

Project No.

PCN

S Jct. 15 to New Rockford



Prepared by

**NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
BISMARCK, NORTH DAKOTA**

<http://www.dot.nd.gov/>

DIRECTOR
Grant Levi, P.E.

OFFICE OF TRANSPORTATION PROGRAMS
Steve Salwei, P.E.

Principal Author:
Jared Loegering, E.I.T.
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SCOPING REPORT

Report Completed By: Jared Loegering

A. GENERAL INFORMATION

Project Number:

District: Devils Lake

Location: S Jct. 15 to New Rockford

Reference Point: RP 125.557-128.1321-2.5751miles

Counties: Eddy

Legal Description: T148N, R66W, Sec 8 to T149N, R66W, Sec 33

Functional and Funding Roadway Classification: Interregional Corridor

National Highway System: Yes

Project Schedule: Proposed to be added to the STIP for a 2020 Major Rehabilitation

dTIMS Recommendations: Constrained: PM 2021 Unconstrained: PM 2017

B. PURPOSE, NEED, AND IMPROVEMENT

Purpose and Need of Project:

The IRI score is in the good to excellent range. The distress score is in good range. There are transverse cracks on the roadway along with patching. This project was moved from a minor rehabilitation to a major rehabilitation from the 2014 Interregional Review.

Proposed Improvements:

A Major Rehabilitation Full Depth Reclamation with widening is proposed to extend the service life and provide operational improvements to the roadway. The safety items that will be addressed are safety hardware that does not meet NCHRP 350 standards or better and safety items within the 20' clear zone. A 90-1 survey will also be completed and areas needing safety improvements will be addressed. There is an exception area for the widening from RP 127.0831 to 128.132. RP 127.0831 to 127.7458 was reconstructed in 2008, project No. SHE-3-281(086)127, PCN 15913. RP 127.7458 to 128.132 is through the town of New Rockford and this was overlaid in 2008, project No. SNH-3-281(092)125, PCN 16386. The district has requested that this exception area be milled 1 inch and overlaid with 3 inches of HBP.

A decision item is included to widen the roadway to 40 feet to allow for 8 foot shoulders. This option would go beyond the design guideline requirements. This option is proposed because traffic is forecasted to continue to increase and to keep roadway width continuity with the surrounding corridor. 8 foot shoulders would also allow trucks the ability to pull off the roadway.

District Requests

Frontage Roads:

The district has requested that the frontage roads on both the east and west side of the roadway in the town of New Rockford be reconstructed. The frontage roads are between 3rd Ave. and 5th Ave. and have a total length of approximately 0.80 miles. They were constructed in 1966. The frontage roads have drainage issues and the district requested the ditch between the current frontage roads and roadway be removed. The ditch has approximately 2:1 inslopes and it is desired to remove it due to maintenance and safety concerns. The district has also requested storm sewer to be installed along the frontage roads to properly drain water. A cost and

decision item are included to address the frontage roads. City would be required to pay the 20% match on the frontage road work. The frontage roads are shown below:



Turning Lanes:

The district has requested that a right and left turning lane be constructed on US 281 at approximately RP 126.55 at 17th St. NE. The traffic operations section will complete a study to find if the requested turning lanes and any additional turning lanes are warranted along the roadway. A decision item is included to address the districted requested turning lanes and a cost is included in the estimate.

C. TRAFFIC AND CRASH ANALYSIS

Traffic:

RP 125.557 to 127.551

	Year	Truck AADT	Total AADT	Flexible ESALs
Current Traffic	2014	385	1,780	330
Forecast Traffic	2034	575	2,460	490

RP 127.551 to 128.504

	Year	Truck AADT	Total AADT	Flexible ESALs
Current Traffic	2014	395	1,940	340
Forecast Traffic	2034	590	2,680	505

Speed Limit:

From RP	To RP	Speed Limit
125.557	127.432	65 mph
127.432	127.598	50 mph
127.598	128.1321	40 mph

Crash Analysis:

Mainline:

There were a total of 11 crashes from 1/1/2010 to 12/31/2014. Animal crashes were not included. The crash rate per 1 million vehicles is 1.2556

No other trends were identified and no recommendations at this time.

Frontage Roads:

There were a total of 2 crashes from 1/1/2010 to 12/31/2014. Animal crashes were not included.

- There was 1 crash on the East Frontage Rd which involved a vehicle backing out of a parking spot.
- There was 1 crash on the west Frontage Rd which involved a NB and WB vehicle making an angle crash.
- No other crashes or trends were identified

No recommendations at this time.

D. EXISTING ROADWAY CHARACTERISTICS

	International Roughness Index (IRI)	Distress Score	Rut
Excellent	< =60	≥ 98	< 0.25"
Good	61 – 99	88 – 97	0.25" to 0.375"
Fair	100 – 145	77 – 87	0.376" to 0.50"
Poor	> 145	≤ 76	> 0.50"

Segment 1, RP 125.557 to 127.0831

Actual Age	IRI	IRI Rating	SI or SCI	Faulting
47	58	Excellent	0	N/A
Effective Age	Distress	Distress Score	Rutting	Rutting Score
20	88	Good	0.11	Excellent

CONSTRUCTION HISTORY				
Year	Construction	Depth (in)	Width (ft)	Oil
1968	GRADE	-	48.0	-
1968	AGGREGATE BASE	5.0	45.0	-
1968	HOT BIT PAVEMENT	2.0	43.0	85-100
1968	HOT BIT PAVEMENT	2.0	24.0	85-100
1977	CONTRACT CHIP SEAL	-	24.0	RC-250
1988	CONTRACT CHIP SEAL	-	24.0	MC-3000
2000	DISTRICT CHIP SEAL	-	26.0	MC-3000
2001	HOT BIT PAVEMENT	1.5	24.0	PG 58-28
2008	HOT BIT PAVEMENT	3.5	7.0-0.0-7.0	PG 58-28
2008	HOT BIT PAVEMENT	2.0	7.0-24.0-7.0	PG 58-28
2011	SLURRY SEAL	-	25.0	-

Segment 2, RP 127.0831 to 127.457

Actual Age	IRI	IRI Rating	SI or SCI	Faulting
7	66	Good	0	N/A
Effective Age	Distress	Distress Score	Rutting	Rutting Score
7	91	Good	0.12	Excellent

CONSTRUCTION HISTORY				
Year	Construction	Depth (in)	Width (ft)	Oil
2008	GRADE	-	60.0	-
2008	SALVAGED AGGR BASE	15.0	44.5	-
2008	HOT BIT PAVEMENT	5.0	8.0-24.0-8.0	PG 58-28
2011	SLURRY SEAL	-	25.0	-

Segment 3, RP 127.457 to 127.746

Actual Age	IRI	IRI Rating	SI or SCI	Faulting
7	N/A	N/A	N/A	N/A
Effective Age	Distress	Distress Score	Rutting	Rutting Score
7	N/A	N/A	N/A	N/A

CONSTRUCTION HISTORY				
Year	Construction	Depth (in)	Width (ft)	Oil
2008	GRADE	-	60.0	-
2008	SALVAGED AGGR BASE	15.0	44.5	-
2008	HOT BIT PAVEMENT	5.0	8.0-24.0-8.0	PG 58-28
2011	SLURRY SEAL	-	25.0	-

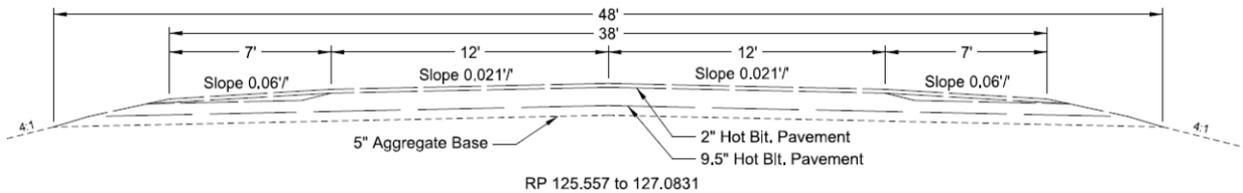
Segment 4, RP 127.746 to 128.132

Actual Age	IRI	IRI Rating	SI or SCI	Faulting
48	82	Good	2	N/A
Effective Age	Distress	Distress Score	Rutting	Rutting Score
20	88	Good	0.12	Excellent

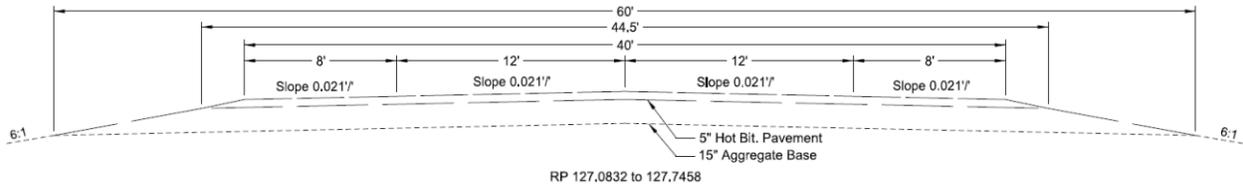
CONSTRUCTION HISTORY				
Year	Construction	Depth (in)	Width (ft)	Oil
1967	GRADE	-	48.0	-
1967	AGGREGATE BASE	5.0	45.0	-
1967	HOT BIT PAVEMENT	6.0	40.0	85-100
1967	HOT BIT PAVEMENT	2.0	24.0	85-100
1977	CONTRACT CHIP SEAL	-	24.0	RC-250
1988	CONTRACT CHIP SEAL	-	24.0	MC-3000
1999	INT CONT PATCH-1.5"	-	24.0	PG 58-28
2000	DISTRICT CHIP SEAL	-	26.0	MC-3000
2008	HOT BIT PAVEMENT	2.0	7.0-0.0-7.0	PG 58-28
2008	HOT BIT PAVEMENT	2.0	7.0-24.0-7.0	PG 58-28
2011	SLURRY SEAL	-	25.0	-

Existing Foreslopes: 4:1

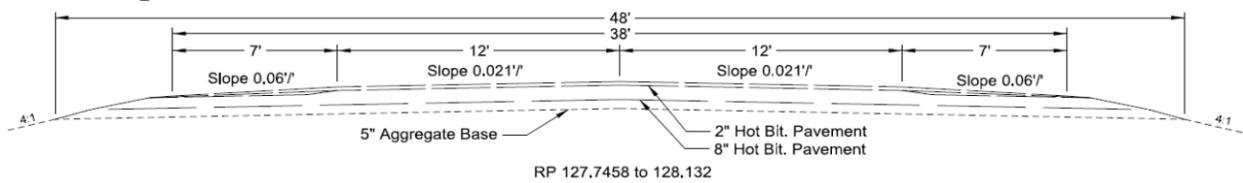
**Existing Typical Sections:
Segment 1, RP 125.557 to 127.0831**



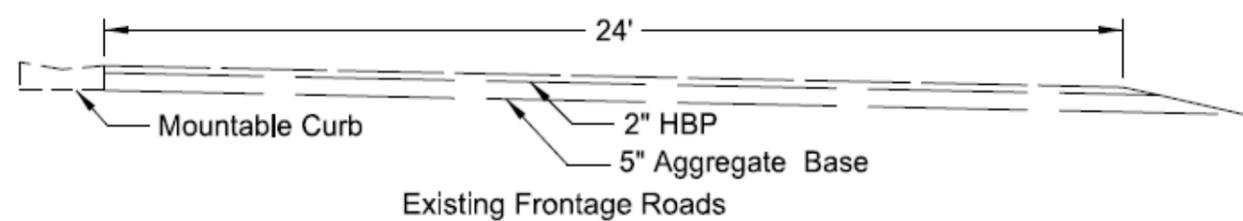
Segment 2, RP 127.0831 to 127.746



Segment 3, RP 127.746 to 128.132



Frontage Road



E. EXISTING GEOMETRY

Horizontal Curves:

Use existing, sign when less than posted speed. Using a design speed of 65mph, all of the superelevations need to be addressed.

Location	Radius (ft)		Superelevation (%)	
	Existing	Required	Existing	Required
RP 126.291	5730	1657	2.9	3.0
RP 127.113	5730	1657	2.9	3.0

Vertical Curves: The vertical curves were checked and all vertical curves met the design requirements.

F. EXISTING STRUCTURES

Bridges:

Bridge No	Description	Feature	Length (ft)	Width (ft)	Rating
0281-127.480	New Rockford South	BN RR Separation	215	40	91.6

Bridge No	Description	Feature	Length (ft)	Width (ft)	Rating
Recommendation: None at this time.					

Centerline Pipes:

There is 1 centerline pipe on the project that will need to be extended, a 60" DRCP pipe. A cost is included in the cost to address the pipe extension.

G. LAND INTERESTS

Communities:

Corporate Limits of New Rockford, RP 127.49 to 128.504, Population 1,380

Reservation:

None

Surface Trust Lands:

None

Refuge:

None

Adjacent Land Usage:

Agricultural, Residential and Commercial

H. ISSUES AND APPURTENANCES CHECKLIST

1. Curb and Gutter? Yes X No _____
 There is mountable curb and gutter along the frontage roads.
Suggested Improvement: This will be replaced if it is decided to reconstruct the frontage roads.

2. Sidewalk? Yes _____ No X

3. Multi-Use Path? Yes _____ No X

4. ADA Ramps? Yes _____ No X

5. Detectable Warning Panels? Yes _____ No X

6. Lighting? Yes X No _____
 There is lighting in the town of New Rockford. The lighting was recently re-done and no improvements are necessary.
Suggested Improvement: None

7. Signals? Yes X No _____
 There are flashing beacons on pedestrian crossing signs at RP 127.98.
Suggested Improvement: None

8. Storm Sewer? Yes X No _____
 The district has requested installing a storm sewer that would drain water from the frontage roads down into the river. A cost is included in the frontage road estimate to address this installation.

9. Manholes? Yes _____ No X

10. Other Underground Work? Yes No
11. Parking Facilities? Yes No
 There are parking facilities along the frontage road in New Rockford.
Suggested Improvement: None
12. Frontage Roads? Yes No
 There are frontage roads that run from 3rd Ave. and 5th Ave. in New Rockford.
Suggested Improvement: The district has requested to reconstruct the frontage roads in on both the east and west side of the roadway. A cost and decision item is included to address the frontage roads.
13. Utility Issues? Yes No
 There will be utility issues in New Rockford if it is decided to reconstruct the frontage roads.
14. Landscaping? Yes No
15. Approach or Ditch Block Flattening? Yes No
 Steep slopes exist through new Rockford on approaches and the frontage road. All steep approaches are to be addressed under the Major Rehab Strategy.
16. T Intersection Recovery Approaches? Yes No
17. Fence? Yes No
18. Railroad Crossings? Yes No
 US 281 overpasses railroad at RP 127.5. The structure over the railroad was replaced in 2008.
Suggested Improvement: None
19. Detours? Yes No
20. Automatic Traffic Recorder Locations? Yes No
21. Weigh-In-Motion Sites? Yes No
22. ITS (Deicing, Snow Gates, VMS, RWIS, etc.)? Yes No
23. Highway Patrol/Truck Pullouts or Rest Areas? Yes No
24. Additional Right of Way? Yes No
 Additional right of way may be needed to accommodate the widening on the project.
25. Drainage Issues? Yes No
 The frontage roads have some drainage issues and the district has requested filling in the ditches on each side of the frontage roads. This will be addressed if it is decided to move forward with reconstructing the frontage roads.
26. Snow Impact Areas? Yes No
27. Subgrade Issues? Yes No

28. Noise Analysis: Type I Project? Yes No Maybe

29. Maintenance Issues? Yes No

30. Guard Rail? Yes No

RP	L/R	Length (ft)	Suggested Improvement
127.4189	R	202	No improvements at this time.
127.4333	L	126	No improvements at this time.
127.5085	L	204	No improvements at this time.
127.5085	R	127	No improvements at this time.

31. Riprap? Yes No

32. Milling? Yes No
It was assumed to mill 1" of the overlay sections and 3" for the major rehabilitation option.
A cost is included in the estimate to address the milling.

32. Local Road Safety Program? Yes No

I. Load Restrictions

Travel Information Map Proposed Load Restriction: Legal weight

HPCS Load Restriction: Legal weight

Projected load restrictions after project is completed: Legal weight

J. Roadway Widths

Required minimum Roadway Width: 36'

Surrounding Corridor Roadway Widths:

US 281 (North and South of Project):

North of project: Project is planned to widen out to 36' or 40'

South of project: 40'

ND 15 (East of Project): 24'

K. PERFORMANCE GUIDELINES

Design Speed: 40, 50, and 65 mph

Clear Zone (from edge of driving lane): 20' for areas under 2000 AADT, AASHTO for areas over 2000 AADT.

Ride/Distress Goal: Excellent

Operational Reliability: Highly Reliable

Foreslope: 6:1

L. PROPOSED IMPROVEMENTS

Proposed Improvements:

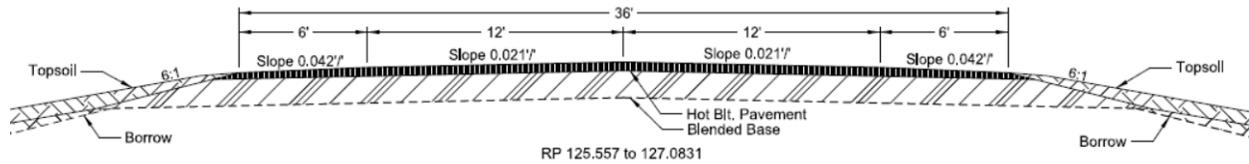
A Major Rehabilitation Full Depth Reclamation with widening is proposed. The safety items that will be addressed are safety hardware that does not meet NCHRP 350 standards or better and safety items within the 20' clear zone. There is an exception area for the widening from RP 127.0831 to 128.132. The district has requested that this section of roadway be milled 1 inch and overlaid with 3 inches of HBP.

A decision item is included to widen the roadway to 40 feet to allow for 8 foot shoulders. A cost and decision item are included to the 8 foot shoulders.

Proposed Typical Sections:

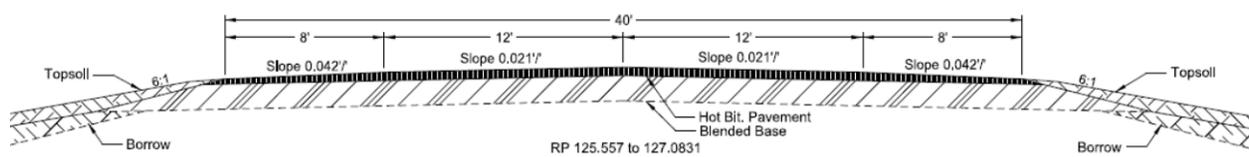
Option 1: 36' Wide Roadway

Segment 1, RP 125.557 to 127.0831



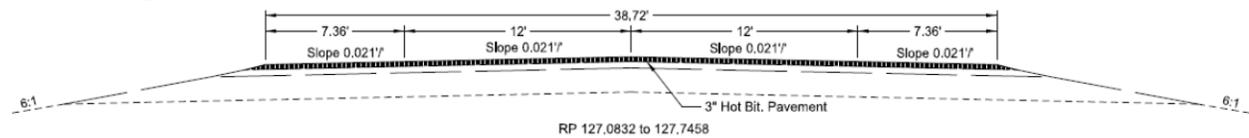
Option 2: 40' Wide Roadway

Segment 1, RP 125.557 to 127.0831

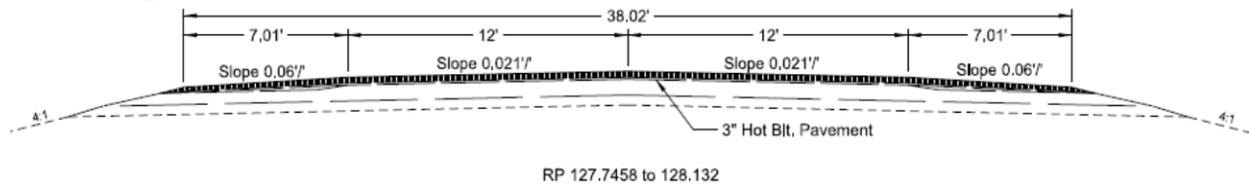


Option 1 and Option 2:

Segment 2, RP 127.0831 to 127.7458



Segment 3, RP 127.7458 to 128.132



District Requests

Frontage Roads:

The district has requested that the frontage roads on both the east and west side of the roadway in the town of New Rockford be reconstructed. They were constructed in 1966. The frontage roads have drainage issues and the district requested the ditch between the current frontage roads and roadway removed. The district has also requested storm sewer to be installed along the frontage roads to properly drain water. A cost and decision item are included to address the frontage roads.

Turning Lanes:

The district has requested that a right and left turning lane be constructed on US 281 at approximately RP 126.55 at 17th St. NE. A decision item is included to address the districted requested turning lanes and a cost is included in the estimate.

M. ADDITIONAL COMMENTS

District Engineer:

The City of New Rockford is putting in an application to ND Streets to address the Frontage Road. If they do not get funded this should advance.

Decision 1: Yes

Decision 2: Check Items 1, 2, and 3.

Safety Division Director: No comments.

N. COST ESTIMATE

(Inflation factor of 4% was used to estimate costs for bid year 2020)

ITEM	ESTIMATED COST
Contract Bond	\$15,000
Mobilization	\$78,000
Hot Bit Pavement (Includes AC, Tack, Prime and cores)	\$1,061,000
Field Lab and Office	\$20,000
Traffic Control	\$100,000
Pavement Markings and Rumble Strips	\$13,000
Borrow and Water	\$146,000
Aggregate Base	\$206,000
Seeding, Mulching, and Erosion Control	\$50,000
Topsoil	\$68,000
Mine and Blend	\$78,000
Milling	\$94,000
Centerline Pipe Extensions	\$10,000
Subtotal	\$1,939,000
20% Engineering	\$388,000
Construction and CE Total Cost	\$2,327,000
Decision Items (All items include 20% engineering)	
Decision Item 1: Widen to 8' Shoulders (40' Roadway Top)	\$207,000
Decision Item 2: Reconstruction Frontage Roads (4" HBP on 12" Base)	\$820,000
Construction and CE Total Cost Including Decision Items	\$3,354,000

O. DECISIONS

1. Should this project advance as a Major Rehabilitation FDR with widening as proposed for an **Estimated Cost of \$2,327,000?**

Yes No

2. Which item(s) should be chosen for this project?

Item 1: Widen Roadway to 8 foot shoulders (40 foot Roadway Top)
Estimated Cost \$207,000

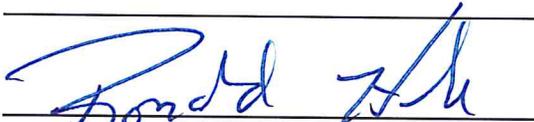
Item 2: Reconstruct Frontage Roads. **Estimated Cost \$820,000**

Item 3: Install district requested left and right turn lanes if they are found to be NOT warranted (assumed all warranted turn lanes will be installed).

Item 4: Advance all items to the Environmental Document as decision items.

Item 5: Advance none.

* DDE Comments: Advance to PCR and study intersection.
Option should be presented in the PCR for the
frontage roads.


Deputy Director for Engineering

5/3/15
Date