



COLORADO
Department of
Transportation

WHAT CDOT DOES FOR YOU >>>>>>>

Transportation Affects Everyone

Transportation impacts our lives each day—from the bridges we cross to the signs we read to the construction reports we follow. A good transportation system allows us to get to work, enjoy recreational activities and access healthcare. It allows companies to provide products and services to consumers.

We at the Colorado Department of Transportation work to ensure that Colorado has a safe and efficient highway system by building and maintaining interstates, U.S. highways and state highways.

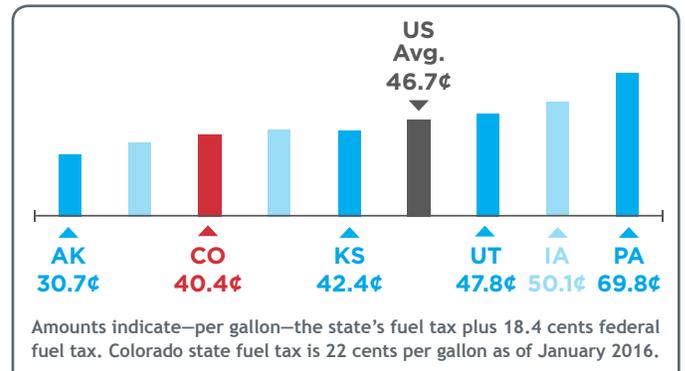
To accomplish this goal, we conduct three primary services: snow and ice operations; roadway maintenance and preservation; and construction management. CDOT also provides traffic monitoring, avalanche control, rockfall mitigation, transit development and grants, traffic safety education, multimodal transportation support through our Division of Aeronautics, Division of Transit and Rail and Bicycle Program, and much more.

Most importantly, we at CDOT help you get to where you need to go safely and efficiently through roadway systems and maintenance, customer service programs and signage, and even emergency roadside support.

Transportation Funding is Limited

With 58 percent of our budget going toward maintaining our current system, it is essential that we are both

Fuel Tax Amounts in Other States



Colorado has some of the most costly maintenance challenges, given the snow and ice control and extreme weather in our high mountain passes. Still, our fuel tax is less than other states that have no mountain highways, such as Kansas and Iowa.

efficient and effective with our funds. CDOT is accomplishing this in several ways:

- Analyzing and implementing ways to get more out of the existing system (use of shoulders during high-congestion periods)
- Being proactive and investing in preventive maintenance (crack-sealing and chip-sealing)
- Helping motorists make informed travel decisions (electronic roadside messaging, traveler apps)

These efficiencies are just a few examples of how CDOT is working to maximize our existing system. We will continue to analyze and implement more operational efficiencies as opportunities arise.

CDOT OPERATIONS

MAINTAIN & OPERATE
 MORE THAN **23,000**
 HIGHWAY LANE MILES

MAINTAIN
3,454
 BRIDGES

OVERSEE
28 BILLION
 ANNUAL VEHICLE MILES TRAVELED

KEEP
35
MOUNTAIN
PASSES
 OPEN YEAR-ROUND

ADMINISTER
\$208
MILLION
 EACH YEAR IN FEDERAL
GRANTS

WHO WE ARE >>>>>>

CDOT's Mission

To provide the best multi-modal transportation system for Colorado that most effectively and safely moves people, goods, and information.

CDOT's Vision

To enhance the quality of life and the environment of the citizens of Colorado by creating an integrated transportation system that focuses on safely moving people and goods by offering convenient linkages among modal choices.

CDOT's Values

Safety

We work and live safely. We protect human life, preserve property, and put employee safety before production.

People

We value our employees. We acknowledge the abilities of our coworkers, place a high priority on employee safety, and draw strength from our diversity and commitment to equal opportunity.

Integrity

We earn Colorado's trust. We are honest and responsible in all that we do and hold ourselves to the highest moral and ethical standards.

Customer Service

We satisfy our customers. With a can-do attitude we work together and with others to respond effectively to our customer's needs.

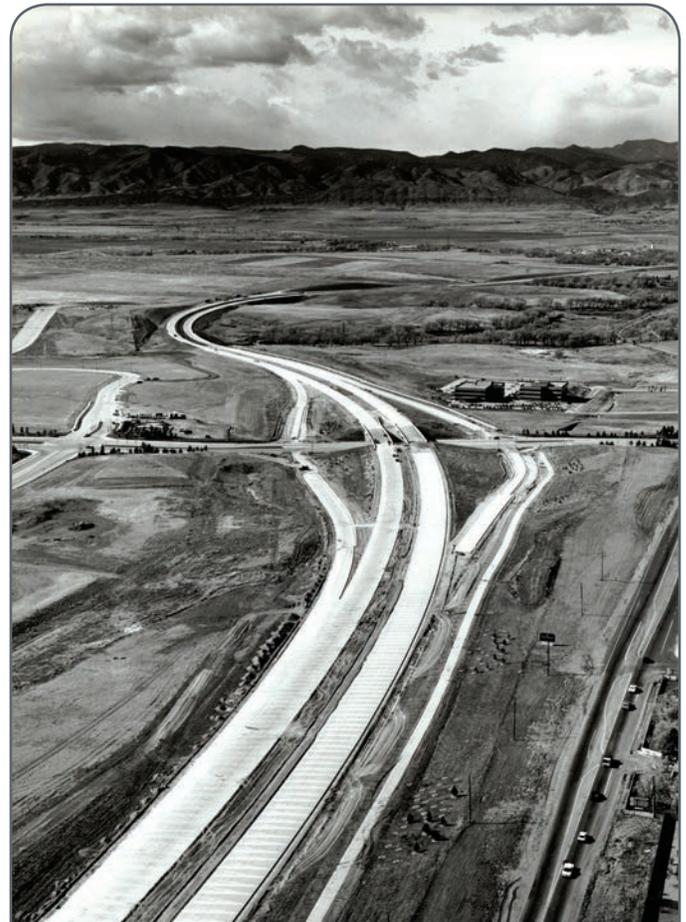
Excellence

We are committed to quality. We are leaders and problem solvers, continuously improving our products and services in support of our commitment to provide the best transportation systems for Colorado.

Respect

We respect each other. We are kind and civil with everyone, and we act with courage and humility.

CDOT's core values make our organization a great place to work, and make Colorado a great place to live, now and into the future.



On our Facebook page, for "Throwback Thursday," we posted this 1986 photo of C-470. Here, the highway under construction curves around the southwest Denver Metro. Today, this area is completely surrounded by development. One of our Facebook followers commented, "How Denver has grown in the past 30 years!"

A Brief History of CDOT

- 1909:** The first highway bill was passed by forming a three-member Highway Commission to approve work and allocate funds.
- 1917:** The State Highway Fund was created and the State Highway Department (CDOH-Colorado Department of Highways) was formed.
- 1968:** Legislation reorganized matters related to highways and created the Division of Highways.
- 1991:** CDOH became Colorado Department of Transportation (CDOT).

MESSAGE FROM THE EXECUTIVE DIRECTOR >>>>>>>>



CDOT Executive Director Shailen Bhatt

At the Colorado Department of Transportation we have a very simple purpose: to save lives and make people's lives better. When we succeed, we provide the public freedom, connection and experience through travel. We believe we can deliver on this purpose by becoming the best department of transportation in the country.

Best is a loaded word, but one that Colorado deserves. Transportation shouldn't make life hard. People should move easily to work, home, school and fun. Goods should move easily up the hill, to the store and to market. Innovation should move us forward.

In FY 2016 CDOT made several strides in both becoming the best DOT in the country, but more importantly making travel easier and safer.

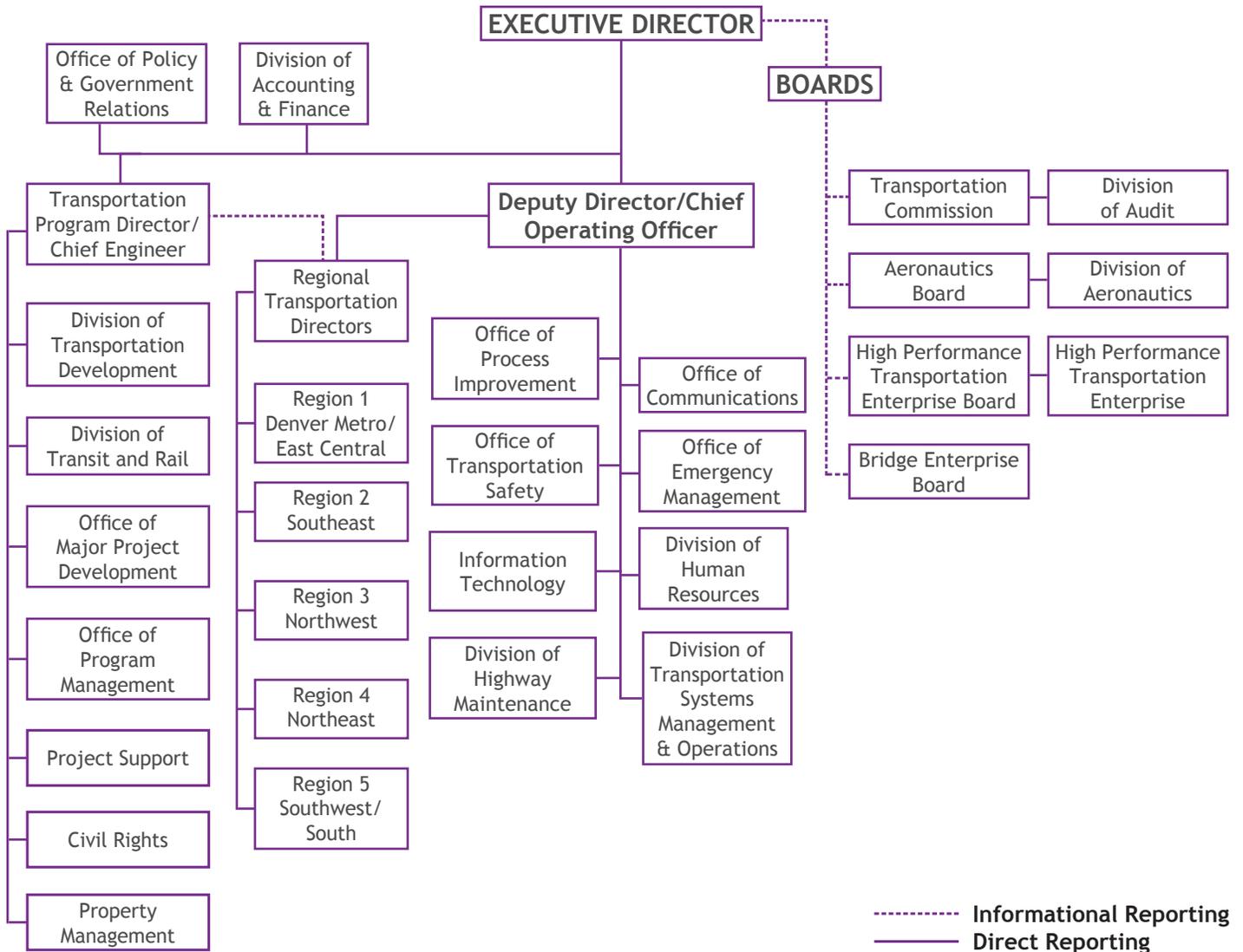
- Our new Express Lanes on I-70 in the mountains, on I-25 and US 36 are moving people more easily, in many cases improving travel times by up to 50 percent in all lanes and winning national awards in the process.
- Our maintenance divisions managed repairs and maintenance of millions of miles of highways while also handling issues such as the I-70 Glenwood Canyon rockfall and completing an inventory of the state's 42,000 guardrails following the potential a small percentage could have had an incompatible installation.
- Our new *Bustang* service connecting Denver to Colorado Springs, Fort Collins and Glenwood Springs achieved nearly 40% fare box recovery (operating expenses met fares paid by passengers) in its first year of operation.

- Projects like the CO 9 Wildlife Safety Project in Grand and Summit County reduced wildlife vehicle collisions and fatalities by 90%.
- Our *RoadX* program gained momentum, propelling Colorado to the forefront of innovative technology deployments technology to make our roads safer and more mobile.

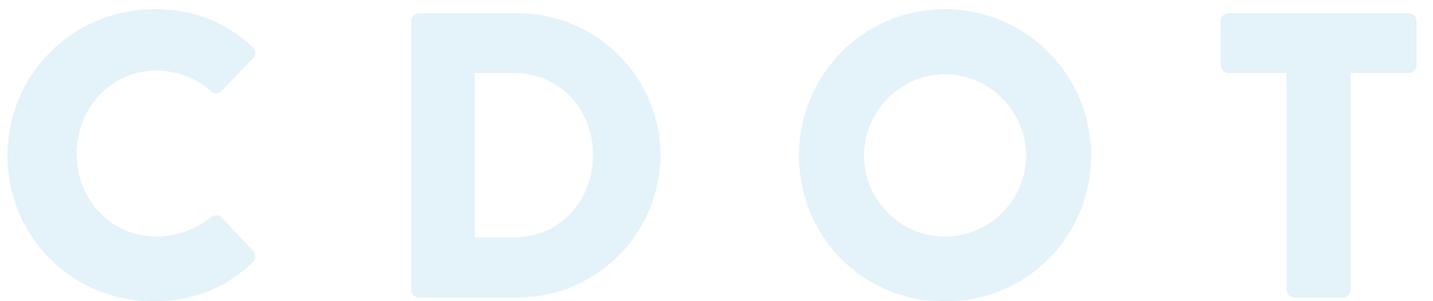
This annual report not only shares some of the successes that CDOT is proud of in the last year, it also frames the challenges of our budget, the level of investment in how we maintain our assets, and our efforts in planning for the future.

Though facing an approximately \$1 billion annual funding shortfall, CDOT seeks to deliver exceptional service to our customers, efficiently and effectively build projects and maintain a system that will make people's lives better, and be transparent in how we work to achieve our purpose.

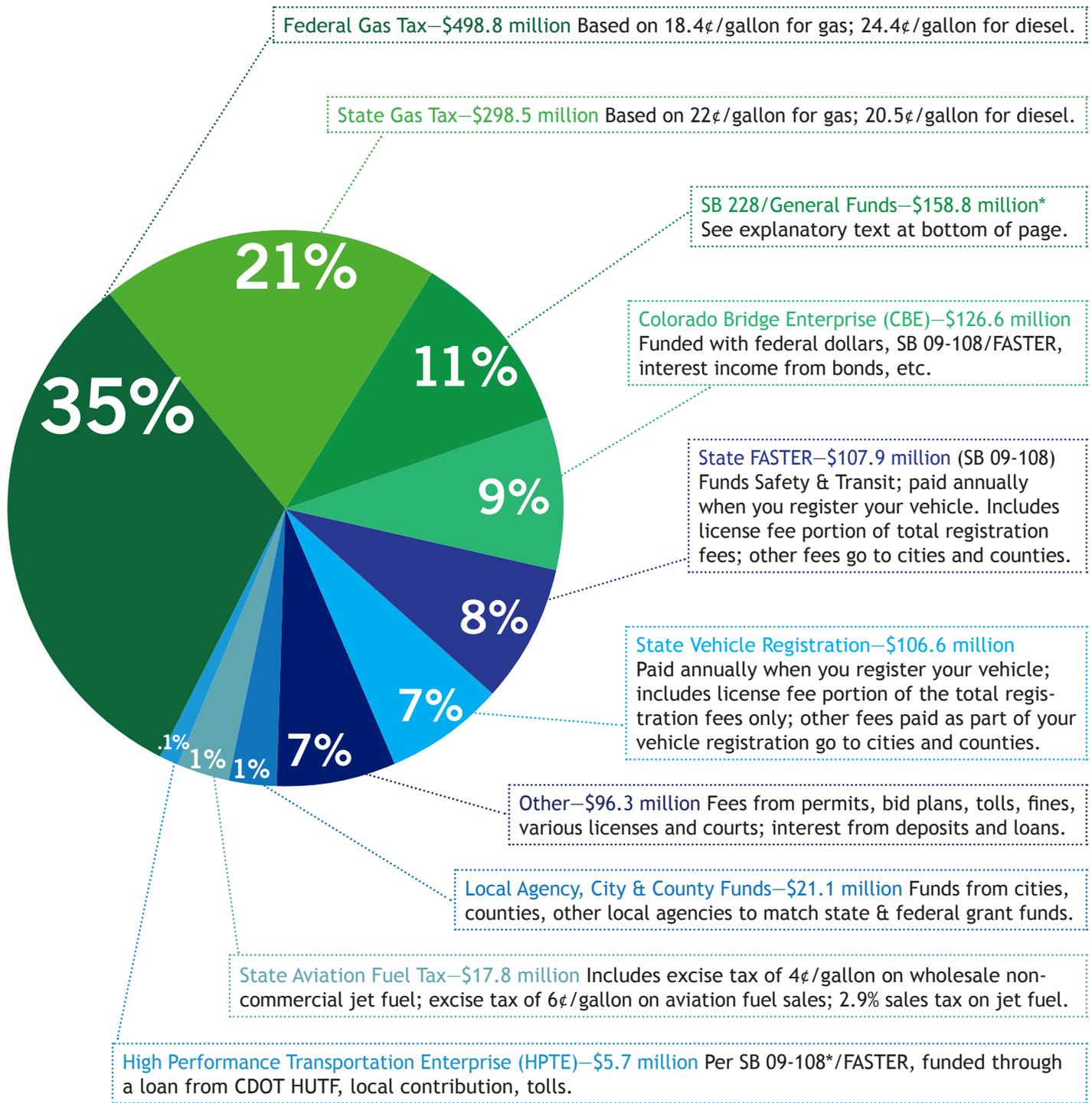
HOW WE ARE ORGANIZED



As of 12/2016



SOURCES OF CDOT FUNDING >>>>>> [TOTAL \$1.44 BILLION]



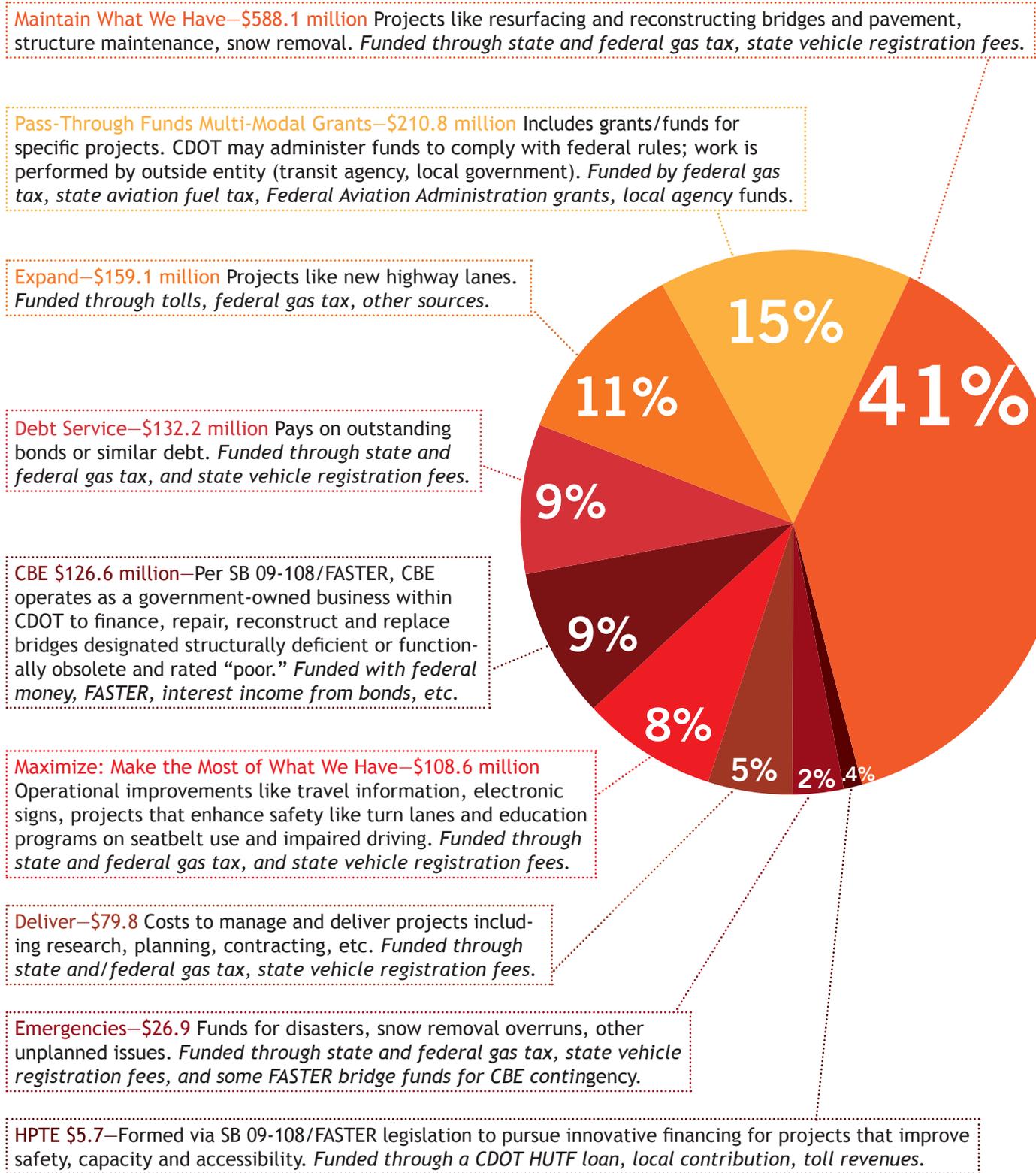
*In 2009 the General Assembly enacted Senate Bill 09-228, which:

- Repealed a statutory limit on the annual growth of certain appropriations from the General Fund;
- Repealed S.B. 97-001, a conditional transfer of General Fund revenue of up to 10.35% of state sales and use tax receipts to the State Highway Fund;
- Repealed H.B. 02-1310, a conditional transfer of excess general revenue above the General Fund appropriations limit to the State Highway Fund and the Capital Construction Fund;
- Increased the statutory General Fund reserve contingent upon economic and fiscal conditions; and
- Authorized a five-year sequence of General Fund transfers to the State Highway Fund and the Capital Construction Fund contingent upon economic and fiscal conditions.

General Fund Transfers to Transportation
 The bill authorized a five-year sequence of General Fund transfers to the State Highway Fund of up to 2.0% of gross General Fund revenues, under the following conditions:

- Transfers do not begin until the first fiscal year after the first calendar year in which statewide personal income grows by at least 5.0%, as measured by the U.S. Bureau of Labor Statistics.
- A TABOR refund under 3 percent of Colorado General Fund revenues is issued pursuant to Article X, Section 20 of the Colorado Constitution.

USES OF CDOT FUNDING? [TOTAL \$1.44 BILLION]



* All figures on pages 6 and 7 are based on FY 2016–17 budget. Does not include \$127.4M of 2013 Flood Recovery Funds. State fiscal year is July 1–June 30.

YOUR CDOT DOLLAR, AND HOW FAR IT GOES

As you can see from the chart on page 6, CDOT gets the majority of its funding from you—Colorado vehicle users. A portion of the state and federal fuel taxes and vehicle registration fees you pay goes to CDOT, the rest goes to cities and counties throughout the state.

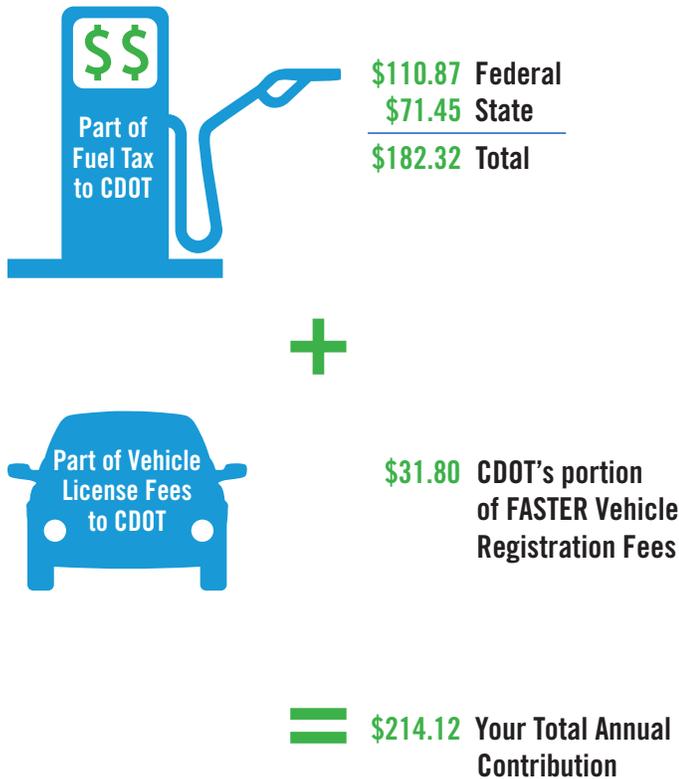
So how much do you as an individual driver contribute annually to support the transportation system you use? CDOT data show the average Colorado driver travels 13,859 miles per year.

So, using an average of 23 miles per gallon, you would spend about \$20-25 a month to use the state’s roadways, likely less than your monthly cell phone bill.

The graphics on this page illustrate how an individual contributes to the state’s highway system and how CDOT uses that revenue to maximize each dollar spent.

HOW CDOT RECEIVES FUNDS FROM YOU TO PAY FOR THE STATE HIGHWAY SYSTEM

Based on Annual Vehicle Miles Traveled by Average Colorado Driver



HOW CDOT USED YOUR DOLLARS IN FISCAL YEAR 2016

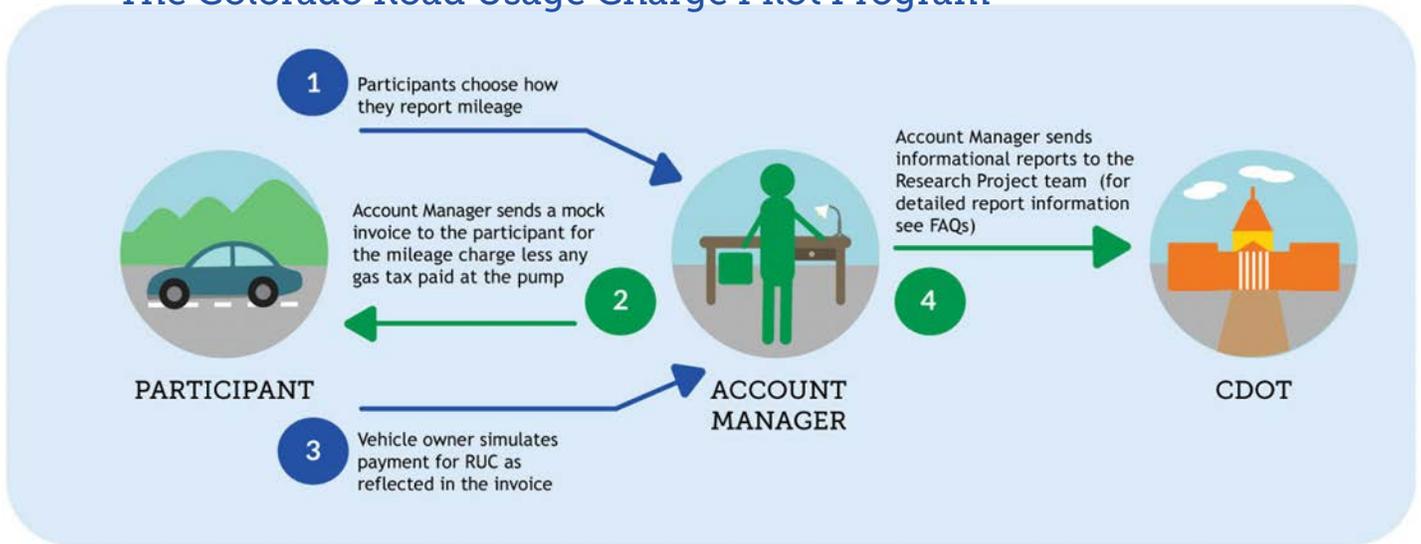
Based on Annual Vehicle Miles Traveled by Average Colorado Driver



NOTE: The amounts estimated represent a breakdown of your average annual contribution if it were spent the way that CDOT spends its entire budget. Also note, these are only estimates. Your actual costs would depend on your vehicle, how much you drive, and other factors.

EXPLORING OTHER FUNDING OPTIONS >>>>>>

The Colorado Road Usage Charge Pilot Program



Gasoline taxes, which do not increase with the price of fuel and have not been raised since 1991, are not covering transportation needs. With increased vehicle fuel efficiency resulting in lower gas tax revenues, increased population and vehicle miles traveled (VMT) creating more wear and tear on the roads, and declining purchasing power with the value of the dollar worth half of what it was in 1991, CDOT is facing a \$25 billion funding gap over the next 25 years.

To help close in on this gap, we are looking to evaluate more long-term, sustainable transportation funding

alternatives, including analyzing whether a Road Usage Charge (RUC) could be relevant for Colorado.

In an RUC funding model, drivers pay for how many miles are traveled instead of the amount of fuel consumed. In order to really know if RUC is viable for Colorado, CDOT plans to test it through a pilot study. This is the first step in the extensive process of evaluating the concept.

To read more about this pilot initiative and how you can stay up to date, [click here](#).



Drivers on the highways in and around the Denver Metro area have likely noticed increasing congestion due to continuing population growth.

BECOMING THE BEST DOT IN THE COUNTRY >>>>>>>>

Climbing the Three Peaks

We are working hard to become the best department of transportation in the country. To chart our course and stay organized towards this goal, we launched the *Three Peaks* strategy, focusing on people, a healthy multimodal system and technology. We have made much progress on our *Three Peaks* initiatives, as you will read throughout this report.

PEOPLE PEAK: *Growing and developing our team so everyone loves to come to work and others want to work for the best DOT in the county.*

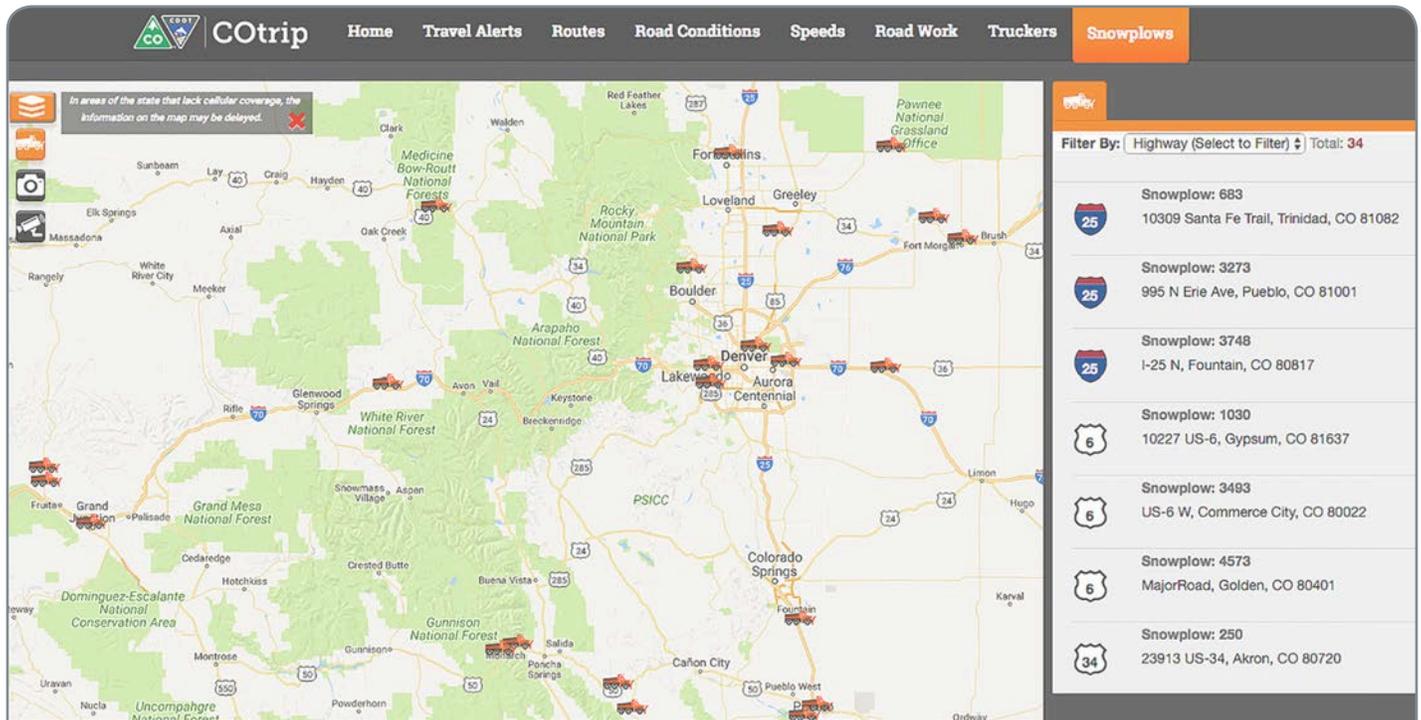
Many of our *People Peak* initiatives focus on internal issues, such as job classifications and employee recognition. We believe that supporting our workers leads to happiness and contentedness on the job. That leads to better customer service, not only for one another at CDOT, but for our external customers as well. Our more external customer focused people initiatives over the past year included leadership training and a leadership forum that focused intently on customer service.

CDOT's Customer Service Experience, which is supported by five customer service representatives (CSRs) in each region and three CSRs at headquarters, has been operational for almost a year now. These representatives are existing CDOT employees who now, as part of their regular duties, are using a new online customer service ticket tracking tool to document and respond to customer inquiries, as well as report trends in customer service questions. Our Customer Service program is not only improving the experience of our external customers, but that of our internal customers—our coworkers who no longer take certain calls and emails that can be addressed more efficiently by knowledgeable customer service staff. Through trends tracking, we can also address potential deficiencies in our work or our communications brought to light by customer calls and emails. The statewide CSR team members have responded to over 2,000 customer inquiries and complaints through phone calls or by those utilizing our new **Contact Us** button on our CDOT and COTRIP web sites. (See page 32 for more *People Peak* initiatives.)

HEALTHY MULTIMODAL SYSTEM PEAK: *Enhancing roads, bridges and multimodal operations to get customers where they need to go more safely, easily and confidently than ever before*

- **Winter Operations Readiness:** We have added automatic vehicle locators (AVLs) to snowplow truck control systems that transmit data indicating where plows are, helping with resource placement and tracking. The AVL integrates with our on-board Maintenance Decision Support System, which produces weather forecasts and treatment recommendations to drivers. We also upped our game with a new position of Winter Operations manager, as well as assignments of on-call public information officers each weekend and during major storm events.
- **Striping Improvements:** A Striping Task Force revised and standardized our striping specifications. The team is researching how to measure the life cycle performance of several striping materials in various locations. They also developed a specialized striping contract to improve striping and lane delineation—a significant safety upgrade, particularly for drivers navigating corridors challenging conditions.
- **Local Agency Program:** We launched this program to examine how state funds can be exchanged for the federal funding we receive to support local agency projects that enhance the state highway system (such as bike paths and bus stops). Also, we are looking to streamline project delivery by reducing the burden of federal requirements on these small local governments.
- **Transportation Project Communication:** We revised our communications specifications to improve our contractors' communications with the public as they are conducting a CDOT project. This process also included consolidating the contractors' project customer service into our new online customer response tracking system, enhancing the quality of responses to our (shared) customers, as well as response time. Certainly, this has also been an important part of our Technology Peak.

BECOMING THE BEST DOT IN THE COUNTRY >>>>>>>>



Automatic vehicle locators installed in our plows make it possible to track them in real time on our traveler information site. To find snowplow coverage in your area [click here](#).

LEADING-EDGE TECHNOLOGY PEAK: Using leading-edge technology to keep people moving safely and reliably.

Here is a snapshot of some of the initiatives we launched in 2016:

- Expansion of Fiber Program:** We are expanding transportation communication infrastructure through fiber optic, cellular and other technologies to support connected-vehicle solutions, data collection, traffic management systems, and maintenance and winter operations strategies. We are exploring ways to accomplish this through public/private partnerships.
- Unmanned Aircraft Systems (UAS):** We plan to deploy four fixed-wing and two quad-copter UASs that will help with situational awareness for winter storm operations, traffic incidents and search-and-rescue operations, coordinating with our partners in public safety statewide.
- Turning Data into Intelligence:** We are working to leverage internal data/big data to advance analysis so we can provide safer and better operating roads.
- Situational Awareness:** We are in the process of replacing several systems to create a coherent, common operating platform that will communicate and share traffic, weather and incident information internally and externally to resolve incidents faster and more efficiently.
- 3-D Modeling:** We are implementing 3-D modeling software that will help us virtually develop, test and alter project designs throughout design and construction phases, partnering with our contracting community on requirements.
- RoadX:** We are teaming with public and industry partners to make Colorado the most technologically advanced transportation system in the nation and a safety and reliability leader. We continue to build relationships with partners and by year's end, a RoadX project will be underway in each region. (See page 27 for more on RoadX.)

PROTECTING & PROLONGING THE LIFE OF OUR ASSETS

Maintaining Our System

Our Highway Maintenance Program accounts for about 20 percent of our annual budget. In addition, we spend more than 40 percent on engineering and maintenance projects that simply maintain what we have.

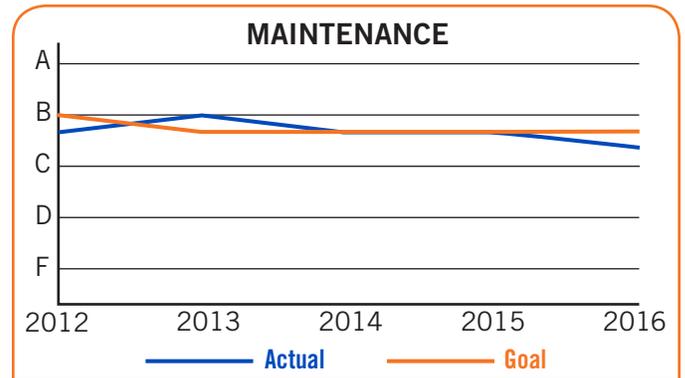
Of the \$257.4 million spent on maintenance in FY 2016, about \$36.7 million went towards roadway surface maintenance, \$79.3 million to snow and ice control, \$64.6 million to traffic devices (signs, striping, signals) and the remainder to planning and scheduling, roadside appearance, bridges, buildings, equipment and our two major I-70 tunnels/control centers (at Hanging Lake Tunnel and Eisenhower/Johnson Memorial Tunnel).

We spend 30 percent of our maintenance budget on snow and ice control, which includes our avalanche program. There are more than 522 known avalanche paths in Colorado. Our crews regularly monitor and/or control at least 278 of them. During the 2015-16 winter, CDOT had 540 hours of road closures due to avalanche control resulting in a total of 12,445 feet of snow covering the centerline of the roadway. Crews triggered 287 avalanches (adding to 82 natural avalanches) that all reached the highway, triggered 346 more that did not reach the highway, and spent 9,960 hours on mitigation.



CDOT installed Gazex over US 40 on Berthoud Pass this past year, as well as over US 6 on Loveland Pass.

Two large capital improvement projects were completed to install Gazex systems to modernize the avalanche program. Gazex is a permanent installation on the mountain that uses compressed gases to create a concussive blast to trigger a slide. While traffic is stopped, the system is triggered remotely by operators from a secure distance, creating a safer operation. Gazex



YEAR	2012	2013	2014	2015	2016
Long Range Goal	B	B-	B-	B-	C+
Actual	B-	B	B-	B-	B-
Budget (in Millions)	\$242	\$242	\$249	\$263	\$261

The long-range goal was revised in 2013 to reflect budget and performance evaluation.

was installed on US 40 at Berthoud Pass and US 6 on Loveland pass. These are ideal locations for Gazex, being some of the biggest avalanche areas that directly impact Colorado's roadways. Through Gazex, we gained efficiencies in avalanche operations systems, reducing the use of the avalauncher, increasing effectiveness of our control missions, decreasing man hours and reducing operation costs. We hope to install this system on other more avalanche-prone corridors.

Over the past fiscal year, our maintenance crews:

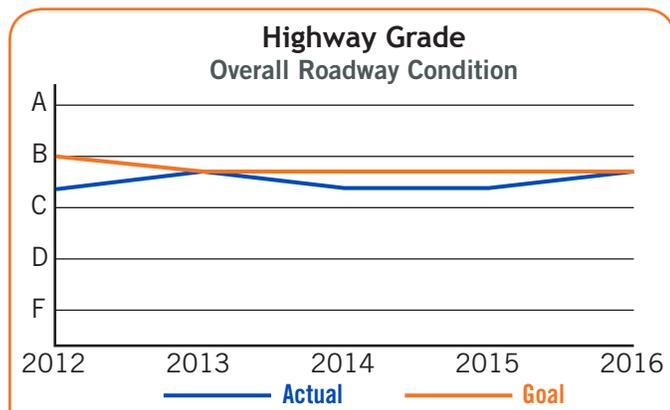
- Repaired and maintained more than 51,043 miles of roadway
- Used 146,768 tons of asphalt and 1.07 million gallons of liquid asphalt
- Plowed, sanded, deiced six million miles of highway
- Striped more than 25,303 miles and installed 585,552 square feet of pavement markings
- Managed 1,334 hours of road closures due to snow
- Applied 225,118 tons of solid deicer and 13.5 million gallons of liquid deicer
- Repaired or installed 67,294 feet of snow fence
- Disposed of 64,167 cubic yards of trash with help from 8,946 Adopt-A-Highway volunteers; 7,868 bags of trash with the support of 81 corporate sponsors
- Replaced/repared 49,742 signs and signposts
- Replaced/repared more than 13.6 million linear feet of fencing

PROTECTING & PROLONGING THE LIFE OF OUR ASSETS

Preserving Our Roadways

Through CDOT's Transportation Asset Management Program, we take an approach that maximizes pavement condition for the least cost over the life of that asset (roadways, bridges, tunnels, buildings, signals, etc.). By using this approach, required by the Federal Highway Administration, we develop and implement risk-based strategies to insure our Department's limited funding is applied to the right project, for the right asset, at the right time.

We have highlighted the maintenance of our assets, and perhaps—from the public's perspective—the most visible or obvious asset we maintain is the roadway surface. Those 9,100-plus miles of highway statewide that drivers and passengers depend upon each day to be, at the very least, smooth and rideable; safety and mobility are certainly important, but it all begins with the surface.



YEAR	2012	2013	2014	2015	2016
Long Range Goal	B	B-	B-	B-	B-
Actual	C+	B-	C+	C+	B-
Budget (in Millions)	\$389	\$357	\$395	\$401	\$411

Note: 2013–14 grades not directly comparable to previous years. Grades for previous years incorporated Remaining Service Life (RSL) metric, not Drivability Life metric, for pavement condition.

Some examples of work to improve our roadway surfaces over the past fiscal year have included:

C-470: South Rooney Rd. to Ken Caryl, Jefferson County
 Cost: \$10 million
 The work included resurfacing, with bridge joint rehabilitation, guardrail improvements and wildlife fencing.

US 24/ US 285: Trout Creek Pass East, Park County
 Cost: \$6.2 million
 A mill and fill of the asphalt surface was conducted and repairs were made to box culvert and bridge structures.

CO 13: North of Piceance Creek, Rio Blanco County
 Cost: \$7.5 million
 This project consists of a minor roadway widening from 26 to 40 feet, with minor horizontal and vertical alignment adjustments. Other construction activities include grading, paving, drainage improvements, signing and striping, seeding, and replacing all fencing.

US 287: Loveland to Fort Collins, Larimer County
 Cost: \$11.5 million
 The majority of work consisted of milling and resurfacing the roadway, completed in three phases between 29th Street in Loveland to Mulberry Street in Fort Collins; work also involved extensive road and bridge rehabilitation in advance of asphalt resurfacing.

US 550: Cribwall Repair, Red Mountain Pass, San Juan County
 Cost: \$4.9 million total (multi-year project)
 Crews replaced aging crib walls underneath US 550 that support the highway on Red Mountain Pass; work involved blasting operations, culvert replacement, concrete work and guardrail installation.



US 287, Loveland to Fort Collins, received a new surface.

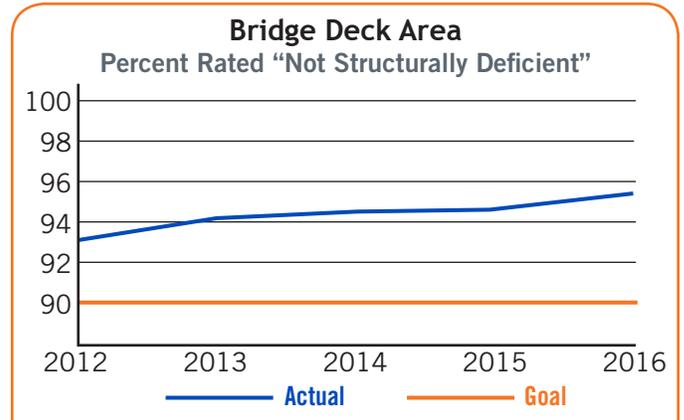
PROTECTING & PROLONGING THE LIFE OF OUR ASSETS

As with our Surface Treatment Program, CDOT’s Bridge Preventive and Maintenance Program goals also include addressing risks identified through Asset Management. These risks include:

- Scour, meaning the bridge has a foundation that is at risk of failure due to erosion; this is the most common cause of bridge failure, and CDOT has 152 scour-critical bridges on our system
- Leaking expansion joints
- Unsealed or otherwise unprotected deck area
- A vertical clearance lower than the minimum design requirement of 16 feet; such bridges are at risk from sustaining repeated hits from commercial vehicles, and we have identified 50 such bridges
- A vertical clearance lower than 14.5 feet, the statutory minimum clearance; we have identified four bridges below this limit
- Load-restricted, bridges whose current capabilities to support extra-legal highway loads are inadequate, restricting extra-legal weight (permitted overweight vehicles) commerce movement throughout our state; we have identified 46 such bridges
- Load-posted, which are bridges whose current capabilities to support legal loads are inadequate, restricting legal load weight vehicle commerce movement throughout our state; we have identified seven such bridges



Work on this bridge over I-70 at Sheridan and Tennyson in Denver included concrete crack repair with epoxy injection; girder strengthening with composite fiber wrap; and substructure column repairs.



YEAR	2012	2013	2014	2015	2016
Long Range % Goal	90	90	90	90	90
Actual %	93.4	94.1	94.3	94.4	95.5
Budget (in Millions)	\$132	\$141	\$146	\$138	\$149

Budget figures include both CBE and CDOT Bridge funds.

To address these risks, our Bridge division designed and prepared 101 projects for advertisement to contractors. The number of load-posted bridges has increased compared to numbers cited last year, while the number of load-restricted bridges declined. These changes occurred due to reclassifications that were part of a ratings review of selected structures in calendar year 2015. The number of scour-critical bridges also decreased, which was due to mitigation efforts that were conducted as part of CDOT’s bridge repair projects.

Our bridge engineers are also ultimately responsible for bridge inspection, both on and off the state highway system. Over the past fiscal year, they have conducted approximately 1,600 inspections for on-system structures and managed approximately 2,300 inspections for off-system structures.

Of the 194 bridges eligible for Colorado Bridge Enterprise funding (they are designated structurally deficient), 128 structures have been replaced or repaired, 13 are under construction, 16 are either in design or have completed design and 37 are not yet programmed (as of September 2016, just after the close of FY 2016).

PROTECTING & PROLONGING THE LIFE OF OUR ASSETS >>>>>>>>



Preventative maintenance work including deck repair was done on US 24 bridge over the Arkansas River in Johnson Village.

Here is a sampling of bridge projects underway in the past year:

US 6: Over Garrison Street, Jefferson County
Cost: \$15 million (received Colorado Bridge Enterprise, or CBE, funding)
This work replaced the structurally deficient 1962 bridge that carries US 6 traffic over Garrison Street in Lakewood. This project was delivered as design-build and took just under 15 months to complete.

Federal Boulevard and 69th: Over BNSF and RTD rail lines, Adams County
Cost: \$12 million (CBE funding)
This project, still under construction following the fiscal year end, is replacing a structurally deficient and functionally obsolete bridge over the Burlington Northern Santa Fe Railroad and RTD railways. The new bridge will be significantly wider and longer, with safety and sewage improvements.

US 24 East: At Rainbow Falls Bridge, El Paso County
Cost: \$2.4 million
Work includes bridge rehabilitation, deck repair and replacement of some areas, and new bridge rail.

CO 82: Grand Avenue Bridge, Garfield County
Cost: \$68 million (CBE funding)

The Grand Avenue Bridge (GAB) project is a 30-month construction project building a new GAB and pedestrian bridge over the Colorado River, I-70 and the UPRR. This project will improve multimodal connectivity, replacing the 63-year-old bridge, which has both functional and structural deficiencies.

US 34: East of Greeley, Weld County
Cost: \$22 million

When the September 2013 storms wiped out a large section of US 34 east of Greeley, a long-term solution was needed to ensure the road could withstand a future major rain event. Completed this past year, the bridge is not over an active waterway, though when heavy rains inundated the work area mid-project, it was again evident that this area is subject to flooding during high-water events.

US 24: Johnson Village Bridge, Chaffee County
Cost: \$1.1 million

This preventative maintenance work included deck repair and bridge maintenance on this structure over the Arkansas River.



This bridge on US 34 was completed this year to ensure that the road could successfully withstand heavy rains.

SAFER TRAVEL ON OUR ROADWAYS >>>>>>

Reducing the Risks of Geohazards

Our Geohazards Program manages projects and responds to emergencies having to do with rockfalls, rockslides, landslides, debris flows, embankment distress and sinkholes. By using a risk-based approach, the program aims to address these hazards on a high-way corridor basis. In other words, monitoring and mitigation efforts have been shifted from site-specific to corridor-wide to effectively reduce the risks these hazards present to the transportation system as a whole. In fiscal year 2016, the program budget was just over \$9 million.

Mitigation efforts this past year included:

- Fence construction on I-70 in Glenwood Canyon
- Repairing existing devices on US 160 over Yellow Jacket Pass (Archuleta County), CO 3 in Durango, and on I-70 on Georgetown Hill west of Denver
- Catchment ditch cleaning projects on US 40 in Byers Canyon and CO 133 near Paonia Reservoir
- Rock excavation to increase ditch catchment on I-25 over Raton Pass

I-70 GLENWOOD CANYON ROCKFALL EVENT

While Geohazards projects reduce the risks of these events, we will likely always have emergencies.

In February 2016, a large rockfall occurred over I-70 in Glenwood Canyon in Garfield County, just west of the Hanging Lake Rest Area.



Our crews performed rockfall mitigation work to secure the area and open all lanes of traffic.

A temporary barrier was installed and repairs were made to the road, bridge and guardrails.

CDOT and contractor crews also conducted rock scaling work and added netting and fencing in the area. After identifying the need for permanent mitigation measures, we contracted a project for approximately \$5 million to build four additional fences to reduce the risk of future incidents.

SAFER TRAVEL ON OUR ROADWAYS >>>>>>

Transportation Safety Programs—Addressing the Road and the Driver

Making travel safer on Colorado roadways is a top priority for CDOT. Our vision, as well as that of the participating agencies in the CDOT-led Strategic Highway Safety Plan of 2015, is to move Colorado toward zero deaths on our transportation system. To achieve this and improve traffic safety across the state, CDOT works with many partners and stakeholders to apply the “Four Es” of safety improvement: Engineering, Enforcement, Education and Emergency Response. We brought together many of these stakeholders from across Colorado at the 2nd Annual Road Health Summit in June 2016, and in partnership, we have begun implementing the Strategic Highway Safety Plan. [Click here](#) to see this plan online.

Through programs targeting teens, impaired drivers, cyclists, pedestrians, highway users and infrastructure, our intermediate goal is to reduce transportation fatalities by 50 percent by 2030. Toward this goal, in 2016 our Transportation Safety Office partnered with Colorado State Patrol and five local law enforcement agencies to address distracted driving through high visibility enforcement and awareness. We also continued support for the “Drive High, Get a DUI,” campaign, three “Click It or Ticket” campaigns, interactive programs at 30 high schools statewide and more.

Safety on our infrastructure is addressed by our Traffic & Safety Engineering division. Staff use statistical analyses to identify locations with a high potential for crash reduction, then work with communities to conduct

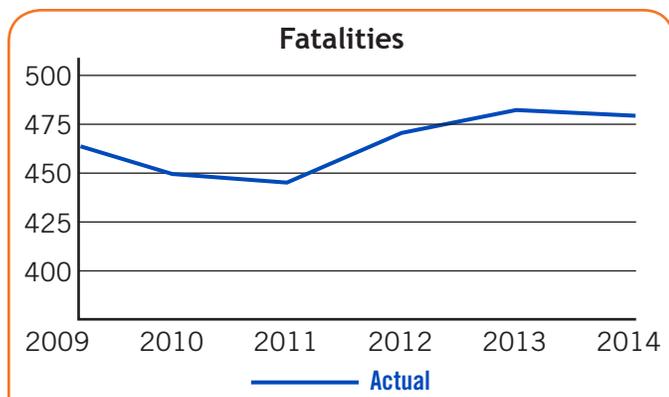
safety-improvement projects. In 2016, engineers reviewed all of our pending construction projects (more than 200) to identify opportunities for safety upgrades.

CDOT also delivered 35 Federal Highway Safety Improvement Program (HSIP) projects worth \$39 million and implemented 59 FASTER* safety mitigation projects worth \$99 million. The HSIP projects are expected to achieve a reduction of 101 fatalities; 2,851 injuries; and 6,346 property-damage-only crashes over the service life of the projects; which equates to a safety benefit of \$440 million. The FASTER safety projects are anticipated to achieve a reduction of 37 fatalities; 3,356 injuries; and 7,471 property-damage-only crashes over the service life of the projects; which equates to a safety benefit of \$395 million.

Safety-improvement project elements included pedestrian features, bicycling paths and lanes, downtown “traffic calming” features, median cable rail, auxiliary lanes, rumble strips, ramp metering, wildlife fences, roundabouts, intersection improvements, shoulder widening, interchange ramp improvements, managed lanes and roadway realignment.

CDOT annually develops statewide data-driven analysis for targeting the most important safety issues and we have developed a four-year plan for federal HSIP and FASTER safety projects (through 2020) in collaboration with our communities. Additionally, all CDOT projects include safety as a design component. [Click here](#) for more information on our safety programs and plans.

In 2015 there were 547 traffic fatalities in Colorado, compared to the 488 fatalities in 2014. The increase reportedly was a national trend, and fortunately, preliminary numbers for 2016 show a decrease for 2016. A majority of fatalities are due to risky behaviors, such as not using a seat belt, riding a motorcycle without a helmet, speeding, driving impaired or driving distracted. In FY 2016 CDOT awarded \$3.5 million to nonprofit organizations, law enforcement, and local government agencies to conduct programs aimed at reducing crashes. Many of these programs address alcohol-related crashes, which account for about one-third of fatalities in Colorado.



YEAR	2011	2012	2013	2014	2015	2016
Fatalities	447	474	481	488	547*	459*

*2015 and 2016 figures are preliminary.

*Funding Advancements for Surface Transportation and Economic Recovery or SB 09-108.

**AN UNBUCKLED PASSENGER INCREASES
YOUR RISK OF BEING HURT OR KILLED BY 40%.**

Don't be afraid to ask others to buckle up.



**BEWARE OF
THE BELTLESS**



This year marked the 50th anniversary of the National Traffic and Motor Vehicle Safety Act requiring seat belts in passenger vehicles. CDOT launched a special awareness campaign, *Beware of the Beltless*, to address the dangers posed by unbuckled occupants in the vehicle.

This year marked the 50th anniversary of the National Traffic and Motor Vehicle Safety Act requiring seat belts in passenger vehicles. CDOT took the opportunity to launch a special awareness campaign to get more people to buckle up. Specifically, CDOT's *Beware of the Beltless* campaign addressed the danger posed by unbuckled occupants to others in the vehicle. Currently, 16% of people in Colorado do not use seat belts. In 2015 there were 188 unbuckled fatalities in the state.

Some examples of safety-improvement projects underway last year included:

US 40: Empire Median, Clear Creek County
Cost: \$200,000

Work included constructing medians on the west and east sides of the town of Empire between northbound and southbound lanes of US 40 to provide traffic calming and safety for both motorists and pedestrians.

I-70: C-470 to 32nd Avenue, Jefferson/Douglas Counties
Cost: \$1.5 million

Installed median cable barrier on I-70 to help prevent media crossover head-on collisions and lengthened existing guardrail at four locations on C-470, between Broadway and Quebec, helping drivers avoid obstacles in the median.

I-25: At South Academy, El Paso County
Cost: \$1.1 million

Extended the acceleration lane of the northbound on-ramp at I-25 and Academy to facilitate safer merging through this area.

CO 92: Stengel's Hill, Delta County
Cost: \$10.8 million

A new bridge was constructed over railroad tracks, improving safety at this former at-grade intersection of a railroad and highway.

I-25: Climbing Lane, Weld County
Cost: \$10.3 million

Spanning four miles of I-25 between Mead and Berthoud, this project is adding a third climbing lane on the southbound side to provide trucks and oversized vehicles an additional travel lane, improving safety for all motorists through more passing opportunities.

US 160: Lane Lighting, Towaoc, Montezuma County
Cost: \$50,000

CDOT crews installed approximately 200 solar LED lights in the pavement to supplement the night-time visibility of the three Ute Mountain Ute Tribe and Towaoc access roads and auxiliary lanes, increasing safety for motorists, cyclists and pedestrians.

US 24: Trout Creek Pass/Passing Lanes, Chaffee County
Cost: \$6.6 million

Located northeast of Johnson Village, this project constructed two eastbound passing lanes, with extensive rock excavation and pavement reconstruction.

FIRE SUPPRESSION SYSTEM FOR TUNNEL

On May 6, 2016 Colorado U.S. Representative Jared Polis and Federal Highway Administration (FHWA) officials joined us to celebrate the completion of the Fire Suppression System for the Eisenhower/Johnson Tunnel (EJMT). The fire suppression system helps protect the traveling public as well as the entire tunnel itself, a critical asset to the state and national highway system. This project was part of an effort to avoid any closure or long-term damage to these tunnels, which could cost Colorado billions of dollars and impact tourism along the I-70 mountain corridor.

On average, 30,000 vehicles per day pass through the tunnels. Historically, the EJMT complex has experienced two to three fires a year since the opening of the tunnels in the 1970s. While CDOT had always had firefighting capability at the EJMT complex, the fixed fire suppression system will provide first responders the critical time needed to safely approach the scene and take action. The \$25 million project was funded through a federal Transportation Investments Generating Economic Recovery (TIGER) grant, state transportation funds and funds appropriated by the General Assembly.



"I'm pleased that our work in Washington, D.C., helped make possible the completion of this project," U.S. Rep. Jared Polis said.

Funding was initiated in 2013 when the Legislature established the Petroleum Cleanup and Redevelopment Fund within the Division of Oil and Public Safety, a part of the Colorado Department of Labor and Employment (CDLE). The legislation included \$5 million of the critical seed money for the project, allowing CDOT to seek the additional \$20 million to build and install it. The legislation was carried by Senator Cheri Jahn, former Senator Steve King and Representatives Millie Hamner and Ray Scott.



The EJMT also celebrated its 43rd year without a fatality occurring inside.

WHAT PRICE, CONGESTION?

"Sitting in traffic jams isn't just aggravating. It's expensive." So begins an article written by Cathy Proctor of the *Denver Business Journal (DBJ)*, highlighting economic case studies CDOT commissioned this past year to research economic impacts of congestion and the transportation projects that can relieve it. The article continues, "There's the cost of the gasoline you're burning as you inch along a clogged highway and the wear and tear the start-and-stop motion puts on your vehicle, not to mention the lost value of wasted time as you stare at the license plate in front of you." The conclusion of the case studies showed that congestion can hamper an economy, while eliminating it can spur its growth. And that growth goes beyond putting construction crews to work.

Researchers used computer models to estimate the value of time and fuel savings for millions of motorists using a new bridge or expanded highway, and assessed the economic value of those savings being reinvested back into the community—it tells a return-on-investment story. This is an important story, particularly as infrastructure construction costs continue to rise and fuel tax revenues continue to decline.

"We always look at the cost-benefit analysis in any of these investments," said Shailen Bhatt, CDOT's executive director, in the *DBJ* article. "We're not looking to



just throw money willy-nilly at a problem. We want to understand, if we're making an investment on a project, what is the return on that money?" The answer will determine whether a project gets funding, and whether Colorado's economy keeps humming. Because without improvements, congestion will only get worse as the state's population grows. The average Denver driver in 2014 spent 49 hours a year stopped in traffic. Added up, all that time and congestion cost Denver drivers more than \$2 billion. Spread that across the state and the cost of congestion pushes even higher.

Some congestion can be eliminated by widening the highway, building tolled express lanes, or even just by upgrading an old bridge or interchange. But that takes money that CDOT doesn't have. And that's where CDOT's economic report comes into play.

"States have raised revenue for transportation projects, but no one does it without a compelling story. The people want to know, 'What's in it for me?'" said CDOT's Shailen Bhatt.

The report affirms the benefits of new funding options, partnerships, tolling and more—initiatives CDOT and local agencies are focusing on more and more.

PROVIDING CONGESTION RELIEF & ENHANCING MOBILITY >>>

Transportation System Management & Operations

The Division of Transportation Systems Management & Operations (TSMO), created in 2013, has a mission of improving travel time reliability, operations and safety on the state highway system. TSMO includes the Intelligent Transportation Systems (ITS) Branch, which focuses on using technology to improve safety and reliability; the Safety & Traffic Engineering Branch, which works on reducing fatalities, serious injuries and the associated human and economic loss resulting from crashes (see details on page 17); the Colorado Traffic Management Center (CMTCC) Branch, which addresses real-time management of traffic, incidents and storms; and the Planning and Performance Branch, which develops and tracks key performance metrics.

Highlighted below are some of TSMO’s major accomplishments for FY 2016:

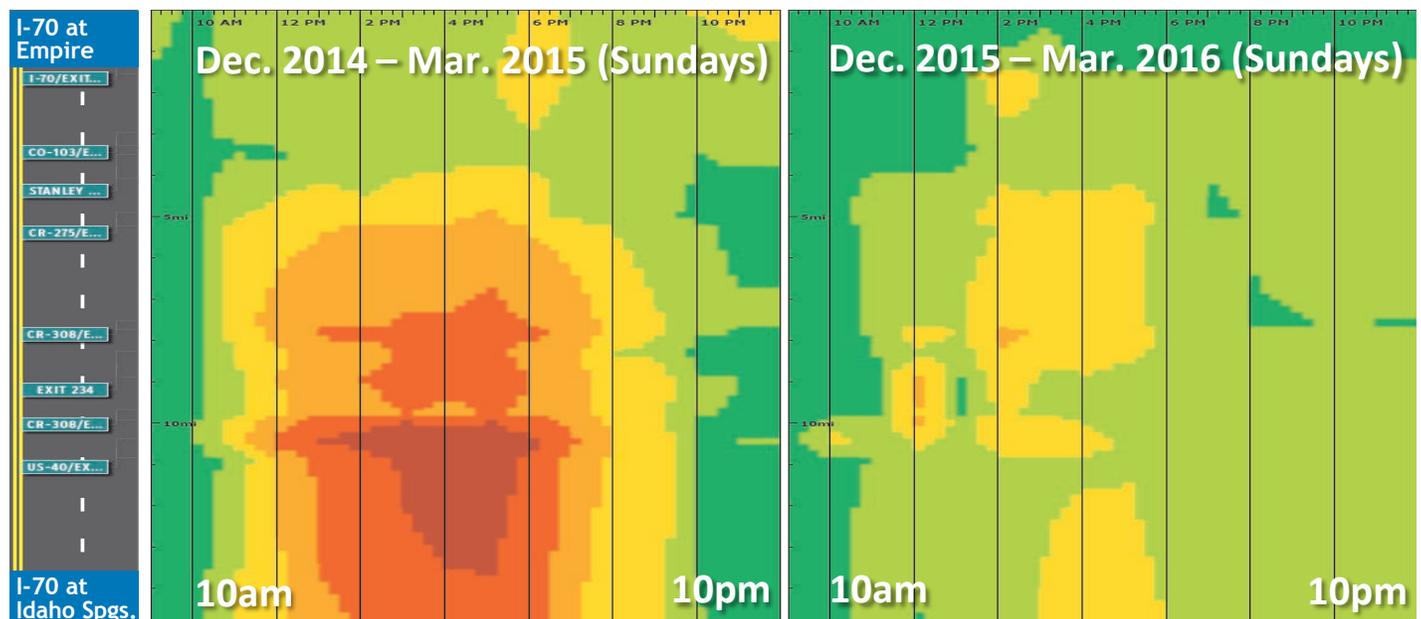
- Managed lane facility for US 36 Express Lane, including ATM (Active Traffic Management) and VSL (Variable Speed Limit) devices
- I-70 Mountain Express Lane, which operates as a peak period shoulder express lane
- Managed lane facility for I-25 North Express Lanes

The above three Express Lanes projects received funding support from the High Performance Transportation Enterprise, detailed on page 23.

- Statewide roll-out of INRIX, a database that provides historic and real-time traffic operations and speeds
- Added more incident managers for the Motorist Safety Patrol on I-25 in Denver
- Trained 3,153 first responders in Traffic Incident Management course

Winter season on I-70 Mountain Corridor (October 1, 2015 to May 31, 2016) compared to previous year:

- Snowfall increased (Denver to Vail), traffic increased six percent on Saturdays and 14 percent on Sundays
- Road closures on Vail Pass went from 43 to 84 hours
- Average duration of each closure on Vail Pass decreased from 1.49 to 1.29 hours
- Dotsero to Golden, average full closure duration decreased from 1.83 to 1.71 hours
- Heavy Tow cleared 155 incidents, 77 more incidents than last season
- Courtesy Patrol cleared 404 incidents compared to 133 the previous year
- Installed information kiosks for public access to roadway conditions (see page 28 for more on this “Technology Peak” initiative)
- Installed over 200 miles of fiber optics for enhanced communication and data
- Initiated Statewide Traffic Signal Management Plan (TSMP) and secured \$16.9 million for statewide signal replacements in FY 17



This congestion “heat map” highlights eastbound I-70 speeds on Sundays between Empire and Idaho Springs. Following implementation of the I-70 TOLLED Mountain Express Lane on the shoulder, speeds and operational conditions improved.

PROVIDING CONGESTION RELIEF & ENHANCING MOBILITY >>>>



A new Diverging Diamond Interchange at I-25 and Fillmore Street helps ease congestion in Colorado Springs.

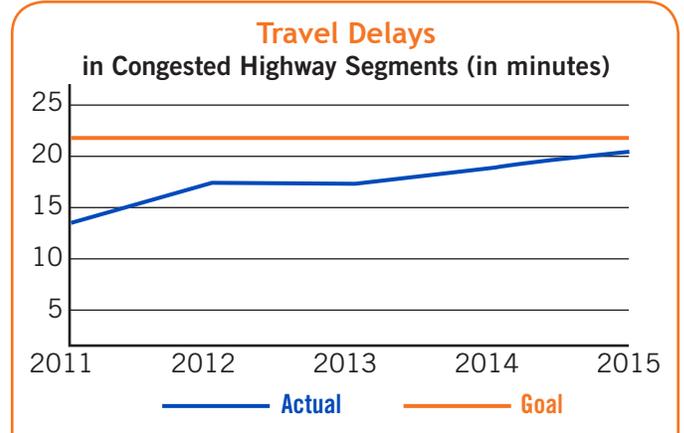
In addition to the Express Lane projects facilitated by TSMO, the following are a sampling of projects that are relieving congestion and improving mobility:

I-25: At Fillmore Street, El Paso County
Cost: \$15.1 million

The work constructed a Diverging Diamond Interchange, extending the northbound on- and southbound off-ramps, and providing new signals, lighting, bicycle lanes and pedestrian walkways.

I-70: Exit 31 at Horizon Drive Roundabouts, Mesa County
Cost: \$5.25 million RAMP*

The project increased safety and improved mobility with the construction of two roundabouts on Horizon Drive at this busy interchange.



YEAR	2011	2012	2013	2014	2015
Long Range Goal	22	22	22	22	22
Actual	13.8	17.2	17.1	18.6	20.4

US 34: Bypass and US 85 Adaptive Signals, Weld County
Cost: \$800,000 RAMP*

The project installed adaptive signals that are responsive to actual traffic demands through both their hardware and software. Follow-up study showed travel times were reduced by 13 percent on the US 34 Bypass and by 23 percent on US 85.

CO 172 at CO 151: Ignacio Signalization, La Plata County
Cost: \$1.8 million (Partnership funding by CDOT, Southern Ute Indian Tribe, Town of Ignacio and La Plata County)

This project involved signalization and intersection improvements to ease traffic flow and increase safety for passenger vehicles, heavy truck traffic and pedestrians.

*RAMP stands for Responsible Acceleration of Maintenance and Partnerships. RAMP was created to better coordinate available funding with project expenditures. With RAMP, CDOT funds multi-year projects based on year of expenditure, rather than having to save the full cost of a project before construction begins. For more details, including a list of RAMP project requests, [click here](#).

HIGH PERFORMANCE TRANSPORTATION ENTERPRISE

The High Performance Transportation Enterprise (HPTE) operates as a government-owned, independent business within CDOT. It searches out innovative ways to finance projects to help Colorado fulfill its commitment to increase travel choices through options that include Express Lanes, transit, biking, walking and carpooling. For more information, [click here](#).

The High Performance Transportation Enterprise delivered two major Express Lane projects in 2016, broke ground on two new projects, won two national awards for its 2015 projects, and began implementation of a major High Occupancy Vehicle policy shift to HOV 3+.

Some FY 2016 accomplishments for the High Performance Transportation Enterprise:

Express Lanes

Express Lanes reduce delays by increasing roadway capacity, as well as managing congestion and keeping travel times reliable for motorists by using toll pricing to ensure a free-flowing alternative to address future growth. Express Lanes provide another choice for drivers by enabling them to pay a toll as a solo driver, ride the bus or carpool in HOV-eligible lanes.

- **US 36:** Phase I & II Express Lanes
Completed in March 2016 for \$497.4 million, the US 36 Express Lanes corridor delivers faster travel times for drivers in both the Express and general-purpose lanes. Data show that over a five-year period (comparing the same weekday westbound travel day in September), drivers experienced more consistent travel times and speeds for all lanes were 29 percent faster in the morning (7:40 a.m.) and 20 percent faster at 6 p.m.
- **I-70:** Eastbound Mountain Express Lane, Summit County
Cost: \$72 overall project cost (HPTE provided a \$24.6 million construction loan)
The I-70 Eastbound Mountain Express Lane (also known as a Peak Period Shoulder Lane, or PPSL) officially opened for tolling on December 12, 2015—just in time for ski season. The eastbound lane, located between Empire and Idaho Springs, operates during peak travel times only, 73 days per year. From January 1 through April 10, 2016 this Express Lane improved general purpose travel times by 18 percent, and reduced overall traffic incidents by 15 percent. Users across all lanes (Express and general purpose)

have experienced reductions in travel times between 26 and 52 percent, even during record-setting volume on the corridor.

- **I-25:** North Express Lanes (Segment 2), Broomfield County
Cost: \$72 million (\$22 million HPTE construction loan; \$15 million in TIGER grant funding)
The North I-25 Segment 2 Express Lanes opened for tolling on July 12, 2016. These north- and south bound lanes, located between US 36 and 120th Avenue, operate in both directions on a 24/7 schedule. HPTE developed and implemented an intra-agency agreement with CDOT for the operations and maintenance of the new Express Lanes. August 2016, the first month of available performance data just beyond this fiscal year report, showed positive cash flow, and improved safety and travel times.
North I-25 Segment 3 broke ground on July 7, 2016. These lanes will run from 120th Avenue (northern terminus of Segment 2) to the interchange of I-25, E-470 and the Northwest Parkway—a distance of six miles. HPTE also is assisting with the design, financing and development of Express Lanes in additional northern segments up to Fort Collins.

High Occupancy Vehicle Lanes

The new HOV 3+ policy will begin in 2017, an initiative approved by the State Transportation Commission in 2013. HPTE is actively engaged in the public outreach to prepare drivers and ease the shift to the new HOV requirements.

HPTE Awards

In July 2016, HPTE was awarded the Excellence in Innovation for a Medium-Sized Project (between \$26 and \$199 million) for its Mountain Express Lane Project by the Western Association of State Highway and Transportation Officials (WASHTO). The award recognized the project for its contribution to improving travel safety, reducing congestion and providing additional mobility options in the I-70 Mountain Corridor.

SUPPORTING MULTIMODAL TRAVEL >>>>>>

Cycling and Walking—Healthy Transportation Options

CDOT's Bicycle and Pedestrian Program continues to move Colorado towards being the best state for these healthy travel modes, vital to reaching our Healthy Multimodal Systems Peak.

We amended the Statewide Bicycle and Pedestrian Plan to further refine performance measures. Instead of project-based measurements, the plan now supports system-wide performance measures, such as bicycle and pedestrian crash rates, bicycle accommodation on state roadways and obesity rates. This will provide baseline data that can be compared in the years ahead.

Staff developed and implemented a *Share the Road* task force in Pueblo. In addition to community-wide education and encouragement, this grassroots effort led to more than 500 people committing to personally share the road as a way of making all road users safer.

Working in concert with the Colorado Pedals Project (CPP), CDOT held a *Complete Streets Summit* to focus on the importance of designing transportation for all modes. We also partnered with CPP and other state agencies to sponsor a study on the economic and health impacts of biking and walking, learning the impact is \$4.8 billion to the state.

The Bicycle and Pedestrian Program also partnered with the Department of Local Affairs and the Colorado Department of Public Health and Environment to create "Colorado Downtown Streets, A Tool for Communities, Planners, and Engineers." This book provides information and ideas on making downtowns more walkable and bikeable.

Also in FY 2016, the Transportation Commission solidified the *Safe Routes to School* Program by committing \$2.5 million each year to help more children kindergarten through 8th grade walk and bike to school.

Here are a couple of examples of multimodal projects underway this past year:

CO 9: Iron Springs Alignment, Summit County
Cost: \$20.6 million

A two-mile section of CO 9 was aligned and widened, including recreation path improvements on the new alignment south of Frisco. Three new culverts with landscaped retaining walls were constructed to allow bicyclists and pedestrians easy access all along the path.

SMART 160: Path in Durango, La Plata County
Cost: \$2.3 million, CDOT/City of Durango partnership with FASTER funds

This project consisted of the construction of a concrete shared use path east of Durango, extending the existing path along US 160, from the US 160/550 interchange to the regional hospital.

Transit & Rail—Strengthening These Platforms

CDOT's Division of Transit & Rail (DTR) was created in 2009, per FASTER legislation, and works to integrate transit into Colorado's transportation system. In FY 2016, the new Bustang interregional express bus service (launched in July 2015) exceeded all ridership, revenue and farebox recovery goals. The additional fare revenue will be used to increase service levels where needed.

Operated by Ace Express Coaches, Bustang operates along the Front Range on I-25 and on the I-70 mountain corridor, connecting the six largest transit entities in the state. Weekday service connects Fort Collins, Colorado Springs and Glenwood Springs to Denver. The I-25 lines have seen consistent growing ridership and the immediate success of the I-70 west route to the mountains resulted in the addition of weekend service, as well as an added route between Vail and Denver. Bustang also continues to partner with CSU Parking and Transportation Services for the popular RamsRoute weekend service between CSU and Denver on Fridays and Sundays, as well as with RTD and the Denver Broncos to pilot a "Bustang to Broncos" service. [Click here](#) for more information.



Safe Routes to School funding helped the City of Durango improve the walk (and ride) each day at Needham Elementary.

SUPPORTING MULTIMODAL TRAVEL >>>>>>



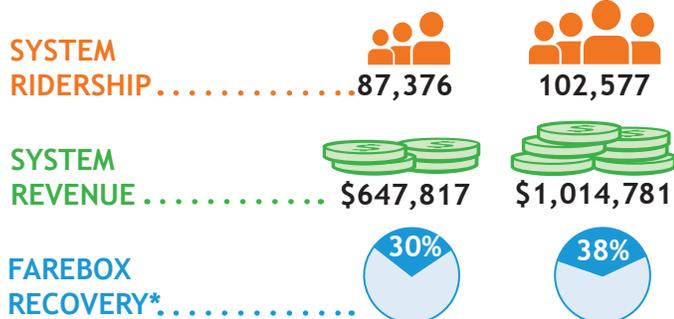
The Winter Park Express passenger platform at the base of Winter Park Resort was under construction this past year, with Senate Bill 228 transit funds and a partnership with Winter Park Resort, the Town of Winter Park, the City of Denver and Intrawest Holdings. Back in operation, the express train is expected to help ease the I-70 travel demand on busy ski weekends.

Guided by the first Statewide Transit Plan (2015), staff are implementing a number of its recommendations. We are working to extend the efficiency, convenience and reach of the rural regional bus network that connects local transit agencies around the state. Bustang primarily serves the I-25 and I-70 corridors, and the rural regional bus network proposes to bring together, under one brand identity, bus services that would include highways US 50/550 (Durango—Grand Junction), US 50 (Lamar—Pueblo) and US 285 (Gunnison—Denver).

Also, we are updating the State Rail Plan and had successes in the last year. Colorado was awarded a grant to repair or replace track used by the Amtrak Southwest Chief—serving Lamar, La Junta and Trinidad—which would save more than an hour of travel time. Finally, transit grant management improvements have greatly helped customer service for our grant partners, reducing invoice payment time from 45 to under 30 days.



First Year (FY2015/16) Forecast vs. Actual



*Operating expenses met by fares paid by passengers.

Aeronautics—Keeping our Eye on the Sky

The Division of Aeronautics is funded exclusively from aviation fuel sales and excise tax revenues appropriated to the Colorado Aviation Fund. This fund supports fuel tax reimbursements to Colorado airports, aviation grants to Colorado airports, aviation education grants and a variety of aviation programs. Aviation grants are used to fund projects including capital improvements, pavement maintenance, safety enhancements, local match for federally funded airport projects, and system-wide safety and outreach programs.

Colorado Discretionary Aviation Grant (CDAG) Program—Despite recent financial challenges and a four-year low on jet fuel prices (jet fuel sales generate nearly 97 percent of the Division’s revenue), the Division is continuing to provide an airport grant program with approximately \$1.7 million of annual funding. In FY 2017, the Division expects to allocate approximately \$1.6 million in grants, which 26 airports will use to leverage over \$56 million in Federal Aviation Administration (FAA) AIP grant funding for important capital improvement, airport safety, efficiency and capacity projects. The pavement projects funded by this program are measured by the Division’s Pavement Condition Indexing (PCI) Program and, despite recently reduced funding, PCI values remain relatively consistent.

In addition to the CDAG Program, \$1.2 million was allocated for statewide aviation programs administered by the Division, including the Colorado Mountain Automated Weather Observing System (AWOS) Program, Crackfill Rebate Program, Airport Internship Grant Program, DEN Surplus Equipment Program, and production of the Colorado Aeronautical Chart and Colorado Airport Directory.

SUPPORTING MULTIMODAL TRAVEL >>>>>>

General Aviation Airport Sustainability Program—Over the past year, the Division has been undertaking a nationally-groundbreaking initiative to provide a sustainability framework and toolkit for the state’s general aviation (GA) airports. This is the first project in the nation to look at statewide airport sustainability, not just from an environmental perspective, but operational, political and financial as well. This program provides GA airports in the state with an effective and easy-to-use online toolkit to help them create a sustainability plan, create and track metrics, and report on achievements. This toolkit is integrated with our WIMS program (a cloud-based information management system), enabling statewide airport sustainability reporting and tracking by our Division.

This Sustainability Program was rolled out in June 2016, with the adoption of Sustainability Plans by the three pilot airports: Centennial Airport, Fremont County Airport, and Rifle Garfield County Airport. Since that time, other airports have begun working on plans, and we will encourage and incentivize the Program’s use. In November 2016, this program was recognized with an Honorable Mention Award at the international Airports Going Green Symposium.

Colorado Mountain Automated Weather Observing Systems—Currently, our Aeronautics Division operates and maintains a network of twelve Automated Weather Observation Systems (AWOS) throughout Colorado’s high country, an innovative program pioneered nationally



Aeronautics is currently working to add a new Automated Weather Observing System (AWOS) to its network of 12 weather reporting sites located in the Colorado high country.



The Gunnison-Crested Butte Regional Airport was awarded a \$250,000 CDAG federal matching grant in FY 2016 to rehabilitate the airport’s main runway.

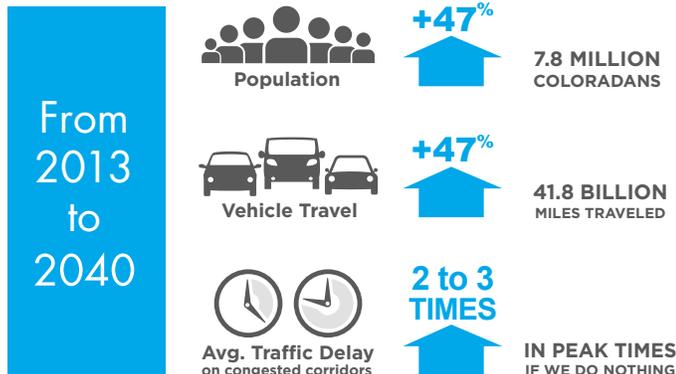
by our staff. These AWOS locations are situated at key mountain flying passes and routes and provide pilots with critical off-airport weather information as they make their way over and through Colorado’s mountain ranges. This weather information significantly improves aviation safety and Division staff continues to work with the National Weather Service, NTSB, FAA and other states to expand the availability of our mountain AWOS weather information. We will be adding a new AWOS unit on Dakota Hill near Rollins Pass, and staff recently relocated the Wolf Creek Pass unit to facilitate more cost-effective and efficient maintenance.

CDOT Unmanned Aerial System (UAS) Certificate of Authorization (COA) Management—Aeronautics staff manage the FAA certificate of authorization, which allows other CDOT divisions to efficiently and cost-effectively utilize unmanned aerial systems (drones) for valuable public services such as rockfall mitigation inspection. Staff will continue to work with other CDOT divisions to explore possible new uses of UAS technology for operations like avalanche control, mapping and photography, and infrastructure inspections.

SELF-DRIVING VEHICLES, SMART ROADS... >>>>>>>

RoadX—Our Path to a Technologically-Advanced Transportation System

Throughout this report, we have discussed how we are maintaining our system, working to increase safety and providing multimodal options. But how do our operations and efforts keep pace with the fast-paced growth in our state? Colorado’s population is booming—with 50 percent growth in the last 20 years and another 50 percent projected in the next 20. Couple that with some of the most congested metro roadways in the country, major statewide road maintenance, more than \$13 billion in roadway crash costs each year and an annual funding gap of \$1 billion, and our transportation future has significant challenges.



We can’t simply build our way out of congestion, nor will new lanes easily solve how we address the reality that in 2016, at least 606 (preliminary count) people died in traffic-related crashes, and more than 3,000 were seriously injured. Enter **RoadX**.

RoadX will use 21st century technology and ingenuity to solve our current infrastructure challenges. This means smarter roadways with more informed drivers and eventually, self-driving cars that can communicate with the roads on which they travel.

Through **RoadX**, here are just a few ways that CDOT will use technology:

- Improved, localized driving, safety and navigation apps using real-time data
- Connected vehicles and drivers with the capacity to “talk to” each other, helping to prevent accidents and speed the flow of traffic

- Smarter trucking that moves goods and services more efficiently
- Improved, smarter systems in infrastructure, like ramps that help improve the flow of traffic and decrease the need for additional lanes
- Infrastructure like virtual guardrails that “talk to” cars to prevent crashes

RoadX cannot be CDOT working alone. We have neither the manpower nor all the solutions (yet). What we have is the vision and the drive to build partnerships with innovators and advisors to help guide the integration of technology into Colorado’s transportation system. **RoadX** will be paid for through CDOT’s current operating budget. We will not ask Colorado citizens to pay more, but they will get more, because developments in technology offer opportunities to achieve the same goals of safety and mobility with less capital.

In 2016, we committed \$20 million to kick-start **RoadX**, with the primary goals of technology-enabled congestion relief and safety improvements. Each year, as we see proven project benefits, CDOT will continue to dedicate funding to technology. Our action items are:

- **Commuting:** Making our system more reliable by improving travel times and optimizing routing and movement of commutes
- **Sustainability:** Becoming the nation’s leader in energy conservation and emissions reduction
- **Transport:** Deploy emerging in-vehicle technology and supporting infrastructure to improve the safety and efficiency of transporting freight
- **Safety:** Make a dramatic leap toward zero deaths on Colorado highways
- **Connection:** Develop solutions to transform data into actionable intelligence, and deliver to drivers, cellular/mobile applications, and connected and autonomous vehicles

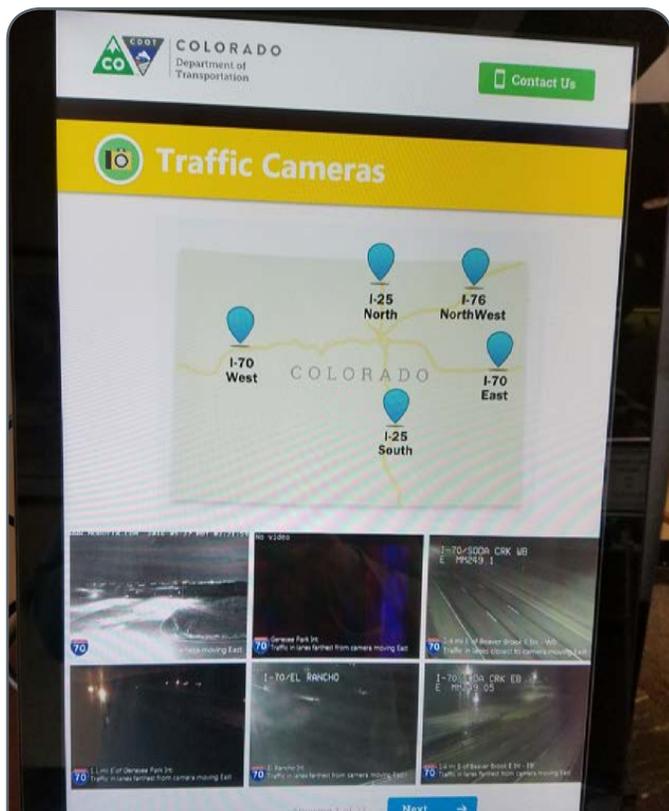
[Click here](#) to visit our online **RoadX** page for updates on our projects, partnerships and more.



WHAT THE TECH? >>>>>>>



We must envision and prepare for tomorrow, today. CDOT's RoadX program will take us there. It is the most important transportation undertaking in this decade and, when we do it right, perhaps this century.



Touch Screen Kiosks—Providing Information for Informed Travel Decisions

The Traveler Information Kiosks were developed as an interactive tool for people driving to and from ski areas to be able to make informed decisions on when to travel, with regards to weather or crash incidents on highways (especially I-70). We have installed both indoor and outdoor units at Vail and Copper Mountain ski resorts, as well as “counter top” units at the Fruita, Julesburg and Georgetown welcome centers.

This kiosk can provide a trip planner that will show all the cameras, road conditions and alerts on the path you plan to travel. We are hoping to extend these to more areas of the state in the coming years. *(See an example of one of these kiosks in photo at left.)*

PLANNING, RESEARCH & ENVIRONMENTAL STEWARDSHIP >>>>

Transportation Planning—A Public Process

CDOT implemented an annual two-way conversation with statewide stakeholder groups and the public to proactively inform the planning process and report on progress made since the March 2015 adoption of the 2040 Statewide Transportation Plan. This effort, titled *Together We Go* (TWG), is an opportunity to highlight achievements, enhance relationships through dialogue, and direct the next statewide planning effort.

The *Together We Go* effort was organized in three phases: it began with telephone town halls in each Transportation Commissioner district, continued with discussions with Transportation Planning Region (TPR) and Metropolitan Planning Organization (MPO) partners, and will conclude with expanded outreach to stakeholder groups, including chambers of commerce, low-income and minority organizations, academia, environmental organizations and others.



The telephone town halls were completed this summer. The eleven State Transportation Commissioners along with CDOT Regional Transportation Directors, spoke with approximately 20,000 members of the public and answered over 160 live questions. Our Division of Transportation Development liaisons gave presentations and engaged in thought-provoking conversations with TPRs, MPOs and Rotary clubs at the annual Tribal Coordination Meeting and at the 2016 CASTA transit conference. Staff also gave a TWG presentation to the members of the Alliance for Sustainable Colorado and hosted a webinar for the members of the Colorado Municipal League. TWG outreach concludes at the end of 2016.

Wildlife on the Move!

Over the past ten years, CDOT has seen an average of 3,300 wildlife-vehicle collisions each year. This number only includes hits that were reported to law enforcement. During migration season, particularly between dusk and dawn, wildlife-vehicle interactions increase. These collisions are not only a matter of safety but can be quite costly. The insurance industry pays more than \$1 billion a year on wildlife-vehicle collision claims.



A moose uses the new wildlife structure over CO 9.

CDOT's Environmental Programs Branch develops and supports the use of wildlife mitigation strategies. Along with traffic and safety engineers, staff analyze data to identify areas where mitigation (signage, fencing, escape ramps, lighting) will be most effective in reducing the rate of these collisions.

Below are two of our more high-profile wildlife mitigation projects underway this past year.

US 160: Wildlife Crossing, La Plata County
Cost: \$6.5 million

Constructed an underpass east of Durango where collisions with wildlife have made up—at times—more than 70 percent of all accidents. The project also installed wildlife fencing on both sides of the highway.

CO 9: Wildlife Safety Project, Grand & Summit Counties
Cost: \$46 million public-private partnership
CDOT, Grand County, Colorado Parks and Wildlife (CPW), and Blue Valley Ranch partnered on this project after several wildlife-vehicle collisions and human fatalities. The work included shoulder widening, highway realignment, two wildlife overpasses (the first in Colorado), five underpasses and animal fencing. CPW has been monitoring wildlife activity and has photographed deer, elk, moose, bear and other species using the structures.



The new wildlife underpass at US 160 east of Durango (now complete) was under construction this past year.

STRENGTHENING PARTNERSHIPS >>>>>>



Some downtown streets in the town of Ridgway are getting improvements as part of a CDOT partnership project.

Piloting a Fund Exchange for Local Agency Partnerships

CDOT works with local agency partners to enhance the community's existing transportation system. We administer federal funds and provide oversight for many partnership projects. As noted previously with regards to our "Healthy Multimodal Systems Peak," this past year, we launched a Local Agency Program to examine how these federal funds can be exchanged for state funds, and how we can streamline project delivery by reducing the burden of federal requirements. Pilot projects have been identified and we are working to develop guidance for implementation. Other Departments of Transportation have successfully implemented these fund swaps, or exchanges, of federal-for-state funds in similar program areas and we determined this was a system that deserved further investigation. The pilot projects will help us identify obstacles or challenges and develop the process for future state-fund-only projects.

A Sampling of Partnership Projects Underway in FY 2016 (Not all used federal funds)

Kipling Multi-Use Path: 32nd to 44th, Jefferson County
Cost: \$2.99 million, with federal funds and partnership with City of Wheat Ridge

This project built a bike/pedestrian bridge across Clear Creek and completed the missing sections of the 10-foot multi-use path between 32nd and 44th avenues along the east side of Kipling.

I-25: Over Dillon Drive, Pueblo County
Cost: \$14.3 million, partnership with the City of Pueblo

This project included the construction of several new structures: a new bridge over I-25, two roundabouts, a southbound on-ramp and a northbound off-ramp. The existing southbound on-ramp from Dix Parkway to I-25 and the northbound off-ramp from I-25 to Dix Parkway was eliminated. Additional improvements included widening a portion of Dillon Drive west of I-25 and modifying the existing west side frontage road.

CO 82: Basalt Pedestrian Underpass

Cost: \$6.2 million, with federal funds and partnership with City of Basalt

The project constructed a pedestrian underpass that improves pedestrian access at Basalt and provides pedestrian and bicycle connectivity to the Basalt RFTA transit station.

CO 62: "Ramp Up Ridgway," Ouray County

Cost: \$12.5 million, with CDOT funding, a contribution from the Town of Ridgway (made possible through a 2014 ballot initiative passed by local voters), and a grant from the Department of Local Affairs

This partnership with the Town of Ridgway has two major components: the reconstruction and surface treatment of targeted segments of CO 62 and the enhancement of the town's downtown streets. The stretch of CO 62 that bisects the town will get a center-turn lane along with curb, gutter, storm drain improvements, utility relocations, signing, striping, bike lanes, sidewalks, crosswalks and ADA ramps. Ridgway will see reconstruction of Cora Street, pedestrian ramps, lighting, traffic calming and streetscape features, parking lots, on-street parking improvements, irrigation and landscaping.

PROTECTING & CELEBRATING OUR SCENIC BYWAYS >>>>>>

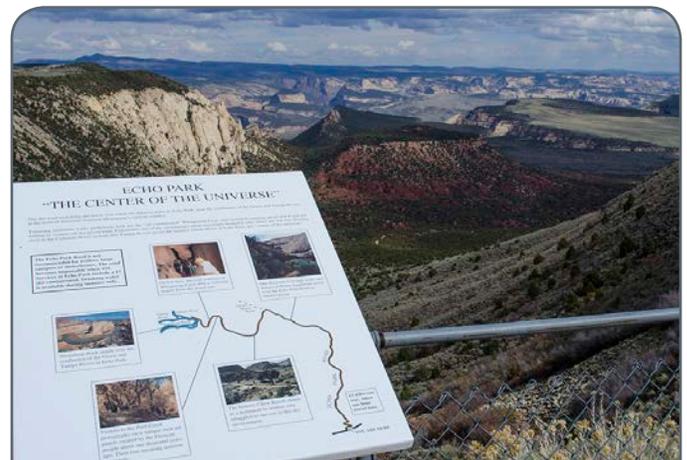
The National Scenic Byways Program celebrated its 25th Anniversary in Washington, D.C. on December 6, 2016. The program was created through the federal Intermodal Surface Transportation Efficiency Act of 1991. Eleven of Colorado's 26 byways are designated by the U.S. Secretary of Transportation as America's Byways,[®] which gives Colorado more national designations than any other state.



Travelers along the Los Caminos Antiguos Scenic Byway in south-central Colorado benefit from new interpretive signs off US 160 at Fort Garland.

Colorado's Scenic and Historic Byways has been around for more than 25 years, and we are proud to share the following highlights from our 2016 program:

- Updated the Colorado Scenic and Historic Byway printed and online guide and distributed Colorado Scenic and Historic Byways information at major travel trade shows across the U.S.
- Completed the Dinosaur Diamond Corridor Management Plan
- Completed on-the-road wayfinding assessment on West Elk Loop Scenic and Historic Byway
- Provided Colorado Grassroots training (for hospitality and board members) for Grand Mesa and Flat Tops Trail Scenic and Historic Byway
- Completed National Scenic Byways Program grants for four byways enhancement projects



Echo Park, a.k.a. the Center of the Universe, is described in new signage along the Dinosaur Diamond Scenic Byway in the northwest corner of the state.

MORE ABOUT OUR PEOPLE PEAK >>>>>>



Our Customer Service Representatives, existing CDOT employees statewide who attended training to learn a new online tracking program, now assist our customers more efficiently and effectively.

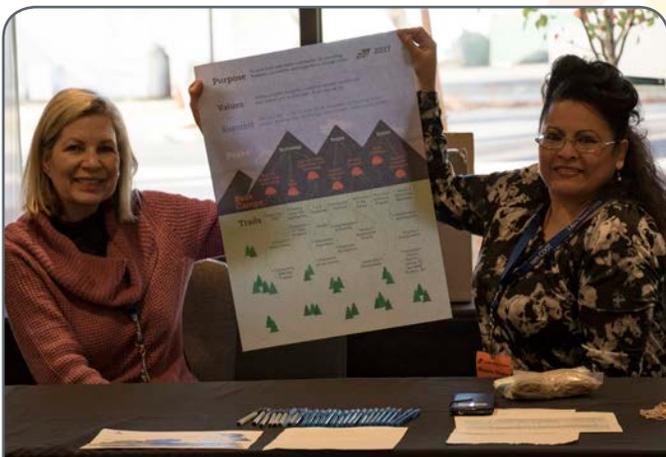
PEOPLE PEAK: *Growing and developing our team so everyone loves to come to work and others want to work for the best DOT in the county.*

Create a Great Internal Customer Experience

Compensation and Benefits: Working to make our compensation guidelines consistent among employee populations

Underpaid Positions: Evaluated job classifications perceived to be inequivalent with the market and counterparts outside CDOT

Employee Recognition: Developed a formal, three-tiered program that focuses on work group, division and statewide levels.



Employees hold up the 2017 Peak Poster, CDOT's focus areas and action map for becoming the best DOT in the country.

Develop Our Leaders:

Leadership Development: New training opportunities for managers and employees

Leadership Forum: We held two leadership forums to align our leaders on the Three Peaks

Tech Savvy Team: Delivered great technology ideas at a two-day event

Top Two Ideas

- **Traveler Information Kiosks** at Denver International Airport (DIA) or DIA Car Rental Areas
- **CDOT Community of Learning** which will feature micro-learning: short, how-to videos that share institutional knowledge with employees and make it easier for them to quickly learn the things they need to do their jobs.



CDOT managers at all levels attended a leadership training event.

HOW TO REACH US / GET INVOLVED >>>>>>

NEW! Customer Service Phone Numbers

Denver Metro (Region 1) 303.759.2368
Southeast Colorado (Region 2) 719.562.5568
Northwest Colorado (Region 3) 970.243.2368
Northeast Colorado (Region 4) 970.350.2368
Southwest Colorado (Region 5) 970.385.1423
CDOT Headquarters 303.757.9011

CDOT Website CODOT.gov

Highway Information COTrip.org

Road Conditions 511 (303.639.1111)

Office of the Executive Director 303.757.9201

Shailen Bhatt, Executive Director
Mike Lewis, COO/Deputy Director
Kerry Cataldo, Executive Assistant

Office of the Chief Engineer 303.757.9204

Josh Laipply, Chief Engineer

Regional Transportation Directors

Region 1 (*Metro/Central*) Paul Jesaitis 303.757.9388
Region 2 (*Central/Southeast*) Karen Rowe 719.546.5452
Region 3 (*Northwest*) Dave Eller 970.683.6202
Region 4 (*Northeast*) Johnny Olson 970.350.2103
Region 5 (*Southwest*) Michael McVaugh 970.385.1402

Office of Process Improvement 303.757.9602

Gary Vansuch, Director

Office of Policy & Government Relations 303.757.9065

Herman Stockinger, Director

Office of Communications 303.757.4066

Amy Ford, Director

Office of Emergency Management 303.512.4034

Chad Ray, Director

Office of Information Technology 303.757.9411

Douglas Beck, Director

Office of Major Project Development 303.757.9168

Brett Johnson, Director

Office of Program Management 303.757.9040

Jane Fisher, Director

Office Transportation Safety 303.757.9421

Darrell Lingk, Director

HPTE 303.757.9249

David Spector, Director

Division of Accounting and Finance 303.757.9262

Maria Sobota, Chief Financial Officer

Division of Transportation Development 303.757.9525

Debra Perkins-Smith, Director

Division of Audit 303.757.9613

Vacant

Division of Highway Maintenance 303.757.5501

Kyle Lester, Director

Division of Transit and Rail 303.757.9646

Mark Imhoff, Director

Division of Transportation System Management & Operations 303.757.9554

Ryan Rice, Director

Division of Project Support 303.757.9364

Scott McDaniel, Director

Center for Procurement/Contract Services 303.757.9236

Robert (Bob) Corman, Director

Strategic Workforce Solutions 303.757.9678

Susan Rafferty, Director

RoadX 303.757.9204

Peter Kozinski, Director

Division of Aeronautics 303.512.5259

David Ulane, Director

Colorado Aeronautical Board

Ann Beardall, Vice Chair [Pilot Organizations]
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Jeffery Forrest [Eastern Plains Governments]
Joe Rice [Aviation Interests-at-Large]
Robert Orlislagers [Airport Management]
William "T" Thompson [Eastern Slope Governments]
John Reams [Western Slope Representative]

State Transportation Commission 303.757.9025

(Counties in each Commissioner's district are noted)

District 1—Shannon Gifford, * *Vice Chair* (Denver)

District 2—Edward J. Peterson (Jefferson)

District 3—Gary M. Reiff, * *Chair* (Douglas, Arapahoe)

District 4—Heather Barry (Adams, Boulder)

District 5—Kathy Gilliland* (Larimer, Morgan, Weld)

District 6—Kathy Connell (Clear Creek, Gilpin, Grand, Jackson, Moffat, Rio Blanco, Routt)

District 7—Kathy Hall (Chaffee, Delta, Eagle, Garfield, Gunnison, Lake, Mesa, Montrose, Ouray, Pitkin, Summit)

District 8—Sidny Zink (Alamosa, Archuleta, Conejos, Costilla, Dolores, Hinsdale, La Plata, Mineral, Montezuma, Rio Grande, Saguache, San Juan, San Miguel)

District 9—Vacant (El Paso, Fremont, Park, Teller)

District 10—Bill Thiebaut (Baca, Bent, Crowley, Custer, Huerfano, Kiowa, Las Animas, Otero, Prowers, Pueblo)

District 11—Steven Hofmeister (Cheyenne, Elbert, Kit Carson, Lincoln, Logan, Phillips, Sedgwick, Washington, Yuma)

Herman Stockinger, Secretary

*Also serve on HPTE Board

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