Approved Scope

FROM: Brandon Soulek

Date: 2/19/2021

Re:

IM 0908(99)377 McCook, Minnehaha **PCN 05T2**
I90 EBL - Fm 2 Mi W of Humboldt to 2 Mi E of Hartford; I90 - Str Over I90 at 459th Ave 4 mi W of Hartford
Remove and Replace PCCP Surfacing; Deck Replacement, Approach Slabs, Rehab Abutments and Bridge Painting

IM-FP 0909(90)377 McCook, Minnehaha **PCN 05T3**
I90 WBL - Fm 2 Mi W of Humboldt to 2 Mi E of Hartford; I90 WBL - Exit 379 (Humbolt)
Remove and Replace PCCP Surfacing; Replace Str, Approach Grading, Surfacing, Correct Clearance Deficiency

IM 0909(89)379 Minnehaha **PCN 06G5**
I90 - Fm W of Humboldt to Near Hartford
Construct Crossovers, Ramp Crossovers, Ramp Detours

CC:

Earl Berg - Administration
Bridget Carnahan - Administration
Joanne Hight - Administration
Steve Johnson - Bridge Design
Dave Madden - Bridge Design
Kevin Marton - Bridge Design
Todd Thompson - Bridge Design
Travor Diegel - Materials & Surfacing
Joe Feller - Materials & Surfacing
Tanner Fitzke - Materials & Surfacing
Kevin Griese - Materials & Surfacing
Jay Peppel - Mitchell Area
Steve Weisz - Mitchell Area
Jeff Gustafson - Mitchell Region
Scott Jansen - Mitchell Region
Jay Larson - Mitchell Region
Monte Rice - Mitchell Region
Craig Smith - Mitchell Region
Mark Reiss - Planning & Programs
Levi Briggs - Project Development
Phillip Clements - Project Development
Steve Gramm - Project Development
Kathryn Johnson - Project Development
Mark Leiferman - Project Development
Mark Malone - Project Development
Brace Prouty - Project Development
Andy Vandel - Project Development
Joel Gengler - Right of Way
Cary Cleland - Roadway Design
John Less - Roadway Design
Kyle McKeever - Roadway Design
Scott Rabern - Roadway Design
Kelly VanDeWiele - Roadway Design
Greg Aalberg - Sioux Falls Area
Travis Dressen - Sioux Falls Area

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IM 0909(89)379 Minnehaha **PCN 06G5**
I90 - Fm W of Humboldt to Near Hartford
Construct Crossovers, Ramp Crossovers, Ramp Detours

Executive Summary of Project Approved Scope

The projects 05T2 and 05T3 include removing and replacing PCC surfacing, structure replacement and approach grading, bridge deck replacement, approach slab replacements, rehabbing abutments, bridge painting, and correcting clearance deficiency. The projects include both the east and west bound lanes from near the McCook/Minnehaha County line to just west of Exit 390 (MRM 377+0.000 to 390+0.065).

Project 06G5 is scheduled a year in advance to the first of these projects. 06G5 will construct ramp median crossovers for exits 379 (Humboldt) and 387 (Hartford), a median crossover at MRM 390.00 + 0.065 (End of Projects) and AC surfacing of the crossovers. Exits 379 and 387 will remain open to traffic throughout construction of 05T2 and 05T3. Layouts showing the crossover locations are included in the Appendix.

05T2 and 05T3 include structure replacements and approach grading for two pairs of twin bridges, 50-020-141/142 and 50-114-165/166. Project 05T2 includes the crossover structure 50-050-164 at 459th Ave that will have a deck replacement, structure painting, abutment repair, approach slab replacements, and upgrading guardrail and endblocks to current standards. This guardrail work was left out of 2021 project 04NK so it could be upgraded with 05T2.

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. Inslopes should be brought to a uniform slope from the edge of the shoulder to the clear zone of 4:1 or flatter.

Guardrail is to be updated to SDDOT standards. Guardrail Inventory:

East Bound: file:/U:\pd\Prj\Minn05T2&05T3\05T2%20Guardrail%20Inventory.xls

West Bound: file:/U:\pd\Prj\Minn05T2&05T3\05T3%20Guardrail%20Inventory.xls

A pipe spreadsheet has been created using the old plans and the mainline culvert inventory. The pipe inventory spreadsheet with repair recommendations can be found here: file:/U:\pd\Prj\Minn05T2&05T3\05T2%2005T3%20Pipe%20Sheet.xlsx. The details included in the pipe spreadsheet are for informational purposes only and should be verified during design, as field conditions may have changed from the time this project was scoped. Pipe work currently includes 16 full pipe replacements, 32 flared end replacements, 18 pipe section replacements, 3 pipe cleanout locations and 7 locations that need further inspection when conditions are drier.

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 Transportation Planning Engineer 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						Minnehaha
090 E						Minnehaha
090 E	377.00	0.000	390.00	0.065	13.068	McCook, Minnehaha
090 E	383.46					Minnehaha
090 W						Minnehaha
090 W	377.00	0.000	390.00	0.065	13.079	McCook, Minnehaha
090 W	379.66					Minnehaha
090 W	383.46					Minnehaha

Fund Source Summary

PCN	FY	Cost	STIP Category
05T2	2024	28.469	IntMaint
05T3	2022	27.524	IntMaint
06G5	2021	0.912	IntMaint

Preferred Letting Date: Unknown

COORDINATORS:

Scope Coordinator - Brandon Soulek

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.

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		

SURVEY NEEDS	
Type	**Description**
Drainage	Structures 50-114-165/166 over a creek are to be replaced. DA > 1000 acres.
Reconstruction	
Resurfacing	
Wetlands Survey	

BenchMark	**Harn Point**

CONSTRUCTABILITY NEEDS

Type	Description
Crossover	
Head-to-Head Traffic	
Lane Closure/Shifts	
Ramp Detour	Exits 379 and 387

06G5: Lanes/shoulders may be closed at times for construction of crossovers. Interstate traffic to be carried head-to-head.

Crossovers needed for 05T3 and 05T2 will be constructed prior with project 06G5. More information about these locations can be found in the Appendix.

Crossover structure 50-030-149 at 457th Ave can use lane closures for the deck and approach slab work to carry traffic over the structure during construction.

Approval

Office	Approved	Office	Approved	Office	Approved
Administration	Yes	Bridge Design	Yes	Materials & Surfacing	Yes
Mitchell Area	Yes	Mitchell Region	Yes	Roadway Design	Yes
				Sioux Falls Area	Yes

Confirmation of Approval

		Date Approved	

BACKGROUND INFORMATION

1965 Grading and Structure Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/50019.pdf

1965 Surfacing Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/50020.pdf

1965 Signing and Delineation Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/50021.pdf

1970 Guiderail Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/50022.pdf

1971 Sign Modification Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/50032.pdf

1977 Sign Modification Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/44312.pdf

1987 Installation of Logo and Other Informational Signs Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/08338.pdf

1989 Interchange Ramps and Crossroads AC Resurfacing Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/1159.pdf

1990 Structure Repair Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/1239.pdf

1991 Concrete Pavement Dip Repair Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/3447.pdf

1991 Signing Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/3445.pdf

1992 Guard Rail and Pipe Modifications Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/08335.pdf

1995 Concrete Pavement Repair Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/428S.pdf

1999 Pavement Repair, Barrier Modification, Deck Overlays, Approach Slabs & Guardrail Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/3481.pdf

2006 Median Crossovers Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/011J.pdf

2010 Joint and Spall Repair Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/01QM.pdf

2010 Culvert Extension and Inslope Flattening:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/02KC.pdf

2014 Pavement Repair Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/I38X.pdf

2014 Bridge Deck Epoxy Chip Seal, Joint Modification, and Bridge Repair Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/01SF.pdf

2017 Bridge Hit Repair, Heat Straightening Plans:

http://intapps.sd.gov/HZ11MicrofilmProjectCatalog/microfilmdocs/Plans/I4GJ.pdf

Projects In Area

Fiscal Year	Status	PCN	Project #	Location	Improvement Desc
2021	Awarded	04NL	IM 0291(127)0	I29 - Mitchell Region	Modify Crossroads
2021	Awarded	06G5	IM 0909(89)379	I90 - Fm W of Humboldt to Near Hartford	Construct Crossovers, Ramp Crossovers, Ramp Detours
2021	Awarded	06XW	IM 0909(93)380	I90 - Sioux Falls Area	Modify Crossroads
2021	Cancelled	06J2	IM 0908(98)363	I90 EBL - 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
2021	Programmed	04NK	IM 0905(104)251	I90 - Mitchell Area	Modify Crossroads
2021	Programmed	05C6	NH 0042(63)371	SD42 - Fm Six Mile Rd to Willow Run Ent in Sioux Falls	Grading, Storm Sewer, Curb and Gutter, PCC Surfacing, ROW, Signals and Lighting

2021	Programmed	05HQ	IM 0908(97) 362	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
2022	Programmed	05T3	IM-FP 0909 (90)377	I90 WBL - Fm 2 W of Humboldt to 2 E of Hartford; I90 WBL - Exit 379 (Humbolt); I90 Str - 0.4 W of Exit 390 (SD38) Over a Creek	Remove & Replace PCC Surfacing, Replace Str Bridge, Approach Grading, Correct Clearance Deficiency, Spot Grading, Pipe Work
2022	Programmed	065D	IM 0909(91) 394	I90 - 470th Ave Str over I90, 2.1 W of I29	LSDC Overlay, Approach Guardrail
2022	Programmed	06J6	NH 0081 (110)61	US81 - Fm SD38 to the McCook/ Miner Co Line	Mill, AC Resurfacing, Pipe Work
2022	Programmed	06VQ	IM 0293(112) 76	I29 - SBL Fm 57th St to 49th St in Sioux Falls	Remove Riprap, Modify Drainage, Pipe Work
2023	Programmed	05UR	P 0038(46) 332	SD38 - Fm US81 to SD19	Mill, AC Resurfacing, Pipe Work
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	Cancelled	06JN	IM 0909( ) 386	I90 Corridor	ITS Improvements
2025	Programmed	06G8	IM 0909(92) 387	I90 - Exit 387 (Hartford)	Preliminary Engineering
2026	Programmed	06D9	P 0038(50) 304	SD38 - Fm E of the SD38P Jct to the Hanson/McCook Co Line	Mill, AC Resurfacing, AC Surfacing
2027	Programmed	069K	P-PH 0019 (48)65	SD19 - Fm the E SD42 Jct to the W SD38 Jct	Grading, Interim Surfacing
2028	Programmed	06DY	P 0019( )65	SD19 - Fm the E SD42 Jct to the W SD38 Jct	AC Surfacing
2099	Programmed	04J4	PH 000S (343)	Jct of SD19/SD38	Rural Intersection Conflict Warning System (RICWS)
2099	Programmed	067T	P 0042(76) 355	SD42 - Intersection of 463rd Ave (Wall Lake); SD42 - Intersection of Co. HWY 145	ROW

Traffic Data
WCL to Exit 379 (Humboldt)

2017 ADT	5559	**d:**	0.0%
2037 ADT	7655	T DHV:	10.8%
DHV:	1064	T ADT:	23.8%
Counts for 1 direction only			

Exit 379 to Exit 387 (Hartford			
2017 ADT	6485	**d:**	0.0%
2037 ADT	9572	T DHV:	9.2%
DHV:	1331	T ADT:	20.3%
Counts for 1 direction only			

Exit 387 to Exit 390			
2017 ADT	6929	**d:**	0.0%
2037 ADT	10227	T DHV:	8.2%
DHV:	1422	T ADT:	18.1%
Counts for 1 direction only			

Future Development Proposed Development described below

Consistant development of the expanding Sioux Falls area is expected to impact the communities of Hartford and Humboldt.

Crash Data

Period from 2013 to 2017

East Bound	
Weighted Accident Rate	1.00
Number of Fatal	0
Number of Injury:	19
Number of Property Damage:	95

West Bound	
Weighted Accident Rate	0.89
Number of Fatal	0
Number of Injury:	12
Number of Property Damage:	100

East Bound Injury Crashes:

- 6 Winter weather related run off road right (1300662, 1303511, 1401472, 1600606, 1703394, 1715943)
- 3 Winter weather related run off road left (1517987, 1600607, 1601750)
- 4 Rear end (1305175, 1311368, 1610073, 1718382)
- 1 Winter weather related strike right bridge rail (1601925)
- 1 Wheel breaks off, enters the west bound lanes and is struck by a car (1407163)
- 1 Run off the road to the left, overcorrects and strikes car in right lane (1410052)
- 1 Run off the road to the left (1711205)
- 1 Motorcylce hit a deer (1606106)
- 1 DUI run off the road right (1610251)

West Bound Injury Crashes:

- 1 Winter weather related run off the road to the right (1600796)
- 4 Winter weather related run off the road to the left (1315596, 1517836, 1600953, 1601769)
- 2 Rear end (1406604, 1705275)
- 1 Winter weather related rear end (1717327)
- 1 Winter weather lose of control and crashed into another vehicle (1501352)
- 1 Run off the road to the right (1506066)
- 2 Lane change sideswipe (1510272, 1708830)

The safety office looked into the I90 EB & WB structures at the interchange near Humboldt after a fatal crash occurred at each late in 2018. High Friction Surface Treatment was considered to be applied to these structures. Due to the short life left on these structures, a previous lack of crash history, and a conversation with the maintenance foreman for this location indicating these structures do not ice up more or have a rougher ride than many other structures in the area, it was ultimately decided to do nothing.

Roadway			
05T2 East Bound			
Posted Speed Limit	80 MPH	**% Passing**	100
# of Lanes &			

Width	2-12'	**Shoulder Width**	4' inside, 10' outside
Typical Inslope	4:1 Outside 5:1 Median	**Median Type**	mowed ditch
# & % Length of Grades	40 | 100.00 | 0 to 3%	**Climbing Lanes, Turn Lanes, etc.**	N/A
# of Horiz Curves at each DesignSpeed	5 | 80 mph	**# of Vertical Curves at each Design Speed - Crest (Sag)**	21 (20) | 80 mph

05T3 West Bound			
Posted Speed Limit	80 MPH	**% Passing**	100
# of Lanes & Width	2-12'	**Shoulder Width**	4' inside,10' outside
Typical Inslope	4:1 Outside 5:1 Median	**Median Type**	mowed ditch
# & % Length of Grades	25 | 100.00 | 0 to 3%	**Climbing Lanes, Turn Lanes, etc.**	N/A
# of Horiz Curves at each DesignSpeed	3 | 80 mph	**# of Vertical Curves at each Design Speed - Crest (Sag)**	12 (13) | 80 mph

Structures (Bridges and Box Culverts over 20')			
Structure Number	50-020-141	**MRM Number**	090 W+379.66
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1964 Rebuilt 1987		
Location	I090 W SD 19 INTERCHANGE over SD019		
Bridge Type & Size	189.2 ft x 32 ft roadway,3 spans, Steel continuous Stringer/Multi-beam or Girder Bridge, 45 degree R skew		
Structure Capacity	HS-23.4		
Eligible for BRF Funds	Yes		
Deficiency Classification	Functionally Obsolete		

Structure Number	50-020-142	**MRM Number**	090 E+379.66

Historical	Bridge is not eligible for the National Register of Historic Places
Year Built	1964 Rebuilt 1987
Location	I090 E SD 19 INTERCHANGE over SD019
Bridge Type & Size	189.2 ft x -1 ft roadway,3 spans, Steel continuous Stringer/Multi-beam or Girder Bridge, 45 degree R skew
Structure Capacity	HS-34.0
Eligible for BRF Funds	No
Deficiency Classification	Functionally Obsolete

Structure Number	50-030-149	**MRM Number**	090+380.93
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1963		
Location	457 AVE 1.2 E SD 19 INTERCH over I090		
Bridge Type & Size	295.9 ft x 28 ft roadway,4 spans, Steel continuous Stringer/Multi-beam or Girder Bridge, 40 degree L skew		
Structure Capacity	HS-36.7		
Eligible for BRF Funds	No		
Deficiency Classification	Not Deficient		

Structure Number	50-050-164	**MRM Number**	090+383.46
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1963		
Location	459 AVE 3.8 E SD 19 INTERCH over I090		
Bridge Type & Size	248.2 ft x -1 ft roadway,4 spans, Steel continuous Stringer/Multi-beam or Girder Bridge, 20 degree L skew		
Structure Capacity	HS-32.6		
Eligible for BRF Funds	No		
Deficiency	Not Deficient		

Classification	

Structure Number	50-070-165	**MRM Number**	090+385.45
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1963		
Location	461 AVE 4.8 W SD 38 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-35.6		
Eligible for BRF Funds	No		
Deficiency Classification	Not Deficient		

Structure Number	50-090-165	**MRM Number**	090+0.00
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1963		
Location	463 AVE (FAS 6353) 2.8 W SD 38 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-31.9		
Eligible for BRF Funds	No		
Deficiency Classification	Not Deficient		

Structure Number	50-114-165	**MRM Number**	090 W+389.89
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1962		
Location	I090 W 0.4 W SD 38 INTERCH over CK		
Bridge Type & Size	163.3 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge, 30 degree L skew		
Structure	HS-33.7		

Capacity	
Eligible for BRF Funds	Yes
Deficiency Classification	Functionally Obsolete

Structure Number	50-114-166	**MRM Number**	090 E+389.89
Historical	Bridge is not eligible for the National Register of Historic Places		
Year Built	1962		
Location	I090 E 0.4 W SD 38 INTERCH over CK		
Bridge Type & Size	163.3 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge, 30 degree L skew		
Structure Capacity	HS-33.7		
Eligible for BRF Funds	No		
Deficiency Classification	Functionally Obsolete		

Structures Data (Box Culverts and Miscellaneous)		
Location	**Size**	**Length**
MRM 377.00 + 0.684	9' x 9' RCBC	170.5'
Historical		
Retaining Walls		
Other Structures		

Lighting	No

Existing Signals	No

Pedestrian Flasher	No

Excluded

Needs Book Year 2017

HIGHWAY 090 E
Beginning MRM = 362.00
Ending MRM = 390.37

RURAL

HIGHWAY 090 E
Beginning MRM = 362.00
Ending MRM = 390.37

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	E	E	E	E	E	E	E
Beginning MRM	362.00	366.00	366.06	369.00	377.00	390.00	390.37
MRM Displacement	0.035	0.011	0.242	0.043	0.000	0.065	0.055
Segment Length	3.973	0.292	2.742	7.922	13.068	0.328	4.969
Year Built	1965	1988	1965	1965	1964	1988	1963
Year Last Improved	2011	2011	2011	2011	2011	2016	2008
Year Last Sealed							
ROADWAY CONDITIONS							
Surface Condition Index	4.59	2.36	4.52	4.57	4.50	5.00	3.60
Roughness Index	4.77 (16)	4.28 (16)	4.62 (16)	4.79 (16)	4.80 (16)	5.00 (**)	4.47 (16)
ASPHALT INDEX VALUES							
Transverse Cracking	4.78 (16)		4.50 (16)	4.80 (16)	4.73 (16)		
Fatigue Cracking	4.80 (16)		4.71 (16)	4.84 (16)	4.76 (16)		
Patching/Patch Deterioration	4.92 (16)		4.89 (16)	4.99 (16)	4.91 (16)		
Block Cracking	4.87 (16)		4.76 (16)	4.84 (16)	4.97 (16)		
Rut Index	4.50 (16)		4.61 (16)	4.47 (16)	4.38 (16)		
Rut Depth(Inches) AVG/MAX	0.10 / 0.40		0.10 / 0.20	0.20 / 0.30	0.20 / 0.40		
CONCRETE INDEX VALUES							
D-Cracking/ASR		3.40 (16)				5.00 (**)	5.00 (16)
Joint Spalling		7.00 (16)				5.00 (**)	3.48 (16)
Corner Cracking		5.00 (16)				5.00 (**)	4.94 (16)
Faulting / CRCP Block Cracking		4.73 (16)				5.00 (**)	4.96 (16)
Joint Seal Damage		2.00 (16)				5.00 (**)	2.91 (16)
Punchouts		5.00 (16)				5.00 (**)	5.00 (16)
STRUCTURAL DESCRIPTION							
Surface Type	AONC	TKSID	AONC	AONC	AONC	TKSID	TKSID
Shoulder Type - Primary/Secondary	AC/AC	PCCP/N/D	AC/AC	AC/AC	AC/AC	PCCP/N/D	AC/N/D
Surface Width	24 (024)	24 (024)	24 (024)	24 (024)	24 (024)	24 (024)	26 (026)
Left Shoulder Width-Prim/Sec	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)	6 (06) / 0 (0)	4 (04) / 0 (0)
Right Shoulder Width-Prim/Sec	5 (05) / 5 (5)	10 (10) / 0 (0)	5 (05) / 5 (5)	5 (05) / 5 (5)	5 (05) / 5 (5)	10 (10) / 0 (0)	8 (08) / 0 (0)
Widths-RDWY/ROW-Predom/Min	038/190/190	038/190/190	038/190/190	038/190/190	038/190/190	040/190/190	038/190/190
Roadbed Layer 1	2011/AS3/1.3	2011/CI/0.0	2011/AS3/1.3	2011/AS3/1.3	2011/AS3/1.3	2016/CS6/0.0	2008/CD1/11.5
Roadbed Layer 2	2003/TS3/0.4	2011/CG/0.0	2003/TS3/0.4	2003/TS3/0.4	2003/TS3/0.4	2008/CG/0.0	2008/BU3/4.5
Roadbed Layer 3	2003/TM/0.4	2011/CI5/0.0	2003/TC/0.0	2003/TM/0.4	2003/TM/0.4	1988/CD1/11.0	1963/BU8/5.0
Roadbed Layer 4	2003/TC/0.0	1988/CD3/11.0	1997/TC/0.0	2003/TC/0.0	2003/TC/0.0	1988/BU8/6.0	
Roadbed Layer 5	1997/TC/0.0	1988/BU3/6.0	1997/AP3/1.5	1999/TC/0.0	1999/TC/0.0		
Roadbed Layer 6	1997/AH3/1.5		1997/AH3/2.0	1999/AH3/1.5	1999/AH3/1.5		
Roadbed Layer 7	1997/AH3/2.0		1997/CI5/0.0	1999/AH3/2.0	1999/AH3/2.0		
Roadbed Layer 8	1997/CI5/0.0		1982/CI/0.0	1999/CI5/0.0	1999/CI5/0.0		
Roadbed Layer 9	1982/CI/0.0		1982/CI5/0.0	1983/CI/0.0	1983/CI/0.0		
Roadbed Layer 10	1982/CI5/0.0		1965/CR3/9.0	1983/CI5/0.0	1983/CI5/0.0		
Roadbed Layer 11	1965/CR3/9.0		1965/BU3/3.0	1965/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	1	1	0	2	2	1	5
Number Of Box Culverts	0	0	0	0	0	0	0
3 YR AVG MAINTENANCE COSTS							
Mainline	$241	$1116	$236	$236	$236	$369	$370
Shoulders	$89	$7	$21	$21	$21	$162	$163
Structure	$133	$2425	$149	$149	$149	$433	$431
Other	$23699	$19017	$10468	$10468	$10468	$12790	$12789
Total	$24163	$22565	$10874	$10874	$10874	$13753	$13754
Total 3 Year Main Contract Amount	$36392	$3747	$9105	$9105	$9105	$7201	$7200
TRAFFIC							
Current ADT	5223	5245	5231	5292	5944	6599	6875
Projected 20 Year ADT	7191	7222	7202	7288	8664	9740	10148
Number Of Trucks	1078	1080	1077	1078	1097	1194	1244
CRASHES							
Weighted Crash Rate	0.58	0.63	0.61	0.88	1.01	0.50	1.38
Number of Fatal	0	0	0	1	1	0	2
Number Of Injury	2	0	1	6	17	1	6
Number Of Property Damage	16	6	13	37	80	3	44
MAINLINE IMPROVEMENTS							
Project Programmed	YES	YES	YES	YES	YES		
PCN	05HP	05HP	05HP	05HP	05T2		
Improvement Type	RECON PCCP	RECON PCCP	RECON PCCP	RECON PCCP	RECON PCCP	CRK SEAT ACO	PAV RESTORE1
Estimated Improvement Cost	$6148	$452	$4243	$12258	$21442	$213	$511
Improvement Year	2022	2022	2022	2022	2024	2033	2019
PCN							
Improvement Type	NOT OPTIMZED	NOT OPTIMZED	NOT OPTIMZED	NOT OPTIMZED	NOT OPTIMZED	ROUTE/SEAL	PAV RESTORE1
Estimated Improvement Cost	$0	$0	$0	$0	$0	$1	$1241
Improvement Year	0	0	0	0	0	2035	2032

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HIGHWAY 090 W
Beginning MRM = 362.00
Ending MRM = 390.29

RURAL

HIGHWAY 090 W
Beginning MRM = 362.00
Ending MRM = 390.29

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	362.00	366.00	366.06	369.00	377.00	390.00	390.29
MRM Displacement	0.042	0.011	0.242	0.043	0.000	0.065	0.126
Segment Length	3.967	0.289	2.742	7.923	13.072	0.341	4.429
Year Built	1965	1988	1965	1965	1964	1988	1963
Year Last Improved	2010	2010	2010	2010	2010	2014	2007
Year Last Seized							
ROADWAY CONDITIONS							
Surface Condition Index	4.59	3.08	4.65	4.56	4.50	4.01	3.78
Roughness Index	4.81 (16)	4.37 (16)	4.80 (16)	4.86 (16)	4.80 (16)	3.87 (16)	4.40 (16)
ASPHALT INDEX VALUES							
Transverse Cracking	4.81 (16)		4.80 (16)	4.80 (16)	4.78 (16)	4.90 (16)	
Fatigue Cracking	4.85 (16)		4.89 (16)	4.94 (16)	4.88 (16)	4.20 (16)	
Patching/Patch Deterioration	5.00 (16)		5.00 (16)	5.00 (16)	4.85 (16)	5.00 (16)	
Block Cracking	5.00 (16)		4.87 (16)	4.96 (16)	4.89 (16)	5.00 (16)	
Rut Index	4.48 (16)		4.58 (16)	4.41 (16)	4.34 (16)	4.60 (16)	
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		5.00 (16)					4.98 (16)
Joint Spalling		2.90 (16)					3.53 (16)
Corner Cracking		5.00 (16)					4.91 (16)
Faulting / CRCP Block Cracking		4.78 (16)					4.95 (16)
Joint Seal Damage		2.90 (16)					3.33 (16)
Punchouts		5.00 (16)					5.00 (16)
STRUCTURAL DESCRIPTION							
Surface Type	AONC	TKSSD	AONC	AONC	AONC	AONC	TKSSD
Shoulder Type - Primary/Secondary	AC/AC	PCCP/N/D	AC/AC	AC/AC	AC/AC	AC/N/D	AC/N/D
Surface Width	24 (024)	24 (024)	24 (024)	24 (024)	24 (024)	24 (024)	26 (026)
Left Shoulder Width-Prim/Sec	5 (05) / 5 (5)	10 (10) / 0 (0)	5 (05) / 5 (5)	5 (05) / 5 (5)	5 (05) / 5 (5)	8 (08) / 0 (0)	8 (08) / 0 (0)
Right Shoulder Width-Prim/Sec	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)	4 (04) / 0 (0)
Widths-RDWY/ROW-Predom/Min	038/149/149	038/149/149	038/149/149	038/149/149	038/149/149	036/149/149	038/149/149
Roadbed Layer 1	2010/AS3/1.3	2010/CL/0.0	2010/AS3/1.3	2010/AS3/1.3	2010/AS3/1.3	2014/AG3/1.5	2007/CD1/11.5
Roadbed Layer 2	2003/TS3/0.4	2010/CQ/0.0	2003/TS3/0.4	2003/TS3/0.4	2003/TS3/0.4	2014/AG3/2.0	2007/BU4/4.5
Roadbed Layer 3	2003/TM/0.4	1988/CD3/11.0	2003/TC/0.0	2003/TM/0.4	2003/TM/0.4	2007/CQ/0.0	1963/BU8/6.0
Roadbed Layer 4	2003/TC/0.0	1988/BU3/6.0	1997/TC/0.0	2003/TC/0.0	2003/TC/0.0	1988/CD1/11.0	
Roadbed Layer 5	1997/TC/0.0		1997/AP3/1.5	1999/TC/0.0	1999/TC/0.0	1988/BU8/6.0	
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/CJ5/0.0	1999/AH3/2.0	1999/AH3/2.0		
Roadbed Layer 8	1997/CJ5/0.0		1982/CL/0.0	1999/CJ5/0.0	1999/CJ5/0.0		
Roadbed Layer 9	1982/CL/0.0		1982/CJ5/0.0	1983/CL/0.0	1983/CL/0.0		
Roadbed Layer 10	1982/CJ5/0.0		1965/CR3/9.0	1983/CJ5/0.0	1983/CJ5/0.0		
Roadbed Layer 11	1965/CR3/9.0		1965/BU3/3.0	1965/CR3/9.0	1964/CR3/5.0		
Roadbed Layer 12	1965/BU3/3.0		1965/BU8/9.0	1965/BU3/3.0	1964/BU3/3.0		
Number Of Structures	1	1	0	2	2	1	5
Number Of Box Culverts	0	0	0	0	0	0	0
3 YR AVG MAINTENANCE COSTS							
Mainline	$330	$803	$1552	$1552	$1552	$1551	$3160
Shoulders	$343	$3	$110	$110	$110	$109	$348
Structure	$70	$1031	$139	$139	$139	$138	$420
Other	$25557	$19135	$10732	$10732	$10732	$10733	$14314
Total	$26299	$20972	$12533	$12533	$12533	$12534	$18242
Total 3 Year Main Contract Amount	$38043	$3775	$13257	$13257	$13257	$13258	$18759
TRAFFIC							
Current ADT	5223	5245	5231	5292	5944	6624	6875
Projected 20 Year ADT	7191	7222	7202	7287	8664	9777	10148
Number Of Trucks	1078	1080	1077	1078	1097	1199	1244
CRASHES							
Weighted Crash Rate	0.90	0.31	0.73	0.69	0.91	0.58	1.10
Number of Fatal	0	0	0	0	1	0	0
Number Of Injury	4	0	2	5	11	1	7
Number Of Property Damage	22	3	13	38	84	4	40
MAINLINE IMPROVEMENTS							
Project Programmed	YES	YES	YES	YES			
PCN	05HQ	05HQ	05HQ	05HQ			
Improvement Type	RECON PCCP	RECON PCCP	RECON PCCP	RECON PCCP	RECON PCCP	RECON PCCP	PAV RESTORE1
Estimated Improvement Cost	$6142	$447	$4245	$12266	$19333	$2492	$456
Improvement Year	2023	2023	2023	2023	2024	2026	2020
PCN							
Improvement Type	NOT OPTIMIZED	NOT OPTIMIZED	NOT OPTIMIZED	NOT OPTIMIZED	NOT OPTIMIZED	NOT OPTIMIZED	CRK SEAT ACO
Estimated Improvement Cost	$0	$0	$0	$0	$0	$0	$2582
Improvement Year	0	0	0	0	0	0	2036

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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

GRADING			
Design Elements	Approach Grading		
Terrain	Rolling		
Design Speed	80 MPH		
Typical Grading Section			
Lanes	2-12'	**Shoulder Width**	4' inside, 10' outside
Sidewalk	NA		
Bike Trails	NA		
Ditch Type	Rural (Standard or Sloped) **Inslope** 6:1 **Depth** 3.5 **Width** 20' **Backslope** 7:1 Lt & 5:1 Rt		
Clear Zone	30'		
Median	**Median Type** Depressed **Centerline to Centerline Inslope** 6:1 **Depth** 3.5 **Width** 20'		
Comment			

Geometric Needs	Comments/Recommendations	
Horizontal Curves Below Design Speed	All shall meet design speed	
Vertical Curves Below Design Speed	All shall meet design speed	
Intersection Horizontal Sight Distance Problems	None Existing	
Intersection Vertical Sight Distance Problems	None Existing	
Grades Steeper than Design Speed	All shall meet design speed	
Parking	None	
Design Vehicle	WB-67	

Geotechnical Needs	Comments/Recommendations

Undercut Needed	
Material Availability	
Borrow or Waste	
Soils/Foundations	

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

Summary

Structure Approach Grading

HYDRAULIC

Hydraulic Needs	Comments/Recommendations
Water Overtop Areas or Lake Elevations	None
Storm Sewer	None
Basin (Sedimentation, Retention, Detention,Storage)	None
Special Outlets	None
Pipe Capacity or Condition	**RC Pipe Treatment** / **Comments/Recommendations** Repair Replace **CM Pipe Treatment** / **Comments/Recommendations** Replace: Condition of most all CMP on this project are in poor condition and should be replaced with RCP.
Erosion (Ditch, Channel, Stream, or River)	None: Determine during design if any Erosion measures are needed as conditions may have changed since our inspection.
Stream Relocation	None
FEMA Flood Plain	Yes: McCook and Minnehaha Counties are participating in the NFIP. There are a number of identified but unstudied FEMA flood plains (Zone A) in the project limits

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

Need	Treatment Type
Pipe Condition	Repair Pipe
Pipe Condition	Replace Pipe

Summary

A pipe spreadsheet has been created using the old plans and the mainline culvert inventory. The pipe inventory spreadsheet with repair recommendations can be found here: file:/U:\pd\Prj\Minn05T2&05T3\05T2%2005T3%20Pipe%20Sheet.xlsx. The details included in the pipe spreadsheet are for informational purposes only and should be verified during design, as field conditions may have changed from the time this project was scoped. Pipe work currently includes 16 full pipe replacements, 32 flared end replacements, 18 pipe section replacements, 3 pipe cleanout locations and 7 locations that need further inspection when conditions are drier.

Structures 50-114-165 and 50-114-166 are over a creek and are to be replaced. Provided needed erosion control measures for the new structures.

RESURF/SURFACING

Resurfacing (3R) Needs

Location Description	2017 Traffic	2037 Traffic	Terrain	Comment
05T2 East Bound	6929	10227	Rolling	Traffic Count shown here is for Exit 387 to 390

Criteria	Existing Data	Min Design Criteria	Scope and/or Comment
Speed	80 MPH	80 MPH	
Lane Width	2-12'	12'	Reconstruct
Shoulder Width	4' inside, 10' outside	4' inside, 10' outside	Reconstruct
Horizontal Alignment	# of Curves: 5; Design Speed: 80 mph	Radius = 3050'	Meets Policy Criteria
Vertical Alignment	# of Crests: 21; # of Sags: 20; Design Speed: 80 mph	910 ft Crest (384) Sag (231)	Meets Policy Criteria
Grade	# of Grades: 40; % Length: 100.00; Range: 0 to 3%	4%	Meets Policy Criteria
Cross Slope		2%	Reconstruct
Super-elevation		6% Maximum	Reconstruct
Bridge Width	50-114-165 = 30' 50-114-166 = 30' 50-020-141 = 32' 50-020-142 = 32'	38'	Reconstruct
Structural			

Capacity		HS-20	Reconstruct	
Lateral Offset		NA	NA	
Vertical Clearance		16'	Reconstruct	Attempt to gain a minimum of 16'6" to allow for future overlays
Guardrail		review Road Design Manual	Upgrade to Policy	
Clear Zone		30'.	Upgrade to Policy	
Typical Inslope	4:1 Outside 5:1 Median	4:1 minimum to clearzone required, approach grading sections 6:1	Meets Policy Criteria	Retain 4:1 outside and 5:1 median inslopes in non-grading sections. Approach grading sections should be brought up to 6:1 outside and 5:1 median.
Approach Slope	Median Approaches	review Road Design Manual	Upgrade to Policy	
Drainage Structures		review Road Design Manual	Upgrade to Policy	
ADA Req			NA	
Mailboxes			NA	
Interim Surfacing				
Shoulders	AC			
Final				

Surfacing	PCCP Surfacing

Location Description	2017 Traffic	2037 Traffic	**Terrain**	**Comment**
05T3 West Bound	6929	10227	Rolling	Traffic Count shown here is for Exit 387 to 390

Criteria	**Existing Data**	**Min Design Criteria**	**Scope and/or Comment**
Speed	80 MPH	80 MPH	
Lane Width	2-12'	12'	Reconstruct
Shoulder Width	4' inside,10' outside	4' Inside, 10' Outside	Reconstruct
Horizontal Alignment	**# of Curves**: 3; **Design Speed**: 80 mph	Radius = 3050'	Meets Policy Criteria
Vertical Alignment	**# of Crests**: 12; **# of Sags**: 13; **Design Speed**: 80 mph	910 ft Crest (384) Sag (231)	Meets Policy Criteria
Grade	**# of Grades**: 25; **% Length**: 100.00; **Range**: 0 to 3%	4%	Meets Policy Criteria
Cross Slope		2%	Reconstruct
Super-elevation		6% Maximum	Reconstruct
Bridge Width		38'	Reconstruct
Structural		HS-20	

Capacity			Reconstruct	
Lateral Offset		NA	NA	
Vertical Clearance		16'	Reconstruct	Adjust gradeline to gain at least 16'6" to allow for future overlays
Guardrail		review Road Design Manual	Upgrade to Policy	
Clear Zone		30'	Upgrade to Policy	
Typical Inslope	4:1 Outside 5:1 Median	4:1 minimum to clearzone required, approach grading sections 6:1	Meets Policy Criteria	Retain 4:1 outside and 5:1 median inslopes in non-grading sections. Approach grading sections should be brought up to 6:1 outside and 5:1 median.
Approach Slope	Median Approaches	review Road Design Manual	Upgrade to Policy	
Drainage Structures		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

Preliminary Materials Recommendations:

· Salvage & Stockpile of the Asphalt Concrete Overlay

· Pavement Removal

· Minor Grading at Structures

· 5" Gravel Cushion

· 11" x 26' PCC Pavement with Doweled Transvers Contraction Joints spaced at 15'

· Outside Shoulder (8) - 3 Class HR AC & Base Course

· Median Shoulder (4) - 3 Class HR AC & Base Course

· PG 58-28 Asphalt Binder

Try to obtain 17' of vertical clearance if feasible, 16'6" minimum by adjusting the gradeline. This will provide room for future overlays.

Comment provided by the Geotechnical office: "Due to the silty subgrade soils anticipated initial recommendations would be to process the existing concrete pavement and mix into the top 12-18 of subgrade depending upon the amount of material available. Final recommendations for any subgrade work required would be provided after the geotechnical field investigation."

Comment provided by Travis Dressen and the Sioux Falls Area: "This project needs to consider concrete shoulders along the entire length. At a minimum, there should be a concrete shoulder on the median side and extending off bridge ends for future bridge maint."

Additional comment provided by Travis Dressen and the Sioux Falls Area: "I commented that I would like to see concrete shoulders on the is job, particularly the inside shoulder and off bridge ends. If we end having asphalt shoulders, I would like to chip seal these with the project and then place all the durable markings and be done with it. WB (05T3) will be constructed first in 2023 so I would want the 2024 (05T2) project to chip both the EB and WB shoulders and place all the durable markings. We will set the overall completion date of 05T2 of mid-summer 2025 so we can chip and stripe. We'll need to get by with waterborne markings at the end of 2023 and through 2024 on both jobs."

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 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	None

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

Summary

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

Provide durable pavement markings 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	50-020-141	**MRM Number**	379.66
Location	I090 W SD 19 INTERCHANGE over SD019		
Disposition of Existing Structures	Remove/Replace		
Structure Location	Over Roadway	SD19	
Vertical Clearance	Replace Structure and Provide Clearance		
Horizontal Clearance	Replace Structure and Provide Clearance		
Size of Structure	189.2 ft x 32 ft roadway,3 spans, Steel continuous Stringer/Multi-beam or Girder Bridge		
Sidewalk / Bike path	None		
Skew	45 degree R skew		
Horizontal Curve	No		
Bridge Rail	NA		
Erosion Protection			
Utilities on Structure	No		

Structure Needs	**Comments/Recommendations**		
Structure Number	50-020-142	**MRM Number**	379.66
Location	I090 E SD 19 INTERCHANGE over SD019		
Disposition of Existing Structures	Remove/Replace		
Structure Location	Over Roadway	SD19	

Vertical Clearance	Replace Structure and Provide Clearance
Horizontal Clearance	Replace Structure and Provide Clearance
Size of Structure	189.2 ft x 32 ft roadway,3 spans, Steel continuous Stringer/Multi-beam or Girder Bridge
Sidewalk / Bike path	None
Skew	45.0 degree R skew
Horizontal Curve	No
Bridge Rail	NA
Erosion Protection	
Utilities on Structure	No

Structure Needs	**Comments/Recommendations**		
Structure Number	50-114-165	**MRM Number**	389.89
Location	I090 W 0.4 W SD 38 INTERCH over CK		
Disposition of Existing Structures	Remove/Replace		
Structure Location	Drainage Crossing		
Vertical Clearance	NA		
Horizontal Clearance	Replace Structure and Provide Clearance		
Size of Structure	163.3 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge		
Sidewalk / Bike	None		

path	
Skew	30.0 degree L skew
Horizontal Curve	No
Bridge Rail	NA
Erosion Protection	Scour Protection — Erosion protection to be determined during design.
Utilities on Structure	No

Structure Needs	**Comments/Recommendations**		
Structure Number	50-114-166	**MRM Number**	389.89
Location	I090 E 0.4 W SD 38 INTERCH over CK		
Disposition of Existing Structures	Remove/Replace		
Structure Location	Drainage Crossing		
Vertical Clearance	NA		
Horizontal Clearance	Replace Structure and Provide Clearance		
Size of Structure	163.3 ft x 30 ft roadway,5 spans, Concrete continuous Slab Bridge		
Sidewalk / Bike path	None		
Skew	30.0 degree L skew		
Horizontal Curve	No		
Bridge Rail	NA		

Erosion Protection	Scour Protection	Erosion protection to be determined during design.
Utilities on Structure	No	

Structure Needs	**Comments/Recommendations**		
Structure Number	50-050-164	**MRM Number**	0.00
Location	459 AVE 3.8 E SD 19 INTERCH over I090		
Disposition of Existing Structures	Retain/Rehabilitate		
Structure Location	Over Roadway		
Vertical Clearance	Adequate		Adequate Vertical Clearance to be provide with the new surfacing underneath.
Horizontal Clearance	Adequate		
Size of Structure	248.2 ft x 30 ft roadway,4 spans, Steel continuous Stringer/Multi-beam or Girder Bridge		
Sidewalk / Bike path	None		
Skew	20.0 degree skew		
Horizontal Curve	No		
Bridge Rail			
Erosion Protection			
Utilities on Structure			

Retaining Walls and Miscellaneous	
Other Structures	

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

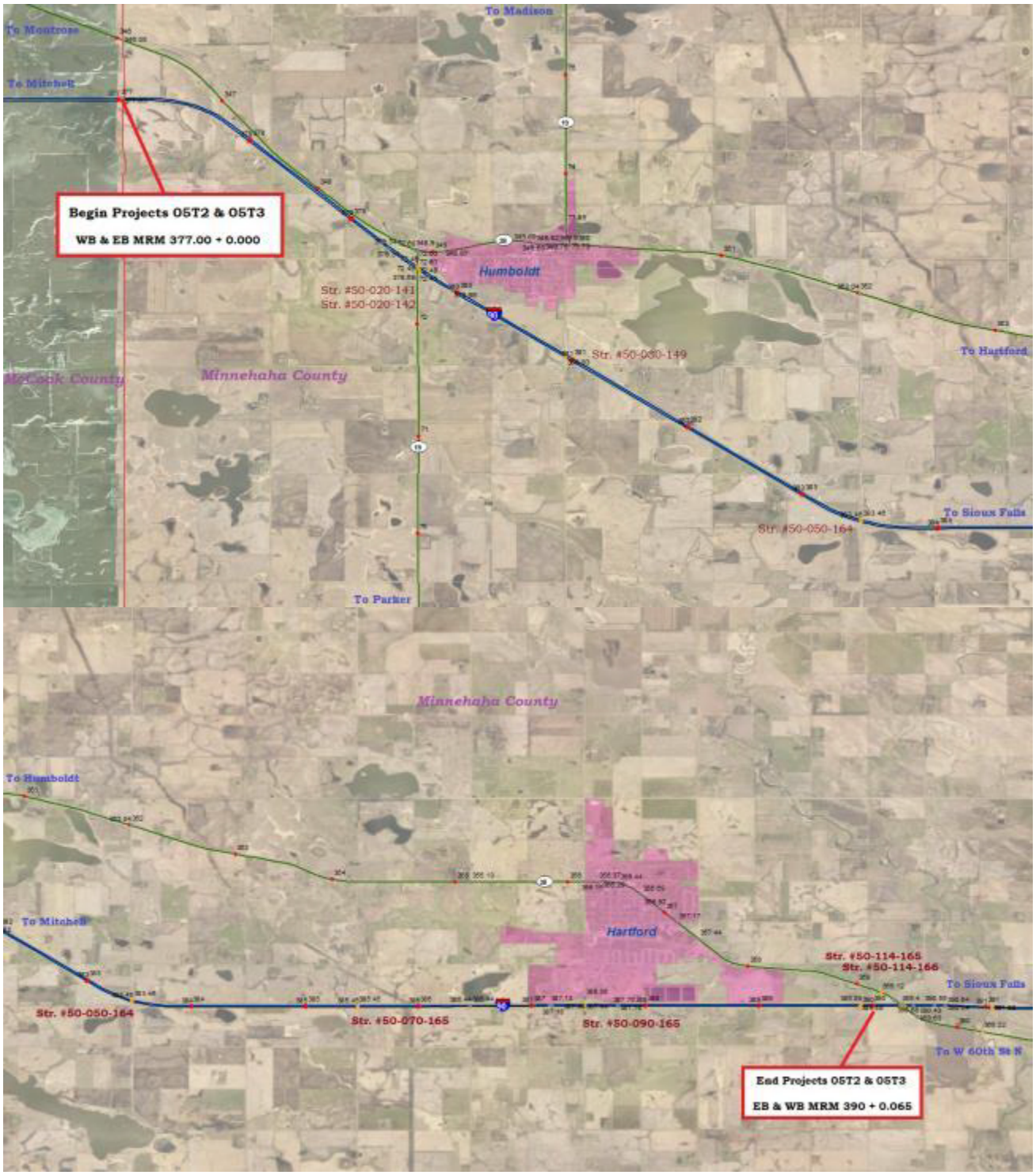
Need	Treatment Type
Bridge	Replace Bridge
Bridge	Deck Replacement
Bridge	Paint Bridge
Bridge	Repair/Rehab Abutment
Bridge	Replace Approach Slab

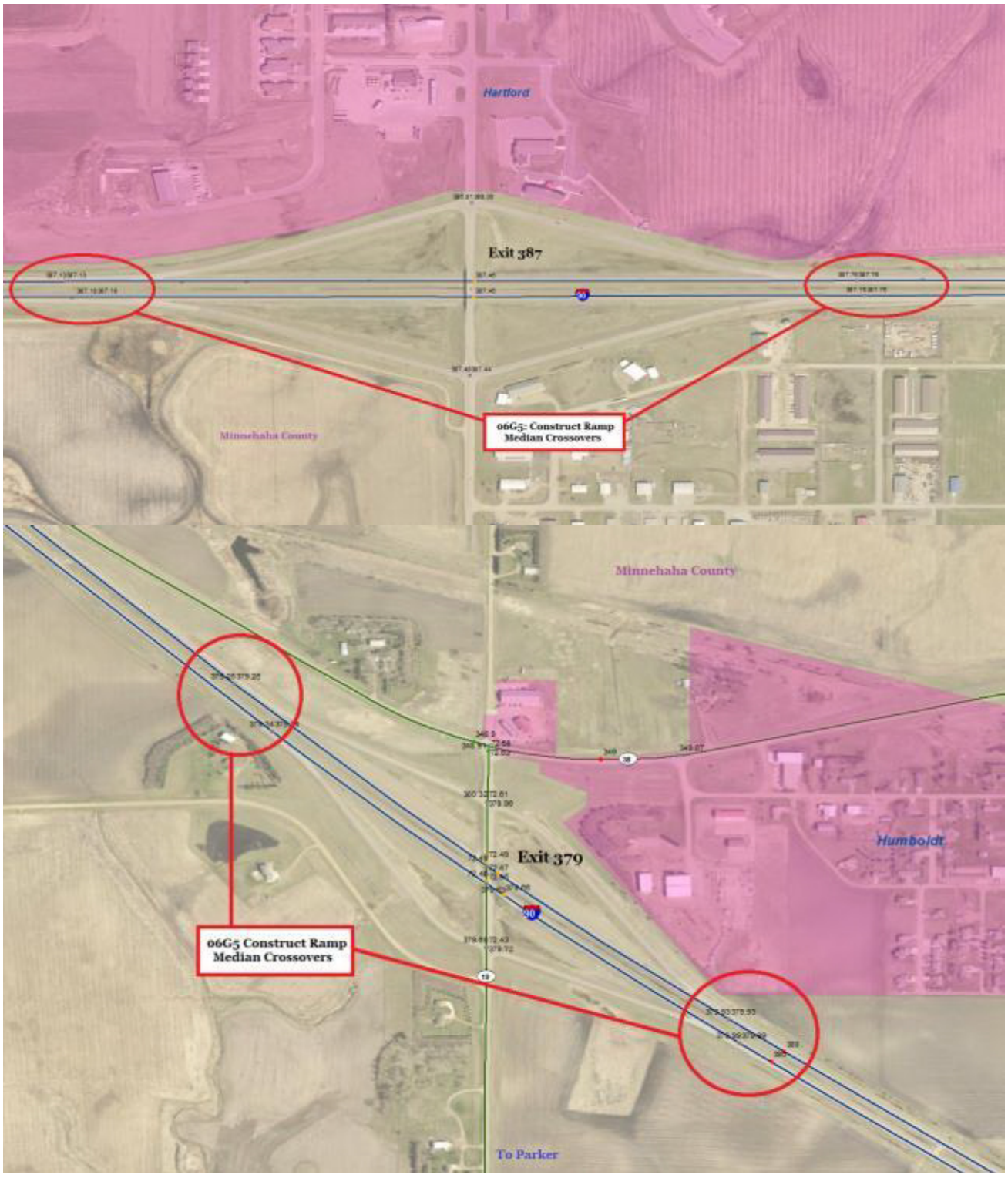
Summary

Mainline Structure replacements for two pairs of twin bridges, 50-020-141/142 and 50-114-165/166. The structure replacement for 50-114-165 in 05T3 will need to be constructed to accomidate an extra 12' lane (3 lanes plus shoulders) because of the need to extend the acceleration lane for the Exit 390 west bound ramp. This acceleration lane will be extended in a future project, but the length of the extended acceleration lane will cross this structure.

Crossover structure 50-050-164 at 459th Ave will have a deck replacement, structure painting, abutment repair, approach slab replacements and upgrading the guardrail and end blocks to current standards.

Appendix


To Madison
To Montrose
To Mitchell
Begin Projects 05T2 & 05T3
WB & EB MRM 377.00 + 0.000
Humboldt
Str. #50-020-141
Str. #50-020-142
Str. #50-030-149
To Hartford
McCook County
Minnehaha County
To Sioux Falls
Str. #50-050-164
To Parker
Minnehaha County
To Humboldt
To Mitchell
Hartford
Str. #50-114-165
Str. #50-114-166
To Sioux Falls
Str. #50-050-164
Str. #50-070-165
Str. #50-090-165
To W 60th St N
End Projects 05T2 & 05T3
EB & WB MRM 390 + 0.065


Hartford
Exit 387
06G5: Construct Ramp Median Crossovers
Minnehaha County
Minnehaha County
Humboldt
Exit 379
06G5 Construct Ramp Median Crossovers
To Parker


Construct New Median Crossover
MRM 390.00 + 0.065
Project 06G5