

# WELCOME TO NORTH DAKOTA

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NORTH  
**Dakota** | Transportation  
Be Legendary.

WASHTO Committee on Construction & Materials  
2024 Annual Meeting

**Matt Linneman, Deputy Director for Engineering**

# NORTH DAKOTA



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# NORTH DAKOTA

Geological  
Regions



# NORTH DAKOTA | TOP INDUSTRIES



## Agriculture

### #1 PRODUCER

Beans  
Canola  
Flaxseed  
Honey  
Oats  
Rye  
Sunflower  
Wheat



## Energy

#3 Annual Oil  
Producer

#1 Lignite  
Coal Production

#5 Wind Generated  
Electricity

#5 Biodiesel  
Production  
Capacity



## Tourism

2,900 related  
businesses

41,000 jobs in  
tourism

\$2.6 billion visitor  
spending

22 million visitors  
annually



## Manufacturing

7.9 billion made-in  
America Goods  
Exported

7.9% state workforce

54% total output  
growth

\$5 billion industry  
output

# ABOUT NORTH DAKOTA

- North Dakota is at an all-time **record high population** just shy of 784,000.
- **4th** youngest state.
- **2nd** in labor force participation.
- **3rd** happiest workforce in the nation.
- **2nd** best state to raise a family.
- **2nd** in the nation for infrastructure.
- **2nd** best state for education and child care.
- **#1** state for business friendliness.
- **Lowest** unemployment rate in the nation.
- **Best State** to Start a Business, second consecutive year.





# ABOUT THE NDDOT

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## MISSION

*Safely move people and goods.*

## VISION

North Dakota's transportation leader promoting safe ways, superior service & economic growth.

## VALUES | PRIDE

Professionalism | Respect | Integrity  
Dedication | Excellence

# AGENCY OVERVIEW

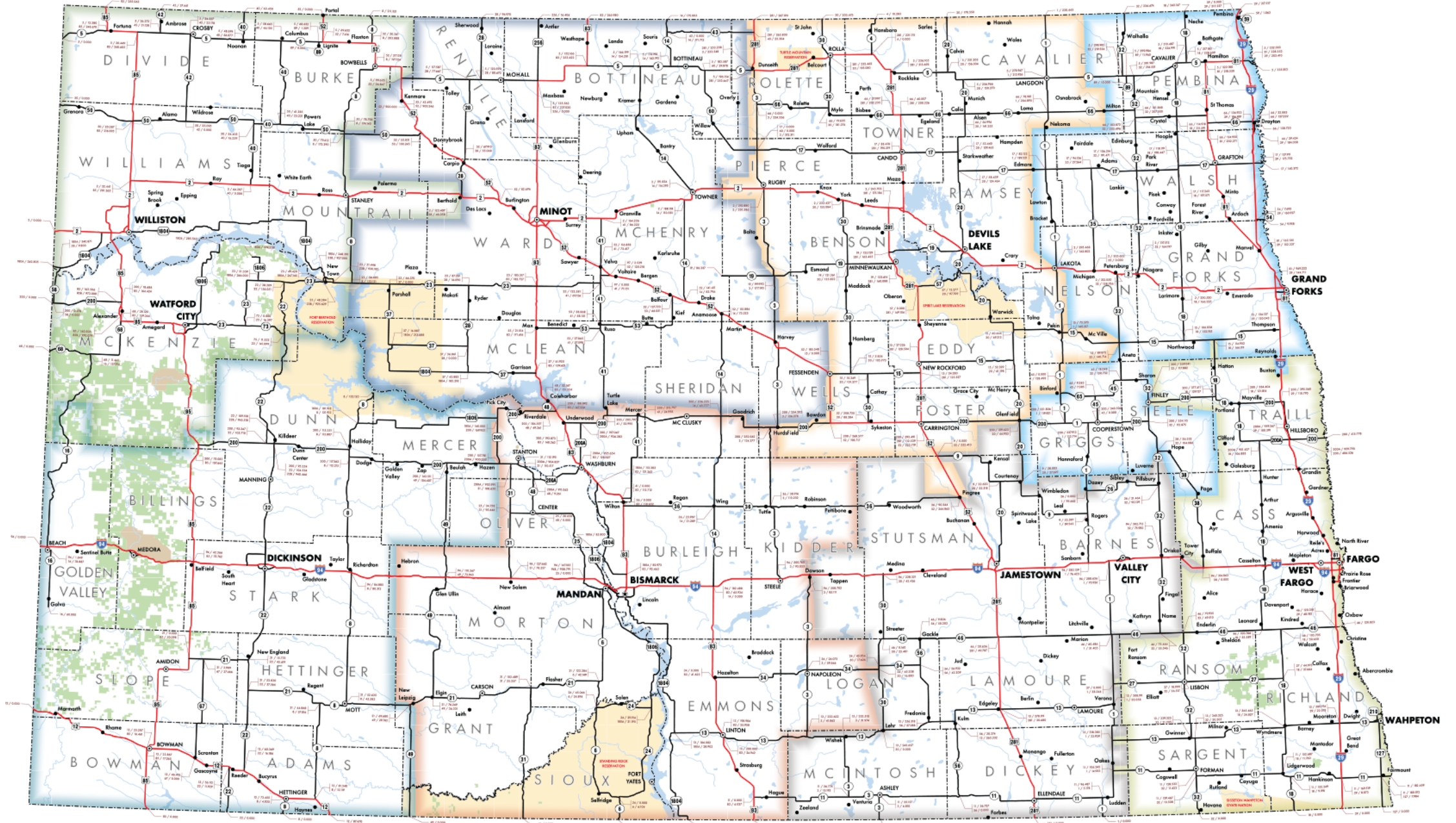
**North Dakota Department of Transportation (NDDOT)** was established in 1917.

- 7,415 miles of roadway on the state system. 106,500 total miles of roadway in the state.
- 1,733 bridges on the state system. 4,822 total bridges in the state.
- Process over one million vehicle registrations every year
- Serve over 500,000 licensed drivers.





# NDDOT DISTRICTS



# WHAT WE DO FOR NORTH DAKOTA



## **Fleet Services**

Purchases, manages, operates, maintains and disposes of the state's licensed motor vehicles (about 3,200 vehicles).



## **Motor Vehicle & Driver License**

Provides ID validation, licensing & driver record management, as well as vehicle title, registrations and license plates.



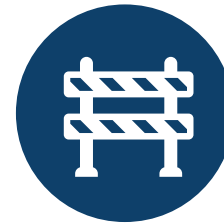
## **Collaboration**

The NDDOT partners with state agencies, local government, tribal nations, townships, etc. to ensure efficiency and effectiveness.



## **Local Transportation Programs**

Work with local governments, maintain the long-range transportation plan, manage grants and various programs.



## **Construction & Maintenance**

Facilitates construction projects (bid, contracts, etc.); also oversees the work to maintain roadways and remove snow.



## **Highway Safety**

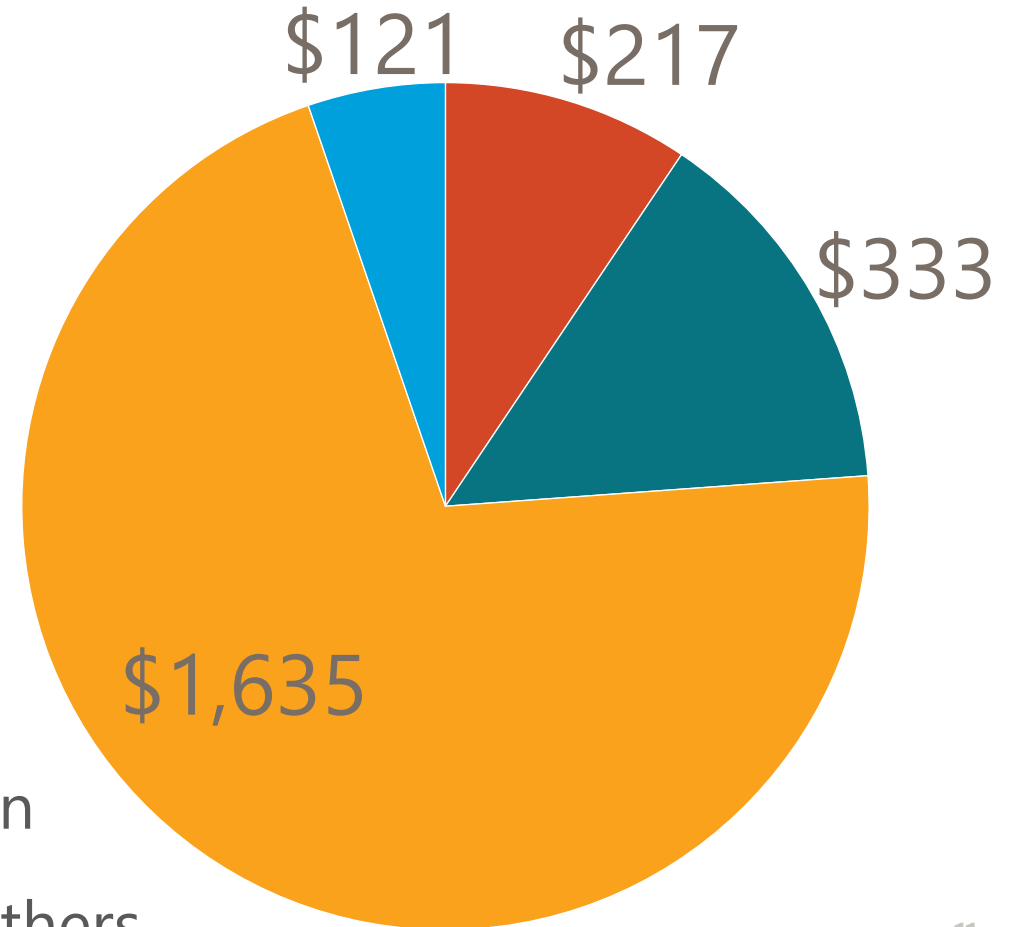
Coordinates Vision Zero, the strategy to reduce motor vehicle crash fatalities. The designated State Highway Safety Office.

# AGENCY BUDGET

## \$2.3 Billion

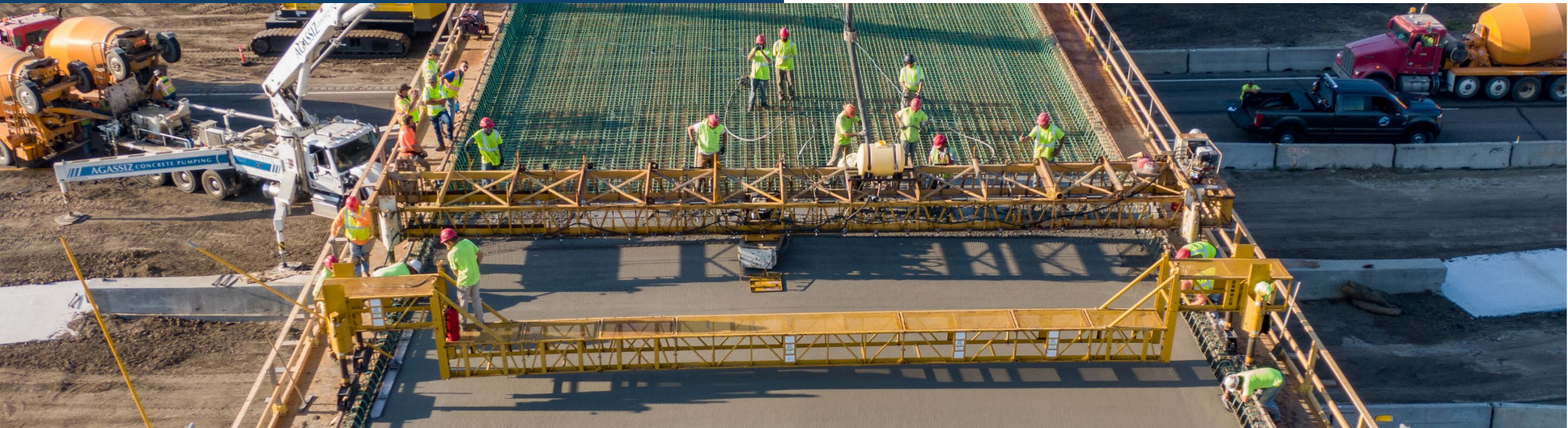
- General Funds: \$10 million
- Federal Funds: \$1.2 billion
- Special Funds: \$1.1 billion

- Salary
- Operations
- Construction
- Grants to Others



# OUR CHALLENGES ARE SIMILAR

- Safety
- Workforce
- Inflation



# NDDOT FOCUS ON SAFETY



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# VISION ZERO

Zero fatalities. Zero excuses.

- **Mission:** Eliminate fatalities and serious injuries on North Dakota roadways.
- Primary Seat Belt Law passed and went into effect Aug. 1.
- 2023: **106 fatalities**  
2022: *98 fatalities*
- 2024: **15 fatalities** (through March 28)  
2023: *16 fatalities* (through March 28)

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# SAFETY ENHANCEMENTS

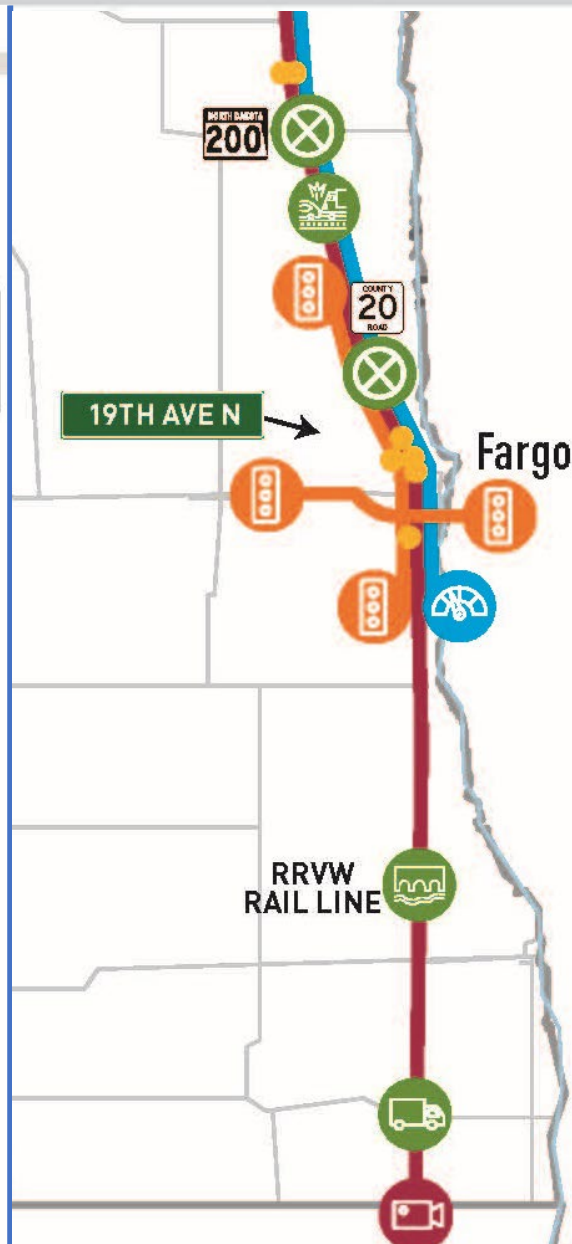
# TRANSPORTATION MANAGEMENT CENTER (TMC)/SMART CORRIDOR

- The TMC/Smart Corridor plan is complete.
- Next up:
  - Identify priority areas
  - Stand up an in-house TMC
  - Seek out funding and execute plan









# Full Concept



-  Incident Surveillance and Driver Awareness
-  Variable Speed Limits
-  Ramp Metering
-  Curve Warning Systems
-  Alternative Routing Systems
-  Wrong-way Running Systems
-  Bridge De-icing Systems

-  Electronic Road Closure Gates
-  Truck Parking Information Management Systems
-  Crowd-sourced Information
-  Queue-flushing Systems

# REDUCED CONFLICT INTERSECTIONS (RCIs)

- First RCI being constructed in Williston.
- RCIs are known by a lot of names.
- Developed an animated video to educate.

## ENHANCED MARKETING EFFORTS

- Doubled investment in work zone safety campaign.
- Developed animated videos to educate the public on RCIs, roundabouts and cable median barriers.

Your safety matters  
to us.

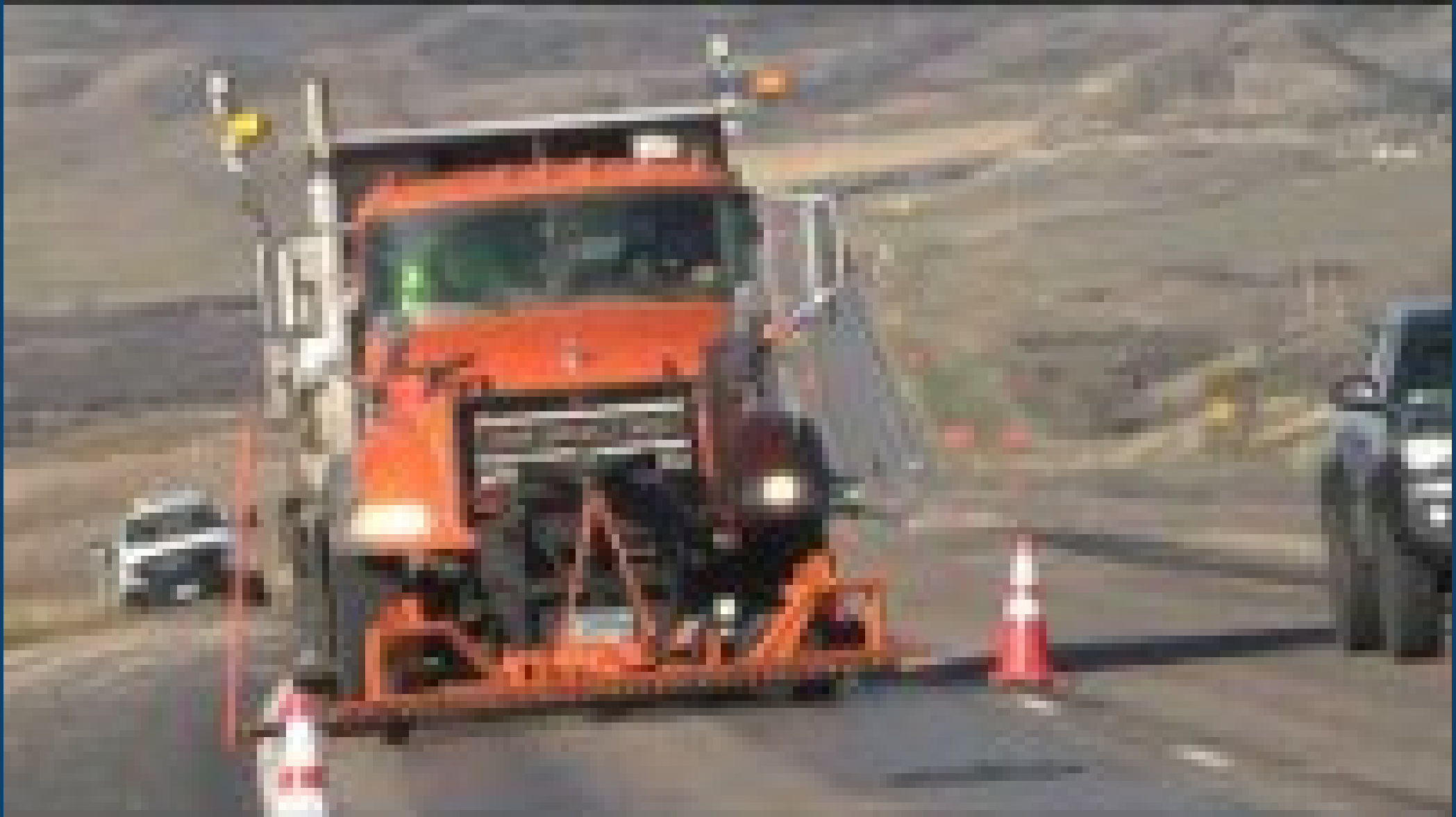


# OTHER SAFETY ENHANCEMENTS

- iCone technology
- 6-inch pavement markings
- Wrong way detection signs
- Roundabouts
- Cable median barrier
- Identifying gaps and enhancing safety programs
- Refocus on traffic control training



# CONE PLACER | WILLISTON DISTRICT





# MATERIALS & RESEARCH

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# MATERIALS & RESEARCH DIVISION

## **Mission Statement**

Assure the quality, economy, and reliability of transportation infrastructure through the performance and innovative use of materials and technology.

# MATERIALS & RESEARCH | AT A GLANCE

31 Employees

AASHTO Accredited Lab

- Newly Remodeled!

8 District Labs

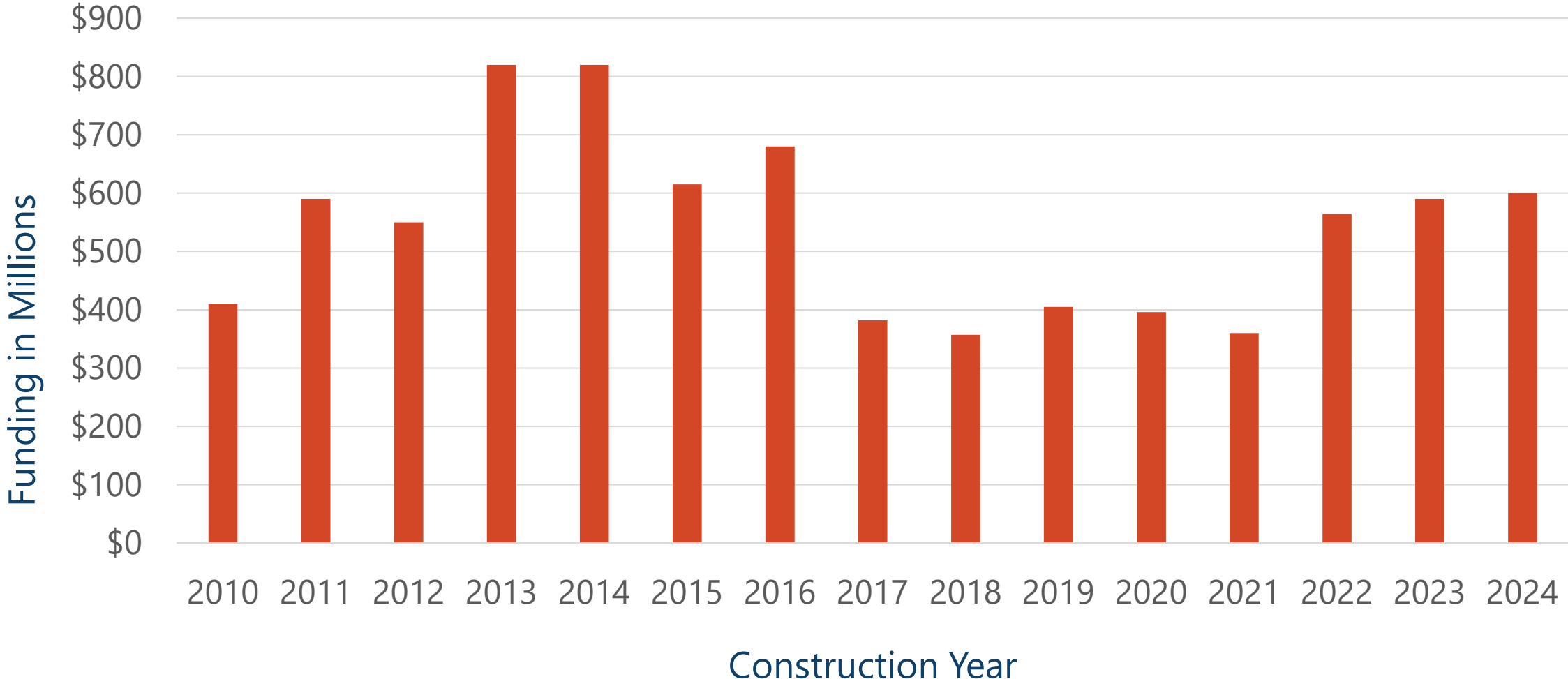
Services Provided:

- Engineering
  - Geotechnical
  - Pavements
- Materials Lab Testing
- Field Testing
- Research



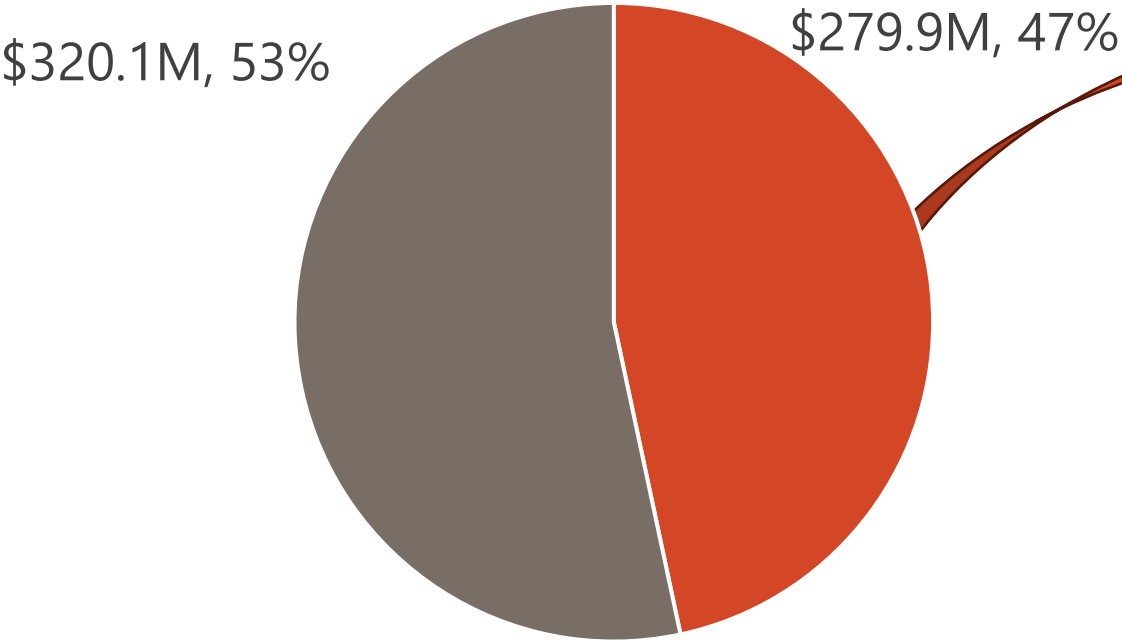


# NDDOT CONSTRUCTION PROGRAM

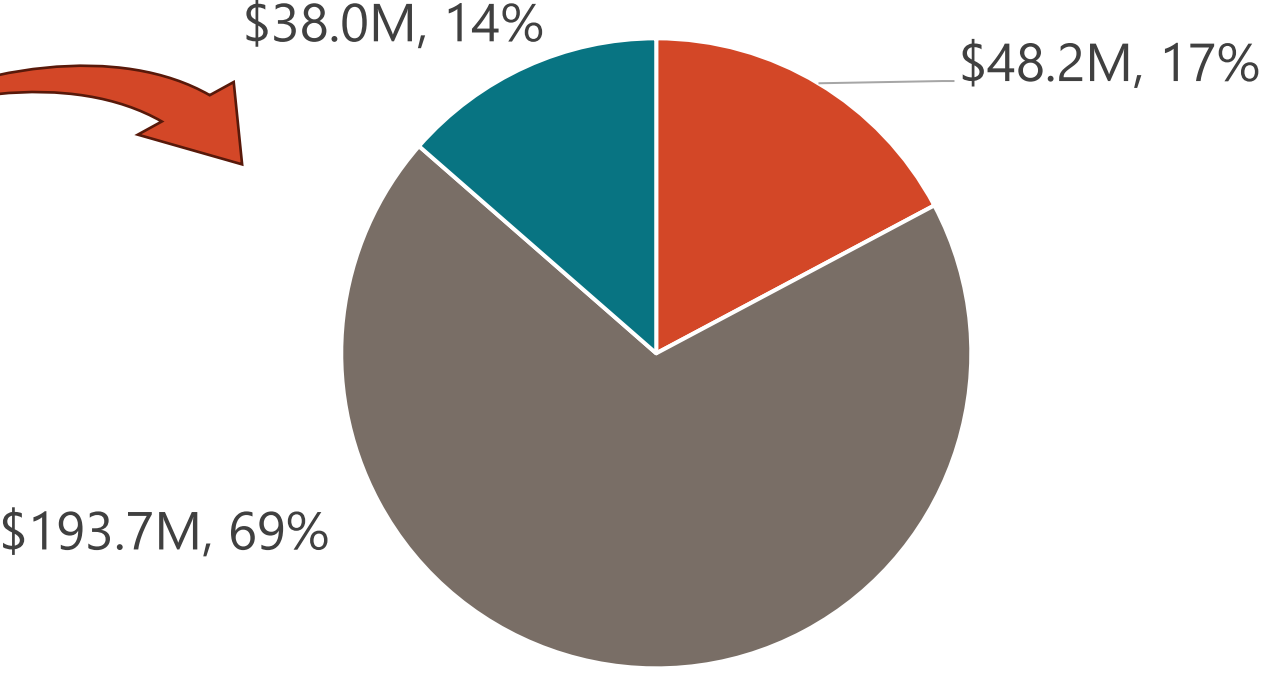


# 2023 CONSTRUCTION BIDS

# 2023 PAVEMENT BIDS

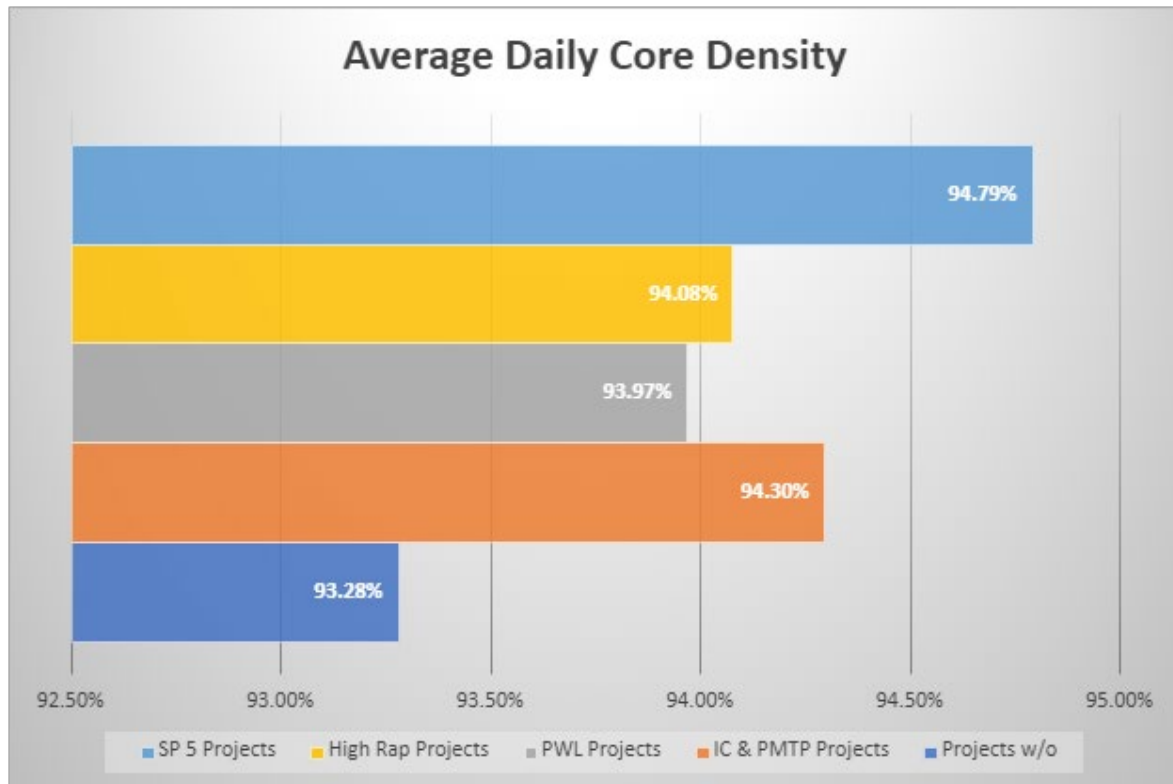


■ Total Pavement Materials



■ Base Materials   ■ Asphalt   ■ Concrete

# PILOT SPECIAL PROVISIONS - ASPHALT



Technology appears to be positively influencing quality.

# TECHNICAL CERTIFICATION PROGRAM

- National Center for Asphalt Technology (NCAT)
  - Asphalt Inspection
  - Mix Design
- Dakota Asphalt Pavement Association
  - Aggregate Testing
  - Mix Testing
- NDDOT
  - Soils
  - Concrete Field
- Partnership with Bismarck State College
- WAQTC & MTRAC Peer Groups



**M-TRAC**

Multi-regional  
Training and Certification

FHWA ENDORSED



American Concrete Institute  
*Always advancing*



Western Alliance for  
Quality Transportation Construction

# 1804 TEST SECTIONS



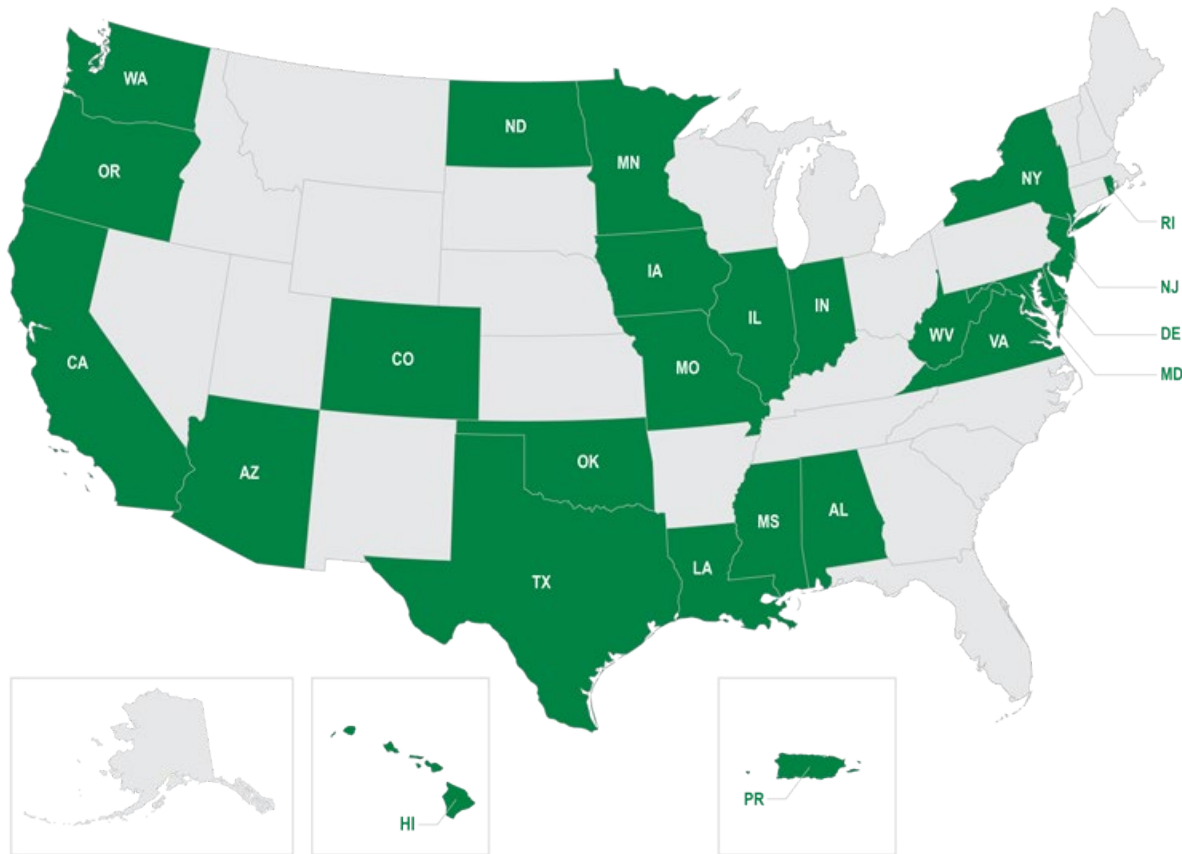
# BMD TEST SECTION PROJECT

## Proposal from National Center for Asphalt Technology (NCAT)



- Project Timeframe: 2023 to 2026
- Benchmark ND mixes in 2022 and 2023
- Total Proposed Cost: \$350,000
  - \$250,000 from Pooled Fund
  - \$100,000 SPR research funds
- **Build BMD test sections for field validation** (Summer 2024)
- Develop BMD specifications
- Implement through pilot projects

# FHWA CLIMATE CHALLENGE



- FHWA Training Oct 2023
- Initiating research project
- Challenge: EPD calculation with mobile plants.



# FHWA POOLED FUND STUDIES

Project Title	TPF Number
Improve pavement surface distress and transverse profile data collection and analysis	TPF-5(399)
Improving the Quality of Pavement Profiler Measurement	TPF-5(299)
Technology Transfer Concrete Consortium	TPF-5(437)
Continuous Asphalt Mixture Compaction Assessment using Density Profiling System	TPF-5(443)
Integrating Construction Practices and Weather Into Freeze Thaw Specifications	TPF-5(448)
National Road Research Alliance	TPF-5(466)
Consortium for Asphalt Pavement Research and Implementation (CAPRI)	TPF-5(465)
Real-time monitoring of concrete strength to determine optimal traffic opening time	TPF-5(471)
Western Alliance for Quality Transportation Construction	TPF-5(476)
Demonstration to Advance New Pavement Technologies Pooled Fund	TPF-5(478)
VKelly Slipform Paving Vibration Test	TPF-5(498)
Performance Centered Concrete Construction	TPF-5(517)
Implementation of Structural Data from Traffic Speed Deflection Devices	TPF-5(518)



# FHWA MATC & MCTC



Minot District 2021

## Open House



MCTC >>>

Williston District 2022

# CONSTRUCTION



# CONSTRUCTION | AT A GLANCE

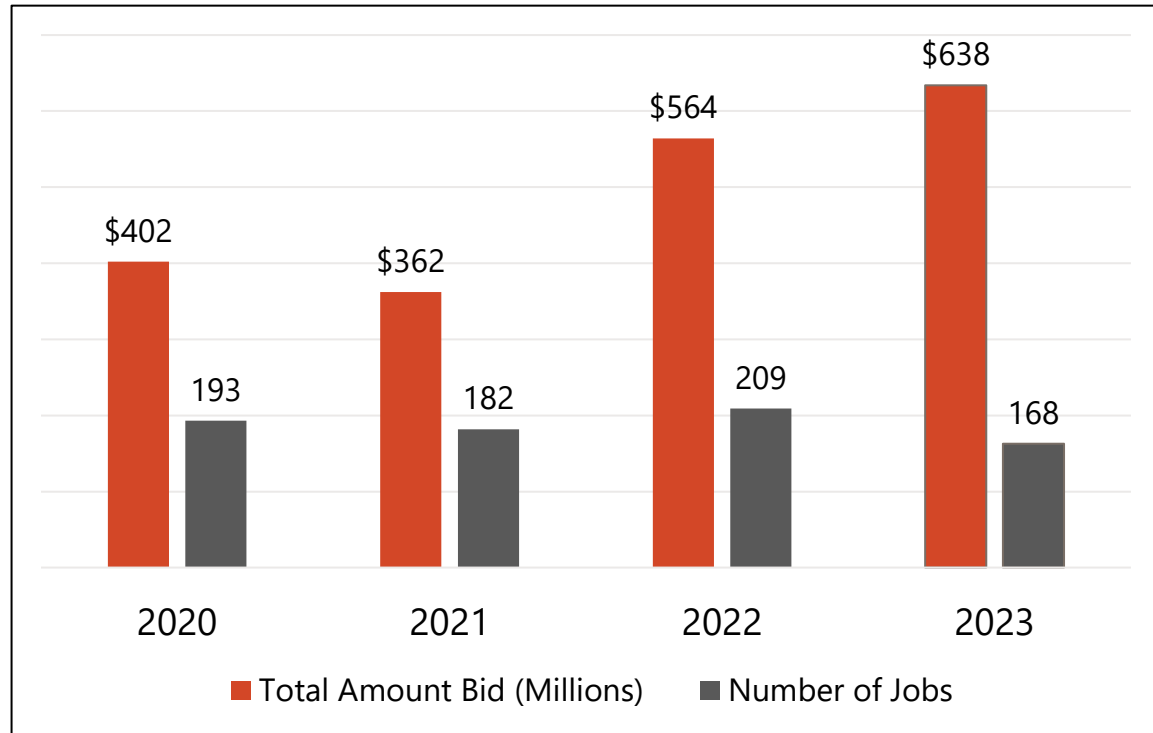
11 Employees

## Major Responsibilities

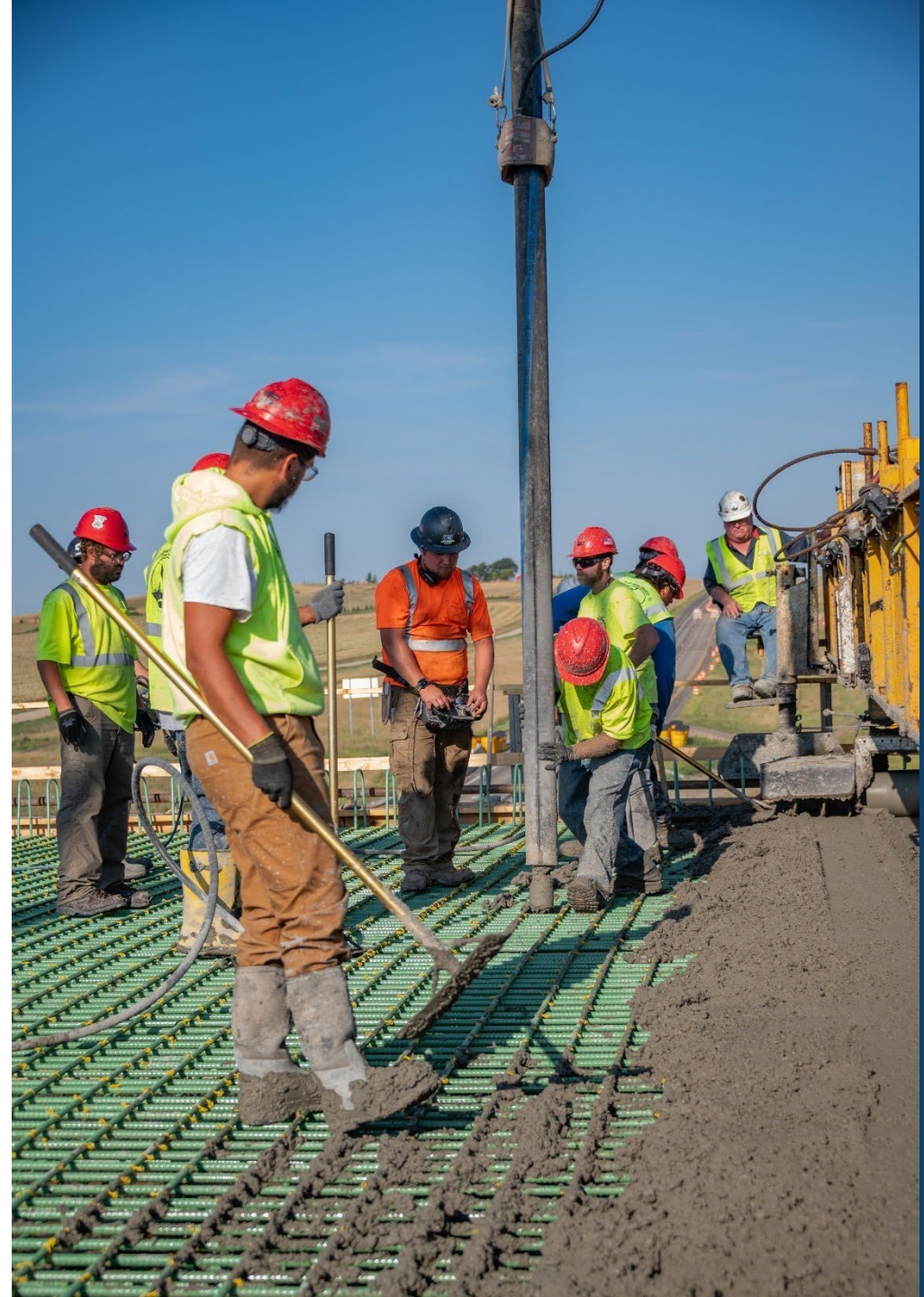
- Construction Bid Openings
- Bidder Prequalification
- Bonds and Contracts
- Project Payments (Contractors & Consultants)
- Construction Management System
- Construction Record Management
- Dispute Resolution



# CONSTRUCTION PROGRAM RECAP

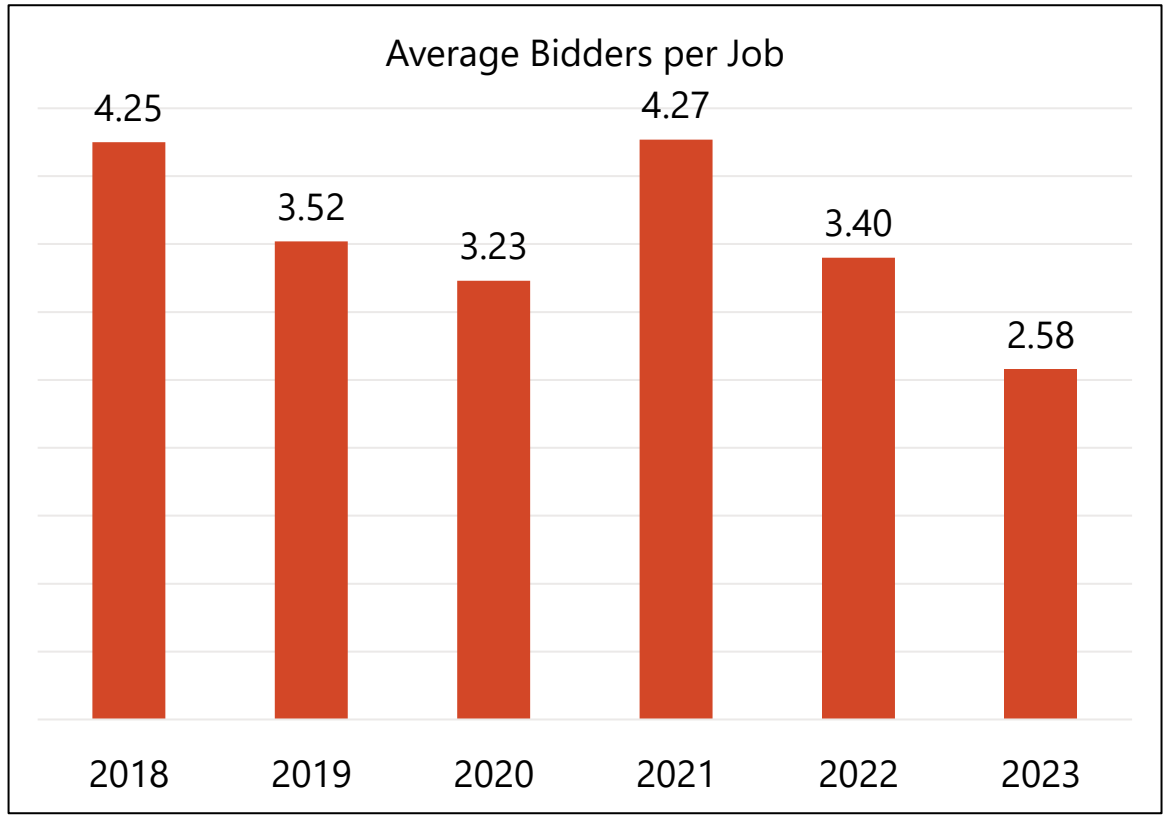


- Yearly time period is Oct. 1 – Sept. 30
- The data includes NDDOT, City and County Jobs bid through the NDDOT.





# BIDDING COMPETITION



- We have had 9 jobs that have not received a bid so far in 2023.
- Typically, we may have 1 or 2 jobs that do not receive a bid.

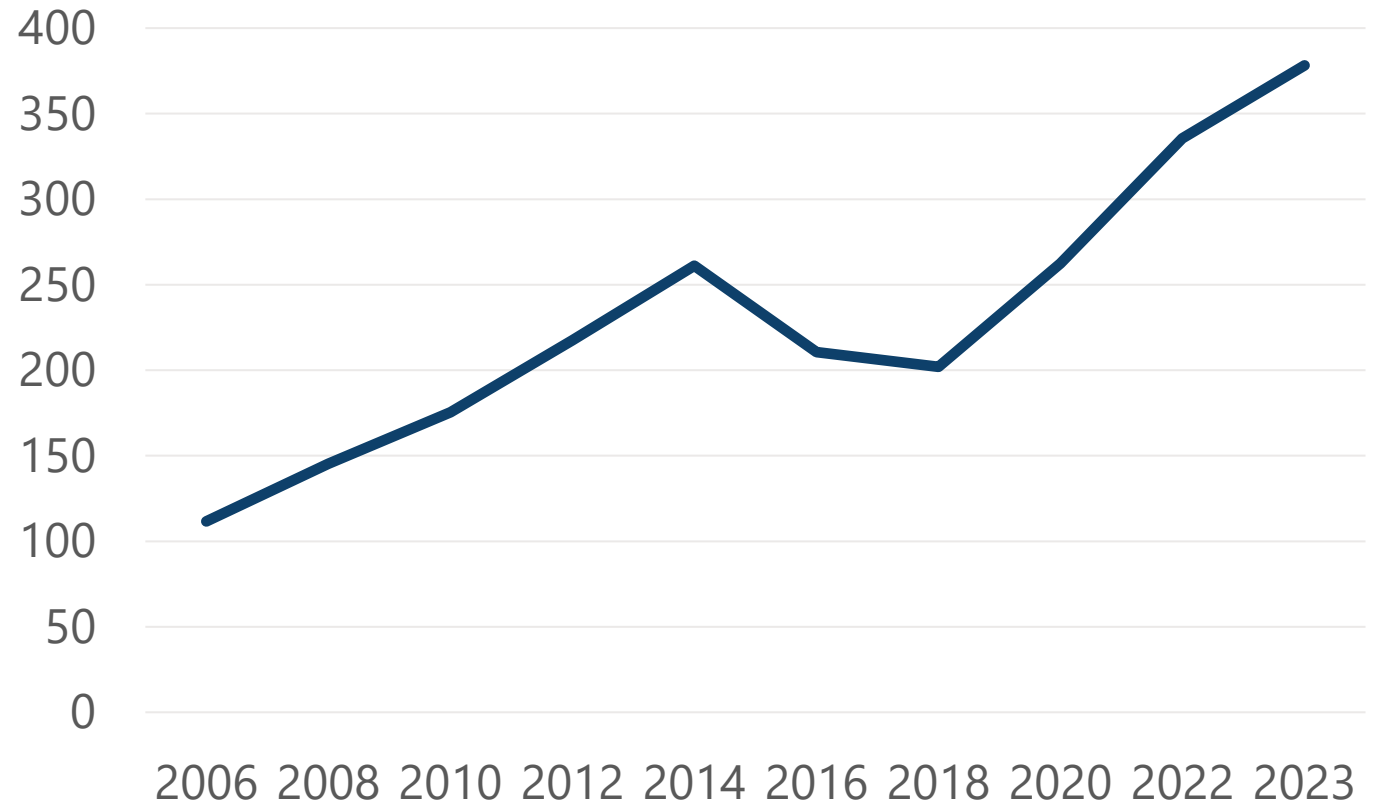


# INCREASE IN CONSTRUCTION COSTS

- Construction costs increased **26%** from 2021 to 2022 and **13%** from 2022 to 2023



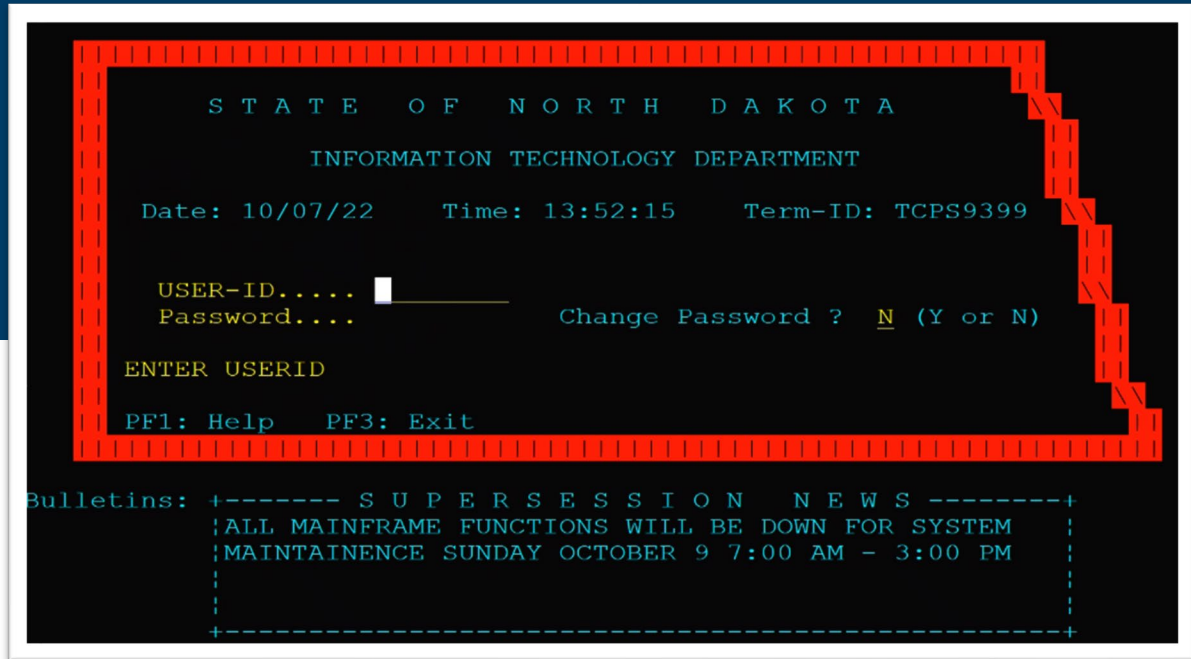
## Construction Cost Index



# INITIATIVES

- Construction and Materials Management System (RIMS) Replacement
- Four-lane US 85
- e-Ticketing
- UAS/Drones

  
*RIMS*



  
*US 85*



# QUESTIONS?

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Transportation

Matt Linneman, Deputy Director for Engineering  
mlinneman@nd.gov | 701-328-6904