Scope Amendment

Amendment description

Pipe work

IM-FP 0908(95)362 McCook **PCN 05HP**
I90 EBL - Fm 2 W of the Salem Interchange to 2 W of Humboldt; I90 Strs - 0.6 W of the US81 Interchange Over W Fork of the Vermillion River; I90 Strs - 2 E of the US81 Interchange Over 443 Ave; I90 Str - 2.1 W of the Minnehaha Co Line Over the E Fork of the Vermillion River; I90 Str - 1 W of the Minnehaha Co Line Over 453 Ave
Remove & Replace PCC, Pipe Work, Replace Str & Approach Grading, Deck Overlay, Approach Slabs, Polymer Chip Seal

IM 0908(97)362 McCook **PCN 05HQ**
I90 WBL - Fm 2 W of the Salem Interchange to 2 W of Humboldt; I90 Str - 0.6 W of the US81 Interchange Over the W Fork of the Vermillion River; I90 Str - 2 E of the US81 Interchange Over 443 Ave
Remove & Replace PCC, Pipe Work, Replace Str Bridge, Approach Grading, Deck Overlay, Approach Slabs, Polymer Chip Seal

Amendment Summary

Pipe replacements were scheduled at the following locations with PCN 041F:

Sta. 476+00 (MRM 362.09 +0.125) EB & WB Lanes - In place 24 CMP & Flared Ends to be replace with 24 RCP & Sloped Ends.

Site 2 on 041F.

Sta. a 278+00 (MRM 370.04 +0.225) EB Lanes - In Place 18 CMP & Flared Ends to be replace with 18 RCP & Sloped Ends.

Site 3 on 041F.

Sta. a 279+00 (MRM 370.04 +0.248) EB & WB Lanes - In Place 24 CMP & Flared Ends to be replaced with 24 RCP & Sloped Ends.

Site 4 on 041F.

Sta. a 286+00 (MRM 370.04 +0.375) EB Lanes - In Place 24 RCP & Flared Ends - Remove & Replace Flared Ends.

Site 5 on 041F.

Sta. a 288+00 (MRM 370.04 +0.416) EB & WB Lanes - In Place 24 CMP & Flared Ends to be replaced with 24 RCP & Sloped Ends.

Site 6 on 041F.

Due to the original schedule being adjusted it was determined that these pipe replacements should be removed from 041F and added to 05HP & 05HQ

Also, during preliminary design it was determined that due to accel/decel lanes being lengthened at exit 364 the twin 6'x5' RCBC (Sta. 554+70, MRM 363.48+0.124) will have to be extended/replaced to meet clear zone requirements. Jay Larson and his crew plan to inspect the RCBC and make a determination if the RCBC can be extended or needs to be replaced in the next couple of weeks, weather dependent. *UPDATE 5/6/19* Jay Larson was able to inspect the RCBC and it has previosly been extended on both sides and is in good enough condition to be extended once more to meet clear zone requirements.

04/09/19 RCT

Approval					
Office #	**Approved**	**Office #**	**Approved**	**Office #**	**Approved**

I hereby certify the design meets or exceeds current minimum SDDOT 3R Design Standards.			
Name	**Office #**	**Action**	**Date**
Craig Smith	Mitchell Region	Approved	05/13/2019
Joe Feller	Materials & Surfacing	Approved	05/06/2019
Scott Rabern	Roadway Design	Approved	05/15/2019
Jay Peppel	Mitchell Area	Approved	05/09/2019

Steve Johnson	Bridge Design	Approved	05/21/2019
Joanne Hight	Administration	Approved	05/23/2019

Scope Amendment

Amendment description

Rest Area parking expansion

IM-FP 0908(95)362 McCook **PCN 05HP**
I90 EBL - Fm 2 W of the Salem Interchange to 2 W of Humboldt; I90 Strs - 0.6 W of the US81 Interchange Over W Fork of the Vermillion River; I90 Strs - 2 E of the US81 Interchange Over 443 Ave; I90 Str - 2.1 W of the Minnehaha Co Line Over the E Fork of the Vermillion River; I90 Str - 1 W of the Minnehaha Co Line Over 453 Ave
Remove & Replace PCC, Pipe Work, Replace Str & Approach Grading, Deck Overlay, Approach Slabs, Polymer Chip Seal

IM 0908(97)362 McCook **PCN 05HQ**
I90 WBL - Fm 2 W of the Salem Interchange to 2 W of Humboldt; I90 Str - 0.6 W of the US81 Interchange Over the W Fork of the Vermillion River; I90 Str - 2 E of the US81 Interchange Over 443 Ave
Remove & Replace PCC, Pipe Work, Replace Str Bridge, Approach Grading, Deck Overlay, Approach Slabs, Polymer Chip Seal

Amendment Summary

In the "South Dakota Interstate Rest Area Revitalization Plan" and "Recommendations from Truck Parking Report December 2018" which are located at:

file:/U:\pd\Studies\Rest%20Area%20Study\GLDP%20study\Interstate%20Rest%20Area%20Final%20Report.pdf

and

file:/U:\pd\Studies\Rest%20Area%20Study\2018\Final%20Report\Final_Truck%20Parking%20Report_December%202018.pdf

05HP

It was determined that the Salem EB rest area would require 1 additional parking spot. This will be accomplished with minimal parking lot expansion. Approximately 4' added to the north side of the parking lot and an alternative striping plan shall be utilized. The layout from the study can be seen in the Appendix tab.

It was also determined that the dump station will be removed from the rest area at this location.

Lighting shall be upgraded to LEDs at the rest area. The poles are currently 29 years old but listed in the inventory as 3/4 which means there is no need to replace them. The Utility Office is working to determine what LED will work with existing spacing.

Any repair to sidewalks or ADA upgrades will be done with the concurrent building improvement project.

05HQ

It was determined that the Salem WB rest area would require 10 additional parking spot. The parking lot will be expanded to the east centering the truck parking area on the rest area building to minimize the walking distances from the furthest parking spaces to the building. The expansion on the east end of the rest area requires a new alignment for the I90 exit ramp (entering the rest area) to meet the deceleration length requirements.The layout from the study can be seen in the Appendix tab.

It was also determined that the dump station will be removed from the rest area at this location.

Lighting shall be upgraded to LEDs at the rest area. The poles are currently 29 years old but listed in the inventory as 3/4 which means there is no need to replace them. The Utility Office is working to determine what LED will work with existing spacing.

Any repair to sidewalks or ADA upgrades will be done with the concurrent building improvement project.

04/09/19 RCT

Approval					
Office #	**Approved**	**Office #**	**Approved**	**Office #**	**Approved**

I hereby certify the design meets or exceeds current minimum SDDOT 3R Design Standards.			
Name	**Office #**	**Action**	**Date**
Craig Smith	Mitchell Region	Approved	05/06/2019
Joe Feller	Materials & Surfacing	Approved	05/06/2019
Scott Rabern	Roadway Design	Approved	05/14/2019
Jay Peppel	Mitchell Area	Approved	05/09/2019
Steve Johnson	Bridge Design	Approved	05/07/2019
Joanne Hight	Administration	Approved	05/23/2019
Brett Hestdelen	FHWA	Approved	06/18/2019

Amendment Scope

FROM: Ryan Tobin

Date: 2/19/2021

Re:

IM-FP 0908(95)362 McCook **PCN 05HP**
I90 EBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt
Remove and Replace PCCP, Pipework, Spot Grading

IM 0908(97)362 McCook **PCN 05HQ**
I90 WBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt
Remove and Replace PCCP, Pipework, Spot Grading

CC:

Bridget Carnahan - Administration
Jon Becker - Air Rail & Transit
Dave Madden - Bridge Design
Todd Thompson - Bridge Design
Joe Feller - Materials & Surfacing
Kevin Griese - Materials & Surfacing
Scott Rabern - Materials & Surfacing
Steve Weisz - Mitchell Area
Scott Jansen - Mitchell Region
Monte Rice - Mitchell Region
Mark Reiss - Planning & Programs
Phillip Clements - Project Development
Mark Leiferman - Project Development
Andy Vandel - Project Development
Bronson Blow - Roadway Design
Joanne Hight - Administration
Steve Johnson - Bridge Design
Kevin Marton - Bridge Design
Kathryn Johnson - Engineering/Planning
Tanner Fitzke - Materials & Surfacing
Chad Howard - Materials & Surfacing
Jay Peppel - Mitchell Area
Jeff Gustafson - Mitchell Region
Jay Larson - Mitchell Region
Craig Smith - Mitchell Region
Lance Birger - Project Development
Steve Gramm - Project Development
Brace Prouty - Project Development
Joel Gengler - Right of Way
Pete Longman - Roadway Design

Amendment Scope

IM-FP 0908(95)362 McCook **PCN 05HP**
I90 EBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt
Remove and Replace PCCP, Pipework, Spot Grading

IM 0908(97)362 McCook **PCN 05HQ**
I90 WBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt
Remove and Replace PCCP, Pipework, Spot Grading

Executive Summary of Project Amendment Scope

Two scope amendments have been completed for PCN 05HP & 05HQ. Details included in the scope amendments can be found on the Amendment tab.

The purpose of 05HP & 05HQ is to remove and replace the existing PCC surface on I90 EBL & WBL From 2 miles west of Exit 364 at Salem to 2 miles west of Exit 379 at Humboldt due to surface condition.These projects are designated as 4R projects and will include PCC surfacing, edge drains, pipe work, replacing 4 bridges, 1 RCBC replacement, 2 LSDC bridge deck overlays and 2 bridge deck epoxy chip seals. The segment is I90 EBL & WBL from MRM 362.00 + 0.042 to MRM 377.00 + 0.000.

Structures 44-110-125, 44-150-126, 44-170-126 & 44-210-126 currently meet the minimum required clearance of 16'-0", that clearance must be maintained, and where feasible, the vertical clearance should be increased to 16'-6".

Structures 44-104-125/126 only have a 30' roadway width and are Scour Critical and 44-219-125/126 have a 30' roadway width; all four structures will be replaced with this project.

Structures 44-230-125/126 will have an epoxy chip seals applied with these projects.

Structures 44-130-125/126 will have a low slump dense concrete overlays applied with these projects.

The twin 6'x6' RCBC located at MRM 365.00 + 0.495 has 2 sections of the culvert that are settling

which is causing material to infiltrate into the culvert. In addition, during the spring the culvert has plugged with ice and debris (1997 & 2010) causing water to over top the Interstate. This RCBC should be replaced in conjunction with these projects.

ROW appears to be sufficient at the Bridge replacement, RCBC replacement and pipe replacement/repair locations. If ROW impacts are identified they should be brought up immediately as they may a significantly impact the schedule of the project. Pipe repairs that will have ROW issues will be done under a seperate contract at a later date to keep the project on track.

Due to the silty subgrade soils anticipated, slough/lake at MRM 370 +/-, and ditch underdrain issues at MRM 371 +/-; initial recommendations would be to process the existing concrete pavement and mix into the top 12-18"" of subgrade depending upon amount of material available. Final recommendations for any subgrade work required would be provided after the geotechnical field investigation.

Exits 364 and 374 will remain open during construction, exit 368 will be closed during construction. The ramps and crossroads at exits 368 and 374 will be milled and overlaid during these projects. Exit 364 will have repairs done to the concrete portion of the ramps and the pavement will be replaced through the gore areas. Acceleration/deceleration lanes will need to be brought up to standard on all ramp locations and also ensure that minimum width requirements are met for all ramps.

Rest areas: the raised median shall be removed and striped accordingly along with any concrete repairs to the parking areas that are needed. The Rest Area Revitalization plan is considering additional work to be completed at the rest areas, the designer will need to coordinate any improvements with the revitalization efforts.

The inslopes throughtout the project vary from 3:1 to 4:1 for the first 5'-7' from the edge of the shoulder surfacing. After 5'-7' they flatten to betwee 4:1 and 6:1. The inslope should be brought to a uniform slope from the edge of shoulder surfacing to the clear zone of 4:1 or flatter with this project.

Upgrade guardrail to SDDOT standards.

The crossover for the East project limits (MRM 377.00+0.000), Exit 364 & 374 ramp crossovers (EB on and EB off) and mill & resurfacing of the existing crossover at MRM 362.00+0.035 will be completed in a stand alone project, PCN 06J4, prior to 05HP and 05HQ in 2019.

Information and locations of the culverts on these projects can be found in the following culvert inventory reports:

file:/U:\pd\Prj\Mcck05HP\05HP%20Pipe%20Report.xls

Information and locations of guardrail on these projects can be found in the following guardrail inventory reports:

file:/U:\pd\Prj\Mcck05HQ\05HQ%20Guardrail%20Inventory.xls

file:/U:\pd\Prj\Mcck05HP\05HP%20Guardrail%20Inventory.xls

More detail of the work above can be found in the Proposed Project Information tab.

It is the responsibility of the **designer** to design the project to meet or exceed the current minimum SDDOT design standards and policies. The designer shall coordinate any improvements not included in the scope of work involving grading, ROW needs, inslope flattening, and/or pipe/drainage work with the Environmental Office and assigned TPE for any additional environmental clearances that may be required. The designer shall verify with the Pavement Engineer that the surfacing recommendation provided in the Approved Scope is the most current recommendation before proceeding with the project design.

Segments

Highway	Beg MRM	Beg Disp	End MRM	End Disp	Length	County
090 E	362.00	0.035	377.00	0.000	14.929	McCook
090 W	362.00	0.042	377.00	0.000	14.921	McCook

Fund Source Summary

PCN	FY	Cost	STIP Category
05HP	2020	41.400	IntMaint
05HQ	2021	32.629	IntMaint

Preferred Letting Date: Unknown

COORDINATORS:
Scope Coordinator - Ryan Tobin
Surfacing Plans - Tanner Fitzke

OVERALL PROJECT NEEDS	
Type	**Description**
None	

ENVIRONMENTAL NEEDS	
Type	**Description**
Cultural Resources Survey	
Storm Water Pollution Prevention Plan (SWPPP)	
Threatened & Endangered Species	Topeka Shiner
Wetlands	

UTILITY NEEDS

To be determined. Contact the Utility Office in the Office of Road Design for additional information.

The designer is to determine the actual utility involvement as described and shown in the "Designer Guidelines for Utility Notification/Certification" flow chart at the following link: file:/U:\pd\Utilities\Utility%20Guidelines\Guidelines_for_Utility_Notification_Certification.pdf

No utility relocation is anticipated.

Utility Notification Required	YES	**SUE Needed**		**SUE (Modified Phase 2) Needed**	

AGREEMENT / RESOLUTION NEEDS and/or Other Agency Coordination				
Org Type	**Org Name**	**Need Type**	**Agree?**	**Description**
Tribal		Section 106 consultation		
US Corp of Engineers (404 Permit)		Permit	YES	

SURVEY NEEDS

Type	Description
Drainage	Twin 6'x6' RCBC replacement MRM 365.00+0.495, Str Nos. 44-104-125/126 & 44-219-125/126
Reconstruction	
Resurfacing	

BenchMark **Harn Point**

CONSTRUCTABILITY NEEDS

Type	Description
Crossover	See Comments
Head-to-Head Traffic	
Ramp Closure	Exit 368 shall be closed during construction

The crossover for the East project limits (MRM 377.00+0.000), Exit 364 & 374 ramp crossovers (EB on and EB off) and mill & resurfacing of the existing crossover at MRM 362.00+0.035 will be completed in a stand alone project, PCN 06J4, prior to 05HP and 05HQ in 2019.

Approval

Office	Approved	Office	Approved	Office	Approved
Administration	No	Bridge Design	Yes	Materials & Surfacing	No
Mitchell Area	Yes	Mitchell Region	Yes	Roadway Design	No

Confirmation of Approval

		Date Approved	

BACKGROUND INFORMATION

1965 - Grading Construction Plans

file:/U:\rd\Misc\MicroFilm\Plans\44004.pdf

file:/U:\rd\Misc\MicroFilm\Plans\44007.pdf

1966 - Surfacing Construction Plans

file:/U:\rd\Misc\MicroFilm\Plans\44005.pdf

1966 - Signing and Delineation Plans

file:/U:\rd\Misc\MicroFilm\Plans\44006.pdf

1988 - Eliminate Structure and Approach Modification

file:/U:\rd\Misc\MicroFilm\Plans\0537.pdf

1997 - Asphaltic Concrete Overlay

file:/U:\rd\Misc\MicroFilm\Plans\3468.pdf

2010 - PCC Joint Repair, Asphaltic Concrete Cold Mill and Resurfacing, Bridge and Guardrail Modifications, Culvert Repair and Extensions

file:/U:\rd\Misc\MicroFilm\Plans\01QM.pdf

2010 - Culvert Extensions, Inslope Flattening and Related Repairs

file:/U:\rd\Misc\MicroFilm\Plans\02KC.pdf

Projects In Area

Fiscal Year	Status	PCN	Project #	Location	Improvement Desc
2017	Closed	05VV	P 0038(47) 357	SD38 - Fm 2 miles west of I-90 to 6 miles east of I-90	Shoulder Improvements
2017	Closed	055G	IM-NH-P 0021(159)	Various Routes in the Mitchell Area	Chip Seal
2017	Closed	05Q5	P 0042(69) 333	SD42 - Fm US81 to W of SD19	Mill & AC Resurfacing
2018	Cancelled	04XN	IM 0020(155)	Mitchell Region on I90	Scour Protection
2019	Completed	04DU	IM 0909(86) 380	I90 - Strs, Over I90 1.2 E of Exit 379 (SD19); 4.8 W of Exit 390 (SD38); 2.1 W of Exit 396 (I29)	Zone Painting, Girder Repair
2019	Completed	05L6	IM-NH-P 0022(60)	Various Routes in the Sioux Falls Area	Chip Seal
2020	Awarded	05HP	IM-FP 0908 (95)362	I90 EBL - Fm 2 W of the Salem Interchange to 2 W of Humboldt; I90 Strs - 0.6 W of the US81 Interchange Over W Fork of the Vermillion River; I90 Strs - 2 E of the US81 Interchange Over 443 Ave; I90 Str - 2.1 W of the Minnehaha Co Line Over the E Fork of the Vermillion River; I90 Str - 1 W of the Minnehaha Co Line Over 453 Ave	Remove & Replace PCC, Pipe Work, Replace Str & Approach Grading, Deck Overlay, Approach Slabs, Polymer Chip Seal
2020	Cancelled	04W3	IM 0908(94) 363	I90 WBL - Str 0.6 W of the US81 Interchange Over W Fork of the Vermillion River, 2 E of US81 Interchange Over 448 Ave.	Deck Overlay
2023	Programmed	04DP	IM 0908(92) 357	I90 - Str Exit 357 (Bridgewater)	Deck Replacement, Approach Slab Replacement, Rehab Abutments, Zone Painting
2023	Programmed	04DQ	IM 0908(93) 368	I90 - Str Exit 368 (Canistota)	Deck Replacement, Approach Slab Replacement, Rehab Abutments, Zone

					Painting
2024	Programmed	05T2	IM 0908(99)377	I90 EBL - Fm 2 W of Humboldt to 2 E of Hartford; I90 - Str 0.4 W of Exit 390 (SD38); I90 EBL - Exit 379 (Humbolt)	Remove & Replace PCC Surfacing, Replace Str Bridge, Approach Grading, Correct Clearance Deficiency, Spot Grading, Pipe Work
2025	Programmed	05FA	P-PH 0038 (48)304	SD38 - Fm E of the SD38P Jct to 8.3 E of the Alexandria Jct	Grading, Interim Surfacing, Modify Intersection, Pipe Work

Traffic Data			
I90 EBL & WBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt			
2016 ADT	5262	**d:**	53.0%
2036 ADT	7245	T DHV:	9.3%
DHV:	1007	T ADT:	20.5%

Future Development None Anticipated

Future ADT: 25 year ADT - 7761 30 year ADT - 8261 35 year ADT - 8761

Crash Data	
Period from 2012 to 2016	
I90 WBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt	
Weighted Accident Rate	0.85
Number of Fatal	0
Number of Injury:	13
Number of Property Damage:	82

I90 EBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt	
Weighted Accident Rate	0.87
Number of Fatal	1
Number of Injury:	10
Number of Property Damage:	83

PCN 05HQ - I90 WBL

Of the 95 crashes, 5 were a rear-end crash, 1 was parked motor vehicles, 24 were ran off the road crashes, 10 were overturn off road crashes, 38 were animal crashes, 5 were cargo/equipment loss or shift crashes, 8 were motor vehicle in transport crashes and 4 were reported as an other crash. Details can be found in the following directory: file:/U:\pd\Prj\Mcck05HQ\05HQ%20RSI%20Summary%20Report%20(2012-2016)Detail.PDF

PCN 05HP - I90 EBL

Of the 94 crashes, 9 were a rear-end crash, 1 was parked motor vehicles, 26 were ran off the road crashes, 6 were overturn off road crashes, 38 were animal crashes, 2 were cargo/equipment loss or shift crashes, 7 were motor vehicle in transport crashes and 5 were reported as an other crash. Details can be found in the following directory: file:/U:\pd\Prj\Mcck05HP\05HP%20RSI%20Summary%20Report%20(2012-1016)Detail.pdf

Roadway			
I90 WBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt			
Posted Speed Limit	80 MPH	**% Passing**	N/A
# of Lanes & Width	2-12'	**Shoulder Width**	4' Inside, 10' Outside
Typical Inslope	4:1 Outside, 5:1 Median	**Median Type**	Depressed Grass
# & % Length of Grades	33 | 100.00 | 0 to 3%	**Climbing Lanes, Turn Lanes, etc.**	N/A
# of Horiz Curves at each DesignSpeed	4 | 80 mph	**# of Vertical Curves at each Design Speed - Crest (Sag)**	1(0) | 70 mph 16 (17) | 80 mph

I90 EBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt			
Posted Speed Limit	80 MPH	**% Passing**	N/A
# of Lanes & Width	2-12'	**Shoulder Width**	4' Inside, 10' Outside
Typical Inslope	4:1 Outside, 5:1 Median	**Median Type**	Depressed Grass
# & % Length of Grades	33 | 100.00 | 0 to 3%	**Climbing Lanes, Turn Lanes, etc.**	N/A

# of Horiz Curves at each DesignSpeed	4 — 80 mph	**# of Vertical Curves at each Design Speed - Crest (Sag)**	1(0) — 70 mph 16 (17) — 80 mph

Structures (Bridges and Box Culverts over 20')			
Structure Number	44-104-125	**MRM Number**	090 W+363.48
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 W 0.6 W US 81 INTERCH over WEST FORK VERMILLION RV		
Bridge Type & Size	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge, 0 degree skew		
Structure Capacity	HS-44.1		
Eligible for BRF Funds	Yes		
Deficiency Classification	Functionally Obsolete		

Structure Number	44-104-126	**MRM Number**	090 E+363.48
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 E 0.6 W US 81 INTERCH over WEST FORK VERMILLION RV		
Bridge Type & Size	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge, 0 degree skew		
Structure Capacity	HS-43.2		
Eligible for BRF Funds	Yes		
Deficiency Classification	Functionally Obsolete		

Structure Number	44-110-125	**MRM Number**	090+364.02
Historical	Bridge is not eligible for the National Register of Historic		

	Places
Year Built	1993
Location	US081 US 81 INTERCHANGE over I090
Bridge Type & Size	246 ft x -1 ft roadway,2 spans, Prestressed concrete continuous Stringer/Multi-beam or Girder Bridge, 0 degree skew
Structure Capacity	HS-50.5
Eligible for BRF Funds	No
Deficiency Classification	Not Deficient

Structure Number	44-130-125	**MRM Number**	090 W+366.06
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 W 2 E US 81 INTERCH over 448 AVE		
Bridge Type & Size	119 ft x 38 ft roadway,3 spans, Concrete continuous Slab Bridge, 0 degree skew		
Structure Capacity	HS-40.1		
Eligible for BRF Funds	No		
Deficiency Classification	Not Deficient		

Structure Number	44-130-126	**MRM Number**	090 E+366.06
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 E 2 E US 81 INTERCH over 448 AVE		
Bridge Type & Size	119 ft x 38 ft roadway,3 spans, Concrete continuous Slab Bridge, 0 degree skew		
Structure Capacity	HS-39.8		
Eligible for BRF Funds	No		
Deficiency Classification	Not Deficient		

Structure Number	44-150-126	MRM Number	000+0.00
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	445 AVE (FAS 6355) 4 E US 81 INTERCHANGE over I090		
Bridge Type & Size	254 ft x 30 ft roadway,4 spans, Steel continuous Stringer/Multi-beam or Girder Bridge, 0 degree skew		
Structure Capacity	HS-28.8		
Eligible for BRF Funds	No		
Deficiency Classification	Structurally Deficient		

Structure Number	44-170-126	MRM Number	090+370.04
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	447 AVE 6 E US 81 INTERCH over I090		
Bridge Type & Size	254 ft x -1 ft roadway,4 spans, Steel continuous Stringer/Multi-beam or Girder Bridge, 0 degree skew		
Structure Capacity	HS-31.1		
Eligible for BRF Funds	No		
Deficiency Classification	Not Deficient		

Structure Number	44-210-126	MRM Number	090+374.02
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	451 AVE (FAS 6149) MONTROSE INTERCHANGE over I090		
Bridge Type & Size	254 ft x -1 ft roadway,4 spans, Steel continuous Stringer/Multi-beam or Girder Bridge, 0 degree skew		
Structure Capacity	HS-35.9		
Eligible for BRF	No		

Funds	
Deficiency Classification	Not Deficient

Structure Number	44-219-125	**MRM Number**	090 W+374.95
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 W 2.1 W MINNEHAHA CO LINE over EAST FORK VERMILLION RV		
Bridge Type & Size	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge, 0 degree skew		
Structure Capacity	HS-42.9		
Eligible for BRF Funds	Yes		
Deficiency Classification	Functionally Obsolete		

Structure Number	44-219-126	**MRM Number**	090 E+374.95
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 E 2.1 W MINNEHAHA CO LINE over EAST FORK VERMILLION RV		
Bridge Type & Size	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge, 0 degree skew		
Structure Capacity	HS-48.4		
Eligible for BRF Funds	Yes		
Deficiency Classification	Functionally Obsolete		

Structure Number	44-230-125	**MRM Number**	090 W+376.03
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 W 1 W MINNEHAHA CO LINE over 453 AVE		
Bridge Type &	119 ft x 38 ft roadway,3 spans, Concrete continuous Slab Bridge, 0 degree skew		

Size	
Structure Capacity	HS-46.9
Eligible for BRF Funds	No
Deficiency Classification	Not Deficient

Structure Number	44-230-126	**MRM Number**	090 E+376.03
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964		
Location	I090 E 1 W MINNEHAHA CO LINE over 453 AVE		
Bridge Type & Size	119 ft x 38 ft roadway,3 spans, Concrete continuous Slab Bridge, 0 degree skew		
Structure Capacity	HS-42.7		
Eligible for BRF Funds	No		
Deficiency Classification	Not Deficient		

Structures Data (Box Culverts and Miscellaneous)		
Location	**Size**	**Length**
MRM 363.48 + 0.115	Twin 6'x5' RCBC	171'-6"
MRM 365.00 + 0.495	Twin 6'x6' RCBC	211'-0"
Historical	No	
Retaining Walls		
Other Structures		

Lighting	Yes
	Lighting exists at the rest area at MRM 362.09 (EBL) & MRM 362.93 (WBL). No lighting currently exists at the interchanges within the projects' limits.

Existing Signals	No

Pedestrian Flasher	No

Excluded

Needs Book Year 2016

HIGHWAY 090 W
Beginning MRM = 353.07
Ending MRM = 390.00

RURAL

HIGHWAY 090 W
Beginning MRM = 353.07
Ending MRM = 390.00

IDENTIFICATION							
Federal Aid System	NHS-IN	NHS-IN	NHS-IN	NHS-IN	NHS-IN	NHS-IN	NHS-IN
Funding Category	INT	INT	INT	INT	INT	INT	INT
Functional Classification	R-INT	R-INT	R-INT	R-INT	R-INT	R-INT	R-INT
Direction	W	W	W	W	W	W	W
Beginning MRM	353.07	362.00	366.00	366.06	369.00	377.00	390.00
MRM Displacement	0.000	0.042	0.011	0.242	0.043	0.000	0.065
Segment Length	8.955	3.947	0.289	2.742	7.922	13.072	0.341
Year Built	1966	1965	1968	1965	1965	1964	1968
Year Last Improved	2001	2010	2010	2010	2010	2010	2014
Year Last Sealed							
ROADWAY CONDITIONS							
Surface Condition Index	4.22	4.61	3.74	4.58	4.58	4.55	4.44
Roughness Index	4.85 (15)	4.88 (15)	4.35 (15)	4.86 (15)	4.89 (15)	4.84 (15)	4.25 (15)
ASPHALT INDEX VALUES							
Transverse Cracking		4.78 (15)		4.80 (15)	4.80 (15)	4.79 (15)	4.90 (15)
Fatigue Cracking		4.85 (15)		4.89 (15)	4.94 (15)	4.94 (15)	5.00 (15)
Patching/Patch Deterioration		5.00 (15)		5.00 (15)	5.00 (15)	4.90 (15)	5.00 (15)
Block Cracking		5.00 (15)		4.87 (15)	4.96 (15)	4.89 (15)	5.00 (15)
Rut Index		4.51 (15)		4.61 (15)	4.44 (15)	4.41 (15)	4.74 (15)
Rut Depth(Inches) AVG/MAX		0.10 / 0.20		0.10 / 0.20	0.20 / 0.30	0.20 / 0.50	0.10 / 0.20
CONCRETE INDEX VALUES							
D-Cracking/ASR	4.22 (15)		5.00 (15)				
Joint Spalling	4.22 (15)		3.70 (15)				
Corner Cracking	4.94 (15)		5.00 (15)				
Faulting			4.78 (15)				
Joint Seal Damage	4.42 (15)		3.70 (15)				
Punchouts	4.82 (15)		5.00 (15)				
STRUCTURAL DESCRIPTION							
Surface Type	CRCP	AGNC	TKSFD	AGNC	AGNC	AGNC	AGNC
Shouldr Type - Prim/Secondry	AC/N/D	AC/AC	PCCP/N/D	AC/AC	AC/AC	AC/AC	AC/N/D
Surf Width	26 (026)	24 (024)	24 (024)	24 (024)	24 (024)	24 (024)	24 (024)
Lf Shldr Width-Prim/Secondry	8 (08) / (0)	8 (08) / 8 (8)	10 (100) / (0)	8 (08) / 8 (8)	8 (08) / 8 (8)	8 (08) / 8 (8)	8 (08) / (0)
Rt Shldr Width-Prim/Secondry	4 (04) / (0)	4 (04) / (0)	4 (04) / (0)	4 (04) / (0)	4 (04) / (0)	4 (04) / (0)	4 (04) / (0)
Widths-RDWY/ROW-Predom/Min	038/149/149	038/149/149	038/149/149	038/149/149	038/149/149	038/149/149	038/149/149
Roadbed Layer 1	2001/CC1/10.0	2010/AS3/1.3	2010/CL/0.0	2010/AS3/1.3	2010/AS3/1.3	2010/AS3/1.3	2014/AG3/1.5
Roadbed Layer 2	1966/BU3/2.0	2003/TS3/0.4	2010/CS/0.0	2003/TS3/0.4	2003/TS3/0.4	2003/TS3/0.4	2014/AG3/2.0
Roadbed Layer 3	1966/BU8/9.0	2003/TM/0.4	1988/CD3/11.0	2003/TC/0.0	2003/TM/0.4	2003/TM/0.4	2007/CG/0.0
Roadbed Layer 4		2003/TC/0.0	1988/BU3/8.0	1997/TC/0.0	2003/TC/0.0	2003/TC/0.0	1988/CD2/11.0
Roadbed Layer 5		1997/TC/0.0		1997/AP3/1.5	1999/TC/0.0	1999/TC/0.0	1988/BU8/9.0
Roadbed Layer 6		1997/AH3/1.5		1997/AP3/2.0	1999/AH3/1.5	1999/AH3/1.5	
Roadbed Layer 7		1997/AH3/2.0		1997/CS/0.0	1999/AH3/2.0	1999/AH3/2.0	
Roadbed Layer 8		1997/CS/0.0		1962/CL/0.0	1999/CS/0.0	1999/CS/0.0	
Roadbed Layer 9		1962/CL/0.0		1962/CS/0.0	1983/CL/0.0	1983/CL/0.0	
Roadbed Layer 10		1962/CS/0.0		1965/CR3/9.0	1983/CS/0.0	1983/CS/0.0	
Roadbed Layer 11		1965/CR3/9.0		1965/BU3/3.0	1985/CR3/9.0	1964/CR3/9.0	
Roadbed Layer 12		1965/BU3/3.0		1965/BU8/9.0	1965/BU3/3.0	1964/BU3/3.0	
Number Of Structures	0	1	1	0	2	2	1
Number Of Box Culverts	0	0	0	0	0	0	0
3 YR AVG MAINTENANCE COSTS							
Mainline	$243	$230	$754	$1518	$1518	$1518	$1519
Shoulders	$55	$92	$31	$5	$5	$5	$5
Structure	$138	$54	$820	$246	$246	$246	$246
Other	$5771	$25846	$24398	$10465	$10465	$10465	$10466
Total	$6207	$26222	$26003	$12234	$12234	$12234	$12235
Tot 3yr Maint Contract Amt	$2535	$3643	$8886	$13004	$13004	$13004	$13003
TRAFFIC							
Current ADT	4817	4858	4880	4866	4922	5530	6152
Projected 20 Yr ADT	6624	6689	6720	6700	6778	8061	9095
Number Of Trucks	1046	1013	1069	1066	1067	1088	1189
CRASHES							
Weighted Crash Rate	1.10	0.90	0.37	0.89	0.73	0.76	0.74
Number of Fatal	0	0	0	0	0	0	0
Number Of Injury	4	2	0	1	3	5	1
Number Of Property Damage	40	13	2	10	22	45	2
MAINLINE IMPROVEMENTS							
Project Programmed							
PCN							
Improved Type	AC OVER PCCP	MILL AC OVLY	PAV RESTORE1	RECON PCCP	MILL AC OVLY	RECON PCCP	RECON PCCP
Estimated Improvement Cost	$4809	$1246	$32	$3430	$2490	$19036	$2226
Improvement Year	2028	2030	2020	2026	2028	2026	2033
PCN							
Improvement Type	NO DATA	ROUTE/SEAL	PCCP RESURF	NO DATA	ROUTE/SEAL	NO DATA	NO DATA
Estimated Improvement Cost	$0	$28	$509	$0	$56	$0	$0
Improvement Year	0	2032	2035	0	2030	0	0

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Summary of Design Data, Needs and Treatment Types per Scope Improvement Type

Scope Improvement Type	Yes	No
ADA		X
GRADING		X
HYDRAULIC	X	
MAINTENANCE		X
RAILROAD		X
RESEARCH		X
REST AREA/BLDG SITES		X
RESURF/SURFACING	X	
ROW	X	
ROADSIDE DEVELOPMENT	X	
SAFETY	X	
STRUCTURE	X	
TRAFFIC		X

HYDRAULIC

Hydraulic Needs	Comments/Recommendations
Water Overtop Areas or Lake Elevations	Located At: Twin 6'x6' RCBC at MRM 365.00+0.495 occasionaly clogs with ice and debris which has caused water to overtop I90, maintenance personel recall this happening in the spring of 1997 & 2010
Storm Sewer	None
Basin (Sedimentation, Retention, Detention,Storage)	None
Special Outlets	None
Pipe Capacity or Condition	**RC Pipe Treatment** / **Comments/Recommendations** Repair: Repair the RCP as indicated in the mailine culvert inventory Replace: Replace the RCP as indicated in the mailine culvert inventory **CM Pipe Treatment** / **Comments/Recommendations** Repair: Repair the CMP as indicated in the mainline culvery inventory Replace: Replace the CMP as indicated in the mainline culvert inventory
Erosion (Ditch, Channel, Stream, or River)	Erosion Protection: Repair the erosion identified in the mainline culvert inventory
Stream Relocation	None
FEMA Flood Plain	Yes: McCook County is participating in the NFIP. The East Fork of the Vermillion River is an identified and studied FEMA Zone AE.

List of applicable HYDRAULIC Treatment types based on Identified needs are as follows:

Need	Treatment Type
Pipe Condition	End Sections
Pipe Condition	Line Pipe
Pipe Condition	Replace Pipe

Summary

A mainline culvert inventory has been completed to determine the condition of all the pipes on these projects 05HP/05HQ. The mainline culvert inventory reports below provide pipe condition details at each mainline pipe and the anticipated work identified at each pipe location during the project scoping phase. The anticipated work identified in the report is for informational purposes only and should be verified during design, as field conditions may change from the time this project was scoped.

2 RCBCs, and 98 pipe locations were identified within the project limits. The twin 6'x6' RCBC at MRM 365.00+0.495 should be replaced with this project due to settlement issues. 4 RCP pipes had varying levels of misalignment and joint separation with material infiltrating in to the pipe and should be replaced. 15 CMP pipe should be replaced due to significant amount of rust observed on the portion of the pipe that was not inundated with water. 38 RCP pipe locations pipe sections should be replaced/removed and reset. 1 location the pipe should be cleaned out. 5 pipe are scheduled to be replaced with PCN 041F.

The following links contain the mainline culvert inventory reports:

file:/U:\pd\Prj\Mcck05HP\05HP%20Pipe%20Report.xls

RESURF/SURFACING

Resurfacing (3R) Needs

Location Description	2016 Traffic	2036 Traffic	Terrain	Comment
I90 EBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt	5262	7245	Rolling	

Criteria	Existing Data	Min Design Criteria	Scope and/or Comment
Speed	80 MPH	80 MPH	
Lane Width	2-12'	12'	Meets Policy Criteria ☐
Shoulder Width	4' Inside, 10' Outside	4' Inside, 10' Outside	Meets Policy Criteria ☐
Horizontal Alignment	# of Curves: 4 — Design Speed: 80 mph	Radius = 3050'	Meets Policy Criteria ☐
Vertical Alignment	# of Crests / # of Sags / Design Speed: 70 mph; 16 / 17 / 80 mph	910 ft Crest (384) Sag (231)	Meets Policy Criteria ☐
Grade	# of Grades: 33 — % Length: 100.00 — Range: 0 to 3%	4%	
Cross Slope	3/16" per Ft	2%	Meets Policy Criteria ☐
Super-elevation		6% Maximum	Meets Policy Criteria ☐
Bridge	44-104-125 = 30' 44-219-125 =		☐

Width	30' 44-104-126 = 30' 44-219-126 = 30'	38'	Design Exception Enclosed
Structural Capacity	44-104-125 (HS-44.1) 44-130-125 (HS-40.1) 44-219-125 (HS-42.9) 44-230-125 (HS-46.9) 44-104-126 (HS-43.2) 44-130-126 (HS-39.8) 44-219-126 (HS-48.4) 44-230-126 (HS-42.7)	HS-20	Meets Policy Criteria
Lateral Offset		NA	NA
Vertical Clearance		NA	NA
Guardrail	Information and locations of guardrail on these projects can be found in the following guardrail inventory reports: file:/U:\pd\Prj\Mcck05HP\05HP%20Guardrail%20Inventory.xls	review Road Design Manual	Upgrade to Policy
Clear Zone		30'	
Typical Inslope	4:1 Outside, 5:1 Median	6:1 Outside, 5:1 Median	Design Exception Enclosed
Approach Slope	Median Approaches	review Road Design Manual	Upgrade to Policy
Drainage Structures	Refer to the Hydraulic SIT.	review Road Design Manual	Meets Policy Criteria
ADA Req			NA
Mailboxes			NA
Interim Surfacing			
Shoulders	AC		
Final Surfacing	PCCP Surfacing		

Location Description	2016 Traffic	2036 Traffic	Terrain	Comment
I90 WBL - Fm 2 W of the Salem Interchange to 2 Mi W of Humboldt	5262	7245	Rolling	

Criteria	Existing Data	Min Design Criteria	Scope and/or Comment
Speed	80 MPH	80 MPH	
Lane Width	2-12'	12'	Meets Policy Criteria
Shoulder Width	4' Inside, 10' Outside	4' Inside, 10' Outside	Meets Policy Criteria
Horizontal Alignment	# of Curves: 4; Design Speed: 80 mph	Radius = 3050'	Meets Policy Criteria
Vertical Alignment	# of Crests: 16; # of Sags: 17; Design Speed: 70 mph / 80 mph	910 ft Crest (384) Sag (231)	Meets Policy Criteria
Grade	# of Grades: 33; % Length: 100.00; Range: 0 to 3%	4%	Meets Policy Criteria
Cross Slope	3/16" per Ft	2%	Meets Policy Criteria
Super-elevation		6% Maximum	Meets Policy Criteria
Bridge Width	44-104-125 = 30' 44-219-125 = 30' 44-104-126 = 30' 44-219-126 = 30'	38'	Reconstruct: structures with 30' roadway will be reconstructed with these projects

Structural Capacity	44-104-125 (HS-44.1) 44-130-125 (HS-40.1) 44-219-125 (HS-42.9) 44-230-125 (HS-46.9) 44-104-126 (HS-43.2) 44-130-126 (HS-39.8) 44-219-126 (HS-48.4) 44-230-126 (HS-42.7)	HS-20	Meets Policy Criteria
Lateral Offset		NA	NA
Vertical Clearance		NA	NA
Guardrail	Information and locations of guardrail on these projects can be found in the following guardrail inventory reports: file:/U:\pd\Prj\Mcck05HQ\05HQ%20Guardrail%20Inventory.xls	review Road Design Manual	Upgrade to Policy
Clear Zone		30'	Meets Policy Criteria
Typical Inslope	4:1 Outside, 5:1 Median	6:1 Outside, 5:1 Median	Design Exception Enclosed
Approach Slope	Median Approaches	review Road Design Manual	Upgrade to Policy
Drainage Structures	Refer to the Hydraulic SIT.	review Road Design Manual	Upgrade to Policy
ADA Req			NA
Mailboxes			NA
Interim Surfacing			
Shoulders	AC		
Final Surfacing	PCCP Surfacing		

List of applicable RESURF/SURFACING Treatment types based on Identified needs are as follows:

Need	Treatment Type

Summary

Upgrade existing guardrail to SDDOT standards.

Geotechnical subgrade work is not anticipated at this time but the Geotechnical Office will provide final recommendations for subgrade work after their field inspection.

The crossover for the East project limits (MRM 377.00+0.000), Exit 364 & 374 ramp crossovers (EB on and EB off) and mill & resurfacing of the existing crossover at MRM 362.00+0.035 will be completed in a stand alone project, PCN 06J4, prior to 05HP and 05HQ in 2019.

Preliminary Surfacing Design Recommendations:

- Salvage & stockpile mainline and shoulder material for use in the Class HR shoulder mix
- Salvage & stockpile remaining asphalt and granular mix material for use as base material
- Pavement removal
- Replace with 11 x 26 Doweled PCCP with transverse contraction joints spaced at 15
- 5 of gravel cushion
- Outside Shoulder (8) - 3 Class HR AC & Base Course
- Median Shoulder (4) - 3 Class HR AC & Base Course
- PG 58-28 Asphalt Binder

ROW	
ROW Needs	**Comments/Recommendations**
Acquisition	
Parcels Impacted	
Displacement / Relocation	NA
Type(s) of ROW necessary	Temporary: Construction easements may be needed for access to some repair/replacement locations

List of applicable ROW Treatment types based on Identified needs are as follows:	
Need	**Treatment Type**

Summary

It looks as though there is adequate ROW at RCBC and pipe repair/replacement locations although there may be temporary easements needed for access to some of these locations.

ROADSIDE DEVELOPMENT	
List of applicable ROADSIDE DEVELOPMENT Treatment types based on Identified needs are as follows:	
Need	**Treatment Type**
Erosion Control	Typical Erosion Control (seed, fertilizer, etc.)
Summary Provide typical erosion control measures for this project.	

SAFETY	
Safety Needs	**Comments/Recommendations**
Lighting	Retain Existing: Retain existing lighting at the rest area

List of applicable SAFETY Treatment types based on Identified needs are as follows:	
Need	**Treatment Type**
Pavement Marking	Pavement Marking (paint, epoxy, tape, durable)
Signs	Sign
Rumble Strips	Shoulder Rumble Strips/Stripes

Summary

Shoulder rumble strips shall be added for the entire length of the project.

Provide permanent pavement marking paint for the entire length of the project. All traffic control signing on this segment shall be posted according to the current MUTCD.

STRUCTURE			
Structure Needs	**Comments/Recommendations**		
Structure Number	44-104-125	**MRM Number**	363.48
Location	I090 W 0.6 W US 81 INTERCH over WEST FORK VERMILLION RV		
Disposition of Existing Structures	Remove/Replace		Structure has an 30' roadway width and is scour critical, replace structure
Structure Location	Drainage Crossing		over West Fork Vermillion River
Vertical Clearance	NA		
Horizontal Clearance	Replace Structure and Provide Clearance		
Size of Structure	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge		
Sidewalk / Bike path	None		
Skew	0 degree skew		
Horizontal Curve	No		
Bridge Rail	NA		
Erosion Protection			
Utilities on Structure	No		

Structure Needs	**Comments/Recommendations**		
Structure Number	44-104-126	**MRM Number**	363.48
Location	I090 E 0.6 W US 81 INTERCH over WEST FORK VERMILLION RV		
Disposition of Existing Structures	Remove/Replace		Structure has an 30' roadway width and is scour critical, replace structure
Structure			

Location	Drainage Crossing	over West Fork Vermillion River
Vertical Clearance	NA	
Horizontal Clearance	Replace Structure and Provide Clearance	
Size of Structure	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge	
Sidewalk / Bike path	None	
Skew	0 degree skew	
Horizontal Curve	No	
Bridge Rail	NA	
Erosion Protection		
Utilities on Structure	No	

Structure Needs	**Comments/Recommendations**		
Structure Number	44-219-125	**MRM Number**	374.95
Location	I090 W 2.1 W MINNEHAHA CO LINE over EAST FORK VERMILLION RV		
Disposition of Existing Structures	Remove/Replace	Structure has an 30' roadway width, replace structure	
Structure Location	Drainage Crossing	over East Fork Vermillion River	
Vertical Clearance	NA		
Horizontal Clearance	Replace Structure and Provide Clearance		
Size of Structure	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge		

Sidewalk / Bike path	None
Skew	0 degree skew
Horizontal Curve	No
Bridge Rail	
Erosion Protection	
Utilities on Structure	No

Structure Needs	**Comments/Recommendations**		
Structure Number	44-219-126	**MRM Number**	374.95
Location	I090 E 2.1 W MINNEHAHA CO LINE over EAST FORK VERMILLION RV		
Disposition of Existing Structures	Remove/Replace	Structure has an 30' roadway width, replace structure	
Structure Location	Drainage Crossing	over East Fork Vermillion River	
Vertical Clearance	NA		
Horizontal Clearance	Replace Structure and Provide Clearance		
Size of Structure	151.5 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge		
Sidewalk / Bike path	None		
Skew	0 degree skew		
Horizontal Curve	No		
Bridge Rail	NA		
Erosion Protection			

Utilities on Structure	No

Structure Needs	**Comments/Recommendations**		
Structure Number	44-130-125	**MRM Number**	0.00
Location	I090 W 2 E US 81 INTERCH over 448 AVE		
Disposition of Existing Structures	Retain/Rehabilitate	LSDC overlay	
Structure Location	Over Roadway	over 448 Ave	
Vertical Clearance	NA		
Horizontal Clearance	Provide Design Exception	38' roadway, design exception enclosed	
Size of Structure	119 ft x -1 ft roadway,3 spans, Concrete continuous Slab Bridge		
Sidewalk / Bike path	None		
Skew	0 degree skew		
Horizontal Curve	No		
Bridge Rail			
Erosion Protection			
Utilities on Structure	No		

Structure Needs	**Comments/Recommendations**		
Structure Number	44-130-126	**MRM Number**	366.06
Location	I090 E 2 E US 81 INTERCH over 448 AVE		
Disposition of Existing Structures	Retain/Rehabilitate	LSDC overlay	
Structure	Over Roadway	over 448 Ave	

Location		
Vertical Clearance	NA	
Horizontal Clearance	Provide Design Exception	38' roadway, design exception enclosed
Size of Structure	119 ft x 38 ft roadway,3 spans, Concrete continuous Slab Bridge	
Sidewalk / Bike path	None	
Skew	0 degree skew	
Horizontal Curve	No	
Bridge Rail		
Erosion Protection		
Utilities on Structure	No	

Structure Needs	**Comments/Recommendations**		
Structure Number	44-230-125	**MRM Number**	0.00
Location	I090 W 1 W MINNEHAHA CO LINE over 453 AVE		
Disposition of Existing Structures	Retain/Rehabilitate	Epoxy chip seal	
Structure Location	Over Roadway	over 453 Ave	
Vertical Clearance	NA		
Horizontal Clearance	Provide Design Exception	38' roadway design exception enclosed	
Size of Structure	119 ft x -1 ft roadway,3 spans, Concrete continuous Slab Bridge		
Sidewalk / Bike path	None		
Skew	0 degree skew		

Horizontal Curve	No
Bridge Rail	
Erosion Protection	
Utilities on Structure	No

Structure Needs	**Comments/Recommendations**		
Structure Number	44-230-126	**MRM Number**	376.03
Location	I090 E 1 W MINNEHAHA CO LINE over 453 AVE		
Disposition of Existing Structures	Retain/Rehabilitate	Epoxy chip seal	
Structure Location	Over Roadway	over 453 Ave	
Vertical Clearance	NA		
Horizontal Clearance	Provide Design Exception	38' roadway design exception enslosed	
Size of Structure	119 ft x 38 ft roadway,3 spans, Concrete continuous Slab Bridge		
Sidewalk / Bike path	None		
Skew	0 degree skew		
Horizontal Curve	No		
Bridge Rail			
Erosion Protection			
Utilities on Structure	No		

Retaining Walls	

and Miscellaneous	
Other Structures	

List of applicable STRUCTURE Treatment types based on Identified needs are as follows:	
Need	**Treatment Type**
Bridge	Deck Overlay (LSDC)
Bridge	Replace Bridge
Bridge	Epoxy Deck Seal (Epoxy Chip)
Culvert <= 20' (including cattle pass)	Replace Culvert

Summary

Structures 44-104-125/126 only have a 30' roadway width and are Scour Critical and 44-219-125/126 have a 30' roadway width; all four structures will be replaced with this project.

Structures 44-230-125/126 will have an epoxy chip seal applied with these projects.

Structures 44-130-125/126 will have a low slump dense concrete overlay applied with these projects.

The twin 6'x6' RCBC located at MRM 365.00 + 0.495 has 2 sections of the culvert that are settling which is causing material to infiltrate into the culvert. In addition, during the spring the culvert has plugged with ice and debris (1997 & 2010) causing water to over top the Interstate. This RCBC should be replaced in conjunction with these projects.

MRM 363 - West Vermillion River Structures EB/WB

44-104-125/126

Built in 1964

1984 LSDC Overlay, with 6.5% deck delams

Scheduled for LSDC Overlay 2020, PCN 04W3

Scheduled for scour countermeasures 2018, PCN 04XN

Only 30 ft roadway & Scour Critical

If we do the above planned work - I would expect wed keep this structure going until 2035-2040 time frame.

MRM 364 - Salem Exit Overhead Structure

44-110-125

MRM 366 - I-90 Structures over County Road 443 EB/WB

44-130-125/126

Built in 1964

1984 LSDC Overlay, with 1% deck delams

Scheduled for LSDC Overlay 2020, PCN 04W3

If we do the above planned work - I would expect wed keep this structure going until 2035-2040 time frame.

MRM 368 - Canistota Exit Overhead Structure

44-150-126

Built in 1964

2009 Membrane and AC Overlay Placed

Scheduled for a Deck Replacement, Approach Slabs, Rehab Abutments and Painting in 2019 - PCN 04DQ

Wed expect to get another 30-40 years life following PCN 04DQ

MRM 370 - County Road 447 Structure over I-90

44-170-126

Built in 1964

No work currently scheduled

Deck is a 4.

We would either look at letting this structure die or do a Deck Replacement similar to PCN 04DQ. Might take some time to investigate which option would be best financial choice and confirm super and substructures are in good shape.

If we didnt do anything, Id hope we could keep this deck going thru 2025.

If we did a deck replacement, wed expect another 30-40 years following that project

MRM 374 - Montrose Exit Overhead Structure

44-210-126

Built in 1964

1999 LSDC Overlay placed

No work currently scheduled

Would anticipate life through 2030 if we dont do any additional work.

MRM 375 - East Vermillion River Structures EB/WB

44-219-125/126

Built in 1964

1984 LSDC Overlay, 1999 LSDC Overlay, with 10% delams

No work currently planned or scheduled in current STIP

Only 30 ft roadway & Scour Critical

If we dont schedule any work - I would expect wed keep this structure going until the 2025 or longer time frame

MRM 376 - I-90 Structures over County Road 453 EB/WB

44-230-125/126

Built in 1964

1984 LSDC Overlay, 1999 LSDC Overlay,

No work currently planned or scheduled in current STIP

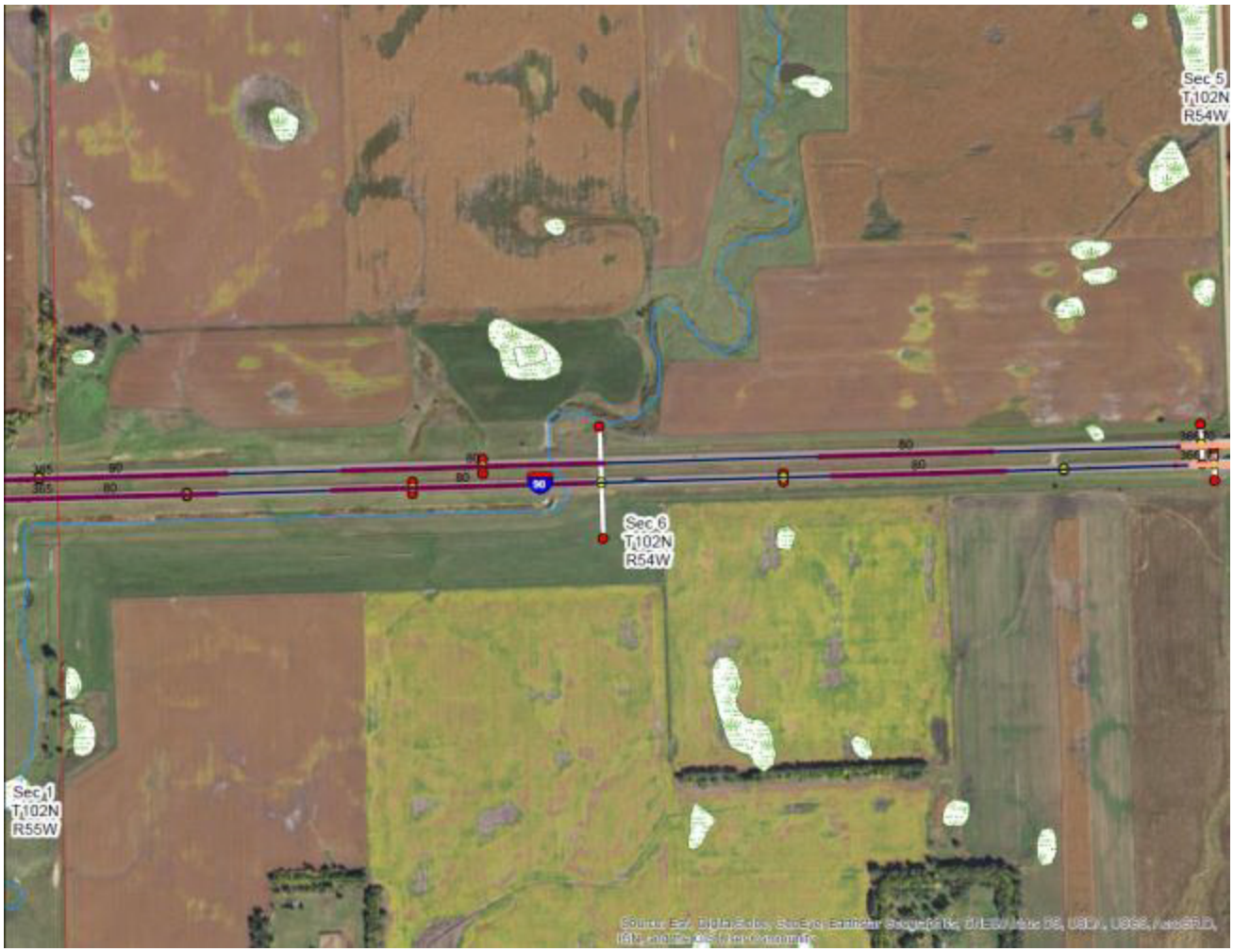
If we dont schedule any work - I would expect wed keep this structure going until the 2025 or longer time frame

Appendix


Begin Projects
Sec 3
T 102N
R55W
Sec 2
T 102N
R55W
Sec 4
T 102N
R55W
Waterfowl Production Area


Sec 2
T102N
R55W
90
81
West Fork Vermillion River


81
90
Sec 1
T102N
R55W


Sec_5
T102N
R54W
Sec_6
T102N
R54W
Sec_1
T102N
R55W
90
80


Sec 4
T 102N
R54W
Sec 6
T 102N
R54W
Sec 5
T 102N
R54W
90
80
36780


Sec 5
T102N
R54W
Sec 4
T102N
R54W
90


44150126
80
80
90
Sec 4
T 102N
R54W
Sec 3
T 102N
R54W


Sec 2
T,102N
R54W
Sec 3
T,102N
R54W
90


Sec 6
T 102N
R53W
Sec 2
T 102N
R54W
Sec 1
T 102N
R54W
90


Sec 5
T 102N
R53W
Sec 6
T 102N
R53W
Sec 1
T 102N
R54W
90


Sec 6
T102N
R53W
Sec 5
T102N
R53W
90


Sec 4
T102N
R53W
90


East Fork Vermillion River
Sec 4
T 102N
R53W
Sec 3
T 102N
R53W
90

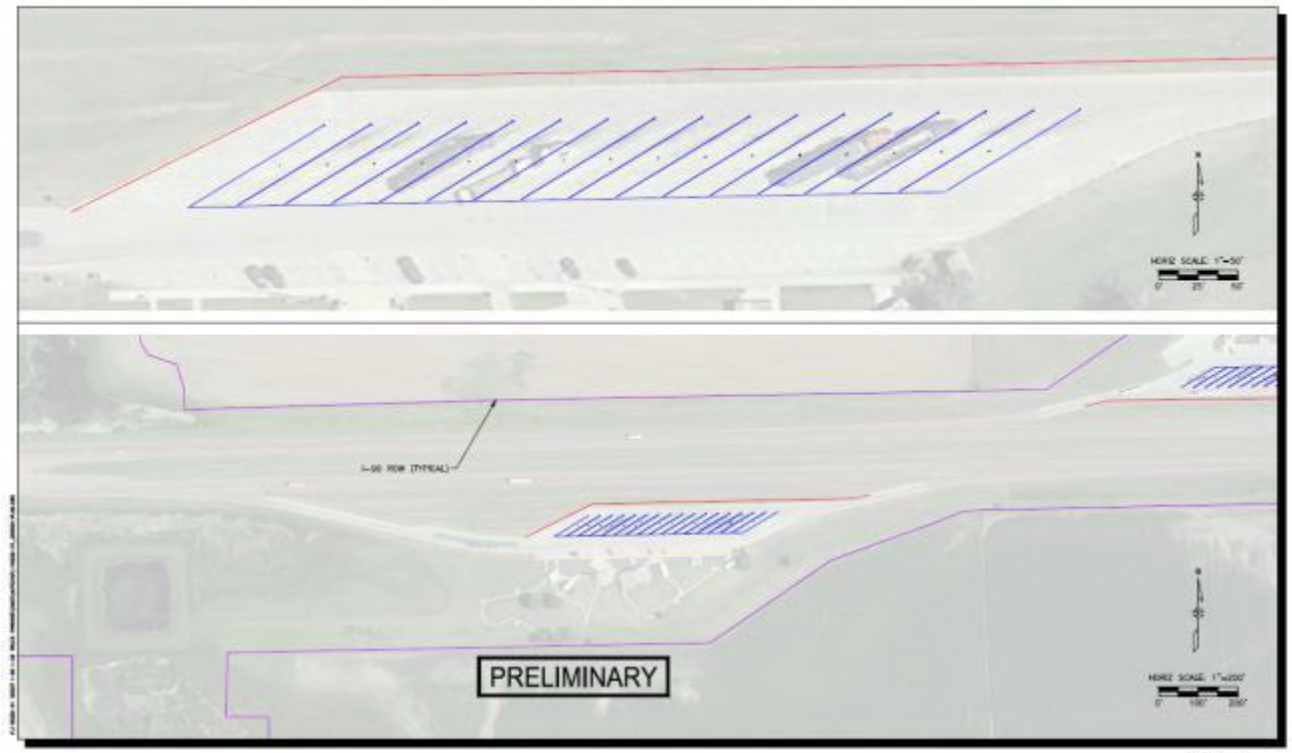

Sec 1
T 102N
R53W
Sec 2
T 102N
R53W
Sec 3
T 102N
R53W
90


End Projects
Sec 1
T 102N
R53W
90

FELSBURG HOLT & ULLEVIG

SOUTH DAKOTA TRUCK PARKING

I-90 EASTBOUND - SALEM REST AREA - TRUCK LAYOUT



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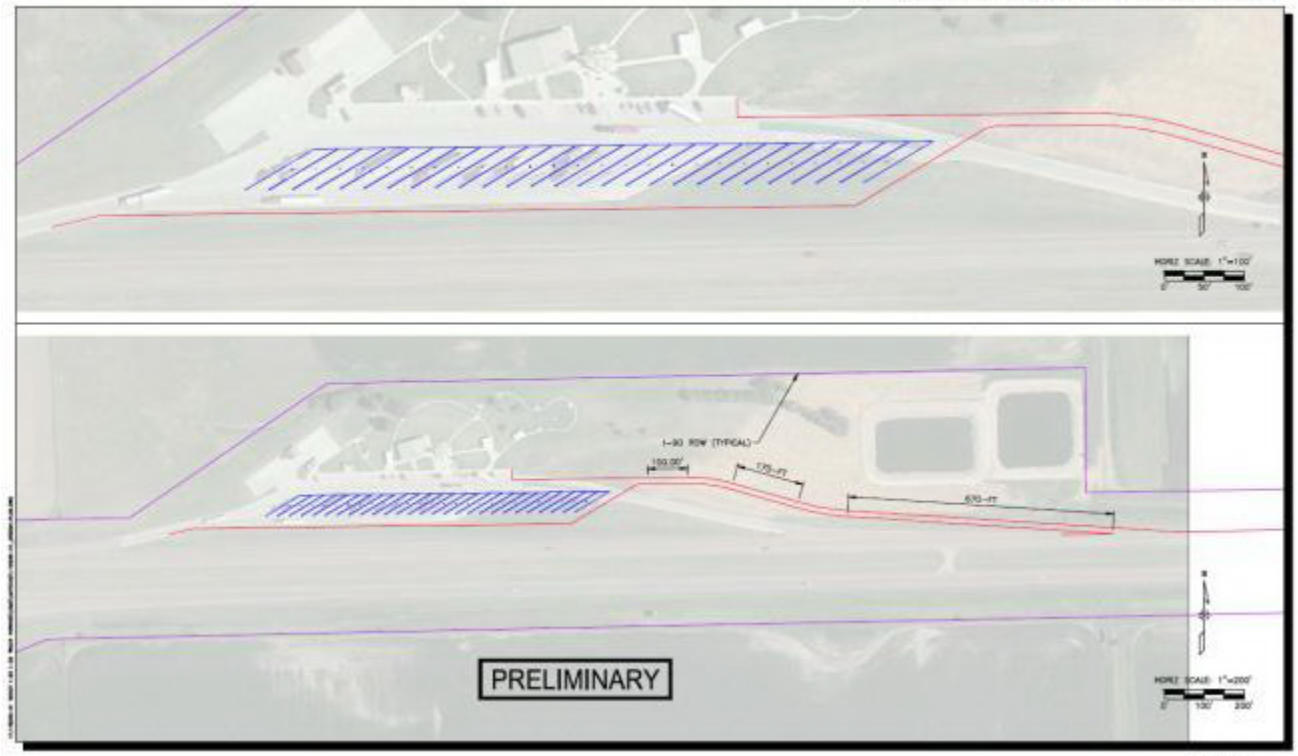
FELSBURG HOLT & ULLEVIG

SOUTH DAKOTA TRUCK PARKING

I-90 WESTBOUND - SALEM REST AREA - TRUCK LAYOUT



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South Dakota Department of Transportation
Request for Design Exception

IM-FP 0908(95)362 McCook **PCN 05HP**
I90 EBL - Fm 2 W of the Salem Interchange to 2 W of Humboldt; I90 Strs - 0.6 W of the US81 Interchange Over W Fork of the Vermillion River; I90 Strs - 2 E of the US81 Interchange Over 443 Ave; I90 Str - 2.1 W of the Minnehaha Co Line Over the E Fork of the Vermillion River; I90 Str - 1 W of the Minnehaha Co Line Over 453 Ave
Remove & Replace PCC, Pipe Work, Replace Str & Approach Grading, Deck Overlay, Approach Slabs, Polymer Chip Seal

IM 0908(97)362 McCook **PCN 05HQ**
I90 WBL - Fm 2 W of the Salem Interchange to 2 W of Humboldt; I90 Str - 0.6 W of the US81 Interchange Over the W Fork of the Vermillion River; I90 Str - 2 E of the US81 Interchange Over 443 Ave
Remove & Replace PCC, Pipe Work, Replace Str Bridge, Approach Grading, Deck Overlay, Approach Slabs, Polymer Chip Seal

Project Description
Remove and Replace PCCP
Description of Exception
Structure Width
Degree Standard is Being Reduced
New construction standards dictate 40' structure width on Interstate structures, whereas the associated structures are 30' and 38' in width. Structures with 30' roadway will be replaced with these projects
Mitigation Measures Considered / To Be provided
None

Traffic Data					
Current Total ADT	5262	**Current ADT Year**	2016	**D**	53
Future Total ADT	7245	**Future ADT Year**	2036	**Current Directional ADT**	2789
Posted Speed	80 MPH	**Proposed Design Speed**	80 MPH	**% Trucks**	20.5

Safety					
Functional Classification	(1) Interstate			**Fatal**	0

Category	Interstate	**Urban or Rural**	RURAL	**Injuries**	11
Statewide Accident Rate - This Class	0.90	**Accident Rate for this Section of Roadway**	0.87	**PDO**	77

Controlling Criteria			
Type	**Criteria**	**Existing**	**Proposed**
Bridge	40'	44-104-125 = 30'	Replace
Bridge	40'	44-104-126 = 30'	Replace
Bridge	40'	44-130-125 = 38'	No change to existing
Bridge	40'	44-130-126 = 38'	No change to existing
Bridge	40'	44-219-125 = 30'	Replace
Bridge	40'	44-219-126 = 30'	Replace
Bridge	40'	44-230-125 = 38'	No change to existing
Bridge	40'	44-230-126 = 38'	No change to existing

Adjoining Section Geometrics					
Traffic Lane Width	2-12'	**Shoulder Width**	4' Inside, 10' Outside	**R/W Width**	190'/149'
Vertical Clearance	NA	**Lateral Offset**	30'	**Cross Slope**	2%

Cost Data			
Project Cost as Proposed	$52.546 M	**Project Cost Full AASHTO Standards**	$55.008 M

Justification	Structures 44-130-125, 44-130-126, 44-230-125, & 44-230-126 all are 38' in width in lieu of the 40' required by new construction standards. All structures have significant service life left, and are not in need of replacement. The width of the existing structures match the approaching and exiting roadway. The AASHTO Interstate guidelines mandate a minimum of 37.5' structure width, which is met by all the structures listed. Structures 44-104-125, 44-104-126, 44-219-125 & 44-219-126 all are 30' in width in lieu of the 40' required by new construction standards. These structures will be replaced with these projects It would not be cost effective to widen or replace the structures as the associated cost would be approximately $2.5M.

Environmental Impact:*	Environmental impacts not anticipated at any of the 4 sites if the structures were replaced.

Approval	
Mark Leiferman	Date: 5/31/2018
Steve Johnson	Date: 5/25/2018
_____ FHWA Operations Engineer **	
* FHWA Environmental Impacts Review needed for all NHS & Interstate Projects	
** FHWA exception only needed for non-exempt NHS construction/reconstruction projects on the 13 controlling criteria	