Asphalt Conference

April 5, 2016

NDDOT
North Dakota
Department of Transportation

NDDOT's Mission and Vision

Mission: **Safely move people and goods.**

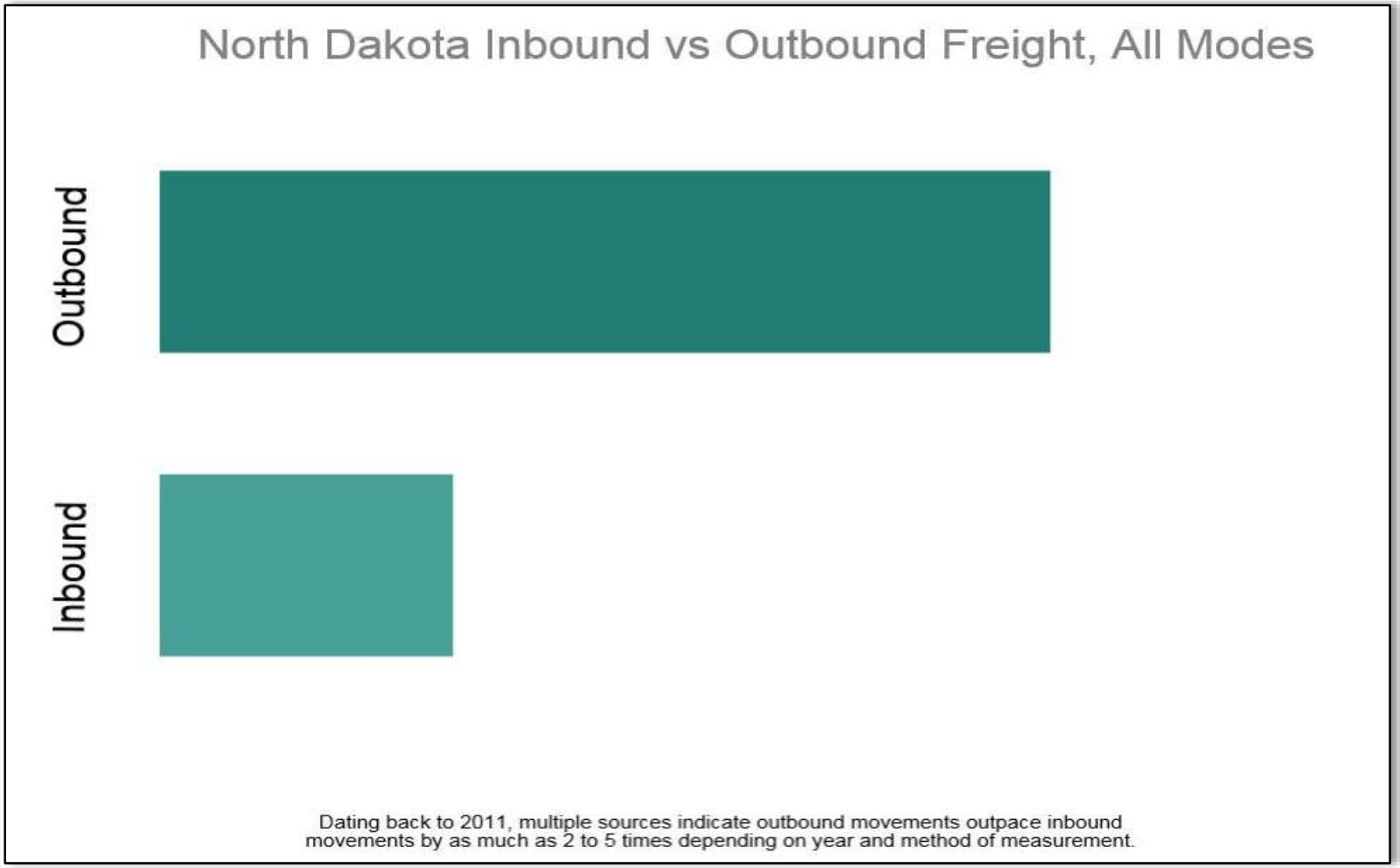
Vision: **North Dakota's Transportation Leader Promoting:**

- **Safe Ways**
- **Superior Service**
- **Economic Growth**

Global Economy

- **North Dakota's transportation system must be interconnected, maintained and enhanced to allow us to be globally competitive.**

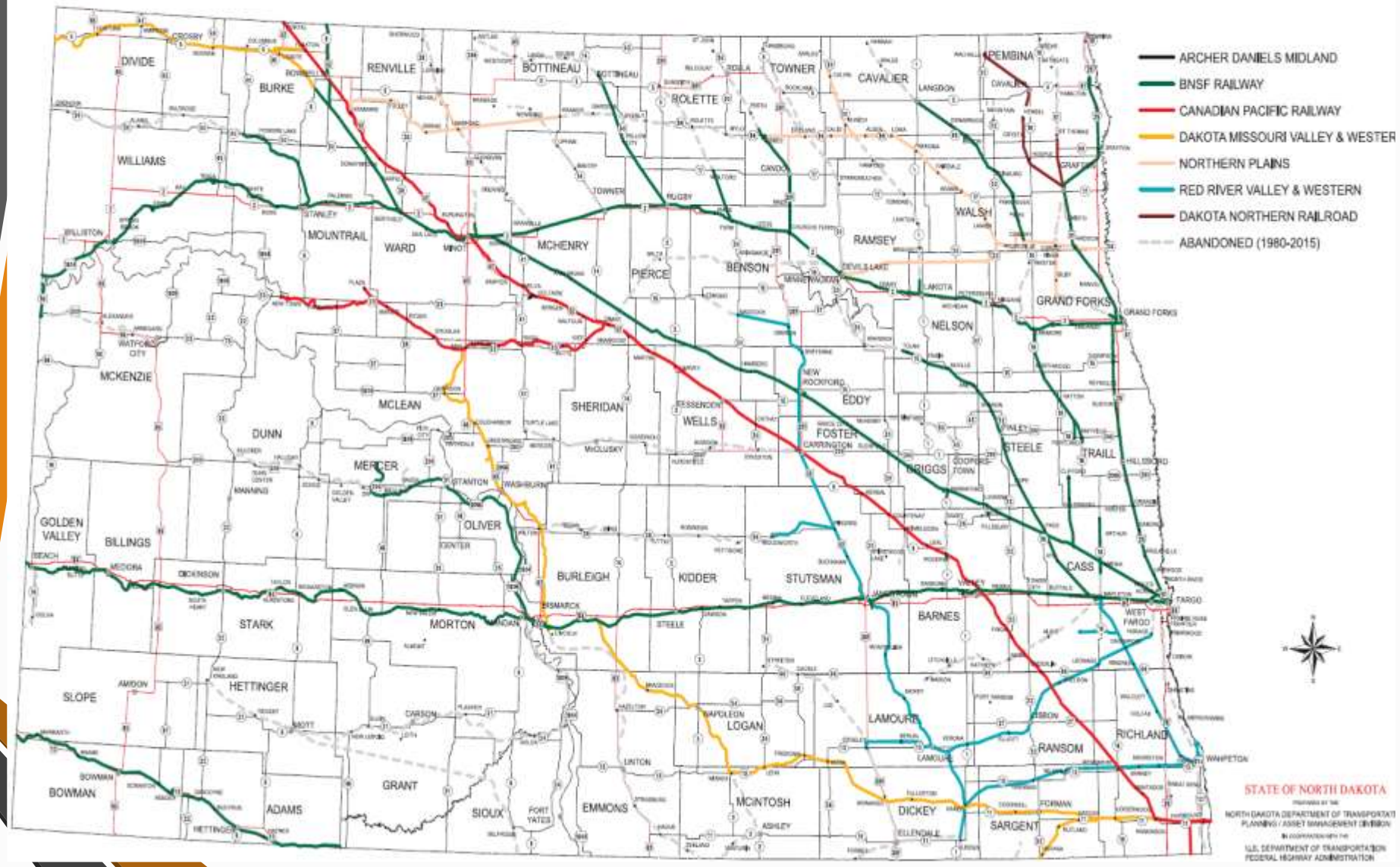
Inbound and Outbound Freight Movement



Estimates are based on information from the Freight Analysis Framework (FAF) 4.1 Summary Statistics. The FAF is a partnership of the US Bureau of Transportation Statistics and the Federal Highway Administration.

Railroad Systems

North Dakota Railroad Systems



State Rail Plan

Work on the North Dakota State Rail Plan is underway to update the current rail plan from 2007 and enhance statewide rail safety to meet growing transportation needs in the state.

Highway Systems

Canadian Highways

United States Highways

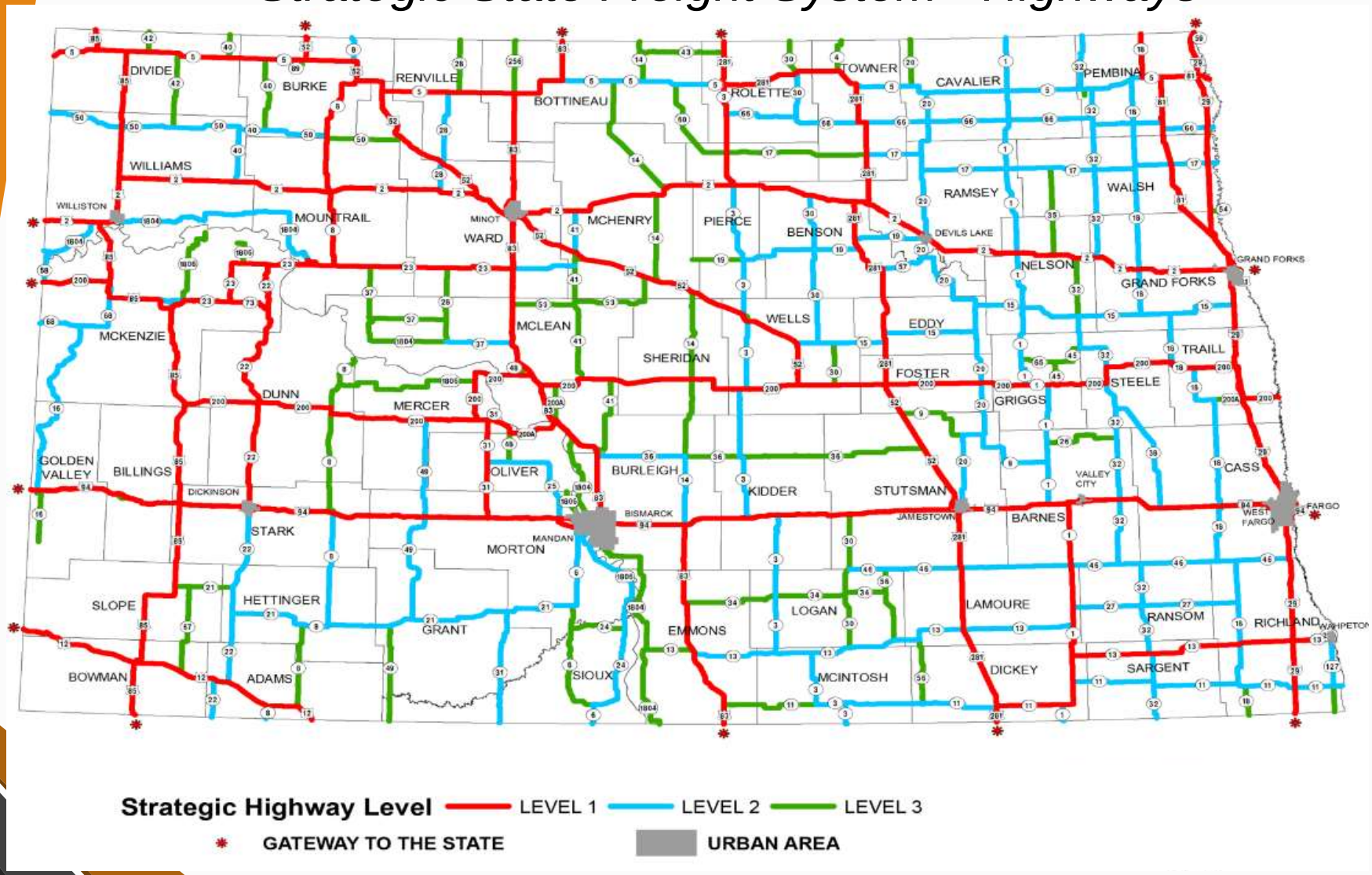
State Freight Plan

- The Freight Plan defines the process NDDOT uses to promote safe, secure, sustainable, and reliable freight mobility to enhance a diversified and vibrant economy.

- North Dakota's Freight Plan is **multimodal**; with primary emphasis on highways and secondary emphasis on last mile connections to railroad, pipeline transload and air cargo freight facilities.

Global Economy

Strategic State Freight System - Highways



Global Economy

We need to understand truck weight differences within our region.

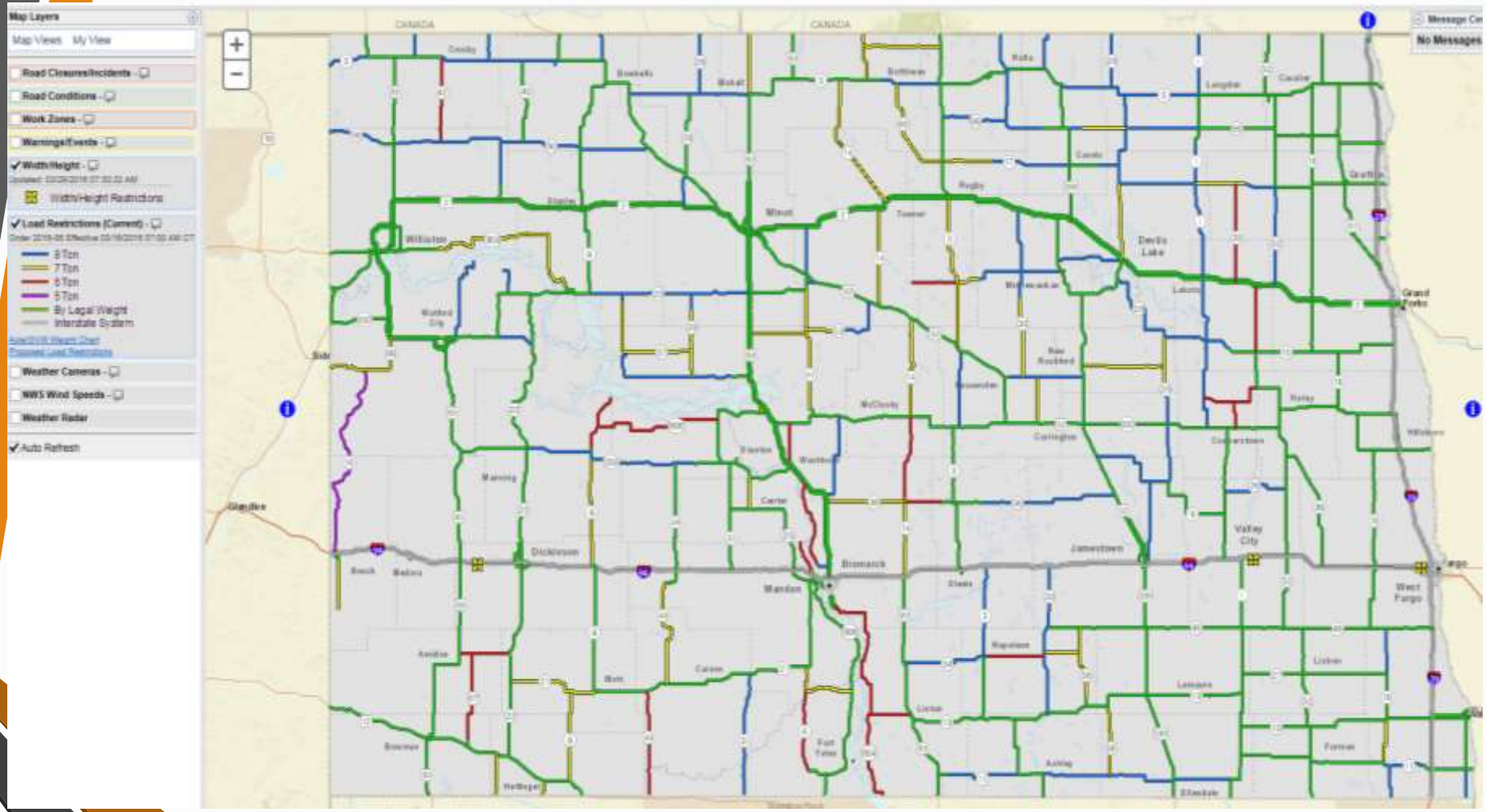
State/Province	Legal Gross Vehicle Weight (lbs)
North Dakota	105,500
Montana	131,000
South Dakota	129,000
Minnesota	80,000
Manitoba	Dependent on axle configuration and class of roadway. Maximum = approximately 140,000.
Saskatchewan	Dependent on axle configuration and class of roadway. Maximum = approximately 140,000.

Truck Size and Weight Study

- Have finalized the scope of work with Upper Great Plains Transportation Institute (UGPTI).
- To assist in the study, an Executive Committee was appointed which consists of members from the following organizations: Along with NDDOT, Ag Coalition, ND Motor Carriers Association, ND Highway Patrol, Township Officers Association, Association of Counties, League of Cities, Grain Growers Association, Petroleum Council, Dept. Of Commerce
- Work is in progress, UGPTI is contacting industries.
- Anticipated to receive draft of study in May 2016.
- Agriculture industry is discussing the possibility of modifying federal law to increase truck size and weight up to 129,000 pounds on the Interstate.

Challenges

Load Restrictions



Spring load restrictions on March 29,2016

Cost of Moving Commodities

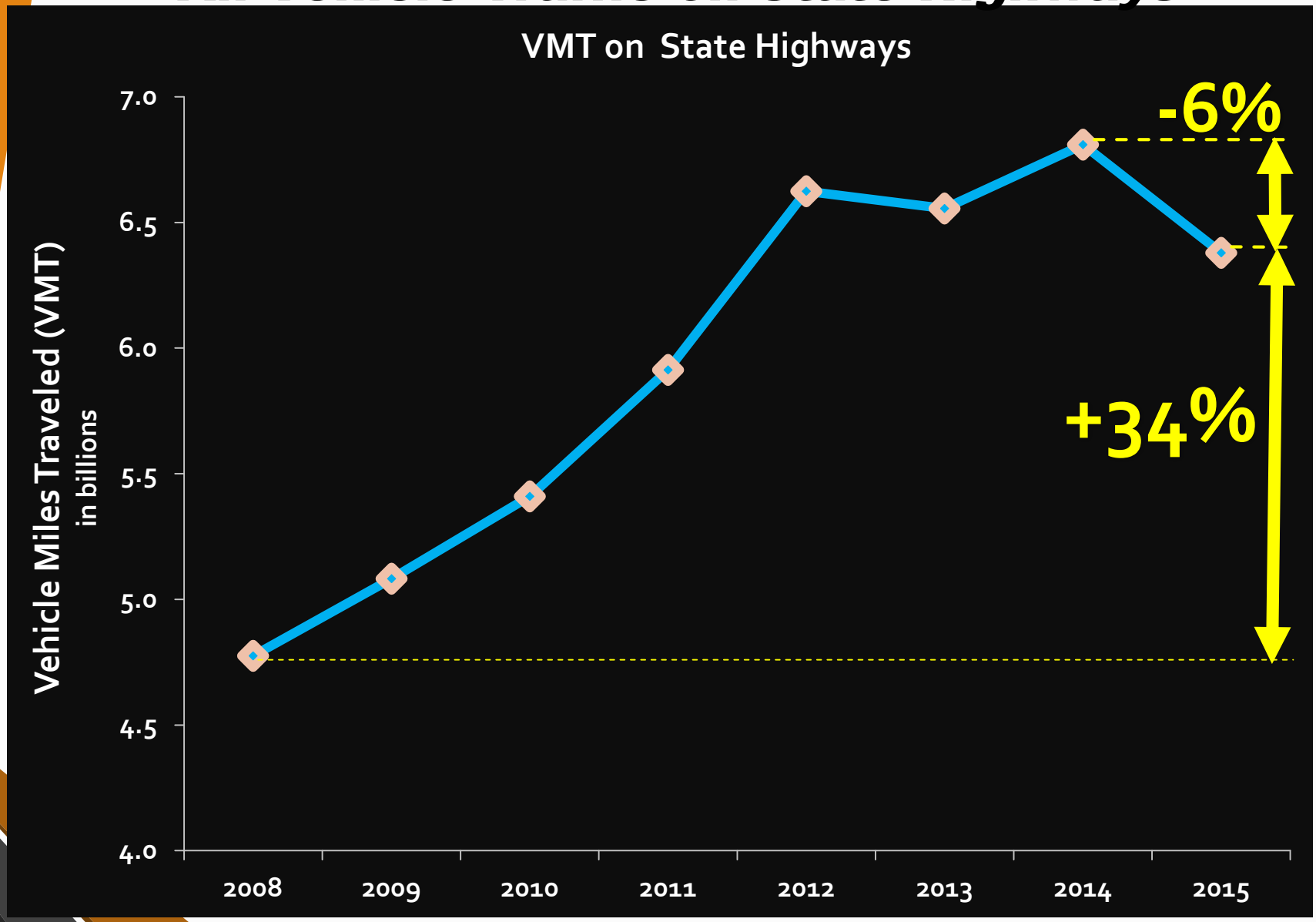
- One of the challenges we face in moving commodities efficiently is the imposition of spring load restrictions. The underlying reason for imposing spring load restrictions is inadequate roadway strength.

- Load restrictions slow down commerce and add greatly to the cost of doing business.

- An average semi hauls approximately 850 bushels of wheat during unrestricted times of the year, which would cost about 47 cents/bushel for a 100-mile trip to get that wheat to the rail facility. Shippers have indicated that with the various load restrictions in place across the county and state roadways, they are hauling on average 20% less during load restriction time than unrestricted times. This means that it would cost about 12 cents per bushel more to haul the wheat to market during restricted times of the year. This is a 25% increase in transportation cost.

Challenges

All Vehicle Traffic on State Highways



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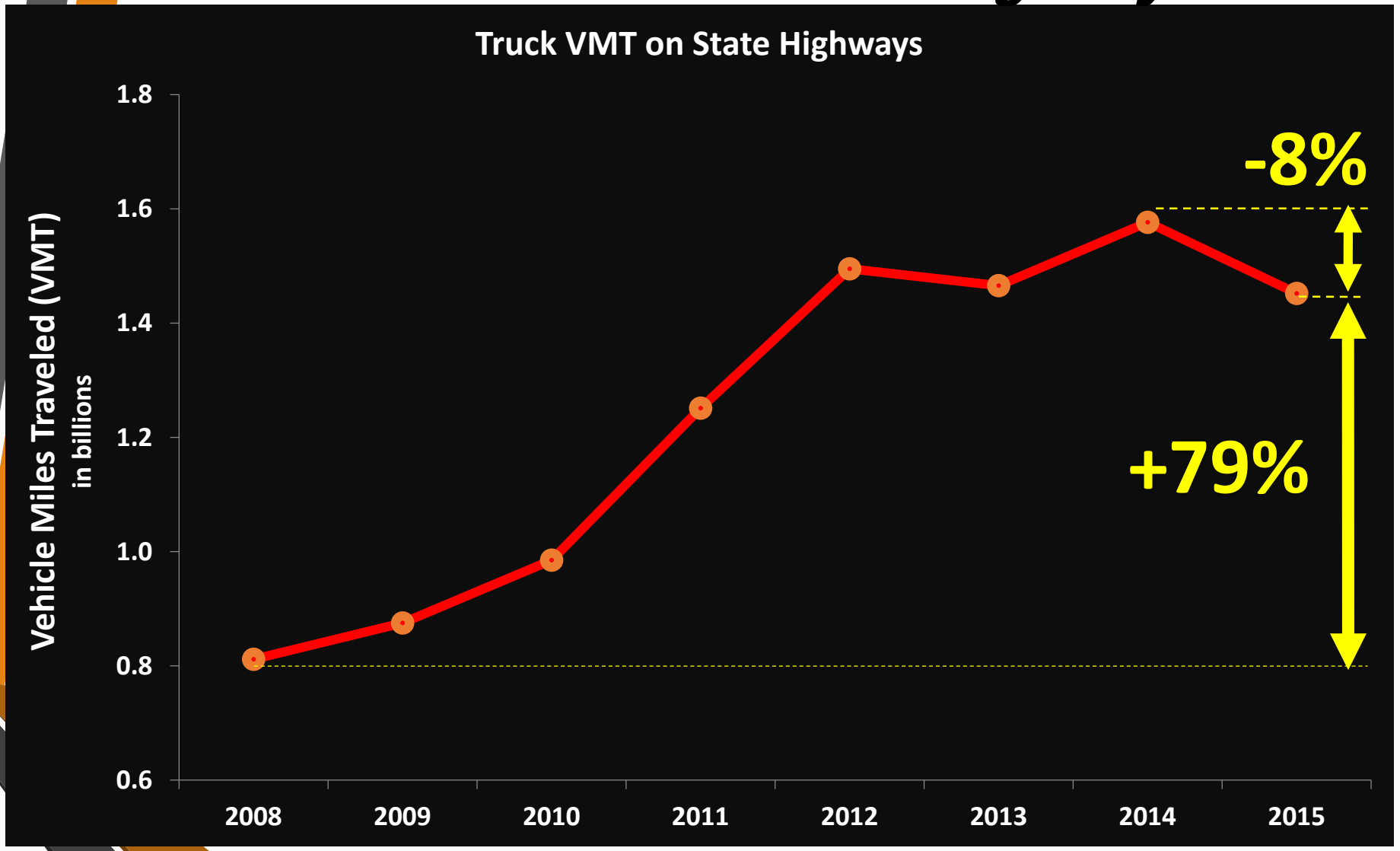
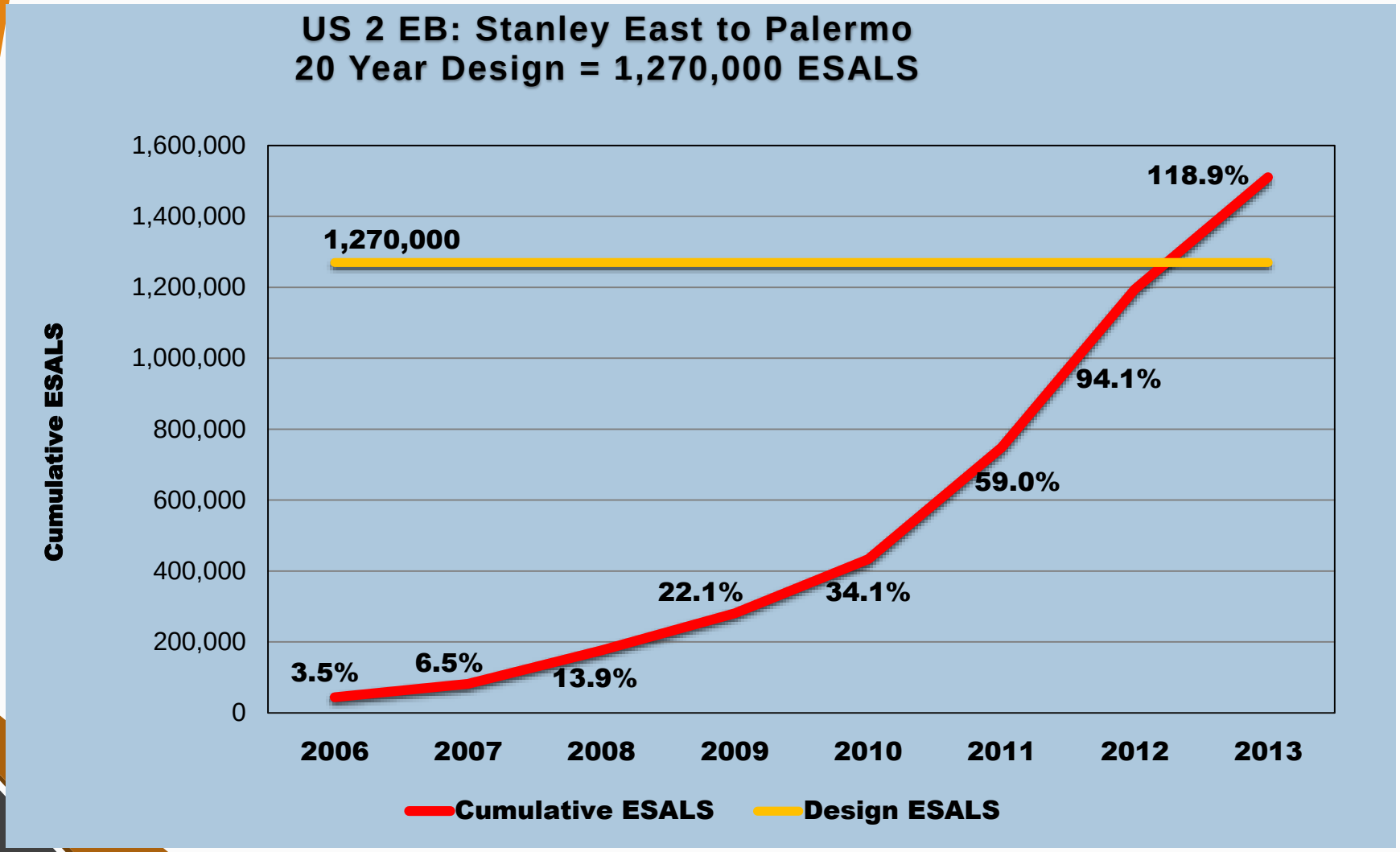
Challenges

Truck Traffic on State Highways



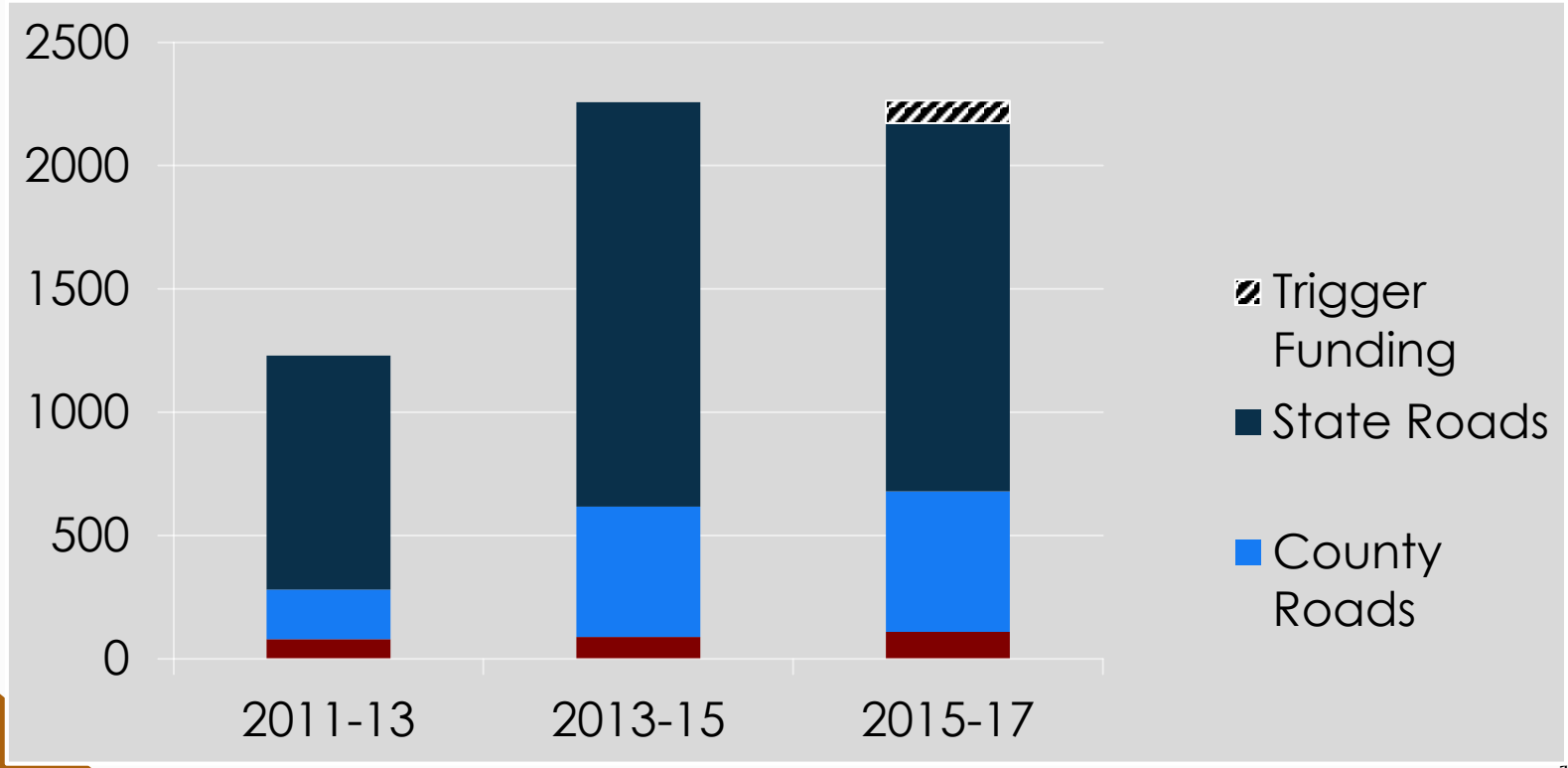
Challenges

Traffic growth has outpaced design life of system.



Historic Investments In Transportation

The NDDOT budget contained approximately $2.26* billion for Road Projects in the 2015-17 Biennium. **Amount includes Trigger Funding.*



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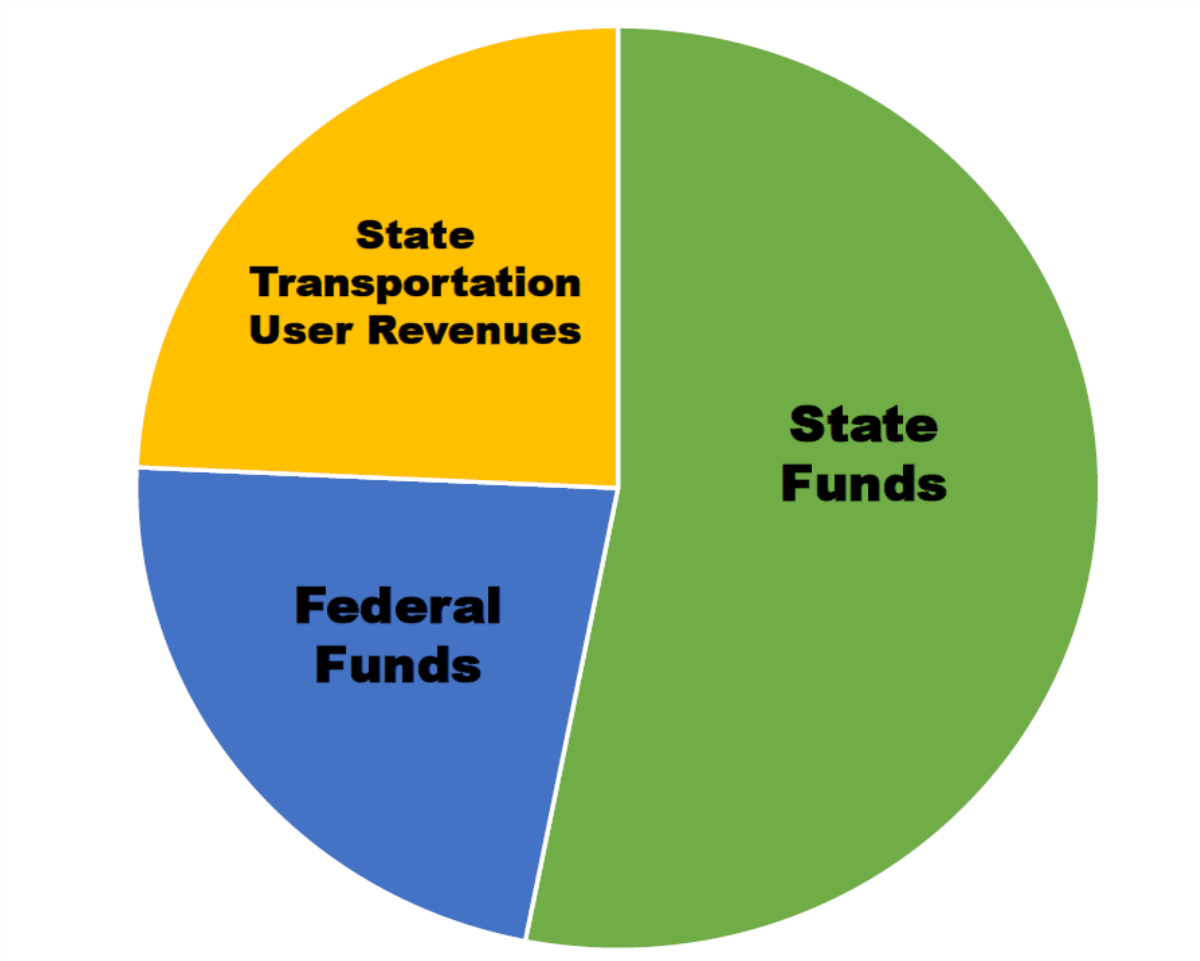
Historic State Transportation Revenue Sources

- **State Funds** – an allocation of state funds are distributed to be spent on road projects, as well as allocations to county and transit programs. These funds consist of one-time General Funds and Strategic Investment and Improvement Funds.

- **Federal Funds** – this federal funding is utilized for federal road projects, transit and safety initiatives.

- **State Transportation User Revenues** – include a portion of the state's fuel taxes and motor vehicle registrations as well as state truck regulatory fees. This is primarily used for Department operations including motor vehicle, driver's license, maintenance work, salaries and state match for federal projects.

Budget Revenue Sources for 2015-17 Biennium



NDDOT State General Fund Allotment Reduction

NDDOT State General Funds		
Revenue	**Dollar Amount**	**4.05% Reduction**
General Fund – SIIF Projects	$450.0 M	$0
General Fund – Road Projects	$541.1 M	$21.91 M
General Fund – Reimburse Bus	$1.0 M	$0
General Fund – Special Road Projects	$2.0 M	$81,000
	Subtotal Reduction	**$21.99 M**

County		
Revenue	**Dollar Amount**	**4.05% Reduction**
SIIF Funding	$240.0 M	$0
General Fund	$112.0 M	$4.53 M
SIIF Funding	$112.0 M	$0
	Subtotal Reduction	**$4.53 M**

Transit		
Revenue	**Dollar Amount**	**4.05% Reduction**
General Fund	$200,000	$8,100
	Subtotal Reduction	$8,100
	Total State Fund Reduction	**$26.6 M**

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State Transportation User Revenues

- When preparing the Department budget for this biennium, state transportation user revenue numbers were projected based on several factors, including past revenue trends and anticipated economic activity in the state.

- Consequently, NDDOT is projecting the 2015-17 Biennium revenue to be approximately 13% below its original revenue projections. The chart below illustrate impacts as a result of revised revenue projections.

NDDOT Transportation User Revenue Changes for 2015-2017 Biennium			
Revenue Source	**2015-17 Enrolled**	**2015-17 Revised**	**Difference**
NDDOT Share of State Highway Tax Distribution Fund	**$ 382.4 M**	**$ 332.8 M**	**$ 49.6 M**
Other State Highway Fund Revenues	**$ 154.8 M**	**$ 135.2 M**	**$ 19.6 M**
TOTAL	**$ 537.2 M**	**$ 468.0 M**	**$ 69.2 M**

State Highway Tax Distribution Fund Non-State Agency

- The counties, cities, townships, and transit providers also receive a portion of the state fuel taxes and motor vehicle registration fees.

- Just as NDDOT's state transportation user revenues are impacted by the reduced traffic volumes, so are the state transportation revenues distributed to these local entities. The following chart depicts the revenue impact to the local entities.

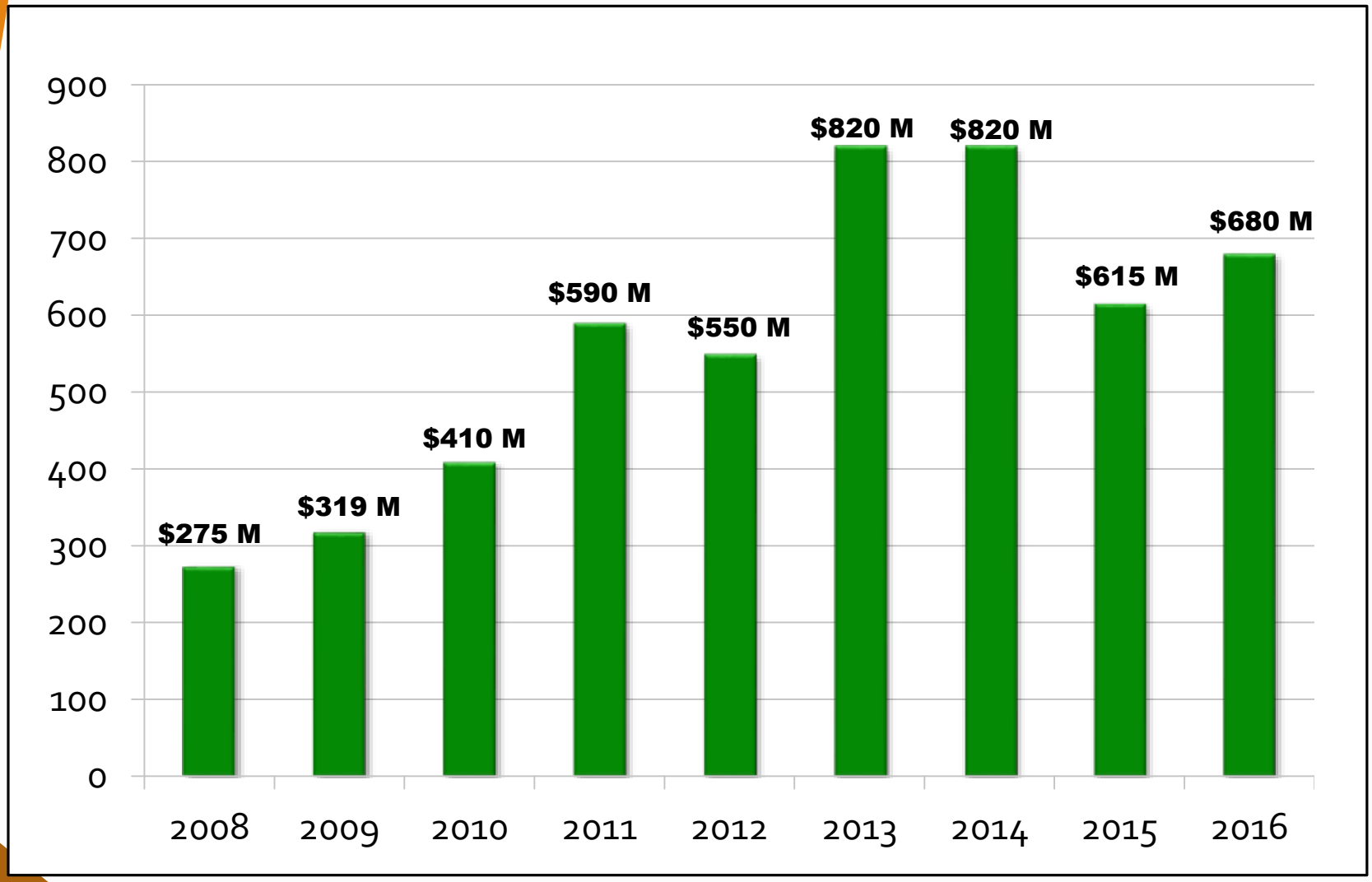
State Highway Tax Distribution Fund Non-State Agency Comparison			
	Enrolled 15-17	Revised 15-17	Difference
County	$137.2 M	$119.4 M	$17.8 M
City	$78 M	$67.9 M	$10.1 M
Township	$16.8 M	$14.7 M	$2.1 M
Transit	$9.4 M	$8.1 M	$1.3 M

Federal Funding

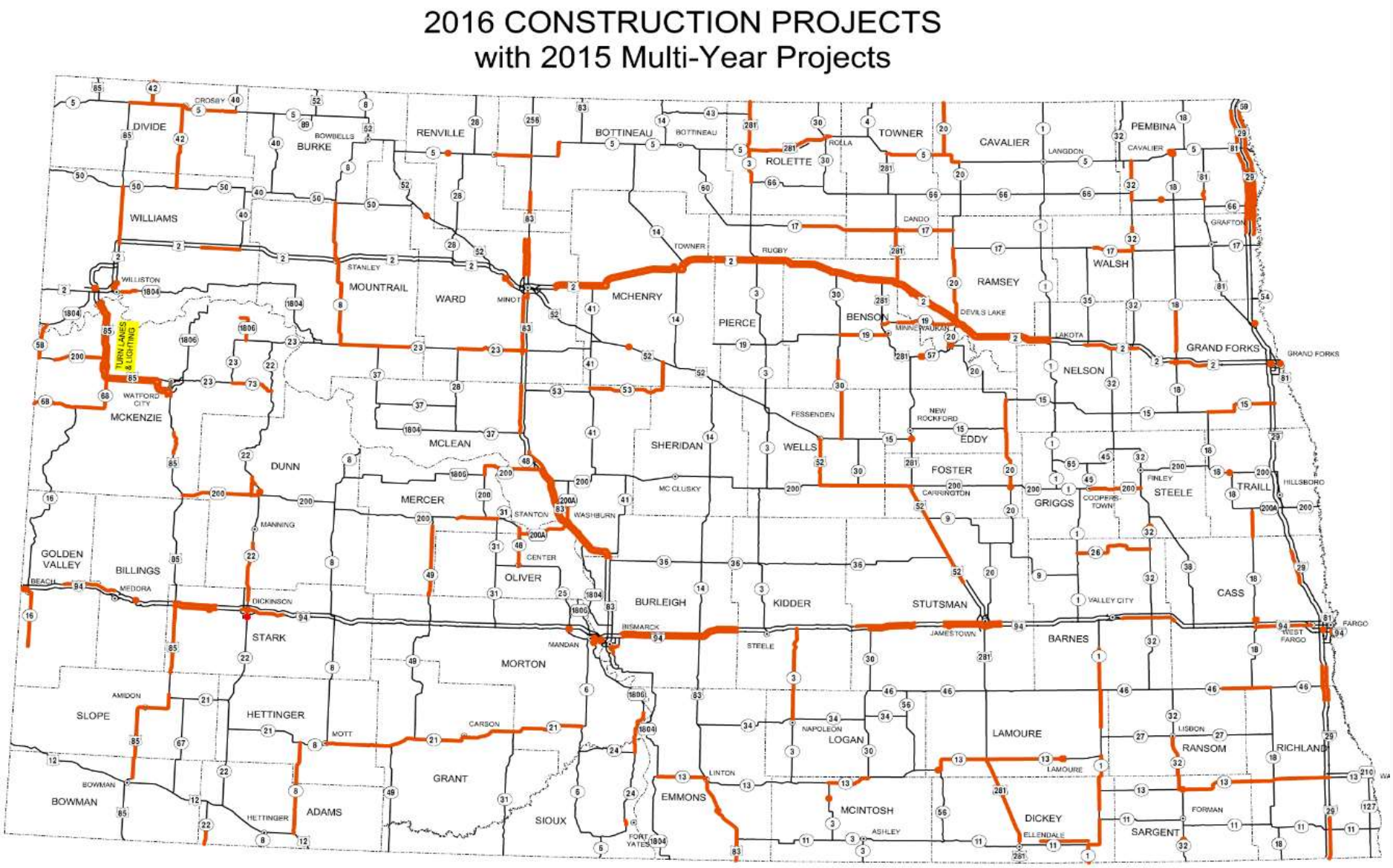
- On December 4, 2015, the federal transportation bill titled: Fixing America's Surface Transportation Act, or "FAST Act" was signed into law.
- It is the first law enacted in over ten years that provides long-term funding certainty for surface transportation.

Apportionment Funding	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
North Dakota	$251.83 M	$257.03 M	$262.59 M	$268.51 M	$274.94 M
Obligational Authority	**FY 2016**	**FY 2017**	**FY 2018**	**FY 2019**	**FY 2020**
North Dakota	$239 M	$?	$?	$?	$?

NDDOT Construction Programs



2016 Construction Season



New Asphalt Techniques

Stone Mastic Asphalt (SMA) Pavement in the Fargo District:

The SMA pavement will be built on I-29 from the South Dakota border north. It will consist of two inches of SMA over two inches of Super pave mix constructed on top of cracked and seated concrete.

SMA has a high coarse aggregate content that interlocks to form a stone skeleton that resists rutting better than conventional dense graded asphalt mixes. The stone skeleton is filled with a mastic of bitumen and filler to which cellulose fibers are added to provide adequate stability of bitumen and to prevent drainage of binder during transport and placement.

Performance Graded (PG) asphalt binder specification changes:

Multi-stress Creep Recovery (MSCR) testing is being used on high traffic routs. MSCR requirements specify polymer modified AC that will resist rutting on high volume roadways.

MSCR testing is done with existing equipment used in the Materials and Research Lab to classify PG asphalt cements.

New Asphalt Techniques

Centerline joint construction is becoming a priority:

The Maryland joint construction process is being used to improve compaction at longitudinal joints. It requires constructing longitudinal joints adjacent to existing HMA pavements by overlap the existing pavement 1 to 1.5 inches. The initial longitudinal roller pass on the un-compacted hot mat is done 6 inches to 1 foot from the joint. The successive roller passes compact the overlapped material and the 6 inch to 1 foot of material simultaneously. This forces more hot mix into the cold joint, reducing permeability and increasing density at the longitudinal joint.

Echelon paving is being used to eliminate joints. It requires two pavers working together to create a hot joint that disappears after rolling.

Tack material is required on all exposed joint faces to reduce permeability at the joint.

Intelligent Compaction:

A project has been identified to use intelligent compaction. Intelligent compaction specifications and Special Provision are being developed.

NDDOT Innovation Program

The Transportation Innovation Program (TRIP) is an ongoing program and submissions will generally be accepted at any time. Cut-off dates are published for submittals so reviews and recommendations on those submissions can be made.

- **45 Total Ideas Submitted.**
- Approximately **33%** of the ideas submitted have been advanced.
- More information available on our website:

  http://www.dot.nd.gov/business/innovate/

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