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.
Air Force Comments

... steadily deteriorating condition
... condition below a gravel road
... condition may affect their mission

__________________________
... very happy with the results

... no longer a concern that the road may adversely affect their mission
Final - Typical Section
Road Section "A" Sta. 0+00 to 11+00
Road Section "B" Sta. 0+00 to 216+70

*Normal road crown should be 4% in straight alignment areas. Match existing super elevations and transitions.
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:

\[ \text{PI Adjustment Factor} = 5 \text{ percent} \times (\text{Average of 3 Samples} - \text{Allowable PI}) \]

If the PI is determined to be greater than 12, the material will be rejected.
Material Breakdown
Multiple Layers
Foundation Repairs
Proof Load Test

Ann Taylor, Brosz Engineering
Field Engineer
Dust Suppressant
Transitions
Roadway Network, Public Expectation
Kidder County Project
BLEND BASE COURSE: The blended base course shall consist of an uniform blend of the new Aggregate Class 3M (2"), existing bioluminous 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 $\Rightarrow$ 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
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
dale.heglund@ndsu.edu  701-318-6893
Strategic Implementation Through Cooperative Pavement Research