

SCOPING REPORT

Project No.

PCN

RP 374.5 to RP 378.0



Prepared by
NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
BISMARCK, NORTH DAKOTA

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

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23 USC § 409
NDDOT Reserves All Objections

SCOPING REPORT

A. GENERAL INFORMATION

Project Number:

District: Fargo

Highway: 13

Location: RP 374.5 to RP 378.0

Reference Point: RP 374.5 to RP 378.0 – 3.5 miles

Counties: Richland

Legal Description: T132N, R49W, Sec 7

Functional and Funding Roadway Classification: State Corridor

National Highway System: Yes

Speed Limit: 65 mph

Freight Level: 1

Freight Constraints: None

Project Schedule: Proposed to be added to the STIP as a Safety Project.

dTIMS Recommendations:

Constrained: PM Asphalt 2028

Unconstrained: PM Asphalt 2028

B. PURPOSE, NEED, AND IMPROVEMENT

Purpose and Need of Project:

An HSIP request was submitted by the district to consider left turn lanes at the ND 13 Minn-Kota Access, the ND 13 & 168th Ave SE intersection, and the ND 13 & Mooreton Ave intersection. A right turn lane at the ND 13 Minn-Kota Access was also requested. The project has been requested by State Senator Jim Dotzenrod, and Richland County Engineer.

There have been a few crashes at the intersections of ND 13 and Mooreton Ave and ND 13 and 168th Ave SE (Richland County 1 intersections). There is increased truck volume due to the new grain facility with rail service at the Minn-Kota site. Traffic Operations looked at these areas and all turn lanes are warranted, except the left turn lane at the Minn-Kota Access, which may meet warrants in 2025. Destination lighting at ND 13 & 168th Ave SE is also warranted. Minn-Kota development and highway safety is supported by District 25 and District 26 legislators.

Proposed Improvements:

Make intersection improvements at areas listed below.

ND 13 (RP 375.042) & Minn-Kota Access:

Install either an EB to NB left turn lane or an EB bypass lane and a WB right turn lane.

ND 13 (RP 377.5) & 168th Ave SE:

Install a WB to SB left turn lane. Install an intersection destination light. Upgrade signing and marking.

ND 13 (RP 378.0) & Mooreton Ave:

Install either an EB to NB left turn lane or an EB bypass lane. Upgrade Signing and marking.

C. TRAFFIC AND CRASH ANALYSIS

| RP 374.5000 to RP 378.000 | Year | Pass | Trucks | Total AADT | Flex ESALS | Rigid ESALS |
|---------------------------|------|-------|--------|------------|------------|-------------|
| Current Traffic | 2019 | 2,155 | 545 | 2,700 | 480 | 805 |
| Forecast Traffic | 2039 | 2,780 | 815 | 3,595 | 720 | 1,200 |

Crash Analysis: The five-year study period used was 12/1/14 to 11/30/19. Animal crashes were not included.

- 3 total crashes during the study period.
- 1 crash at the W Jct Co 1 (168th Ave SE) intersection
- 2 crashes at the E Jct Co 1 (Mooreton Ave) intersection
- No crash patterns/trends were identified.

Recommendations: None at this time.

D. EXISTING ROADWAY CHARACTERISTICS

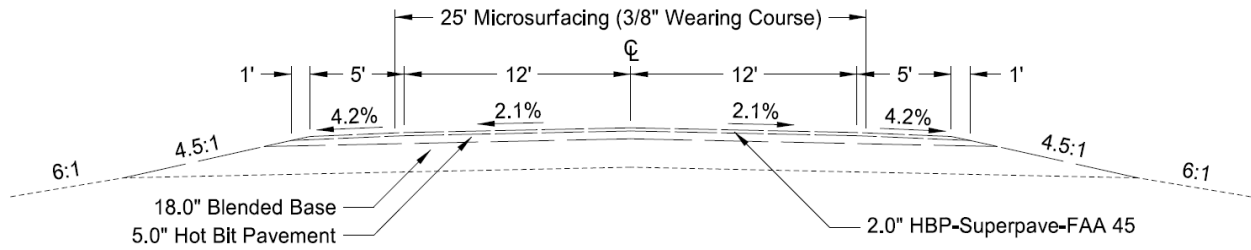
| | International Roughness Index (IRI) | Distress Score | Rut |
|-----------|-------------------------------------|----------------|-----------------|
| Excellent | < =60 | ≥ 98 | < 0.25" |
| Good | 61 – 99 | 88 – 97 | 0.25" to 0.375" |
| Fair | 100 – 145 | 77 – 87 | 0.376" to 0.50" |
| Poor | > 145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

RP 374.5 to RP 378.0

| Actual Age | IRI | IRI Rating | SI or SCI | Faulting |
|---------------|----------|----------------|-----------|---------------|
| 21 | 45 | Excellent | 0 | N/A |
| Effective Age | Distress | Distress Score | Rutting | Rutting Score |
| 13 | 97 | Good | 0.10 | Excellent |

| CONSTRUCTION HISTORY | | | | |
|----------------------|-----------------------|------------|------------|----------|
| Year | Construction | Depth (in) | Width (ft) | Oil |
| 1940 | GRADE | - | 36.0 | - |
| 1977 | WIDENING | - | 22.0 | - |
| 1998 | BLENDED BASE | 18.0 | 36.0 | - |
| 1998 | HOT BIT PAVEMENT | 2.5 | 36.0 | PG 58-28 |
| 1998 | HOT BIT PAVEMENT | 2.5 | 36.0 | PG 58-34 |
| 2001 | FEDERAL AID CHIP SEAL | - | 36.0 | HFMS-2 |
| 2008 | MICROSURFACING | - | 25.0 | - |
| 2013 | CONTRACT CHIP SEAL | - | 26.0 | HFMS-2 |
| 2016 | MILLING | -1.0 | 29.0 | - |
| 2016 | HBP-SUPERPAVE-FAA 45 | 3.0 | 34.0 | PG 64-28 |

Existing Typical Sections:



E. EXISTING GEOMETRY

Horizontal Curves: Use Existing

Vertical Curves: Use Existing

F. EXISTING STRUCTURES

Bridges: None

Centerline Pipes: Use Existing.

G. LAND INTERESTS

Small Community: Mooreton Population: 119

Reservation: None

Surface Trust Lands: None

Waterfowl Production Areas: None

Adjacent Land Usage: Agricultural

H. ISSUES AND APPURTENANCES CHECKLIST

- | | | |
|--|---|--|
| 1. Curb and Gutter? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 2. Sidewalk? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 3. Multi-Use Path? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 4. ADA Ramps? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 5. State Bicycling Network? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 6. Lighting? | Yes <input checked="" type="checkbox"/> | No <input type="checkbox"/> |
| There is an existing light at RP 378.0, that NDDOT is not currently paying for. No suggested improvements. Install an intersection destination light at intersection of ND 13 RP 377.5 & 168 th Ave SE. | | |
| 7. Signals? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 8. Storm Sewer? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 9. Manholes? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 10. Other Underground Work? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |
| 11. Parking Facilities? | Yes <input type="checkbox"/> | No <input checked="" type="checkbox"/> |

12. Frontage Roads? Yes No
13. Utility Issues? Yes No
There is buried telephone and fiber optic line throughout the corridor, along with a water line that crosses the roadway centerline.
14. Landscaping? Yes No
15. Approach or Ditch Block Flattening? Yes No
16. T Intersection Recovery Approaches? Yes No
17. Fence? Yes No
18. Railroad Crossings? Yes No
19. Detours/Bypasses? 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
There is an Environmental Sensor Site at RP 377.92 (Mooreton Ave) that will need to be moved if EB to NB left turn option is chosen.
23. Highway Patrol/Truck Pullouts or Rest Areas? Yes No
24. Additional Right of Way? Yes No
Existing ROW is 100'.
25. Drainage Issues? Yes No
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. Guardrail? Yes No
31. Milling? Yes No

I. Load Restrictions

Travel Information Map Proposed Load Restriction: Legal-Weight

HPCS Load Restrictions: N/A

Projected Load Restrictions after project is complete: Legal-Weight

J. Roadway Widths

Required Minimum Roadway Width: N/A

Freight Level Required Minimum Width: 28'

Surrounding Corridor Widths: West of Project: 34'

East of Project: 34'

K. PERFORMANCE GUIDELINES

Design Speed: 65 MPH

Clear Zone: Use existing

Shoulder Surface: Paved

Foreslopes: 4:1

L. PROPOSED IMPROVEMENTS

Make intersection improvements at areas listed below.

ND 13 (RP 375.042) & Minn-Kota Access:

Install either an EB to NB left turn lane or an EB bypass lane and a WB right turn lane.

ND 13 (RP 377.5) & 168th Ave SE:

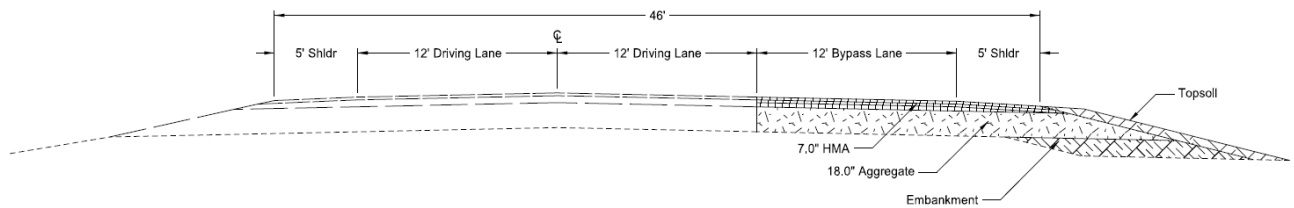
Install a WB to SB left turn lane. Install an intersection destination light. Upgrade signing and marking.

ND 13 (RP 378.0) & Mooreton Ave:

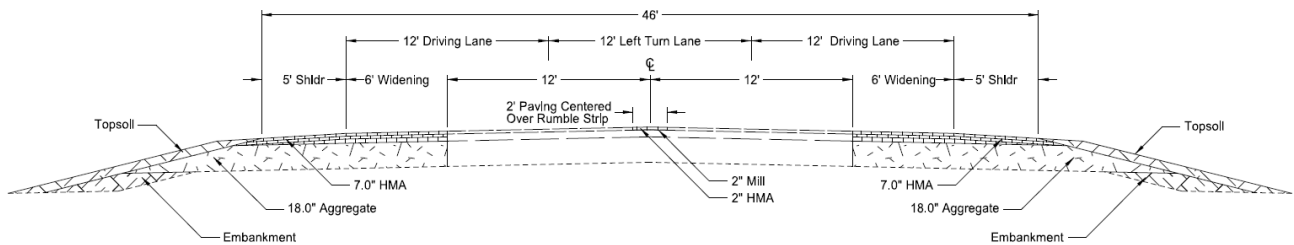
Install either an EB to NB left turn lane or an EB bypass lane. Upgrade Signing and marking.

Proposed Typical Sections: Proposed typical section shown is for estimating purposes only. Actual typical section dimensions should be determined in the design phase.

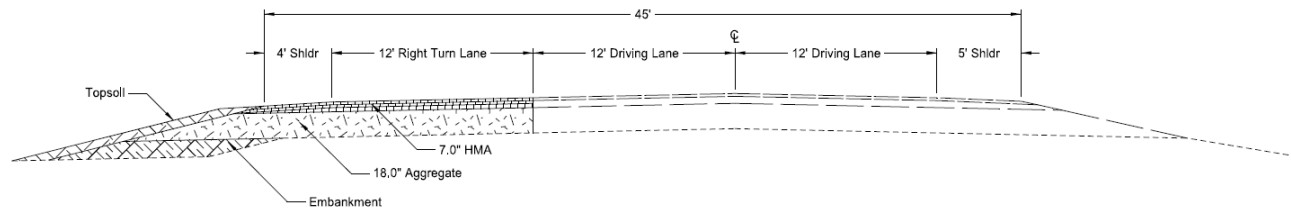
ND 13 Bypass Lanes:



ND 13 Left Turn Lanes:

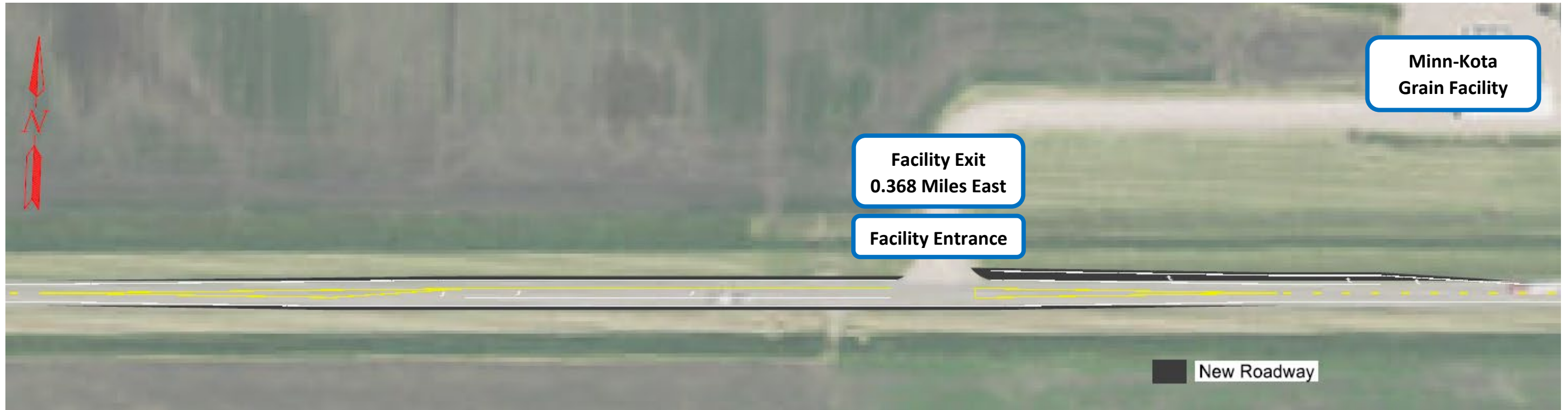


ND 13 Right Turn Lanes:



Proposed Layouts: Layouts of the proposed improvements shown below are conceptual. Bypass Lane lengths and tapers came from MNDOT standards. Design criteria, such as taper ratio, and length of bypass lane, should be determined during project development.

ND 13 (RP 375.042) & Minn-Kota Access:
EB to NB Left Turn Lane and WB Right Turn Lane



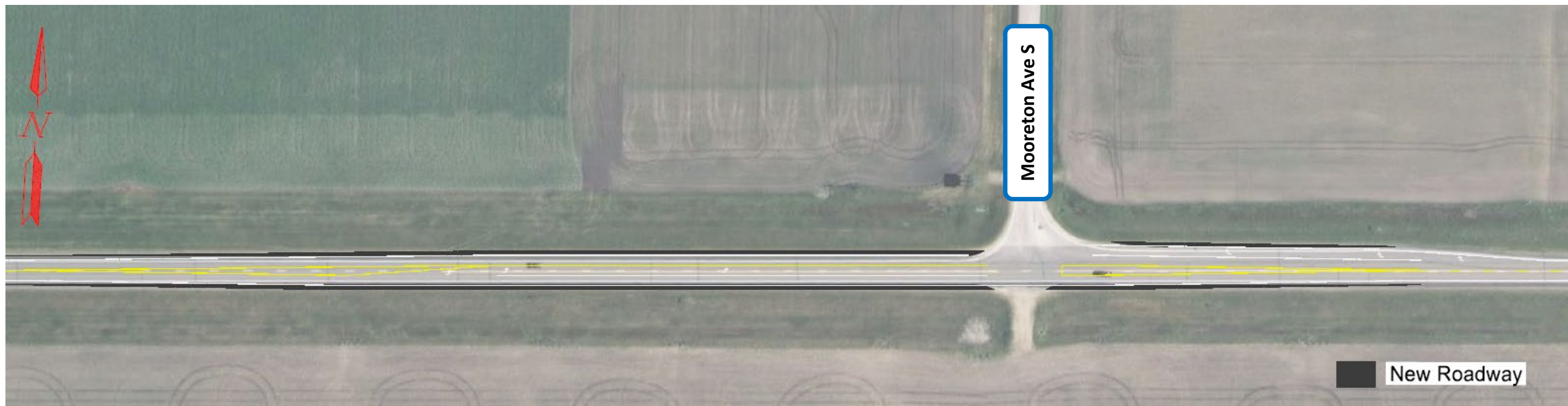
EB Bypass Lane and WB Right Turn Lane



ND 13 (RP 377.5) & 168th Ave SE:
WB to SB Left Turn Lane



ND 13 (RP 378.0) & Mooreton Ave:
EB to NB Left Turn Lane



EB Bypass Lane



M. ADDITIONAL COMMENTS

Fargo District:

- Option 1: We favor the right turn lane and the bypass lane.
- Option 2: We favor installing left turn lanes even though, the EB to NB left is very light.
 - An EB to NB left turn lane is not warranted (EB left turning volume = 6 cars/day) and it is not recommended from traffic operations. It is estimated that a cost to add the EB to NB left turn lane would be \$160,000.
- Option 3: We favor the bypass lane.

Where there are not opposing left turns to go to a public road in each direction, we believe a bypass lane is the best safety option for the cost. Also, a bypass lane at Mooreton will avoid impacts to the RWIS system in the north ditch.

N. COST ESTIMATE

ND 13 (RP 375.042) & Minn-Kota Access: WB Right Turn lane (Inflation factor of 4% was used to estimate costs for bid year)

| ITEM | ESTIMATED COST |
|------------------------------|----------------|
| Contract Bond | \$1,500 |
| Mobilization | \$7,500 |
| HMA | \$70,000 |
| Aggregate | \$41,000 |
| Removals | \$8,000 |
| Topsoil | \$2,000 |
| Embankment and Water | \$7,000 |
| Erosion and Sediment Control | \$7,000 |
| Rumble Strips | \$1,000 |
| Pavement Markings | \$1,000 |
| Traffic Control | \$2,000 |
| Pipe Extensions | \$10,000 |
| | |
| Subtotal | \$158,000 |
| 20% Engineering | \$32,000 |
| Total Cost | \$190,000 |
| Total Cost with Inflation | \$206,000 |

ND 13 (RP 375.042) & Minn-Kota Access: EB to NB Left Turn lane
(Inflation factor of 4% was used to estimate costs for bid year)

| ITEM | ESTIMATED COST |
|------------------------------|----------------|
| Contract Bond | \$4,000 |
| Mobilization | \$18,000 |
| HMA | \$184,000 |
| Aggregate | \$101,000 |
| Removals | \$32,000 |
| Topsoil | \$5,000 |
| Embankment and Water | \$11,000 |
| Erosion and Sediment Control | \$8,000 |
| Rumble Strips | \$2,000 |
| Pavement Markings | \$3,000 |
| Traffic Control | \$3,000 |
| Pipe Extensions | \$10,000 |
| | |
| Subtotal | \$381,000 |
| 20% Engineering | \$76,000 |
| Total Cost | \$457,000 |
| Total Cost with Inflation | \$494,000 |

ND 13 (RP 375.042) & Minn-Kota Access: EB Bypass Lane
(Inflation factor of 4% was used to estimate costs for bid year)

| ITEM | ESTIMATED COST |
|------------------------------|----------------|
| Contract Bond | \$2,000 |
| Mobilization | \$10,000 |
| HMA | \$104,000 |
| Aggregate | \$61,000 |
| Removals | \$11,000 |
| Topsoil | \$2,000 |
| Embankment and Water | \$10,000 |
| Erosion and Sediment Control | \$7,000 |
| Rumble Strips | \$2,000 |
| Pavement Markings | \$2,000 |
| Traffic Control | \$2,000 |
| Pipe Extensions | \$10,000 |
| | |
| Subtotal | \$223,000 |
| 20% Engineering | \$45,000 |
| Total Cost | \$268,000 |
| Total Cost with Inflation | \$290,000 |

**ND 13 (RP 377.5) & 168th Ave SE: WB to SB Left Turn Lane and Destination Lighting
(Inflation factor of 4% was used to estimate costs for bid year)**

| ITEM | ESTIMATED COST |
|------------------------------|----------------|
| Contract Bond | \$4,000 |
| Mobilization | \$18,000 |
| HMA | \$173,000 |
| Aggregate | \$96,000 |
| Removals | \$30,000 |
| Topsoil | \$5,000 |
| Embankment and Water | \$10,000 |
| Erosion and Sediment Control | \$8,000 |
| Rumble Strips | \$2,000 |
| Pavement Markings | \$3,000 |
| Traffic Control | \$3,000 |
| Lighting Improvements | \$20,000 |
| Signing Improvements | \$3,000 |
| Pipe Extensions | \$10,000 |
| | |
| Subtotal | \$385,000 |
| 20% Engineering | \$77,000 |
| Total Cost | \$462,000 |
| Total Cost with Inflation | \$500,000 |

**ND 13 (RP 378.0) & Mooreton Ave: EB to NB Left Turn Lane
(Inflation factor of 4% was used to estimate costs for bid year)**

| ITEM | ESTIMATED COST |
|---------------------------------|----------------|
| Contract Bond | \$3,000 |
| Mobilization | \$18,000 |
| HMA | \$173,000 |
| Aggregate | \$96,000 |
| Topsoil | \$5,000 |
| Removals | \$30,000 |
| Embankment and Water | \$10,000 |
| Erosion and Sediment Control | \$8,000 |
| Rumble Strips | \$2,000 |
| Pavement Markings | \$3,000 |
| Traffic Control | \$3,000 |
| Signing Improvements | \$3,000 |
| Pipe Extensions | \$10,000 |
| Environmental Sensor Relocation | \$10,000 |
| | |
| Subtotal | \$374,000 |
| 20% Engineering | \$75,000 |
| Total Cost | \$449,000 |
| Total Cost with Inflation | \$486,000 |

ND 13 (RP 378.0) & Mooreton Ave: EB Bypass Lane
(Inflation factor of 4% was used to estimate costs for bid year)

| ITEM | ESTIMATED COST |
|------------------------------|----------------|
| Contract Bond | \$2,000 |
| Mobilization | \$11,000 |
| HMA | \$104,000 |
| Aggregate | \$61,000 |
| Removals | \$11,000 |
| Topsoil | \$2,000 |
| Embankment and Water | \$10,000 |
| Erosion and Sediment Control | \$7,000 |
| Rumble Strips | \$2,000 |
| Pavement Markings | \$2,000 |
| Traffic Control | \$2,000 |
| Signing Improvements | \$3,000 |
| Pipe Extensions | \$10,000 |
| Subtotal | \$227,000 |
| 20% Engineering | \$45,000 |
| Total Cost | \$272,000 |
| Total Cost with Inflation | \$294,000 |

O. DECISIONS

1. Which advancement option(s) should be chosen for the project?

Option 1: ND 13 (RP 375.042) & Minn-Kota Access:

- WB Right Turn Lane: **Estimated Cost: \$220,000**
- EB to NB Left Turn Lane: **Estimated Cost: \$494,000**
- EB Bypass Lane: **Estimated Cost: \$290,000**

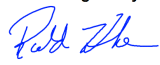
Option 2: ND 13 (RP 377.5) & 168th Ave SE:

- WB to SB Left Turn Lane: **Estimated Cost: \$500,000**

Option 3: ND 13 (RP 378.0) & Mooreton Ave:

- EB to NB Left Turn Lane: **Estimated Cost: \$486,000**
- EB Bypass Lane: **Estimated Cost: \$294,000**

DDE Comments: _____

DocuSigned by:

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 Deputy Director for Engineering

1/5/2021

 Date