

# 2015 ND Asphalt Conference

March 31, 2015

NDDOT Director Grant Levi, P.E.

# NDDOT 2013-15 Budget

## \$2.84 billion total appropriation

- \$1.16 billion one time for enhanced state highway investments.
  - (Early Funding=\$620 million SB 2176)
- State Funds Non-Oil Producing Counties – \$120 million – HB 1358
- State Funds Oil Producing Counties – \$160 million HB 1358
- 16 new FTEs
  - 5 engineers
  - 4 equipment operators (trans techs)
  - 1 accounting/budget specialist
  - 2 drivers license supervisors
  - 4 motor vehicle licensing specialists
- \$10 million to match a federal TIGER III Grant to rebuild a 20-mile segment of track & 2 bridges near Churchs Ferry.
- \$9.7 million in special funds for a motor vehicle registration/title system information technology project.
- \$6 million in one-time special fund dollars for the final phase of asbestos abatement in central office building.
- \$6.8 million general funds for general license plate issue.



# Accomplishments

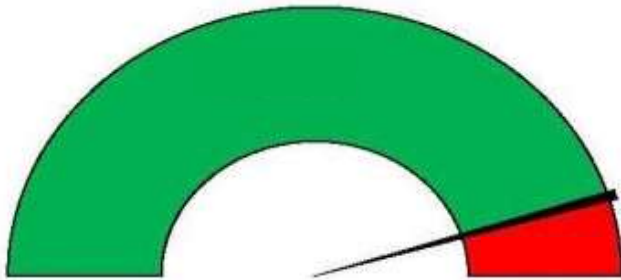
## Record Road Construction:

- 452 contracts covering approximately 2,945 miles of state highway to enhance movement of traffic by:
  - Building truck bypasses
  - Constructing a four lane highway
  - Reconstructing/widening roadways
  - Adding passing and turning lanes
  - Preserving existing investment state has made in its infrastructure



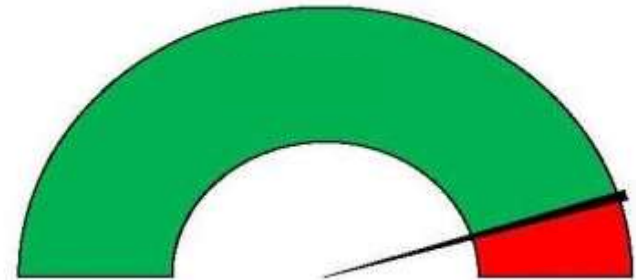
# Percentage of road work completed

**2013**



**91%**

**2014**



**90%**

# Accomplishments

## Some of the projects completed this biennium:

- Watford City US 85 Southwest Bypass
- Watford City ND 23 Southeast Bypass
- Alexander Bypass
- New Town Truck Reliever Route
- US 85 Four Lane - Phase 1 & 2 from Watford City to County Road 16 north of Alexander
- Dickinson Interim Bypass
- US 2 between Berthold and Surrey
- I-29 from Buxton to south of ND Highway 15
- Washington Street in Grand Forks
- 25<sup>th</sup> Street reconstruction in Fargo
- ND 21 widening/paving Elgin to Junction ND 31
- Bismarck Divide Avenue construction
- US 83 paving from Washburn to Underwood
- I-94 paving from Bismarck to Sterling
- ND 200 widening /paving from ND 1806 to US 83
- Bridge replacement on ND 26 at Sibley
- US 281 paving from Ellendale to Edgeley
- Valley City Frontage Road construction from 7<sup>th</sup> Street to I-94 Business Loop
- I-94 eastbound paving near Valley City
- US 281 paving from Churchs Ferry to Cando
- US 2 westbound paving Devils Lake to Churchs Ferry
- Cando City section rehabilitation
- Bridge replacement north of New Rockford
- Devils Lake 5<sup>th</sup> Avenue paving
- ND 20 paving & culvert rehab Starkweather to Clyde
- ND 17 paving & culvert rehab Starkweather to Edmore
- Grand Forks 32<sup>nd</sup> Avenue rehabilitation
- Grand Forks Columbia Road reconstruction
- Grand Forks Gateway Drive rehabilitation
- US 2 eastbound from Niagara to near Larimore
- I-29 southbound paving from Drayton to Canada
- US 2 westbound paving from Niagara to near Arvilla
- ND 15 paving from near Northwood to Thompson
- ND 27 paving from Lisbon to junction ND 18
- ND 13 paving from Gwinner to junction ND 1
- Wyndmere rehabilitation
- West Fargo 13<sup>th</sup> Avenue Lighting
- I-94 rehabilitation in Fargo
- ND 46 widening and paving from west of Enderlin to near Sheldon
- ND 46 widening/ paving from near Leonard to I-29

# Accomplishments

## Customer Satisfaction Survey

- In 2014 Overall Satisfaction remains high.
- Chart below shows % Satisfied or Very Satisfied.

	2014	2012	2010	2008	2006
Motorists	75%	79%	90%	80%	74%
Motor Carriers	72%	79%	90%	87%	78%
Govt. Officials	83%	80%	96%	90%	89%
Businesses	72%	76%	90%	77%	69%

2014 Overall Satisfaction rates on ride quality were lower ranging from 39%-62% in satisfaction ratings.

# Traffic Modeling, Transportation Needs Studies and Surveys

In addition to the County, Township and Tribal Transportation studies requested by the Legislature, the DOT worked with Upper Great Plains Transportation Institute on a traffic modeling program, several needs studies and surveys which include:

- State Needs
- Transit Needs
- Short Line Railroad Needs
- City Surveys





# UGPTI Study for County, Township and Tribal Infrastructure Needs

Period	Unpaved (in millions)	Paved (in millions)	Bridges (in millions)	Final Total (in millions)
2015-16	\$633	\$453	\$86	\$1,172
2017-18	\$574	\$366	\$86	\$1,026
2019-20	\$573	\$322	\$86	\$981
2021-22	\$571	\$297	\$86	\$954
2023-24	\$567	\$143	\$86	\$796

# State Needs Study

The State Needs Study identified resources necessary to take state highways up to HPCS guidelines. These guidelines allow continued seasonal load restrictions.

<b>UGPTI State Highway &amp; Bridge Needs</b>	
<b>Time Frame</b>	<b>Cost in Millions</b>
2015-2016	\$3,543
2017-2018	\$1,878
2019-2020	\$750
2021-2022	\$604
2023-2024	\$650

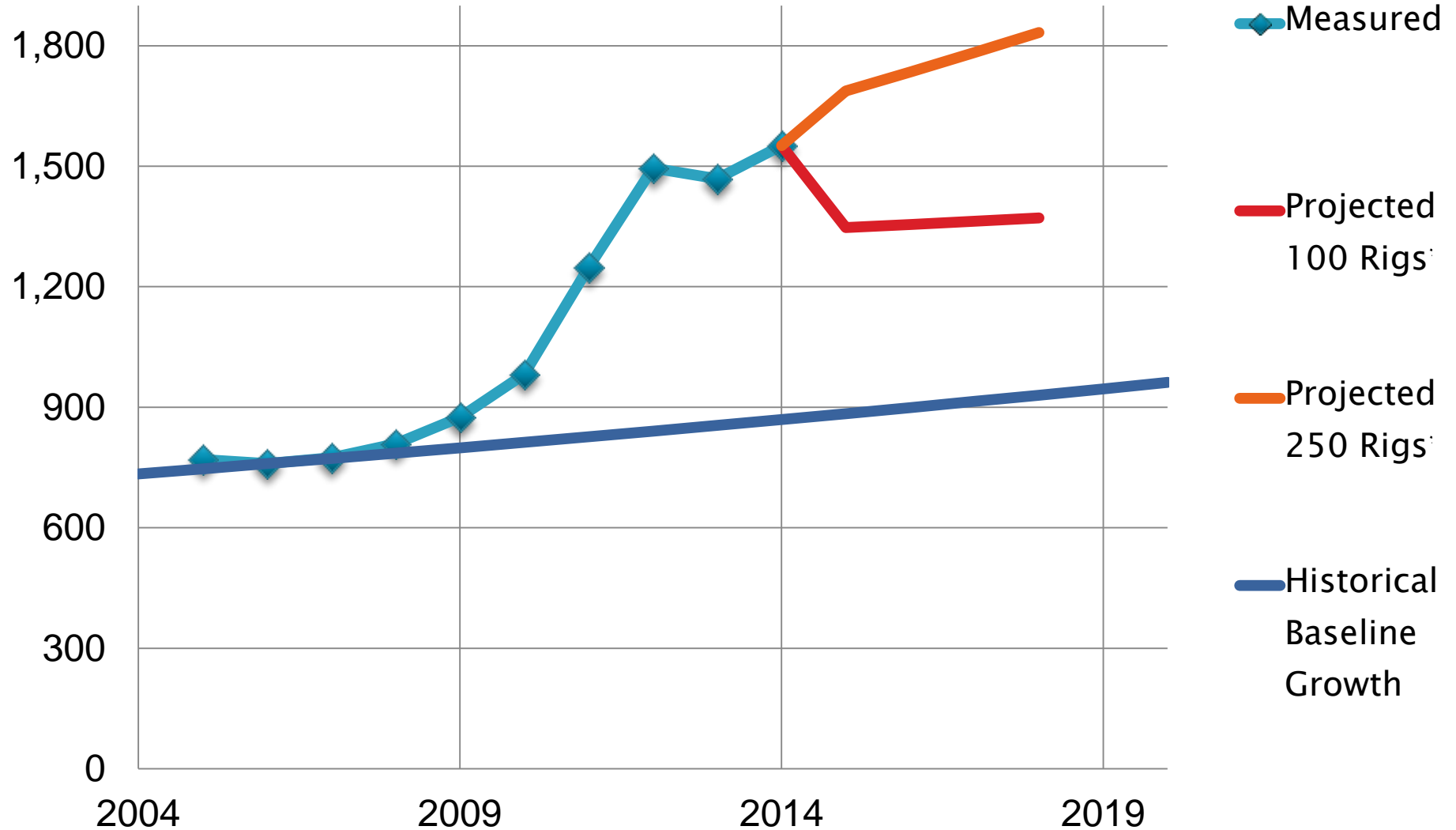
# 2015-2017 Study Needs

The majority of needs reported for the transportation system in 2015-2017 Biennium reflect impacts that have already occurred because of existing traffic conditions.



Rutting on US Highway 2 Eastbound Stanley to Palermo.

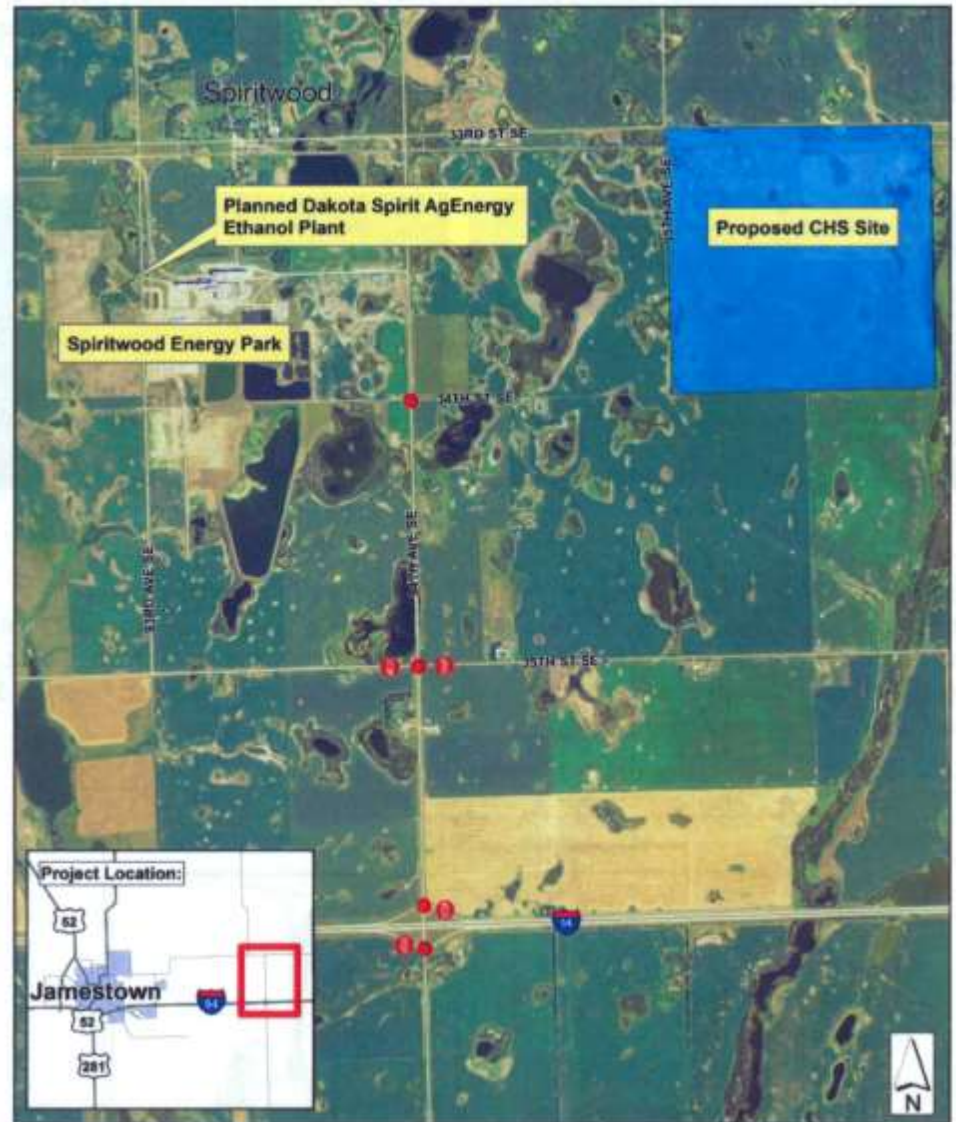
# Truck Traffic Vehicle Miles



March 10, 2015 Rig Count is 115

# Major Developments

- Cenex Harvest States plant at Spiritwood near Jamestown.
- Large oversized loads.



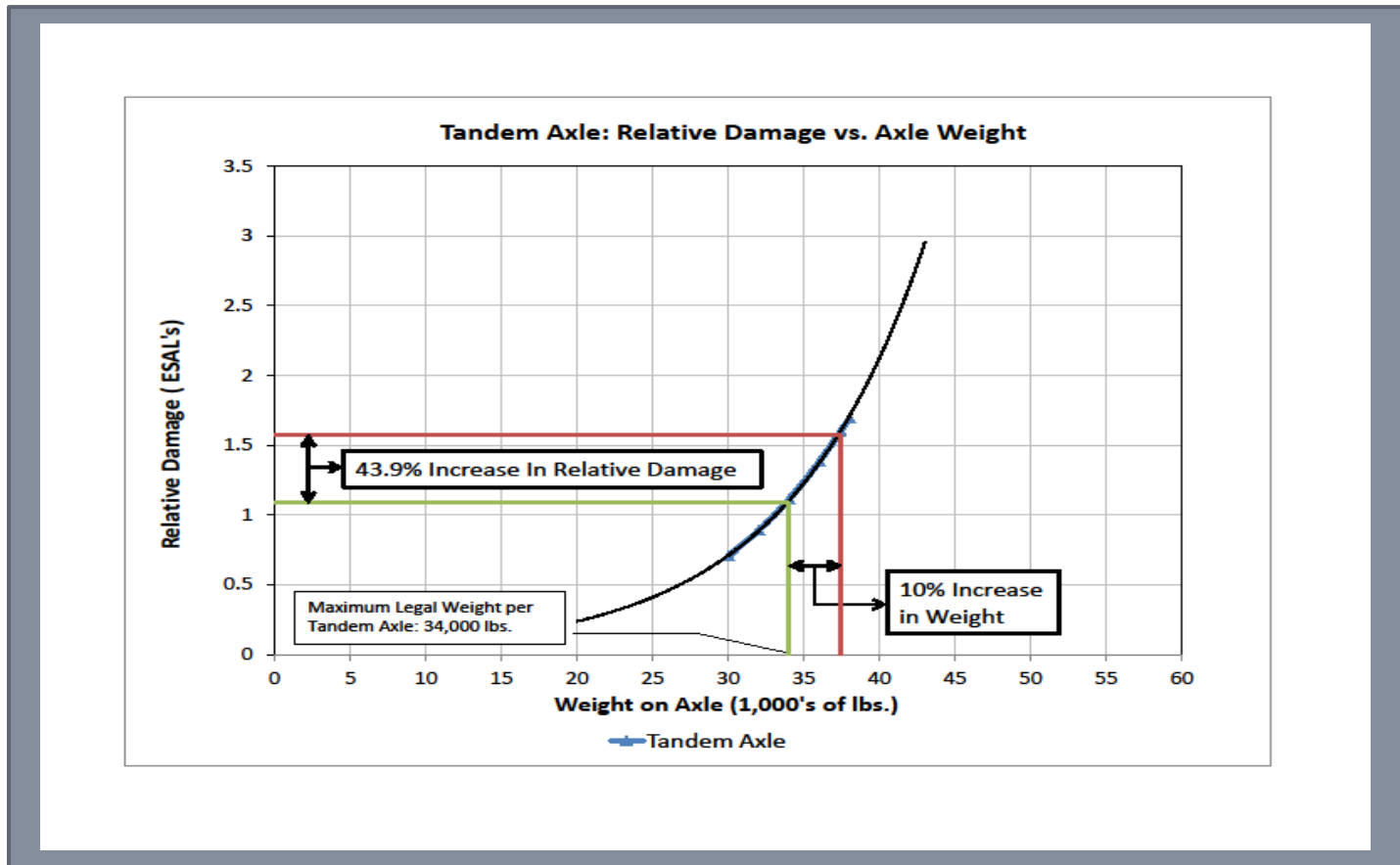
# Size of Loads

- A recent load weighing 609,000 lbs. transported equipment from South Dakota to Spiritwood near Jamestown.
- Pictured below is an oversized load that weighed nearly one million lbs., was 23 feet wide and 285 feet long that moved equipment to Spiritwood.



# Truck Size and Weight

- Damage from overweight loads not only affects pavements and roadways but it can also reduce bridge life.



- Illustrates how a 10% tandem axle overload increases road damage by nearly 44%, compared to a legal tandem of 34,000 pounds.

# Roadway Design

## ESAL

- Pavements are designed to carry traffic. Equivalent Single Axle Load (ESAL) concept - measures effect of heavy vehicles on pavements.
- One EASL equals 18,000 pounds.
- Conventional five-axle tractor-semitrailer operating at 80,000 pounds gross vehicle weight (GVW) is equivalent to about 2.4 ESALs.
- If the weight of this five-axle vehicle was increased to 90,000 pounds (a 12.5 percent increase), its ESAL value goes up to 4.1 (a 70.8 percent increase), because pavement damage increases at a geometric rate with weight increases.



# Roadway Design

## ESAL – con't

- However, a six-axle tractor-semitrailer at 90,000 pounds has an ESAL value of only 2.0, because its weight is distributed over six axles instead of five.
- An added pavement benefit of the 90,000-pound six-axle truck is that fewer trips are required to carry the same amount of payload, resulting in significantly less pavement damage.

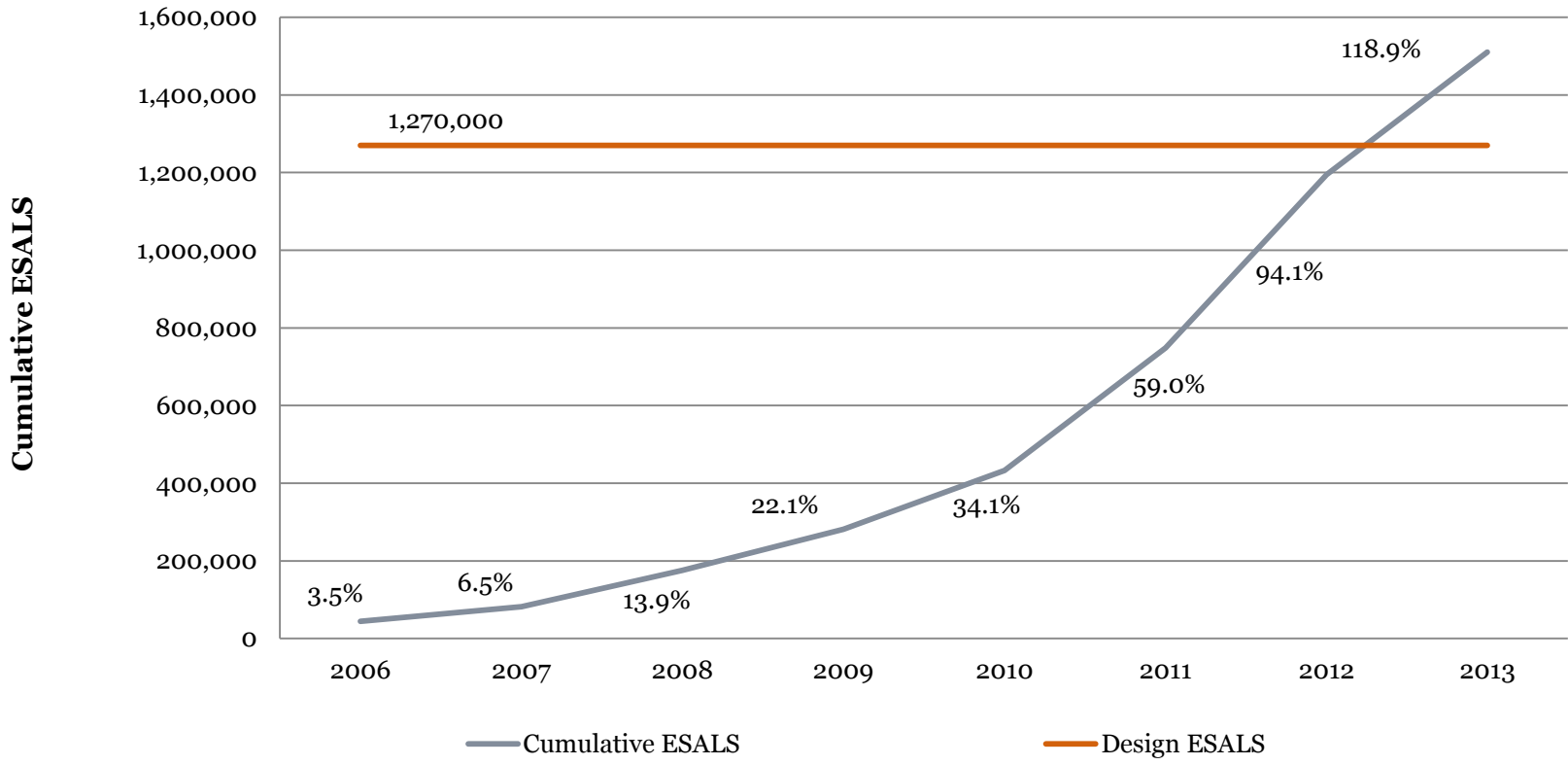
# Roadway Design

## ESAL – con't

<u>Configuration</u>	<u>Total ESALs</u>
• Current 5-axle tractor-semitrailer at 80,000 lbs.	2.4
• 6-axle tractor-semitrailer at 90,000 lbs.	2.0
• 7-axle tractor-semitrailer at 97,000 lbs.	1.5
• 8-axle double at 108,000 lbs.	1.8

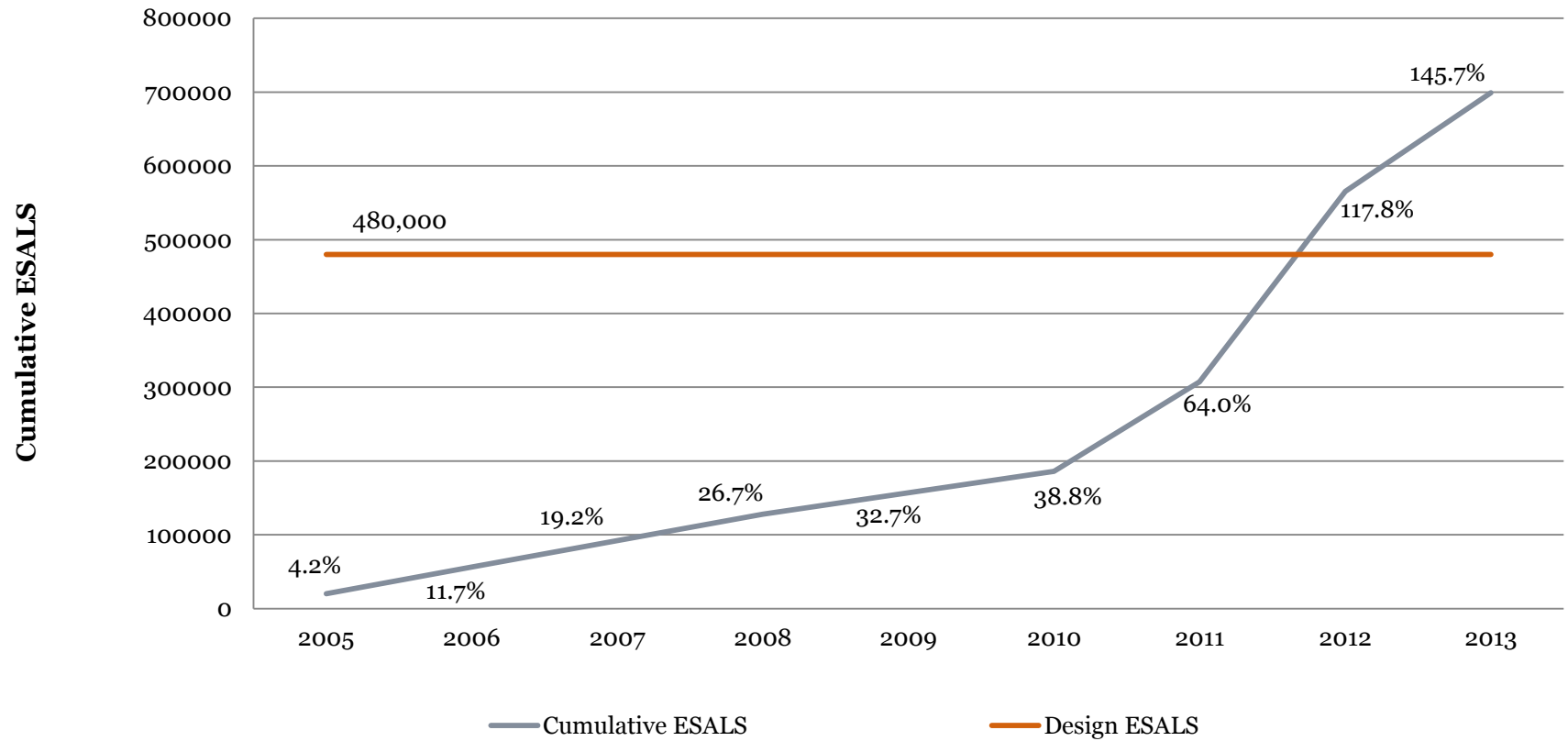
# Roadway Design Life

**US 2 EB: Stanley East to Palermo**  
**20 Year Design = 1,270,000 ESALS**



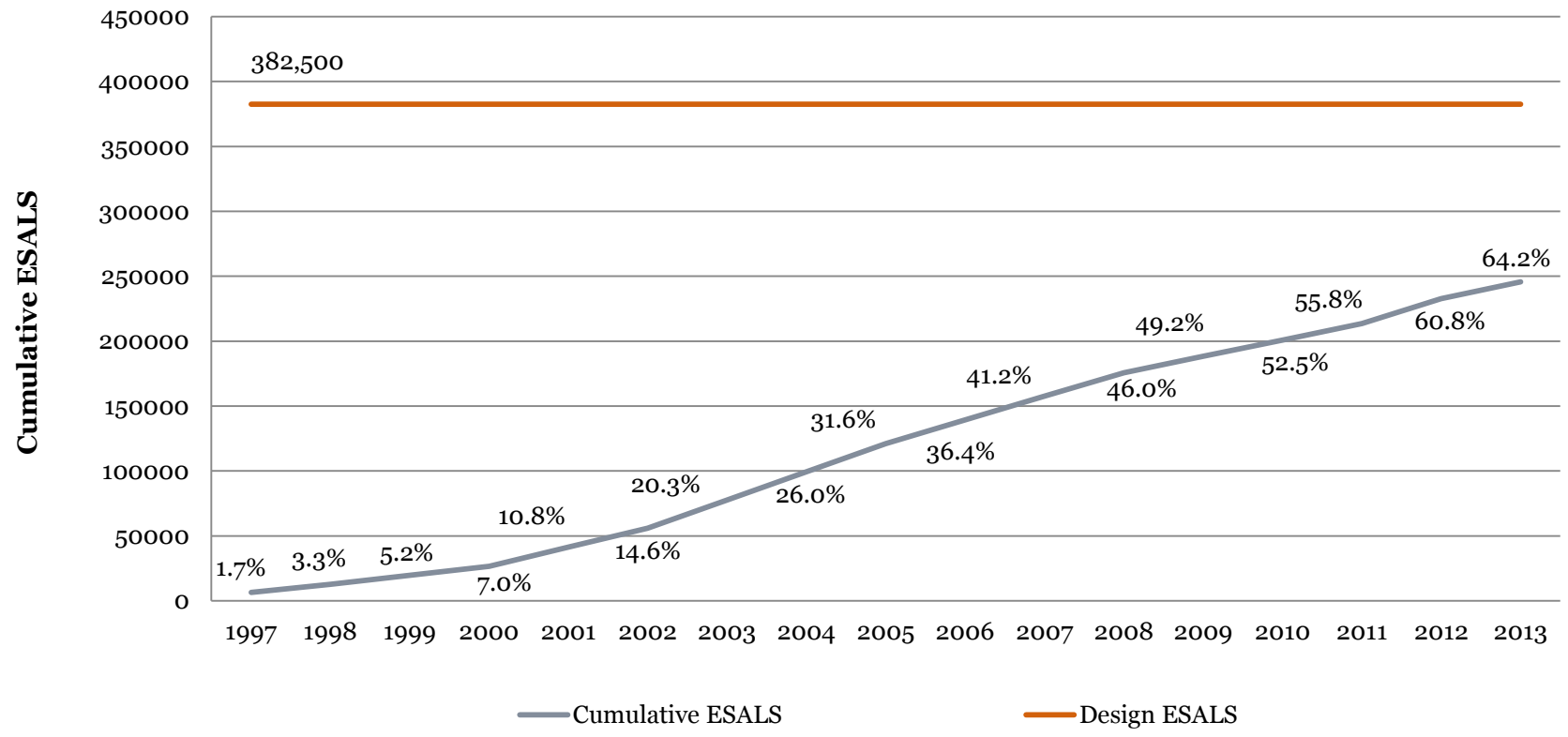
# Roadway Design Life

**ND 200: Yellowstone Bridge to Jct US 85  
20 Year Design = 480,000 ESALS**



# Roadway Design Life

**ND 8: Mott North to 1.4 Miles North of County Line**  
**20 Year Design = 382,500 ESALS**

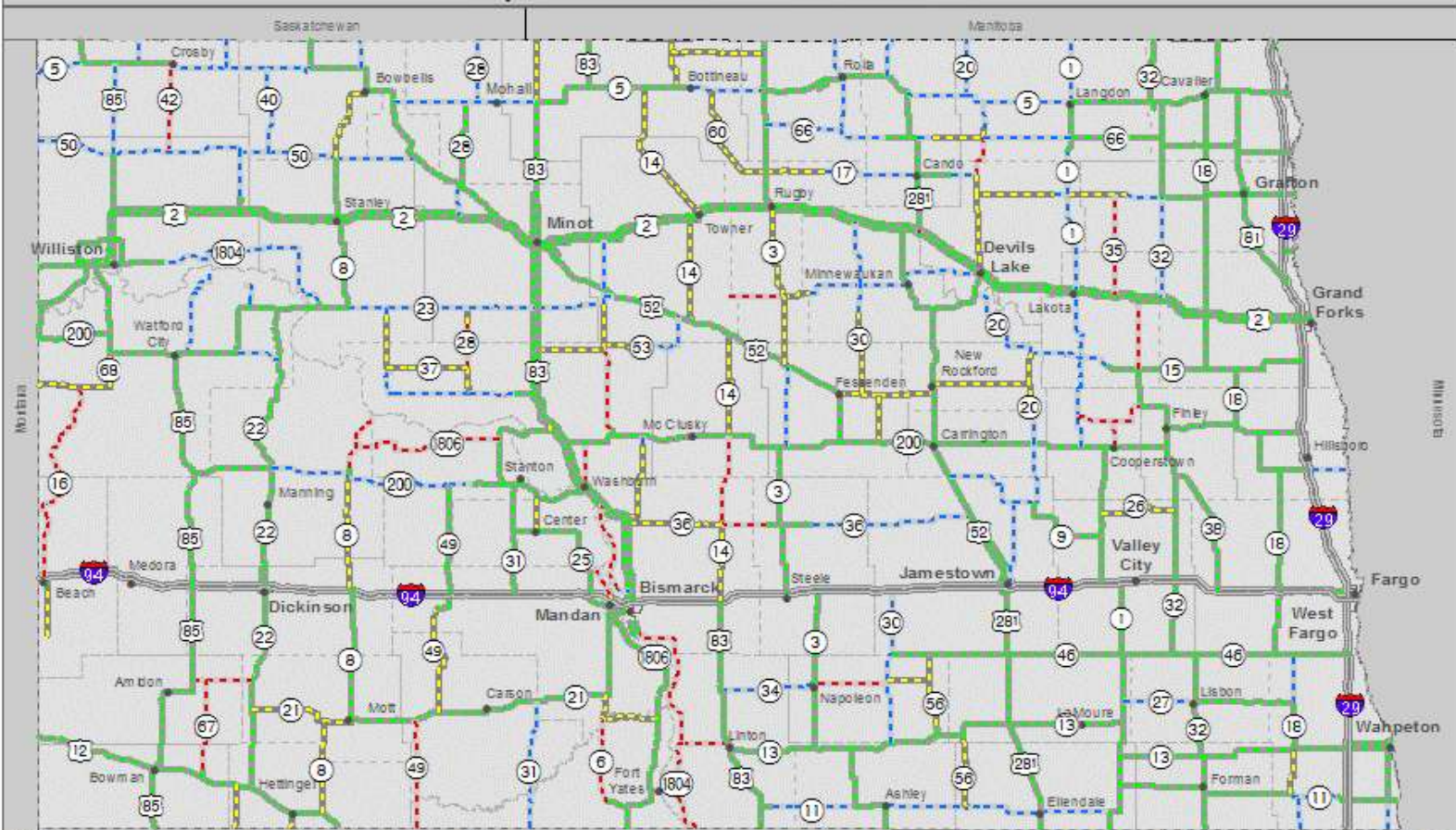


# System Condition



Alligator cracking on ND Highway 23 near Johnson's Corner between Watford City and ND Highway 73.

# Spring Load Restrictions



Interstate System	by Legal Weight	8 - Ton	7 - Ton	6 - Ton	5 - Ton	Call Highway Patrol for vehicle size/weight and permits. Call 511 for enroute information.	
		8 - Ton	7 - Ton	6 - Ton	5 - Ton	<b>Phone #'s (701)</b>	
Single Axle	20,000 lbs	16,000 lbs	14,000 lbs	12,000 lbs	10,000 lbs	HP Permit Office 328-2621	Minot 857-6925
Tandem Axle	34,000 lbs	32,000 lbs	28,000 lbs	24,000 lbs	20,000 lbs	NDDOT Office 328-2545	Dickinson 227-6500
3 Axle Group or more per Axle	17,000 lbs	14,000 lbs	12,000 lbs	10,000 lbs	10,000 lbs	Bismarck 328-6950	Grand Forks 787-6500
Max. Axle Group	48,000 lbs	42,000 lbs	36,000 lbs	30,000 lbs	30,000 lbs	Valley City 845-8800	Williston 774-2700
Gross Weight	105,500 lbs	105,500 lbs	105,500 lbs	80,000 lbs	80,000 lbs	Devils Lake 665-5100	Fargo 239-8900

# Load Carrying Capacity

- Upper Great Plains did an analysis on load carrying capacity on the state system where NDDOT currently has load restrictions on ND 42, ND 50, ND 73, ND 1804, and ND 1806. The total miles analyzed on these segments was 133.2 miles.
- If these roadways were to be restriction free (legal weight at 105,500), this would reduce VMT by 8.1M annually. Over a 20-year period, this would save the trucking industry approximately \$352M. The 2014 cost to reconstruct these roadways (133.2 miles) is estimated to be \$280M. This will result in a net saving of approximately \$72M over twenty years.





# Commodities

- 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.

# 2015-2017 Executive Budget Recommendation

Recommended Total = \$2.7 billion total appropriation.

## ***Oil Producing Counties***

- \$ 1.35 billion one time for enhanced state highway investments
- \$ 108.8 million - Federal Funds (state & local match) State/Cities/Counties
- \$ 4.6 million Federal Carryover
- \$ 22.8 million Federal Emergency Relief

## ***Non-Oil Producing Counties, Cities and Townships***

- \$ 100 million - Distribution to cities, counties, & townships
- \$ 508.2 million - Federal Funds (state & local match) State/Cities/Counties
- \$ 57.8 million – Federal Carryover

\$ 5 million - Special Fund for roads leading to recreational areas in all counties

An Early Access bill (SB 2126) includes \$450 million of the \$1.35 billion for enhanced state infrastructure as well as the \$100 million for transportation distributions for non-oil producing counties (\$52 M), cities (\$28 M) and townships (\$20 M). Governor also proposed gross production tax formula change for oil producing counties.

Two new FTEs

- 1 Environmental Scientist
- 1 Archaeologist

\$ 2.5 million additional funding for the motor vehicle registration/titling system.

\$ 1 million reimbursement for state fleet motor coaches.

\$ 7.5 million Energy Impact Fund for DOT in OMB appropriation bill SB 2015.

# Proposed 2015-17 Governor's Executive Budget for Roads & Bridges

FUNDING 2015-2017 BIENNIUM	WEST REGION (\$ Millions)		CENTRAL & EAST REGIONS (\$ Millions)		TOTAL (\$ Millions)	
Enhanced State Highway Investments (Rural, city and state highways)	TOTAL	\$1,354.0	TOTAL	\$0.0	TOTAL	\$1,354.0
STIP (2015 - 2016) (Federal funds with state and local matches)	State	\$46.6	State	\$449.6	State	\$496.1
	Urban	\$21.5	Urban	\$87.4	Urban	\$108.9
	County	\$45.4	County	\$29.1	County	\$74.4
	TOTAL	\$113.4	TOTAL	\$566.0	TOTAL	\$679.4
Emergency Relief (ER)	State	\$22.8	State	\$2.7	State	\$25.5
	Urban	\$0.0	Urban	\$0.0	Urban	\$0.0
	County	\$0.0	County	\$7.2	County	\$7.2
	TOTAL	\$22.8	TOTAL	\$9.8	TOTAL	\$32.7
State Funds Non-Oil Producing Counties, Cities, & Townships <sup>(1)</sup>		\$0.0		\$100.0		\$100.0
<b>TOTAL 2015 - 2017 BIENNIUM</b>		<b>\$1,490.2</b>		<b>\$675.8</b>		<b>\$2,166.1</b>

(1)Includes \$52 M for Counties, \$28 M for Cities, & \$20 M for Townships

Governor's proposed gross production tax formula change for oil	Estimated Oil Tax Distributions based on the 60%/40% formula change	Today's Price of Oil is approximately 46% of what the Estimated Oil Tax Distributions were based on.	Transportations needs account for approximately 87.8% of the overall county needs.	Funds Remaining for Non-Transportation work.
Big 10 Counties	\$853,800,000	\$392,748,000	\$344,832,744	\$47,915,256
Remaining Counties	\$12,400,000	\$5,704,000	\$5,008,112	\$695,888
Big 10 Townships	\$42,700,000	\$19,642,000	\$17,245,676	\$2,396,324
Remaining Townships	\$42,700,000	\$19,642,000	\$17,245,676	\$2,396,324

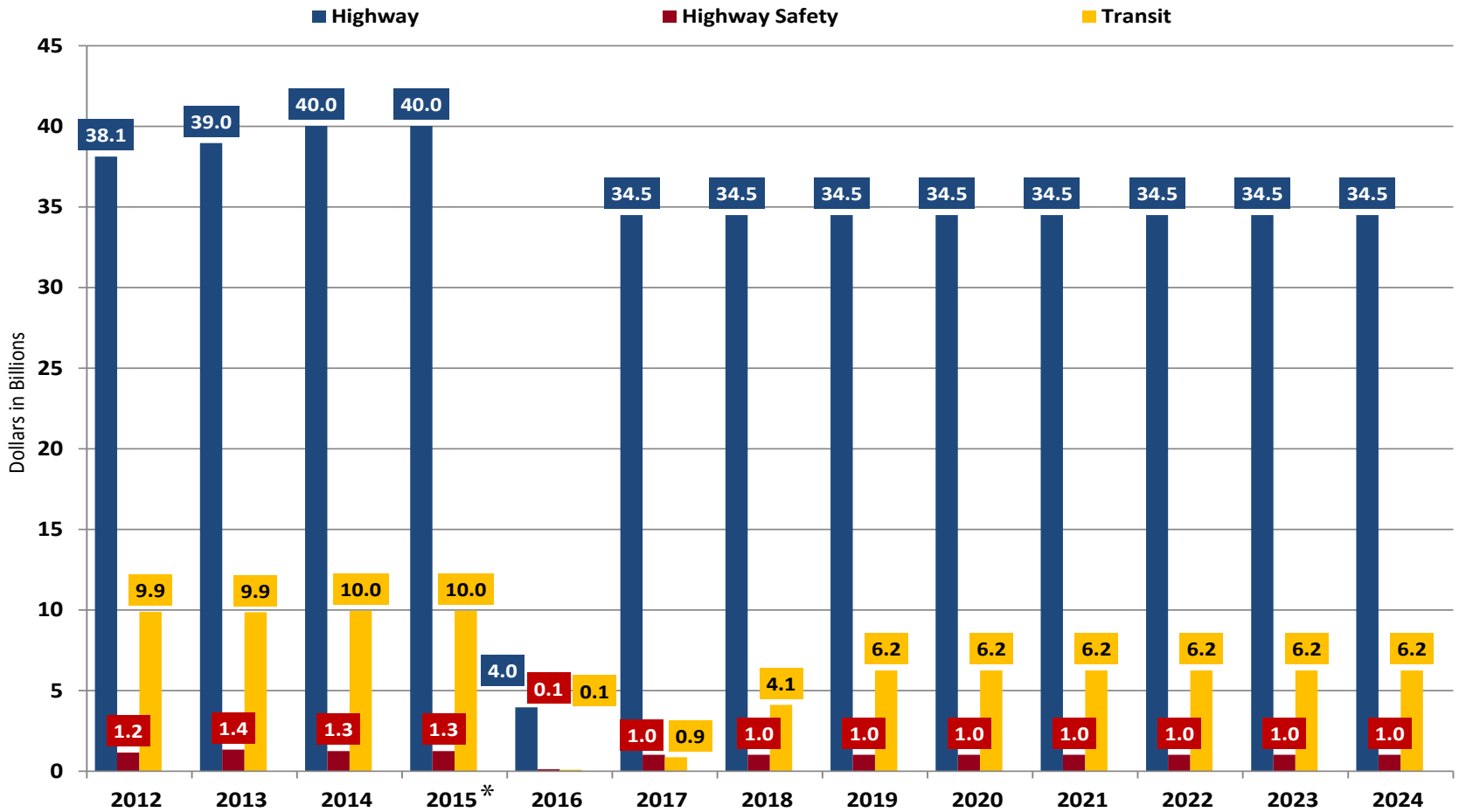
\*Total collections were reduced down proportionally based on the average price per barrel of oil when budgets were prepared to an estimated price of \$45/barrel. That figure was then further reduced by the percentage of transportation needs vs. the overall needs of the county.

# Federal Funding Update

- NDDOT's Executive Budget recommendation assumes approximately \$616.5 million in federal funding will be received.
- Congress recently passed legislation that appropriated funding for the 2015 federal fiscal year. Unfortunately, the current transportation funding program MAP-21 was extended to only May 31, 2015. This is a short-term extension of the program and as a result 2015 funding is still uncertain.

# Federal Funding

## ESTIMATED FEDERAL HIGHWAY TRUST FUND OBLIGATIONS



\* Assumes Congress will fully fund MAP21 proposed expenditures in 2015.

**If no new revenues are found, federal highway obligations will fall by almost 100% in FY 2016.**

# Early Funding provided in SB 2103

- Senate Bill 2103 provides \$450 million immediately for statewide highway and road improvement projects.
  - It is a portion of the \$1.354 billion for enhanced state highway investment apportionment as requested in HB 1012.
- \$352 million appropriated to the DOT and managed by the DOT for the counties:
  - \$240 million to 10 largest oil producing counties
  - \$112 million to remaining counties

# March Bid Openings and County Meetings

The early funds from SB 2103 enable us to move forward with bid openings this month which will be held on the following dates:

- March 20
- March 24
- March 27

The total of the bid openings in March is \$285 million including some federal funds.

DOT has met with some counties to discuss projects eligible for early funding contained in SB 2103.

# Proposed Construction 2015-2017

(Assuming Executive Budget is provided)

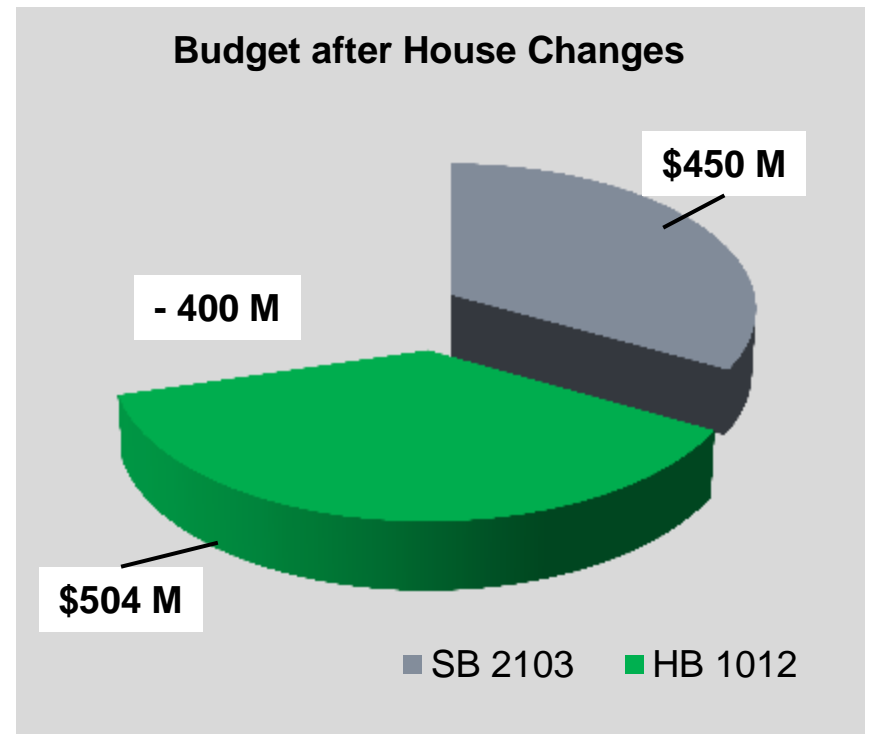
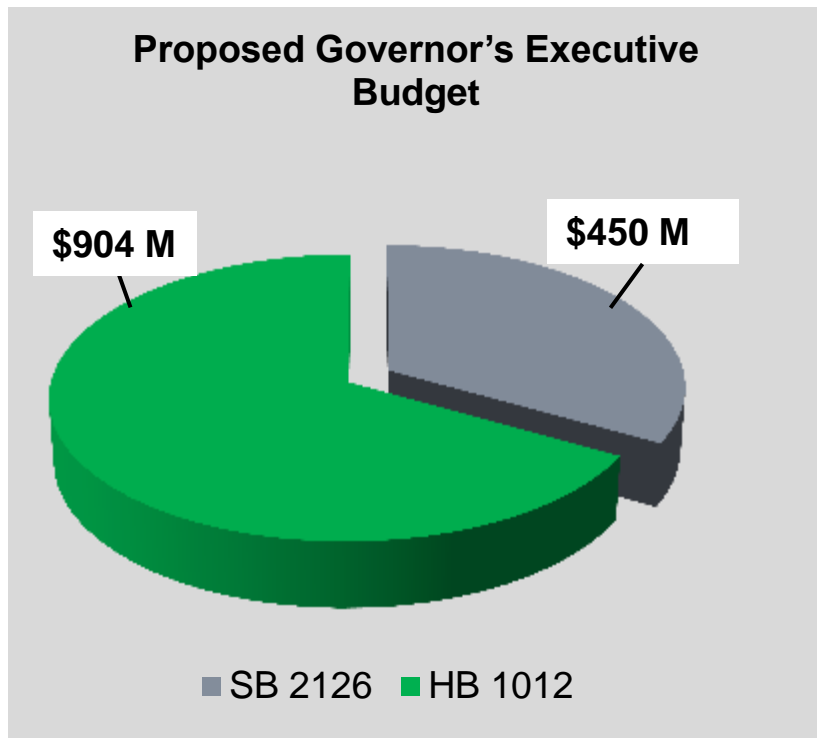
- Aggressive construction program planned.





# Executive Budget comparison to crossover version for western North Dakota funding

\$ 1.354 billion one time funding for enhanced state highway investments.



\$1.875 billion intended to address \$3.54 billion need is reduced in engrossed HB 1012 to \$1.47 billion.

# Conclusion

- DOT continues to work with the Legislative Body discussing House Bill 1012
- The Legislative Body is working with a lower revenue forecast than when HB 1012 was originally prepared.