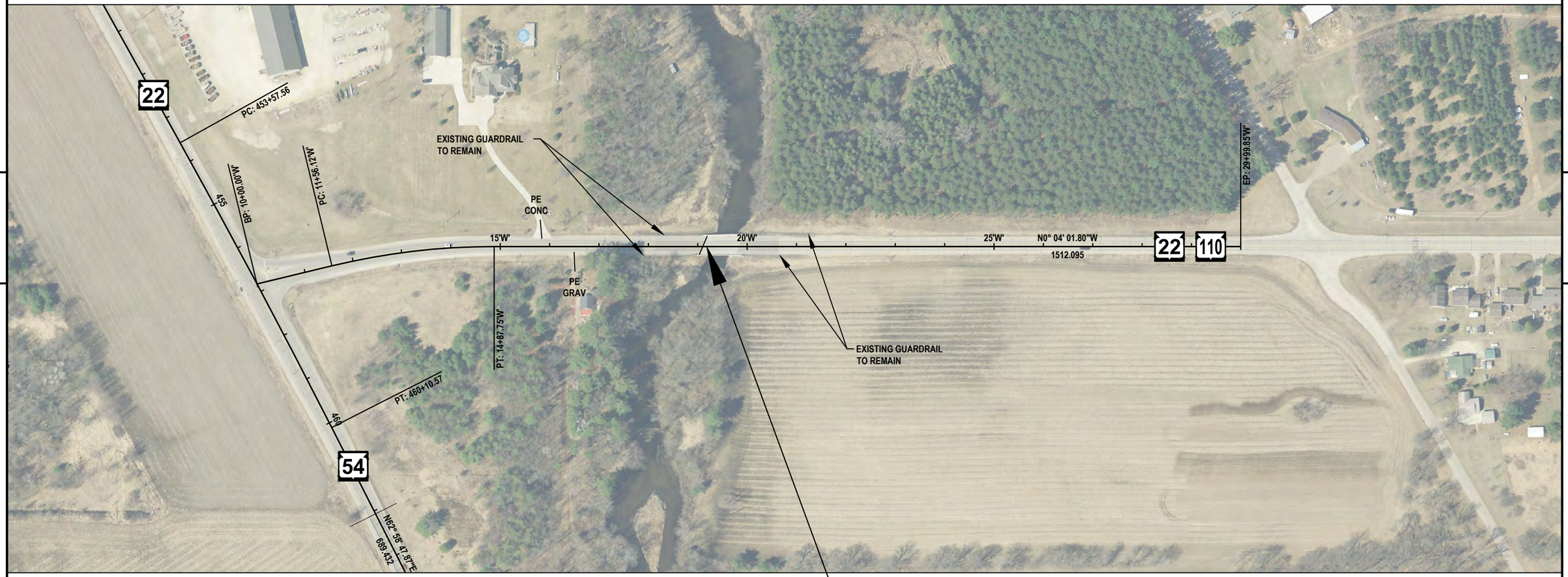
PI STA = 456+84.10
Y = 357436.738
X = 575906.117
Δ = 2°10'36"
D = 0°20'00"
T = 326.54'
L = 653.01'
R = 17188.73'
PC STA = 453+57.56
PT STA = 460+10.57

NOTE:
SEE SDD 15C8-A (PAVEMENT MARKING, MAINLINE AND TURN LANES, LONGITUDINAL MARKING MAINLINE) AND SDD 15C35-A (PAVEMENT MARKING INTERSECTIONS) FOR PAVEMENT MARKING DETAIL

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E

PI STA = 13+22.72'W'
Y = 357747.056
X = 575830.427
Δ = 13°34'19"
D = 4°05'33"
T = 166.59'
L = 331.63'
R = 1400.00'
PC STA = 11+56.12'W'
PT STA = 14+87.75'W'

N



STATION	LT SLOPE	RT SLOPE	STATION
10'W'+84.24	-2.0%	-2.0%	NORMAL CROWN
11'W'+20.79	0.0%	-2.0%	LEVEL CROWN
11'W'+57.34	+2.0%	-2.0%	REVERSE CROWN
11'W'+73.79	+2.9%	-2.9%	BEGIN FULL SUPER
14'W'+70.09	+2.9%	-2.9%	END FULL SUPER
14'W'+86.53	+2.0%	-2.0%	REVERSE CROWN
15'W'+23.64	0.0%	-2.0%	LEVEL CROWN
15'W'+59.64	-2.0%	-2.0%	NORMAL CROWN

NOTE:
SEE SDD 15C8-A (PAVEMENT MARKING, MAINLINE AND TURN LANES, LONGITUDINAL MARKING MAINLINE) AND SDD 15C35-A (PAVEMENT MARKING INTERSECTIONS) FOR PAVEMENT MARKING DETAIL

PROJECT NO: 6220-00-72	HWY: STH 22	COUNTY: WAUPACA	PLAN SHEETS	SHEET	E

FILE NAME : Q:\2018 PROJECTS\5018043 - WISDOT NCR_STH 22 DESIGN\CIVIL3D\SHEETSPLAN\050201_PN.DWG
LAYOUT NAME - 06
PLOT DATE : 3/19/2019 7:41 AM PLOT BY : PATRICK SMITH PLOT NAME : PLOT SCALE : 1 IN:200 FT

Attachment E

Transportation Management Plan

Wisconsin Transportation Management Plan (WisTMP) System

Approval Status

TMP ID: 7052 (Design ID:6220-00-02)
Current TMP Status: Approved (60%)

Review (60%)

Reviewer Role	Review Status	Reviewer	Reviewed On
Regional Traffic (RT)	Reviewed	Cara Abts	04/17/2019 04:49 PM

Approval (60%)

Signature Role	Signature Status	Signatory	Signed On
Project Manager (PM)	Signed	Wendy Arneson	04/17/2019 03:19 PM
Regional Traffic (RT)	Signed	Cara Abts	08/29/2019 06:35 AM
Regional Project Development Chief (RPDC)	Signed	Matthew Bronson	08/30/2019 07:58 AM

Review (90%)

Reviewer Role	Review Status	Reviewer	Reviewed On

Approval (90%)

Signature Role	Signature Status	Signatory	Signed On
Project Manager (PM)	Not Signed		

rymurphy entered WisTMP as Viewer
WisTMP Version: 2.0.8 (/applications/WisTMP/faces/pages/release.xhtml) (Last updated on: 08-12-2019)
Wisconsin Traffic Operations and Safety Laboratory

Attachment F

Environmental Commitments Basic Sheet

Section Five: Environmental Commitments

List any environmental mitigation measures or commitments that will be incorporated into the project. Any items listed below must be incorporated into the project plans and contract documents. *Attach a copy of this page to the design study report (DSR) and the plans, specifications, and estimate (PS&E) submittal package.*

Environmental Factor	Commitment (If none, include 'No special or supplemental commitments required.')
General Economics	No special or supplemental commitments required.
Business	A pre-construction mailing will be sent to all property owners along the project corridor; the contractor, in coordination with the WisDOT Project Construction Engineer, will be responsible for ensuring this commitment is met. Maintain access during construction at the direction of the WisDOT Project Construction Engineer.
Agriculture	No special or supplemental commitments required.
Community or Residential	No special or supplemental commitments required.
Indirect Effects	No special or supplemental commitments required.
Cumulative Effects	No special or supplemental commitments required.
Environmental Justice	No special or supplemental commitments required.
Historic Resources	No special or supplemental commitments required.
Archaeological/Burial Sites	No special or supplemental commitments required.
Tribal Coordination/Consultation	No special or supplemental commitments required.
Section 4(f) and 6(f) or Other Unique Areas	No special or supplemental commitments required.
Aesthetics	No special or supplemental commitments required.
Wetlands	Work to replace or repair culvert endwalls in wetland areas will be done with minimal ground disturbance. Best management practices (BMPs) will be put in place prior to any work in the wetland areas. Any sediment removed during culvert endwall repair work will be disposed of in an upland area. The WisDOT Project Construction Engineer will be responsible for ensuring this commitment is met. Wetland areas as indicated on the plans shall not be used for borrow or waste disposal, or the staging of personnel, equipment, and/or supplies. The WisDOT Project Construction Engineer will be responsible for ensuring this commitment is met.
Rivers, Streams and Floodplains	No special or supplemental commitments required.
Lakes or other Open Water	No special or supplemental commitments required.
Groundwater, Wells and Springs	No special or supplemental commitments required.
Upland Wildlife and Habitat	No special or supplemental commitments required.
Coastal Zones	No special or supplemental commitments required.
Threatened and Endangered Species	No special or supplemental commitments required.

Air Quality	No special or supplemental commitments required.
Construction Stage Sound Quality	Standard specifications 107.8(6) and 108.7.1 will apply. The WisDOT Project Construction Engineer will be responsible for ensuring this commitment is met.
Traffic Noise	No special or supplemental commitments required.
Hazardous Substances or Contamination	No special or supplemental commitments required.
Storm Water	No special or supplemental commitments required.
Erosion Control	Erosion Control Implementation Plan (ECIP) will be submitted to WDNR and WisDOT at least 14 days prior to construction. The WisDOT Project Engineer will be responsible for ensuring this commitment is met.
Other	

Attachments:
Attachment A – Native American Correspondence
Attachment B – Project Location Map
Attachment C – Preliminary Plans
Attachment D – WNDR Correspondence
Attachment E – US Fish and Wildlife Service Coordination
Attachment F – Local Official Correspondence
Attachment G – Property Owner Correspondence
Attachment H – Section 106 Screening List