

# Converting Paved Roads to Unpaved: North Dakota Experience

Monday, January 8, 2018, 3:45 PM- 5:30 PM

Convention Center, 209C - *Lectern Session 412 - #P18-21139*

Sponsored by: Standing Committee on Low-Volume Roads (AFB30)

Dale C. Heglund, PE/PLS

North Dakota LTAP Director

# The #1 problem with a gravel road:

## It's not a paved road!



# North Dakota has 107,000 miles of roadway

NDDOT - 7,400 miles – all paved – 92% asphalt and 8% concrete

Cities - 1,900 miles - 200 miles of gravel

County/Local Road Network has 97,700 miles

6,600 miles are paved, 59,000 miles are gravel surfaced (55% of total system!) and 32,000 miles are unsurfaced




North  
Dakota

Stanley  
North Dakota

Minnesota





**MOUNTRAIL COUNTY**

**DEPT. OF  
ROADS & BRIDGES**

*Proudly Serving the People of  
Mountrail County Since 1909*



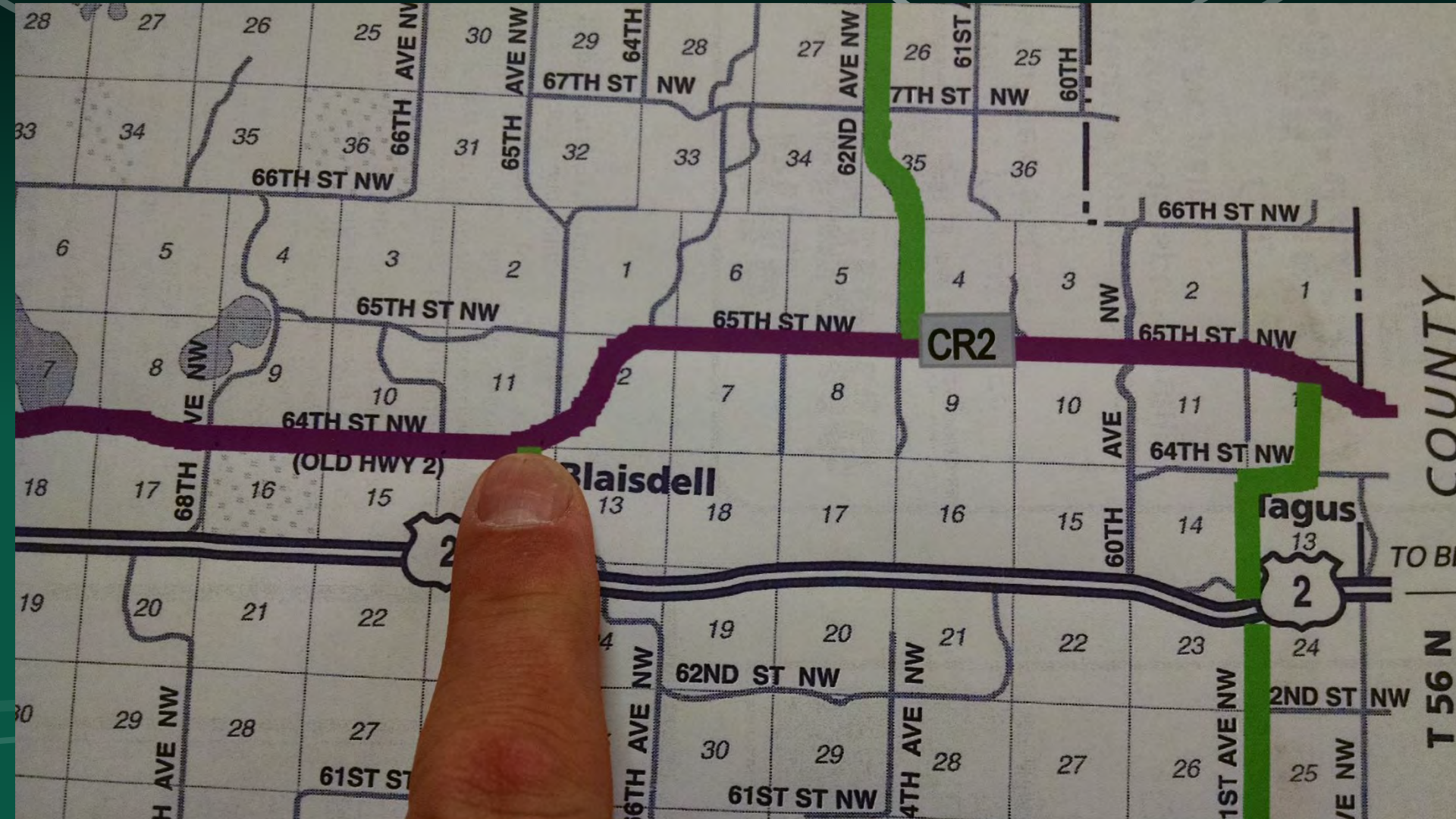
TIME CARDS

CROSSING PERMITS

INVOICES











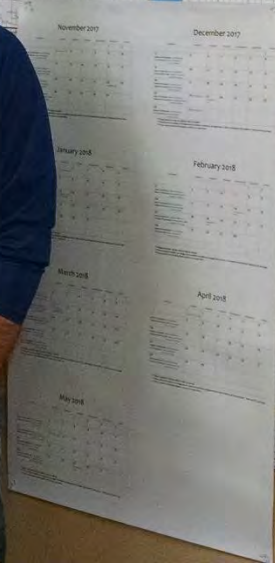








WHY IS MONDAY  
SO FAR FROM FRIDAY,  
BUT FRIDAY SO





# Department of Defense



## Beetle Bailey





# Air Force Comments

... steadily deteriorating condition

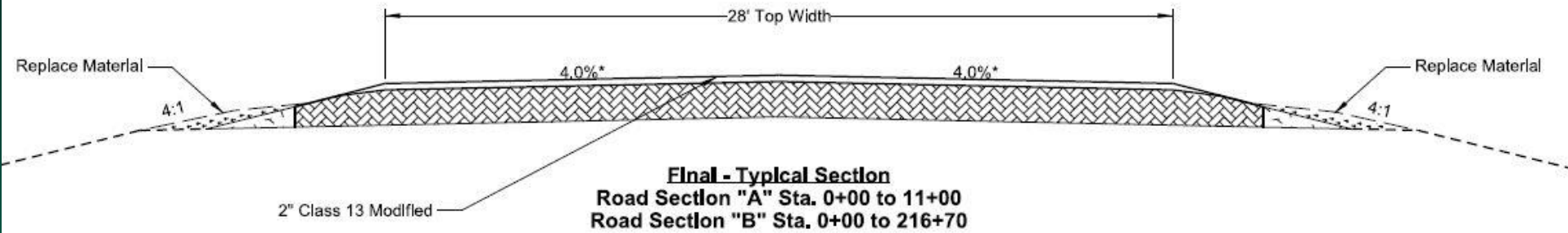
... condition below a gravel road

... condition may affect their mission

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... very happy with the results

... no longer a concern that the road may adversely affect their mission





**302-P01 AGGREGATE SURFACE COURSE CL13:** Aggregate Surface Course CL 13 shall be placed after full depth reclamation and surface is shaped to 4% normal crown. Aggregate quantity is estimated at 37.4 Tons per Station. An additional 704 Tons is included for approaches.

Provide a Class 13 Aggregate with a Plasticity Index (PI) ranging from 4 to 9 and meets the requirements of Section 816.02, "Miscellaneous Aggregates".

The PI is to be determined in accordance with test ND T90, "Determining the Plastic Limit and Plasticity Index".

A contract adjustment will be administered if the PI is not within the specified range. The Engineer will determine the PI adjustment factor if the limits for PI are exceeded, as calculated:

PI Adjustment Factor = 5 percent x (Average of 3 Samples – Allowable PI)

If the PI is determined to be greater than 12, the material will be rejected.

# Material Breakdown









# Multiple Layers



Gravel  
Layer

# Foundation Repairs





# Proof Load Test



Ann Taylor, Brosz Engineering  
Field Engineer





Dust Suppressant





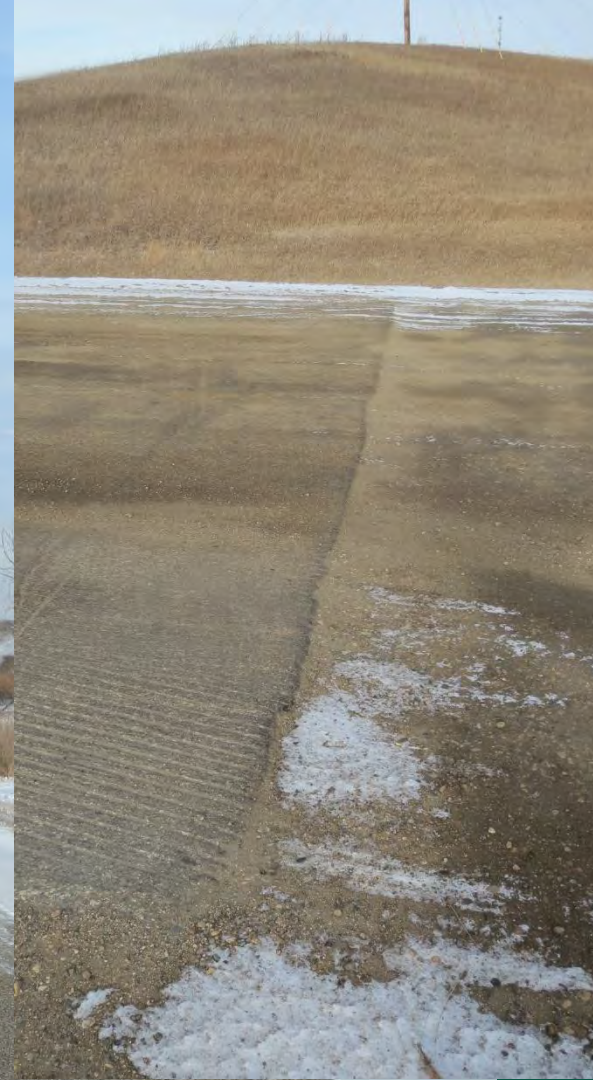








# Transitions



# Roadway Network, Public Expectation







08.29.2008 00:52





08.29.2008 00:55

**BLENDED BASE COURSE:** The blended base course shall consist of an uniform blend of the new Aggregate Class 3M (2"), existing bituminous pavement (approx. 2.5"), and gravel base (approx. 6"). The existing asphalt pavement material shall be processed to provide a nominal 1" maximum size. The unit price bid for "Blended Base Course" shall include all costs for sizing, blending, laying, and compacting the blended base.

















# Conversion Comments

Initial public response – Why???

... ADT, Safety, Cost, Ride...

Proper selection => pleased customers

NDLTAP - technical resource



Hans Langseth – 18'-6" beard





# Special Thanks to Material Contributors

Jana Hennessy, Mountrail County Engineer

Ann Taylor, Brosz Engineering

Mark Schrader, FHWA ND Division

Mike Rivinius, PE, Wold Engineering

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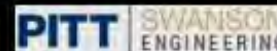
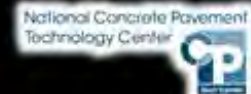






# NRRRA

National Road Research Alliance



## Strategic Implementation Through Cooperative Pavement Research

