NORTH DAKOTA SYMPOSIUM ON TRANSPORTATION FUNDING

by the Upper Great Plains Transportation Institute
for the North Dakota Department of Transportation

JUNE 2018

NORTH DAKOTA SYMPOSIUM ON TRANSPORTATION FUNDING

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION
UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

CONTENTS

Overview of North Dakota Symposium on Transportation Funding 2
Introductory Remarks 3
National Perspective of Funding and Finance Policy 4
NDDOT Transportation Funding — Past Present and Future 6
North Dakota Local Transportation Revenue Sources by Jurisdiction 7
NCHRP Synthesis 459 Presentation – Using Economic Value Created by Transportation to Fund Transportation 8
North Dakota Infrastructure Needs by Jurisdiction 9
North Dakota Needs Beyond Pavement and Bridges 11
South Dakota Revenue Initiative — Policy Development and Program Outcomes 13
Overview of Transportation Funding Options for North Dakota 15
Conversation Circle Ideas, Questions and Comments 16
Post Conversation: Symposium Wrap-Up 20
Appendix A. Agenda 21
Appendix B. NDDOT Survey 22
Appendix C. Transportation Funding Sources and Levels: 2012-2017 24
Appendix D. Value Capture Methods and Their Users 26
Appendix E. Transportation Infrastructure Needs in North Dakota: 2016-35 27
Appendix F. NDDOT Needs Beyond Pavements & Bridges 29
Appendix G. Summation of Revenue Options 31

Radisson Hotel, Bismarck, North Dakota
March 14, 2018

Overview of North Dakota Symposium on Transportation Funding

DRAFT AGENDA

NORTH DAKOTA SYMPOSIUM ON TRANSPORTATION FUNDING

March 14, 2018

RADISSON HOTEL BISMARCK
Convene 9:00 AM CT

Convene 9:00	(Registration begins @ 8:30)
9:00 to 9:15	Introductory Remarks – NDDOT Director Tom Sorel Policy –Jennifer Brickett – Director AASHTO BATIC Institute
10:00 to 10:30	North Dakota State, FHWA and FTA Funding History and Outlook Shannon Sauer - NDDOT
10:30 to 10:45	Break
10:45 to 11:15	North Dakota County, TWP, Urban Funding Sources Alan Dybing - Upper Great Plains Transportation Institute
11:15 to Noon	NCHRP Report Presentation - Using the Economic Value Created by Transportation to Fund Transportation Ben Orsbon – SDDOT Executive Office, Federal Program Coordinator
Noon to 1:00	Lunch
12:30 to 1:00	North Dakota needs studies by jurisdiction: State, County, TWP, Urban, Transit Upper Great Plains Transportation Institute
1:30 to 2:00	South Dakota Revenue Initiatives – policy development process and program outcomes Mike Vehle from Mitchell, SD – SDDOT Commission Member
2:00 to 2:30	Review and Analysis of Funding Options – Viability, Resiliency, and Policy Implications Tim Horner – Upper Great Plains Transportation Institute
2:30 to 2:40	Introduce Conversation Circle (Fishbowl) Process and Conversation Questions - Upper Great Plains Transportation Institute
2:40 to 3:40	Conduct Conversation Circle Discussions
3:40 to 4:15	Report on comments of Conversation Circle Discussions Various Reporters
4:15 to 4:45	Closing Comments – NDDOT Director Tom Sorel

The North Dakota Symposium on Transportation Funding was held at the Bismarck Radisson Hotel March 14, 2018. North Dakota Department of Transportation (NDDOT) worked with Upper Great Plains Transportation Institute (UGPTI) at North Dakota State University (NDSU) during a 3-month period to identify national, regional, and local topics that would provide insight about transportation funding today and into the future.

More than 100 individuals from congressional offices, the North Dakota Legislature, FHWA, state agencies, transit providers, various associations, metropolitan planning organizations, consultants, contractors, and suppliers attended the symposium.

The symposium was facilitated by UGPTI with an agenda that included presentations on national transportation funding trends and innovations, local jurisdiction funding sources, state system funding trends, and infrastructure needs of state and local jurisdictions. Additionally, there were presentations on transportation value capture concepts and South Dakota's experiences with transportation funding increases. Nineteen funding options were analyzed and presented in matrix form. The symposium ended with a facilitated conversation circle to get thoughts and comments from the attendees regarding the presentations they had experienced. The agenda is shown in Appendix A.

Introductory Remarks

Tom Sorel, Director
North Dakota Department of Transportation

Tom Sorel

Today is about how we want to look at transportation for the future, said Tom Sorel.

There is a common theme we are facing: many disruptive technologies are happening that could influence this discussion. We don't know what the outcomes will be, but it is a reality for us, and it is happening very fast. We don't have the answers, but it is important to be knowledgeable about it. And it does not matter where you live — urban or rural. We need to think about disruptive technology and how it influences funding for transportation.

Tom cited his 4 goals for the symposium:

1. Establish a common baseline for what we are talking about regarding transportation needs.
2. Bring stakeholders together to build a consensus going forward.
3. Learn what is happening across the country.
4. Begin the dialogue about what transportation funding should look like for the future.

We need to think about what kind of transportation system we want to have and what services it should provide.

To be successful we must work together. It must be a collaborative approach. We want a healthy transportation community.

Tom shared results of a recent survey conducted on NDDOT's website. The survey shows how the public sees NDDOT as an agency that can be relied on to deliver a transportation system. Survey results also show that the traveling public see funding as a major challenge for NDDOT. More details about the survey and what the public wants can be found in Appendix B.

Tom then presented a video showing a futuristic look of transportation and finished by saying this future vision is not very far away and we need to be preparing for it.

KEYNOTE PRESENTATION:

National Perspective of Funding and Finance Policy

Jennifer Brickett, Director
American Association of State Highway and Transportation Officials (AASHTO)
Build America Transportation Investment Center

Jennifer Brickett

Jennifer said the goal of her presentation is to provide some context to the conversation – to help understand how some states are raising revenue.

Transportation is important. It is the backbone of the economy, critical to quality of life. Everyone has a story about how transportation has affected their day or their lives.

We are also seeing new technologies which are changing how goods and people are moving around. This is a time of transition. Additionally, we are also facing aging infrastructure and an aging population.

We are also facing a significant funding gap and it is a critical time to be thinking about long-term dependable funding sources. Federal highway trust fund receipts have not kept pace with outlays. Federal gas taxes have not increased since 1993 and have not been adjusted for inflation – the purchasing power of gas tax revenue has declined.

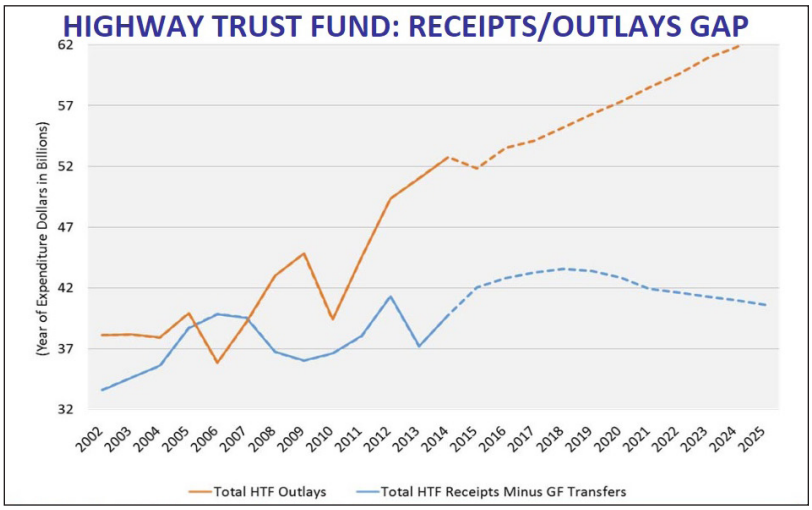
Further, cars are becoming more fuel efficient.

The gap will continue to increase. Congress has had to fill the gap with transfers from the general fund. Maintaining current spending levels will require a significant increase in revenue. It is critical to identify a long-term sustainable and dependable source of funding for the federal highway trust fund.

Three revenue options are available:

- Increase taxes or fees from existing sources
- Create new sources
- Divert revenue from other sources

Jennifer also discussed the recent Executive Office Infrastructure proposal. Overall it looks like a reduction in the role of the federal government. There is a rural infrastructure program with the intention to provide funding to rural areas.



Highway Trust Fund: Receipt/Outlay Gap

The proposal does not address sustainability of the federal highway trust fund. It does not prioritize formula-based funding (instead it focuses on discretionary programs which are less certain). It encourages public private partnerships but there are limitations to private participation. The plan does not address how to pay for the funding.

Jennifer then presented an overview of state efforts to increase transportation investment. Thirty-one states have passed revenue initiatives since 2012. This typically involves an increase in the gas tax.

There are many ways states can raise revenue. There is no one-size-fits-all approach.

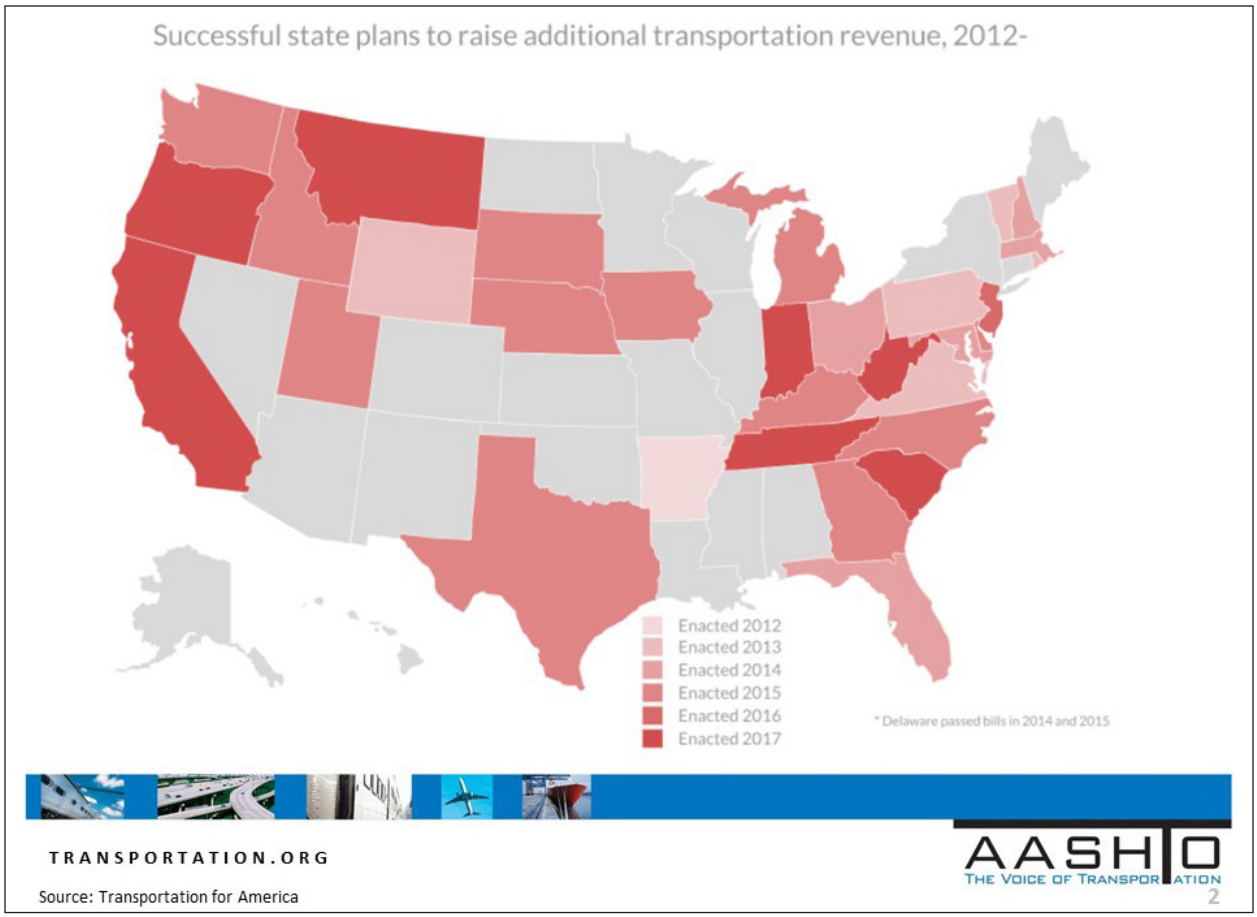
Trends – more states are moving to a variable motor fuel tax. More states are levying fees to electric vehicles. Neighboring states have increased their motor fuel tax in recent years. Minnesota also implemented an electric vehicle fee.

Some states are looking at a replacement to the gas tax. One proposal is to charge by the number of miles driven, rather than number of gallons pumped. AASHTO has identified 54 ways states are raising revenue.

Common themes behind revenue increases in other states:

- Clearly demonstrate problems to the public
- Benefits of proposed investments are clear
- Broad coalition of support
- Commitment to accountability and performance
- Strong leadership

Federal funding has become increasingly less predictable and uncertain so states are leading the way in addressing funding problems.



NDDOT Transportation Funding — Past Present and Future

Shannon Sauer, Chief Financial Officer
North Dakota Department of Transportation

Shannon Sauer

A safe and reliable transportation system is essential for the state of North Dakota.

"This is the start of an important conversation," said Shannon Sauer.

The largest source of revenue for the state – motor fuel tax, has not increased since 2005. This is the third-longest period without adjustment to the tax rate. Gas tax is not variable. It does not adjust with the price of gas.

The other primary state revenue source, motor vehicle registration fees, have not increased since 2005.

North Dakota is very dependent on federal revenues. There has not been much growth in federal funding over the last 8 years. Also, remember that only a small percentage of ND roads are eligible for federal funding. Additionally, these funds come with eligibility restrictions that essentially require the state to follow federal priorities instead of local goals.

The new construction program appropriated in the 2017-2019 NDDOT appropriation is based almost completely on federal funds plus state matching funds. Currently there is no significant new state funded construction program provided in the NDDOT budget. On a nationwide basis, approximately 42.5% of the DOT construction programs are federally funded. In ND, approximately 81% of the construction program appropriated by the 2017 Legislature is federally funded. Having a state construction program based mainly on federal funds is not a desirable practice; States that do this have less flexibility regarding federal rules and have little buffer against fluctuations in federal funding levels.

State funds are projected to grow very slowly. This is based on what is happening now.

However, disruptive technologies, more fuel-efficient vehicles, electric vehicles, could drive state and federal fuel-based revenues down. Recent research models show a significant decrease in gas tax revenues in the future.

Shannon pointed out that recent legislative sessions had inserted a large amount of energy- related funds into state and county transportation programs. At the state level, these funds were dedicated mostly to new bypass routes or

(continued on bottom of page 7)

ND One-time Legislative Funding

Similar to the Congressional actions to keep the Federal Highway Trust Fund afloat, the ND Legislature has had to take similar action in the past to keep ND's Highway Fund afloat.

The yellow highlighted items are recent examples.

One-Time Legislative Funding	2007-2009	2009-2011	2011-2013	2013-2015	2015-2017	2017-2019
General Funds (Enhanced St. Hwy. Invest/Cnty. & Twnshp Rd Prog/Non-Oil Cnty)			370,600,000	1,448,420,000	636,160,000	
Strategic Investment and Improvement Fund (SIIF) Enhanced St. Hwy. Invest/Cnty. & Twnshp Rd Prog/Non-Oil Cnty					809,000,000	
Borrowing ER for State Hwys			120,000,000			
General Fund Transfer to Hwy. Fund		4,600,000	5,850,000	14,500,000		
25% of MV Excise Tax allocated to Hwy. Fund		30,500,000				
$13 of each registration allocated to Hwy Fund	18,200,000					
10% of MV Excise Tax allocated to Hwy. Fund	12,600,000					
Repurposed Enhanced State Highway Funds						16,300,000
TOTAL	$30,800,000	$35,100,000	$496,450,000	$1,462,920,000	$1,445,160,000	$16,300,000

NDDOT North Dakota Department of Transportation

North Dakota Local Transportation Revenue Sources by Jurisdiction

Alan Dybing, Associate Research Fellow
Upper Great Plains Transportation Institute

Alan Dybing

Alan provided a summary of current funding sources for local jurisdictions. UGPTI staff met with the North Dakota Township Officers' Association, North Dakota Association of Counties, North Dakota League of Cities and held discussions with transit officials across the state. The intent of these discussions was to collect information on the sources and levels of funding that are available for use in maintenance and improvement of roadways and transportation infrastructure in North Dakota. In addition, concerns brought up by each stakeholder group were discussed.

Townships in North Dakota receive transportation funding from the Highway Tax Distribution Fund, Oil Gross Production Tax and mill levies. In 2017, these funding sources totaled $47.33 million. The counties received funds from the same sources in addition to Federal Formula distributions for a total of $194.91 million in 2017. Urban areas have additional funding streams including state aid (revenue share) distribution and sales taxes. However, due to other services provided in urban areas, only a portion of sales tax, state aid and property tax revenues were available for transportation investments. As with the counties, urban areas receive federal formula distributions (roughly $20 million per year). In addition, the NDDOT invests an equal amount on urban roads that are on the state highway system. The largest source of funding (50%) available for transit systems originate with the Federal Transit Administration with state, local and other sources bringing a total of $27.61 million in 2016.

Across all jurisdictions, a common concern was the future of the highway tax distribution fund proceeds going forward. Since 2014, all jurisdictions have seen decreases in receipts from the highway tax distribution fund and increased fuel economy and disruptive technologies may continue this trend into the future. Limitations on new funding sources at local levels were also discussed. A summary of funding sources can be found in Appendix C at the end of this document.

(Sauer continued from page 6)

additional roadway lanes. Long-term funds to maintain this new infrastructure was not identified or provided.

Also, prior to ND's recent oil boom and again for the 2017-2019 biennium, the ND Legislature recognized that state transportation user revenues were not sufficient to meet needs, accordingly, they injected additional funding into the State Highway Fund on a temporary basis. This is similar to what Congress has done to keep the Federal Highway Trust Fund afloat.

North Dakota's transportation funding is almost solely dependent on fuel taxes and vehicle registration fees at the state level.

NCHRP Synthesis 459 Presentation – Using Economic Value Created by Transportation to Fund Transportation

Ben Orsbon, Special Assistant to the Secretary for Policy & Legislative Affairs
South Dakota Department of Transportation

Ben Orsbon

Ben Orsbon is active in a national study conducted by the National Cooperative Highway Research Program (NCHRP) to identify how various entities are approaching transportation funding. Ben said the purpose of his presentation is to explain transportation value capture and value recycling, how it can work, what is necessary for it to work, and the mechanisms required to implement value capture.

Ben presented concepts of how much value transportation provides that can be captured. The public or land users regularly recapture the value transportation adds to land. The value is used over and over or recycled. Historically the value is recovered by the user or owner but not recycled back into transportation.

Good transportation creates value because it supports economic activity. Transportation increases land value and promotes commerce. Land value is higher the closer it is to transportation.

Value capture allows government to recycle and reuse increasing land value caused by transportation and invest it back into transportation.

Ben said that we want to have the users who benefit pay for the transportation services they receive, but those payments must be reasonable as well.

The overview of this concept is included in NCHRP Synthesis 459 Volume 1. Volume 2, which is a guidebook for application, was released by NCHRP on April 30, 2018.

A value capture methods handout was distributed and in also shown in Appendix D. Many of the non-typical methods are used by local governments, and are sometimes used for purposes other than transportation. Most states have not been using the listed methods yet.

Before implementing these methods, entities must address several questions:

- Is it really worth the effort? This is a key issue as these methods could be costly to administer.
- How much can one really capture?
- Is it fair?
- Is it legal? The fee cannot exceed the value created.
- Does the benefit accrue to the public at large? If so, this cannot be used.
- Is there adequate authorizing legislation?
- Is there stakeholder and political support?
- Is there administrative and institutional capacity to do it?

Another supporting argument for value capture is that the value created by the public is returned to the public instead of to others who don't pay for the value received.

Value capture provides a set of tools that could be used to fill a funding shortfall.

North Dakota Infrastructure Needs by Jurisdiction

Tim Horner, Program Director & Jeremy Mattson, Associate Research Fellow
Upper Great Plains Transportation Institute

Tim Horner and Jeremy Mattson gave an overview of infrastructure needs studies that had been conducted over the past three to four years. These needs studies covered roads and bridges of the state highway system as well as the city, county and township systems. In addition, a transit service needs study was conducted in 2014.

Tim Horner

Tim pointed out that the infrastructure studies were very specific to bridge and roadway needs. A later presentation would be shown by Scott Zainhofsky that covered NDDOT revenue needs beyond the roads and bridges. An important point about the infrastructure studies is that the assumption was used that improvements would be made at the optimum time that would result in the least cost per mile. Lower-than-needed funds typically results in delaying lower-cost options resulting in more expensive reconstruction treatments.

The presentation began with an overview of the 2016 state highway study. The study was sponsored by NDDOT and conducted by UGPTI. It was limited to bridge and pavement needs. Additionally, the 2015 Legislature directed NDDOT and UGPTI to conduct an impact study of allowing 129,000 pound trucks in North Dakota. The 2017 Legislature advanced legislation to allow 129,000 pound trucks on select state highways. The move to heavier trucks is not projected to impact pavements, but the impact to state system bridges was projected by NDDOT staff to be about $761 million. The resulting 20-year needs from the two studies was $11 billion.

The next study covered was the 2016 County and Township Needs Study authorized by the 2015 legislature. It was the fourth in a series of studies requested by the legislature. The 2017 Legislature chose not to continue the studies. The 2016 study was conducted by UGPTI staff. NDDOT supplied pavement ride and distress data on the county paved network using its Pathways van. UGPTI contracted with Dynatest LTD and Infrasense LTD to conduct pavement strength and thickness studies to obtain a reliable data set for analysis. Gravel costs are the most significant part of county costs. Costs were estimated based on surveys of counties and townships. The counties were trained via a webinar on how to uniformly fill out the survey. Needs for a 20-year period were estimated at $8.8 billion.

Jeremy Mattson

In 2016, NDDOT and the North Dakota League of Cities partnered to fund a study of bridge and pavement needs in North Dakota's 14 largest cities. The study was limited to major collectors below the state highway system. This excluded streets that generally served local residential traffic. The resulting urban study network was 550 miles of paved roadway and associated bridges. UGPTI conducted the study by collecting pavement ride and distress data through a contract with Dynatest LTD. The needs for a 20-year period were estimated at $643 million.

In 2014 NDDOT requested that UGPTI coordinate a transit needs study for North Dakota. Jill Hough and Jeremy Mattson of UGPTI assembled a panel of urban and rural transit providers along with AARP to study existing and needed service levels and benchmarks across North Dakota. The study resulted in a 20-year needs estimate of $718 million.

The statewide summation of all studies for a 20 year period totaled $21.2 billion dollars. A summary of the studies is shown below. The full needs estimates by jurisdiction can be found in Appendix E.

Statewide Infrastructure Needs – All Jurisdictions

Year	State ($million)	County and Twp ($mllion)	Urban ($million)	Transit ($million)	Total ($million)
2016-17	$1,469	$1,028	$149	$72	$2,717
2018-19	$1,223	$993	$105	$66	$2,388
2020-21	$818	$1,025	$88	$69	$2,000
2022-23	$818	$985	$78	$70	$1,951
2024-25	$788	$926	$51	$72	$1,837
2026-35	$5,159	$3,848	$173	$369	$9,549
Harmonization	$761				$761
2016-35	$11,037	$8,805	$643	$718	$21,202

NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE

North Dakota Needs Beyond Pavement and Bridges

Scott Zainhofsky, Planning/Asset Management Division Director
North Dakota Department of Transportation

Scott Zainhofsky

Just as a house is more than four walls and a roof, the transportation services and systems of NDDOT go beyond the roads and bridges.

NDDOT identifies nine different services beyond bridge and pavement projects intended to address the physical condition of the asset (i.e., keeping good pavements and bridges good). They are: Safety, Freight & Personal Mobility, Driver's License, Motor Vehicle Registration, Snow and Ice Control, Bike and Pedestrian service, Transit, Maintenance, and Rail.

Many of the nine are self-explanatory. Safety is easily understood and defined by the Vision Zero Safety Goal. Some areas need more definition. Freight and personal mobility issues go beyond the physical condition of the bridges and pavement to consider what the asset is intended to do. Examples include improving width and vertical clearances even when bridge and pavement conditions are good.

As an extreme example, a pedestrian bridge in perfect condition that would now be expected to carry interstate traffic would be reconstructed with Freight & Personal Mobility Investments, not Bridge.

Rail loan programs go beyond bridges and pavements by assisting freight movements by improving rail lines and rail sidings and by developing intermodal facilities. Improved rail service reduces highway and bridge needs.

Snow and ice control is also not covered by road and bridge infrastructure needs studies.

It is critical to remember the scale of these various investment classes are not the same. Just as in a house, you can't buy a new roof by mowing less, you can't appreciably improve pavements and bridges by extending driver's license wait times or by storing trucks outside rather than inside. There isn't enough funding to be diverted, even if no money were spent on the lower-cost services to notice a difference in the more costly services.

The NDDOT is currently in a preservation mode, meaning we are largely trying to preserve the transportation system as it exists today. However, we are losing ground and our system is deteriorating faster than we have resources to preserve it. The department has stretched every dollar as far as it can, as evidenced by a recent Reason Foundation report naming NDDOT as the most efficient DOT in the nation.

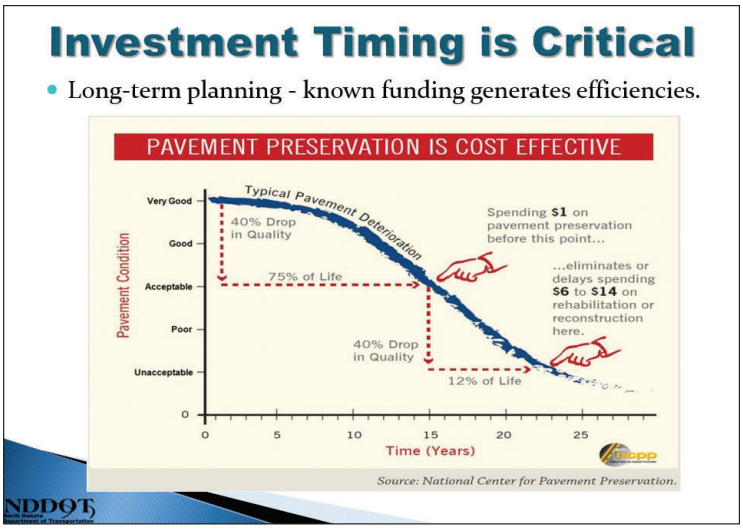
NDDOT's main sources of state funding come from state fuel taxes and vehicle fees, which have remained the same since 2005. Costs have increased. For example, asphalt surfacing cost $500,000 per mile in 2005 compared to $1.1 million per mile in 2016; salt used for snow and ice control cost $55 per ton in 2005 compared to $81 per ton last year.

Timing of improvements must be optimized. As demonstrated by the graphic from the National Center for Pavement Preservation (see page 12), investment timing is critical. Waiting for an asset's condition to deteriorate beyond a preservation level is significantly more costly

and results in worse overall condition and service.

Adding complexity to this analysis, building anything takes long periods of time. Returning to the house analogy, without the significant public input required of public projects, a personal house generally takes 1–2 years from the date one decides to start the process of looking for a lot, arranging financing, finding a builder, etc., to the date of occupancy. Therefore, considering all of the steps we take to meet federal and state requirements, typical infrastructure construction projects taking 4–6 years isn't surprising. However, combining this project implementation time with the noted efficiency gained from proper project timing, means that predictable funding streams are critical to the efficient and effective delivery of infrastructure services.

All these services are estimated to cost $24.6 billion over the next 20 years. Funding available is estimated to be $10 billion, so there is a shortfall of $14.6 billion over that period. To close this gap, two options exist: increase funding or decrease the expected services. Therefore, the real question isn't "what are the funding needs?" but rather "what level of services are we all willing to pay for?"



How much does the average North Dakotan pay in state fuel tax each year?

If you drive a pickup truck that averages 20 mpg and you drive 12,000 miles per year, you pay $11.50/month or $138/year, compared to a typical cell phone plan (for one phone plan) of $660/year.

What is NDDOT doing to generate efficiencies, given that ongoing funding has been flat for several years?

NDDOT has taken many steps to generate efficiencies, some of which include: implementing advanced snow & ice control models and route optimization tools to further enhance the effectiveness of the plow truck fleet. More information on the above funding challenges and questions is in a handout titled, "NDDOT Needs Beyond Pavements & Bridges," which can be found in Appendix F.

North Dakota Motor Fuel Tax
23 cents/gallon - Last change in 2005

ND Motor Vehicle Registration Fees
- Last change in 2005

It is important to note that 23 cents per gallon of state fuel tax is collected whether the price at the pump is $1.99 or $3.99.

South Dakota Revenue Initiative — Policy Development and Program Outcomes

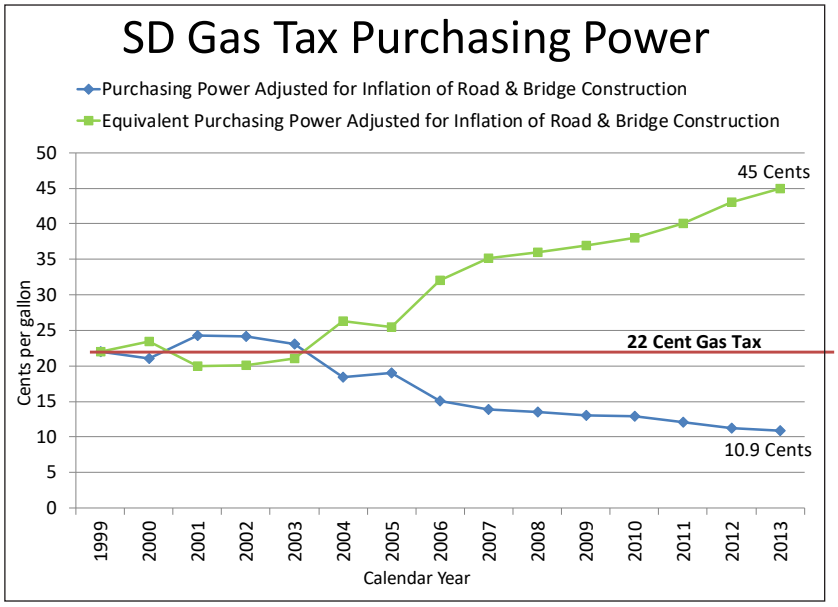
Mike Vehle, Board Member
South Dakota Transportation Commission

Mike Vehle described the journey South Dakota traveled to arrive at a revenue increase for transportation that included a 6-cent fuel tax increase. Mike retired after serving 8 years as a senator and 4 years as a representative in the South Dakota Legislature. He currently serves on the South Dakota Transportation Commission. Mike was the leader in four separate efforts to raise transportation revenue.

He cited some differences between North and South Dakota. In South Dakota, the constitution requires that all funds raised from roads go to roads. No general funds go to roads. Revenue directed to state roads is from gas tax and vehicle excise tax. Registration fees and county wheel taxes go to counties and townships for roads and bridges.

Mike was part of road studies in 2008 and 2009. In 2009, the South Dakota Legislature came up short on votes on a revenue increase. He led an effort again in 2010, but failed. He started a new 25-member task force in 2014 with the support of the South Dakota Governor. The 2014 effort emphasized that the initiative must be based on known needs for transportation and a goal for increased revenue. The task force developed a message based on facts and took the story on the road to local service groups and interest groups.

Mike Vehle



Facts used in SD:

- $55 billion of goods are shipped to and from SD sites each year.
- Roads provide vital support to the South Dakota economy and top industries – Agriculture and Tourism.
- Roads and bridges were deteriorating.
- The Federal Highway Trust Fund had solvency issues.
- Road costs were increasing, and revenues were not. Gasoline taxes were projected to decline.
- South Dakota has 83,000 miles of road (3.5 times the distance around the world).
- Hybrid and electric cars were not paying a share of fuel tax, but raising fees on them would only impact 4,600 of more than one million total registrations.
- As roadways age, it costs more per mile to maintain them.
- County structures were in very bad condition. Cost to replace SD county deficient bridges was estimated to be $245 million.
- Raising gas tax 7.5 cents would cost a driver traveling 15,000 miles per year about 94 cents per week. Raising dyed fuel cost by 7 cents per gallon would raise the cost of corn about ¼ cent per bushel.

Overall message to public "If you got it, a road brought it. Not much is parachuted in!"

In 2016, South Dakota legislature passed a comprehensive plan as shown in the graphic below.

SB1: Comprehensive Solution

Sections	Revenue Source and Explanation
1-2	**Local Bridge Improvement Grant Fund**
3	County Highway and Bridge Improvement Plan (Annually Updated)
4	Annually Allocates $7 million of Motor Vehicle Registration Fees to the Bridge Grant Fund
5-6	Motor Vehicle **Excise Tax** (1% increase, from 3% to 4%)
7-8	Motor **Fuel Tax** (6 cents per gallon increase)
9	**Ethyl Alcohol** and Methyl Alcohol (6 cents per gallon increase)
10-11	Biodiesel and Biodiesel Blends (move incentive from Session Laws to Codified Laws)
12-19	Motor Vehicle **Registration Fees** (20% increase)
16	**Noncommercial Motor Vehicle** Registration Fees (over 10 Ton - Assessed 70%/80% of Commercial Rate)
20-21	**Property Taxation** - amend SDCL 10-12-13 (graduated levies $1.20, $.90, & $.60 per thousand dollars of taxable valuation)
22-23	**Township** Capital Outlay Levy (**$.50** per thousand dollars of taxable valuation)
24	Wheel Tax (**$1.00** increase per wheel)
24	**Wheel Tax** (provides additional wheels to be taxed - maximum of **12 wheels**)
25	Move speed limit on interstate from 75 mph to **80 mph**
26-29	Repeal the Provisions regarding an **Inventory Tax** on Motor Fuel when the Rate is Adjusted
30	**Emergency Clause**

Overview of Transportation Funding Options for North Dakota

Alan Dybing, Associate Research Fellow
Upper Great Plains Transportation Institute

Alan Dybing

UGPTI has investigated a broad array of existing and potential funding options for North Dakota infrastructure. After a preliminary review of literature and best practices from other states, 19 options were selected for presentation. The presentation included a brief overview of the specific funding mechanism, evaluation of its revenue potential, discussion of the possible implementation issues, including the impacts of fluctuating fuel prices and increasing presence of alternative vehicle technologies.

The currently existing major revenue sources, including primarily the gas tax, are well-established methods of user fee collection. Because of increasing fuel efficiency, the tax revenue is no longer proportional with the actual road use, and its revenue is unable to match the current infrastructure needs. The other state-collected transportation fees (registration, overweight, driver's license fees) have minimal revenue potential.

Several other taxes and fees, such as the vehicle excise tax and the general sales tax, were covered by the presentation as well. These stable sources of funding, collected by state and local jurisdictions, are also used to support transportation infrastructure and have a strong revenue potential; however, they are not related to actual road usage, and they serve many other purposes as well.

The analysis also included property-based revenue sources, including mill levies and utility fees. These sources could be used for minor, local maintenance expenses, but could hardly be considered for any larger-scale investments. They are also barely dependent upon infrastructure use.

Non-traditional funding options were also evaluated by UGPTI. The first one, vehicle miles of travel (VMT) tax, is an innovative solution with a fee based on actual road use and vehicle impact, rather than fuel consumption. VMT tax is frequently recognized as a very effective funding tool, but it is also associated with serious concerns regarding drivers' privacy and technological obstacles. The other option gaining considerable attention is the PPP (public-private partnership), so far used in North Dakota on a very limited basis. Public Private Partnerships (PPPs) might become a powerful revenue source for funding larger investments, although their effectiveness depends on the responsibilities assumed by each of the partners. Lastly, the presentation mentioned tolls, which could be imposed on major highways, relieving their current maintenance costs. However, as pointed out by UGPTI, toll collection requires significant administrative efforts, and the revenue potential might be lower-than-expected due the structure of the road network. A summation of the revenue options is shown in Appendix G.

Conversation Circle Ideas, Questions and Comments

After the completion of the presentations, Tom Sorel facilitated a conversation circle process to give the large group an opportunity to give input on four questions regarding transportation. Tables were positioned in a wheel and spoke fashion around a central discussion area where Tom introduced the questions and then asked volunteers to come forward to give their thoughts on the question.

QUESTION 1: To remain competitive in today's economic environment, what kind of transportation system and associated service levels should we be supporting?

Terry Traynor, North Dakota Association of Counties. We have upgraded our state and local systems and the public has recognized this. The public expects this level. Preservation is important. Consistency is important - from county to county and city to city. The current condition level should be used for the future baseline and infrastructure studies should be performed to monitor system condition and investment needs.

Russ Hanson, North Dakota Associated General Contractors. Important to make sure we have a safe and efficient transportation system. We are a commodity-based economy. We export a lot of things. We need a consistent funding system to plan long-term for more efficient investment.

Blake Crosby, North Dakota League of Cities. Need to take a long-term approach beyond the short-term, 2-year approach. Preservation is important. It cannot be about staying where we are at now. Need to be ready for the future. Electric vehicles, driverless vehicles, etc.

Arik Spencer, North Dakota Motor Carriers Association. Trucking pays over 60% of user fees. Important to have strong and efficient transportation system. Trucking is willing to step up and pay more, but we need partners.

Ron Henke, North Dakota Department of Transportation. I take a little different view on this as I challenge us to be a little more innovative in what we do. I think you've seen some things we've tried to reduce our cost. We have to try and to do things a little bit better or differently to keep up with the industry.

Russ Hanson. Need long-term funding plan so we are not always just reacting to plug holes.

Terry Traynor. We were able to do this today because the legislature invested in research. We have benefited from studies by UGPTI so we know where we are with the best data possible. Didn't do study this biennium but need to do that again in the future.

Wendall Meyer, North Dakota Division Administrator, FHWA. A lot of uncertainty in the level of funding and we need to determine what level of service the public expects and then prepare funding levels to deliver that.

Scott Rising, North Dakota Soybean Growers Association. We need to establish public goals for infrastructure, then work out ways to explore and identify ways to get there.

Khani Sahebjam, SRF Consulting. Don't forget about people who do innovating – we need a strong DOT. We should be able to attract the best talent to have a strong DOT to set the stage for the future with ability to advance new innovations.

Rep. Dan Ruby, District 38, North Dakota House Chair- Transportation Committee, 65th Legislative Assembly. Some of the concepts merge when you are talking about funding and innovation, and planning. It would be great to have a long-term plan and a long term funding. We know funding sources are earmarked for transportation such as gas tax and registration. We all know these aren't adequate and there are issues with the gas tax with respect to CAFÉ standards. I have always thought we should be looking more into something of a stream like the excise tax because it responds to inflation. As vehicles cost more it results in a higher dollar amount. Also, we have to address the perception that gas tax is sometimes wasted or unwisely spent. I don't agree with that. We may need to consider if we work to change that perception.

Rep. Jeff Magrum, District 28. Price of gravel rose significantly during oil boom and has not gone down. Lot of variables in prices. Equipment costs are way up – I saw it double over a period of about 10 years. This needs to be communicated.

QUESTION 2: What is the public perception of the need to invest more funding into transportation infrastructure, and from what kinds of revenue sources?

Mike Vehle, South Dakota Transportation Commission. Mike said that legislators said they wanted to support his plan but just couldn't because the people wouldn't support it. He said if he could get the public to support the plan then the legislators would. We need to talk to people continuously to get support. He went all over the state to tell the story. Then legislators felt more comfortable. We need to sell studies with understandable charts. We need to keep legislators and the public informed.

Ben Orsbon, South Dakota Department of Transportation. Critical thing for the public is to be able to see it – to know what we're doing and why it is needed. When South Dakota bought the Milwaukee Road Railroad the public understood they would be land locked without it and they understood that would be a bad thing. The sales tax went to that railroad and they saw the improvements.

Rep. Dan Ruby. I think that it is important to not just supply revenue to the state but that those revenues are provided to the locals as well – cities, counties and townships.The issue with the one cent sales tax for SD railroads seems like a good idea but the perception of a sales tax is that they never go away.

Wendall Meyer. Public engagement is great at project-level basis, must be driven from bottom up. Communication is critical. Reliable data on information that relates to the public is critical. Must be relatable to public. Wendall said he spends more on his cell phone data plan than on roads and that seems wrong. Public has to see the tangibles that come back. It's about telling a story. There's a balance between what you can provide and how much funds are available.

Steve Salwei, North Dakota Department of Transportation. He is asked back in his home country when roads will be widened, and he often tells them it will be a long time due to the funding available. He explains how much traffic it takes to generate a 2-inch overlay. He points out that with current state fuel tax, it would take 8000 vehicles per day to pay for an upgrade, and for some low-volume roads it would take 70 years to pay for that 7-year fix. People don't know what they pay to transportation and they don't understand what it costs to maintain the system.

QUESTION 3: In light of the various advances in mobility options, what should be done to prepare for declining fuel tax revenue over the next 10 to 20 years?

Tim Horner, Upper Great Plains Transportation Institute. Communication needs be given a priority. Like South Dakota, the story must be developed and distributed across the state to service groups and associations, so the public understands transportation funding. Maybe the DOT can develop the story and use its staff to spread the story as groups are always looking for presentations.

Mark Nelson, North Dakota Department of Transportation. Hard to stay on top of changes. Many will be affected by innovation. What will law enforcements' role be with autonomous vehicles? Many in the public are oblivious to what is happening and how close we are to these innovations taking place. We have a lot of challenges to communicate what is evolving and how we will meet the challenge.

Denver Tolliver, Upper Great Plains Transportation Institute. Need to look at what type of system we will have in 20 years and admit we cannot control it. So then the question is what type of revenue system would generate the type of funds we need. He sees two options: 1) the federal government funds everything through the general fund, or 2) we use a vehicle mile tax. A VMT tax would be more equitable and palatable in the long run. How to get there, what are interim steps – maybe we assume we will have VMT tax in 20 years and we should plan for something different for the between years – 5 to 10 years.

Jennifer Brickett, Director of AASHTO-BATIC. She often hears we are about 10 years out from a VMT tax so something is needed in the interim. Finding partner states is a good idea. The interaction between North Dakota and South Dakota works well. People should take advantage of their associations. Use them to dissect and interpret and disseminate information.

QUESTION 4: What are the public policy implications of the funding options that are available?

Shannon Sauer, North Dakota Department of Transportation. South Dakota had a very dedicated strong champion, something we need in North Dakota. North Dakotans tend to look at things in a two-year time-period, and we tend to kick things down the road. We need to find a way to engage people to make them understand that this is a long-term discussion, not a two-year discussion. As we transition, we face two challenges – maintaining an adequate system and creating something for the future.

Wendall Meyer. We don't know where the federal money is coming from. There are a lot of tools available. Some don't work in every state. Tolling and public-private partnerships won't work in every state. We must take advantage of what works here. Are there opportunities to revenue share or look at how we maintain rest areas on the interstate and how to generate revenue. We need to prepare ourselves and look at those options. Within the last week, FHWA identified Innovative Electric Vehicle corridors across the nation which included North Dakota's I-29 and I-94. We need to prepare ourselves for that. We are fortunate that we have good leadership at the top here in North Dakota, starting in the governor's office.

Rep. Sebastian Ertelt, District 26. We want to know what policy effects will be down the road. The fuel tax is a consumption-based tax at this time. Not all vehicles have the same impact on roads. We have to put the information in the public's hands. We want a fair and equitable system that can be communicated as such to the public. We need to address how much of the system is used by out-of-state travelers. We want to put the information and control in the hands of the consumer.

Bob Fode, North Dakota Department of Transportation. We could do better job at design guidelines. We could go out to the public to make sure they understand what we are trying to do with our system. We could do better at communicating and getting better buy-in.

Tom Sorel. We struggle with coming changes like autonomous vehicles and truck platooning and these will impact how we design our roads. How do we transition and prepare for those changes?

Bob Fode. Try to stay on the cutting edge. Every day we are challenged with a new opportunity and challenges. We must look at how we do business. We are using new software packages, trying new things and will continue to look for ways to prepare for those changes.

Tom Sorel. We want to share what we are doing about considering truck platooning - question - what is the damage of platooning on highways and bridges, does it change how we design roads and bridges? What are policy implications?

Don Diedrich, Industrial Builders Inc. He turns asphalt roads into gravel for those who cannot pay to maintain asphalt. This is something we can do. We recycle a lot of asphalt. If this is the desired future, we can deliver it. NDDOT is doing a good deal of innovation by recycling. We need to look at the two-year funding cycle and North Dakota is very dependent on federal funds. We could have a huge drop in federal funding with the federal trust fund cliff. We need to

find a champion in North Dakota and commitment from the legislature to fund what we need to make the system work. We also need to convince the Congressional delegation to make federal revenue streams solvent.

Rep. Sebastian Ertelt. Inflation is really driving up costs. We need to get to the root cause of a lot of problems. Inflation goes beyond state level. We need to look at our monetary policy and we should all learn and understand our monetary policy and convey to Washington that we aren't interested in seeing this continued inflation reducing buying power. There is a proposal before Congress on the Federal Reserve to address this issue and we should let them know we support this proposal. We don't want these huge cost increases.

Tom Sorel. DOTs are well aware of federal trust fund cliff and are concerned about it. Rural states depend on the trust fund. We have major concerns about the status of the trust fund and we need to fix it. AASHTO is doing a good job of helping us convey the problem. The trust fund is important to us.

Rep. Dan Ruby. What would it take at the federal level, what gas tax increase is needed to maintain the trust fund?

Jennifer Brickett. We would need 25 cent per gallon increase in federal gas tax.

Tom Sorel. The 25-cent needed highway trust fund increase is only part of it. If the match rates change, we may not have the ability to match federal funds.

Jennifer Brickett. The AASHTO matrix shows all different options and rates of increase that would be needed to plug the highway trust fund – it can be found on the AASHTO website.

Post Conversation: Symposium Wrap-Up

Tom Sorel, Director
North Dakota Department of Transportation

After the conversation circles, Tom Sorel summarized the day and gave wrap-up comments. "We know we threw a lot of information at the group and got many good comments from everyone."

He said, "Our goals were to bring all of us together and continue working together moving forward. The idea was to put information out today and start having these discussions. We will continue these discussions."

Sorel stated, "Let us know if there are other opportunities to have discussions like this in the future. If you have groups you want us to talk to, let us know and we can work with you."

APPENDIX A

AGENDA

NORTH DAKOTA SYMPOSIUM ON TRANSPORTATION FUNDING

March 14, 2018

RADISSON HOTEL BISMARCK
Convene 9:00 AM CT

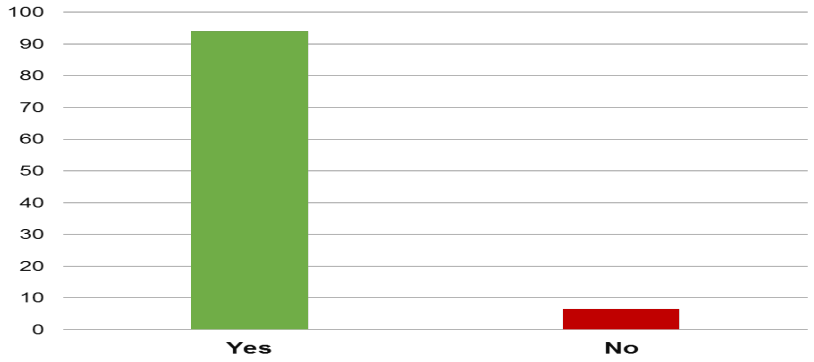
Convene 9:00	(Registration begins @ 8:30)
9:00 to 9:15	Introductory Remarks – NDDOT Director Tom Sorel
9:15 to 10:00	Keynote Presentation – National Perspective on Funding and Finance Policy –Jennifer Brickett – Director AASHTO BATIC Institute
10:00 to 10:30	NDDOT Transportation Funding: Past, Present and Future Shannon Sauer – Chief Financial Officer, NDDOT
10:30 to 10:45	Break
10:45 to 11:15	North Dakota County, TWP, Urban Funding Sources Alan Dybing - Upper Great Plains Transportation Institute
11:15 to Noon	NCHRP 459 Report Presentation - Using the Economic Value Created by Transportation to Fund Transportation NCHRP (National Cooperative Highway Research Program) Ben Orsbon – SDDOT Executive Office, Federal Program Coordinator
Noon to 1:00	Lunch
12:30 to 1:00	North Dakota Infrastructure Needs Studies by Jurisdiction: State, County, TWP, Urban, Transit Tim Horner - Upper Great Plains Transportation Institute
1:00 to 1:30	NDDOT Needs Beyond Pavement and Bridges Scott Zainhofsky - NDDOT
1:30 to 2:00	South Dakota Revenue Initiatives – policy development process and program outcomes Mike Vehle from Mitchell, SD – SDDOT Commission Member
2:00 to 2:30	Review and Analysis of Funding Options – Viability and Sustainability Alan Dybing– Upper Great Plains Transportation Institute
2:30 to 2:40	Introduce Conversation Circle (Fishbowl) Process and Conversation Questions - Upper Great Plains Transportation Institute
2:40 to 3:40	Conduct Conversation Circle Discussions
3:40 to 4:00	Summary of Conversation Circle Comments Various Reporters
4:00 to 4:30	Closing Comments – NDDOT Director Tom Sorel

APPENDIX B

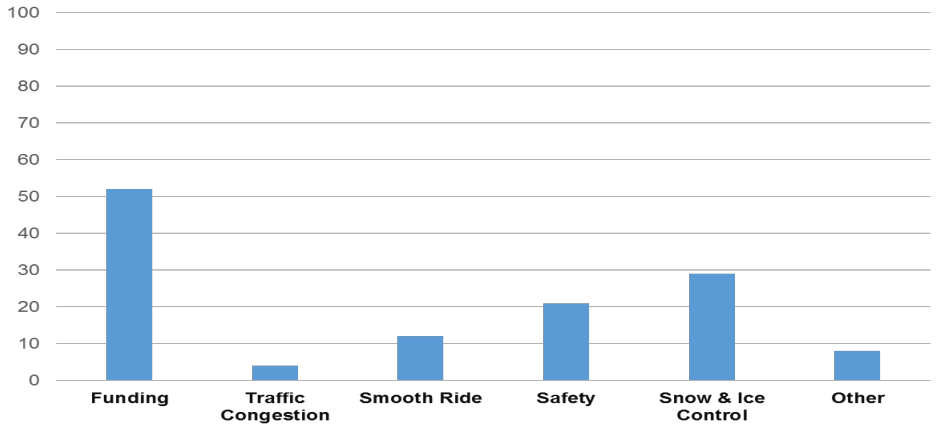
NDDOT Survey

NDDOT North Dakota Department of Transportation

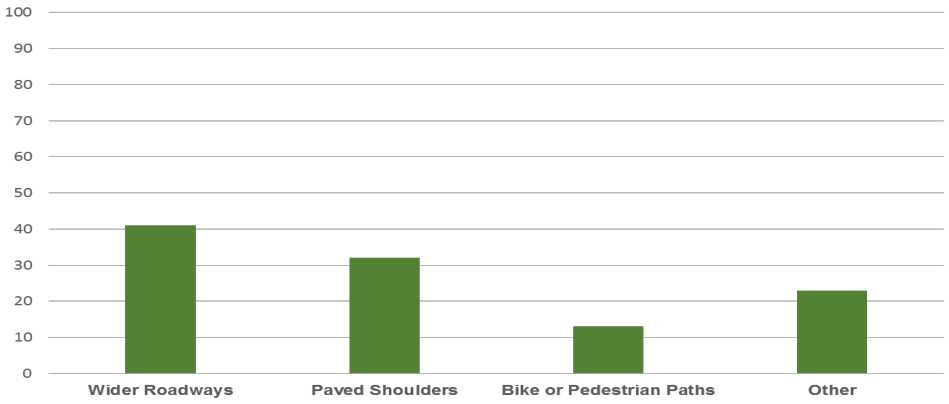
1. Can NDDOT be relied on to deliver north Dakota's Transportation System?



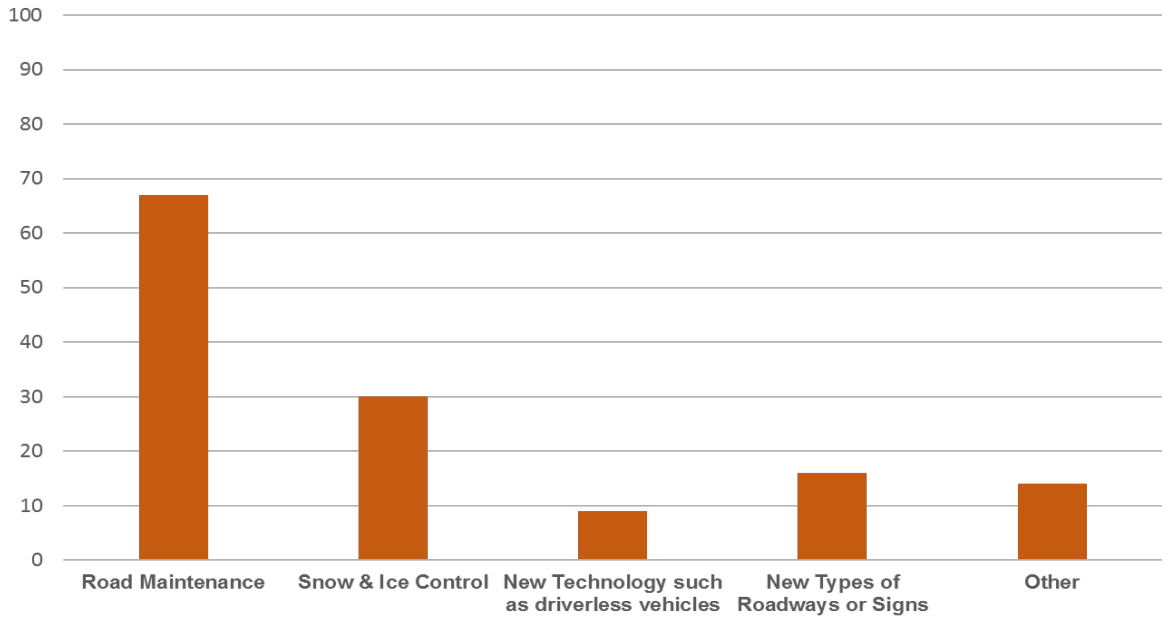
2. What's the most important transportation challenge facing North Dakota?



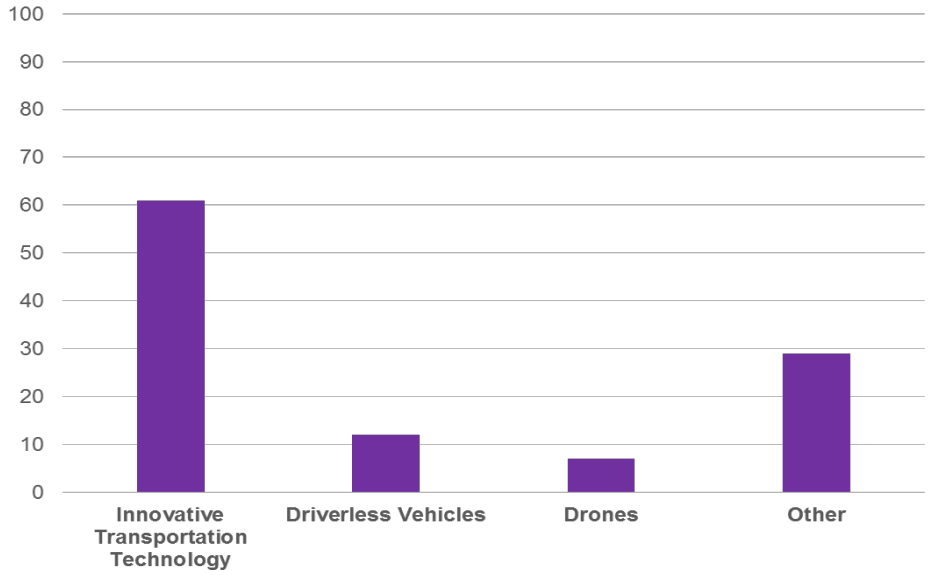
3. What do you think would improve your road or commute?



4. If there was more funding provided for transportation in the future, what would you like the money to pay for?



5. What could the NDDOT do in the future that would have a positive impact on your quality of life?



The Survey was conducted online through NDDOT's website in March 2018. All charts are based on percent of number of respondents.

APPENDIX C

Transportation Funding Sources and Levels: 2012-2017

State System Funding

NDDOT four primary revenue sources:

- Federal Highway Trust Fund
- State Highway Tax Distribution
- Overweight Permit Fees
- Driver's License Fees

Year	Federal Highway Trust Fund ($million)	State Highway Tax Distribution ($million)	Overweight Permit Fees ($million)	Driver's License Fees ($million)	Total ($million)
2017	$219.55	$165.30	$14.15	$4.14	$403.14
2016	$222.34	$165.90	$12.10	$4.25	$404.59
2015	$203.59	$194.75	$19.28	$5.36	$422.98
2014	$204.49	$185.48	$18.84	$5.32	$414.13
2013	$203.26	$182.40	$17.27	$5.13	$408.06
2012	$199.09	$168.25	$16.00	$5.10	$388.44

(Source: North Dakota Department of Transportation)

County Road Funding

Counties have four primary revenue sources for roads:

- Property Taxes
- County Portion of Federal Fuel Tax
- State Highway Tax Distribution
- Gross Production Tax/Coal Tax

Year	Property Tax ($millions)	Federal Formula ($million)	Highway Tax Distribution ($million)	Oil/Coal Tax ($million)	Total ($million)
2017	$57.00	$19.91	$58.00	$60.00	$ 194.91
2016	$55.98	$19.86	$58.27	$83.84	$ 217.95
2015	$48.46	$19.98	$66.17	$127.37	$ 261.98
2014	$44.07	$20.06	$68.59	$156.21	$ 283.93
2013	$39.69	$19.94	$65.49	$79.37	$ 204.49
2012	$36.94	$19.53	$63.78	$55.98	$ 176.23

(Source: North Dakota Treasurer, North Dakota Association of Counties, North Dakota Department of Transportation)

Township Road Funding

Townships have three primary revenue sources for roads:

- Property Taxes
- State Highway Tax Distribution
- Gross Production Tax/Coal Tax

Year	Highway Tax Distribution ($million)	Gross Production Tax ($million)	Property Tax ($million)	Total ($million)
2017	$7.28	$11.6	$28.45	$47.33
2016	$7.31	$9.9	$28.10	$44.11
2015	$8.58	$11.6	$26.93	$42.98
2014	$8.17	$18.1	$24.75	$49.07
2013	$8.03	$7.1	$22.83	$33.63
2012	$7.35		$20.95	$25.85

(Source: North Dakota Treasurer, North Dakota Township Officer's Association)

Transportation Funding Sources and Levels: 2012-2017

Urban Road Funding

Urban areas have six primary revenue sources for roads:

- Property Taxes
- Federal Formula
- State Highway Tax Distribution
- Oil/Coal Tax
- Sales Tax
- State Aid

Year	Property Tax ($million)	Federal Formula ($million)*	Highway Tax Distribution ($million)	Oil/Coal Tax ($million)	City Sales Tax ($million)	State Aid ($millions)	Total ($million)
2017	$161.1**	$19.13	$33.9	$98.3	$183.9	$39.6	$535.93
2016	$161.1	$19.21	$33.0	$103.7	$185.4	$43.5	$545.91
2015	$149.9	$18.03	$37.5	$99.0	$216.5	$59.3	$580.23
2014	$138.9	$18.11	$39.0	$125.5	$209.5	$56.2	$587.21
2013	$129.3	$18.00	$37.4	$51.3	$190.3	$52.9	$470.20
2012	$120.8	$17.63	$35.2	$17.0	$177.3	$49.6	$417.53

(Source: North Dakota Treasurer, North Dakota League of Cities, North Dakota Department of Transportation)

* Federal Formula funding includes only funds distributed to cities for use on non-state infrastructure. In addition to the Federal Funding level shown above, NDDOT invested an equal amount in urban routes on the state system

** 2016 data used as 2017 data is not yet finalized by Tax Department

Transit Funding

Transit agencies have five primary revenue sources:

- Federal Transit Administration
- State Highway Tax Distribution
- Local Government
- Fares
- Other Funds

Year	Federal Transit ($million	State Government ($million)	Local Government ($million)	Fares ($million)	Other Funds ($million)	Total ($million)
2017	*	*	*	*	*	*
2016	$13.31	$4.36	$5.59	$2.87	$1.49	$27.61
2015	$13.19	$5.17	$5.27	$2.64	$1.52	$27.80
2014	$9.97	$4.34	$4.60	$2.66	$2.51	$24.08
2013	$13.69	$4.44	$5.03	$2.80	$2.14	$28.10
2012	$10.32	$3.62	$4.67	$2.96	$1.83	$23.40

* 2017 Data was not yet available (Source: National Transit Database, FTA)

APPENDIX D

VALUE CAPTURE METHODS AND THEIR USERS

Mechanism	Conceptual Benefit or Levy Basis	Applicable Purpose	Highway-Related Examples
Tax Increment Finance Districts	Uses the incremental increase in property value to finance new infrastructure and services. Captures difference in annually levied property value before and after an improvement.	Captures project expansion benefits and returns them to the public.	Texas TRZ TIF-like mechanism
Special Assessment Districts	Members of the benefitting district pay a property tax directly for the cost of the improvement specially benefitting their property due to access. A benefit not available to public at large. Annually levied property owner charges in the area before and after an improvement until improvement is paid for.	Captures project expansion benefits and returns them to the public.	Virginia and Ohio TID, Illinois SSA
Impact Fees	Fees paid by new development for facility use. One-time developer charges when permits are issued. Can be applied off-site. Levied before and after an improvement. Must not exceed impact.	Cost recovery.	Oregon TSDC for existing and new capacity (multimodal) and examples from Washington, New Jersey
Negotiated Exactions	Similar to impact fees but generally applied to only on-site infrastructure. One-time developer agreement is created that must not exceed impact.	Captures value created and recovers the public's cost.	Virginia proffer
Joint Development	Cooperating public and private partners provide facilities or financial contribution for benefits received. One-time developer-related opportunity typically after an improvement (can be on- and off-site improvements).	Captures value created and does cost and revenue sharing between the public and private sector.	Massachusetts Turnpike and Washington Metropolitan Transit Authority
Land Value Tax	Land value taxed due to access to encourage development. Annually levied property owner changes before and after an improvement—taxes on value of land and a separate tax on value of buildings.	Captures project expansion benefits. Encourages development.	Pennsylvania counties
Sales Tax District	Local benefit accruing to all sales tax property due to improved access. Members of the benefitting district pay a small sales tax directly for the cost of the improvement on levied sales within the district.	Captures sales expansion benefits from the project.	Illinois SSA; Missouri and Kansas TDD
Transportation Utility Fees	Fee assessed on properties based on amount of trips generated/use. Annually levied property owner charges before and after an improvement. This charge has been used only for recovering operating expenses as opposed to project capital costs.	Recovers operating and maintenance costs.	Oregon TUF for pavement maintenance
Air Rights	Air space use above, below, under, and nearby/adjacent highway right-of-way for public and private benefit via transfer of rights and joint development. One-time developer-related opportunity typically after an improvement (on-site developments—discontinuous spot treatment).	Captures value created and does cost and revenue sharing with private sector. Very urban.	Massachusetts Turnpike and several other examples such as Interstate 5, Washington State
Other—TC	Funding tool only to aid value capture.	Stakeholder support	Missouri, Texas, Florida

Using the Economic Value Created: https://www.nap.edu/login.php?action=guest&record_id=22382

APPENDIX E

Transportation Infrastructure Needs in North Dakota: 2016-35

State System Infrastructure Needs

Study Sponsor: North Dakota Department of Transportation

Study Year: 2016

Conducted by Upper Great Plains Transportation Institute

Year	Road Needs ($million)	Improved Miles	Bridge Needs ($million)	Total ($million)
2016-17	$1,182	696	$287	$1,469
2018-19	$1,182	696	$41	$1,233
2020-21	$777	665	$41	$818
2022-23	$777	665	$41	$818
2024-25	$746	614	$42	$788
2026-35	$4,978	3,189	$181	$5,159
Truck Harmonization				$761
2016-35	**$9,642**		**$1,395**	**$11,037**

County and Township Road Needs

Study Sponsor: North Dakota Legislature

Study Year: 2016

Conducted by Upper Great Plains Transportation Institute

Year	Gravel ($million)	Paved ($million)	Bridges ($million)	Total
2016-17	$645	$296	$87	$1,028
2018-19	$607	$299	$87	$993
2020-21	$660	$278	$87	$1,025
2022-23	$661	$237	$87	$985
2024-25	$603	$233	$90	$926
2026-35	$2,916	$921	$11	$3,848
2016-35	**$6,091**	**$2,265**	**$449**	**$8,805**

Urban Road Needs

Study Sponsor: North Dakota Department of Transportation, North Dakota League of Cities

Study Year: 2016

Conducted by Upper Great Plains Transportation Institute

Year	Roads ($million)	Bridges ($million)	Total ($million)
2016-17	$141	$8	$149
2018-19	$97	$8	$105
2020-21	$80	$8	$88
2022-23	$70	$8	$78
2024-25	$43	$8	$51
2026-35	$171	$2	$173
2016-35	**$601**	**$42**	**$643**

Transportation Infrastructure Needs in North Dakota: 2016-35

Transit Needs

Study Sponsor: North Dakota Department of Transportation

Study Year: 2014

Conducted by Upper Great Plains Transportation Institute – Small Urban and Rural Transit Center

Year	Operating Cost ($million)	Vehicle Cost ($million)	Total ($million)
2016-17	$55	$17	$72
2018-19	$57	$9	$66
2020-21	$59	$10	$69
2022-23	$60	$10	$70
2024-25	$61	$11	$72
2026-35	$314	$55	$369
2016-35	**$606**	**$113**	**$718**

Transportation Infrastructure Needs All Jurisdictions

Total funding needs for transportation in North Dakota

Year	State ($million)	County and Twp ($mllion)	Urban ($million)	Transit ($million)	Total ($million)
2016-17	$1,469	$1,028	$149	$72	$2,717
2018-19	$1,223	$993	$105	$66	$2,388
2020-21	$818	$1,025	$88	$69	$2,000
2022-23	$818	$985	$78	$70	$1,951
2024-25	$788	$926	$51	$72	$1,837
2026-35	$5,159	$3,848	$173	$369	$9,549
Harmonization	$761				$761
2016-35	**$11,037**	**$8,805**	**$643**	**$718**	**$21,202**

APPENDIX F

NDDOT Needs Beyond Pavements & Bridges

2018 ND Symposium on Transportation Funding

North Dakota Department of Transportation

North Dakota's transportation system is an essential element in the state's economy as it moves commodities produced or manufactured here to other parts of the world, as well as transport people to various destinations for work, school or travel. The NDDOT also provides driver's license, motor vehicle and other services. In order to provide top quality transportation services, it is crucial to look at funding and needs to meet the demands of the traveling public - for today and the future.

What investment is needed over the next 20 years to continue the services we receive today from NDDOT?

Because services or service levels are directly related to available funding, all of the transportation services NDDOT provides today would require $24.6 billion over the next 20 years. This equates to a gap of $14.6 billion of additional funding that would be needed when you look at how much today's revenue would generate over the next 20 years.

Where does the funding or revenue come from to provide NDDOT services?

The primary sources of revenue provided to NDDOT are Federal Funds, State Funds from the Highway Tax Distribution Fund which is a portion of the state's fuel taxes and motor vehicle registrations, plus other state sources that are primarily driver's license fees and oversize/overweight permits.

What services does NDDOT provide today?

NDDOT transportation services include programs such as highway pavements, bridges, safety, transit, maintenance, snow & ice control, motor vehicle registration, rail loans, driver's license, bicycle/pedestrian, freight and personal mobility, etc.

If NDDOT can provide the services today, why is so much additional funding needed for future services?

The NDDOT is currently in a Preservation Mode, meaning we are just trying to preserve the transportation system as it exists today. However, we are losing ground and our system is deteriorating faster than we have resources to preserve it. The Department has stretched every dollar as far as it can, as evidenced by a recent Reason Foundation report naming NDDOT as the most efficient DOT in the nation.

NDDOT's main sources of state funding come from state fuel taxes and vehicle fees, which have remained the same since 2005. Costs have increased, for example, asphalt surfacing cost $500,000 per mile in 2005 and $1.1 million per mile in 2016, salt used for snow and ice control cost $55 per ton in 2005 and $81 per ton last year. Below is a chart showing how other costs have increased compared to federal gas tax rates which help provide federal funding for transportation.

Item	Description	1993	2015	Percent Change
College Tuition	Average Tution & Fees at Public 4-year Universities	$ 1,908	$ 9,145	**379%**
Healthcare	National Expenediture Per Capita	$ 3,402	$ 9,523	**180%**
House	Median New Home Price	$118,000	$292,000	**147%**
Gas	Per Gallon	$ 1.08	$ 2.56	**137%**
Beef	Per Pound of Ground Beef	$ 1.97	$ 4.38	**122%**
Movie Ticket	Average Ticket Price	$ 4.14	$ 8.43	**104%**
Bread	Per Pound of White Bread	$ 0.75	$ 1.48	**98%**
Income	National Median Household	$ 31,241	$ 56,516	**81%**
Stamp	One First-Class Stamp	$ 0.29	$ 0.49	**69%**
Car	Average New Car	$ 16,871	$ 25,487	**51%**
Federal Gas Tax	Per Gallon	$ 0.18	$ 0.18	**0%**

Sources: Bureau of Labor Statistics, Centers for Medicare & Medicaid Services, College Board, Federal Reserve Bank of St. Louis, Oak Ridge National Laboratory, U.S. Census Bureau, U.S. Energy Information Agency, U.S. Postal Service

North Dakota Motor Fuel Tax
23 cents/gallon - Last change in 2005

ND Motor Vehicle Registration Fees
- Last change in 2005

It is important to note that 23 cents per gallon of state fuel tax is collected whether the price at the pump is $1.99 or $3.99.

How much does the average North Dakotan pay in state fuel tax each year?

If you drive a pickup truck that averages 20 mpg and you drive 12,000 miles per year, you pay $11.50/month or $138/year, compared to a typical cellphone plan (for one phone) of $660/year.

What is NDDOT doing to generate efficiencies, given that on-going funding has been flat for several years?

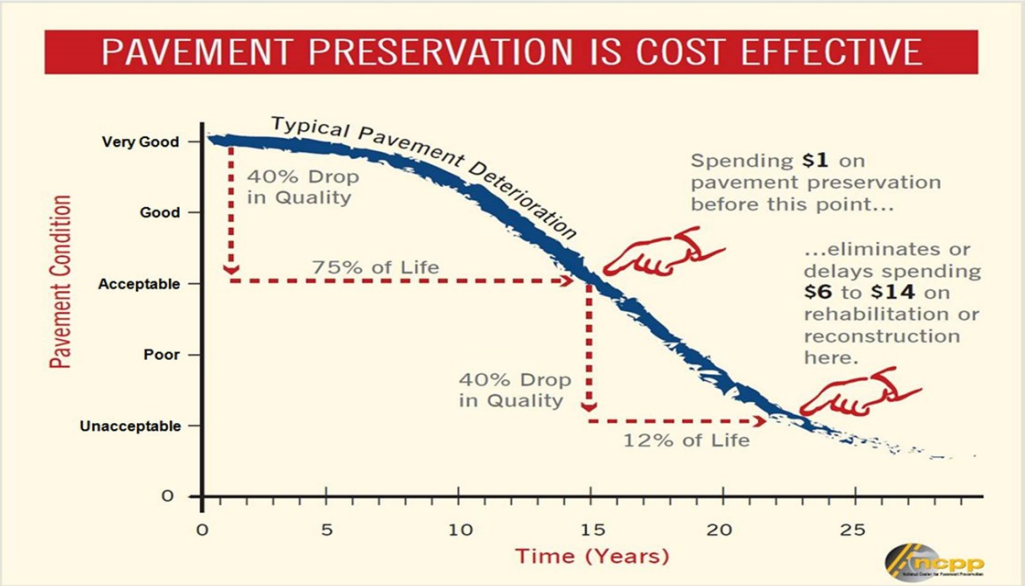
NDDOT has taken many steps to generate efficiencies, some of which include: implementing advanced infrastructure models to optimize preservation investments to the greatest degree possible under unpredictable funding; implementing advanced snow & ice control models and route optimization tools to further enhance the effectiveness of the remaining truck fleet; reduced staffing levels, and other similar actions.

What will happen if the needs or resources aren't made available?

Based on multiple customer satisfaction surveys, NDDOT delivers good transportation systems and services, but that can't last into the future if funding isn't increased to meet the transportation needs. Possible consequences of inadequate funding may include: Narrower and rougher roadways, more load restrictions, longer lines to renew drivers' licenses, closure of more rest areas, more gravel shoulders and roads without shoulders, longer delays in registering vehicles, longer delays in clearing snow, and other service delays.

Why does predictable funding create efficiencies?

According to the National Center for Pavement Preservation, every dollar spent on the right fix, at the right time, on the right roadway saves $5-$13 in future costs. With 4-6 yr. develop times, long-term predictable funding allows for identifying & planning optimum combinations of project type, location, & timing across a greater percentage of the entire system. Large swings in funding with short expiration windows hinder such optimization.



Source: National Center for Pavement Preservation.

APPENDIX G

Fuel Tax			
Overview	Description	A per gallon tax levied by the state at the point of fuel purchase.	
	Current Use	All states and the federal government collect a fuel tax. Several states recently introduced periodical tax rate adjustments based on inflation or the Consumer Price Index. Other fuel taxes include a nationwide, fixed (18.4¢/gal) federal tax and local fuel taxes collected by selected counties and cities. ND legislation authorizes local fuel taxes, but they have not been adopted by any of the jurisdictions thus far.	
	Peer States	State / Per Gallon / Rank ND $ 0.230 35 MN $ 0.286 20 WI $ 0.329 11 SD $ 0.300 16 NE $ 0.293 19 IA $ 0.305 15 MT $ 0.315 12 ID $ 0.330 10	
	Geographic Scope	Statewide	
Viability	Revenue Potential	+	High: All users are charged. ND currently collects approximately $170 million annually from the fuel tax. A 1¢ increase in the gas tax would yield approximately $8 million in revenue.
	Implementation Complexity	+	Minimal: Fuel tax is already collected by the state. A change to the current rate could be implemented easily from a technical and administrative standpoint.
	Public Awareness (perception)	+	In use: All highway users currently pay fuel tax. The current rates are posted at the pump and are clearly visible to consumers.
Sustainability	Increases in Fuel Economy/Alternative Fuels	-	Reduction in fuel consumption as a result of increased fuel economy and utilization of hybrid/electric vehicles would have a negative impact on fuel tax revenue.
	Fuel Price Volatility	Ø	Higher fuel prices could lower the quantity demanded for fuel, reducing fuel tax revenues. However, scholarly studies show that consumer responsiveness to changes in fuel price are low.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Fuel Sales Tax			
Overview	Description	A percent tax levied by the state at the point of fuel purchase.	
	Current Use	Fuel sales taxes are levied in CA, CT, HI, IL, IN, MI and NY. Rates range from 2% to 9%.	
	Peer States	Fuel sales taxes are not levied in surrounding states.	
	Geographic Scope	Statewide	
Viability	Revenue Potential	+	High: Is a function of the amount of fuel and the price at the time of purchase.
	Implementation Complexity	+	Moderate: Fuel sales tax collection at the point of sale (e.g. Gas Stations) may require additional administrative or resource usage. Non-fuel sales taxes are currently collected.
	Public Awareness (perception)	+	Sales taxes are currently in use for non-fuel purchases, so in that aspect the public is familiar with the process.
Sustainability	Increases in Fuel Economy/Alternative Fuels	-	Higher fuel economy and adoption of electric and electric hybrid vehicles reduces fuel consumption and therefore fuel sales tax revenues.
	Fuel Price Volatility	+	Higher fuel prices could lower the quantity demanded for fuel, but scholarly studies show that consumer responsiveness to changes in fuel price are low. As the tax is based upon fuel price, increases in fuel prices will result in higher tax revenue.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Non-Fuel Sales Tax (Goods and Services)			
Overview	Description		A percent tax charged on goods and services
	Current Use		All states, with few exceptions, have a statewide sales tax and additional city, county and local sales taxes. North Dakota currently has a 5% sales tax rate with 1%-2% city or local levies. Many state and local jurisdictions dedicate a portion of sales taxes for specific purposes, though not expressly transportation needs.
	Peer States		

State	State Sales Tax	Combined State and Local Tax (Average)
ND	5.0%	6.78%
MN	6.875%	7.3%
WI	5.0%	5.42%
SD	4.5%	6.39%
NE	5.5%	6.89%
IA	6.0%	6.8%
MT	None	None
ID	6.0%	6.03%

	Geographic Scope		Statewide or Local
Viability	Revenue Potential	+	High: In 2016, ND collected approximately $1.5 billion from state sales tax. A 0.1% increase dedicated to highway needs could yield up to $30 million in revenue.
	Implementation Complexity	+	Minimal: Sales taxes are collected at the point of sale. Changes in the percentage rate would require minimal administrative or implementation resources.
	Public Awareness (perception)	+	In use: Consumers currently pay sales taxes and local increases are often approved at city and local levels if well-justified.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	There is no relationship between fuel economy and sales tax receipts.
	Fuel Price Volatility	Ø	Higher fuel prices could negatively impact consumer activity, and therefore reduce sales tax revenue. The scale of the impact is unknown.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Vehicle Sales Excise Tax (State)			
Overview	Description		A percent tax charged on the purchase of a new or used vehicle
	Current Use		With a few exceptions, state laws treat vehicle excise tax in the same manner as any other sales tax. Distribution of vehicle excise tax varies from state to state and is either directed to general funds, transportation funding or in varied proportions. In North Dakota, 91.3% of the excise tax is distributed to the general fund and the remainder distributed across local jurisdictions.
	Peer States		

State	Tax Rate	% to Trans. or Yes/No to Trans.
ND	5.0%	No – Not since 1970's & 10% in 2007
MN	6.5%	Yes, min. 40% goes to transit, rest to the highway fund
WI	5.0%	No
SD	4.0%	Yes
NE	5.5%	Yes
IA	5.0%	Yes
MT	None	N/A
ID	6.0%	No

	Geographic Scope		Statewide
Viability	Revenue Potential	+	High: Total value of vehicle transactions in ND is approximately $2.1 billion per year (2016). A minor increase of the tax could generate substantial revenue.
	Implementation Complexity	+	Minimal: Vehicle excise tax is already collected at the state level. A simple change in the current tax rate would require minimal administrative or resource requirements. To direct a portion of the distribution to highway improvements, changes to the ND Century Code would be required.
	Public Awareness (perception)	+	In use: Consumers currently pay vehicle excise tax. However, the excise tax may be obscured through the taxes and fees surrounding vehicle purchase.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	No direct significant relationship.
	Fuel Price Volatility	Ø	Long term higher fuel prices could result in reduced vehicle ownership, though the impact may be minimal.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Vehicle Sales Excise Tax (Local)			
Overview	Description		A percent tax charged on the purchase of a new or used vehicle
	Current Use		Throughout the nation, cities and local jurisdictions may impose vehicle sales taxes, depending on state laws.
	Peer States		
	Geographic Scope		City or County Level
Viability	Revenue Potential	+	High: Total value of vehicle transactions in ND is approximately $2.1 billion per year (2016). A minor increase of the tax could generate substantial revenue, depending on the city or county where the purchase occurred.
	Implementation Complexity	+	Varied: Vehicle excise tax is already collected at the state level. Sales taxes are collected at the state, city and county levels. Additional collection activities would be required to expand vehicle excise taxes for local jurisdictions where they do not currently exist.
	Public Awareness (perception)	+	In use: Consumers currently pay state vehicle excise tax. Local vehicle sales taxes would be driven by county and city commissions. However, the excise tax may be obscured through the taxes and fees surrounding vehicle purchase.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	No direct significant relationship.
	Fuel Price Volatility	Ø	Long term higher fuel prices could result in reduced vehicle ownership, though the impact may be minimal.

State	City/Local Taxes?
ND	None
MN	None
WI	Yes
SD	None
NE	Yes, up to 2.0%
IA	None
MT	None
ID	None

(+) Positive/High (-) Negative/Low (Ø) Neutral

Mill Levies (Property Tax)			
Overview	Description	Mill levies are property taxes collected by state, county, city, local and township jurisdictions. One mill equals 1/1000 of the taxable property value.	
	Current Use	Property taxes are levied by all jurisdictions and vary on a case-by-case basis. They are commonly allocated to local infrastructure projects, transportation improvements, and school districts among other local needs.	
	Peer States	Property taxes are levied in all peer states and vary on a jurisdictional level on a case-by-case basis. State mills are insignificant (as in the case of ND) or do not exist at all. States typically do not collect property tax dedicated to infrastructure at the state level.	
	Geographic Scope	Primarily County or Local	
Viability	Revenue Potential	+	High: Property taxes are paid by all residents and for-profit businesses
	Implementation Complexity	+	Minimal: Jurisdictions that currently collect property taxes would require minimal administrative or implementation resources.
	Public Awareness (perception)	-	In use: Property taxes are currently paid by home and business owners in the state and may represent a substantial portion of household budgets. Recent property tax increases have been met with significant resistance from the citizenry.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	Property tax receipts have no relationship to fuel economy.
	Fuel Price Volatility	Ø	Property tax receipts have no relationship to fuel prices.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Special Tax Assessments			
Overview	Description	Special assessments are additional property taxes, levied to fund a specific public investment.	
	Current Use	All municipalities, counties and townships in North Dakota have the power to make special assessments. Usage and scope of those assessments varies on a case-by-case basis in each jurisdiction. Special assessments are commonly found in new urban developments. Another common example is funding a street repair by assessing residents along the street.	
	Peer States	Special assessments are authorized within all of the peer states. The character of those assessments varies on a case-by-case basis in each local jurisdiction.	
	Geographic Scope	Local	
Viability	Revenue Potential	-	Low: Special assessments are used for specific, local infrastructure projects and not general revenue generation.
	Implementation Complexity	+	Minimal: The administrative procedures already exist, as special assessments are common in ND cities.
	Public Awareness (perception)	-	In use: Home and business owners may currently be subject to special assessments. As with general property taxes, public sentiment is not positive.
Sustainability	Increases in Fuel Economy/Alternative Fuels	-	Property tax receipts have no relationship to fuel economy.
	Fuel Price Volatility	Ø	Property tax receipts have no relationship to fuel prices.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Wheelage Tax			
Overview	Description	A flat rate fee levied on vehicles registered in a county.	
	Current Use	Widespread use nationwide. Wheelage taxes are assessed at the same time as vehicle registration and the funds are distributed to counties. Vehicles such as motorcycles, motorized bicycles, trailers and mopeds are typically exempt.	
	Peer States	Currently used in 53 of 87 counties in Minnesota. Initial fees were $5, but currently vary from $10 to $20 per vehicle depending on county. South Dakota rates vary from $2-$5 based upon vehicle weight and county with maxmimum wheel taxes specified by county.	
	Geographic Scope	County	
Viability	Revenue Potential	+/-	Potential revenue varies by county. As of December 2015, FHWA estimates roughly 800,000 vehicles privately or commercially owned in the state. A $10 wheelage tax would result in $8 million annually.
	Implementation Complexity	+	Registration fees are already collected by the state. County of registration information is also collected as part of vehicle registration.
	Public Exposure	Ø	Registration fees are currently accepted. The wheelage tax, appropriated to local infrastructure may be deemed acceptable.
Susceptibility	Increases in Fuel Economy/Alternative Fuels	Ø	Flat fee applied consistently regardless of fuel efficiency or technology.
	Fuel Price Volatility	Ø	Flat fee applied consistently regardless of fuel efficiency or technology.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Oil / Energy Tax			
Overview	Description	Tax charged on the value on fossil fuels and minerals extracted and/or processed within the state.	
	Current Use	39 out of 50 states currently impose some form of tax on extracting natural resources, including oil, natural gas, and coal. In North Dakota, the oil tax accounts for a significant portion of the state's revenues. The oil tax revenue is used for common state expenditures, including transportation infrastructure.	
	Peer States	State	Tax rates
		ND	5% tax for oil, $.04/1,000 cu. ft. for gas, $0.4/ton for coal.
		MN	$2.56 per ton for iron. No oil tax.
		WI	7% tax for oil, 3-15% tax for metals
		SD	4.5% + 2.4 mills on all minerals
		NE	2-3% tax for oil, 2% tax for uranium
		IA	none
		MT	0.3% tax on oil, 3-15% tax on coal
		ID	5 mills/bbl. of oil and 5 mills/50,000 cu. ft. of gas, additionally 2.5% oil production tax.
	Geographic Scope	Statewide	
Viability	Revenue Potential	+	Very high. The 2017-19 Biennium budget projects collecting approx. $3 billion in oil tax with the oil price assumed at a conservative level of $48/barrel.
	Implementation Complexity	+	The oil and coal taxes are already collected by the state. Tax rate increase should be easy to implement from the administrative standpoint.
	Public Awareness (perception)	Ø	The general public is supposed to support the idea that the state should benefit from its natural resources exploitation. However, any tax increase would be heavily opposed by the oil companies.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	Increase in fuel economy could reduce oil demand. However, oil is also utilized for other purposes, and could be exported to foreign countries with less developed alternative technologies.
	Fuel Price Volatility	+	Higher fuel prices are caused primarily by higher crude oil prices on the global market. Subsequently, the energy tax revenue should increase along with fuel price.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Vehicle Registration (Current)			
Overview	Description	Vehicle registration fees are a per-vehicle charge assessed annually on all privately owned vehicles.	
	Current Use	All states charge a vehicle registration fee. The fees are based upon multiple factors such as: vehicle age, weight, value and type. North Dakota bases vehicle registration based upon weight and age.	
	Peer States	Due to varying fee formulas across the peer states, comparison was made for three sample vehicles:	

Car	4-door sedan	Open-box 2-door pickup	4-door SUV
Year	2017	2012	2007
Weight	3199 lb.	5500 lb.	6100 lb.
Initial value	$24,000	$29,000	$38,000
Current value	$20,000	$12,000	$10,000
ND	$73	$65	$117
MN	$236	$71	$35
WI	$75	$75	$75
SD	$72	$108	$100
NE	$342	$234	$99
IA	$252	$312	$215
MT	$217	$87	$28
ID	$69	$57	$45

	Geographic Scope	Statewide	
Viability	Revenue Potential	+	High: All private users are required to pay. Currently approximately $100 million is collected annually in North Dakota.
	Implementation Complexity	+	Minimal: Changes to the registration fee system based upon current factors (age and weight) would require minimal administrative effort.
	Public Awareness (perception)	+	In use: All users currently pay vehicle registration. Users may pay registration fees on site or online in reply to mailed vehicle registration.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	Under the current registration formula, vehicle technology and fuel efficiency is not considered, and therefore, better fuel economy wouldn't affect registration fee revenue
	Fuel Price Volatility	Ø	Long-term higher fuel prices could result in reduced vehicle ownership, though the impact may be minimal.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Vehicle Registration (Differs by Technology)			
Overview	Description	Vehicle registration fees are a per-vehicle charge assessed annually on all privately owned vehicles. An additional registration fee is assessed for electric and hybrid electric vehicles to recoup fuel tax revenues lost due to higher fuel efficiency.	
	Current Use	Some states charge differential registration fees to electric or hybrid electric vehicles.	
	Peer States	State	Hybrid or Electric Surcharge
		ND	None
		MN	$75
		WI	$75 hybrid, $100 electric
		SD	None
		NE	$75
		IA	None, electric vehicles pay a discounted $25 fee
		MT	None
		ID	$75 hybrid, $140 electric
	Geographic Scope	Statewide	
Viability	Revenue Potential	-	Low: Per the Motor Vehicle Division, in 2017, 1,102 hybrid electric and 112 full electric vehicles were registered in North Dakota.
	Implementation Complexity	Ø	Minimal: The Motor Vehicle Division collects data as to the technology type of vehicles registered.
	Public Awareness (perception)	+	Not currently in use: Users may understand that increased fuel efficiency reduces revenue collected via fuel tax.
Sustainability	Increases in Fuel Economy/Alternative Fuels	+	As adoption of electric or hybrid electric vehicles increases, differential registration will directly increase.
	Fuel Price Volatility	+	Long-term increases in fuel prices may speed the adoption rate of electric and hybrid electric vehicles resulting in higher revenues from differential registration.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Driver's License Fees			
Overview	Description	A periodic fee imposed on licensed drivers when obtaining or renewing a driver's license.	
	Current Use	All states charge fees for driver's licenses. Fee revenues are used to offset the physical identification card and processing. Additional fees are charged for permits and testing.	
	Peer States		

State	License Fee	Duration of License	Annual Average Fee
ND	$15	4-6 years	$2.50-$3.75
MN	$25.25	4 years	$6.31
WI	$34.00	8 years	$4.25
SD	$28.00	5 years	$5.60
NE	$21.50	4 years	$5.38
IA	$4/year	5-8 years	$4.00
MT	$40.50	8 years	$5.06
ID	$30.00	4 years	$7.50

Overview	Geographic Scope	Statewide	
Viability	Revenue Potential	Ø	Low: As of 2016, there were 555,935 licensed drivers in North Dakota
	Implementation Complexity	+	Minimal: Driver's license fees are currently collected by the state. A change to the current rate could be implemented easily from a technical and administrative standpoint.
	Public Awareness (perception)	+	In use: All drivers pay license fees.
Sustainability	Increases in Fuel Economy/Alternative Fuels	-	Fuel efficiency and vehicle technology have no direct relationship with driver's license fees.
	Fuel Price Volatility	Ø	Fuel prices have no direct relationship with driver's license fees.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Per-mile Tax (VMT Fee)			
Overview	Description	A per-mile tax levied by the state. Studies are underway to determine efficient collection methods.	
	Current Use	A VMT tax is being investigated in western states (OR, CO and CA) through pilot programs, but no state has implemented it on a statewide scale.	
	Peer States	None of the peer states has implemented a VMT tax, although MN has been studying possible scenarios for such a tax.	
	Geographic Scope	Statewide	
Viability	Revenue Potential	+	High: A VMT tax would vary with the level of travel and would be collected on a per-mile basis, and could exceed current fuel tax revenue.
	Implementation Complexity	-	High: Collection of individual vehicle mileages would require significant resources and/or technological investment. The payment of the tax would occur at the point of odometer reading or transmission.
	Public Awareness (perception)	-	Low: Although it would likely be understood as an equitable method of taxation due to the usage/tax relationship, reporting requirement difficulties and privacy concerns due to vehicle tracking may cause difficulty in implementation.
Sustainability	Increases in Fuel Economy/Alternative Fuels	-	No direct significant relationship. Roadway utilization would be uncoupled from fuel economy thereby taxation levels are based simply upon usage.
	Fuel Price Volatility	Ø	Higher fuel prices could lower the quantity demanded for fuel, reducing fuel tax revenues. However, scholarly studies show that consumer responsiveness to changes in fuel price are low.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Transportation Utility Fees			
Overview	Description	Fixed rate utility prices based upon number of residents, property type or property size.	
	Current Use	Utility fees are commonly charged for garbage, water and sewer services at the municipal level. Minor transportation-related maintenance expenses such as streetlights or traffic lights may be assessed a utility fee. Very few jurisdictions assess a transportation utility fee to fund major transportation investments or needs. Hillsboro, OR is one example where this is currently in use.	
	Peer States	The majority of cities across the peer states charge utility fees for streetlights and other minor maintenance expenses. No peer states collect utility fees for transportation infrastructure investments.	
	Geographic Scope	Local	
Viability	Revenue Potential	+	Moderate: All residents would directly or indirectly pay a utility fee.
	Implementation Complexity	+	Minimal: Jurisdictions that currently charge and bill residents have the administrative and resources in place to charge such a fee.
	Public Awareness (perception)	-	This type of fee is currently assessed at the local level. Flat rate fees are not related to highway use or household income.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	There is no relationship between utility revenue and fuel economy.
	Fuel Price Volatility	Ø	There is no relationship between utility revenue and fuel price.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Overweight Fee Increase			
Overview	Description	Overweight / oversize fees are collected from freight vehicles exceeding certain dimensional and/or weight limits.	
	Current Use	NDDOT currently issues a wide array of permits, for various types of overweight/oversized loads, and for various time periods (single trip, multi-trip, annual). Fees are collected by the ND Highway Patrol and allocated to the State Highway Fund.	
	Peer States	Specific fee assessment regulations and fee schedules vary substantially by state and make them difficult to compare. As a rule of a thumb, all states offer a standard annual overweight permit for a fee in the $150-$500 range.	
	Geographic Scope	Statewide	
Viability	Revenue Potential	Ø	Moderate. Current revenue is approx. $11.4 million per year.
	Implementation Complexity	+	The permit system has been functioning for many years. A simple fee increase could be implemented at minimal administrative costs.
	Public Awareness (perception)	Ø	The general public is indifferent about the fees, while freight carriers would likely oppose any substantial fee increase.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	No relationship
	Fuel Price Volatility	-	Higher fuel prices could induce a modal switch for certain loads from road to rail.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Impact fee			
Overview	Description	Impact fee is charged to a future real estate development, which would be benefiting from the adjacent public infrastructure improvement. The philosophy behind impact fees is similar to special assessments and mill levies.	
	Current Use	Currently, impact fees are not collected by any of the N.D. jurisdictions. There is no legislation which would explicitly authorize impact fees.	
	Peer States	Wisconsin is the only peer state to explicitly authorize impact fees. The legal environment for impact fees in North Dakota and other peer states is unclear.	
	Geographic Scope	Local	
Viability	Revenue Potential	Ø	Moderate, could be used for local improvements.
	Implementation Complexity	-	Severe. It is likely that state legislature would need to authorize impact fees.
	Public Awareness (perception)	-	The public might be opposed to impact fees, as a new, previously unknown form of taxation. Impact fees could be also perceived as a barrier to cities' growth and development.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	No relationship.
	Fuel Price Volatility	Ø	No relationship.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Tolling			
Overview	Description	A usage fee for usage of a segment of transportation infrastructure. Tolls are typically found on bridges, segments of roads or on turnpikes. It may be assessed by a single use or on a per-mile basis.	
	Current Use	Pre-Interstate system turnpikes, bridges or new interstate lanes may be tolled. The majority of existing tollways are equipped with staffed toll booths, but there are an increasing number of all electronic toll facilities. One recent example is the 12th Avenue North toll bridge in Fargo which recently was returned to city jurisdiction.	
	Peer States	None of the surrounding states operate any type of tolled facility except for express/high-occupancy vehicle lanes in the Minneapolis-St. Paul area.	
	Geographic Scope	Regional or local, depending on facility type	
Viability	Revenue Potential	+	Variable: Revenue potential depends on the volume over the facility, geographic scope of the facility and co-occurring network redundancy.
	Implementation Complexity	-	There are currently no tolled facilities in North Dakota. Introduction of tolled facilities would require collection and enforcement infrastructure and staffing. Research indicates that the administrative costs of toll collection might consume even 20% of the revenue.
	Public Awareness (perception)	-	With the exception of the 12th Avenue North bridge in Fargo, residents have not been exposed to tolled facilities.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	No evidence for a direct relationship. However, lower fuel expenses would reduce the overall transportation costs, diminishing the burden of tolls for household budgets.
	Fuel Price Volatility	Ø	Higher fuel prices could lower the quantity demanded for fuel, reducing fuel tax revenues. However, scholarly studies show that consumer responsiveness to changes in fuel price are low. The resulting decrease in travel could reduce toll collections.

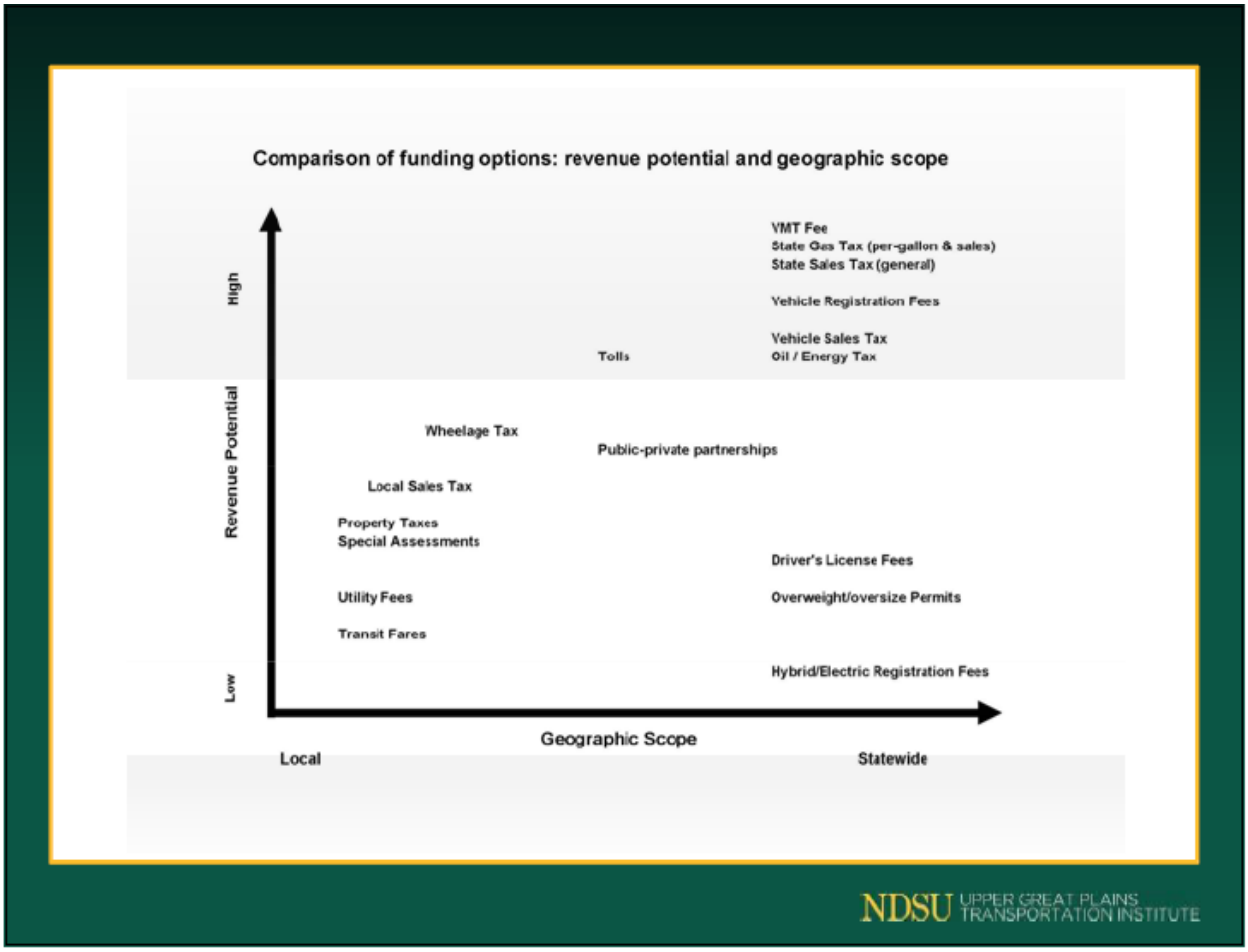
(+) Positive/High (-) Negative/Low (Ø) Neutral

Public-Private Partnerships (PPPs, P3s)			
Overview	Description	Infrastructure investment is paid for by a private entity in exchange for a guaranteed revenue paid over a specified amount of time by the government or users or guaranteed services provided by the investment.	
	Current Use	Nationwide, PPP's exist on an improvement specific basis. In North Dakota one such PPP has been entered into between NDDOT and Brigham Oil & Gas on ND 1806. Brigham Oil & Gas added a six-inch overlay to ND 1806 in agreement for 8 ton/axle, 105,500 GVW weight limits. PPPs are often found in construction of new freeways or rapid transit investments in large metropolitan areas. The President's proposed infrastructure packages highlight PPPs as a primary funding source.	
	Peer States	Similar to North Dakota, peer states' collaboration with private partners have included interchanges and traffic signals as well as the pavement overlay described above. The 2017 North Dakota Legislative session streamlined the process for entering into such agreements in the future. Examples of large-scale PPP highway projects can be found in other parts of the country, such as Texas Hwy 130.	
	Geographic Scope	Local or Regional	
Viability	Revenue Potential	+	PPPs would likely be limited to local projects where private and public entities would both receive benefits from transportation investment. Private investment likelihood is heavily determined by potential private benefit.
	Implementation Complexity	-	Significant: PPPs generally require a detailed evaluation of potential options in the terms of the private and public partners' responsibilities. Moreover, in the event of a private failure, the public partner may end up assuming some investment risk.
	Public Awareness (perception)	+	PPPs are an alternative to direct user fees, and thereby may be accepted by the public. There is a common belief that a PPP transfers the financial burden from taxpayers to private investors.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	There is no relationship between PPPs and fuel economy.
	Fuel Price Volatility	Ø	Depending on the funding mechanism, a toll-supported PPP may be sensitive to travel demand which could be lower if significant fuel prices occur.

(+) Positive/High (-) Negative/Low (Ø) Neutral

Transit Fares			
Overview	Description		Transit fares are paid by transit riders when using the service. Fares can be charged per ride and paid upon boarding, or transit agencies can sell passes (such as monthly or weekly passes) or multi-ride tickets.
	Current Use		All transit agencies in North Dakota collect fares. The three urban fixed-route systems in Fargo-West Fargo, Bismarck-Mandan, and Grand Forks all charge a base fare of $1.50 per ride one-way, and paratransit service is $3.00 per ride one-way. Monthly passes for the fixed-route service cost $40 in Fargo-West Fargo, $36 in Bismarck-Mandan, and $35 in Grand Forks. Rural transit agencies typically charge different fare levels based on the trip distance. According to data collected in 2014 for rural agencies, the median fare was $1.50 one-way for in-town trips. For out-of-town trips, median one-way fares ranged from $2.75 for trips up to 15 miles and $12.50 for trips more than 100 miles.
	Peer States		Fare levels in North Dakota are similar to those charged by peer agencies in neighboring states. Small urban systems in neighboring states charge $1.25 to $2.00 per ride or $28 to $47 for monthly passes.
	Geographic Scope		Individual transit agency
Viability	Revenue Potential	Ø	Fare revenues cover about 10-15% of operating expenses for the three urban transit agencies. These farebox recovery ratios are similar to those of peer agencies in neighboring states. For rural agencies in the state, fare revenues cover about 8-10% of operating expenses, which is similar to the national average of 9% for rural systems. Because of the inelastic nature of transit demand, higher fares will produce increased fare revenues. However, the total revenue potential is limited. Current farebox recovery ratios are similar to those of peer agencies, and while greater farebox recovery is possible, the overall impact on revenues would be relatively small.
	Implementation Complexity	+	Simple. Established fare collection systems already exist.
	Public Awareness (perception)	+	Transit riders are accustomed to paying fares. Transit agencies periodically increase fares to account for increased costs, though they try to limit fare increases and avoid significant increases.
Sustainability	Increases in Fuel Economy/Alternative Fuels	Ø	Increases in fuel economy make automobile travel relatively less expensive, which could have a small negative impact on transit use and fare revenues.
	Fuel Price Volatility	+	Increases in gas prices have been shown to have a small positive impact on transit ridership, thereby increasing fare revenues.

(+) Positive/High (-) Negative/Low (Ø) Neutral


Comparison of funding options: revenue potential and geographic scope
Revenue Potential
High
Low
VMT Fee
State Gas Tax (per-gallon & sales)
State Sales Tax (general)
Vehicle Registration Fees
Vehicle Sales Tax
Oil / Energy Tax
Tolls
Wheelage Tax
Public-private partnerships
Local Sales Tax
Property Taxes
Special Assessments
Driver's License Fees
Utility Fees
Overweight/oversize Permits
Transit Fares
Hybrid/Electric Registration Fees
Geographic Scope
Local
Statewide
NDSU UPPER GREAT PLAINS TRANSPORTATION INSTITUTE