

NDSU Upper Great Plains Transportation Institute 2025-2027 Budget Requests

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Agency 627
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Legislative Directives and Purpose

N.D.C.C
54-53-03

The Upper Great Plains Transportation Institute's is to “conduct and supervise research in the field of transportation and logistics in order to facilitate acquisition of a wider knowledge and understanding of marketing factors associated with the geographical location of the state of North Dakota and the upper great plains in the field of transportation and their influence on the socioeconomic systems of the state, region, and country.” UGPTI's research areas “must include the study of commodity and other freight movements into and out of the state in order to better know and understand the various factors affecting the marketing of area products and services.”

Administration

N.D.C.C
54-53-01

The Institute must be administered by and in conjunction with the North Dakota State University of Agriculture and Applied Science. The president and administration of the North Dakota State University are responsible for the selection of personnel for and the administration of the Institute

Advisory Council

N.D.C.C
54-53-02

The Legislature established a transportation council to serve in an advisory capacity and “consult with the Institute in matters of policy affecting the administration of this chapter and in the development of transportation in the state of North Dakota.” The council shall elect its own chair. And the Director of the Institute shall serve as the executive secretary of the council.

Advisory Council Members

- ND Aeronautics Commission
- Associated General Contractors of ND
- ND Association of Counties
- Greater ND Chamber
- ND Corn Council
- ND Department of Agriculture
- ND Department of Commerce
- ND Department of Transportation
- ND Farmers Union
- ND Grain Dealers Association
- ND Grain Growers Association
- ND League of Cities
- Lignite Energy Council
- ND Motor Carriers Association
- ND Public Service Commission
- ND Wheat Commission
- Dakota Transit Association
- Rep. of manufacturing sector
- Rep. of railway industry

Biennial Road & Bridge Needs Assessment

- 71,808 miles of road, including 5,843 miles of paved county road
- Vehicles counts (ADT and Truck ADT) \approx 100 locations
- Surface conditions (roughness, cracking, etc.) of paved roads
- Survey of counties to determine blading and graveling practices
- Current ages/conditions of 2,079 bridges on county roads and 2,095 minor structures \leq 20 feet

Table 1. County, Township, & Tribal Road & Bridge Needs (Millions)

<i>Time Period</i>	<i>Unpaved Roads</i>	<i>Paved Roads</i>	<i>Bridges</i>	<i>Minor Structures</i>	<i>All</i>
Twenty Years	\$6,971.45	\$3,496.17	\$1,087.16	\$805.00	\$12,359.78
Current Biennium	\$707.88	\$433.82	\$178.94	\$151.06	\$1,471.70
Avg. Biennial	\$697.15	\$349.62	\$108.72	\$80.50	\$1,235.98

Road & Bridge Asset Management

- Geographic Roadway Inventory Tool (GRIT)
 - Inventorying/managing road & bridge assets
 - Recording maintenance activities
- Foundation for the biennial needs study
- Tools for performance-based construction/maintenance planning based on continually updated pavement condition and traffic data
- On-line reporting capabilities with web-based maps and dashboards which provide transparency and critical information
- Recently added features: a sign inventory layer and AI tools

Biennial Freight Analysis

- Data on shipment volumes, weights, and values of commodities originating or terminating in North Dakota
 - Inventory and analysis of the farm truck fleet
 - Commercial truck inventories and use patterns
 - Grain flows from farms to elevators and processing plants
 - Goods movements within and through the state by truck
- A railroad freight analysis tool that summarizes rail freight shipments to, from, and within the state by commodity group
- North Dakota Community Freight Survey

Productivity and Results

- Oct. 1, 2022 through Sept 30, 2024
- UGPTI and UTC program
- 179 peer-reviewed journal articles
- 68 peer-reviewed transportation research reports,
- 883 training, e-learning, and outreach events with 16,054 participants

Federal Funds

- U.S. Department of Transportation
 - Office of the Secretary of Transportation
 - Federal Highway Administration
 - Federal Transit Administration,
 - Federal Motor Carrier Safety Administration
 - National Highway Traffic and Safety Administration
- Pre-determined uses; limited discretion
- Not a substitute for state research dollars

State and Other Funds

- **Special funds:** grants from NDDOT, other state agencies, private industries
 - UGPTI does not operate facilities or assess fees that generate revenue on a continuous basis
- **General funds** are needed to:
 - Match federal grants (50%-100% match)
 - Provide continuity in times of delay or disruption in federal funding
 - Only hard dollars in UGPTI's budget

UGPTI's Budget Requests Included in Executive Recommendations

Request	Funding Request		
	Base	One Time	Total
Autonomous Surface Transp. Center	<i>Not included in Exec. Recommendation</i>		
AI for Surface Transportation	\$375,000	\$0	\$375,000
CO2 Multimodal Network	\$0	\$408,100	\$408,100
Total	\$375,000	\$408,100	\$783,100
Included in Senate Bill 2020	\$0	\$0	\$0

SB 2020 as Passed by the Senate

Item	Base	Adjustments	Appropriation
UGPTI	\$24,807,516	\$521,955	\$25,329,471
New and vacant FTE pool	\$0	\$266,019	\$266,019
Total all funds	\$24,807,516	\$787,974	\$25,595,490
Less other funds	\$19,581,141	\$507,090	\$20,088,231
Total general funds	\$5,226,375	\$280,884	\$5,507,259
FTE	43.88	-1	42.88

Details of Senate Changes to Executive Recommendations

Item	Add Funding for Salary and Benefit Increases	Add Funding to Replace 2023-25 Vacant FTE Pool	Remove Vacant FTE Position	Transfer Funding for 2025-27 New and Vacant FTE Pool	Total Senate Changes
New and vacant FTE Pool				\$266,019	\$266,019
Upper Great Plains Trans.	\$719,877	\$339,241	(\$157,136)	(\$380,027)	\$521,955
Total all funds	\$719,877	\$339,241	(\$157,136)	(\$114,008)	\$787,974
Less estimated income	\$507,163	\$236,946	(\$157,136)	(\$70,883)	\$507,090
General fund	\$212,714	\$102,295	\$0	(\$34,125)	\$280,884
FTE	0.00	0.00	(1.00)	0.00	(1.00)

CO₂ Network Study/Model

- CO₂ has many industrial uses including EOR
- However, a transportation network does not exist
- DOE programs intended to encourage expansion and interconnection of CO₂ transportation network: FEED and FGG
 - Support shared infrastructure projects, including pipelines, rail, ships and barges, and ground shipping
- No comprehensive DOE model or plan; piecemeal development
- A state model/vision could help private sector apply for FGG

Input/Collaborations

- North Dakota Departments of Agriculture, Commerce, and Transportation and PSC
- Oil and Gas Division
- Energy and Environmental Research Center
- Biofuels and ethanol industries
- National DOE labs (ORNL)
- Class I and regional railroads

AI for Surface Transportation

- AI has potential to
 - Improve worker safety
 - Boost the consistency and reliability of data
 - Cost-effectiveness of transp. operations & asset management
 - Offset worker shortages
- Use data from smart sensors, cameras, drones, and vehicles
- AI can automate and improve the reliability of
 - Transportation infrastructure inspection and monitoring
 - Traffic monitoring, control, and safety
 - Predictive modeling for traffic and goods movements

AI for Surface Transportation (cont.)

- 68th Legislative Assembly provided \$432,600 for Transportation Data & Intelligence Lab
- Requested funding would be used for:
 - Transportation research
 - Development of prototypes
 - Workforce development: train and mentor future workers in machine learning, AI, and agency operations in a highly automated environment

Autonomous Surface Transportation Freight Center

- Autonomous trucks have potential to:
 - Mitigate driver shortages
 - Improve safety and fuel economy
 - Spur economic development
 - Create new and attractive jobs
- Offer high levels of transportation productivity
 - Vehicles not limited by hours-of-service regulations
 - Especially valuable to agriculture during peak harvest period and first- and last-mile deliveries

Development/Spread of Autonomous Trucks

- Platooning already occurring
- Driverless (L4) developing rapidly in Southwest
 - I-45 between Dallas and Houston
 - Permian Basin
- Will spread across the South and Northeast
- North Dakota in last tier of deployment
- Challenges to northern rural areas

Main Goals of Center

- Research into possible enhancements to ADSs
- Better understanding of markets and conducive conditions
- Keep abreast of developments in industry and other states
- Learn from the policies and practices of other states
- Analyze and evaluate highway infrastructure
- Work with NDDOT, NDHP, CVSA, FMCSA, and autonomous truck companies (enhanced safety inspections)
- Facilitate a collaborative strategic planning process

UGPTI's Supplemental Budget Requests

Request	Funding Request		
	Base	One Time	Total
CO2 Multimodal Network	\$0	\$408,100	\$408,100
AI for Surface Transportation	\$375,000	\$0	\$375,000
Autonomous Surface Transp. Center		\$750,000	\$750,000
Total	\$375,000	\$1,158,100	\$1,533,100