

South Dakota Department of Transportation

2014 Annual Report



2014 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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Message from the Secretary

My fellow South Dakotans,

At 2014 meetings in Aberdeen, Belle Fourche, Rapid City, Sioux Falls, Yankton and Watertown, members of the Legislature's interim Highway Needs and Financing Committee heard South Dakotans say that roads and bridges in South Dakota needed to be better maintained, but existing resources were insufficient to meet the need. Over the course of the summer, the committee worked with various stakeholders to develop bipartisan legislation filed at the start of the 2015 legislative session.

During the 2015 session, Gov. Dennis Daugaard and the Legislature acted to keep state highway system roads and bridges in better condition for the foreseeable future and to assist and enable local system improvements through the passage of a revised version of the legislation proposed by the summer study committee.

Senate Bill 1 increased taxes on motor fuels and ethyl alcohol by 6 cents a gallon and the excise tax on motor vehicle sales from 3 to 4 percent. License plate fees for pickups and cars went up 20 percent. License plate fees for noncommercial trucks increased from 60 to 70 percent of the commercial rate in FY2016 and then to 80 percent in FY2017.

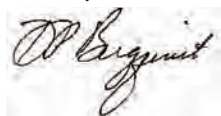
State highways will benefit from \$68 million in new funding from the motor fuel and motor vehicle tax increases, of which \$8 million will go to the new Local Bridge Improvement Grant (BIG) Fund. The license plate fee increases will generate more than \$17 million in new road and bridge funding for counties, cities and townships.

Now that the state has done its part in increasing highway funding to help meet existing and future needs, the Department is hopeful Congress will move decisively to fund a long-term federal transportation program.

A shortage of available rail cars to move grain from South Dakota elevators was another challenge during the 2014 harvest season. Genesee & Wyoming, which purchased the Dakota, Minnesota and Eastern Railroad and renamed it the Rapid City, Pierre and Eastern Railroad, was especially responsive to the needs of South Dakota's agricultural producers by acquiring and moving grain cars as quickly as possible.

Finally, Department employees were challenged again this past year to respond to a variety of unique events throughout the year, including winter storms, flooding and a tornado. Once again, these dedicated employees displayed their ingenuity, work ethic and can-do spirit. They definitely serve South Dakota well!

Sincerely,



Darin P. Bergquist
Secretary of Transportation



Completion of South Dakota's part of the Heartland Expressway, a planned expressway between Rapid City and Denver, was one of the SDDOT's major achievements in 2014. U.S. Sen. John Thune attended the grand opening.



Executive Summary

2014 Annual Report

South Dakota Department of Transportation

Performance Measures

	2014	2013	2012	2011
Surface condition index	4.19	4.20	4.26	4.19
Bridge average sufficiency index	90.6	89.5	89.4	89.7*
Highway fatalities	136	135	133	111
Public transit rides** (millions)	1.74	1.69	1.76	1.86*
% of state-owned system improved	21.1	27.0	20.9	21.0

*Revised since the 2011 report

**Excludes urban transit systems in Sioux Falls and Rapid City

	2011	2006	2004	1999
Customer satisfaction	82%	81%	78%	60%

Pavements

The pavement surface condition index (SCI) is a measure of the overall condition of State Highway System pavements. The current SCI is 4.19 on a scale of 5. Federal economic stimulus funding in 2009-2010 helped boost the SCI to its current level. At current federal and state funding levels, the SDDOT's goal is to maintain an SCI of 3.90, in the middle of the "good" range of 4.49-3.40.

Bridges

The 2014 average sufficiency index for bridges on the State Highway System was 90.6 on a scale of 1 (unusable) to 100 (excellent), up by 1.1 from 2013.

Highway fatalities

Highway deaths increased by 1 in 2014 to 136, an increase of 0.7 percent. However, South Dakota's fatality rate per 100 million vehicle miles traveled has been trending downward. In 2014 it was 1.49, down from 2.24 in 2004. The national average was 1.13 in 2012, the latest figure available.

Percentage of State Highway System Improved

A total of 1,648 miles, or 21.1 percent, of the State Highway System was substantially improved in 2014. Completion of South Dakota's segment of the Heartland Expressway, which aims to increase economic development and tourism between Rapid City and Denver, was the major achievement.



A two-engine Dakota, Missouri Valley and Western Railroad train pulling grain cars

Rail service

The lower cost of transporting grain to market by rail continues to drive public and private efforts to improve rail lines in South Dakota. The SDDOT applied for and was awarded a \$12.7 million U.S. DOT TIGER grant that kick-started a \$37.4 million project to replace ties and rail and repair bridges on the 42.4 miles of state-owned Mitchell to Rapid City (MRC) line from Chamberlain to Presho. In September 2014, the South Dakota Railroad Board approved a new state rail plan that outlined 27 rail improvement projects on state and private lines that would promote economic development, ensure connectivity for critical industries, improve state-owned track conditions, reduce heavy-load traffic on state highways, and increase rail safety and security. During the record 2014 grain harvest, the need to provide grain cars at fair prices and to speed grain transport to markets as South Dakota production increases was painfully clear. Seeing the need for a stronger, faster freight rail system, Governor Daugaard worked with private railroad operators to get four of the 27 state rail plan projects underway.

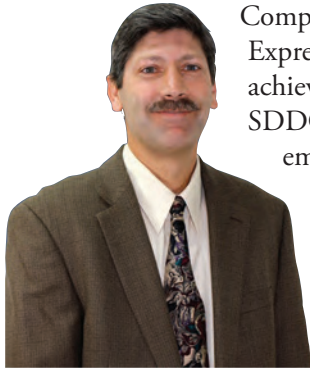
Public transit

A total of 218,630 rides were provided through specialized services to elderly people and persons with disabilities, and 1,525,303 rural public transit rides were provided for a total of 1,743,933 rides given in 2014. After major gains in the 2000s, ridership had been decreasing slightly, possibly because of more accurate data from transit service providers. This year that trend reversed with an increase of 3 percent over 2013.

Aeronautics

The SDDOT Aeronautics Office administered \$22.1 million in federal and state funding for airport improvements, and assisted general aviation airports with pavement maintenance.

Annual Messages from the Division Directors



Joel Jundt
Planning and Engineering
Division Director

Completion of the Heartland Expressway is a major achievement for the SDDOT. Many agency employees have been involved in the 20-plus projects needed to complete the expressway, and it is exciting to see the entire 100-mile segment in South Dakota built and open to traffic.

The economic benefit of expanding the route between the Black Hills region and Denver was the impetus for South Dakota's involvement in this multistate corridor. Economic opportunities now abound along this route, and the SDDOT is moving on to future transportation challenges. Technology is one of those challenges. Advanced software programs analyze large amounts of data, helping us design longer-lasting pavements and safer highways. Smartphones and other devices give travelers real-time road weather conditions. The increase in crashes due to unsafe driver behaviors has heightened the concern of more drivers becoming distracted. Guided by an updated Strategic Highway Safety Plan, the SDDOT and Department of Public Safety will be educating drivers about the choices that save lives and prevent serious injuries, especially the choice to refrain from using cellphones and smartphones while operating motor vehicles.



Greg Fuller
Operations
Division Director

While the Division of Operations' primary functions are to construct, maintain and preserve state highways, our employees often join the Department of Public Safety's Office of Emergency Management to respond to disasters. Operations employees remove debris after tornadoes, route

and detour traffic, respond to accidents and floods, transport equipment and materials, as well as clear ice and snow. A good example is last year's Big Sioux River flooding in southeastern South Dakota. Floodwaters at the anticipated crest threatened homes. Operations staff designed and constructed an emergency levee system using Hesco barriers to protect critical infrastructure. Working with our counterparts from Iowa and Nebraska, Operations staff selected a detour route and notified travelers of the impacts. Fortunately, the water crested at a lower elevation. The levee and detour were removed, and I-29 was re-opened. Our staff also responded after Wessington Springs was hit by a tornado, removing debris and providing traffic control. 2014's flooding and tornado damage was not the worse we've seen, but SDDOT has the engineering expertise, equipment and manpower needed to quickly respond. Emergencies can't wait, and we strive to be prepared to deal with them on short notice. I would like to sincerely thank all the dedicated staff members who so willingly respond to these emergencies.



Kellie Beck
Finance and
Management
Division Director

The Office of Railroads is a small part of the Division of Finance and Management, but it has successfully applied for two highly competitive TIGER grants. The first, for \$16 million, helped rehabilitate the state-owned Mitchell to Rapid City line from Mitchell to Chamberlain. The second, \$12.7 million awarded last fall, will help replace light with heavier rail, replace ties and repair bridges from

Chamberlain to Presho. Office of Railroads staff members do an excellent job of working with the Railroad Board to manage and improve our state-owned rail lines. The Office of Public Transit works with 23 rural public transit providers to provide public transportation services that are vital to many South Dakotans. The demand for these vital services continues to grow with ridership increasing by 3 percent in 2014. The Office of Aeronautics works with the South Dakota Aeronautics Commission to administer \$22 million in maintenance and improvement projects at South Dakota's 70 public airports. Finally, behind the scenes and with just as much commitment to continual improvement, are the Division's finance employees. They daily scrutinize time sheets, vouchers, purchase orders and spreadsheets to ensure that taxpayer dollars are properly spent in accordance with state law, SDDOT policies and standard accounting procedures. They also work to help fellow employees with the ever-evolving processes involved with payments, payroll and recordkeeping.

South Dakota's economy runs on roads

Good roads are essential to agriculture, tourism and economic development efforts in South Dakota, legislators were told during 2014 interim Highway Needs and Financing Committee meetings.

“We’ve asked producers to be the best in the world at what they do,” Agriculture Secretary Lucas Lentsch told the 16 state representatives and senators. Those producers need adequate infrastructure to get their products to market.

Agriculture contributed 14 percent of the state’s \$46.7 billion gross domestic product in 2013, the latest federal figure available. When ag-related industries are added, the annual economic impact is \$25.6 billion, according to a state Department of Agriculture-sponsored study based on 2012 data. That study said 115,561 jobs in South Dakota are supported by agriculture and related industries, including food processing and manufacturing of chemicals, fertilizer and machinery.

According to the Governor’s Office of Economic Development, more than two-thirds of business prospects who formally request information on possible South Dakota locations ask about highway access and, according to the trade journal *Area Development*, it’s the first or second most important factor in selecting a site for the past five years.

As for tourism, South Dakota is a driver’s market. People visiting from other states or residents traveling to our parks drive their cars, minivans, trucks and recreation vehicles to their destinations.



The weighted average of tax receipts from tourist spending is \$2 billion a year, and tourism supports one out of every 11 jobs in the state, according to the state Department of Tourism.

The state’s transportation sector, made up chiefly of trucking services and equipment manufacturers, is only 2 percent of annual state GDP but almost every industry in the state depends on it in some way, said Aaron Scheibe, Deputy Director of the Governor’s Office of Economic Development.

Ninety-nine percent of nonagricultural intrastate freight by weight moves by truck, and 72 percent of such freight being exported goes out on a truck.

About 19,000, or 2.4 percent of the state workforce, works in the transportation sector at a median annual salary of \$32,000.

“Making prudent and sustained investments in this type of infrastructure not only benefits existing South Dakota businesses, it also sends a powerful message to businesses contemplating expansion to or additional operations here in the state,” Scheibe said.



Good local and state roads are important to the Sioux Falls economy, said Mark Lee, Public Affairs and Communication Director for the Sioux Falls Chamber of Commerce.

“Our city planners in Sioux Falls estimate that it may be as high as 40,000 people that travel into Sioux Falls every day for a job,” Lee said. “They clearly begin at their home, and they use every sort of road system to get there. So it’s important for us that our entire system supports commerce not only at a variety of levels but also workforce mobility.”

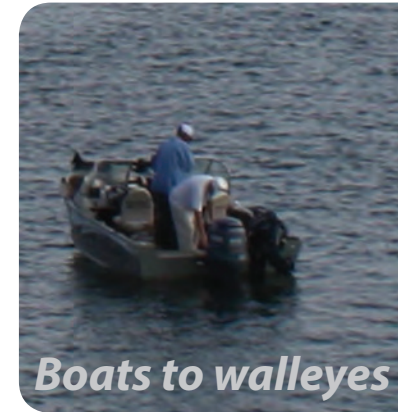
Grain to markets



People to places



Children to school



Boats to walleyes

Merchandise to customers



Supplies to industry



A new plan for improved rail service

South Dakota farmers rely on railroads to cost-efficiently move grain to markets, and the state's new rail plan aims to increase their access and upgrade aging rail lines.

The 2014 *State Rail Plan* identifies 27 projects that would improve rail service in South Dakota in coming decades.

"By utilizing the information provided by the rail plan, it allows the rail board an outside view of what the infrastructure needs are within the system, to best stretch our limited resources," Railroad Board Chairman Todd Yeaton said.

Shortly after the board approved the plan in September 2014, Gov. Dennis Daugaard announced four of the projects would get underway with private, state and federal funding. Details are listed in the sidebar at right.

Rail freight originating from and destined for South Dakota is expected to rise 53 percent by 2040, the study estimated. Outbound freight includes ethanol, grain, animal feed and animal products. Freight passing

through the state, mostly coal shipments, is projected to increase by 40 percent.

At the new Gavilon grain and fertilizer facility near Kimball, located along a newly improved state-owned line, rail access means 10-25 cents less in transport costs per bushel for area farmers. At an average yield of 135 bushels per acre in Brule County in 2014, that's \$9,450 to \$23,625 more in farmers' pockets for 700 corn acres.

South Dakota entered the rail line business in 1980, when Gov. Bill Janklow persuaded legislators to pass a temporary sales tax increase to buy remnants of the bankrupt Milwaukee Road to preserve rail service.

Under agreements to operate the Core Line, BNSF Railway had the option to buy those state-owned segments, which it exercised in 2005. The state still owns 406 miles of tracks that are leased to regional railroad authorities. An additional 124 miles are rail-banked for possible reactivation or recreational use.

Four rail projects underway

- » A \$37.4 million reconstruction of 42.4 miles of state-owned line between Chamberlain and Presho, paid for as follows: \$12.7 million, TIGER grant; \$7.2 million, S.D. Legislature at request of Gov. Daugaard; \$9.5 million, S.D. Railroad Board; \$5 million, Future Fund; \$1 million, Rails to the Future; \$1 million, Dakota Southern Railroad; and \$1 million, salvage.
- » New sidings in Huron and Aurora on Rapid City, Pierre & Eastern Railroad-owned line (RCPE), costing \$7.5 million: \$3.75 million, RCPE; \$3.75 million, Future Fund.
- » Upgrade 9 bridges on the state's Sioux Valley Line in southeastern South Dakota to handle heavier cars and relocate a segment prone to landslides, at a total cost of \$7.3 million: \$3.15 million, Railroad Board loan; \$1.95 million, Railroad Board grant; \$1.8 million, federal grant; \$300,000, Dakota & Iowa Railroad; and \$100,000 SDDOT grant.
- » In northeastern South Dakota, 29 miles of the state-owned Britton Line will be upgraded with heavier rail that can support greater loads at a cost of \$11.5 million: \$5.25 million, Dakota, Missouri Valley & Western Railroad; \$5.25 million, Railroad Board loan; and \$600,000, Future Fund.

The 2014 South Dakota State Rail Plan is available at <http://www.sddot.com/transportation/railroads/railplan/Default.aspx>.



A Rapid City, Pierre and Eastern Railroad train pulls grain cars through Whitewood in 2014.



SDDOT's safety goal: reduce fatal and serious injury crashes 15% by 2020

Fatal crashes on South Dakota roads have trended downward since the early 2000s.

Yet the best measure of overall highway safety, crash fatalities per 100 million miles traveled, remains comparatively high: 1.49 crash fatalities for each 100 million vehicle miles traveled in 2014, contrasted with a national average of 1.13 in 2012, the most recent national figure available.

Some fatal and serious injury crashes result from risky choices: driving drunk, distracted driving, not wearing seatbelts and speeding. Thirty-three percent of 2013 fatal crashes occurred on local roads, which often are designed to lower standards than those on the state system.

State agencies and private organizations work to influence driver behavior, improve emergency medical services in rural areas and improve safety through engineering, education and law enforcement. The SDDOT Strategic Highway Safety Plan goal is to reduce serious injury crashes and fatal crashes 15 percent by 2020.

The plan identifies seven areas of emphasis:

- » roadway departure crashes, including one-vehicle rollovers, the most common crash type
- » unbelted vehicle occupant crashes
- » speeding-related crashes
- » intersection crashes
- » drug- and alcohol-related crashes
- » young driver crashes
- » motorcycle crashes.

Each emphasis area lists specific SDDOT strategies and actions. Roadway engineering, education, research and law enforcement will be used to achieve specific performance measures. Locations with crash histories will be analyzed for safety upgrades.

“DOT employees work every day, often along with employees at other state and local agencies, to achieve these safety goals,” Transportation Secretary Darin Bergquist said. “The goals are realistic, and more important, preserving human lives is central to our mission to provide a safe and efficient transportation system.”

The Strategic Highway Safety Plan is available at:
<http://www.sddot.com/transportation/highways/traffic/safety/docs/.FinalSHSP.pdf>



Pavements

Heartland Expressway: Improving travel, trade between the Black Hills and Denver

South Dakota's completion of its portion of the Heartland Expressway is a major achievement. In 1992, the South Dakota Department of Transportation and the Nebraska Department of Roads began studying the feasibility of building the Heartland Expressway from Rapid City to Nebraska along state Highway 79, U.S. Highway 385, U.S. Highway 16, U.S. Highway 16B and Interstate Highway 90.



Construction began in 1997, and 2014 marks the completion of our segment of the expressway—over 100 miles of a Congressional High Priority Corridor through three South Dakota counties. More than \$200 million in special congressional funding, federal formula funds and state matching funds paid for the corridor. South Dakota's congressional delegation and state and local officials worked decades to secure that funding.

The 20-plus projects constructed over the past 17 years included upgrading two-lane highways to four lanes, building or extending over 25 bridges and structures, completing a major urban connector near Rapid City, building two new Interstate interchanges and a variety of smaller projects.

The full economic benefits of the corridor are still being realized. Connecting the rapidly growing I-25 corridor in Colorado to South Dakota, Nebraska, Wyoming and North Dakota will become more important. Colorado is a large

tourist and economic market. At its current growth rate of 1.6 percent per year, Colorado's population could grow from about five million now to six million in the middle of the next decade. Western South Dakota and much of the state could benefit from that growth. The Heartland Expressway also is a component of the Ports-to-Plains Corridor serving trade in the central and western United States.



SDDOT officials show Rep. Steve Hickey of Sioux Falls how the “spider van” gathers road condition data.

Pavement condition data determines system funding needs

South Dakota legislators must balance a long list of funding “wants” and “needs” with pressure to keep taxes low.

To show them the SDDOT's 2015 request for more funding was an objectively determined need, agency officials drove its “spider van” to the Capitol parking lot. This van rides over almost every mile of state highway each year while laser-emitting devices measure crack width and frequency in pavements, and other equipment gathers additional data.

A pavement information management system analyzes the data and determines what treatments will extend service life. With this system, SDDOT can identify and prioritize future road repairs and reconstruction to maintain the best conditions possible with available funds over a 20-year period. Needs are determined by the data, not wishful thinking.

The current goal is a surface condition index (SCI) of 3.90 on a scale of 5, or the middle of the good range of 4.49-3.40. The current, high condition level of 4.19 is partially due to stimulus-funded projects in 2009-2010.

Bridges

Extensive planning, public input going into new Missouri River bridge

Q: Why is a new bridge over the Missouri River being planned now?



Kevin Goeden
Bridge Design
Program Manager

A: The existing 10-span, 1,659-foot continuous steel plate girder bridge on U.S. Highway 14/U.S. Highway 83/South Dakota State Highway 34 over the Missouri River between Pierre and Fort Pierre was built in 1962. Bridges from that era were designed for a 50-year life, and the now-53-year-old bridge is showing its age. It has experienced advancing deterioration in the concrete, and corrosion and fatigue damage in the steel parts, as well as overall wear and tear. While the bridge is currently plenty safe and open for all legal loads, the existing deterioration/fatigue conditions and nonredundant nature of the superstructure led to restriction of overloads from using it (to extend life).

The bridge has undergone a number of repairs over the years to address the deterioration and fatigue. A \$3.7 million rehabilitation project to mitigate some of the more serious needs was completed in 2008-2009. That project's intent was to get another 15-20 years of life out of the structure and allow us to prepare to replace it.

Q: How is the SDDOT involving the public in the planning and design of the new bridge?

A: After a competitive solicitation and request-for-proposal process, a work order for the bridge replacement study was awarded to URS Corporation in June 2013. This study will develop bridge type, size and location (TS&L) information for a replacement and complete the federally required environmental clearance process, referred to as an environmental assessment (EA). An integral part of that process is involving and informing the public of all aspects of the TS&L and EA. A study advisory team (SAT) made up of SDDOT, Federal Highway Administration and

The new bridge will be the third generation Missouri River highway bridge crossing at Pierre and Fort Pierre. Planning began around 2005, with construction expected sometime near 2023.

city officials and a community advisory committee (CAC) of various interest groups were organized to help guide the study and generate/evaluate alternatives. So far several SAT/CAC meetings and two public information meetings have been held for this study. A public survey followed the second public meeting to gather input on preferences such as bridge location, bridge type, lighting and hand-rail type on the bike/pedestrian pathway. A page on the SDDOT website keeps all interested parties up to date on progress. (<http://www.us14missouririverbridge.com/>)

Q: How will the new bridge differ from the old?

A: As the EA is not yet final and approved, the proposed new bridge details are also not yet officially available. However, the new bridge is anticipated to

provide four traffic lanes (two each direction) and a wider bicycle/pedestrian path.

Q: What are some unique aspects of the Missouri River reservoir system that your engineers will deal with in the design?

A: The actual bridge design has not yet been initiated. However, hydraulic related design aspects for a major river crossing of this nature typically include consideration of long-term channel degradation, contraction scour, pier and abutment scour, floating debris/ice loads, fluctuating water levels, navigational clearances and bank protection.

Q: What will happen to the old bridge?

A: The existing bridge likely will carry traffic during construction. The winning bidder for the new bridge will submit a plan to demolish the old bridge once the new one is completed. The plan's methods must meet the SDDOT's approval. Demolition usually starts with removal of rectangular pieces of the concrete deck, then removal of the steel girders in sections, followed by concrete breakout and removal of the supporting piers down to the river bottom. Special care will be required to capture and properly dispose of debris and avoid polluting the river.

Q: Will the new bridge still have a "sweet spot" underneath where walleyes lurk?

A: As the new bridge will likely be a multispan structure with piers in the waterway, I would expect that yes, there will be eddies and channel bottom depressions/features for fish to lurk in, similar to the current bridge.

Federal funding update

Gov. Dennis Daugaard was one of three governors providing written testimony to the U.S. Senate Environment and Public Works Committee in February 2015. In his comments, he emphasized the importance of stable federal funding, increased state flexibility in using those funds, and how national and state economies are strengthened by connecting rural and urban areas. His statement that “[s]tates can’t do it alone” was picked up and repeated by national media and many stakeholder groups.

State Transportation Secretary Darin Bergquist appeared before the same committee on behalf of Gov. Daugaard, fielding questions and reinforcing the governor’s main points.

U.S. DOT Secretary Foxx heard about South Dakota’s transportation funding needs in the fall of 2014

U.S. Department of Transportation Secretary Anthony Foxx, accompanied by U.S. Sen. John Thune, made his first ever visit to South Dakota in November 2014. Foxx, Thune, Daugaard and Bergquist met in Rapid City and Chamberlain, where Foxx led a roundtable discussion with interested stakeholders to hear firsthand about important rural transportation concerns. In a pickup truck modified to ride on rails, Foxx toured a recently rehabilitated segment of the state-owned rail line between Mitchell and Rapid City. The rehabilitation project received a federal TIGER grant covering a little more than half its cost.

Most of South Dakota’s highway construction is paid for with federal funds

Federal funding pays for about three-fourths of annual construction on the State Highway System. Unfortunately, the extension of the current federal highway funding bill, MAP-21, is scheduled to expire at the end of July 2015. Without action by Congress, federal funding available to states for highway projects will decrease substantially by late June or early July 2015.

Increasingly fuel-efficient vehicles, high fuel prices and lack of travel growth mean federal gas tax revenues aren’t keeping up with national highway needs. Due to inflation, the 18.4-cent federal gas tax has lost about 40 percent of its purchasing power since 1993. At the federal level, Congress has for the last six years transferred a total of more than \$60 billion from the general fund to the Highway Trust Fund to keep highway funding stable. At current levels, approximately \$15 billion more is needed each year.

Transportation funding crucial to South Dakota agriculture, tourism

If sufficient resources cannot be secured, resulting in continued deterioration of the nation’s transportation system, future economic development and agriculture would be significantly impacted. A well-maintained system allows agricultural and other goods to be efficiently delivered to national and world markets, and tourists to enjoy South Dakota sites and events such as Mount Rushmore and the Sturgis Rally.

South Dakota’s members of Congress serve on important committees for transportation

South Dakota’s congressional delegation continues to work diligently to secure funding for federal highway and transit programs that benefit South Dakota.

U.S. Sen. John Thune chairs the Commerce, Science, and Transportation Committee, which oversees railroads, trucking and safety. He is also on the Senate Finance Committee, which is responsible for identifying additional transportation funding.

U.S. Sen. Mike Rounds serves on two committees that each play a role in drafting portions of federal highway funding legislation: the Environment and Public Works Committee and the Banking, Housing and Urban Affairs Committee.

U.S. Rep. Kristi Noem serves on the House Ways and Means Committee, which is responsible for trade and funding bills that support transportation.

As multiple committees in both the House and Senate work on long-term surface transportation legislation, many details are unclear and much uncertainty remains at this time as to the future of programs that are vitally important to South Dakota.

2014 speed data

Rural Interstate highways posted 75 mph

Average speed: 74.2 mph
Vehicles exceeding 75 mph: 47.3%

Highways posted 65 mph

Average speed: 66.8 mph
Vehicles exceeding 65 mph: 63.6%

Vehicle speeds were monitored in April, June, August and October in 2014. The Office of Transportation Inventory Management changed its speed analysis methodology in 2014 as part of process improvement.

Major FY 2014 state transportation projects

Aberdeen Region



18 miles of formerly rough state Highway 47 resurfaced, from state Highway 34 north to Highmore

No one complained about the inconvenience of work this past summer on 18 miles of state Highway 47 from its junction with state Highway 34 (Mac's Corner) north to Highmore, according to Nathan Stearns, the SDDOT engineer in the Huron Area who administered the project. "Everyone in the area was extremely happy with us being there and improving the ride of the road. We got numerous compliments on how the jobs ride," he said. This project set a state record for smoothness, with an average International Roughness Index of 32.96 over 35.20 lane miles. The contractor earned the incentive for delivering asphalt concrete resurfacing work of exceptionally high quality. Rumble strips were added to increase safety.



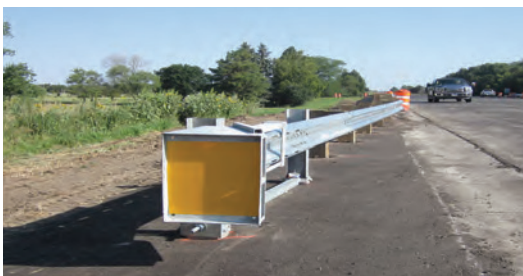
Asphalt concrete resurfacing, bigger culvert on state Highway 10 between Eureka and Leola

Asphalt concrete resurfacing projects are done to improve driving surfaces, but they also offer opportunities to improve other highway features. Resurfacing of this state Highway 10 segment was an opportunity to replace a box culvert about a mile from Leola that was not large enough to handle recent rains and to build an adjacent berm redirecting flow away from Leola. A portion of the stream channel was cleaned out to further improve drainage. Twenty-five ADA-compliant upgrades to curbs were done in Eureka and Leola to make it easier for people to cross roads. Safety was enhanced by installing rumble strips and more effective pipe culvert end pieces. Some inslopes were flattened, so motorists who drift past the shoulder can more safely maneuver back onto the driving lane.



Many improvements to state Highway 20, from northwestern Watertown to U.S. Highway 212

To minimize inconvenience, work on state Highway 20, one of Watertown's busiest roads, was split into two phases in 2014: from the Lake Kampeska water tower south to 10th Avenue NW, and then U.S. Highway 212 north to 10th Avenue NW. Asphalt concrete was milled on both segments and recycled into new asphalt concrete surfacing. In the second phase, new traffic signals replaced old at 3rd, Kemp and 4th avenues, and old pedestrian lighting was replaced to provide better sidewalk and intersection visibility. Americans with Disabilities Act-compliant ramps and sidewalks were installed at every intersection, and signalized intersections now allow additional pedestrian crosswalk interaction.



U.S. Highway 281 resurfaced from Redfield north to state Highway 20

Milling machines with tungsten carbide-tipped drums ground off the deteriorated top layer of asphalt concrete on this 19.1-mile segment of U.S. Highway 281. The reclaimed aggregate was mixed with new aggregate and asphalt cement and placed back on the road. Milling allows expensive aggregate and asphaltic material to be recycled. Problem subsoils under 1,300 feet of roadway were removed and replaced with stable, reinforced material that will help prevent pavement cracking. One reinforced concrete pipe culvert was replaced with a larger pipe to improve drainage from the road foundation. Other pipes were excavated and reset to avoid silt infiltration and/or given safer end pieces. Safety was enhanced with new bridge guardrails (pictured), permanent pavement markings and rumble strips.

Major FY 2014 state transportation projects

Pierre Region



Reconstruction of U.S. Highway 14B/Garfield Avenue on the north side of Pierre

U.S. Highway 14B/North Garfield Avenue in Pierre was regraded from a two-lane to a four-lane rural highway with raised medians, turn lanes, traffic signals, lighting and sidewalks. The design and reconstruction of Pierre's truck route was expedited to meet the immediate needs of a new Menard's store and elementary school in South Dakota's capital, both opening in 2015, as well as anticipated development and city growth to the north. Most of the work was completed in the fall of 2014. Erosion control will be completed in the spring of 2015, along with installation of lighting and traffic signals.



Resurfacing of state Highway 1804, northwest from Pollock to the North Dakota border

An asphalt concrete overlay is one of the major steps in pavement preservation, the South Dakota Department of Transportation's strategy for economically maintaining state highways. The two-inch-thick additional layer will extend pavement life for 10-20 years. One new feature is a "safety edge," a 30-degree pavement edge created as the asphalt concrete is put down. This resulting angle enables drifting vehicles to safely re-enter the highway, even at high speeds. New rumble strips also increase safety on this eight-mile stretch of state Highway 1804 from just north of Pollock to North Dakota.



A money-saving technology unrolls on Interstate 90 between Murdo and Belvidere

Replacement of portland cement concrete pavement on South Dakota Interstate highways typically involves breaking up the existing concrete and reusing the ground pieces as gravel cushion underneath the new pavement. Use of bond breaker fabric laid directly on the old pavement eliminates the expense of removing, processing and then recompacting the old material. New portland cement concrete can be placed directly on the fabric by the paving machine. The fabric prevents migrations of cracks from the old pavement into the new and allows water seeping from the upper layer to drain away from the roadbed. This is the first use of bond breaker fabric on a South Dakota Interstate highway.



Road to future Kennebec grain elevator is resurfaced, bridge clearance increased

Trucks were smaller when the Interstate 90 underpass bridge was built for north- and southbound state Highway 273 traffic. Today's taller trucks can't fit under some of these older bridges. The asphalt concrete resurfacing of 13 miles of state Highway 273 north to state Highway 1806 was an opportunity to increase the maximum permit clearance by 18 inches—from 14 feet, 4 inches, to 15 feet, 10 inches—by regrading the roadway underneath it. This should help farmers trucking grain to a new South Dakota Wheat Growers elevator to be built in Kennebec alongside the soon-to-be rehabilitated state-owned rail line. Pedestrian and bridge rail on the Medicine Creek bridge were replaced. Road base work and drain tiles will reduce frost heaving that caused a bump in the old pavement.

Major FY 2014 state transportation projects

Mitchell Region



U.S. Highway 81 and state Highway 50/31st Street intersection reconstruction in Yankton

Minor realignment of the eastbound and westbound lanes made this busy Yankton intersection safer. New traffic signals are located on the side of the road, instead of islands in the center of the intersection. To keep inconvenience to drivers to a minimum, the contractor was required to complete the project in 55 days; it was done in 37. Americans with Disabilities Act-compliant curb ramps were installed on all four corners, and an eight-foot-wide sidewalk was built from U.S. 81 to the Human Services Center's first entrance on the north side of state Highway 50. State Highway 50 to the west will be milled and receive an asphalt concrete overlay in 2015.



State Highway 25 gets new culverts, lower inslopes, as it is resurfaced from S.D. 34 to S.D. 38

Culverts have a higher profile in SDDOT's highway preservation efforts, due to the SDDOT's more intensive management of culvert conditions. Ten old culverts were replaced with concrete pipe while inslopes at state Highway 25 intersection approaches were flattened to improve safety. One troublesome spot near the 249th Street intersection got considerably larger pipe, and adjacent ditches were cleaned. Riprap was placed along areas where water from nearby ponds and marshes had eroded the embankment. A total of 21 miles of state Highway 25 was milled and resurfaced with asphalt concrete.



Three bridges on state Highway 50 get life-lengthening repairs and improved safety features

Three structures along the state Highway 50 segment near Avon east to Tyndall received deck repairs, epoxy chip seals, new guardrails and new bridge rails. The first was over Choteau Creek on the border between Bon Homme and Charles Mix counties, the second was just east of the state Highway 37 north junction and the third was two miles west of Tyndall. The 11-mile segment also was milled and resurfaced with asphalt concrete. In response to an accident history, transverse rumble strips were ground into the southbound lane at the state Highway 37 north intersection to warn southbound traffic of the upcoming stop sign at Highway 50. Crashes have occurred because drivers have not stopped at the intersection. The rumble strips will provide an additional, audible warning to stop.



State Highway 47 resurfaced from Gregory north to S.D. 44; 7 curb ramps installed along U.S. 18

Eleven miles of state Highway 47 asphalt concrete were milled. These millings were recycled into the hot-mixed asphalt concrete and returned to the roadway, from Gregory north to the state Highway 44 junction. Resurfacing restores a smooth ride and helps preserve the unmilled asphalt concrete and supporting material underneath. Inslopes at some state Highway 47 intersections were flattened, making them safer should vehicles drift from the driving lane. Eight corroded metal culverts across the mainline of the highway were relined with high-density polyethylene pipe to improve drainage. Seven ADA-compliant curb ramps were installed along U.S. Highway 18 in Gregory as a companion project.

Major FY 2014 state transportation projects

Mitchell Region



Crack sealing extends pavement life in Mitchell Area

Water is the enemy of any pavement. Highway engineers do all they can to design and maintain roadways that prevent water from weakening the compacted layers of material supporting asphalt concrete and portland cement concrete surfaces. When cracks develop in new concrete, whether from vehicles or temperature-related stress, crack sealing is the first routine maintenance treatment. To create a long-lasting seal, cracks are routed to a width of three-quarters of an inch. Compressed air is blown into the crack to eject loose material, then hot rubberized asphalt is poured into the crack. A properly performed seal can last six to 12 years. Cracks were sealed on state highways 34, 45, 47 and 50, and Interstate 90 outside and median shoulders in the eastbound and westbound lanes.



Extensive chip sealing preserves Mitchell Area pavements, improves road conditions

Shoulders along Interstate 90 east and west received chip seals in 2014, as did Mitchell Area segments of South Dakota highways 34, 45 and 47 and U.S. Highway 281. To chip seal, a thin layer of heated asphalt emulsion is sprayed on pavement, then small aggregates are spread onto the emulsion and rolled. Loose chips are swept off. Asphalt emulsion protects underlying material by sealing small cracks, preventing water intrusion. It protects underlying asphalt concrete from aging and oxidation. Because chip seals are applied sooner than overlays, travelers benefit from better road conditions. Although comprised of essentially the same materials as an asphalt concrete overlay, chip seals cost much less and extend the time before an overlay is needed, lowering long-term highway costs.



State Highway 19 between Humboldt and Madison gets wider shoulders, many new culverts

When the segments are added up, 10 miles of state Highway 19 in Lake County and three miles in Minnehaha County were regraded and given wider shoulders. Pavement on the remaining 10 miles in Minnehaha County was kept in place, but shoulders were widened. Wide shoulders allow drivers to pull over and be out of the driving lane, and allow those drifting from the driving lane to safely maneuver back onto it. Wide shoulders also are safer places for bicyclists and pedestrians. A bridge and 11 box culverts were replaced with new reinforced concrete box culverts, and about 190 pipe culverts were replaced with new pipe culverts. Motorists will drive on gravel in the northern part and the existing asphalt concrete in the southern until both are resurfaced with asphalt concrete in 2015.



I-90 bridges north of Sioux Falls repaired; I-90 overpass to Hartford fixed after truck hit

Built in 1961, the eastbound and westbound Interstate 90 bridges over Interstate 29 needed deck, curb, column and bent-cap repairs. (If you visualize a bridge column supporting a bridge's driving surface as a T, the horizontal part is the bent cap.) A special surface finish was applied to repaired elements, and the deck received an epoxy chip seal overlay that will help protect reinforcing steel from salt corrosion. Approach slabs were ground to improve drainage. The Interstate 90 interchange bridge to Hartford was scheduled for similar work, only to be damaged by an overheight truck two days before the project was to start. The damage was repaired in 2014, and the maintenance work is now scheduled for 2015.

Major FY 2014 state transportation projects

Rapid City



Heartland Expressway from Rapid City to Nebraska state line completed

Black Hills businesses and residents have long wanted a safer, faster and higher-capacity highway to Denver. In 2014 they got a completed four-lane divided highway, at least down to the Nebraska state line. South Dakota's part of the Heartland Expressway includes state Highway 79 and U.S. highways 385 and 18, starting from Rapid City and traveling south all the way to the Nebraska border, skirting the edge of the Black Hills National Forest. When Colorado and Nebraska convert segments of two-lane highways to divided multilane highways, the Heartland Expressway will be a divided multilane highway to Denver, opening up opportunities for economic development with the 18th-largest metro economy in the United States and second-most populous city in the Mountain West.



New portland cement concrete pavement on I-90 eastbound lanes, Exit 121 to Exit 131

As work began in the spring on this nine-mile pavement replacement project near Cactus Flat, the Game, Fish and Parks Department called the SDDOT. A pair of swift foxes, a threatened species, had dug a den in the median and was preparing to have pups. The den was marked off with steel posts so construction vehicles would stay clear. Three pups were born, and the furry family later went on its way. Another concern was safety as departing Sturgis Rally attendees headed east in August through a two-lane, head-to-head work zone. Additional advance signing, dynamic message boards and truck-mounted arrow boards helped prepare and guide them. The old concrete was crushed and reused as subgrade material, and edge drains will channel water away from the foundation, preventing cracking.



New pavement on I-90 westbound lanes in Spearfish, plus bridge and safety improvements

New portland cement concrete pavement was constructed on the Interstate 90 westbound lanes between exits 10 and 17. Two phases accommodated Sturgis Bike Rally traffic. During the first, ending July 23, the lanes between exits 10 and 14 were paved. Bridges over Spearfish Creek at the Sandstone development and at exits 10 and 17 were rehabilitated. Work resumed in mid-August with paving between exits 14 and 17, and rehabilitation of bridges at Exit 12, False Bottom Creek and Rainbow Road. Lighting was added to the Exit 12 ramps, and the westbound off ramp at Exit 10 was lengthened for greater safety. Acceleration and deceleration lanes at exits 10, 12 and 17 also were lengthened, improving safety as vehicles merge and exit the Interstate.



Improvements at the Wasta rest areas along Interstate 90

Other states have considered closing Interstate rest areas to cut costs. That's not practical in South Dakota—especially West River, where cities and amenities are far apart. This project expanded the wastewater treatment lagoons at the rest areas on both sides of Interstate 90. The RV dumping stations at both rest areas had been closed for the last few years because the lagoons could not take on extra waste. With expansion completed, both RV dumping stations are open again. Most of the lagoon work, including installation of new geomembrane liners and fencing, was done in 2013, but seeding and mulching had to wait until the spring of 2014. The SDDOT gets a lot of compliments on the overall quality of its maintenance of rest areas. Department staff and contractors take pride in maintaining high standards.

Major FY 2014 state transportation projects

Rapid City Region



Lead officials hope U.S. Highway 85/Main Street reconstruction spurs economic development

During phase 1, the U.S. Highway 85/Main Street segment between Julius and Galena streets was regraded, overhead cables were buried, old vaults under the sidewalk were filled in and retaining walls were rebuilt. New storm sewer lines also were installed. New water and sewer lines replaced nearly century-old pipes, and new portland cement concrete replaced a road built almost a half-century ago. The state paid for the pavement, new street lighting and new storm sewers; water and sewer improvements were the city's responsibility. The extensive work closed the road off to vehicles from spring till fall. Newer pavement on Main Street, outside the reconstruction limits, received joint and spall repairs during phase 1. Phase 2 begins in May 2015, when the segment between Blatt and Galena streets will be reconstructed.



Reconstruction of state Highway 44/Jackson Boulevard in Rapid City, Chapel Lane Road to Rapid Creek

Reconstruction of this section of one of Rapid City's busiest streets began in September 2014, with installation of new storm sewer, sanitary sewer work and work by private utility owners. As often is the case with state-city urban projects, time spent discussing options with residents, businesses and city officials exceeded the three years typically needed to finalize the design. When completed in 2016, motorists will drive on 1.3 miles of widened arterial highway with portland cement concrete paving, an outside share lane for vehicles and bicyclist commuters, and new signals. Sidewalks, curb and gutter, and lighting will offer a safe and attractive streetscape for pedestrians. Bigger storm sewers are anticipated to handle the surface runoff expected in this community near the foothills of the Black Hills.



U.S. Highway 16 through Hell Canyon to Jewel Cave National Monument

For commuters and businesses, U.S. Highway 16 between Newcastle, Wyo., and Custer is a vital link. The next-shortest route between the cities is about 109 miles away. This four-mile reconstruction and shoulder-widening project aimed to make some curves and some steep grades through rugged Black Hills topography less curvy and less steep—therefore safer for drivers of all vehicle types, including bicyclists. The SDDOT made a special effort to protect an adjacent site where a historic dance club once stood and which was hydraulically critical to Jewel Cave. The SDDOT also worked to help the monument continue its historic lantern tours and to minimize inconvenience to travelers. The segment began two miles east of Jewel Cave and ended two miles west of the monument.



Intersection improvements enhance safety along Omaha Street/state Highway 44 in Rapid City

Improved safety was the goal of the project at the intersection of Omaha Street/state Highway 44 and Interstate 190, the most direct route to downtown Rapid City from Interstate 90 to the north. Drivers were not yielding properly at yield/merge points of "pork chop" median islands, causing angle crashes. The median islands were removed and new traffic signals were installed, along with concrete surfacing, new curb ramps, lighting, storm sewer and sidewalks. Development north of Omaha Street/state Highway 44 has increased traffic enough to warrant a new traffic signal to the west at 12th Street/Founders Drive. Curb ramps were added to make it safer and easier for pedestrians to cross this busy stretch of urban state highway.

Major FY 2014 local-state bridge projects

The SDDOT assisted local governments with these federally funded projects



New bridge over Beaver Creek in Canton

Work had just begun on this much-needed bridge replacement when record rains caused flooding on both Beaver Creek and the Big Sioux River, inundating homes in Canton and damaging roads and bridges throughout Lincoln County. Floodwaters overwhelmed this work site, ruining a crane and washing wooden forms downstream. The project was delayed for six weeks. The new prestressed concrete girder bridge is 82 feet long and 48 feet wide. Riprap lines the channel adjacent to and under the bridge. The new bridge is currently marked for two lanes but could be altered to three 12-foot lanes plus six-foot shoulders in the future. Permanent seeding will be done in the spring of 2015.



A vintage look for a new bridge in Dell Rapids

With carefully preserved downtown buildings built of Sioux quartzite, Dell Rapids is a community that appreciates its history. When the time came to replace the structurally deficient Garfield Avenue bridge crossing the Big Sioux River at the city park, civic leaders decided the bridge design should mirror the original bridge's appearance, particularly the "pigeon-hole" or Texas-style concrete railings that made the old bridge so distinctive. The new bridge was completed in 2014, but some work remained to be done in the spring, including a special surface finish. A decision about the lighting will be made by the city in the future. The original bridge, dedicated in 1929, had street lamps. The new bridge connects seamlessly with the new recreational trail on the north and south sides of the river.



Day County highway crew builds a bridge northwest of Pierpont, saving about \$150,000

Day County maintains 30 bridges, with 10 needing replacement or major repair. The county mostly used its workers to remove a deficient bridge over Antelope Creek and install a precast box culvert. Private sector and state engineers did preliminary and hydraulic engineering; a private firm administered construction. Similar federally funded projects cost \$330,000-\$370,000, Highway Superintendent Chuck Fromelt said. This one was \$190,000. Savings came from using county employees, whose hours were reimbursed with federal funds, and by using local knowledge to get lower materials costs. The new bridge handles all legal loads, including farm equipment and heavy trucks. "It was an inspirational project, if one dare describe it that way," he said. "We are excited about continuing this type of work in the future."



Long trucks can now cross Spring Creek bridge in Meade County on a safer road

Meade County residents around the old bridge over Spring Creek, 10 miles east and 4.5 miles north of Sturgis, used to call it "the pigtail bridge." A sharp twist in the gravel road approaching the bridge made it impossible for semitrailers to use it; they had to take a detour through a field. Working with county officials and local landowners, the SDDOT proposed straightening the road and replacing the bridge with a precast reinforced concrete box culvert installed at a 30-degree angle to the road. Six landowners contributed \$5,000 (cash or in-kind gravel donation) each to help the county match the federal funding used to pay for the \$333,000 bridge on the realigned road. The SDDOT administered its construction.

Major FY 2014 local-state road projects

The SDDOT assisted city governments and SDSM&T with these federally funded projects



3rd Avenue NW, from state Highway 20 west to 21st Street, in Watertown

Asphalt concrete pavement on the stretch of 3rd Avenue NW from state Highway 20 west to 21st Street in Watertown was in poor condition. Additional needs for improved drainage and Americans with Disabilities-compliant curb ramps made the decision to green-light this project easy. The pavement was milled, recycled with fresh asphalt concrete and applied in two, two-inch layers. Compliant ramps were installed at each intersection. Curb and gutter, plus a new bike path, will be completed in 2015.



New Connector Road on South Dakota School of Mines and Technology campus

Traffic circulation on the South Dakota School of Mines and Technology campus was improved after the new Connector Road was built. The new road, about 900 feet long, connects the King Center, an intramural sports facility, with the Black Hills Business Development Center and a new parking lot adjacent to the Kids Castle Childcare Center. The new parking lot, funded by SDSM&T, provides a much-needed 72 additional parking spaces on campus. The road project, paid for with mostly federal and SDSM&T funding, included a spur road to the north that links to an existing campus road. Curb and gutter, asphalt concrete surfacing, a retaining wall, storm sewer and lighting were part of the project. The SDDOT administered the contract through the bidding and construction phases.



Reconstruction of Roosevelt Street in Aberdeen, 8th Avenue NE to Fairgrounds Road

To minimize inconvenience to drivers and homeowners, reconstruction of a mile of Roosevelt Street with portland cement concrete from 8th Avenue NE was split into two phases. Work included grading, curb and gutter, a bike path and new storm sewers. New lighting was added for drivers' safety. Access to homes located on Roosevelt Street was maintained with gravel-surfaced access roads and side roads. Sidewalks, driveways, seeding, striping and lighting installation will be completed in 2015.



Milling and resurfacing of 21st Street Southeast, Dakota to Sherman avenues, in Huron

This project removed a layer of asphalt concrete and recycled the salvaged material into the new asphalt concrete surface. Work on 21st Street Southeast stretched from Dakota Avenue east to Sherman Avenue, near the James River bridge. New ADA-compliant ramps were constructed at all intersections. Inside lanes were blocked off while old curb and gutter was removed and new curb and gutter was placed. Sidewalks also were replaced. The one-mile project started in May and was completed in June.

Economic Development Road Grants

\$1.12 million in road grants given to local governments

Six South Dakota cities and one county received a total of \$1.12 million from the South Dakota Department of Transportation to improve heavily used local roads.

Community access grants are awarded to towns with populations less than 5,000 to improve roads leading to schools, main business areas, hospitals, grain elevators and other economic areas. Grants pay for 60 percent of the construction costs, excluding engineering or utility work, up to a maximum of \$200,000.

Those receiving the grants are:

Arlington, \$200,000 for Main Street, which serves the school;

Burke, \$200,000 for Seventh Street, which serves a business area;

Groton, \$200,000 for Railroad Avenue, which serves the elevator;

Ipswich, \$183,500 for 2nd Avenue, which serves the school;

Menno, \$55,800 for Poplar Street, which serves a business area;

Wessington Springs, \$200,000 for Main Street and Dakota Avenue, which serve the downtown area; and

Sully County, \$81,000 for Ash Avenue and 185th Street, which serve a business area.



The city of Groton will pave this road to the elevator with asphalt concrete.



Arlington's grant will help improve the road to its school.



7th Street improvements in Burke will benefit its fire and ambulance services.

Economic development grants for local roads

In addition to community access grants, the SDDOT provides two other types of economic development grants to cities, townships and counties.

Agribusiness access grants help local governments provide access to new or expanding agribusinesses.

Industrial park grants help local governments provide new or expanded access to new businesses in industrial parks.

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

Winter highway maintenance plan guides efforts to keep roads safe and open

Winter storms have an economic impact: lost productivity when employees can't get to work, lost sales for businesses, freight delays, increased travel time for motorists—and crashes.

The South Dakota Department of Transportation balances concern for the economic impact with concern for public safety as it plans for and manages winter maintenance of State Highway System pavements and bridges.

The agency also strives to efficiently deploy workers and equipment, and to use only the amounts of de-icing chemicals and abrasives necessary to treat the snow and ice that is forecast, or already on pavements. A new information technology, the Maintenance Decision Support System, helps SDDOT employees determine how much de-icing chemical to apply to pavements and when those treatments will be the most effective, saving materials, time and fuel.

The annual *South Dakota Winter Highway Maintenance Plan* guides employees as they deal with the many challenges of keeping traffic moving in winter weather. South Dakota Codified Law 31-5-8.3 requires an updated plan to be

presented to the Transportation Commission for approval each year.

Effective communication of winter driving conditions has been one of SDDOT's biggest recent successes. People planning a trip can check current road conditions on www.safetravelusa.com/sd/ and click on real-time camera images of highway conditions. With ClearPath 511, they can receive emails or text messages about road closures or no-travel advisories for specific highways or highway segments. They can dial 511 on cellphones, land lines or smartphones for recorded road condition information.

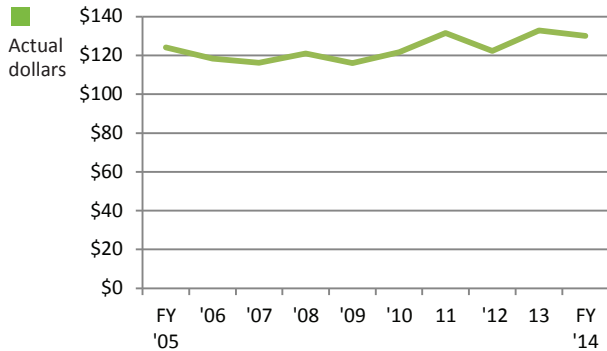
When a storm approaches, news releases and social media are used to warn motorists of possible poor driving conditions and advise them to get any necessary travel done before the weather turns. Motorists also are informed of the hours that plows generally will operate.

Area Engineers, Region Engineers and other SDDOT employees meet yearly with the South Dakota Highway Patrol, local law enforcement officials and other emergency responders to review procedures for crash response, emergency calling out of plows and Interstate closures.

Revenue statistics

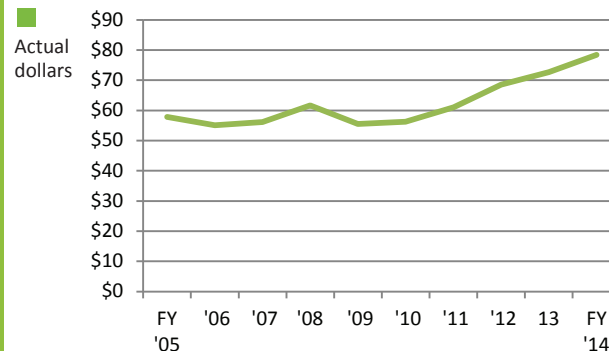
Motor fuel tax revenue, 2005-2014

In millions of dollars



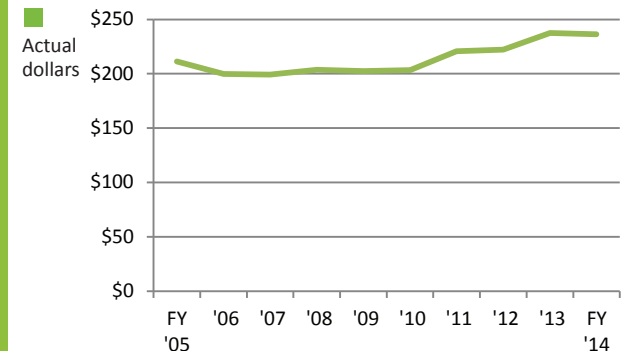
Motor vehicle 3% excise tax revenue, 2005-2014

In millions of dollars



State Highway Fund revenues, 2005-2014

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

Research

Putting national research into practice **Traffic incident responder training**

In a typical year in the United States, 12 law enforcement officers, five fire and rescue personnel, and 60 towing and recovery professionals are struck and killed while responding to crashes and other traffic incidents.

More than 10 transportation workers are killed and thousands more are injured in “secondary crashes,” as responders work to treat victims, clear wreckage and restore operation to highway crash scenes.



To save the lives of emergency responders and the traveling public, SDDOT’s Office of Research is leading a collaboration with the South Dakota Department of Public Safety to deliver the National Traffic Incident Management Responder Training Program to front-line responders throughout South Dakota.

The program is one product of the second Strategic Highway Research Program (SHRP2), a focused, short-term effort authorized by Congress.

Using resources developed in SHRP2, the Office of Research is training and equipping more than 100 law enforcement officers, firefighters, emergency medical technicians, towers, transportation workers and emergency managers to train front-line responders throughout the state.

The ultimate goal is to deliver cross-disciplinary training to a large percentage of all responders, to make traffic incident response quicker, more effective, and most importantly, safer for motorists and responders.

South Dakota structures research **Precast concrete double-tee girders**

The “double-tee” girder bridge is widely used on South Dakota’s county highway system.

The concrete girders, which resemble the Greek letter pi (Π) in cross-section, are manufactured in a precasting yard, transported to the bridge site, and laid side by side to quickly place a complete, economical girder and bridge deck system.

The long-term field performance of double-tee girder bridges has been plagued by problems at the joint connecting adjacent girders. The joint, consisting of welded steel and concrete grout, can deteriorate and crack. This allows water to enter, resulting in steel corrosion and freeze-thaw damage to the concrete.

SDDOT’s Office of Research sponsored research at South Dakota State University to design a better, longer-lived joint. Full-scale construction and load testing by SDSU’s Department of Civil and Environmental Engineering demonstrated that, while the old joint failed after 60,000 load cycles, the improved joint withstood more than 500,000 cycles without apparent damage.

The benefits for local governments are years or even decades of extra bridge life and more reliable service to the public. Because of its high benefit, the work was voted one of the year’s “Sweet Sixteen” high-value research projects among state DOTs nationwide by the American Association of State Highway and Transportation Officials Research Advisory Committee.



Public Transit

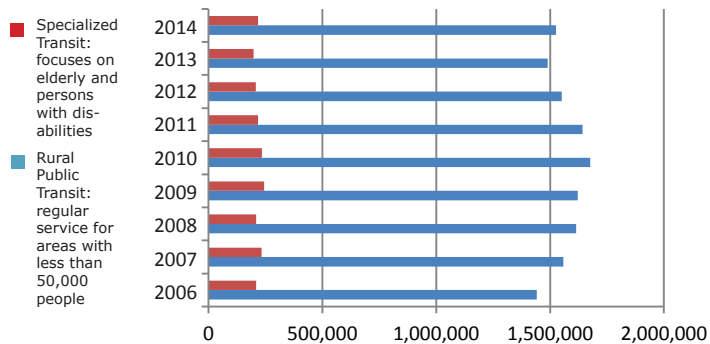
More South Dakotans took public transit to get where they were going in 2014. Rides taken through services receiving federal funding through the SDDOT increased 3 percent from 2013.

Elderly residents, people with disabilities, schoolchildren, and rural and low-income residents use public transit. Public transit gets them to the doctor, to school, to jobs and to stores.

Some riders use daily services on fixed routes with fixed schedules. Others call transit services to arrange for rides on the same day or in the near future.

About 43 rural and specialized organizations provide transportation services to 70 percent of South Dakota's geographical area. The SDDOT administers a number of federal programs that provide funding for buses, facilities, administration and operational costs. Funding helps provide specialized transportation service for the elderly and persons with disabilities, as well as planning for both rural and urban transit service.

1.74 million rides in 2014, up 3%



Source: *Public and Specialized Transportation, Fiscal Year 2014*, Office of Air, Rail and Transit



Aeronautics

South Dakota airports receive \$22 million in improvements in 2014

Airport	Federal \$	State \$	Local \$	FY2014 airport improvement projects
Aberdeen	\$4,626,000	\$257,000	\$257,000	Construct wetland filling/hazard mitigation, improve storm sewer
Bison	\$220,500		\$24,500	Fuel system with card reader
Clark County	\$387,000	\$21,500	\$21,500	Snow removal equipment (SRE) building and terminal
Edgemont	\$315,000	\$17,500	\$17,500	Construct runway edge lighting, precision approach path indicator (PAPI), windcone with vault and controls
Eureka	\$777,600	\$43,200	\$43,200	Rehabilitate runway, taxiway and apron; shape runway safety area; raise runway lights
Eureka	\$72,000	\$4,000	\$4,000	Airport layout plan (ALP) update and narrative
Faulkton	\$288,000	\$16,000	\$16,000	Construct general aviation terminal, SRE building
Gettysburg	\$180,598	\$10,033	\$10,033	Pave parking lot, rehabilitate access road, lighted windcone, SRE broom/plow attachments
Gregory	\$36,000	\$2,000	\$2,000	Apron expansion, relocate fuel system
Highmore	\$58,500	\$3,250	\$3,250	Environmental assessment (EA) for phase 2 taxiway construction
Hot Springs	\$219,600	\$12,200	\$12,200	Update master plan and ALP; design partial parallel
Hoven	\$99,000	\$5,500	\$5,500	Design runway, taxiway, reconstruct apron, perimeter fence
Huron	\$921,932	\$51,218	\$51,219	Fill wetland and restore
Madison	\$25,000	\$1,391	\$1,388	Wildlife hazard management plan (WHMP)
McLaughlin	\$54,900	\$3,050	\$3,050	EA for runway protection zones and departure surface
Miller	\$2,700,000	\$150,000	\$150,000	Reconstruct runway 15/33, turnaround, taxiway; PAPI flight check
Murdo	\$655,000	\$36,389	\$36,389	Construct extension to 14, turnaround, medium intensity runway lights (MIRL), 18B approach survey
Parkston	\$76,500	\$4,250	\$4,250	Update airport layout plan/master plan
Philip	\$235,000	\$13,056	\$13,056	Rehabilitate 12-30 pavement, apron, taxiway, turnarounds
Pierre	\$919,000	\$51,056	\$51,056	Rehabilitate runways, taxiways and apron; SRE; design apron reconstruction
Pine Ridge	\$49,000	\$2,722	\$2,722	Design expansion of general aviation apron
Platte	\$108,000	\$6,000	\$6,000	Design of 14/32 rehabilitation and connector taxiway
Rapid City	\$156,608	\$8,700	\$8,700	Complete master plan update
Rapid City	\$503,981	\$27,999	\$27,999	Runway 5-23 threshold lighting upgrade, complete master plan update, demolition of old terminal, apron expansion, EA, design, SRE purchase
Redfield	\$234,000	\$13,000	\$13,000	Design wetland mitigation, 17/35 with turnarounds, MIRL, PAPI, obliterate 13/31
Multiple locations	\$793,001	\$44,056	\$44,056	Pavement maintenance, including rejuvenators, and marking at multiple general aviation airports
SDDOT	\$119,042	\$6,613	\$6,613	Purchase SRE tractor and attachments on behalf of the Mitchell airport
Sioux Falls	\$2,732,635	\$151,813	\$151,813	Rehabilitate taxiway A, perimeter road, runway 3-21 approach pavement, SRE purchase
Sisseton	\$34,000	\$1,889	\$1,889	Reimburse for 838 square yards of eligible apron construction
Spearfish	\$250,000	\$13,889	\$13,889	Update airport layout plan/master plan, approach surveys
Vermillion	\$90,000	\$5,000	\$5,000	Prepare airport layout plan with narrative report
Wagner	\$306,000	\$17,000	\$17,000	Construct wildlife fence, reimburse re-marking of runway numbers
Wall	\$137,511	\$7,640	\$7,640	SRE equipment reimbursement
Watertown	\$548,100	\$30,450	\$30,450	Aircraft rescue and fire fighting truck, wildlife hazard assessment and WHMP
Webster	\$99,000	\$5,500	\$5,500	Design reconstruction of 12/30, apron, exit taxiway
Wessington Springs	\$90,460	\$5,026	\$5,026	Install runway underdrains
Winner	\$652,500	\$36,250	\$36,250	Design and construct hangar area expansion, relocate Automated Surface Observing System
Yankton	\$80,076	\$4,449	\$4,449	Design general aviation apron expansion and hangar relocation
Total 2014 Projects	\$19,851,044	\$1,090,589	\$1,115,087	Total: \$22,056,720



Aerial photograph of the Eagle Butte airport from the 2015-2016 airport directory

Airport directory guides pilots

Every two years, the South Dakota Department of Transportation publishes an airport directory for pilots.

The 172-page directory includes longitude, latitude and elevation data for each South Dakota airport, as well as runway surface type, a color aerial photograph of the terminal and runway(s), runway length and width, and lighting information.

This year's directory informs pilots about new GCOs, or ground communication outlets, installed at 15 of the busiest state airports. A GCO is an unstaffed, remotely controlled ground-to-ground communications facility that helps them obtain instrument clearances, or to activate or close flight plans. Pilots also can get an updated weather briefing prior to takeoff.



Culverts: fundamental parts of the highway

The 31,000 mainline culverts under state highway pavements are getting systematic inspections, resulting in repairs that will lengthen highway life and promote safety

Pour water on a sand castle and hours of work crumble.

The same thing happens when large amounts of water saturate carefully compacted layers of gravel, sand and soil forming the foundation under a pavement. Subgrade materials help support the moving weight of vehicles. When they become saturated, they can shrink or swell in volume, causing a loss of strength. Without proper support, pavements eventually crack under heavy, repeated loads.

That's why channeling water away from the roadbed is so important, and why the South Dakota

Department of Transportation has been more systematically inspecting older culverts as part of its asset management efforts (discussed in more detail on pages 7-9 of the 2013 annual report).

Two problem areas were along South Dakota Highway 25 and Highway 20 in Clark County. Concrete pipe culvert segments underneath the slopes down from the shoulders had pulled apart, allowing soil into culverts and creating depressions in the slope.

The pipe end piece and a connecting segment were excavated and cleaned. During re-installation,

joints were wrapped with geotechnical fabric that will filter out particles. Finally, bolted pins were attached to keep the sections from separating again.

Maintenance personnel at SDDOT field offices often perform this type of work on a spot basis. Due to the volume of work needed on highways 25 and 20, this project went out for bids and was awarded to Smith and Smith Construction of Tea.



Clockwise from left: Justin Smith of Smith and Smith Construction of Tea guides a reinforced concrete culvert end piece into place. Excavator operator Rich Smith lowers the end piece as Justin Smith and Roger Vrieze make sure it's in position. The inset at left shows a completely clogged culvert on state Highway 25. Vrieze drills holes through concrete for steel pins that will secure the end piece to adjacent pipe. A semi rolls over a completed twin concrete pipe culvert. Disturbed soil was reseeded at the end of the project.



Comment made at the Statewide Transportation Improvement Program meeting in Aberdeen, July 22, 2014:

I too sure appreciate you guys being here every year and communicating with us.

Mike Wiese, Brown County commissioner

Comment made at the Statewide Transportation Improvement Program meeting in Pierre, July 24, 2014:

I've been here many, many years. Again, same as last year, I want to say a big thank-you for all the good work that has been done up there in Campbell County, and not just Campbell County, there's Walworth County, there's McPherson County. We've got good roads, very good roads. We really are appreciative of it.

**Richard Quaschnick
Campbell County commissioner**

Comment made at the Statewide Transportation Improvement Program meeting in Sioux Falls, July 23, 2014:

We'd just like to publicly thank you for the working relationship that you've provided on various projects. Of course the most recent has been the one that has taken place the last two years on Highway 50 and 4th Street East.

**Mike Healy
Yankton Chamber of Commerce**

Comment made to Secretary Bergquist at a House State Affairs Committee hearing on House Bill 1131, a measure to increase funding for both state and local roads and bridges, on Feb. 24, 2015:

I would just like to compliment the work that you and your department have done. We're looking at a state highway trunk system that's in really good shape. We appreciate the work that you've done, and we appreciate the information that you provided us to date. Also the relationships with the communities in my district are really good. We appreciate the strong working relationships that we have with you.

**Rep. G. Mark Mickelson
District 13, Sioux Falls**

Traveler email to the SDDOT:

I would like to take this opportunity to thank the SDDOT Rapid City Area Operations (maintenance crew?) for finding my cellphone. It had fallen out of my pocket (somewhere between MM 80 and 73, westbound I-90) as I was heading to the Black Hills for the Sturgis Rally on Sat., Aug. 2. I was convinced I would not see it again, and since my insurance did not cover lost phones, would be out \$600 for my 2-month-old cellphone. I had stopped off at the Rapid City Verizon store, to see what my options were, and they asked me to leave contact information, in case the phone was turned in. We got a call on Aug. 5, indicating the phone was returned to their office. When we went to pick up the phone the next day, we found out that SDDOT found mine and 2 others. Having worked with MnDOT for 9 years now, I know how dedicated our maintenance crews are here in District 8, Willmar. My experience with SDDOT proves that your organization shares this same dedication! Please share my gratitude with the crews that keep your roads safe and clear. Thanks again!

**Jim Miller
Minnesota**

(John Barley, Rapid City Area Highway Maintenance Worker, found Miller's phone and gave it to Supervisor Bob Smith, who turned it in to Verizon.)

Posted Nov. 7, 2014, to SDDOT's Facebook page:

I just wanted to compliment the Rapid City Region. Wednesday I called just to see what color markers I could put up for marking a hard-to-see driveway into my business just outside Deadwood, and Thursday morning there were DOT guys out there putting up some high visibility blue reflectors. Thanks all involved—it was a pleasant surprise and with the time change and early darkness visitors will have a safer time finding my driveway.

**Ernie Rupp
Deadwood**

From a March 21, 2014, email sent to Yankton Area Highway Maintenance Supervisor Larry Kirschenman and Area Engineer Ron Peterson:

Strong winds had knocked a sign down outside the Midway Scale building located at the interchange of U.S. Highway 81 and S.D. Highway 46. The sign informs our customers what paperwork documents they need to bring into the building for a safety inspection to be completed. After the weather warmed up, I had planned to repair the sign, replace wooden posts and dig post holes. Today, I arrived at the Midway Scale, and I observed two Department of Transportation maintenance workers digging post holes in the frozen ground to install the sign. I stopped and thanked Nathan Loecker and Kyle Meier for their hard work! A day ago, the two men had observed that the sign had fallen, wooden

posts had rotted out, and the sign was not serviceable. They stopped, picked up the sign, installed the sign on two new 4X6 posts. Today, they had returned with the sign and were both digging two new post holes in the frozen ground to install the sign. Please share my sincere appreciation with Nathan and Kyle and their supervisor. It is great to see that our two agencies work so well together! Thank you again.

Sgt. Brad Millard
South Dakota Highway Patrol

July 13, 2014, letter to Todd Seaman, Rapid City Region Engineer:

On July 16, while traveling I-90 near the Meade-Lawrence County line, I experienced a vehicle problem. Westbound in our RV, the left front tire blew out and thankfully we didn't have an accident but were able to get to the shoulder to start putting the spare on. Traffic was heavy, and of course somewhat dangerous. I was able to remove the spare and get started only to discover I was going to have further problems since the small hydraulic jack I had wouldn't go under the frame where I wanted since the wheel was on the surface and didn't permit its use. About then a DOT pickup with Bill Stickney showed up. He raised his flashing caution sign which got the traffic to slow down, and he then proceeded to give me some very valuable assistance. After a bit Mike Thomas with the SDHP stopped. Well, we all got our hands dirty and in not too long a time my wife and I were back on the road. I just wanted to let you know how thankful I am for both State employees and the job they do sometimes without any recognition. Please let your man know that I am again saying THANKS.

Ray Auer
Spearfish

An Aug. 26, 2014, email to Bill Voeltz, Highway Maintenance Supervisor, Milbank

We needed to store a crashed cement truck at the Sisseton state shop last night from a fatality crash, and I appreciated the help Pat [Deutsch] and his crew gave us. They got us taken care of without complaint and helped us find a spot in the yard to park it so we can perform a post-crash inspection tomorrow. Throughout the past year as the HP squad sergeant for this area, I have called upon Pat and his guys many times and have always been taken care of immediately and with friendly attitudes for working together as a team. I am glad we have a great working relationship with all the crew members of the Sisseton and Milbank DOT, and I appreciate their willingness to bend over backward at times to accommodate us when we need assistance and help. (Especially in the winter!) I appreciate your guys' professionalism when doing their jobs and cooperating with other agencies. Thanks.

Sgt. Cory Johnson
South Dakota Highway Patrol

SDDOT recognized for innovative use of mobile traffic signals while reconstructing the Cliff Avenue/I-90 interchange



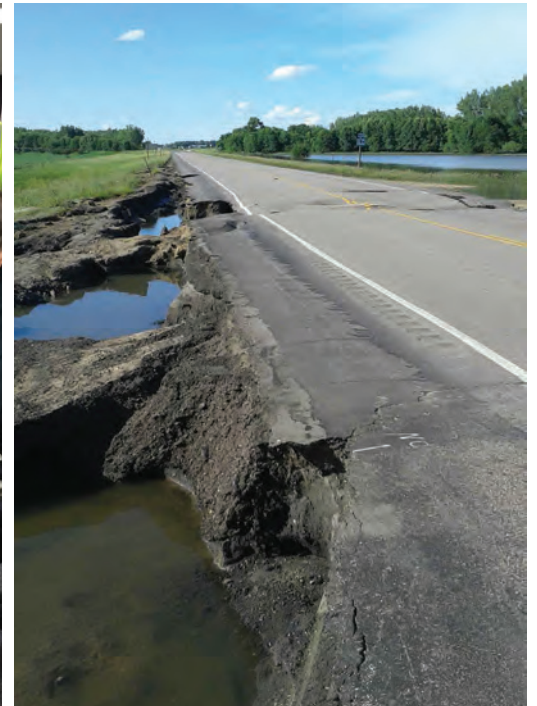
The SDDOT won a best use of innovation award—western region in the 2014 America's Transportation Awards, given by the American Association of State Highway and Transportation Officials, for using mobile temporary traffic signals that were repositioned as the project progressed. Above: SDDOT, T&R Contracting and Sioux Falls officials toured the Cliff Avenue/I-90 interchange reconstruction project with FHWA Administrator Victor Mendez in 2013. Left to right: Virginia Tsu, FHWA Division Administrator for South Dakota; Joel Jundt, SDDOT Planning and Engineering Director; Lance Weatherly, Project Manager/Engineer for the city; Mendez; Kristi Sandal, SDDOT Public Information Officer; Transportation Secretary Darin Bergquist; Greg Aalberg, SDDOT Sioux Falls Area Engineering Supervisor; Ryan Gulbrandsen, T&R Contracting; Travis Dressen, SDDOT Sioux Falls Area Engineer; Mike Heiberger, SDDOT Lead Project Engineer, Sioux Falls Area; Mark Cotter, Sioux Falls Public Works Director; and Assistant City Engineer Shannon Ausen.

2014

Events in South Dakota transportation

- Jan. 26 A blizzard closes I-29 between Sioux Falls and the North Dakota border.
- March 31 Blowing snow and icy roads again close I-29 between Brookings and North Dakota. I-90 is closed between Wall and Rapid City.
- April 30 Kathy Zander of Pierre appointed as first woman to the Transportation Commission.
- June 16-18 Floodwaters top I-29 near Canton, forcing closure south of Sioux Falls. Flooding also destroyed part of state Highway 46 west of Beresford and closed U.S. Highway 85 and state Highway 20 in western South Dakota. The state-owned Sioux Valley Line railroad tracks near Hudson were flooded.
- June 17 First meeting of 2014 Legislature's interim Highway Needs and Financing Committee.
- June 18 Tornado destroys businesses and homes in Wessington Springs. The SDDOT helps clear roads strewn with debris.
- July 14 Cliff Avenue/I-90 reconstruction project wins AASHTO's western region award for best use of innovation on a small project.
- July 18 Transportation Secretary Bergquist and Agriculture Secretary Lentsch discuss rail shipping problems with Surface Transportation Board officials.
- July 30 SDDOT officials solicit public comment on future road and bridge projects in first webinar.
- Aug. 3, week of Daugaard and other state officials travel to Washington, D.C., to urge Surface Transportation Board members and railroad company officials to help make more grain cars available to South Dakota producers and elevators.
- Aug. 28 Ceremony celebrates completion of South Dakota's part of the Heartland Expressway.
- Nov. 11 U.S. DOT Secretary Anthony Foxx visits South Dakota.
- Nov. 13 Transportation Commission holds public hearing on ditch mowing regulations meant to protect nesting pheasants.

Clockwise from top left: Flooding destroyed two segments of state Highway 46 in June 2014, the one southeast of Centerville was 200 feet long and the other near the Iowa state line was 150 feet long; Road Design Engineer Randy Gossard, Construction and Maintenance Engineer Jason Humphrey, Winner Highway Maintenance Worker Matt Vobr and Assistant Construction Engineer Scott Rabern monitored flooding from the state Emergency Operations Center in Pierre; Big Sioux River floodwaters overwhelmed the Sioux Valley Line in southeastern South Dakota.





From the top: Transportation Secretary Darin Bergquist and Kellie Beck, SDDOT Finance and Management Division Director, testified before the state Legislature's interim Highway Needs and Financing Committee; a culvert washout on state Highway 73 in Perkins County; buildings and signs damaged by the June 18 tornado that hit Wessington Springs; and (right) an abundant winter wheat crop had to be temporarily stored on the ground in Pierre in early August. A shortage of grain cars and the ownership change of the former Dakota, Minnesota and Eastern Railroad to Genesee & Wyoming slowed grain shipments in South Dakota throughout the summer and fall.

Photograph credits

- Front cover:** Mark Peppel, Pierre Area Project Engineer, talks with Willie Glow of Morris Inc. and Alan Berheim, Pierre Area Project Technician, as Berheim and Glow finish measuring the existing grade of Garfield Avenue/U.S. Highway 14B and the newly regraded segment. Julie Bolding, SDDOT Management Analyst
- p. 3: Kristi Sandal, SDDOT Public Information Officer
- p. 4: Jeremiah Rindahl
- p. 5: all photos by Sandal
- p. 6: Sioux Falls traffic photo from Google Street View, all other photos by Bolding
- p. 8: Roger Durfee, DigitalDurf Photography
- p. 9: all by the South Dakota Highway Patrol
- p. 10: map from Heartland Expressway Association website, <http://www.heartlandexpressway.com/corridor-status>; photo by Sandal
- p. 11: Bolding
- p. 13: From top: Nathan Stearns, Huron Area Project Engineer; Aberdeen Area staff; Mike Will, Watertown Area Project Engineer; and Trevor Johnson, Huron Area Project Engineer
- p. 14: From top: Bolding; Kelly Armfield, Mobridge Area Project Engineer; Bill Gardner, Winner Area Project Technician; and Joel Aeschbacher, Winner Area Project Technician
- p. 15: From top: Greg Putnam, Yankton Area Project Engineer; Rick Brandner, Mitchell Area Project Engineer; Kevin Heiman, Yankton Area Project Engineer; and Mitchell Area staff
- p. 16: Top two by Paulette Huber, Mitchell Area Project Engineer; Jared Pfaff, Sioux Falls Area Project Engineer; Michael Border, Sioux Falls Area Project Engineer
- p. 17: From top: Sandal; South Dakota Game, Fish and Parks Department photo; Joel Flesner, Belle Fourche Area Project Engineer; Auston Harris, Rapid City Area Project Engineer
- p. 18: From top: Steve Palmer, Rapid City Area Engineering Supervisor; Jason Baker, Rapid City Area Project Engineer; Keith Winter, Custer Area Project Engineer; and Brenda Flottmeyer, Rapid City Area Project Engineer
- p. 19: From top: Harvey Odens, Sioux Falls Area Project Engineer; Alec Boyce, Short Elliot Hendrickson Inc.; Day County highway department; Rapid City Region bridge crew
- p. 20: From top: Mike Will, Watertown Area Project Engineer; Jason Baker; Brian Rogness, Aberdeen Area Project Engineer; and City of Huron Engineering Office
- p. 21: From top: courtesy of city of Groton; Rick Reichling, Watertown Highway Maintenance Supervisor; and Colleen Farley, Winner Area Senior Secretary
- p. 23: Left: Dave Huft, Office of Research Program Manager; right, South Dakota State University
- p. 24: East Dakota Transit
- p. 26-27: Bolding
- p. 29: Top, Doug Hecox, FHWA; bottom, Sandal
- p. 30: From top left: Gerry Hansen, Junction City Highway Maintenance Supervisor; Sandal; and Jack Parliament, South Dakota Railroad Board member
- p. 31: From top: Sandal; Joel Larson, Highway Maintenance Supervisor for the Bison, Faith and Lemmon units; Bill Haines, Highway Maintenance Supervisor for the Plankinton, Woonsocket and Chamberlain units; and, at right, Bolding
- Back cover:** photo by Bolding of a three-engine Rapid City, Pierre and Eastern Railroad train facing east on the east side of Pierre, two engines newly painted with the Genesee & Wyoming colors of orange, yellow and black. These G&W engines are referred to as "pumpkins" by train buffs.



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