

NDSU UPPER GREAT PLAINS
TRANSPORTATION INSTITUTE

Statewide Needs Study Safe Streets for All

NDTOA Annual Meeting

December 4, 2023

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Statewide Needs Study

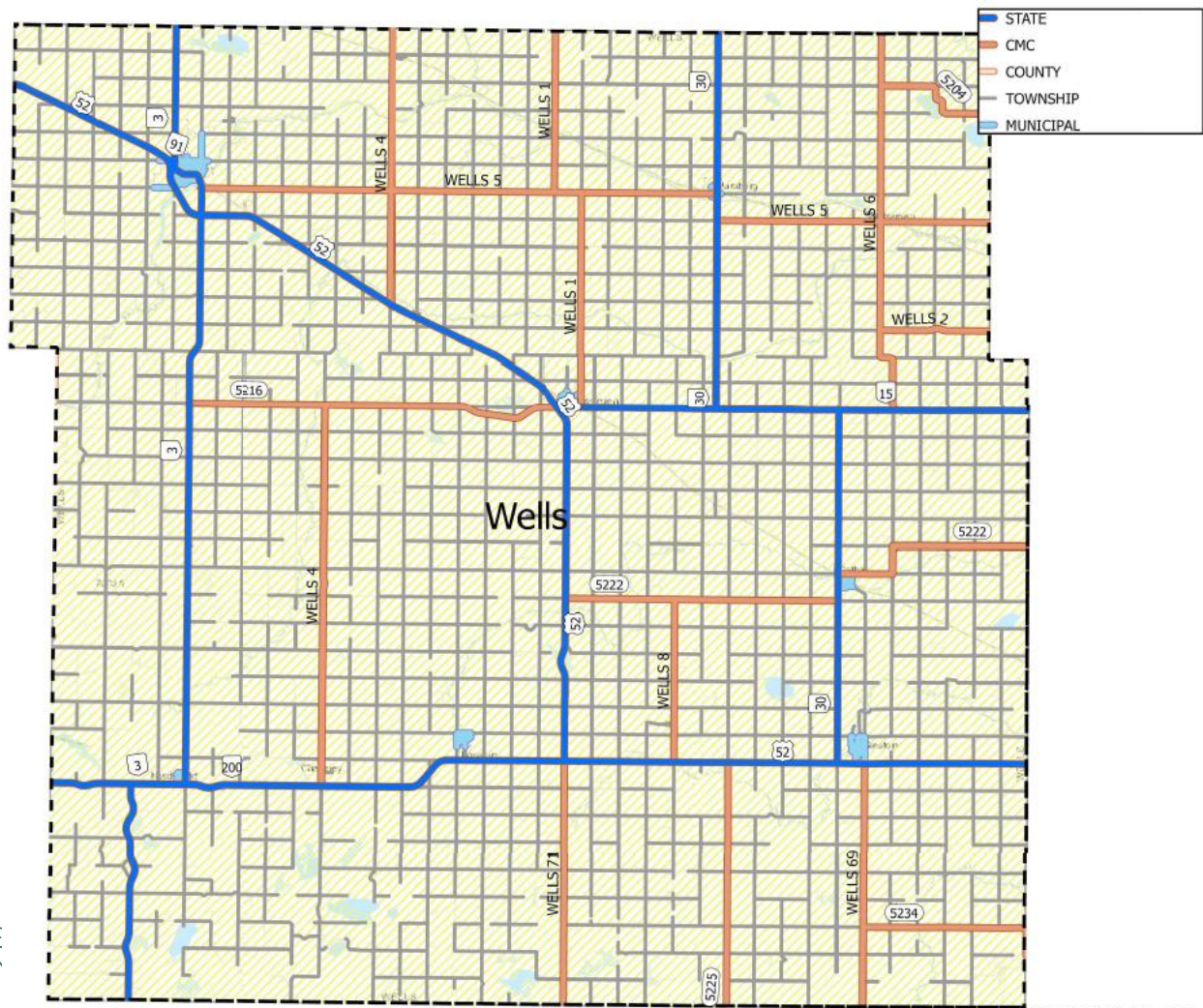
- Objective: Estimate the funding needs to maintain the existing road and bridge system over the next 20 years
 - Correct deficiencies to maintain and improve the system
 - Does not include system-wide improvements (i.e. developing a paved network of previously gravel roads)

Study Components

- Network
- Traffic Forecasting
 - Agriculture
 - Oil-Related
- Costs and Maintenance Practices
- Annualized Needs by Traffic Level
- Summarize Needs by Jurisdiction

Network

- Route traffic
- Calculate number of miles
- Assign the needs to the proper jurisdiction
- Include/exclude roadways from analysis based on surface type

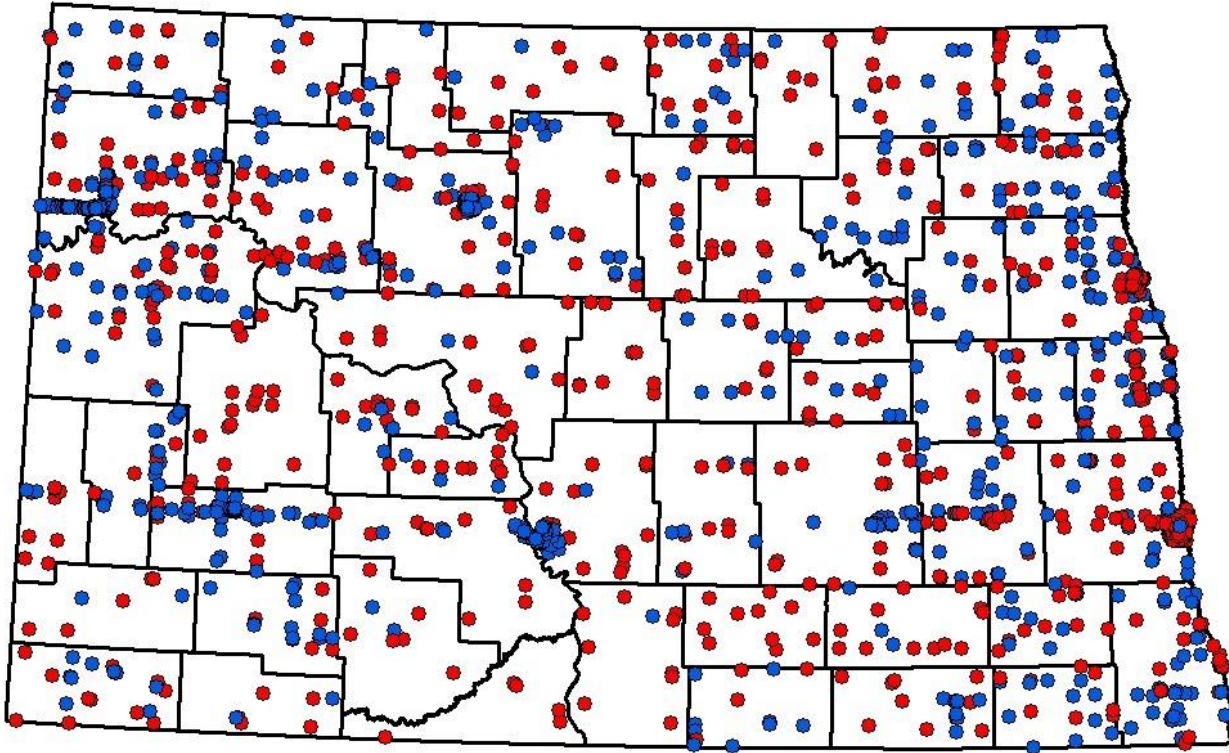


Traffic Forecasting

- Impacts to roadways are dependent on traffic levels
 - Higher traffic
 - More frequent blading
 - More frequent and thicker gravel overlays
 - Dust suppressant and base stabilization
- Travel Demand Model
 - Using agricultural and oil related data to forecast truck traffic over the next 20 years
 - Compared against observed traffic counts and adjusted

Traffic Counts

- Volume Only
- Truck Classification



Survey of Costs and Practices

- Initial mailing – November 1 with a November 20 deadline
 - Surveys can be returned at any time up until 2/1/24
- NDTOA email with fillable survey
- Initial response was strong
 - Data entry underway
- Follow-up emails
- Survey components

1. Cost Breakouts (If known)		
Average Gravel/Scoria Cost (crushing & royalties)		<input type="checkbox"/> Per cu. yard <input type="checkbox"/> Per Ton
Average Transportation Cost from Gravel Origin		<input type="checkbox"/> Per loaded mile <input type="checkbox"/> Per cu. yard
Average Placement Costs		Per mile
Blading Cost		Annual cost per mile
Dust Suppressant Costs (If applicable)		Per mile

2. Total Cost (if cost breakouts are not known)		
Total Cost	\$	<input type="checkbox"/> Per cu. yard <input type="checkbox"/> Per Ton <input type="checkbox"/> Annual cost per mile
Number of Miles Maintained		

Average Gravel/Scoria Overlay Thickness _____

Cu. Yard/mile

Inches

Tons/mile

Road Maintenance Practices

Who performs road maintenance in your township?

County Maintained

Township Contracted

Township Staff

Please report blading and graveling frequency for gravel roads.

Blading Frequency

- Every other month
- 1 per month
- 2 per month
- 1 per week
- other (please explain)

Graveling Frequency

- Every year
- Every 2-3 years
- Every 3-4 years
- 5 or more years
- other (please explain)

Aside from routine maintenance and improvements, what other challenges are facing roadway maintenance in your township? (flooding, high traffic generators etc.).

How the Survey Data is Used

- Survey results are used to calculate an average annual cost per mile by traffic level
- Survey results account for regional variations in gravel costs and maintenance practices
- Group miles by traffic levels
 - Very high, high, medium, low, very low
- If reported maintenance levels are below standards, minimum standard is used
- Apply annualized costs to each traffic level and add mileages across each jurisdiction

Importance of Surveys

- In the most recent study, 62% (\$6.5 billion) of the funding needs come from unpaved roads
- Township roads comprise 1/3 (\$2.2 billion) of the unpaved road needs
- Previous response rate has ranged from 75%-85%!

Safe Streets for All

- The SS4A program funds regional, local, and Tribal initiatives through grants to prevent roadway deaths and serious injuries
- Planning Grant – develop a comprehensive safety plan and identify improvements
- Implementation Grant – funding to implement improvements identified in the planning grant
- UGPTI was awarded a planning grant to develop North Dakota Road Safety Action Plan (NDRSAP)

NDRSAP

- Scope – Unpaved Township Roads
 - Organized, Unorganized, Township Roads within Tribal Boundaries
- Study Process
 - Analysis of Crash Data – Identify Issues from Crashes
 - Survey – Identify Issues from Public Perception
 - Mitigation – Cost-effective remedies
 - Summaries

Issues Identified in Proposal

- Sight distances
- Curves – presence or signage
- Intersections
- Culvert and bridge condition
- Flooding
- Lack of edge striping
- Speed limits
- Human behavior
- Road condition
- Dust management
- Access
- Wildlife/Livestock

Mitigation

- Proposal specifies analysis of various design features such as horizontal and vertical curves, roadway width and in-slopes
- Determine if there are any systemic low-cost improvements that can be made to improve the safety of these roads
- Low-cost, high-impact strategies and counter measures

Summaries

- County level reporting
 - Aggregate township needs to county
 - County specific for unorganized townships

Activity	Date
Identify partners needing to complete questionnaire	January 2024
Develop a questionnaire	January 2024
Research traffic volumes	
Research data from 5 years of fatalities	January 2024 – March 2024
Research high impact strategies and counter measures on unpaved roads	January 2024 – March 2024
Attend annual conferences, conduct local meetings to secure information & circulate questionnaire	January 2024 – October 2024 November 2024 – December 2024 – conferences
Document in-kind commitment to data gathering	January 2024 – December 2024
Write draft plan with a county-level focused on unpaved township roads – circulate to partners - NDDOT? UGPTI? NDACo? NDATO? Tribes?	January 2025 – April 2025
Complete Action Plan based on feedback	May 2025
Adopt Action Plan – NDDOT? UGPTI? NDACo? NDATO? Tribes?	August 2025
Final Action Plan Submitted	September 2025

Questions?

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