SOUTH DAKOTA'S TOP TRANSPORTATION CHALLENGES:

Meeting the State's Need for Safe and Efficient Mobility

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TRIP
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Founded in 1971, TRIP ® of Washington, DC, is a nonprofit organization that researches, evaluates and distributes economic and technical data on surface transportation issues. TRIP is sponsored by insurance companies, equipment manufacturers, distributors and suppliers; businesses involved in highway and transit engineering and construction; labor unions; and organizations concerned with efficient and safe surface transportation.

Executive Summary

South Dakota's extensive system of roads, bridges and highways provides the state's residents, visitors and businesses with a high level of mobility, while acting as the backbone that supports the state's economy. South Dakota's transportation system enables the state's residents and visitors to travel to work and school, visit family and friends, and frequent tourist and recreation attractions while providing businesses with reliable access to customers, materials, suppliers and employees.

However, the state faces numerous challenges in providing a transportation system that is safe, well-maintained, efficient and adequately funded. As South Dakota works to retain its quality of life, maintain its level of economic competitiveness and achieve further economic growth, the state will need to preserve, maintain and modernize its roads, highways and bridges by improving the physical condition of its transportation network and enhancing the system's ability to provide efficient and reliable mobility for motorists and businesses. Making needed improvements to South Dakota's roads, highways and bridges could also provide a significant boost to the state's economy by creating jobs in the short term and stimulating long term economic growth as a result of enhanced mobility and access.

South Dakota must improve its system of roads, highways and bridges to foster economic growth and keep businesses in the state. In addition to economic growth, transportation improvements are needed to ensure safe, reliable mobility and quality of life for all residents. Meeting South Dakota's need to modernize and maintain its system of roads, highways and bridges will require significant local, state and federal funding.

The federal government is a critical source of funding for South Dakota's surface transportation system. In July, Congress approved an eight-month extension of the federal surface transportation program, MAP-21 (Moving Ahead for Progress in the 21st Century Act), which provides states with road, highway, bridge and transit funding through May 31, 2015.

TRANSPORTATION CHALLENGE: Deteriorated Pavement Conditions

While state-maintained roads and highways are currently in good condition, at current funding levels they will deteriorate significantly over the next decade, falling into a state of disrepair similar to locally maintained roads and highways in the state.

- State-maintained roads and highways in South Dakota account for 9.5 percent of total mileage, but carry 67 percent of vehicle miles of travel and 81 percent of travel by large trucks.
- Two percent of state-maintained roads and highways have pavements in poor condition, nine percent are in fair condition and 89 percent are in good or excellent condition.
- In 2024, under current funding levels, 25 percent of state-maintained roads and highways will have pavements in poor condition, 27 percent will be in fair condition and 48 percent will be in good or excellent condition.
- Thirty-nine percent of county-maintained roads in South Dakota are in failing or poor condition, 32 percent are in fair condition and 30 percent are in good and excellent condition.

- Twenty-eight percent of township-maintained roads in South Dakota are either closed or in poor condition, 25 percent are in fair condition and 47 percent are in good or excellent condition.

- Roads rated in poor condition may show signs of deterioration, including rutting, cracks and potholes. In some cases, poor roads can be resurfaced, but often are too deteriorated and must be reconstructed.

- Driving on rough roads costs all South Dakota motorists a total of $206 million annually in extra vehicle operating costs (VOC). Costs include accelerated vehicle depreciation, additional repair costs, and increased fuel consumption and tire wear.

TRANSPORTATION CHALLENGE: Large Share of Deficient Bridges

Approximately a quarter of locally and state-maintained bridges (20 feet or longer) in South Dakota show significant deterioration or do not meet current design standards often because of narrow lanes, inadequate clearances or poor alignment.

- Twenty percent of South Dakota's bridges are structurally deficient, the fourth highest share in the nation. A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Structurally deficient bridges are often posted for lower weight or closed to traffic, restricting or redirecting large vehicles, including commercial trucks and emergency services vehicles.

- Twenty-eight percent of bridges in South Dakota (20 feet or longer) are state-maintained and 72 percent are maintained by local governments

- A significantly greater share of locally-maintained bridges -- 28 percent -- are structurally deficient than are state-maintained bridges – five percent.

- The current backlog to replace the 1,045 county-maintained bridges in need of replacement is $240 million.

- Four percent of South Dakota's locally and state-maintained bridges are functionally obsolete. Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment.

TRANSPORTATION CHALLENGE: High Traffic Fatality Rates

Improving safety features on South Dakota's roads and highways would likely result in a decrease in traffic fatalities and serious crashes. It is estimated that roadway features are likely a contributing factor in approximately one-third of all fatal and serious traffic crashes.

- Between 2009 and 2013 a total of 650 people were killed in traffic crashes in South Dakota, an average of 130 fatalities per year.

- South Dakota's overall traffic fatality rate of 1.48 fatalities per 100 million vehicle miles of travel in 2013 is significantly higher than the national traffic fatality rate of 1.09.

- The fatality rate on South Dakota's rural non-Interstate roads was 2.19 fatalities per 100 million vehicle miles of travel in 2013, more than two-and-a-half times higher than the 0.80 fatality rate on all other roads and highways in the state.

- The annual cost of serious traffic crashes in South Dakota, in which roadway features were likely a contributing factor is approximately $164 million. These costs include medical costs, lost economic and household productivity, property damage and travel delays.

- Roadway features that impact safety include the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design. The cost of serious crashes includes lost productivity, lost earnings, medical costs and emergency services.

- Several factors are associated with vehicle crashes that result in fatalities, including driver behavior, vehicle characteristics and roadway features. TRIP estimates that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes.

- Where appropriate, highway improvements can reduce traffic fatalities and crashes while improving traffic flow to help relieve congestion. Such improvements include removing or shielding obstacles; adding or improving medians; improved lighting; adding rumble strips, wider lanes, wider and paved shoulders; upgrading roads from two lanes to four lanes; and better road markings and traffic signals.

- Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by the Texas Transportation Institute (TTI) found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior). TTI estimates that the improvements on these roads are likely to save 880 lives over the next 20 years.

TRANSPORTATION CHALLENGE: State's Economic Growth Threatened by Deteriorated Roads, Lack of Adequate Highways

The efficiency of South Dakota's transportation system, particularly its highways, is critical to the health of the state's economy. Increased deterioration of South Dakota's roads and bridges and the lack of needed transportation improvements to serve economic development threaten the state's economic vitality. New research indicates that the cost of making needed road, highway, and bridge improvements is far less than the potential loss in state economic activity caused by a lack of adequate road, highway and bridge preservation.

- South Dakota's key economic sectors -- agriculture, manufacturing, tourism, mining, finances and health care -- are highly reliant on an efficient and well-maintained transportation system.
- South Dakota's population reached approximately 845,000 in 2013, a 21 percent increase since 1990. South Dakota had 606,779 licensed drivers in 2012.
- Vehicle miles traveled (VMT) in South Dakota increased by 31 percent from 1990 to 2013 – from 7 billion VMT in 1990 to 9.1 billion VMT in 2013. By 2030, vehicle travel in South Dakota is projected to increase by another 20 percent.
- From 1990 to 2013, South Dakota's gross domestic product, a measure of the state's economic output, increased by 104 percent, when adjusted for inflation, far above the national average of 65 percent.
- Annually, $27 billion in goods are shipped from sites in South Dakota and another $28 billion in goods are shipped to sites in South Dakota, mostly by truck. Seventy-seven percent of the goods shipped annually from sites in South Dakota are carried by trucks and another fifteen percent are carried by courier services or multiple mode deliveries, which include trucking.
- Increasingly, companies are looking at the quality of a region's transportation system when deciding where to re-locate or expand. Regions with congested or poorly maintained roads may see businesses relocate to areas with a smoother, more efficient and more modern transportation system.
- Highway accessibility was ranked the number two site selection factor behind only the availability of skilled labor in a 2013 survey of corporate executives by Area Development Magazine.

TRANSPORTATION CHALLENGE: Deteriorated roads and bridges hamper economic growth

A 2014 report by the Oregon Department of Transportation (ODOT) concluded that allowing its state's major roads, highways and bridges to deteriorate would result in significant reduction in job growth and reduced state gross domestic product (GDP) as a result of reduced economic efficiency.

- The ODOT report used a sophisticated model that integrates transportation, land use and economic activity to compare how an economy operates when a transportation system is well-maintained versus when it is allowed to deteriorate. The report found that deteriorated pavements, which result in a rougher and slower ride for vehicles, and deteriorated bridges, which need to be closed to heavy trucks, reduce economic productivity by increasing transportation costs.

- The report found that allowing roads and bridges to deteriorate reduces business productivity by increasing vehicle operating costs as a result of driving on rough roads, reducing travel speeds and increasing travel times because of route detours necessitated by weight-restricted bridges.

- As road and bridge conditions deteriorate, transportation agencies are likely to shift resources from preservation projects, which extend the service life of roads and bridges, to more reactive maintenance projects, which results in higher lifecycle costs, the report found. Transportation agencies are also likely to respond to increased road and bridge deterioration by shifting funds from modernization projects, which relieve congestion and increase business productivity, to maintenance projects.

- The ODOT report estimated that the road, highway and bridge deterioration anticipated over the next 20 years will result in Oregon creating 100,000 fewer jobs and generating $9.4 billion less in state GDP.

- Oregon could avoid losing 100,000 jobs and $9.4 billion in GDP through 2035 by spending an additional $810 million more on road, highway and bridge repairs – nearly a 12-to-1 return on investment, according to the ODOT report.

TRANSPORTATION CHALLENGE: Inadequate Transportation Funding

Without a significant boost in transportation funding at the local, state and federal level, the condition and efficiency of South Dakota's surface transportation system will decline.

- Forty-one percent of revenue used for road, highway and bridge repairs in South Dakota comes from the federal government, 45 percent from state government and 14 percent from local governments.

- To maintain pavement conditions at their current level, South Dakota municipal and township governments would have to increase their annual road and highways investment by 46 percent, from $27 million to $39.5 million. Making significant improvements in road and bridge conditions would require that the state's municipal and township governments more than double their annual investment to $57.5 million for a 10-year period.

- Fifty-seven out of 57 counties who responded to a 2014 survey by the South Dakota Association of County Commissioners (SDACC) said that they faced a lack of adequate funding to maintain their roads, highways and bridges.

- County governments responded in a 2014 SDACC poll that their primary concerns were that their road system is deteriorating faster than their budgets can cover rehabilitation and that most asphalt surfaces on their roads were at the end of their life-cycles.

- The South Dakota Department of Transportation (SDDOT) local bridge program provides approximately $6 million annually to local governments, which is enough to replace approximately 26 bridges annually. At this rate, it will take 40 years to replace the county bridges in South Dakota that are currently in need of replacement.

- The Federal Highway Administration estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of $5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.

- Signed into law in July 2012, MAP-21 (Moving Ahead for Progress in the 21st Century Act), has improved several procedures that in the past had delayed projects, MAP-21 does not address long-term funding challenges facing the federal surface transportation program.

- In July 2014, Congress approved the Highway and Transportation Funding Act of 2014, an eight-month extension of the federal surface transportation program, on which states rely for road, highway, bridge and transit funding. The program, initially set to expire on September 30, 2014, will now run through May 31, 2015. In addition to extending the current authorization of the highway and public transportation programs, the legislation will transfer nearly $11 billion into the Highway Trust Fund (HTF) to preserve existing levels of highway and public transportation investment through the end of May 2015.

- If Congress decides to provide additional revenues into the federal Highway Trust Fund in tandem with authorizing a new federal surface transportation program, a number of technically feasible revenue options have been identified by the American Association of State Highway and Transportation Officials (AASHTO).

- A significant boost in investment on the nation's roads, highways, bridges and public transit systems is needed to improve their condition and to meet the nation's transportation needs, concluded a new report from AASHTO. The 2015 AASHTO Transportation Bottom Line Report found that annual investment in the nation's roads, highways and bridges needs to increase from $88 billion to $120 billion and from $17 billion to $43 billion in the nation's public transit systems, to improve conditions and meet the nation's mobility needs.

- The 2015 AASHTO Transportation Bottom Line Report also found that the current backlog in needed road, highway and bridge improvements is $740 billion.

Sources of information for this report include the South Dakota 2014 Highway Needs and Financing Interim Committee, Federal Highway Administration (FHWA), the Bureau of Transportation Statistics (BTS), the U.S. Census Bureau, the American Association of State Highway and Transportation Officials (AASHTO), the Texas Transportation Institute (TTI), the South Dakota Department of Transportation (SDDOT), the South Dakota Association of County Commissioners, the South Dakota Association of Towns and Townships and the National Highway Traffic Safety Administration (NHTSA). All data used in the report is the latest available.

Introduction

South Dakota's roads, highways and bridges form vital transportation links for the state's residents, visitors and businesses, providing daily access to homes, jobs, shopping, natural resources and recreation. Today, with the Mount Rushmore State striving to support quality of life and economic competitiveness, the modernization of South Dakota's transportation system is crucial, particularly to critical areas of the state's economy including agriculture, manufacturing, tourism, mining, finances and health care.

As the U.S. and South Dakota work to sustain long-term economic growth, the preservation and modernization of the state's transportation system could play an important role in retaining South Dakota's economic competitiveness and improving its economic well-being by providing needed jobs in the short term and by improving the productivity and competitiveness of the state's businesses in the long term.

However, South Dakota faces numerous challenges in providing a transportation system that is safe, well-maintained, efficient and adequately funded. As South Dakota faces the challenge of preserving and modernizing its transportation system, the future level of federal, state and local transportation funding will be a critical factor in whether the state's residents and visitors continue to enjoy access to a safe and efficient transportation network. Meeting South Dakota's need to modernize and maintain its system of roads, highways and bridges will require significant local, state and federal funding.

In July 2014, Congress approved an eight-month extension of the federal surface transportation program, MAP-21 (Moving Ahead for Progress in the 21st Century Act), on which states rely for road, highway, bridge and transit funding, through May 31 2015.

This report examines the condition, use and safety of South Dakota's roads, highways and bridges, federal, state and local funding needs, and the future mobility needs of the state.

Population, Travel and Economic Trends in South Dakota

South Dakota's residents and businesses require a high level of personal and commercial mobility. Population increases and economic growth in the state have resulted in an increase in the demand for mobility as well as an increase in vehicle miles of travel (VMT). To foster quality of life and spur economic growth in South Dakota, it will be critical that the state provide a safe and modern transportation system that can accommodate future growth in population, tourism, recreation and vehicle travel.

South Dakota's population grew to approximately 845,000 residents in 2013, a 21 percent increase since 1990.[1] South Dakota had 606,779 licensed drivers in 2012.[2] From 1990 to 2013, South Dakota's gross domestic product (GDP), a measure of the state's economic output, increased by 104 percent, when adjusted for inflation far above the national average of 65 percent.[3]

From 1990 to 2013, annual VMT in South Dakota increased by 31 percent, from approximately 7 billion miles to 9.1 billion miles.[4] Based on population and other lifestyle trends, TRIP estimates that travel on South Dakota's roads and highways will increase by another 20 percent by 2030.[5]

Condition of South Dakota's Roads

The life cycle of South Dakota's roads is greatly affected by the state and local government's ability to perform timely maintenance and upgrades to ensure that road and highway surfaces last as long as possible. State maintained roads and highways in South Dakota are in much better condition than roads maintained by local governments. But the condition of state-maintained roads and highways is expected to deteriorate significantly over the next decade, based on the current level of anticipated funding.

Two percent of state-maintained roads and highways have pavements in poor condition, nine percent are in fair condition and 89 percent are in good or excellent condition.[6]

In 2024, under current funding levels, 25 percent of state-maintained roads and highways will have pavements in poor condition, 27 percent will be in fair condition and 48 percent will be in good or excellent condition.[7]

State-maintained roads and highways in South Dakota account for 9.5 percent of total mileage, but carry 67 percent of vehicle miles of travel and 81 percent of travel by large trucks.[8]

Thirty-nine percent of county-maintained roads in South Dakota are in failing or poor condition (20 percent are in failing condition and 19 percent are in poor condition), 32 percent are in fair condition and 30 percent are in good and excellent condition.[9]

Twenty-eight percent of township-maintained roads in South Dakota are either closed or in poor condition (eight percent are closed and 20 percent are in poor condition), 25 percent are in fair condition and 47 percent are in good or excellent condition.[10]

Pavement failure is caused by a combination of traffic, moisture, climate, and other factors. Moisture often works its way into road surfaces and the materials that form the road's foundation. Road surfaces at intersections are even more prone to deterioration because the slow-moving or standing loads occurring at these sites subject the pavement to higher levels of stress. It is critical that roads are fixed before they require major repairs because reconstructing roads costs approximately four to five times more than resurfacing them.[11] As roads and highways continue to age, they will reach a point of deterioration where routine paving and maintenance will not be adequate to keep pavement surfaces in good condition and costly reconstruction of the roadway and its underlying surfaces will become necessary.

The Costs to Motorists of Roads in Inadequate Condition

TRIP has calculated the additional cost to motorists of driving on roads in poor or unacceptable condition. When roads are in poor condition – which may include potholes, rutting or rough surfaces – the cost to operate and maintain a vehicle increases. These additional vehicle operating costs (VOC) include accelerated vehicle depreciation, additional vehicle repair costs, increased fuel consumption and increased tire wear. TRIP estimates that additional vehicle operating costs borne by South Dakota motorists as a result of poor road conditions is $206 million annually.[12]

Additional vehicle operating costs have been calculated in the Highway Development and Management Model (HDM), which is recognized by the U.S. Department of Transportation and more than 100 other countries as the definitive analysis of the impact of road conditions on

vehicle operating costs. The HDM report is based on numerous studies that have measured the impact of various factors, including road conditions, on vehicle operating costs.[13]

The HDM study found that road deterioration increases ownership, repair, fuel and tire costs. The report found that deteriorated roads accelerate the pace of depreciation of vehicles and the need for repairs because the stress on the vehicle increases in proportion to the level of roughness of the pavement surface. Similarly, tire wear and fuel consumption increase as roads deteriorate since there is less efficient transfer of power to the drive train and additional friction between the road and the tires.

TRIP's additional vehicle operating cost estimate is based on taking the average number of miles driven annually by a motorist, calculating current vehicle operating costs based on AAA's 2013 vehicle operating costs and then using the HDM model to estimate the additional vehicle operating costs paid by drivers as a result of substandard roads.[14] Additional research on the impact of road conditions on fuel consumption by the Texas Transportation Institute (TTI) is also factored into TRIP's vehicle operating cost methodology.

Bridge Conditions in South Dakota

South Dakota's bridges form key links in the state's highway system, providing communities and individuals access to employment, schools, shopping and medical facilities, and facilitating commerce and access for emergency vehicles.

Approximately a quarter of South Dakota's locally and state- maintained bridges (20 feet or longer) are currently rated as structurally deficient or functionally obsolete. This does not mean these bridges are not safe but it does imply that they may need maintenance or improvements to correct obsolete features.

Twenty percent of South Dakota's locally and state maintained bridges are rated as structurally deficient, the fourth highest share in the nation.[15] A bridge is structurally deficient if there is significant deterioration of the bridge deck, supports or other major components. Bridges that are structurally deficient may be posted for lower weight limits or closed if their condition warrants such action. Deteriorated bridges can have a significant impact on daily life. Restrictions on vehicle weight may cause many vehicles – especially emergency vehicles, commercial trucks, school buses and farm equipment – to use alternate routes to avoid posted bridges. Redirected trips also lengthen travel time, waste fuel and reduce the efficiency of the local economy.

Twenty-eight percent of bridges in South Dakota (20 feet or longer) are state-maintained and 72 percent are maintained by local governments.[16]

A significantly greater share of locally-maintained bridges -- 28 percent -- are structurally deficient than are state-maintained bridges – five percent.[17]

The current backlog to replace the 1,045 county-maintained bridges in South Dakota in need of replacement is $240 million.[18] The South Dakota Department of Transportation (SDDOT) local bridge program provides approximately $6 million annually to local governments, which is enough to replace approximately 26 bridges annually.[19] At this rate, it will take 40 years to replace the county bridges in South Dakota that are currently in need of replacement.[20]

Four percent of South Dakota's locally and state-maintained bridges are rated functionally obsolete.[21] Bridges that are functionally obsolete no longer meet current highway design standards, often because of narrow lanes, inadequate clearances or poor alignment with the approaching roadway.

The service life of bridges can be extended by performing routine maintenance such as resurfacing decks, painting surfaces, insuring that a facility has good drainage and replacing deteriorating components. But most bridges will eventually require more costly reconstruction or major rehabilitation to remain operable.

Traffic Safety in South Dakota

A total of 650 people were killed in motor vehicle crashes in South Dakota from 2009 through 2013, an average of 130 fatalities per year.[22]

Chart 1. Traffic fatalities in South Dakota from 2009 – 2013.

Year	***Fatalities***
2009	131
2010	140
2011	111
2012	133
2013	135
Total	**650**

Source: National Highway Traffic Safety Administration

Three major factors are associated with fatal vehicle crashes: driver behavior, vehicle characteristics and roadway features. It is estimated that roadway features are likely a contributing factor in approximately one-third of fatal traffic crashes. Roadway features that impact safety include the number of lanes, lane widths, lighting, lane markings, rumble strips, shoulders, guard rails, other shielding devices, median barriers and intersection design.

The annual cost of serious traffic crashes in South Dakota, in which roadway features were likely a contributing factor is approximately $164 million.[23] These costs include medical costs, lost economic and household productivity, property damage and travel delays.

South Dakota's overall traffic fatality rate of 1.48 fatalities per 100 million vehicle miles of travel in 2013 is significantly higher than the national average of 1.09.[24] The fatality rate on South Dakota's non-Interstate rural roads was 2.19 fatalities per 100 million vehicle miles of travel in 2013, more than two-and-a-half times higher than the fatality rate of 0.80 on all other roads and highways in the state.[25]

Improving safety on South Dakota's roadways can be achieved through further improvements in vehicle safety; improvements in driver, pedestrian, and bicyclist behavior; and a variety of improvements in roadway safety features.

The severity of serious traffic crashes could be reduced through roadway improvements, where appropriate, such as adding turn lanes, removing or shielding obstacles, adding or improving medians, widening lanes, widening and paving shoulders, improving intersection layout, and providing better road markings and upgrading or installing traffic signals.

Roads with poor geometry, with insufficient clear distances, without turn lanes, having inadequate shoulders for the posted speed limits, or poorly laid out intersections or interchanges, pose greater risks to motorists, pedestrians and bicyclists.

Investments in rural traffic safety have been found to result in significant reductions in serious traffic crashes. A 2012 report by the Texas Transportation Institute (TTI) found that improvements completed recently by the Texas Department of Transportation that widened lanes, improved shoulders and made other safety improvements on 1,159 miles of rural state roadways resulted in 133 fewer fatalities on these roads in the first three years after the improvements were completed (as compared to the three years prior). TTI estimates that the improvements on these roads are likely to save 880 lives over the next 20 years.[26]

Transportation Funding

Without a significant boost in transportation funding at the local, state and federal level, the condition, efficiency and safety of South Dakota's transportation system will decline. South Dakota currently faces a backlog in needed transportation funding.

Road, highway and bridge repairs and improvements are funded by a combination of federal, state and local funds. In 2013, Forty-one percent of revenue for road, highway and bridge repairs in South Dakota came from the federal government, including funds from the federal motor fuel tax as well as general funds, 45 percent came from state government, including revenues from vehicle license fees, vehicle excise fees and the state motor fuel tax and 14 percent from local governments, including revenues from property taxes and the county wheel tax.[27]

City and township governments currently spend approximately $27 million annually maintaining roads and highways. To maintain pavement conditions at their current level, South Dakota municipal and township governments would need to increase their annual road and highway investment by 46 percent to $39.5 million and to make significant improvements over ten years they would need to more than double investment to $57.5 million annually.[28]

A 2014 survey found that every county in South Dakota lacks adequate funding to preserve their roads, highways and bridges. Fifty-seven out of the 57 counties completing a survey by the South Dakota Association of County Commissioners (SDACC) said that they faced a lack of adequate transportation funding.[29]

County governments responded in a 2014 SDACC survey that their primary concerns were that their road system is deteriorating faster than their budgets can cover rehabilitation and that most asphalt surfaces on their roads were at end of their life cycles.

The federal government provides some funding for the state and local transportation system largely as part MAP-21 (Moving Ahead for Progress in the 21st Century Act), the current two-year federal surface transportation program, which expires on May 31, 2015.

The federal government is a critical source of funding for South Dakota's roads, highways, bridges and transit systems and provides a significant return to South Dakota in road and bridge funding based on the revenue generated in the state by the federal motor fuel tax.

Federal funds for highway and transit improvements in South Dakota are provided through the federal Highway Trust Fund, which raises revenue through federal user fees, largely an 18.4 cents-per-gallon tax on gasoline and a 24.4 cents-per-gallon tax on diesel fuel. Since 2008 revenue into the federal Highway Trust Fund has been inadequate to support legislatively set funding levels so Congress has transferred approximately $53 billion in general funds and an additional $2 billion from a related trust fund into the federal Highway Trust Fund.[30]

Signed into law in July 2012, MAP-21 has improved several procedures that in the past had delayed projects. MAP-21 does not address long-term funding challenges facing the federal surface transportation program. In July 2014, Congress approved the Highway and Transportation Funding Act of 2014, an eight-month extension of the federal surface transportation program on which states rely for road, highway, bridge and transit funding. The program, initially set to expire on September 30, 2014, will now run through May 31, 2015. In addition to extending the current authorization of the highway and public transportation programs, the legislation will transfer nearly $11 billion into the Highway Trust Fund (HTF) to

preserve existing levels of highway and public transportation investment through the end of May 2015.

If Congress decides to provide additional revenues into the federal Highway Trust Fund in tandem with authorizing a new federal surface transportation program, a number of technically feasible revenue options have been identified by the American Association of State Highway and Transportation Officials (AASHTO).

A significant boost in investment on the nation's roads, highways, bridges and public transit systems is needed to improve their condition and to meet the nation's transportation needs, concluded a new report from the American Association of State Highway and Transportation Officials.

The 2015 AASHTO Transportation Bottom Line Report found that annual investment in the nation's roads, highways and bridges needs to increase from $88 billion to $120 billion and from $17 billion to $43 billion in the nation's public transit systems, to improve conditions and meet the nation's mobility needs.[31]

The 2015 AASHTO Transportation Bottom Line Report also found that the current backlog in needed road, highway and bridge improvements is $740 billion.[32] The backlog includes a $392 billion backlog for road and highway rehabilitation, a $112 billion backlog in needed bridge rehabilitation and a $237 billion backlog in needed highway capacity additions.[33]

Importance of Transportation to Economic Growth

Today's culture of business demands that an area have well-maintained and efficient roads, highways and bridges if it is to remain economically competitive. Global communications

and the impact of free trade in North America and elsewhere have resulted in a significant increase in freight movement, making the quality of a region's transportation system a key component in a business's ability to compete locally, nationally and internationally.

A lack of adequate access, roadway safety features or road and bridge repairs can impede the development of economic growth in the state by reducing productivity. Limited road and highway access, safety or preservation can reduce the efficiency of businesses, shippers and manufacturers, by increasing transportation costs.

Reduced access and mobility can reduce the attractiveness of a location to a company to consider expansion or even to locate a new facility. And, the costs associated with delays as well as increased vehicle operating costs due to a deficient transportation system can increase overall costs for trucking and shipping companies, leading to revenue losses, lower pay for employees, and higher consumer costs.

Businesses have responded to improved communications and the need to cut costs with a variety of innovations including just-in-time delivery, increased small package delivery, demand-side inventory management and e-commerce. The result of these changes has been a significant improvement in logistics efficiency as firms move from a push-style distribution system, which relies on large-scale warehousing of materials, to a pull-style distribution system, which relies on smaller, more strategic movement of goods. These improvements have made mobile inventories the norm, resulting in the nation's trucks literally becoming rolling warehouses. This practice makes traffic operations and time delay a critically important factor in economic development.

Highways are vitally important to continued economic development in South Dakota, particularly to the state's agriculture, manufacturing, tourism, mining, finances and health care sectors. As the economy expands, creating more jobs and increasing consumer confidence, the demand for consumer and business products grows. In turn, manufacturers ship greater quantities

of goods to market to meet this demand, a process that adds to truck traffic on the state's highways and major arterial roads.

Every year, $27 billion in goods are shipped from sites in South Dakota and another $28 billion in goods are shipped to sites in South Dakota, mostly by trucks.[34] Seventy-seven percent of the goods shipped annually from sites in South Dakota are carried by trucks and another fifteen percent are carried by courier services or multiple-mode deliveries, which include trucking.[35]

The cost of road and bridge improvements are more than offset by the reduction of user costs associated with driving on rough roads, the improvement in business productivity, the reduction in delays and the improvement in traffic safety. The Federal Highway Administration estimates that each dollar spent on road, highway and bridge improvements results in an average benefit of $5.20 in the form of reduced vehicle maintenance costs, reduced delays, reduced fuel consumption, improved safety, reduced road and bridge maintenance costs and reduced emissions as a result of improved traffic flow.[36]

Local, regional and state economic performance is improved when a region's surface transportation system is expanded or repaired. This improvement comes as a result of the initial job creation and increased employment created over the long-term because of improved access, reduced transport costs and improved safety. In fact, highway accessibility was ranked the number two site selection factor behind only the availability of skilled labor in a 2013 survey of corporate executives by Area Development Magazine.[37]

Increasingly, companies are looking at the quality of a region's transportation system when deciding where to re-locate or expand. Regions with congested or poorly maintained roads may see businesses relocate to areas with a smoother, more efficient and more modern transportation system.

A 2014 report by the Oregon Department of Transportation (ODOT) concluded that allowing the state's major roads, highways and bridges to deteriorate would result in significant reduction in job growth and reduced state gross domestic product as a result of reduced economic efficiency.

The ODOT report used a sophisticated model which integrates transportation, land use and economic activity to compare how an economy operates when a transportation system is well-maintained versus when it is allowed to deteriorate. The report found that deteriorated pavements, which result in a rougher and slower ride for vehicles, and deteriorated bridges, which need to be closed to heavy trucks, reduce economic productivity by increasing transportation costs.

The report found that allowing roads and bridges to deteriorate reduces business productivity by increasing vehicle operating costs as a result of driving on rough roads, reducing travel speeds and increasing travel times because of route detours necessitated by weight-restricted bridges and reducing the ability of transportation agencies to fund needed highway modernization projects to improve access.[38]

As road and bridge conditions deteriorate, transportation agencies are likely to shift resources from preservation projects, which extend the service life of roads and bridges, to more reactive maintenance projects, which results in higher lifecycle costs, the report found.[39] Transportation agencies are also likely to respond to increased road and bridge deterioration by shifting funds from modernization projects, which relieve congestion and increase business productivity, to maintenance projects.

The ODOT report estimated that the road, highway and bridge deterioration anticipated over the next 20 years will result in Oregon creating 100,000 fewer jobs and generating $9.4

billion less in state gross domestic product (GDP).[40] Oregon could avoid losing 100,000 jobs and $9.4 billion in GDP through 2035 by spending an additional $810 million more on road, highway and bridge repairs – nearly a 12 to 1 return on investment.[41]

Conclusion

As South Dakota works to build and enhance a thriving, growing and dynamic state, it will be critical that it is able to provide a 21st Century transportation system that can accommodate the mobility demands of a modern society.

Making needed improvements to South Dakota's roads, highways and bridges could provide a significant boost to the state's economy by creating jobs in the short term and stimulating long term economic growth as a result of enhanced mobility and access.

Without substantial and reliable federal, state and local transportation funding, numerous projects to improve the condition and expand the capacity of South Dakota's transportation system will not be able to proceed, hampering the state's ability to improve the condition of its roads, highways and bridges and to enhance safety, quality of life and economic development opportunities in the state.

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Endnotes

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