

Upper Great Plains Transportation Institute 2021-2023 Budget Request

Presented to
the Senate Appropriations Committee
by Denver Tolliver, Director
Jan 20, 2021

Major Statutory Responsibilities

- Established in 1967 to conduct research in transportation and logistics to facilitate a wider understanding of the marketing factors associated with the geographic location of the state (54-53-03)
- Findings, conclusions, and suggested solutions must be made public (54-53-03)
- Can contract for and accept private contributions, gifts, and grants-in-aid (54-53-04)

Transportation Advisory Council

- A transportation council was created to serve in an advisory capacity to the Upper Great Plains Transportation Institute (54-53-02)
- Council shall consult with the Institute in matters of policy and the development of transportation in the state (54-53-02)
- Also review UGPTI's budget requests and make recommendations
- 19-member council includes the following state agencies and stakeholders

Advisory Council Members

- Aeronautics Commission
- Associated General Contractors
- Association of Counties
- Chamber of Commerce
- Corn Council
- Department of Agriculture
- Department of Commerce
- Department of Transportation
- Farmers Union
- Grain Dealers Association
- Grain Growers Association
- League of Cities
- Lignite Energy Council
- Motor Carriers Association
- Public Service Commission
- Wheat Commission
- Dakota Transit Association
- Manufacturing Sector
- Railway industry

UGPTI Centers/Programs

Table 1. Centers, Programs, and Focus Areas

- Advanced Traffic Analysis
- DOT Support Center
- Local Technical Assistance
- County Roads & Bridges
- Rural Transp. Safety
- Mobility
- Transp. Learning Network
- Commercial Vehicle Safety
- Real-time Simulation
- Agricultural Freight
- Rural Traffic Analysis
- Tribal Outreach

Mountain-Plains Consortium

Audits

- UGPTI was audited by the Office of the State Auditor for the biennium ending 06/30/19
- UGPTI's financial transactions and expenditures were audited
- The audit did not identify any areas of concern
- This was the only audit of UGPTI during the 2019-2021 biennium

Accomplishments, Challenges, Goals

Challenges in 2019-2021 Biennium

- Adjustments needed in research, technology transfer, training, and administration
- Able to quickly shift to remote work/virtual delivery
- Research program largely unaffected
- Able to accomplish all research objectives
- COVID-19 accelerated distance-learning trends
- Successfully adapted most planned conferences and workshops to virtual events

Accomplishments, Challenges, Goals

Road and Bridge Investment Needs Study

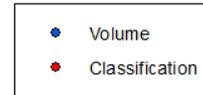
- Biennial analysis of county, township, and tribal road investment needs
- 71,454 miles of road: incl. 5,682 miles of paved county road; 56,656 miles of gravel road
- Data, assumptions, and results presented to Interim Taxation Committee, WDEA, Township Officers, meetings of local government officials (2), NDDOT
- Feedback encouraged throughout the process

Accomplishments, Challenges, Goals

Road and Bridge Investment Needs Study

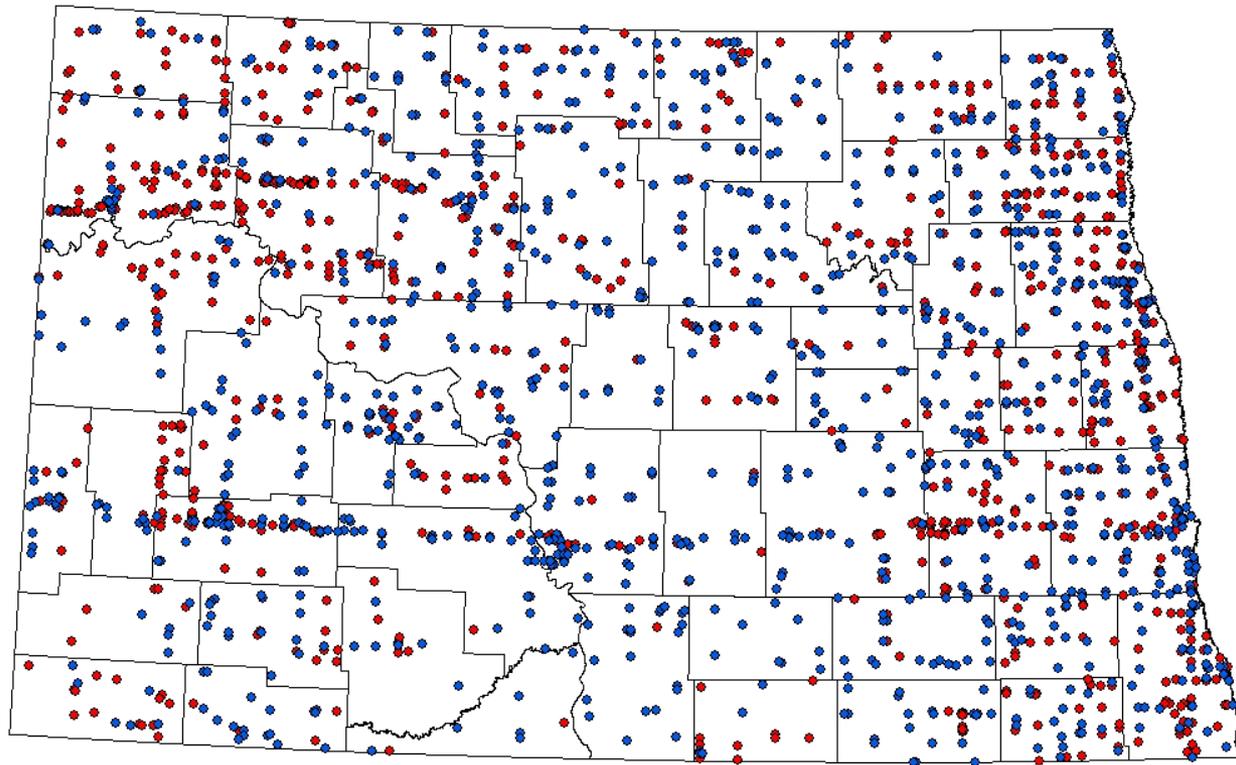
Traffic Data Collection

UGPTI: 437 locations + NDDOT sites



Pre-COVID
Data

Classification:
Truck v. auto
By truck size



Accomplishments, Challenges, Goals

Road and Bridge Investment Needs Study

- **Road Condition and Geometry Data**
- Road surface conditions on 5,000+ miles of paved county road
- Ride quality data collected using smart phones with special apps to measure road roughness
- Video images captured from phones → assess road conditions (e.g., cracking) and develop composite ride scores

Accomplishments, Challenges, Goals

Road and Bridge Investment Needs Study: Surveys

- **County road managers:** blading and gaveling practices, sources and costs of gravel, and other cost factors
 - All 53 counties responded to survey
- **Townships:** 75% response rate
- **MHA Nation**

Accomplishments, Challenges, Goals

Road and Bridge Investment Needs Study

- **Grain Elevator Truck Use Survey**
- Determine types of trucks used to haul grain from farms to elevators (e.g., tandem axle, tridem axle, and tractor-semitrailer), as well as the average distance of the inbound movements
- Information essential to forecasting road investment needs in the central and eastern parts of state

Accomplishments, Challenges, Goals

Road and Bridge Investment Needs Study

- **Bridge Condition Analysis**
- Current conditions of 2,261 bridges on county roads assessed during the biennium
- Condition forecasts developed using UGPTI's bridge deterioration model

Accomplishments, Challenges, Goals

Road and Bridge Investment Needs Study

- **Scenarios Analyzed**
- Original pre-COVID forecast of 1,440 new wells per year (60 rigs operating in state)
- Revised scenario: only 564 new wells added in 2020; number of new wells projected to increase annually, returning to 1,440 wells per year in 2025
- Lower bound scenario: drilling returns to original baseline level of 1,440 new wells per year in 2027

Accomplishments, Challenges, Goals

Road and Bridge Asset Management System

- Significantly improved the Geographic Roadway Inventory Tool (GRIT) for county road managers
- All data collected by UGPTI are uploaded to GRIT and combined with data entered by the counties
- GRIT stores and displays information on road surface type and current condition, shoulder width, subgrade strength, and other design features, as well as traffic, construction history, and improvement plans

Accomplishments, Challenges, Goals

Road and Bridge Asset Management System

- In the 2019-21 biennium, information on routine maintenance (e.g., seal coats), striping, and gravel road treatments were added
- A pavement condition forecasting procedure was included: allows counties to see expected conditions up to 35 years out
- Expanded reporting and mapping capabilities allow counties to view percentages of road miles in condition categories

Accomplishments, Challenges, Goals

Other Enhancements: Asset Management System

- Emergency related projects—e.g., flooding
- Load restriction webmap linked to NDDOT's Traveler Information map
- Counties can set and show active load restrictions (currently being added)
- Display bridge load postings
- Inventory of bridges and minor structures less than 20 feet in length

Examples of Productivity 2019-21

- Thus far, 52 peer-reviewed transportation research reports published by UGPTI/MPC
 - Freely available from our website
- 460 training, e-learning, and outreach events, in which there were 13,170 participants.
 - Do not include expected events and participants during the remaining 6 months of biennium
 - Only the results as of December 31, 2020

Goals & Plans for 2021-2023 Biennium

- Win critical grant competitions for Federal funds
- Road and bridge biennial study
- Enhancements to asset management system
- Tribal outreach/technical assistance
- Road safety and technology
- Remote sensing of surface transportation infrastructure

Table 2. Base Budget and 2021-23 Request

Item	2019-2021 Base	2021-2023 Request	Change to Base
General Fund	\$4,396,329	\$4,621,329	+\$225,000
Federal Funds	\$12,663,210	\$12,663,210	\$0
Special Funds	\$6,232,684	\$6,232,684	\$0
Total: All Funds	\$23,292,223	\$23,517,223	+\$225,000
FTE	43.88	43.88	0

General Funds: Needs and Purpose

- Essential to success and sustainability
- Needed to match federal grants
 - Many (such as UTC grant) require a 100% match
 - Non-federal source funds
 - UGPTI's general funds only dependable source of match
- Only hard dollars in UGPTI's budget
 - Federal and special funds provided at discretion of other agencies; subject to their budget limits
 - GF provide continuity in times of delay or disruption in federal funding

Supplemental Request for 2021-2013

- Remote sensing of roads, bridges, railroads, pipelines, and other essential assets
- UAVs offer advanced potential with BVLOS in future
- Efficiencies in collecting and processing field data
- Greater analytical capabilities through AI
- Optional funding request of \$225,000 to allow UGPTI to partner with NDDOT and NPUASTS
- Leverage federal grants
- Make North Dakota a global leader in data-driven transportation planning solutions

Ancillary Budget Details

- Salaries included in Table 2 at base level
- Capital and one-time funding
 - UGPTI's 2019-2021 budget does not include funds for capital facilities or one-time funds
 - UGPTI's 2021-2023 budget request does not include requests for capital facilities or one-time funds

Executive Recommendation

Table 3	General Fund	Federal Funds	Special Funds	All Funds
2021-23 Legislative Base	\$4,396,329	\$12,663,210	\$6,232,684	\$23,292,223
Recommended reduction	-\$219,816	\$0	\$0	-\$219,816
2021-23 Base Budget	\$4,176,513	\$12,663,210	\$6,232,684	\$23,072,407
Reprioritize 5% Spec. Funds			\$311,364	
2021-23 FTE				43.88

Executive Recommendation (cont.)

- Impacts of recommended 5% cut
 - Harm to existing state programs
 - Limit capability to match federal grants
- Advisory Council and SBHE recommend restoration of cut

Table 4. Requested Changes to Executive Recommendation

Restoration of 5% cut in general funds	+\$219,816
Remote sensing: transportation infrastructure	+\$225,000

CARES Act Funding

- Used to develop virtual and online eLearning sessions to replace in-person, instructor-led trainings
- Initial request (Table 5) included LMS
- However, federal government offered their LMS

Table 5. UGPTI CARES Act Funding

Item	Personnel	Operating	Total
Original Request	\$86,496	\$15,999	\$102,495
Amount Returned	\$43,000	\$14,400	\$57,400
Revised Amount	\$43,496	\$1,599	\$45,095

Conclusion

Thank you considering UGPTI's 2021-23 Request

Table 6. Requested Changes to 2019-2021 Base

Item	Amount
2019-2021 Base	\$4,396,329
2021-2023 Request	\$4,621,329
Change to Base	+\$225,000
Percent Change to Base	5.1%
