

South Dakota Department of Transportation

2015 Annual Report



2015 Annual Report



Mission

To efficiently provide a safe and effective public transportation system.

Vision

Achieve excellence in providing transportation facilities that meet the needs of the public.

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Cover: Two construction workers hang a spreader beam on the temporary U.S. Highway 281 bridge over the Maple River in Brown County in 2015. The crane then attached to the spreader beam and held some of the weight of the temporary bridge as it was pushed across the river. The photo was taken by Aberdeen Area Project Engineer Bruce Schroeder.



Focusing on the future

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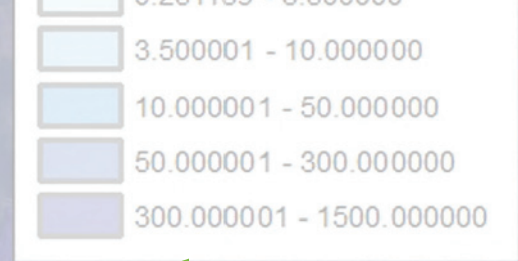
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Message from the Secretary

My Fellow South Dakotans,

In 2015, the South Dakota Legislature passed a comprehensive highway funding package that will help the Department in its efforts to provide a first-class state highway system for travelers in South Dakota.

The new law also increased state funding for local roads and bridges, including creation of a local bridge improvement grant program. With the help of the Transportation Advisory Council, a group of local officials, a process was developed for allocating \$15 million a year in local bridge improvement grants.

That new money went to work in February 2016, when the Transportation Commission approved 40 grants for preliminary project engineering, and in April 2016, when 14 bridge repair and five replacement grants were approved. Just one year! And we did it without hiring more employees.

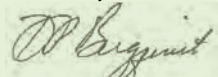
The SDDOT continually strives for greater efficiency. The 2016-2017 Strategic Plan aims to improve construction project management and your satisfaction with South Dakota's transportation system. Our goal over the next three years is to maintain 80 percent of Interstate pavements and 75 percent of remaining state highway pavements in good to excellent condition, and 95 percent of state-owned bridges in fair or better condition.

The plan also seeks to reduce the five-year rolling average of fatal crashes on South Dakota highways from 116.2 in 2015 to 92 in 2019 and the five-year rolling average of serious-injury crashes from 617.4 in 2015 to 522 in 2019. These are ambitious targets, and they push us hard to work better and smarter.

Gov. Dennis Daugaard is leading the effort to improve South Dakota's public and private rail lines and to increase capacity and efficiency. Better rail service means lower transportation costs, expanded markets and bigger profits for South Dakota grain farmers.

In an era where America's economic health is a constant concern, we remain focused on providing a safe and efficient system that serves South Dakotans and the South Dakota businesses of today and tomorrow.

Sincerely,



Darin P. Bergquist
Secretary of Transportation



Presenting to 2015 SDDOT mentoring group participants with Mitchell Region Engineer Craig Smith

Executive Summary

2015 Annual Report

South Dakota Department of Transportation



Performance Measures

	2015	2014	2013	2012
Interstate pavements in good to excellent condition, % of	91.3	95.4	94.6	93.0
Non-Interstate pavements in good to excellent condition, % of	82.2	88.4	88.5	88.4
State-owned bridges in fair or better condition, % of	96.1	96.2	95.3	95.6
Fatal crashes	116	125	121	118
Public transit rides* (millions)	1.68	1.74	1.69	1.76
% of state-owned system improved	33.7	21.1	27.0	20.9

*Excludes urban transit systems in Sioux Falls and Rapid City

Pavements

As of 2015, 91.3% of Interstate and 82.2% of non-Interstate pavements were in good to excellent condition. The current SDDOT strategic plan goal is to keep 80% of Interstate and 75% of non-Interstate pavements in good to excellent condition through Dec. 2018. Although 2015 numbers are well above these minimums, State Highway System pavement conditions are expected to slowly decrease at current federal and state funding levels. The average surface condition index (SCI) was the former performance measure for state system pavements.

Bridges

As of 2015, 96.1% of state-owned bridges on the National Bridge Inventory were in fair or better condition, meeting the SDDOT strategic plan goal of 95% or more in fair or better condition through 2018. The percentage of bridges in fair or better condition is a new performance measure in this report, replacing the average sufficiency index.

Fatal crashes

There were 116 fatal crashes in 2015, making the rolling five-year average 116.2. The current SDDOT Strategic Plan goal is to decrease the rolling five-year average for fatal crashes to 92 by Dec. 2019. Highway fatalities dropped to 134 in 2015, down two from 2014, a 1.5% decrease. South Dakota's fatality rate per 100 million vehicle miles traveled has been trending downward over the long term. In 2015 it was 1.44, down from 2.22 in 2005, but still higher than the U.S. average of 1.08 in 2014, the latest figure available.

Percentage of State Highway System Improved

A total of 2,628 miles, or 33.7% of the State Highway System was substantially improved in 2015. Improvements can be new pavement or bridge construction, asphalt concrete overlays, chip seals, bridge repairs, lighting, traffic signals and signs. An extensive sign-improvement project in the Mitchell Region helped increase the 2015 percentage over 2014.

Aeronautics

In 2015, the SDDOT Aeronautics Office administered the federal and state funding for \$22.7 million in airport improvements, including reconstruction of runway 13-31 in Hoven, and assisted general aviation airports with pavement maintenance.

Rail service

A new grain terminal owned by Aberdeen-based Wheat Growers on the state-owned Mitchell-Rapid City line at Kennebec began operating its fertilizer-mixing facilities and accepting grain for storage in 2015. Rehabilitation of the segment between Chamberlain and Kennebec was completed in Sept. 2016, and rail freight of grain started in mid-October. The grain elevator can load 80,000 bushels of grain per hour into rail cars, or a 110-unit train in 10 hours. Farmers within a 100-mile radius expect profits to rise as freight costs for grain go down. The rehabilitation project, which will extend to Presho, began in 2015 and is one of four State Rail Plan projects currently underway. The other three are the Sioux Valley bridge rehabilitation and rail line relocation, both on state-owned line leased by the Dakota and Iowa Railroad, and the Britton line rail relay, wye and switch, on state-owned line leased by the Dakota, Missouri Valley and Western Railroad. Two of the 27 projects in the state plan were completed in 2015, a siding at Huron and another near Aurora in Brookings County, both on a line owned by the Rapid City, Pierre & Eastern Railroad. Sidings allow a train or string of cars to "park" to the side while other trains pass. In Sept. 2015, the state Railroad Board awarded a lease on the state-owned Napa-Platte line to Dakota Southern Railroad. Dakota Plains plans to build a grain and fertilizer facility in northern Yankton County. Dakota Plains is working with the county and Dakota Southern to develop a rail-served industrial park in conjunction with the new facility.

Public transit

A total of 209,783 rides were provided through specialized services to elderly people and persons with disabilities, and 1,472,702 rural public transit rides were provided for a total of 1,682,485 rides given in 2015. Twenty-three rural transit providers are performing essential services for South Dakota residents.

Division Director Messages



Joel Jundt
Deputy Secretary
Planning and Engineering
Division Director in 2015)

The SDDOT's 2016-2017 Strategic Plan challenges the Planning and Engineering Division to focus on the future. Let's pause for a moment, though, and consider what SDDOT employees achieved in 2015:

- » Creation of administrative rules for Bridge Improvement Grant (BIG) funds:

Staff worked with the Transportation Advisory Council and Legislative Research Council to develop rules for allocating funding provided by the Legislature to fix and replace local bridges.

- » Highway safety: SDDOT and many other agencies work together every year on media campaigns and law enforcement that promote safety. Driver behaviors such as speeding, drinking or distraction cause most crashes. Safety engineering can't fully eliminate the danger of those behaviors, but center line rumble strips, high-friction surfaces and wider shoulders can refocus drivers' attention and help them maintain and regain control of their vehicles.

- » Preservation of assets: The tools used to predict future infrastructure conditions were enhanced and reviews performed on materials, processes and designs to increase the service lives of our assets.

- » External customer satisfaction: Results of a recent survey will help the SDDOT align our major services with your expectations.

Under the 2016-2017 Strategic Plan (described on the next page), we are striving to enhance and deliver the transportation services, products and assets you rely on every day.



Greg Fuller
Operations
Division Director

Like many other state departments of transportation, the SDDOT recognizes an increasing need to move beyond the traditional focus on constructing and maintaining highways toward managing its State Highway System for optimum reliability and safety. To do this, we developed a

Transportation Systems Management and Operations (TSM&O) plan. Some of what the Division of Operations already does easily dovetails into the TSM&O plan and can be built upon in the future. For example, we use project-specific websites, newsletters, social and traditional media, our 511 phone number and SafeTravelUSA website to inform travelers of construction and maintenance activities that might impact their trips. The SDDOT also led an effort to train Highway Patrol officers, local law enforcement, ambulance, fire and rescue, and other emergency response personnel in better traffic incident management. These techniques promote the safety of responders, the crash victims they help, and drivers and passengers in subsequent traffic by more safely directing traffic around the crash scene and more quickly clearing the road. In South Dakota, 103 trainers have been trained—16 of them at the SDDOT—and they have instructed 1,816 responders. According to the Federal Highway Administration, South Dakota is the second-fastest state in getting responders trained, at 36.8 percent of total responders. As always, I deeply appreciate and thank SDDOT employees for their dedication to the safety of each person using our highways.



Kellie Beck
Finance and Management
Division Director

One of the major responsibilities of the Finance and Management Division is to ensure adequate internal controls are in place and followed at the SDDOT.

Internal control is broadly defined as "a process for assuring achievement of an organization's objectives in operational effectiveness and efficiency, reliable financial reporting, and compliance with laws, regulations and policies." One of the recent internal control related laws passed by the South Dakota Legislature created the State Board of Internal Control (SBIC). This board will create guidelines to strengthen internal control in all state agencies, a code of conduct for state employees and a conflict of interest policy for state employees. The division is contributing to and staying apprised of the SBIC's efforts, as well as leading the effort to implement and improve internal control processes for the SDDOT. As required by state law, the SDDOT has assigned the Director of Finance and Management as its Internal Control Officer. The division is also represented on the SBIC's Uniform Grant Guidance Committee, working on subrecipient grant monitoring guidelines to create a generic grant agreement template that all state agencies can use for federal grant subrecipients. These agreements inform subrecipients of federal regulations pertaining to their grants. The Division of Finance and Management continues to seek ways to improve internal controls within the SDDOT to provide transparency and accountability for all grants awarded to subrecipients.

Focusing on the future

South Dakota drivers and businesses will benefit from road and bridge improvements funded by a 2015 law passed by the South Dakota Legislature and a new federal highway bill passed by Congress.

Additional funding from the two laws, and the federal measure's five-year funding period, mean the South Dakota Department of Transportation can keep State Highway System pavements in good condition through 2020.

Projects in the four-year Statewide Transportation Improvement Program can stay on track, including projects increasing capacity, safety and efficiency. With five years of federal funding, the SDDOT can develop a long-term plan that will keep overall pavement and bridge conditions as high as possible with the state and federal funding available.

SDDOT's strategic plan

The SDDOT's focus on the future includes these four-year goals laid out in its 2016-2017 Strategic Plan:

- » reduce the five-year rolling average of fatal crashes to 92 and the five-year rolling average of serious injury crashes to 522 by December 2019 (safety efforts are discussed in greater depth on p. 10);

- » maintain 80 percent of Interstate highway and 75 percent of state highway pavements in good or excellent condition through 2018; and
- » maintain 95 percent of state system bridges in fair or better condition through 2018.

Measuring performance

The SDDOT has a long history of performance measurement. State system-wide pavement conditions are measured annually and reported at the annual public Statewide Transportation Improvement Program meetings and to the state Legislature. All bridges on public roads in South Dakota are regularly inspected, as required by federal law. Management information systems allow the SDDOT to use condition data to estimate what pavement and bridge conditions will be at current or different funding



levels. The management systems and business processes SDDOT uses are being adopted by other government agencies inside and outside South Dakota. In fact, both the state Legislature and U.S. Department of Transportation want quantitative evidence that infrastructure projects are being managed economically and are creating a safer, more efficient transportation system for travelers and freight. Through the creation of national performance measures, performance among states can be compared and best practices shared.

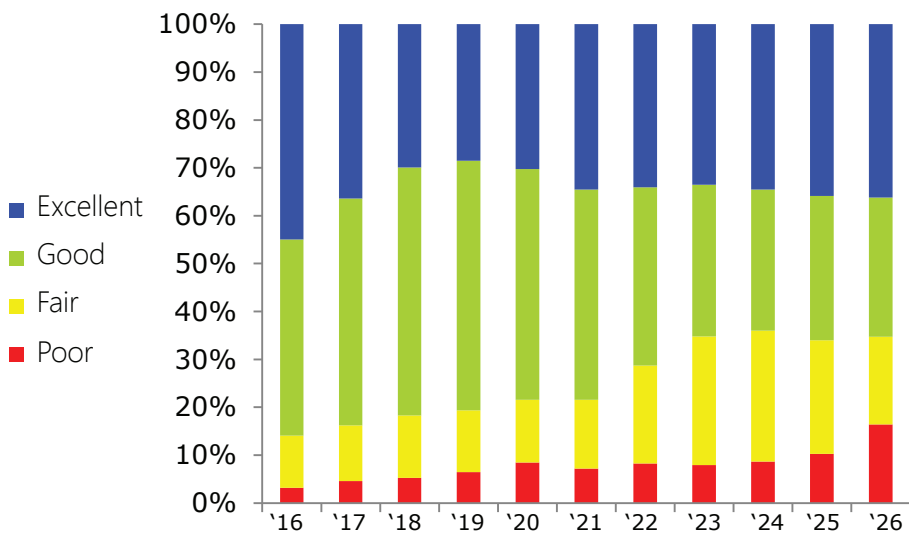
The process of creating federal performance measures for state DOTs began with Moving Ahead for Progress in the 21st Century, or MAP-21, a two-year highway bill passed in 2012. Which measures will be used to determine performance have

not been finalized under the 2015 Fixing America's Surface Transportation (FAST) Act. SDDOT officials are part of ongoing discussions of what those performance measures should be.

Because of the SDDOT's history of establishing and tracking performance measures, it was among the first state agencies to appear before the 2016 interim Legislative Planning Committee as it begins implementing a performance management review process for all South Dakota state government agencies. In the future, SDDOT will submit an annual report to the state Legislature showing progress toward specific outcomes.

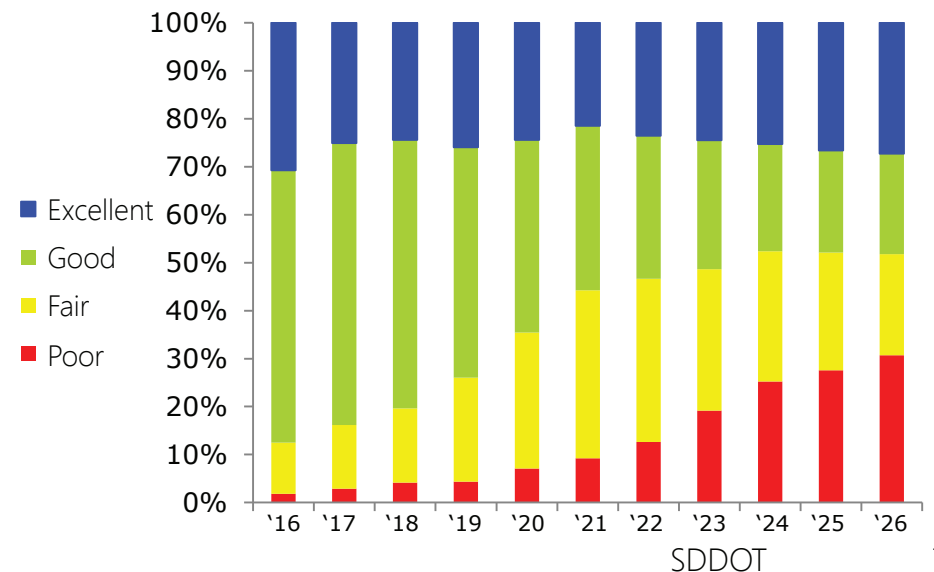
Projected South Dakota State Highway System pavement conditions *with* the increased funding in Senate Bill 1 and the FAST Act

The recent increase in state and federal funding means the SDDOT expects to meet its goal of having at least 80% of Interstate and 75% of remaining state highway pavements in good or excellent condition through 2018. As we look beyond the expiration of the federal highway bill in 2020, highway conditions are expected to continue dropping. At current funding levels, 65% of State Highway System pavements are projected to be in good to excellent condition in 2026. The percentage of pavements in fair to poor condition is expected to rise to 35% in 2026 from 14% in 2016.



Projected South Dakota State Highway System pavement conditions *without* the increased funding in Senate Bill 1 and the FAST Act

Without the recent increase in state and federal funding, the percentage of State Highway System pavements in good to excellent condition was projected to drop to 48% in 2026. Put another way, without the increases, more than half of State Highway System pavements were projected to be in fair to poor condition by 2026.



SDDOT begins awarding local bridge repair and replacement grants



Ray Roggow, Union County highway superintendent, stands near a county bridge that needs to be replaced. The bridge received one of the Bridge Improvement Grant fund's first preliminary engineering grants.

Ray Roggow, Union County's highway superintendent, got some good news in February: The county had been awarded \$34,000 for preliminary engineering services needed to replace an aging bridge.

His project and 39 others got preliminary engineering grants totaling \$908,000 from the state Transportation Commission. The grants were awarded less than a year after the 2015 South Dakota Legislature created the \$15-million-a-year Bridge Improvement Grant (BIG) fund to rebuild and repair county and city bridges.

"It's not that it's been beat up by big loads, it's just old," Roggow says as he stands near the 484th Avenue bridge.

While the state historically has shared some of its funds with local governments and provides technical assistance, roads and bridges not on the State Highway System are the responsibility of local governments.

A county bridge crew built the 484th Avenue bridge 30-plus years ago, perching concrete spans on timber abutments. Concrete-filled corrugated pipes were added later for more support. The wood has deteriorated, and the concrete is cracking.

This bridge is important to residents because it carries truck after truck of 250-bushel-an-acre corn over the creek, and, when the nearby Big Sioux River floods, as it did in 2014, it's on a vital route out of a soggy part of the county.

A long line for bridge replacement dollars

While the \$34,000 grant pays for analysis and design, Union County will wait in a long line for a six-figure grant for the materials and labor to replace it.

Over 1,000 bridges on the state's local roads are so old they need to be replaced. At an average cost of \$230,000 and (with inflation) rising, the BIG funds will help with the backlog.

The Transportation Commission awarded \$4,079,000 in April 2016 for five bridge replacements in Marshall, Moody and Roberts counties and the cities of Aberdeen and Yankton; 14 bridge repair grants went to Beadle, Brookings, Davison, Fall River, Hughes, Meade and Tripp counties and Rapid City. Local entities must contribute at least 20 percent of total project costs.

2015 increases won't meet long-term road, bridge needs

"It's a really, really good start," Roggow says of the \$15 million. Some South Dakotans may have expected Senate Bill 1, which raised the gas tax, the motor vehicle excise tax and license

plate fees to make huge, immediate improvements in state and local roads and bridges, but "it wasn't enough" to do that.

He understands local bridge funding needs are enormous statewide. He's been one of two longtime county highway superintendents on the Transportation Advisory Council (TAC) who worked with SDDOT, federal, tribal and other local officials to create administrative rules for evaluating requests and awarding grants.

5-year plans required for grants

To qualify for grants, counties must have a wheel tax, and local governments have to show effort to raise some transportation system funding locally. Each county also has to have a five-year transportation improvement plan.

Roggow appreciates how SDDOT has organized TAC meetings so other road agencies can work and learn together.

Council members borrowed ideas from similar programs in Nebraska and Iowa, but one program isn't going to fit every situation. "We carboned off a lot of that, and we knew it wasn't perfect," he says. "Don't give up on the process too quickly."

The Transportation Commission will be awarding BIG grants annually.

Local governments now have fewer restrictions on some road, bridge funds

SDDOT shifts from managing local governments' shares of federal highway funding to administering \$15 million a year in local bridge grant funds

The 2015 legislation that increased local and state road and bridge funding prompted big changes in the way the South Dakota Department of Transportation helps counties and cities manage their roads and bridges.

All \$25 million in federal Surface Transportation Program spending authority the SDDOT was allocating to cities with 5,000 or more people and counties now will be exchanged for State Highway Fund dollars, which have fewer legal requirements. The SDDOT will then use the locals' federal spending authority and funding on the state system.

Using state money for local projects helps counties, cities stretch road, bridge funding

Recipients of this federal funding must pay 18.05 percent of project costs. The state will pay half this match. So, for each federal dollar of its spending authority, the local entity will get 81.95 cents of state money, plus an additional 9.025 cents of state money to help with the match. Local governments must



provide the remaining 9.025 cents. Local governments come out way ahead because savings from not having to meet federal requirements are substantial.

Change eliminates a layer of bureaucracy for state and locals

Conversion of federal funds to state funds eliminates the state's administrative burden of ensuring local governments comply with federal requirements. Similar exchanges called "swaps" were allowed in the past at the local government's request.

State employees no longer will be reviewing local road project designs, overseeing local project construction, managing multiple accounts of accrued federal funding for local entities or requiring local governments to work with engineering firms prequalified to

do state work. However—especially in 2015 and 2016—Senate Bill 1 added to SDDOT's workload by having it administer the Bridge Improvement Grant fund's \$15 million a year in local and state highway revenues for local bridge repair and replacement grants.

New advisory group promotes communication, effectiveness

Fortunately, a new advisory group of local, SDDOT, federal and tribal road officials had been formed in 2014 to improve state programs for local governments, the Transportation Advisory Council (TAC).

Together, SDDOT employees and other group members developed administrative rules for applying for bridge grants and criteria for evaluating projects for awards. This cooperation

smoothed the way for Transportation Commission approval of the proposed rules in August 2015, about five months after the bill became law. The group will continue to shape SDDOT's evolving services to local governments.

Other SDDOT assistance to local governments, using federal and state funds

- » Highway safety improvement projects, \$15 million a year for both state and local projects
- » Inspection of all local public bridges, \$2 million/year
- » Traffic engineering, including signs, \$4.5 million/year
- » Improving or removing at-grade rail crossings, \$2.3 million/year
- » Long-range or multimodal transportation plans, \$250,000/year
- » Bike paths and safety improvements near schools through the Transportation Alternatives Program, \$2.1 million/year
- » County striping program, \$500,000/year
- » Economic development grants to improve important roads in small communities, to build or repair roads to an agribusiness, and, for any size community, improving a road serving an industrial park, \$4 million/year
- » Emergency relief when floods or tornadoes damage roads
- » State Infrastructure Bank loans, repaid with the entity's share of federal Surface Transportation Program funding

Focusing on the future

Fatal and serious-injury crashes have decreased after rumble strips were added to most state highway miles

Rumble strips appear to be saving lives and preventing serious-injury crashes on South Dakota highways.

The five-year rolling average of serious injury and fatal crashes has decreased 7.6 percent to 8.02 per 100 million vehicle miles traveled (VMT) from 2011 to 2015. The baseline in the agency's current Strategic Highway Safety Plan is 8.68. The SDDOT's goal is a 15 percent drop to 7.38 by 2020.

"Installation of rumble strips across South Dakota highways has made a significant reduction in our crash rate," said Mike Behm, SDDOT's Director of Planning and Engineering.

"Driver behavior is a contributing circumstance in over 90 percent of crashes. If all drivers and passengers focus on the task and responsibility of driving, along with using seat belts, even more families can avoid a tragic loss or injury of a loved one."

Most of the State Highway System now lined with rumble strips or stripes

The SDDOT has been systematically installing hundreds of more miles of rumble strips on Interstate and other state highway shoulders over the past five years. The majority of the State Highway System's 7,808 miles are lined with shoulder rumble strips, and road departure crashes on those miles have decreased 21 percent. Total crashes have decreased 8 percent.

A rumble strip is a series of grooves embedded in fresh portland cement concrete or ground into asphalt concrete, usually on shoulders beyond the edge line.

They cause vehicle vibration and a thumping sound. Rumble stripes—note the added "e"—are the same type of grooves, but they're located within yellow or white pavement markings, such as center lines or edge lines.

On a small percentage of highway shoulders where bicycle traffic is high or shoulders are narrow, rumble strips are not used, giving cyclists a wider lane outside the driving lane.

The SDDOT has begun using center line rumble stripes to prevent head-on crashes

The SDDOT is starting to use center line rumble stripes to reduce cross-center line crashes and, specifically, distracted and inattentive driver crashes, on high-traffic, rural two-lane highways. Roughly 80 miles of highway will have new center line rumble stripes by the end of 2016, including a U.S. Highway 12 stretch between Aberdeen and Ipswich. An additional 240 miles of center line rumble striping is planned for 2017.

High-friction surface treatments on horizontal curves are dramatically cutting crashes

The first high-friction surface treatments (HFSTs) were applied in early fall of 2014 on horizontal curved highway sections with high road-departure crash rates on Interstate Highway 229 in Sioux Falls, and on U.S. Highway 14A west of Sturgis and south of Lead. The crash rate on those curves dropped over 80 percent. Pictures of and more information about the project are on p. 30.

The SDDOT plans to apply HFSTs on 12 horizontal curves and three bridge decks in 2017.



Rumble strip in asphalt concrete shoulder



Rumble strip in portland cement concrete



Rumble stripe in center lines



Rumble stripe in an edge line

Focusing on the future

Research on Transportation Systems Management and Operations looks beyond design, construction and maintenance of infrastructure for opportunities to optimize transportation in South Dakota

The SDDOT is exploring ways to make transportation of people and freight more reliable and efficient using a concept called Transportation Systems Management and Operations, or TSM&O.

The SDDOT and other state DOTs already manage their highways, but TSM&O goes beyond the traditional approach of designing, building, and maintaining roads and streets to more actively operate them as a system. TSM&O takes advantage of rapidly developing information and



communication technology to meet ever-increasing demands for safe and reliable transportation, often at a lower cost than possible through building more infrastructure.

With direction from leaders of the SDDOT and the Department of Public Safety, SDDOT's Office of Research and a team led by Parsons Brinckerhoff developed a plan to apply TSM&O in South Dakota. The plan recommends enhancements in six dimensions of capability needed to support TSM&O:

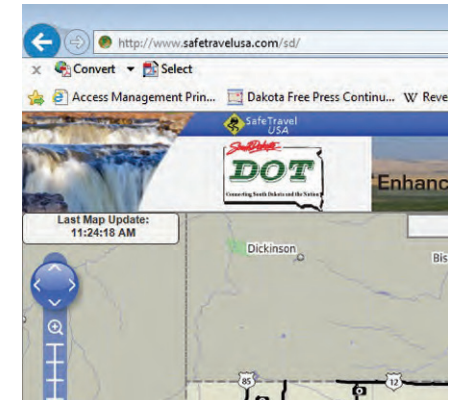
- » creating an **organizational structure and workforce** with new skills, knowledge and responsibilities;
- » establishing and maintaining an **organizational culture** that encourages change, innovation and openness to new approaches;
- » **collaboration** with partners, including other state and local transportation departments, state and local public safety agencies, and emergency service providers;
- » developing and deploying new

systems and technology at roadsides, in vehicles and in the office;

- » creating robust **business processes** that accommodate new approaches to transportation programs and projects, in balance with other transportation needs; and
- » **performance measurement** to objectively evaluate system performance and ensure that changes produce real improvements.

While its value is well recognized in congested urban areas, TSM&O also holds significant benefits for rural states like South Dakota, such as:

- » information provided electronically to help travelers plan and make safe trips;
- » the most effective and efficient winter maintenance operations possible;
- » faster and safer response and clearance of crashes and other highway incidents;
- » well-coordinated handling of special event traffic;
- » anticipation and prevention of



traffic congestion before it becomes a widespread problem;

- » more efficient commercial vehicle operations through automated permitting and routing of large trucks and electronic screening at ports of entry;
- » preparation for connected and automated vehicles; and
- » more cost-effective capital investments.

Wise use of TSM&O will increase what transportation experts call system reliability—helping people and freight reach their destinations on time, in spite of normal transportation challenges and unexpected problems.

Aberdeen Region



Northern Brown County: New U.S. Highway 281 bridge over Maple River serves agricultural and oil-field traffic

A temporary bridge carried north-south U.S. Highway 281 traffic as a new 150-foot continuous concrete bridge was built over the Maple River in 2015. The old bridge, built in 1960, was demolished so the new one could be aligned with the current roadway. The temporary bridge (above) was built off to the side and launched across the river. It carried this segment's freight truck, agricultural and oil-field traffic as the new bridge was constructed. After the new bridge was completed, the temporary bridge was taken apart and stored for future use. The river is home to the endangered Topeka shiner. Erosion control and turbidity monitoring helped protect its habitat.

U.S. Highway 14 resurfaced, Miller to Highmore

Pedestrians near the Miller high school now can push a button to activate rapid-rate flashing beacons before they cross U.S. Highway 14. The beacons augment pedestrian crossing signs that residents said weren't enough to slow traffic going through town. Ten new handicapped-accessible parking spots were added along Miller's main street, which was milled and resurfaced with asphalt concrete, as was the rural stretch of Highway 14. Eleven pipe culverts on the route were repaired, and new signs along the entire segment were installed.



Brookings projects improve access to, from I-29

Shoulders on U.S. Highway 14B (truck bypass) were widened, about nine miles of highways 14 and 14B got new asphalt concrete surfacing, a 14B box culvert was extended, traffic control equipment at Medary Avenue was updated, and new lighting installed on 14B and the Exit 133 ramps. Crossovers on I-29 north and south of Exit 132 were added. These improvements were made in part to help with the additional traffic expected during the major reconstruction of Highway 14 in Brookings and a new Highway 14 bridge over I-29.



U.S. Highway 12 reconstructed in Milbank

The SDDOT and city of Milbank reduced effects of U.S. Highway 12 reconstruction by working in three phases. Downtown was graded and paved with portland cement concrete (PCC), with the SDDOT providing signs to businesses. The residential segment was paved with PCC next, as asphalt concrete pavement from 9th Street to Milbank Avenue was milled and resurfaced with asphalt concrete. Government officials and contractors worked to keep utility interruptions to a minimum. Sidewalks are now more accessible to all.



Almost 13 miles of U.S. Highway 12 between Aberdeen and Mina milled and resurfaced

Thirteen miles of U.S. Highway 12 between Aberdeen and Mina were cold-milled and resurfaced with asphalt concrete in 2015. The project also included the construction of three additional turning lanes and completion of expansion joints every half mile, new permanent signing, guardrail and culvert repairs.





Exit 62-Canton interchange serves new businesses, growing population in Lincoln and Minnehaha counties

The new Exit 62-Canton interchange serves growing traffic in rapidly developing northern Lincoln and southern Minnehaha counties. A single overpass bridge carrying two-way traffic replaced two one-way bridges. The new bridge has a higher clearance. On the east side, U.S. Highway 18 was widened to three lanes and graded for two more in preparation for projected growth. Longer acceleration and deceleration lanes make exit from and entry to I-29 safer. Additional safety features: a left-turn lane across the bridge, right-turn lanes to the gas station to the southeast and northbound I-29 ramp, better vertical sight distance and high-tension cable guardrail around the bridge column in the median. Because wetlands were displaced, new wetlands were created to the northeast, where fill for the project was removed.

Asphalt concrete resurfacing of state Highway 50, Tabor to Yankton; state Highway 314, from Yankton west

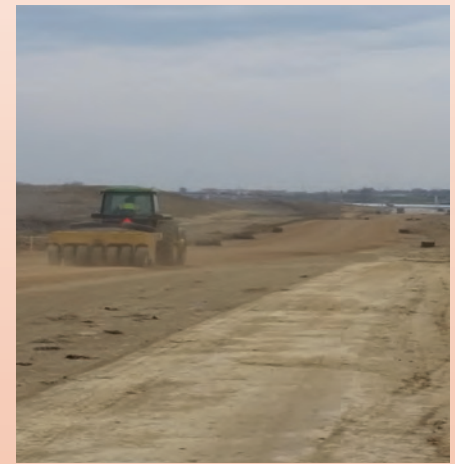
A 14.5-mile segment of state Highway 50 from Tabor to Yankton was milled and resurfaced with asphalt concrete in 2015, along with 3.8 miles of state Highway 314 from Highway 50 in Yankton to west of U.S. Highway 81. The Highway 50 bridge deck over Marne Creek west of Yankton got an overlay that will extend its service life and new approach slabs. Two center turning lanes were added at Highway 50 locations to improve safety. About 20 pipe culverts were repaired and erosion control measures added to outfalls. This work preceded 2016-2017 urban reconstruction of state Highway 50 in Yankton from Broadway east to Archery Lane.

Grading, water main, storm sewer and sanitary sewer completed for Veterans Parkway segment

Veterans Parkway is designed to move people and freight along the eastern and southern edges of Sioux Falls at greater speeds and with fewer stops. Developers hope improved access to eastern Sioux Falls, especially when an I-90 interchange is built near mile reference marker 402, will entice companies to locate there and further south in Lincoln County. Grading, box culvert construction and installation of water main, storm sewer and sanitary sewer from Maple to Madison were done in 2015. PCC paving, asphalt concrete paving of a bike path, lighting and traffic signals at the Madison intersection were completed in 2016.

Reconstructed state Highway 19 between Humboldt and Madison carries corn to Poet's ethanol plant

Some of the over 35 million bushels of corn used at the Poet ethanol plant in Chancellor travel on this 23-mile segment of state Highway 19. The facility, Poet's largest, can produce 110 million gallons of ethanol a year. Highway 19 reconstruction began in 2014 with grading that widened shoulders and improved sight distances, increasing safety for drivers. Twelve new box culverts improved drainage. The new asphalt concrete pavement put down in 2015 is made up of 20 percent recycled asphalt concrete from the old pavement. About 1,200 vehicles a day use this segment of the north-south highway.



Mitchell Region

**Bridge joints replaced on I-90 bridges over the "Jim"**

When South Dakota summers heat bridge concrete and steel, the materials expand. In winter, they shrink. Expansion joints accommodate these movements, preventing structural damage, but expansion joints are prone to deterioration. This project for the Interstate 90 eastbound and westbound James River bridges replaced plate joints with finger joints, which also will drain storm water away from critical structural steel supports. Traffic of about 10,000 vehicles daily each way was reduced to one lane per bridge, with a lower speed limit. For the Sturgis Motorcycle Rally, the westbound lane was temporarily widened and two eastbound lanes made available, with 65 mph and 80 mph speed limits.

**State Highway 46 through Beresford rebuilt**

The SDDOT and its contractor strove to make businesses accessible during state Highway 46 reconstruction through Beresford by working on one side of the road at a time. Customers could get to businesses from the traffic side, side streets or temporary driveways. The city replaced its water, sanitary sewer and some electrical lines while the road was under construction and worked with the state's contractor to ensure utilities were taken care of in time for portland cement concrete paving to be completed in one season. Through the use of temporary driveways, landowners and businesses reduced the number of gaps required during paving.

**14 miles of state Highway 44 in Hutchinson County resurfaced with asphalt concrete**

Throughout their service lives, most asphalt concrete pavements get additional layers of asphalt concrete. Asphalt overlays restore smoothness and slow deterioration of the underlying asphalt concrete. Fourteen miles of South Dakota Highway 44 got a two-inch overlay in 2015, from the state Highway 37 junction to the James River. Minor pipe extensions were done, as well as minor approach grading and some guardrail updating. About 1,200 vehicles a day use this segment of the east-west highway. Overlays like this extend pavement life for about 12 to 18 years.



Temporary lanes carry traffic while I-29 and I-229 are rebuilt to serve growing Sioux Falls metro area

Sections of I-29 and I-229 shoulders were regraded as temporary driving lanes in 2015 to prepare for the 2016 construction of higher-capacity segments of the two highways leading up to their interchange. The temporary lanes and a temporary bridge are expected to help avoid congestion on I-29 while reconstruction work is underway, but some congestion is still expected on I-229. The interchange was constructed in 1961 and serves 45,000 vehicles each day. The expanded I-29 and I-229 segments, scheduled for completion in July 2017, are expected to carry 65,000 vehicles a day by 2040.



Winner and Mobridge areas get extensive pavement preserving chip seals

Asphalt concrete cracks—whether from heavy vehicles, temperature changes or other reasons. Chip seals fill the early, small cracks, keeping out water that would eventually erode the supporting material and reduce pavement service life. To chip seal, liquid asphalt emulsion is sprayed on pavement and chips quickly spread on the emulsion. Chip sealing costs about 80 to 85 percent less than overlays. The SDDOT uses it extensively because it is cost-effective, improves friction, inhibits raveling (separation of aggregate from asphalt cement), corrects minor roughness and seals the pavement surface.



Hughes County: 18 miles of Highway 34 resurfaced

This resurfacing project improved drainage from a state Highway 34 segment running atop the eastern Missouri River bluffs. Two old reinforced concrete box culverts were replaced with new ones extending further from shoulders, increasing safety. Parts of five cattle passes and larger pipe culverts were separating, allowing dirt inside. Those joints were sealed with resin-soaked oakum rope, coated with epoxy inside and sealed with resin on the exterior. Voids outside were filled with foam that simulates soil density. Damaged ends were replaced on other pipe culverts, and some were excavated, re-set, wrapped in geotechnical fabric and backfilled. The bridge deck west of De Grey hill was repaired and resurfaced; a landslide on the hill was stabilized. Resurfacing was completed in Oct. 2015.



12 miles of state Highway 73 resurfaced in Bennett County; two bridges get new guardrail

Guardrail is an essential component of safe highways, protecting motorists from vehicle impacts and preventing vehicles from going down the steep inslopes common near bridge ends. This project installed new, safer guardrail and flared end terminals meeting current standards on roadway approaching and following two bridges. Deteriorated timber block spacers behind the thrie-beam rail along the bridges were replaced. The bridge three miles south of Martin also got an epoxy chip seal. Twelve miles of asphalt concrete were resurfaced with new asphalt concrete.



Jackson County I-90 PCC paving project adds vehicle data sensors, uses money-saving fabric

Traffic data plays an important role in pavement design and maintenance decisions. The SDDOT uses automated vehicle classification systems embedded in concrete to collect data, especially about the number of heavy trucks traveling specific segments, their lengths, the times of day they use those segments and seasonal use patterns. Sensors were embedded as this 15-mile segment of eastbound Interstate Highway 90 was given a new portland cement concrete (PCC) surface. Instead of breaking up the old PCC, a bond-breaking fabric was glued on, and new paving laid directly on the fabric. This is one of several recent SDDOT projects using this new method, which eliminates the step of removing the old concrete and recycling it as the gravel cushion supporting new pavement.



Pennington County: both directions of I-90 resurfaced from west of Wasta (Exit 98) to Exit 112

Interstate Highway 90 is the broad shoulders of South Dakota’s east-west roads, carrying an average of 9,385 vehicles a day and 22 percent of total annual heavy-truck traffic on both state and local systems. Those levels of usage—and the new 80 mph speed limit—make keeping I-90 in good condition a priority for the SDDOT. This 14-mile project milled the existing Class S asphalt concrete overlay from the driving and passing lanes on both sides of the median. Class S asphalt concrete was used again for the new overlay. Class S asphalt concrete, a relatively thin layer of asphalt concrete, is used instead of a chip seal to provide a sufficiently durable driving surface. A Class S overlay can be milled off to make way for another overlay. Shoulders also were re-paved and guardrails upgraded.



State Highway 240 from Wall to Badlands National Park now smoother, with safer shoulders

Six miles of state Highway 240 from Wall to the Badlands National Park entrance were milled and overlaid with asphalt concrete. Wider shoulders allow vehicles straying from driving lanes to more safely return, and give bicyclists more distance from moving vehicles. Shoulder slopes were graded to flatter angles, which will minimize drifting snow in the winter. Cross pipes that carry water away from the roadway were extended further from pavement to enhance safety. Sturgis Motorcycle Rally riders had unrestricted use of this popular segment during the August event. Grading work outside the roadway that wouldn’t impact traffic was scheduled for that time period.



Cheyenne River, Cottonwood Creek bridges serve Fall River County residents, Mickelson Trail users

Cottonwood Creek flooded three times during construction of a new 130-foot prestressed girder bridge on state Highway 471 south of Edgemont. The new bridge opened to traffic in October 2015. The U.S. Highway 18P bridge foundation, substructure work and bridge deck pour were completed in 2015. An asphalt concrete surface was completed in May 2016. This new U.S. Highway 18P bridge is part of the Mickelson recreational trail between Edgemont and Deadwood. It has a separate lane for cyclists.



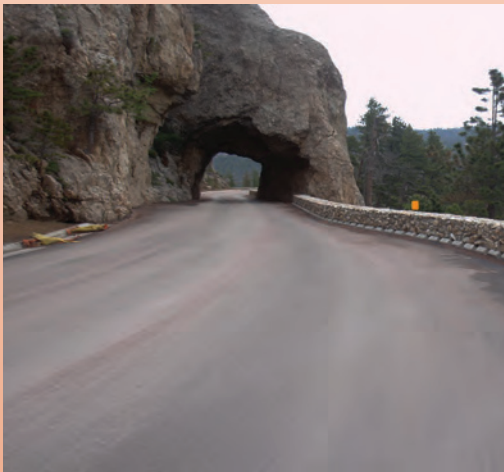
Harding County: U.S. Highway 85 segment gets new shoulders, resurfaced with asphalt concrete

Heavy vehicles serving North Dakota oil fields have been hard on U.S. Highway 85 pavements. That’s why Class Q3 hot-mix asphalt concrete was selected for the overlay of this 12-mile stretch. The recycler at left helped shoulder improvements be completed quickly. In a single pass, it ground up the old, low shoulders (asphalt concrete millings with an asphalt surface treatment) mixed them with water and more granular material, then shaped and compacted them into a base for new asphalt concrete. New driving lane surfaces, paved shoulders flush with driving lanes, and reconfigured, longer turn lanes at the state Highway 20 east junction made this segment smoother and safer.



Rapid City: reconstruction of Jackson Boulevard, Chapel Lane Road to Rapid Creek

As the first full year of reconstruction approached, the project's prime contractor proposed compressing two years of work into one. The SDDOT was concerned about possible lack of a highway-strength driving surface if the portland cement concrete (PCC) paving wasn't completed by winter but determined it was feasible. Onlookers in 2015 could see many types of work performed concurrently over the 1.3-mile project: grading, paving, installing of water, sanitary sewer and stormwater lines; forming of curb and gutter; and installing of street lights and traffic signals. Two lanes were always open for traffic. By December, paving and utility work were completed on Jackson and its side streets, traffic signals at Park Drive and Canyon Lake Road were operating, and Jackson and the side streets were open to traffic. Elimination of a complete year of reconstruction will made life a little easier for businesses, residents and motorists in 2016. This project was selected as a Top 12 finalist in the American Association of State Highway and Transportation Officials' 2016 America's Transportation Awards competition.



Rapid City Region

Rapid City: a new, pedestrian-friendly Mount Rushmore Road (U.S. Highway 16) is emerging

Rapid City residents worked with the SDDOT on a design that provides access to businesses and is attractive for homeowners, safe for pedestrians and a reasonably efficient route to Mount Rushmore. The project includes grading, PCC paving, sidewalks, curb and gutter, lighting, traffic signals and storm sewers. Phase 1, from Tower Road to Flormann Street, was completed in 2015. In 2016, Phase 2 between Kansas City and St. James streets started. Initial Phase 3 activity on St. James to Flormann begins in late 2016, with most work starting in early 2017.

Meade County: 3 new bridges on state Highway 34, Belle Fourche River bridge gets overlay

Two old bridges were replaced with two new bridges, a third bridge was replaced with a large box culvert and the Belle Fourche River bridge got a life-lengthening overlay—all within a 13-mile segment of state Highway 34 in Meade County. The Bear Butte Creek bridge was replaced with a prestressed concrete girder bridge on realigned pavement. The Spring Creek bridge was replaced with a continuous concrete slab bridge and the bridge over Four Mile Creek was replaced with a cast-in-place, four-barrel box culvert on realigned pavement. Most work was completed in 2014. The box culvert was completed in 2015.

Widening state Highway 87 near the Hood Tunnel in Custer State Park

A narrow, winding, 0.7-mile state Highway 87 segment near the Hood Tunnel had an above-average crash rate. Removal of beetle-infested trees may have made it less safe. In the past, trees' closeness to the road slowed traffic. Part of Peter Norbeck Scenic Byway and partly inside the Black Hills National Forest, work was coordinated with the U.S. National Forest Service and Custer State Park. SDDOT's context-sensitive solution: a stone masonry-reinforced barrier wall north and south of the tunnel, with weathered W-beam guardrail extending further south. Lanes were widened to 10 feet. National Scenic Byway funds helped pay for the project.

Local-state bridge projects



Brookings County

Brookings County replaced the 211th Street bridge over Deer Creek with a 65-foot precast channel bridge. The old structure, built in 1930, was a 63.5-foot three-span steel stringer bridge with a corrugated steel deck. It was posted with a four-ton weight limit after being weakened by ice strikes. Extra environmental protection was provided during construction due to the creek's potential for holding Topeka shiners, an endangered minnow. The new bridge, about four miles east and one mile north of Brookings, can carry all legal-weight vehicles, including farm equipment.



Gregory County

A low-water crossing with a reinforced concrete pavement driving surface replaced a 1945 steel girder bridge with a timber deck over North Scalp Creek, 4.2 miles east and 2.8 miles north of Bonesteel. Low-water crossings allow high flows to go over the bridge deck, cost less than bridges built above the flood stage and are used to eliminate costly approach grading on low-lying, low-traffic roads. Fish can live in North Scalp Creek, so the design had a one-foot minimum flow line for fish passage. Plans also included protection for the American burying beetle, an endangered species living in the area.



Campbell County

A 125-foot three-span continuous concrete berm bridge was built over Spring Creek in 2015. The creek is a tributary to the Missouri River, and Lewis and Clark camped where the two waters originally met. The old structure, built in 1974, was a 100-foot prestressed concrete tee-beam bridge with a precast panel deck. The new bridge is situated 470 feet west of the old bridge, and the project was designed to restore Spring Creek's flow to its original channel, which was altered in the 1974 bridge's design.



Haakon County replaces two bridges on Ash Creek Road

Two Great Depression-era bridges on Ash Creek Road in Haakon County were replaced in 2015. The new bridge (top, with the old structure beneath) 10.6 miles west and 2.9 miles south of Milesville is a 40-foot bulb tee bridge. It replaced a 40-foot steel stringer bridge with cast-in-place deck built in 1935. The second (top of bottom two pictures) is a 75-foot bulb tee bridge 10.6 miles west and 3.1 miles south of Milesville. It replaced a 77-foot steel stringer bridge with cast-in-place deck, built in 1933. Ash Creek Road is used by ranchers in the Milesville, Howes and Philip areas. The new bridges can carry all legal-weight vehicles.

Safety at Brookings intersection improved

Turn lanes on the west side of the Main Avenue South and 8th Street South intersection were widened for added safety in this 2015 project. Main Avenue South is an arterial serving a growing residential and commercial area in southern Brookings. The project's main purpose was to mill and then overlay the one-mile segment with asphalt concrete. The project included ADA-compliant curb ramps and pavement markings.



Madison's 4th Street SE gets overlay

A half-mile asphalt concrete resurfacing project on Madison's 4th Street SE offered the opportunity to make extensive improvements in public utilities buried along the segment between South Washington Avenue and South Division Avenue. The segment serves the new Lewis & Clark Regional Water System Crooks Pump Station and Madison Metering Building but otherwise is residential. The city's federal funding was used for grading, an asphalt concrete overlay, sidewalks, storm sewer, ADA upgrades, and curb and gutter. New water and sanitary sewer lines were replaced with local funds.



Vermillion: new surface on West Main Street

The city of Vermillion used its federal road funding to mill the existing surface of West Main Street between High and Stanford streets, eight-tenths of a mile in length. The millings were stockpiled on city land to be used on future projects. A new asphalt concrete surface was overlaid on the remaining asphalt concrete pavement. Curbs were upgraded to meet ADA standards.



Watertown uses its federal road funding for major improvements to 19th Street

This 1.6-mile 19th Street NE segment along Watertown's east side was reconstructed with an asphalt concrete surface between 10th and 14th avenues NE. The part between 1st and 10th avenues NE was milled and overlaid with asphalt concrete. Americans with Disabilities Act-compliant ramps were installed throughout, along with storm sewer, sidewalks, and curb and gutter. Pavement markings were added after the overlay and reconstruction work were completed.

Economic Development Road Grants

Gas, motor vehicle excise tax increases help fund vital roads in smaller communities and support economic development throughout South Dakota

South Dakota communities were awarded more economic development road grant money in 2015.

A total of \$3.79 million of a potential \$4 million was awarded by the Transportation Commission in Nov. 2015 for 13 road projects, including an industrial park grant for a new road to produce distributor Midwest Fresh Logistics in Dell Rapids. An agribusiness grant will improve the road to a new ethanol plant in Onida. The remaining 11 community access grants will improve vital roads in Alpena, Canistota, Canton, Dell Rapids, Henry, Mobridge, Tripp, Valley Springs, Volin, Wessington Springs and White River.

With the exception of industrial park grant funding in 2008, awarding of new grants was suspended in fiscal years 2008-2012, after a surge in construction inflation and flat State Highway Fund revenues forced the SDDOT to cut its financial assistance to local governments so that projects on the more heavily used state system could be completed.

Grant awards resumed in fiscal 2013 as State Highway Fund revenues increased and inflation stabilized, but awards were at lower levels than 2001-2007. After gas tax and motor vehicle excise tax increases went into effect in 2015, the opportunity arose to resume economic development road grants at close to previous levels, with some extra funding for community access grants.

Economic development grants are awarded within three categories. Under the new guidelines, \$2.5 million per year is allocated for community access grants. These grants help pay for improvements to main streets or roads to businesses, schools, hospitals and other important community organizations. Communities must chip in at least 40 percent of the project's cost.

Total funding for grants for roads to agribusinesses, such as Onida's future ethanol plant, is \$1 million. Total funding for roads to new or expanded businesses in industrial parks is \$500,000.

The grants can pay up to 60 percent of the project cost, with a \$400,000 maximum. Only communities with less than 5,000 people are eligible for the community access grants. Industrial park and agribusiness grants are available to all South Dakota counties, cities and townships. Grants are competitive, with more applications received most years than can be funded. Unsuccessful grant seekers can re-apply in subsequent years.

For information about applying for these funds, go to: <http://www.sddot.com/business/local/economic/Default.aspx>



Industrial park grant

Dell Rapids—\$250,000 to build Quartzite Street, providing access to produce distributor Midwest Fresh Logistics in the new industrial park in southwestern Dell Rapids (pictured under construction in June 2016 above)

Agribusiness grant

Sully County—\$400,000 for 186th Street, providing access to the Ringneck Energy & Feed ethanol plant

Community access grants

Alpena—\$379,700 for Main Street, serving the downtown business area

Canistota—\$400,000 for Main Street, 4th, 3rd and 2nd avenues, serving the downtown business area and school

Canton—\$400,000 for Dakota Street, serving a business area

Dell Rapids—\$400,000 for 10th Street, serving the hospital complex area

Henry—\$49,500 for Main Street, serving the downtown business area

Mobridge—\$243,000 for 10th Avenue, serving the hospital complex

Tripp—\$400,000 for Main Street, serving the downtown business area

Valley Springs—\$90,900, serving a business area

Volin—\$177,120 for Main Street, Lincoln Avenue and Garfield Avenue, serving the downtown business area

Wessington Springs—\$200,000 for Main Street, serving the downtown business area

White River—\$400,000 for 3rd Street, serving the school

Rail

One of the most important services the SDDOT can provide for farmers is to ensure state-owned rail lines are in good operating condition



Ongoing railroad improvements reduce farmers' grain transport costs, reduce loads on S.D. highways

Lyman County-area farmers shipping their wheat, corn, milo and millet from the new Kennebec grain elevator-fertilizer facility this fall should save 20-25 cents a bushel in transportation costs.

That range could mean savings between \$9,240 and \$11,550 year for an average yield of about 42 bushels an acre from 1,100 acres of winter wheat.

These figures are powerful examples of how South Dakota businesses increase profits by using the most efficient transportation mode possible and how state government investment in infrastructure benefits the state economy.

“In South Dakota, an investment in rail is an investment in the long-term success of our farmers,” Gov. Dennis Daugaard said. “Rail is the only feasible means of getting our grain to out-of-state buyers. Whether the grain is going to mills in the east or ports in the west, it gets there by rail. Consequently, the development of our rail infrastructure is imperative.”

South Dakota farmers who have profited from recent rail line improvements are benefiting from a state government decision to buy abandoned railroad tracks in 1980, and decisions by state, local and federal governments and railroad operators to invest millions of dollars to rebuild rail beds, add stronger steel rail, replace ties, and fix or replace trestles on over 1,900 miles of operating state-owned and privately owned rail lines.

Greater use of rail to transport grain also means less grain will be transported on state highways, including Interstates, increasing their service lives.

The \$39-million Wheat Growers facility, which began construction in the fall of 2014, started accepting grain for storage in Oct. 2015 and loaded its first train with grain in October 2016, after work to upgrade state-owned track between Chamberlain and Kennebec was completed.

South Dakota's rail renaissance has yet to run out of steam. A facility similar to Kennebec's is planned for Yankton County, on the state-owned line between Napa and Platte. Existing BNSF Railway service is a feature of a large industrial park being planned in northwestern Sioux Falls near Interstate highways 90 and 29. The new federal highway bill, the FAST Act, may provide rail improvement financing opportunities in the future.

Public Transit

SDDOT helps local transit services keep on rolling

Local transit services take South Dakota residents with disabilities, the elderly and rural residents wherever they need to go: school, the doctor, work and shopping.

Almost two million rides were provided last year, not including the Sioux Falls and Rapid City systems. (Rapid City and Sioux Falls work directly with the Federal Transit Administration. In 2015, they respectively provided 1,915,950 and 1,382,161 rides.)

Most rural public transit and specialized transit rides were in a fleet of 483 vehicles purchased with the help of SDDOT's Office of Public Transit.

Every year some of these buses near the end of their services lives. SDDOT employees work with local transit agencies to determine the types of new vehicles they need and help procure them through competitive bidding.

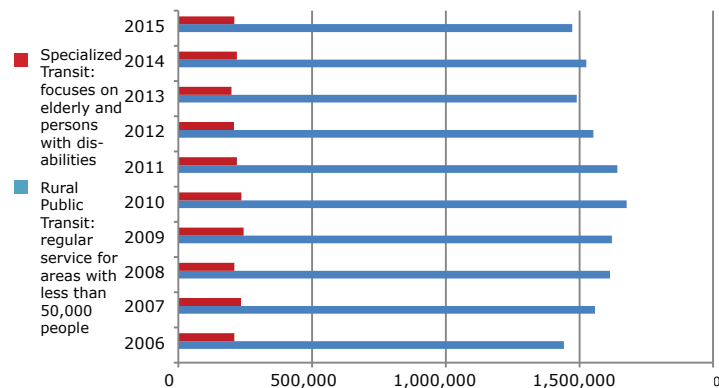
In 2015, 33 buses of various sizes and 13 sport-utility vehicles or vans were purchased. They were paid for with \$2,231,956 in federal transit capital outlay grants. An additional \$782,682 in federal funding went toward equipment and facility upgrades. Agencies receiving federal capital grants were required to match those funds at 20 percent of the cost of the vehicle, equipment or facility improvement.

The Public Transit Office ensures federal funds are used for their intended purposes. Staff members conduct program reviews and regularly inspect buses and associated facilities. They also participate in the annual educational conference for transit employees organized by the Dakota Transit Association.

For financial and ridership data for individual local public transit agencies, go to the annual reports at <http://www.sddot.com/transportation/transit/forms/Default.aspx>.



1.68 million rides in 2015, down 3.5%



Source: *Public and Specialized Transportation, Fiscal Year 2015*, Office of Air, Rail and Transit

Photographs, from top: Residents of Madison and Lake counties can take East Dakota Transit; middle: Brookings students use Brookings Area Transit Authority buses to get to and from school; bottom, Prairie Hills Transit staff serve residents in Spearfish and Lawrence, Meade, Custer, Fall River and Butte counties.



Aeronautics

South Dakota airports received \$22.7 million in improvements, equipment and engineering services in 2015

Airport	Federal \$	State \$	Local \$	FY2015 airport improvement projects
Aberdeen	\$2,268,000	\$126,000	\$126,000	Construction of phase II stormwater improvements
Brookings	\$135,000	\$7,500	\$7,500	Pay loader for snow removal
Canton	\$33,534	\$1,863	\$1,863	Design and construct wildlife fence, fuel system controller
Chamberlain	\$1,375,390	\$76,411	\$76,411	Mitigate wetlands (wildlife attractant), storm sewer, purchase wetland credits
Faulkton	\$270,000	\$15,000	\$15,000	Design and construct hangar taxilane extension
Flandreau	\$225,000	\$12,500	\$12,500	Snow removal equipment building, airport layout plan update
Gregory	\$540,000	\$30,000	\$30,000	Phase 1 of apron expansion construction
Highmore	\$58,410	\$3,245	\$3,245	Phase 2 of partial parallel taxiway design
Hot Springs	\$67,950	\$3,775	\$3,775	Design partial parallel taxiway
Hoven	\$1,570,000	\$87,222	\$87,222	Reconstruct runway 13-31
Huron	\$1,407,312	\$78,184	\$78,184	12/30 land acquisition and taxiway extension, relocate four buildings
Madison	\$196,979	\$10,943	\$10,943	Design parallel taxiway 15-33, medium-intensity taxiway lights, design and mitigate wetland, fencing, pavement maintenance
Martin	\$35,000	\$1,944	\$1,944	Wildlife hazard assessment and site visit
Mitchell	\$225,000	\$12,500	\$12,500	Mill and overlay of two parking areas and access road
Pierre	\$1,460,000	\$81,111	\$81,111	General aviation apron section and access road reconstruction
Rapid City	\$2,940,000	\$163,333	\$163,333	Old terminal demolition, midfield apron paving, GIS 18B survey, PAPIs replacement, snow removal truck with plow, north general aviation apron rehabilitation design
SDDOT	\$135,000	\$7,500	\$7,500	Pavement maintenance, including rejuvenation and marking at general aviation airports
SDDOT	\$990,000	\$55,000	\$55,000	Pavement condition inspection survey
Sioux Falls	\$6,092,416	\$338,468	\$338,468	Reconstruct taxiways B and B2, partially reconstruct runway 3/21 ends, runway 3/21 blast pads
Vermillion	\$40,000	\$2,222	\$2,222	Design apron construction
Wagner	\$33,500	\$1,861	\$1,861	Design rehabilitation of turf x-wind and reconstruction of hangar taxilane
Watertown	\$270,000	\$15,000	\$15,000	Design and construct hangar taxilane expansion
Yankton	\$63,805	\$3,545	\$3,545	Construct apron expansion, relocate two hangars
2015 Projects	\$20,432,296	\$1,135,127	\$1,135,127	Total: \$22,702,550



A small jet and turboprop airplane parked in the Sioux Falls airport's general aviation area

South Dakota Airport Conference

Airport managers, pilots and government officials meet annually for updates on federal aviation regulations, to receive continuing education and to discuss aviation issues specific to South Dakota.

The April 2016 conference included discussion of the Essential Air Service, which provides federally subsidized commercial air service to about 175 communities in the United States that otherwise wouldn't have that service, including Aberdeen, Huron, Pierre and Watertown. Also on the agenda: results of a South Dakota State University study showing a drop in the number of working pilots in South Dakota.

The SDDOT's Air, Rail and Transit Office organizes the annual conference.

Winter maintenance SDDOT to test tow plow on Sioux Falls Interstates

Sioux Falls motorists will see snow cleared from Interstate highways 29, 229 and 90 a little faster in the winter of 2016-2017.

A tow plow, a trailer equipped with a blade and carrying a salt brine tank or hopper, will join the South Dakota Department of Transportation fleet of snow removal equipment.

The tow plow generally will be used to clear snow from the center line between two driving lanes to the shoulder, leaving the second lane and any other lanes free for vehicles to slowly and carefully pass. In certain situations, the tow plow also could plow two lanes of a multilane highway.

“Winter maintenance is a multimillion-dollar annual expense. Tow plows may offer a way to perform that maintenance more efficiently,” said Greg Fuller, SDDOT Operations Director.

“Safety is important, too. Tow plows may increase public safety by clearing and treating roads more quickly, and, because a tow plow can clear what would require two sweeps from a regular plow, motorists will be less exposed to snowplows. That increases safety for them and our drivers.”

Iowa, Minnesota, Nebraska, Kansas and North Dakota already use tow plows, and the SDDOT has studied those efforts for five years. When the original design was enhanced to allow the tow plow to switch from one side of the truck to the other, SDDOT was ready to try one. That capability fits the way SDDOT does winter road maintenance.

But the main reason for trying a tow plow is that



An SDDOT snowplow driver in the Sioux Falls Area practices pulling the new tow plow . The white tank holds salt brine, which is used to prevent ice formation.

a tow plow attached to a snowplow can clear more area than a standard plow truck with a front plow and wing plow. Safer roads sooner for motorists, and fuel and labor savings for the state are the hoped-for benefits.

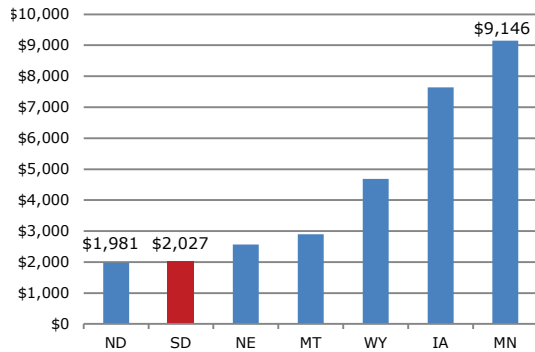
SDDOT drivers in the Sioux Falls Area will be trained to operate the new tow plow by its vendor. Operating the tow plow will be similar to operating the wing plow, pictured above at right, a standard snowplow attachment for years.

Hydraulics are used to adjust the blade and switch the

trailer to the truck's other side. One operator can control the tow plow using rear-view cameras installed on the back of the truck.

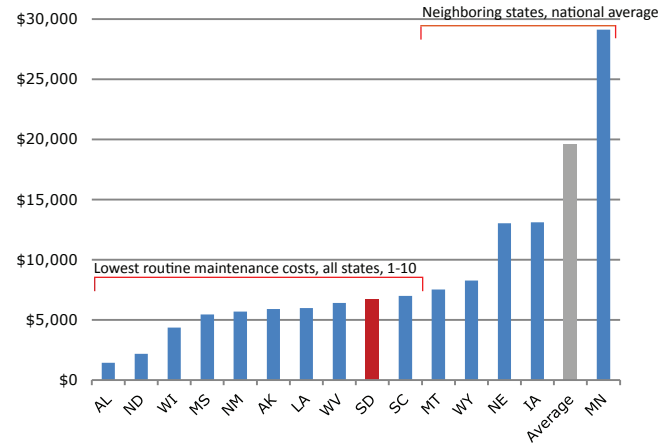
“It could take a few years before we’ve thoroughly assessed if and how tow plows can help us maintain highways under a wide range of winter conditions,” Fuller said. “Tow plows have to be cost-effective, and they have to be safe. If the technology proves itself, tow plows could be used in other parts of the state.”

2nd-lowest winter maintenance costs per mile compared with neighboring states



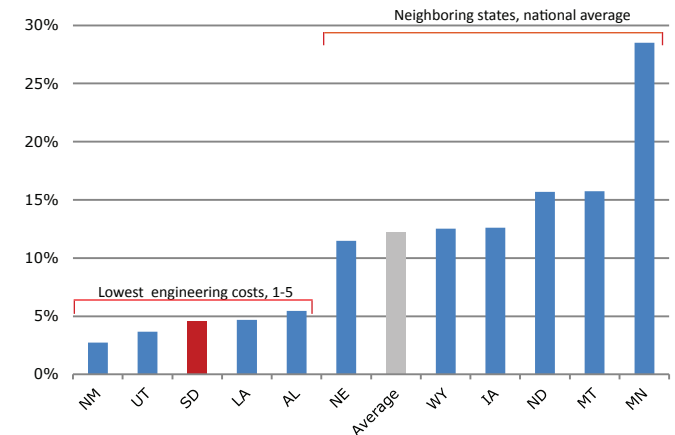
Source: *Highway Statistics* 2014, Table SF-4C (Dec. 2015) and Table HM-80 (Oct. 2015). Amounts shown represent 2014 expenditures.

9th-lowest routine maintenance costs per mile of all 50 states



Source: *Highway Statistics* 2014, Table SF-4C (Dec. 2015) and Table HM-80 (Oct. 2015). Amounts shown represent 2014 expenditures.

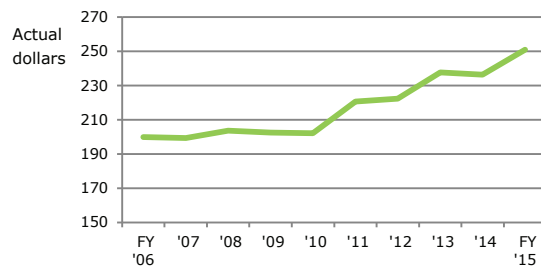
3rd-lowest engineering costs as a percentage of project costs in all 50 states



Source: *Highway Statistics* 2014, Table SF-4C (Dec. 2015). Amounts shown represent 2014 expenditures.

State Highway Fund revenues, 2006-2015

In millions of dollars

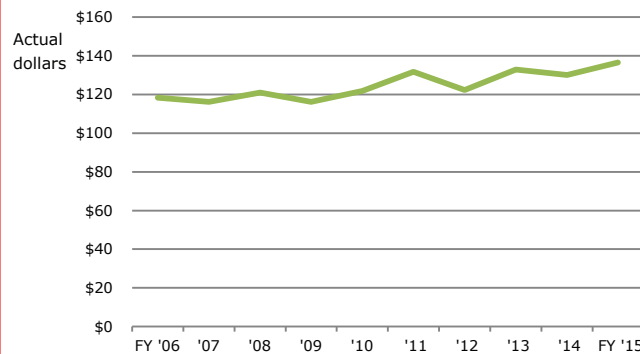


State Highway Fund revenues include motor fuel tax revenue, motor vehicle 3% excise tax revenue, port of entry fees, prorated commercial license fees, oversized vehicle permit fees and miscellaneous revenues.

Source: Division of Finance and Management

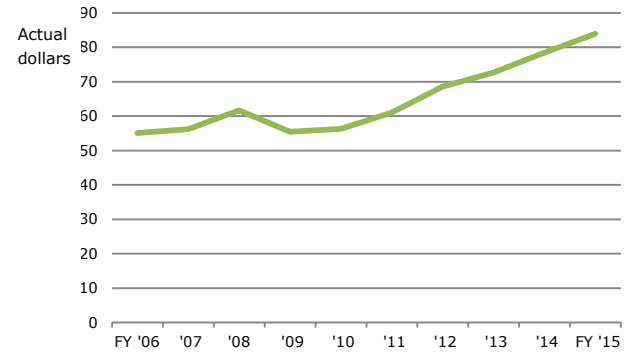
Motor fuel tax revenue, 2006-2015

In millions of dollars



Motor vehicle 4%* excise tax revenue, 2006-2015

In millions of dollars



*The motor vehicle excise tax increased from 3 to 4% in April 2015.





It's difficult to overstate the Sturgis Motorcycle Rally's impact on South Dakota Department of Transportation operations. Months in advance, Rapid City Region employees decide where to add temporary traffic signals and signs, and where to reduce speed limits in Sturgis and surrounding Black Hills communities. Signal timings are adjusted for early, peak and late rally traffic, as well as for the many venue concerts and special events. Intelligent transportation systems to alert drivers of slowed or stopped traffic through message boards are moved into place before bikers arrive, and can quickly be transplanted to new locations if needed. Paint crews concentrate on getting Black Hills routes painted prior to the rally and touching up pavement markings in Sturgis. Behind the scenes, SDDOT staff in the temporary Sturgis traffic monitoring center scan video feeds from cameras focused on the busiest Sturgis intersections and the I-90 exits most used by bikers as they explore and enjoy the northern and southern Hills. First among the SDDOT's many partners in managing this event is the South Dakota Highway Patrol. The SDDOT and officers coordinate responses to crashes, disabled vehicles and backed-up traffic. Throughout the year, as road and bridge projects are designed and reviewed, thought is given to rally traffic, and how the project might be timed to avoid affecting that traffic. If an impact on rally traffic can't be avoided, SDDOT designs work zones and detours aimed at keeping bikers and construction workers safe. Black Hills highway and bridge projects start as early in the construction season as possible, and contractors are required to be finished, or at least pause, for the August event. After each rally, SDDOT, public safety and other officials review their operations to identify what went well and what didn't. Those lessons are applied as planning begins for next year's rally.

March 18, 2015, email to SDDOT

I recently moved from Dakota Dunes to Lincoln, Neb., and, prior to moving, I drove I-29 to Exit 26, then Highway 50 into Vermillion, for eight years. For 96 months, I can honestly say the roads were bad once or twice, and it was due to extremely high winds—not people maintaining them. Thank you for allowing me to drive safely for so many years.

Phil Carter
Lincoln, Neb.

Letter printed in the May 8, 2015, Rapid City Journal

As a Jackson Boulevard resident, I am right in the line of fire dealing with noise and interruption of my daily activities. Unfortunately for me, I am highly sensitive to noise—I work from home—so I've been in constant contact with the DOT regarding their progress. Not only has the DOT answered all of my questions with a smile, but they have organized public informational meetings regarding the work being done on Jackson Boulevard. They have even gone around knocking on doors to talk with residents to see if we need more information. They also send me weekly press releases via email to share updates and helpful tidbits for the following week. Although it might be noisy almost everywhere you go this summer (Mount Rushmore Road is also torn up), take a moment and thank the construction workers and engineers who are making our road better and safer. We should all feel grateful that the service in the Rapid City area is truly unparalleled.

Molly Barari
Rapid City

Comment made at the Statewide Transportation Improvement Program meeting in Aberdeen, July 13, 2015

The west [U.S. Highway] 12 project that's taking place and completed now, we think that's going to provide a great degree of safety with the turning lanes that you provided, and we appreciate those efforts. That's going to make for a much safer roadway with the ag development that's taking place out there. We just really look forward to see how the new rules are going to be implemented with the results of Senate Bill 1, and I've been privileged to be able to serve on that committee, and I think that's going to result in some good progress being made, and with the uncertainty at the federal level I think it's going to help us get some projects on the drawing board that we wouldn't have been able to do without the influx of the bridge funds.

Duane Sutton
Brown County Commissioner

Comment made at the Statewide Transportation Improvement Program meeting in Pierre, July 15, 2015

Our city [Highmore] is going through one of those entire repaving deals, and it's pretty well tore up right now, but we think when it's done it'll be really good. We very much appreciate everything that DOT does. Also I'm a highway superintendent over there, and I'd like to tell all you people from DOT that it's nice to call and be able to ask questions, and you folks answer them very well.

Mike Cowan
Hyde County Highway Superintendent

Comment made at the Statewide Transportation Improvement Program meeting in Pierre, July 15, 2015

I also feel pretty happy about some of the projects. One of 'em I see you got here is that walkway [along U.S. Highway 83] from the [Rosebud] Casino down there over to the [Sicangu] Village. We've had some deaths there where the trucks going by suck people right underneath them. With that walkway going in and all lights and everything, I mean this is really something. It got put on hold for about four years. I don't know if you remember that, but you know that widening of the road and everything. I went to a lot of the local hearings that you had down there, and that's great. I wish you could come down more often and get more—oh, I don't know—a meeting like this down there and hear some of the concerns. Some of the local ranchers down there have a lot that I really wish you could hear. Somehow I'd like to invite the secretary down and—just hear us out sometime. I really appreciate what's going on down there, and [U.S. Highway] 83 is really coming together. I really thank all of you for contributing to all this. Things are starting to look better, so I want to thank you. And also that bridge down there by Carter. I didn't know it was going to be a culvert. I just found out tonight that I guess a six—what do you call it—outlet box culvert. That's great. Oh man, that is really a lifesaver there, so I want to thank all of you.”

Floyd Reynolds
Rosebud Sioux Tribe Transportation Committee member

Comment made at the Statewide Transportation Improvement Program meeting in Rapid City, July 16, 2015

I just want to thank you for the last few years of the additional planning and traffic study you've done on U.S. 85 north of Belle Fourche to the state line. As we've seen growth on that corridor, we do hope that that planning will come to fruition here in the near future. We're not advocating a four-lane. I think right now, based on the traffic volumes and the mixture of traffic that we have on that segment, that some passing lanes, Super 2-type of roadway section would be more than appropriate through there just based on your guys' studies. We just want to keep that in your mind. We don't see growth to North Dakota slowing. The drilling might have slowed down for the last six, nine months. The actual construction activity up there is actually moving as fast or faster than it has been in the past, because they're actually getting caught up on some projects now that some of that activity is down.

Blaise Emerson
Executive Director
Black Hills Council of Local Governments

Comment made at Oct. 30, 2015, Transportation Commission meeting

I attended the meeting in Watertown where the DOT guys —[Project Development Program Manager] Mike [Behm], I know you were there—you came in and talked about that roundabout they're going to construct on 81 south of 212 there. Roundabouts are kind of an emotional topic.... The data you provided—and because you guys were organized in that fashion—that warrants making that move just lays out the case so well. So I really, really like what you guys are doing. That tool that you have developed here. It sounds like we're kind

of leading the country, if you will, on some of this data-driven methodology. It just supports the case so well. There was a little bit of pushback in that meeting, but again I think it was kind of emotional stuff. You can't argue with the safety tool. The more we collect, the more accurate it is, the more current it is, the better decisions we make. I just commend the DOT guys who came to Watertown. That was well laid out, your case was well laid out and it supports the decision. It's tough to argue with this, so thank you.

Don Roby
Chairman, Transportation Commission
Region 1

Comment made at the Jan. 19, 2016, House Transportation Committee meeting

From Hill City, I get to meet an awful lot of people who travel across our state on vacation or into our state. I gotta tell you without exception, everybody says our roads are fantastic, and I want to thank you for that. Everybody contributes to that, not just the Department of Transportation, but the Department of Revenue and the Department of Public Safety all contribute to that. You guys are doing a really good job, and I want you to know that we appreciate that to no end. It's a big point of pride to me particularly when I travel, 'cause I've gotta tell ya there's some pigeon-poop roads out there in other states. Our's are really good.

Rep. Mike Verchio, Hill City
Chair, House Transportation Committee

Comment made at Jan. 19, 2016, House Transportation Committee meeting

I just want to commend the Department of Transportation for the condition that our roads up in our area, up in Brown County: Highway 10, Highway 281, Highway 83—fantastic. I can't imagine anybody coming into the state and not recognizing that, so thank you.

Rep. Dennis Feickert, Aberdeen
House Transportation Committee member

Comment made to Transportation Secretary Darin Bergquist during a performance management review of the South Dakota Department of Transportation at the May 17, 2016, South Dakota Legislature's Legislative Planning Committee meeting

Let me compliment you and your department. We're in the midst of a pretty rugged reconstruction of a highway right through the middle of town right now. The planning and the meetings that were held prior to that were very beneficial to help people get a good feel of what was going to happen to their lives on a daily basis.... I think if you did a survey in Madison right now of the department you'd get very good marks.

Sen. Scott Parsley, Madison
Committee member

2015

Events in South Dakota transportation

- Jan. 13-
Mar. 13 Proposals to increase funding for state and local roads and bridges make infrastructure investment one of the 2015 legislative session's major issues.
- March 30 Gov. Dugaard signs Senate Bill 1, increasing the gas tax from 22 to 28 cents/gal., the motor vehicle excise tax from 3 to 4% and raising license plate fees. The bill was to raise an estimated \$86 million a year in additional funding for local and state roads and bridges.
- April 1 Gas tax, motor vehicle excise tax and license plate fee increases take effect. New speed limit on I-90 and I-29 is 80 miles an hour.
- May 19 Kyle White is named to the Transportation Commission.
- May 20 Rehabilitation of state-owned rail line between Chamberlain and Presho begins. A new grain-fertilizer facility was being built at Kennebec to take advantage of the upgraded line. The new facility will lower grain transportation costs, increasing farmers' profits.
- May 28 Transportation Commission lowers speed limit on I-90 to 75 mph between Rapid City and the Wyoming state line. Numerous hills and curves and merging traffic from exits between Spearfish and Rapid City contribute to the segment's higher crash rate than other rural Interstate segments.
- June 12 Kim Vanneman of Ideal is named to the Transportation Commission.
- August The 75th Sturgis Motorcycle Rally attracted 739,000 people, the largest participation ever, but short of the million mark some had predicted.
- Aug. 27 Transportation Commission approves administrative rules for awarding bridge repair and replacements grants from the new Bridge Improvement Grant (BIG) fund created by Senate Bill 1.
- Sept. 16 South Dakota Railroad Board awards a lease on the state-owned Napa-Platte line in Yankton County to Dakota Southern Railroad, adding momentum to efforts to site a fertilizer-grain facility there.
- Oct. 8 Sen. Mike Vehle of Mitchell becomes first sitting legislator in South Dakota's Transportation Hall of Honor. Vehle led efforts to increase investment in local and state roads and bridges in a legislative body historically adverse to tax increases.
- Dec. 4 President Obama signs the FAST Act, a 5-year federal highway bill that slightly increases South Dakota's federal highway funding, but, more importantly, provides stable funding over a long time period, allowing SDDOT to plan projects that make the most economical use of infrastructure funding.
- Dec. 31 Sioux Falls Regional Airport closes 2015 with 486,472 passenger boardings, a decrease of 0.1%. The small decline ended a four-year streak of record boardings.



High-friction surface treatments reduced crashes on Interstate Highway 229 horizontal curves in Sioux Falls and U.S. Highway 14A south of Lead and between Deadwood and Sturgis in 2015. This project used a polymer resin “glue” and calcined bauxite aggregate to create a durable, highly textured surface tires can more easily grip when pavement is wet or icy. The SDDOT received a \$760,000 grant from the Federal Highway Administration to try this emerging technology and will use high-friction surface treatments at similar locations and on bridge decks in the future.

Mike Vehle becomes first sitting legislator in South Dakota's Transportation Hall of Honor

On the back wall of the Becker-Hansen Building's main floor lobby are three long rows of plaques with photographs. These South Dakotans are honored for above-and-beyond efforts to improve transportation in our state.

They are contractors and engineers of all stripes, county highway superintendents, former secretaries of the department, former members of the Transportation Commission and civic leaders. When members of the Transportation Hall of Honor Committee selected state Sen. Mike Vehle of Mitchell to join the Transportation Hall of Honor in 2015, he became the first sitting legislator in the group.

With a congenial and low-key manner, Vehle began in 2005 to build what is now in-depth knowledge of transportation at the state and local levels.

From his first House Transportation Committee meeting, he saw government's responsibility to construct and maintain roads and bridges as a nonpartisan effort. "[State Rep.] Steve Street, who a lot of you remember, we sat down together," he told the 2014 Interim Highway Needs and Funding Committee. "He's a Democrat; I was Republican. It ended up that year that everyone was all mixed.... We didn't know and we didn't care. I've been on the Transportation Committee in the Senate. I've been

chair for the last six years, so I have a love for roads. I spent half my business life in the grain business, so had to use roads and railroads considerably...."

Vehle knows good roads are essential to a healthy South Dakota economy. His oft-repeated statement: "If you got it, a road brought it. Not much is parachuted in." He was re-elected by constituents who knew he strongly supported increasing revenues for local and state road and bridge improvements.

His greatest transportation-related achievement was passage of Senate Bill 1 in 2015, which included a six-percent increase in the gas tax, an increase in the motor vehicle excise tax from 3 to 4 percent and increases in license plate fees. It was the first increase in the state gas tax since 1999 and the first increase in the motor vehicle excise tax since 1985, when it was changed from a one-time tax on new vehicle sales and used vehicles that hadn't been registered previously in South Dakota. License plate fees were last raised in 2013.

Most of the increased gas and motor vehicle excise tax revenues are being invested in the State Highway System. A small slice of those revenues and a slice of the license plate fees go into the SDDOT-administered Bridge Improvement Grant (BIG) fund to repair and replace bridges on county and township roads. Most of the license plate fees go to cities, counties and townships, which allocate the funds based on local priorities.



State Sen. Mike Vehle, Senate Transportation Committee chair, left, and Rep. Mary Duvall, right, stand near Gov. Dennis Daugaard as he signs Senate Bill 1 in 2015.

Photo credits

Cover: Aberdeen Area Project Engineer Bruce Schroeder
P. 3: Public Information Officer Kristi Sandal
P. 4: concrete paving picture by Rapid City Area Project Engineer Jason Baker, drill crew picture by Management Analyst Julie Bolding
P. 5: Sandal
PP. 6, 8 and 9: Bolding
P. 10: from top to bottom: top two by Highway Safety Engineer Andy Vandel, Wikimedia Commons, KYTC
P. 11: left to right: Sandal, Bolding, screenshot of www.safetravelusa.com/sd/
P. 12: left by Schroeder; right, from top: Huron Area Project Engineer Jordan Brown, Watertown Area Project Engineer Dave Drake, Watertown Area Project Engineer Bryce Olson and Aberdeen Region staff
P. 13: left, Bolding; right, from top: Yankton Area Engineer Rod Gall, Sioux Falls Area Project Engineer Brad Tiede, Bolding
P. 14: right, Bolding; left from top: Mitchell Area Project Engineer Rick Brandner, Sioux Falls Area Project Engineer Joseph Sestak, Bolding
P. 15: right, Winner Area Project Engineer Jeff Hrabanek; left, from top: Bolding, Pierre Area staff, Winner Area Project Engineer Rick Frazier
P. 16: left, Bolding; from top right: Rapid City Area Journey Transportation Technician John Heupel, Custer Area Project Technician Ron Lauritsen, Belle Fourche Area Project Engineer Adam McMahon
P. 17: left, Rapid City Area Project Engineer Jason Baker; from top right: Randy Nelson of Ferber Engineering, McMahon, Custer Area staff
P. 18: Old bridge photos by Brosz Engineering, new bridge photos by Bolding
P. 19: right, Michael Will, Watertown Area Project Engineer; top two left photos by Bolding; bottom photo by Kevin Heiman, Yankton Area Project Engineer
P. 20: Bolding
P. 21: SMA Design-Build
P. 22: top to bottom: East Dakota Transit, Brookings Area Transit and Prairie Hills Transit
P. 23: Kevin Tveidt
P. 24: Sioux Falls Area Highway Maintenance Supervisor Keith Voegeli
P. 26: left, Custer Area Project Engineer Supervisor Tim Wicks; two photos at right, Sandal
P. 27: two photos on the left, Sandal; right, Belle Fourche Area Engineer Tammy Williams
P. 30: Sandal
P. 31: Kristie Hauck, Governor's Office
Back cover: An SDDOT drill crew works along the James River shoreline to find the depth to bedrock. This data will help the SDDOT plan to replace the state Highway 42 bridge there in the near future. From left: Drillers Kyle T. Meier, Andrew Livermont and Amanda Brown, and Geotechnical Drill Crew Chief Greg Malsam. Taken May 5, 2016, by Bolding

