



**COLORADO**  
Department of  
Transportation



# CDOT 2018-19 Performance Plan

July 1, 2018





*CDOT crews plow I-25 in tandem to pull snow away from areas such as walls and medians where drainage is poor. Snow and ice removal is a customer service CDOT offers that directly affects the traveling public.*

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## Introduction & Overview

The Colorado Department of Transportation (CDOT) is pleased to present its Performance Plan for fiscal year 2018-19. The plan will help the Department serve Coloradans in effectively administering and delivering transportation-related programs and services.

Described in this document are one- and three-year Strategic Policy Initiatives; strategies and processes supporting those initiatives; output and outcome measures indicating performance levels; and a description of the environment, inputs and customer for each initiative. A description of the Department also is included.

The Performance Plan is required by the 2013 revision of the State Measurement for Accountable, Responsive and Transparent Government (SMART) Act. The Governor's Office of State Planning and Budgeting (OSP) provides guidance each year on recommended and required content.

Revisions to the plan may occur through consultations with OSPB, and as CDOT completes its annual review of the Federal Highway Administration-CDOT Stewardship and Oversight Agreement and other documents that contain many of the same or similar performance indicators.



*CDOT crew makes improvements to State Highway 7.*

# Department Description

The Colorado Department of Transportation is the cabinet Department that plans for, operates, maintains and constructs the state-owned transportation system, including state highways and bridges. The Department’s statutory authority resides within Title 43, Part 1, Colorado Revised Statutes (2017). Article 1 vests the Colorado Transportation Commission with authority over planning, development and adoption of CDOT’s annual budget.

CDOT is responsible for a state highway system that encompasses more than 9,100 centerline miles (about 23,000 total lane miles) and includes more than 3,400 bridges. This system each year handles more than 30 billion vehicle miles of travel. Although the Interstate system accounts for only about 10 percent, or 952, of the centerline miles on the state system, more than 40 percent of state-highway travel within Colorado takes place on Interstate highways.

## Vision, Mission and Strategic Framework

The Department’s **vision** is 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, goods and information by offering convenient linkages among modal choices. CDOT’s **mission** is to provide the best multi-modal transportation system for Colorado that most effectively and safely moves people, goods and information. CDOT’s core values are safety, people, respect, integrity, customer service and excellence.

From these organizational priorities, the Department establishes mid- to long-term performance goals and objectives. CDOT’s Policy Directive 14, an updated version of which was adopted by the Governor-appointed Colorado Transportation Commission in 2017, provides policy direction on investment decisions to achieve certain performance levels for the statewide transportation system, including safety, infrastructure condition, maintenance and system performance levels. The objectives in Policy Directive 14 help set direction for funding levels for various programs in the long-range Statewide Transportation Plan, the near-term Statewide Transportation Improvement Plan (STIP), and the Department’s annual budget.



*CDOT intends to become the best transportation department in the country for its customers by reaching the three peaks above.*

The Department's new strategic framework focuses on reaching the "**summit**" of becoming the best transportation department in the country for our customers. Success in reaching this goal will boost the health of Colorado's transportation system and maximize the freedom of people in the state to decide how, when and where they want to go. CDOT's **purpose** is to provide freedom, connection and experience through travel.

To become the No. 1 transportation department in the country, CDOT has identified three "peaks" it must reach:

- **Leading-Edge Technology:** Deploy leading-edge technology to keep people moving more reliably and safely.
- **Our People:** Develop a workforce with a passion for coming to work every day and attract new employees who want to work for the best transportation department in the country.
- **A Healthy Multi-Modal Transportation System:** Enhance our roads, bridges, and multi-modal options to get our customers where they need to go more safely, easily, and more confidently than ever.

CDOT's Executive Director has established key goals and related strategies for each peak for fiscal year 2019. These goals, the current draft of which are found at the end of this plan, are aligned with the plan's Strategic Policy Initiatives.

Under guidance of the Colorado Governor's Office, state agencies have established performance goals for a project known as **Vision 2018**. CDOT's goals for the Vision 2018 project and associated [dashboard](#) are aligned with Strategic Policy No. 3 in this Performance Plan. These goals focus on reducing projected travel times for the Interstate 70 mountain corridor and the Interstate 25 corridor in the Denver metro area.

## Department Structure

The state's transportation system is managed by CDOT under the direction of the Colorado Transportation Commission, which is composed of eleven members who represent specific districts. Each commissioner, appointed by the Governor and confirmed by the Senate, serves a four-year term. The commission directs policy and adopts Departmental budgets and programs.

The Executive Director's Office leads the Department in planning for and addressing Colorado's transportation needs. The Executive Director and other members of the Executive Management Team set the direction of the Department, make recommendations to the Transportation Commission, ensure consistent communication, set internal policy, set short-term and long-range goals, and provide leadership for the Department through the execution of the Transportation Commission's policies and budgets.

CDOT's Chief Engineer, who is also the Transportation Program Director, is responsible for integrated transportation program-development functions including planning, engineering, design and construction. Reporting to the Chief Engineer and Transportation Program Director are CDOT's Division of Transit & Rail, Division of Transportation Development, Office of Major Project Development, Project Support, Civil Rights, Property Management, Central Interstate 70 Project Team and the Office of Program Management.

The Department's divisions and offices, along with its Transportation Regions, perform an array of functions. Examples include:

- Colorado's five Transportation Regions operate under the guidance of the Deputy Director/Chief Operating Officer and their respective Regional Transportation Directors. CDOT's Transportation Regions design highway projects and award contracts to private companies that submit the lowest bids to construct the projects. The Regions also deliver needed maintenance for the state highway system and maintain ongoing contact with local governments, industry and the public. Each Region covers all aspects of CDOT operations for that Region, including engineering, planning and environmental management, traffic, right-of-way and surveying, and utilities.
- Regions, supported by the Division of Highway Maintenance, also take care of the highway system by plowing snow, repairing pavement, maintaining guardrails and more.
- The Division of Transportation Systems Management and Operations (TSM&O) focuses on implementing low-cost, high-value operational improvements to improve safety, mobility and reliability on the state highway system.
- The Office of Transportation Safety helps local law-enforcement agencies with special funds to provide educational programs to reduce distracted and impaired driving and to increase the use of safety belts.
- The Division of Aeronautics supports aviation interests statewide, including by awarding and administering grants to help improve local airports. The Division operates under the direction of the Colorado Aeronautical Board.
- The Division of Transit and Rail provides assistance to numerous transit systems in the state.
- The Division of Transportation Development manages the statewide transportation-planning process, ensures the Department fulfills its environmental and reporting obligations, and monitors agency performance measures.
- The Office of Major Project Development helps CDOT and the High Performance Transportation Enterprise (HPTE) more effectively and efficiently develop major projects through the promotion of consistency in the advancement, management and oversight of such projects.

## Major Functions

CDOT administers highway, aviation, transit and rail, and other programs pursuant to state laws, federal laws and the policies of the Colorado Transportation Commission. For this plan, the Department uses six functional categories to describe its work:

- 1. Capital Construction:** The Department delivers bridge, pavement and other capital construction projects. CDOT ensures pavements, tunnels, bridges and other structures statewide are properly designed, constructed and maintained. **Customers:** All users of the state highway system. This includes resident, tourist and recreational travelers; "through" travelers on the Interstates; business customers such as the freight and tourism industries; the construction community; transit service providers; the military; counties; municipalities and others.
- 2. Operations and Maintenance:** CDOT maintains and operates the state highway system. The Division of Transportation Systems Management and Operations (TSM&O) plans, develops, and administers a statewide program to reduce congestion and improve the safety, security, mobility, and efficient use of Colorado's existing highway system. TSM&O improves the surface transportation system through activities other than building new capacity. Examples include Variable Messaging Signs that allow travelers to adjust trips based on the latest information and

traffic signals on ramps that dynamically control the rate at which vehicles enter freeways. Meanwhile, the Division of Highway Maintenance provides policy and guidance for the statewide maintenance program. This Division also maintains operational oversight for the administration of the maintenance program for the nine maintenance sections. CDOT's maintenance forces take care of the highway system in numerous ways including plowing snow, striping and repairing pavement. **Customers:** All users of the state highway system. This includes resident, tourist and recreational travelers; "through" travelers on the Interstates; business customers such as the freight and tourism industries; the construction community; transit service providers; the military; counties; municipalities and others.

- 3. Safety:** CDOT strives to reduce the incidence and severity of motor-vehicle crashes and associated human and economic loss. This is done by incorporating roadway-safety engineering principles in all state highway construction and enhancement projects, conducting safety-specific infrastructure projects, and by administering data-driven safety-education grant programs to influence driver behavior and support law enforcement and local community safety projects. CDOT works to expand safety partnerships and to provide tools for safety advocates to work with the Department. In addition to the safety of the traveling public, CDOT promotes employee safety through appropriate training, policies and procedures. **Customers:** All users of the state highway system. This includes resident, tourist and recreational travelers; "through" travelers on the Interstates; and business customers such as the freight and tourism industries. Other customers include CDOT staff and safety partners such as Mothers Against Drunk Driving and the Colorado Department of Public Health and the Environment; law enforcement agencies including the Colorado State Patrol; transit services; the military; counties; municipalities and others.
- 4. Program and Project Support:** CDOT provides administrative, planning, financial and other support for the transportation system. Project Support includes Operations, CDOT Administration, State Planning and Research, the State Infrastructure Bank, State Highway Fund Contingencies, and the Debt Service. CDOT administers funds to Local Programs including the Transportation Alternatives, STP Metro, Congestion Mitigation and Air Quality (CMAQ) and Safe Routes to School programs. **Customers:** All users of the state highway system. This includes residents and visitors; CDOT staff; debt holders; the Federal Highway Administration; Metropolitan Planning Organizations; Transportation Planning Regions; counties; municipalities and others.
- 5. Transit and Rail:** CDOT supports transit and rail. The Transit and Rail Division plans, develops, finances, operates, and integrates transit and rail into the statewide transportation system. The Division also operates the Bustang interregional bus system, which connects commuters along the Interstate 25 Front Range and Interstate 70 mountain corridors. The Division works with other transit and rail providers to plan, promote, and implement investments in transit and rail services statewide. The Division also is responsible for administering and expending state and federal transit funds and for developing the Statewide Transit Plan and the Freight and Passenger Rail Plan. **Customers:** Local transit agencies and their users; human service transportation providers; the Federal Transit Administration; Regional Transportation Authorities; and Transportation Planning Regions.
- 6. Aeronautics:** CDOT supports statewide aviation interests. The Department's Division of Aeronautics, which is under the direction of the Colorado Aeronautical Board, collects and distributes aviation fuel tax revenue and provides services including planning; airport capital improvement program development; and airport grants administration. **Customers:** Colorado's public-use airports and their users, the flying public, and pilots and other aviation professionals, including those within the Federal Aviation Administration.



## Locations

The Department recently constructed a new headquarters near Mile High Stadium in Denver's Sun Valley neighborhood. CDOT's new headquarters building is located at 2829 West Howard Place, in Denver. The new headquarters was completed in May 2018. The Department owns 1,279 buildings statewide, including the current headquarters building in Denver and five regional offices in Denver, Durango, Grand Junction, Greeley and Pueblo. The inventory of buildings includes 310 maintenance/repair buildings and 75 office/engineering residency buildings.



*CDOT's new Headquarters and Region 1 building in Denver. The facility opened in May 2018 just south of Mile High Stadium and along the W light rail line.*

## Process-Improvement Strategies

CDOT's focus on improving business processes is tied to the Governor's goal of making government more "effective, efficient and elegant." The Department began its structured process-improvement initiative in late 2011 and uses principles and practices of Lean process improvement as its foundation, along with a robust change-management component.

The key pillars of the Lean initiative are continuous improvement and respect for people. CDOT ensures the success of process-improvement projects by employing change-management plans to ensure people affected by changes experience success with the change. This often improves rates of adoption and returns on investment.

Process-improvement efforts are spread throughout the Department. CDOT's efforts sometimes start small, such as individuals using Lean "Everyday Ideas" to improve their workplaces and processes. For example, a recent effort to reduce color printing saved \$3,300 in March 2017 alone. More examples of Everyday Ideas can be found [here](#).

Meanwhile, "Global Lean" projects focus on larger, cross-functional processes. Several cross-functional process-improvement efforts are helping advance CDOT's "Three Peaks" effort. Examples include:

- **Technology Peak:** CDOT's RoadX program has launched several initiatives to spur connected vehicles and other new technologies. CDOT was selected as one of ten winners for the Hyperloop One Global Challenge. The Hyperloop route will connect Cheyenne, Wyoming to Denver and

Pueblo. CDOT has partnered with a second company, Arrivo, to build a hyperloop inspired system in the Denver region.

- **People Peak:** A leadership recognition program commenced in 2015, acknowledges leaders at CDOT. Leadership coins, passed from employee to employee, symbolizes leadership and successful work. In a 2017 survey, 71 percent of respondents stated they agree or strongly agree they felt recognized by receiving a coin.
- **System Peak:** Regions finalized strategic striping plans in December 2017, to include fiscally constrained striping improvements through 2021, as well as unconstrained needs to meet new specifications. CDOT Developed guidelines and draft strategic plan for in-pavement LEDs, and researching other striping technologies. Planned work on joint R1/R3 JOA project was completed end of August includes 6" hybridized thermoplastic lane lines from Hidden Valley to EJMT (except WB Georgetown – Loveland). Another 6" hybridized thermoplastic lane line test section on I-25 south of Castle Rock to the R2 boundary. R4 test section for 6" epoxy edge lines north of Denver on I-25 from SH 7 to SH 66. Three rounds of data collection are complete for research project to measure pavement marking performance statewide and fine tune CDOT Pavement Marking Performance Matrix.

Other examples of cross-functional improvements can be found [here](#).

In addition to these efforts, CDOT has established and set targets for operational metrics within this plan. These metrics are designed to improve processes that help achieve the Department's Strategic Policy Initiatives.

## Plan Overview

Below are the Strategic Policy Initiatives that form the heart of this plan. CDOT has organized these initiatives under the "peaks" the Department must reach to achieve its goal of becoming the best transportation department in the country for all its customers. Changes from last year's initiatives include restructuring worker's compensations under safety, and include customer satisfaction as an ambitious customer service initiative.

### Strategic Policy Initiatives

#### 1. Safety: Includes Roadway Fatalities and Worker's Compensation Claims.

**Roadway Fatalities (System Peak):** Limit the increase in roadway fatalities in Colorado, with the long-term goal of moving toward zero deaths. CDOT, in partnership with other safety stakeholders in Colorado, aims to ensure roadway fatalities statewide do not exceed 728 for calendar year 2019, compared to 648 in 2017. The Department aims to limit fatalities to 808 in calendar year 2021.

**Worker's Compensation Claims (People's Peak):** Create a high-performing culture of employee safety, ensuring workers' compensation claims do not exceed from 228 in calendar year 2019 and 206 in 2021.

**2. Pavement Condition (System Peak):** Attain High or Moderate Drivability Life for 80 percent of sampled lane miles of pavement on the state highway system by 2025. Achieve 75 percent

High/Moderate Drivability Life for fiscal year 2019 pavement condition, compared to 80 percent in fiscal year 2017. Achieve 65 percent High/Moderate Drivability Life for fiscal year 2021 pavement condition.

**3. Travel Time (System and Technology Peaks):** Slow the increase in average travel times on Interstate 25, between Northwest Parkway and C-470, during peak weekday hours. Slow the increase in average travel times on Interstate 70, between Vail and C-470, during peak weekend hours. See page 19 for a full description of these initiatives, which includes targets for 2019 and 2021.

**4. Maintenance (System Peak):** Maintain CDOT's roadways and facilities to minimize the need for replacement or rehabilitation in a constrained funding environment. This includes achieving an overall Maintenance Levels of Service (MLOS) grade of B- for the state highway system in fiscal year 2019 and a B- for fiscal year 2021, compared to a C+ in fiscal year 2017.

**5. Customer Satisfaction (Ambitious Customer Service):** Increase total customer satisfaction with the Colorado Department of Transportation from 80 percent satisfied with the department's programs and services in 2017 to 85 percent satisfied by end of fiscal year 2019.

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CDOT operates in a constrained funding environment. Greater fuel efficiency and ongoing cost inflation are weakening the ability of state and federal fuel taxes—which have not increased for more than two decades—to provide sufficient funding for the transportation system. At the same time, population growth means increasing wear and tear on the highway system. These challenges are demonstrated above by initiatives including Strategic Policy Initiative No. 3, under which CDOT forecasts its best efforts will at most curb the growth of congestion.

The Department's goals are not limited to initiatives outlined in this plan. Other performance goals may be found in documents including CDOT's Stewardship and Oversight Agreement with the Federal Highway Administration, the Transportation Commission's Policy Directive 14, the Department's Risk-Based Asset Management Plan, FAST Act Federal performance objectives related to safety, system performance and infrastructure condition and other documents.

## Employee Involvement

Development of CDOT's Performance Plan included discussions with members of the Executive Management Team, program managers, other employees, and the Office of Communications. This report also includes previously identified performance metrics from discussions with a representative of Colorado Workers



## **Strategic Policy Initiative No. 1: Safety**

### **Initiative Description**

#### Roadway Fatalities

Limit the increase in roadway fatalities in Colorado, with the long-term goal of moving toward zero deaths. CDOT, in partnership with other safety stakeholders in Colorado, aims to ensure roadway fatalities statewide do not exceed 728 for calendar year 2019, compared to 648 in 2017. The Department aims to limit fatalities to 808 in calendar year 2021. Because of the recent increase in fatality rates, the Department was pressed to revise its targets.

#### Worker's Compensation

Create a high-performing culture of employee safety, ensuring workers' compensation claims do not exceed 228 in calendar year 2019 and 206 in 2021 (total workers' compensation claims equaled to 180 in 2017).

### **Metric Background**

#### Roadway Fatalities

CDOT tracks fatalities on all Colorado roadways, not only those on highways the Department owns and maintains.

#### Worker's Compensation

The Department in 2013 launched Excellence in Safety, a behavior-based safety program, to reduce workers' compensation claims and ensure the well-being of employees. Claims have continued a downward trend under the program and are down by almost half since 2010.

### **Why this matters**

#### Roadway Fatalities

CDOT has an ethical responsibility to deliver safety programs. Roadway users—motorists and non-motorists alike—expect to arrive at their destinations safely. Through infrastructure projects and campaigns to influence public behavior, the Department plays an instrumental role in ensuring that roads, bridges, tunnels and other infrastructure statewide are safe for the traveling public. In addition to the human cost, the economic cost of fatalities is considerable. The average economic cost per death in a motor-vehicle crash is about \$1.7 million, according to the most recent estimate in the *Highway Safety Manual*, a publication of the American Association of State Highway and Transportation Officials.

#### Worker's Compensation

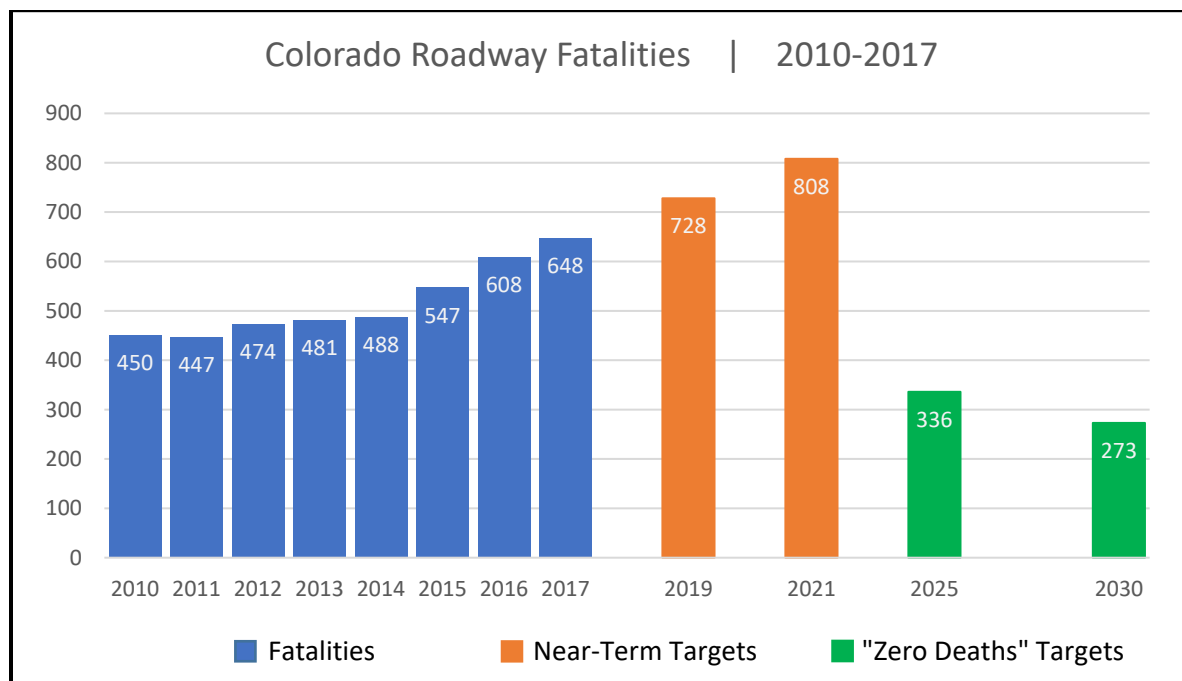
CDOT has an ethical responsibility to ensure the health and well-being of its employees. Besides representing fewer injuries, fewer workers' compensation claims mean reduced costs, which enables the Department to provide more services to the public.

## Environment

### Roadway Fatalities

Annual fatalities on all Colorado's roadways rose from 447 in 2011 to 648 in 2017, a 45 percent increase. CDOT expects this trend of higher fatalities—which is also a nationwide phenomenon—to continue in the short term, particularly in light of Colorado's soaring population and attendant increase in vehicle miles traveled. The state's population has grown 40 percent in the past 20 years, from 4.0 million people in 1997 to 5.6 million people in 2017. The Department has revised its fatalities targets upwards to reflect these trends.

The rise in fatalities, which began in 2012, has been accompanied by an improving economy, increasing miles traveled, and adverse changes in driver behaviors. These trends are outpacing the safety benefits from improvements in vehicle engineering, roadway engineering, safety enforcement and driver behavior programs. Over this period, CDOT has been continually evaluating the effectiveness of its safety programs.



*Recent increases in roadway deaths have prompted CDOT to revise its 2019 and 2021 fatalities targets upwards to those shown here. Despite these trends, CDOT continues to believe in a vision of zero roadway deaths. Achieving long-term "zero deaths" targets, however, will likely require substantial changes in technology, policy and legislation.*

CDOT and its safety partners in 2014 issued an updated Strategic Highway Safety Plan (SHSP), which had the vision of "Moving Toward Zero Deaths." Other states, cities, industry groups and the Federal Highway Administration also support Toward Zero Deaths visions. As Colorado's plan notes, Toward Zero Deaths is "a realistic movement that recognizes the objective for every individual, every family and every community should be zero deaths on Colorado's transportation network." In leading efforts related to the plan, the Department has stressed to stakeholders the importance of optimizing the effectiveness of the plan's strategies.

The Department continues to strive toward a goal of zero deaths. Realizing this vision, however, will require major changes in areas that influence driving safety, including technology, legislation, infrastructure funding, safety enforcement, educational campaigns, driver behavior and more.

On the policy side, the Department supports passage of a primary seatbelt law. Colorado is one of only 16 states without such a law. The state currently has a secondary seatbelt law, which prohibits law enforcement officers from issuing seat belt citations unless they pull over a vehicle for another reason. Separately, in June 2017, Colorado's Senate Bill 17-027 was signed into law and increases the penalty for texting while driving. Passage of a motorcycle helmet law also would help reduce deaths.

Emerging connected vehicle technology, including vehicle-to-vehicle and vehicle-to-infrastructure technologies, also holds promise for sharply reducing fatalities. Driver behavior or human limitations are a factor in nearly 90 percent of crashes. New vehicles already are being sold with collision mitigation and lane-assist technologies, and further automations are expected to result in additional reductions in human error.

In response to rising fatalities, CDOT and planning partners who helped create the Strategic Highway Safety Plan have established action plans for eight emphasis areas (see Strategies section below).

#### Worker's Compensation

Before implementing the Excellence in Safety program, CDOT followed a more traditional, compliance-based approach to promoting safety throughout the Department. Under that system, CDOT used a set of formal policies and procedures, standard training methods and incentive programs as the primary methods to promote safety. In both 2010 and 2012, however, the total number of workers' compensation claims peaked, surpassing 350 both years. CDOT officials determined a more modern approach was needed to reduce claims.

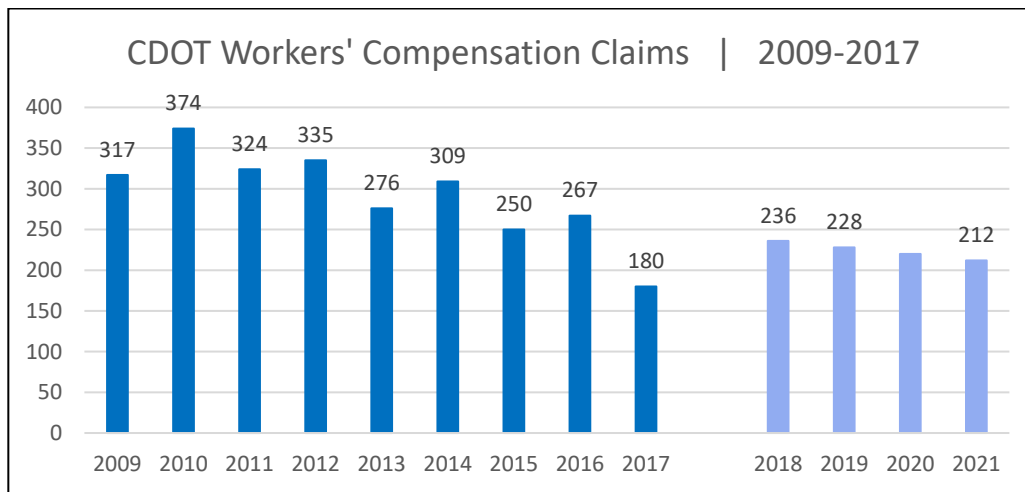
Excellence in Safety, the new approach, focuses on the employee-supervisor relationship and improving the organization's safety culture. Launched in 2013, Excellence in Safety is CDOT's first behavior-based safety program. The program focuses on changing work behaviors through techniques including positive reinforcement and proactive goals.

For example, supervisors of maintenance, traffic and specialty trades workers strive to have a "safety engagement"—a conversation specifically about safety at a specific job site—once per month with each of their employees. Employees become invested in the safety process, because they help to create related programs, policies and procedures, and to test and select personal protective equipment. Before the formal launch of Excellence in Safety, CDOT maintenance, traffic and specialty trades supervisors were trained in performing safety engagements and in coaching strategies. Supervisors have subsequently received reinforcement training, and new supervisors are provided safety engagement training by Region Safety Officers.

CDOT's Maintenance Training Academy has been a key venue for providing supervisors and employees other practical training that directly supports the Excellence in Safety mission. Training focuses on employee empowerment strategies, such as performing pre-job hazards assessments that enable them to become more confident in communicating with supervisors and in making appropriate decisions to lower risks. Supervisors have been provided a leadership curricula focused on positive coaching, empowering employees and building a consistent and sustainable safety culture.

The Department also bestows the designations of Safety Champion for employees and Safety Leaders for supervisors. Workers receiving these honors exhibit consistently safe work behaviors, advocate for CDOT's mission and values, have no at-fault incidents, and meet goals during a set performance period. Recognition is provided during staff meetings, presentations and special events.

The primary tenet of the Excellence in Safety program is "to promote and apply consistent and sustainable safe work behaviors in everything we do." To realize this principle, CDOT has identified, tracked and reported safety hurdles, solutions, expectations, and overall progress to all levels of the organization. To ensure management support, key elements of the Excellence in Safety program have been embedded into formal policies, annual employee performance plans and organizational performance objectives.



*Workers' compensation claims at CDOT have fallen by almost half since 2010.*

## Strategies

### Roadway Fatalities

CDOT, in partnership with its safety partners statewide, employs myriad strategies to reduce the incidence and severity of motor-vehicle crashes and associated fatalities. Such strategies include:

- Developing the Strategic Highway Safety Plan, including its stakeholder vision, and implementing related safety strategies. Throughout 2016, the plan's emphasis area teams met and re-assessed the implementation plans developed in 2014 for continued deployment.

*CDOT conducts safety-education programs to influence behavior. The Department's "Before You Go, Know" campaign focuses on DUI-related fatalities and offenses in Colorado.*



- Conducting safety-specific infrastructure projects. Examples of such infrastructure projects include pedestrian signs and markings, wildlife fencing and mitigation, rumble strips, guardrail, traffic signals, auxiliary lanes, roundabouts, signing, and LED (light-emitting diode) lane markers. CDOT's safety programs reduce crashes including those resulting in injuries and fatalities, thereby limiting increases now being seen.
- Administering data-driven safety-education and enforcement grant programs to influence driver behavior and support law enforcement. However, beginning in calendar year 2017, the funds for distribution to CDOT in the Law Enforcement Assistance Fund (LEAF) were significantly reduced. In 2020, another source of funding, the First Time Drunk Driver (FTTD) fund, will no longer be available to CDOT. For the last several years, CDOT has received 1.5 million dollars from FTTD to fund law enforcement traffic and impaired driving activities. It will require legislative action for CDOT to continue to receive funds from these two sources in the future.
- Monitoring and analyzing crash data to understand trends regarding the number and severity of collisions. Location-specific data identify sites requiring possible improvement actions.
- Engaging local agencies and organizations to develop safety-improvement strategies to prevent crashes and to address high-incidence locations.
- Advocating for legislation to reduce fatalities and injuries, such as a primary seatbelt law.
- Working with the motor vehicle industry to leverage connected and autonomous vehicle technology.

Colorado's Strategic Highway Safety Plan, published in 2014, identifies eight emphasis areas related to the state's most serious traffic safety problems. These areas include: aging road users (ages 65+); bicyclists and pedestrians; data; impaired driving; rural and urban infrastructure; motorcyclists; occupant protection; and young drivers (ages 15-20). Strategies identified by each of the emphasis area teams are located in the appendix of the Strategic Highway Safety Plan. In addition, a Distracted Driving Task Force was formed.

#### Worker's Compensation

CDOT has developed myriad strategies to improve its safety culture and to reduce the frequency and severity of employee injuries. Examples include but are not limited to:

- Communicating, acting upon, and tracking Excellence in Safety program goals and strategies throughout all levels of the organization. These goals and associated metrics help gauge program performance and guide future changes. Examples of such goals include decreasing snow plow accidents; meeting targets for the number of safety engagements performed by supervisors; and decreasing workers' compensation claims.
- Recognizing individual employee performance that consistently meets specific criteria, including by awarding Safety Leader or Safety Champion status to appropriate maintenance, traffic and specialty trades employees. Additionally, CDOT in 2016 implemented a new Instant Recognition Program to reward employees embodying the values of Excellence in Safety in real time. Region Safety Officers manage this program and give on-the-spot awards to employees who demonstrate strong safety behaviors.
- Identifying safety problems by analyzing injury and accident trends and by developing employee training and tools to address those problems. For example, to combat rising snow plow incidents, CDOT in 2015 launched an initiative to identify the root causes of incidents, create tangible solutions, and deliver focused, behind-the-wheel training. This training is tracked and analyzed to



see whether there is a causal relationship between the training and the reduction of incidents. After implementing the initiative and related reporting, CDOT lowered incidents at a time when the number of road miles traveled by the plows increased.

### **Selected operational process**

#### Roadway Fatalities

Among many processes to reduce fatalities, CDOT qualifies, selects, advertises and awards Highway Safety Improvement Program projects. Projects that are selected address identified crash patterns, which are mitigated by the scope of the project and meet a minimum benefit/cost ratio of 1.0. CDOT's goal is to meet a program-wide benefit/cost ratio of 2.0.

#### Worker's Compensation

CDOT uses safety engagements between supervisors and employees as an operational process that can reduce injuries and resultant workers' compensation claims.

### **Selected operational metrics ("lead metrics")**

#### Roadway Fatalities

Average benefit/cost ratio for Highway Safety Improvement Program Projects. Percentage of advertised FASTER Safety Mitigation projects that address Level of Safety Service 3 and 4 locations. FASTER Safety Mitigation program dollars spent as a percentage of the program's fiscal-year allocation. Number of dedicated law enforcement contact hours for traffic safety enforcement.

#### Worker's Compensation

Number of safety engagement performed. Number of employees who receive recognition as Safety Champions and Safety Leaders.

**Major Functional Area:** Safety.

### **Customers**

#### Roadway Fatalities

All highway users, including users of all highway transportation modes. This includes resident, tourist and recreational travelers on Colorado's state highway system. Other customers are business travelers including the trucking industry; safety partners such as Mothers Against Drunk Driving and the Colorado Department of Public Health and the Environment; law enforcement agencies including the Colorado State Patrol; transit services; the military; counties; municipalities and others.

#### Worker's Compensation

CDOT employees benefit when their health and safety are maintained. All highway users benefit from a better roadway system when CDOT employees can perform their duties without injury. Highway users include resident, tourist, recreational, and "through" travelers on Colorado's state highway system; business customers such as the freight and tourism industries; transit services; law enforcement agencies; the military; counties; municipalities and others.

## **Evaluation**

### Roadway Fatalities

Fatalities on Colorado roadways rose from 608 in 2016 to 648 in 2017, a 6 percent increase. This was higher than the Department's goal of 440. Performance targets for 2018 and beyond have been revised to account for such increases. See the "Environment" section on the previous two pages for a discussion of recent trends. The Department continues to pursue strategies outlined above and in the Strategic Highway Safety Plan to reduce roadway fatalities.

### Worker's Compensation

Workers' compensation claims dropped from 267 in calendar year 2016 to 180 in 2017, down 33 percent from 2016 levels. Additionally, claims remain almost a half lower than 2010 levels. Safety engagements rose in 2017, to 16,108, compared to 10,824 for 2016.

Metric Type	Metric Description	Process	Associated Work Group or Program	Year Type	1- and 3-Year Targets	Performance Results
Strategic Policy Initiative/ outcome/lag metric	Fatalities on Colorado roadways	Implement safety program (see Strategies section above)	Division of Transportation Systems Management and Operations, and the Office of Transportation Safety	Calendar	CY19: 728 CY21: 808	2013: 481 2014: 488 2015: 547 2016: 608 2017: 648
Operational/ "lead" metric	Average benefit/cost ratio for Highway Safety Improvement Projects	Qualify, select, advertise and award Highway Safety Improvement Program projects	Division of Transportation Systems Management and Operations	Calendar	CY19: 2.0 CY21: 2.0	2015: 2.98 <sup>1</sup> 2016: 2.85 2017: 2.53
Operational/ "lead" metric	Percentage of advertised FASTER Safety Mitigation projects that address Level of Safety Service 3 and 4 locations	Advertise FASTER Safety Mitigation projects	Division of Transportation Systems Management and Operations	Calendar	CY19: 90% CY21: 90%	2015: 75% <sup>2</sup> 2016: 86% 2017: 95%
Operational/ "lead" metric	FASTER Safety Mitigation program dollars spent as a percentage of the program's fiscal-year allocation <sup>3</sup>	Qualify, select, advertise and award FASTER Safety Mitigation program projects	Division of Transportation Systems Management and Operations, Division of Accounting and Finance	Fiscal	FY19: 100% FY21: 100%	2013: 79% 2014: 84% 2015: 159% 2016: 160% 2017: 113%
Operational/ "lead" metric	Dedicated law enforcement contact hours for traffic safety enforcement <sup>4</sup>	Administer enforcement grants	Office of Transportation Safety	Calendar	CY19: 75,000 <sup>5</sup> CY21: N/A	2013: 67,808 2014: 75,689 2015: 84,146 2016: 119,762 2017: 92,816
Input	Vehicle Miles Traveled on Colorado roadways	N/A	N/A	Calendar	N/A (input)	2013: 47.0 billion 2014: 49.0 billion 2015: 50.4 billion 2016: 51.2 billion 2017: N/A

<sup>1</sup> Tracking of metric in current form began in late 2014.

<sup>2</sup> Tracking of metric in current form began in 2015.

<sup>3</sup> Metric compares program dollars spent during the specified time period to current year's allocation.

<sup>4</sup> Dedicated law enforcement contact hours refer to the time spent by law enforcement conducting traffic law enforcement activities while using dedicated state funds or federal grant funds for impaired driving, speed, seat belt and other enforcement.

<sup>5</sup> Beginning in calendar year 2017, the amount of funds available for distribution to CDOT through the Law Enforcement Assistance Fund (LEAF) were significantly reduced. In 2020, another source of funding, the First Time Drunk Driver (FTTD) fund will no longer be available to CDOT.

Metric Type	Metric Description	Process	Associated Work Group or Program	Year Type	1- and 3-Year Targets	Performance Results
Strategic Policy Initiative/ outcome/lag metric	Number of workers' compensation claims	Establish and adhere to safety procedures to reduce injuries. Conduct safety engagements.	Office of Transportation Safety.	Calendar	2019: 228 2021: 206	<u>2015:</u> Q1: 68 Q2: 49 Q3: 57 Q4: 76 Total: 250  <u>2016:</u> Q1: 69 Q2: 72 Q3: 57 Q4: 69 Total: 267  <u>2017:</u> Q1: 60 Q2: 34 Q3: 47 Q4: 39 Total: 180
Operational/ "lead" metric	Number of safety engagements performed	Maintenance, traffic and specialty trades supervisors perform safety engagements with direct reports.	Office of Transportation Safety and CDOT employees in maintenance, traffic and specialty trades.	Calendar	2019: 10,000 2021: 11,000	2014: 10,455 2015: 15,331 2016: 10,824 2017: 16,108
Operational/ "lead" metric	Number of Safety Leaders Recognized	Provide safety training; communicate criteria for "Leader" status; track and recognize performance.	Office of Transportation Safety and CDOT employees in maintenance, traffic and specialty trades.	Calendar	2019: 125 2021: 175	2014: 173 2015: 95 2016: 80 (New criteria introduced) <sup>6</sup> 2017: 245
Operational/ "lead" metric	Number of Safety Champions Recognized	Provide safety training; communicate criteria for "Champion" status; track and recognize performance.	Office of Transportation Safety and CDOT employees in maintenance, traffic and specialty trades.	Calendar	2019: 900 2021: 1,000	2014: 1,038 2015: 926 2016: 640 (New criteria introduced) <sup>7</sup> 2017: 716

<sup>6</sup> Criteria for achieving Safety Leader status revised in 2016. Results are no longer comparable to previous years.

<sup>7</sup> Criteria for achieving Safety Champion status revised in 2016. Results are no longer comparable to previous years.

## Strategic Policy Initiative No. 2: Pavement Condition

**Initiative description:** Attain High or Moderate Drivability Life for 80 percent of sampled lane miles of pavement on the state highway system by 2025. Achieve 75 percent High/Moderate Drivability Life for fiscal year 2019 pavement condition, compared to 80 percent in fiscal year 2017. Achieve 65 percent High/Moderate Drivability Life for fiscal year 2021. These goals are aimed at mitigating the decline in condition stemming from the age of CDOT's pavement inventory.

**Background/Definitions:** Drivability Life is an indication in years of how long a stretch of highway will have acceptable driving conditions. Acceptable driving condition is a function of smoothness and safety, as determined by the amount of pavement cracking and depth of rutting. Pavement with High Drivability Life is expected to have acceptable driving conditions for more than 10 years. Pavement with Moderate Drivability Life is expected to have four to 10 years of acceptable driving conditions. Pavement with Low Drivability Life is expected to have fewer than four years of acceptable driving conditions. CDOT's centralized Pavement Management Program is responsible for collecting and reporting performance results for the Drivability Life metric.

**Why this matters:** Drivers navigating pavement in "unacceptable" condition may need to endure rough rides; reduce speeds to safely navigate around potholes, deteriorating shoulders and other types of pavement damage; or otherwise compensate for deteriorating conditions. Water can collect in deep ruts or other depressions in pavement, which can increase the chances of hydroplaning. Excessive and severe cracking (pavement "fatigue") can reduce the passable width of a roadway, particularly on smaller highways.

**Environment:** CDOT is responsible for the pavement on a highway system that includes more than 9,100 centerline miles—or 23,000 total lane miles. Centerline miles represent the length of the road, and lane miles represent the length and lane count for a road. About 18 percent of the state's total lane miles, and 10 percent of its centerline miles, are on the Interstate. CDOT must plan and deliver its construction projects in challenging climates and topographies, including extreme freeze/thaw cycles and high mountain passes.



*Interstate 70 near Copper Mountain. This stretch of pavement was last rehabilitated in 2009 and has a Drivability Life of one year.*

The Department maintains highway pavement in a constrained and uncertain funding environment. State and federal fuel taxes have not increased for more than two decades. An act authorizing federal highway, transit and rail programs from 2016-20 was signed into law by then-President Obama in December 2015. These programs fund much of the work of state transportation departments nationwide, including much of CDOT's surface treatment work. The law—the Fixing America's Surface Transportation (FAST) Act—was the first long-term, comprehensive surface transportation legislation since 2005. In 2018, CDOT submitted new metrics to the Federal Highway Administration to meet federal requirements, which are aligned with this performance plan. The American Association of State Highway and Transportation Officials, a trade group for transportation departments, continues to anticipate funding challenges for such agencies, noting that a gap remains between anticipated transportation spending and federal Highway Trust fund income.

In planning surface treatment projects, CDOT must weigh the capacity of the contracting community that performs the rehabilitation and reconstruction of highway pavement. That capacity can be exhausted or limited during natural disasters or times of heightened economic and construction activity.

**Strategies:** The Department's strategies for pavement management include:

- Increasing preservation practices on pavements. Pavement preservation means applying lower-cost treatments at an appropriate time in the life of pavements to extend the performance of the roadway and reduce the likelihood of high-cost rehabilitation and reconstruction. Key preservation activities include crack sealing and filling; concrete joint sealing and filling; surface sealing (chip sealing, fog sealing, etc.); micro-surfacing; patching; and delivering ultra-thin asphalt overlays ( $\leq 1.5$  inches).
- Prioritizing Interstates and high- and medium-volume roadways over other roadways when selecting surface treatment projects. CDOT's long-term target is the same for all categories of pavement (80 percent High/Moderate Drivability Life), but the Department has developed different Drivability Life standards based on a roadway's traffic volume. Interstates and high- and medium-volume roadways have the highest Drivability Life standards, while low-volume roadways have lower acceptable Drivability Life standards. All acceptable Drivability Life standards consider the safety and serviceability needed by the roadway users.

- Increasing the annual miles of roadway treated, particularly for low-volume roads, by using new and more cost-efficient combinations of repairs and thin surface treatments.
- Achieving economic efficiencies by coordinating pavement activities with activities on other CDOT assets.

More details are available in CDOT's [Risk-Based Asset Management Plan](#).



*State Highway 40 east of Elk Springs. This pavement was rehabilitated in 1999. It is a Moderate Drivability Life road, which is exceeding its design expectations. Preservation techniques, such as crack sealing and chip sealing, keep this pavement from deteriorating.*

**Selected operational processes:** Preserving, resurfacing and rehabilitating roads with the optimized application of cost-effective pavement treatments. Selecting and advertising Surface Treatment program projects.

**Selected operational metric ("lead metric"):** Percent of Surface Treatment program projects advertised for the fiscal year that match recommendations made from the pavement management system. This measure helps ensure actual construction projects are matching the pavement models that are designed to help CDOT achieve the desired pavement condition.

CDOT's centralized Pavement Management Program monitors and reports on performance results of this metric. Materials programs in CDOT's Transportation Regions are responsible for developing and delivering a four-year surface treatment construction program comprising projects that match at least 80 percent of projects recommended by the pavement management system.

**Major Functional Areas:** Functional Areas that affect pavement condition include Capital Construction, Operations and Maintenance, Safety, and Program and Project Support.

**Customer:** Customers include all highway users. This includes resident, non-resident, tourist, recreational, and "through" travelers on Colorado's state highway system. Other customer groups include business travelers including the trucking industry; transit services; the Federal Highway Administration; law enforcement agencies; the military; counties; municipalities and others.

**Evaluation:** The percentage of pavement on the state highway system with High or Moderate Drivability Life remained static in fiscal year 2017 at 80 percent. This exceeded CDOT's goal of 73 percent for fiscal year 2017 referenced in the 2016-17 Performance Plan and meets the Department's long-term goal of 80 percent. Technical updates to CDOT's pavement management system, as well as slower-than-expected pavement deterioration, led to higher-than-expected condition. However, due in part to the age of pavement on the state highway system, the condition under current funding assumptions is expected to decline for the next several years.

Metric Type	Metric Description	Process	Associated Work Unit or Program	Year Type	1- and 3-Year Targets	Performance Results
Strategic Policy Initiative/ outcome/ lag metric	Percent of state highway pavement with High or Moderate Drivability Life	Preserving, resurfacing and rehabilitating roads with the optimized application of cost-effective pavement treatments	Division of Project Support (Pavement Management Program)	Fiscal	2019: 75% 2021: 65%	2013: 82% 2014: 73% 2015: 79% 2016: 80% 2017: 80%
Operational/ lead metric	Percent of Surface Treatment Program projects advertised that match recommendations from the pavement management system	Selecting and advertising surface treatment projects	Division of Project Support (Pavement Management Program), materials programs in CDOT's Transportation Regions	Fiscal	2019: 80% 2021: 80% <sup>8</sup>	2013: N/A 2014: N/A 2015: 77% 2016: 91% 2017: 89% 2018: 93% Fiscal YTD (July 2017 through March 2018 only)
Input/ environmental factor	Lane miles on state highway system	N/A	N/A	Calendar	N/A	2013: 23,022 2014: 23,018 2015: 23,017 2016: 22,985 2017: N/A
Input/ environmental factor	Annual Vehicle Miles Traveled on state highway system	N/A	N/A	Calendar	N/A	2013: 28.4 billion 2014: 29.8 billion 2015: 30.7 billion 2016: 31.7 billion 2017: N/A
Input/ environmental factor	Annual Vehicle Miles Traveled by trucks on the state highway system	N/A	N/A	Calendar	N/A	2013: 2.4 billion 2014: 2.6 billion 2015: 2.6 billion 2016: 2.7 billion 2017: N/A

<sup>8</sup> This target is set at 80 percent to allow CDOT's Transportation Regions flexibility in selecting projects that may not match recommendations from the model. Region selections could be more cost-effective, because they can take into account factors that the pavement management system does not.



## CDOT Peak: Healthy Multi-Modal System



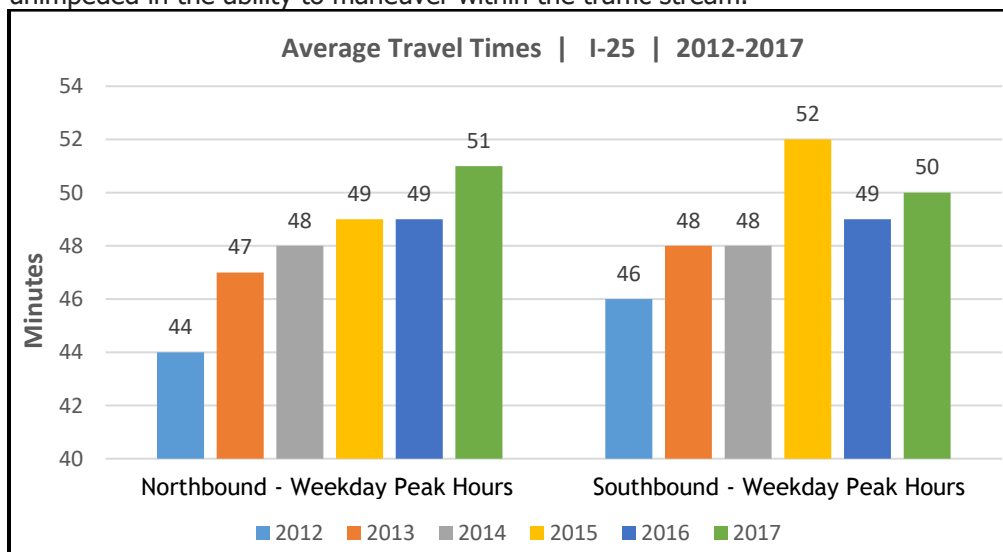
# Strategic Policy Initiative No. 3: Travel Time

**Initiative description:** Slow the increase in average travel times on Interstate 25, between Northwest Parkway and C-470, during peak weekday hours. Slow the increase in average travel times on Interstate 70, between Vail and C-470, during peak weekend hours.

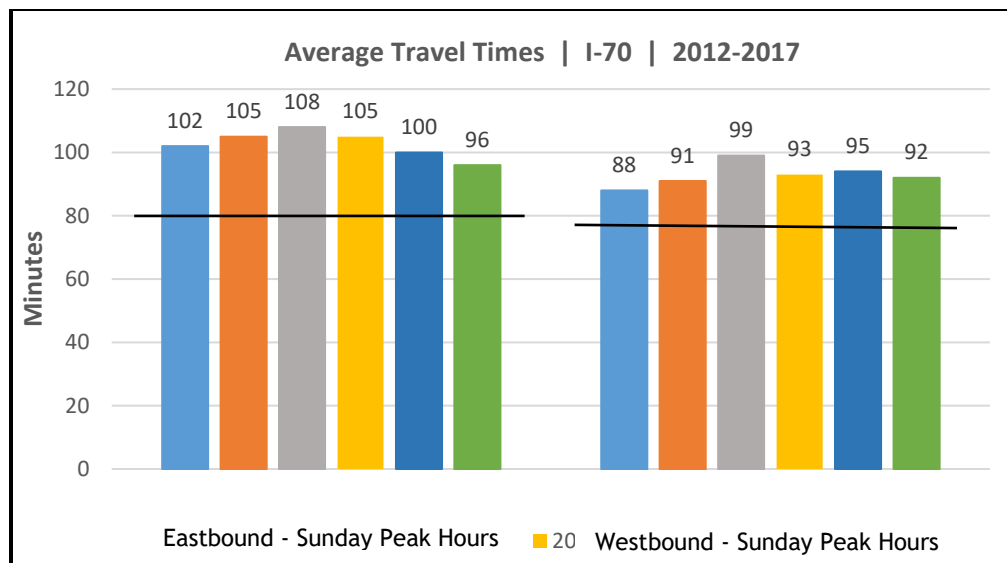
One- and three-year goals include:

- Reduce the average weekday travel time on northbound Interstate 25 from a projected average of 53 minutes per trip in calendar year 2019 to an actual average of 49 minutes. Reduce the average time for 2021 from a projected 55 minutes per trip to an actual average of 48 minutes.
- Reduce the average weekday travel time on southbound Interstate 25 from a projected average of 53 minutes per trip in calendar year 2019 to an actual average of 49 minutes. Reduce the average time for 2021 from a projected 55 minutes per trip to an actual average of 48 minutes.
- Reduce the average Saturday travel time on westbound Interstate 70 from a projected average of 101 minutes per trip in calendar year 2019 to an actual average of 93 minutes. Reduce the average time for 2021 from a projected 104 minutes per trip to an actual average of 91 minutes.
- Reduce the average Sunday travel time on eastbound Interstate 70 from a projected average of 103 minutes per trip in calendar year 2019 to an actual average of 95 minutes. Reduce the average time for 2021 from a projected 102 minutes per trip to an actual average of 90 minutes.

Below are the travel times for Interstate 25 and Interstate 70. Each has an indicator for free-flow speed and travel. Free Flow speed is the preferred speed of a vehicle or the traffic stream for a given facility under specific conditions. The free-flow speed represents the speed at which a vehicle or traffic will travel in the absence of constriction factors such as traffic congestion or speed enforcement activities. Free Flow Travel Time is the time for a vehicle to travel from origination point A to destination point B during free flow operational conditions and following posted speed limits. The vehicles are almost completely unimpeded in the ability to maneuver within the traffic stream.



*At left are average travel times per trip for Interstate 25 (between Northwest Parkway and C-470) from 2012-17. CDOT aims to limit the growth of travel times during peak weekday hours. The free-flow line is lower than chart measurements at 30 minutes.*



*At left are the average travel times per trip for Interstate 70 (between Vail and C-470) from 2012-17. The black line indicates the free flow level for travel. The eastbound free-flow is 80 minutes and westbound is 78 minutes.*

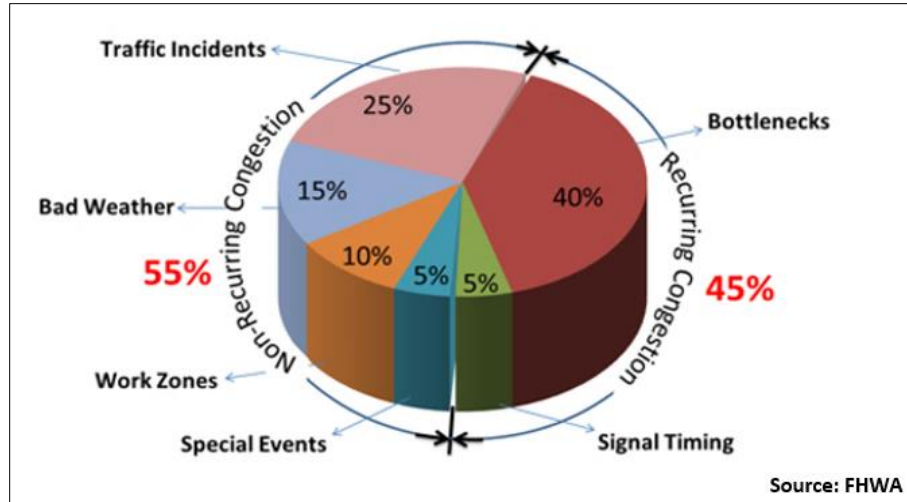
**Background:** Using data from INRIX, a private traffic data provider, CDOT calculated average historical travel times for Interstate 25 during peak daytime and evening weekday hours, and on Interstate 70 during peak weekend hours. These data were considered in forecasting and developing goals for the two corridors for 2019 and 2021. Using strategies described on the following pages, CDOT will work to decrease the rate at which travel times are projected to grow.

**Why this matters:** Travelers and freight transporters depend on reasonable and reliable travel times on the highway system. Longer travel times can result in significant economic and social costs for highway users. Congestion—a key driver of travel times—on an annual basis costs \$2.1 billion in delay and fuel in the Denver-Aurora area alone, according to the Texas Transportation Institute’s 2015 Urban Mobility Scorecard, the most recent edition of that report.

**Environment:** Traffic volumes are influenced by factors including population, tourism, freight transport, economic conditions and the size of the workforce. Various factors contribute to congestion, including increases in traffic volumes, incidents such as crashes, work zones, special events (such as concerts and football games), inclement weather, poor traffic-signal timing and highway bottlenecks. Assuming there is no increase in lane miles on the highway or major technological innovations and investments, average travel times for Interstates 25 and 70 are likely to grow.

The chart on the following page shows that in urban areas, about 55 percent of congestion is from nonrecurring resources. Twenty-five percent of congestion is caused by traffic incidents, such as an automobile crash, a disabled vehicle or roadway debris. When a lane is blocked, it typically takes four minutes for a highway to return to normal operational speed for each minute of an incident. Americans living in urban areas bought an extra 3.1 billion gallons of fuel than they otherwise would have in 2014 because of congestion, according to the Texas Transportation Institute. Moreover, congestion caused these Americans to travel an additional 6.9 billion hours that year, according to the Institute’s Urban Mobility Scorecard.

Population growth and non-recurring traffic events are both contributing to congestion and reliability problems on Colorado's highways. The state's population has grown more than 40 percent in the past 20 years, from 4.0 million people in 1997 to 5.6 million people in 2017. The population will grow to about 7.8 million by 2040, according to forecasts from Colorado's State Demography Office.

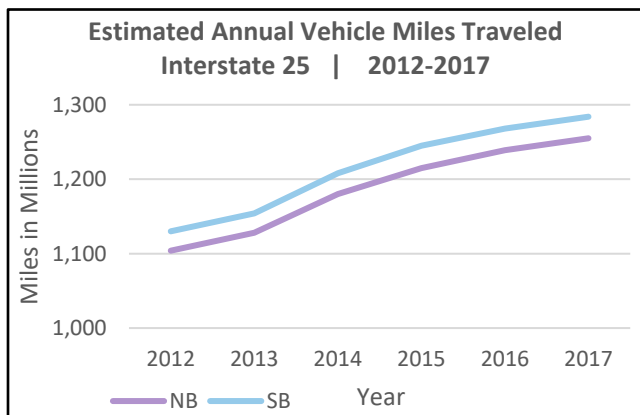
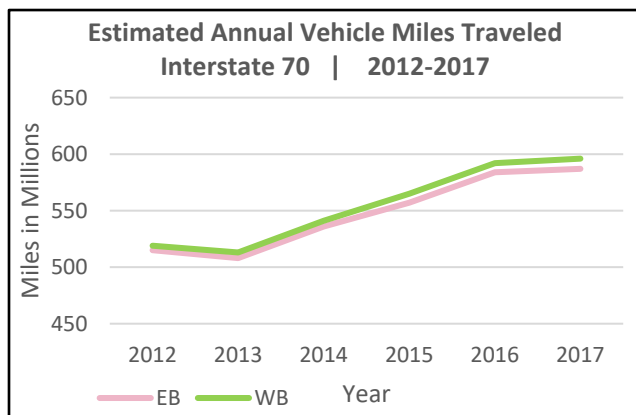


More than half of congestion in urban areas is due to non-recurring causes.

Along with this growth have come higher traffic volumes. As the charts below show, the number of Vehicle Miles Traveled per year grew from 2012-17 by about 15 percent for Interstate 70 (between Vail and C-470, both directions) and by about 16 percent for Interstate 25 (between Northwest Parkway and C-470, both directions).

CDOT is responsible for a highway system that includes 23,000 total lane miles of highway, including more than 9,100 centerline miles. In addition, the Department maintains more than 3,400 bridges with more than 33 million square feet of deck area. CDOT is responsible for managing 20 tunnel bores throughout Colorado with a total length of 6.9 miles.

Disruptions to any of this infrastructure can result in longer and unreliable travel times. CDOT must manage travel times in challenging climates and topographies, including extreme freeze/thaw cycles and high, heavily traveled mountain passes.



From 2012-17, the number of Vehicle Miles Traveled per year grew by 15 percent for Interstate 70 (between Vail and C-470, both directions) and 16 percent for Interstate 25 (between Northwest Parkway and C-470, both directions).

**Strategies:** CDOT is focused on improving travel times on Interstates 25 and 70, which are among the most congested stretches of Interstate in Colorado. CDOT formed the Division of Transportation Systems

Management & Operations (TSM&O) in 2013. The division focuses on implementing low-cost, high-value operational improvements to the transportation system. Initiatives include:

1. Improving Traffic Incident Management (TIM) and clearance times through statewide training efforts, which are critical to improving the safety of first responders, to decreasing incident clearance times, and to decreasing the potential for secondary crashes. TIM efforts include detecting, verifying and responding to incidents; clearing the incident scene; and restoring traffic flow. The Federal Highway Administration offers a National TIM Responder Training program. The multi-disciplinary program advocates a shared vision to implement safe, quick clearance at traffic incident scenes; prompt, reliable and open communications; and motorist and responder safeguards. In 2018, CDOT in cooperation with several agencies installed a TIM Training Track at the Douglas County Emergency vehicle Operations Center (EVOC). The nearly 3-acre property will allow first responders to train safely while using real vehicles and re-creating mock scenarios for educational purposes. CDOT can help save lives, time and funds by promoting the TIM training program. As of May 2018, more than 7,177 first responders in Colorado have received the TIM training. First responders include personnel from CDOT, the Colorado State Patrol, local law enforcement, fire and rescue, towing and recovery, the Federal Highway Administration, public works and EMS (Emergency Medical Staff).

2. Targeting corridor improvements, such as bottleneck reduction funded through the Colorado Bottleneck Reduction Assessment (COBRA) program.



*In April 2018, the traffic incident management training track opened. This facility was created through a partnership with Federal Highway Administration, CDOT, Colorado State Patrol and Douglas County.*



*Investing in Variable Messaging Signs and other technologies is another strategy CDOT is using to prevent accidents and empower highway users to make more efficient travel decisions.*

3. Delivering safety improvements funded through the Highway Safety Improvement Program.
4. Implementing managed lanes through tolled express lanes, variable speed limits, peak-period shoulder lane operations and Active Traffic Management (ATM). ATM is the ability to dynamically manage recurrent and non-recurrent congestion based on prevailing and predicted traffic conditions. ATM approaches seek to increase vehicle throughput and safety through the use of new technology, such as dynamic routing, dynamic junction control, adaptive signal control and transit signal priority.
5. Adding ramp meters to Interstates to better manage system flow.
6. Using Intelligent Transportation Systems devices to provide real-time weather and roadway information to travelers. CDOT also is participating in a Federal Highway Administration initiative called Pathfinder, which is designed to improve agencies' communication to the public on how weather events will affect the transportation system.
7. Partnering with law enforcement and other stakeholders to develop and implement Incident Action Plans for large events such as concerts at the Pepsi Center, Denver Broncos games, U.S. Air Force Academy graduation events, Presidential motorcades, the August 2017 solar eclipse, and others.
8. Implementing new technologies through CDOT's RoadX program. RoadX projects combine public and private efforts to bring innovative Intelligent Transportation System (ITS) technology to the Interstate system. For example, CDOT's SMART 25 project will feature coordinated ramp metering for 14 northbound interchanges on Interstate 25. Coordinated meters would help optimize traffic flow and reliability of travel. Reduced crashes are also expected. CDOT is scheduled to complete the design of the project and conduct stakeholder outreach in 2017. Another RoadX project is a new "text-to-voice" mobile application for Interstate 70. The application, part of a pilot program, will warn drivers of slick roads, curves, incidents and work zones.
9. Improving network communications and highway corridor operations by installing new ITS and fiber in 2017.
10. Adding a motorist safety patrol service truck in Colorado Springs for the I-25 Corridor.

Each strategy will address causes of congestion, improve reliability and help slow the increase in average travel times on Interstates 25 and 70. CDOT also plans to increase the effectiveness of programs such as the Motorist Safety Patrol and Heavy Tow programs by working with corridor Incident Commanders to enable faster responses to incidents and to reduce secondary incidents.



*Decreasing incident clearance times is a key strategy to improve travel times.*

**Selected operational processes:** Train first responders, clear crashes and other incidents, conduct after-action reviews of incident clearance.


**Selected operational metrics ("lead metrics"):** CDOT has created several operational measures and targets to help slow the growth of travel times for Interstates 25 and 70. They include:

- Reducing the average incident clearance time<sup>9</sup> on eastbound and westbound Interstate 70 (between Vail and C-470), and on northbound and southbound Interstate 25 (between Northwest Parkway and C-470), by 10 percent in 2019 compared to the average 2017 time. CDOT also aims to reduce the average incident clearance times on these roadways by 20 percent in 2021 compared to the 2017 times. Please see the tables on the following pages for specific targets. Clearance times will be addressed by training first responders, deploying new Highway Incident Commanders, expanding the Interstate 25 Courtesy Patrol, working with law enforcement to incentivize private and heavy towing services, conducting after-action reviews, and developing and updating Traffic Incident Management Plans.
- Increasing the percentage of first responders statewide who have received Traffic Incident Management training to 50 percent in 2019, up from 27 percent in 2017.<sup>10</sup>

**Major Functional Area:** Operations and Maintenance.

<sup>9</sup> Incident clearance times include recorded incidents, such as those cleared by CDOT's Courtesy Patrol, the Heavy Tow program and others. The clearance time is from the time an incident is reported to the time at which an incident is cleared and all first responders have left the scene.

<sup>10</sup> While this performance metric is statewide, CDOT plans to develop corridor-specific measures of responders trained.



**Customers:** All users of the state highway system. This includes all resident, tourist and recreational travelers on the highway system; business customers such as freight transporters, the tourism industry, the U.S. Postal Service and Federal Express; transit services; city and county law enforcement agencies; emergency services personnel; the military; and others.

**Evaluation:** Travel times on both Northbound and Southbound Interstate 25 remain static over recent years hovering around 50 minutes on weekdays. Travel times in 2017 increased to 51 minutes on Northbound Interstate 25 and 50 minutes on Southbound Interstate 25 compared to 49 minutes in 2016. This has occurred in a period that also saw the number of Vehicle Miles Traveled on the corridor increase (*see page 21*).

Average westbound travel times on Interstate 70 on Saturdays decreased in 2017, at 92 minutes compared to 95 minutes in 2016. Compared to five years ago, average westbound times on Saturdays have gradually decreased. Meanwhile, average travel times on Sundays for Eastbound Interstate 70 continued to improve in 2017 and are down four minutes from 2016 and ten minutes from 2015. One factor in the improvement is the opening of the Interstate 70 eastbound Mountain Express Tolloed Lane, a tolled shoulder lane that opens during peak travel periods.

Metric Type	Metric Description	Process	Associated Work Unit or Program	Year Type	1- and 3-Year Targets	Performance Results
Strategic Policy Initiative/ Outcome A	Average travel time per trip for NB I-25, peak weekday periods	Clear highway incidents; install and operate current technologies (e.g., Variable Messaging Signs); implement new technologies (e.g., connected vehicle infrastructure)	Division of Transportation Systems Management and Operations	Calendar	2019: 49 mins. 2021: 48 mins.	2014: 48 mins. 2015: 49 mins. 2016: 49 mins. 2017: 51 mins.
Operational/ lead metric	Average incident clearance time on NB I-25, weekdays	Train first responders, deploy new Highway Incident Commanders, expand I-25 Courtesy Patrol, work with law enforcement to incentivize private and heavy towing services, conduct after-action reviews.	Division of Transportation Systems Management and Operations	Calendar	2019: 15 mins. 2021: 14 mins.	2015: 16 mins. 2016: 16 mins. 2017: 16 mins.
Operational/ lead metric	Percentage of first responders trained in Traffic Incident Management	Promote and track Traffic Incident Management training	Division of Transportation Systems Management and Operations	Fiscal	2019: 50% 2021: 70%	2014: 7% 2015: 12% 2016: 20% 2017: 27% 2018: 36% YTD May 2018
Input	Annual Vehicle Miles Traveled on NB I-25	N/A	N/A (input)	Calendar	N/A (input)	2014: 1.18 billion 2015: 1.22 billion 2016: 1.24 billion 2017: 1.26 billion
Strategic Policy Initiative/ Outcome B	Average travel time per trip for SB I-25, peak weekday periods	Clear highway incidents; install and operate current technologies (e.g., Variable Messaging Signs); implement new technologies (e.g., connected vehicle infrastructure)	Division of Transportation Systems Management and Operations	Calendar	2019: 49 mins. 2021: 48 mins.	2014: 48 mins. 2015: 52 mins. 2016: 49 mins. 2017: 50 mins.
Operational/ lead metric	Average incident clearance time on SB I-25, weekdays	Train first responders, deploy new Highway Incident Commanders, expand I-25 Courtesy Patrol, work with law enforcement to incentivize private and heavy towing services, conduct after-action reviews.	Division of Transportation Systems Management and Operations	Calendar	2019: 15 mins. 2021: 15 mins.	2015: 16 mins. 2016: 16 mins. 2017: 16 mins.



Metric Type	Metric Description	Process	Associated Work Unit or Program	Year Type	1- and 3-Year Targets	Performance Results
Operational/ lead metric	Percentage of first responders trained in Traffic Incident Management	Train first responders	Division of Transportation Systems Management and Operations and X.	Fiscal	2019: 50% 2021: 70%	2014: 7% 2015: 12% 2016: 20% 2017: 27% 2018: 36% YTD May 2018
Input	Vehicle Miles Traveled on SB I-25	N/A (input)	N/A (input)	Calendar	N/A (input)	2014: 1.21 billion 2015: 1.24 billion 2016: 1.27 billion 2017: 1.28 billion
Strategic Policy Initiative/ Outcome C	Average travel time per trip for WB I-70, peak Saturday period	Clear highway incidents; install and operate current technologies (e.g., Variable Messaging Signs); implement new technologies (e.g., connected vehicle infrastructure)	Division of Transportation Systems Management and Operations	Calendar	2019: 93 mins. 2021: 91 mins.	2014: 93 mins. 2015: 93 mins. 2016: 95 mins. 2017: 92 mins.
Operational/ lead metric	Average incident clearance time on WB I-70, Saturdays	Train first responders, deploy new Highway Incident Commanders, work with law enforcement to incentivize private and heavy towing services, conduct after-action reviews.	Division of Transportation Systems Management and Operations	Calendar	2019: 24 mins. 2021: 23 mins.	2015: 28 mins. 2016: 20 mins. 2017: 27 mins.
Operational/ lead metric	Percentage of first responders trained in Traffic Incident Management	Promote and track Traffic Incident Management training	Division of Transportation Systems Management and Operations	Fiscal	2019: 50% 2021: 70%	2014: 7% 2015: 12% 2016: 20% 2017: 27% 2018: 36% YTD May 2018
Input	Annual Vehicle Miles Traveled on WB I-70	N/A (input)	N/A (input)	Calendar	N/A (input)	2014: 541 million 2015: 565 million 2016: 592 million 2017: 596 million

Metric Type	Metric Description	Process	Associated Work Unit or Program	Year Type	1- and 3-Year Targets	Performance Results
Strategic Policy Initiative/ Outcome D	Average travel time per trip for EB I-70, peak Sunday period	Clear highway incidents; install and operate current technologies (e.g., Variable Messaging Signs); implement new technologies (e.g., connected vehicle infrastructure)	Division of Transportation Systems Management and Operations	Calendar	2019: 95 mins. 2021: 90 mins.	2014: 108 mins. 2015: 106 mins. 2016: 100 mins. 2017: 96 mins.
Operational/ lead metric	Average incident clearance time on EB I-70, Sundays	Train first responders, deploy new Highway Incident Commanders, work with law enforcement to incentivize private and heavy towing services, conduct after-action reviews.	Division of Transportation Systems Management and Operations	Calendar	2019: 31 mins. 2021: 32 mins.	2015: 30 mins. 2016: 27 mins. 2017: 33 mins.
Operational/ lead metric	Percentage of first responders trained in Traffic Incident Management	Promote and track Traffic Incident Management training	Division of Transportation Systems Management and Operations	Fiscal	2019: 50% 2021: 70%	2014: 7% 2015: 12% 2016: 20% 2017: 27% 2018: 36% YTD May 2018
Input	Vehicle Miles Traveled on EB I-70	N/A (input)	N/A (input)	Calendar	N/A (input)	2014: 536 million 2015: 557 million 2016: 584 million 2017: 587 million

## **Strategic Policy Initiative No. 4: Maintenance**

**Initiative description:** Maintain CDOT's roadways and facilities to minimize the need for replacement or rehabilitation in a constrained funding environment. This includes targeting an overall Maintenance Levels of Service (MLOS) grade of B- for the state highway system in fiscal year 2019 and a B- for fiscal year 2021, compared to a C+ in fiscal year 2017.

**Metric background and definitions:** Maintenance Levels of Service is a "report card" style grading system that CDOT uses to rate its maintenance performance. An A+ is the highest service level achievable, while an F is the lowest. Six of nine Maintenance Program Areas are given a grade, and those individual grades are used to determine an overall MLOS grade.<sup>11</sup> To measure service levels, several work units within CDOT contribute condition data used in the grades. These units include Staff Bridge, Pavement Management, Property Management and Traffic Safety. Surveys completed by maintenance employees also are used.

The Maintenance Asset Management Branch, part of CDOT's Division of Highway Maintenance, provides policy and guidance for the statewide maintenance program and maintains operational oversight for program administration. Under the nine Maintenance Program Areas, CDOT performs an array of activities:

1. The **Roadway Surface** area includes patching and sealing potholes and blading unpaved services.
2. The **Roadside Facilities** area includes cleaning drainage structures, repairing eroded slopes and repairing guardrails.
3. The **Roadside Appearance** area includes controlling vegetation, sweeping the road surface and removing trash.
4. The **Traffic Services** area includes maintaining roadway signs and striping, maintaining traffic signals, and maintaining roadway lighting.
5. The **Structure Maintenance** area includes painting bridges, repairing expansion joints and patching decks.
6. The **Snow and Ice Control** area includes plowing snow and taking avalanche-control measures.
7. The **Equipment, Buildings and Rest Areas** program area includes maintenance for all buildings and grounds.
8. The **Tunnel Activities** area includes providing structural maintenance and repair, as well as tunnel washing and maintenance of the tunnels' electrical, mechanical and ventilation systems.
9. The **Planning and Scheduling** area includes providing performance budgeting and training maintenance staff.

**Why this matters:** Maintaining roads, bridges, tunnels and other infrastructure minimizes the need for replacement and rehabilitation. Maintenance activities, such as striping roadways and clearing highways of snow and ice, also improve safety and mobility. Highway maintenance is the most common topic of

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<sup>11</sup> The six Maintenance Program Areas that receive a performance grade are the Roadway Surface, Roadside Facilities, Roadside Appearance, Traffic Services, Structure Maintenance and Snow-and-Ice Control areas.

comments received by CDOT from the public through sources including phone calls, emails, Facebook comments and other media.

**Environment:** CDOT's maintenance patrols serve a system that includes 23,000 travel lane miles of highway, including more than 9,100 centerline miles. In addition, the Department owns more than 3,400 bridges with more than 33 million square feet of deck area. CDOT is responsible for managing 20 tunnel bores throughout the state. The Division of Highway Maintenance administers various programs to maintain this system, including the Snow and Ice Control program, Traffic Services, Vegetation Management, Debris Removal and more.

CDOT owns a large number of safety and traffic-related devices that the Department must maintain. The most recent counts for the following asset categories are:

- 177,296 signs
- 1,091,236 linear feet of cable guardrail
- 6,856,380 linear feet of metal guardrail
- 2,501,196 linear feet of concrete guardrail
- 50,779 miles of striping
- 27,111 roadway lights
- 3,297 traffic signals
- 936 attenuators

The list above is not a comprehensive account of assets served by CDOT's maintenance forces, but it provides a sense of the scope of work performed by the maintenance program. In the past few years, CDOT has updated its inventories of guardrail and culvert assets. The signs, striping, roadway lights, traffic signals and attenuator asset categories have not been updated due to budget constraints. However, efforts to inventory these and other assets are underway.

CDOT must plan and deliver maintenance services in challenging climates and topographies, including extreme freeze/thaw cycles and high, heavily traveled mountain passes. The Department also maintains the highway system in a constrained and uncertain funding environment.

**Strategies:** CDOT strategically invests in maintenance areas of critical importance. The Department devotes well over half of its maintenance budget to its two largest maintenance areas: Snow and Ice Control and Traffic Services, which includes maintaining signs and striping. The maintenance program in recent years has seen inflation rising at a faster rate than its annual budgets. In this environment, the program's focus will remain on snow and ice removal, roadway surface, striping and pavement markings. CDOT will adjust the funding of each Maintenance Program Area (MPA) to maintain as high a level of service as possible in these focus areas, while funding for other MPAs will decline.

Other current strategies include:

- **Bridge Preservation Project:** The Division of Highway Maintenance partnered with the Governor's Office and the Center for Employment Opportunities to develop a bridge preservation program. This program uses recently incarcerated individuals and puts them back to work providing them with job training and necessary skills to return to society in the future. In its first year of operation 20 bridges received preventive maintenance that would not have been addressed within CDOT's current maintenance program.

- **Managed Lanes:** The Division of Highway Maintenance developed a Maintenance Section 10 to oversee the maintenance and operation of CDOT's Express Lanes. The current program manages the I-70 Mountain Express Lanes, US 36 Express Lanes and I-25 North Express Lanes. In addition, this unit will acquire the C470 and Central 70 projects.
- **Maintenance Optimization Study:** This third-party project, which is a review of the Departments' Maintenance Performance Standards, budget planning, resource allocation and staffing levels, has entered into the implementation phase. CDOT already has implemented certain study recommendations to increase efficiencies and maximize resources, such as the purchase and implementation of a new performance-based budgeting system. Also included in the study were analyses of facility locations and opportunities to sell, combine or replace facilities, as well as an analysis of maintenance staffing and organizational structure.
- **Winter Operations and Operational Readiness:** Under these strategies, CDOT is focusing on continuously assessing the Maintenance Division's preparedness levels for winter operations and other operations throughout the year. Monitoring personnel, equipment, and materials readiness rates gives visibility into how prepared the Department is to respond to events and emergencies.
- **Level of Service (LOS) Mapping:** LOS Mapping is a program that reports to managers and patrols the level of service they achieve for snow and ice removal operations. Each patrol gives a report after winter storms on the service level they provided during the last storm event. This allows managers to conduct after-action reviews with the patrols, discuss what went right and wrong, and provide direction on providing more efficient and effective services.

**Maintenance Decision Support System (MDSS):** The MDSS is a computer program that provides managers and patrols weather forecasts and roadway treatment recommendations. MDSS base recommendations from weather and pavement temperature forecasts, the capabilities of a patrol, and available materials. The system maximizes the effectiveness of materials.

**Selected operational process:** See description of processes associated with Maintenance Program Areas on page 28.

**Selected operational metric/"lead" metric:** Percent of statewide striping with an overall Maintenance Level of Service (MLOS) grade of "C" or better.

**Major Functional Area:** Operations and Maintenance.

**Customers:** Customers include all highway users. This includes resident, tourist, recreational, and "through" travelers on Colorado's state highway system; business customers such as the freight and tourism industries; transit services; law enforcement agencies; the military; counties; municipalities and others.

**Evaluation:** CDOT achieved a C+ for overall Maintenance Levels of Service in fiscal year 2017, which was the goal for the 2016-17 performance plan. CDOT forecasts it will achieve a B- in fiscal year 2019 and a B- for fiscal year 2021 for overall Maintenance Levels of Service. The Department achieved a B- for Snow and Ice Control for 2017.

Metric Type	Metric Description	Process	Year Type	Associated Work Unit or Program	1- and 3-Year Targets	Performance Results
Strategic Policy Initiative/ outcome/ lag metric	Maintenance Levels of Service grade	Deliver maintenance program <sup>12</sup>	Fiscal	Division of Highway Maintenance, CDOT Maintenance and Traffic Sections	2019: B- 2021: B-	2013: B 2014: B- 2015: B- 2016: C+ 2017: C+
Operational/ lead metric	Snow-and-Ice Control grade	Plow and remove snow, apply chemicals and abrasives, proactively control avalanches	Fiscal	Division of Highway Maintenance, CDOT Maintenance and Traffic Sections	2019: B 2021: B	2013: B 2014: B 2015: B 2016: B 2017: B-
Operational/ lead metric	Percent of statewide striping with an overall Maintenance Level of Service (MLOS) grade of "C" or better.	Stripe and evaluate state highway-system pavement	Fiscal	Division of Transportation Systems Management and Operations, Division of Highway Maintenance, CDOT Maintenance and Traffic Sections	2019: 67% 2021: 67%	<u>FY18 Yellow Striping:</u> August 2017: 70% October 2017: 79% January 2018: 59%  <u>FY18 White Striping:</u> August 2017: 71% October 2017: 80% January 2018: 74%
Input	Maintenance program spending	Deliver maintenance program	Fiscal	Division of Highway Maintenance, Maintenance and Traffic Sections	N/A input	2013 actual: \$249 million 2014 actual: \$249 million 2015 actual: \$260 million 2016 actual: \$259 million 2017 actual: \$266 million

<sup>12</sup> See page 28 for a more complete description of Maintenance Program Areas (MPAs) and associated processes.

## CDOT Peak: People



## Strategic Policy Initiative No. 5: Customer Service

**Initiative description:** New to CDOT's strategic policy initiatives in the performance plan is customer service. The

Department values customer feedback on their experience with our programs and services. Through multiple forms of customer interactions, the department seeks to maintain a positive relationship with the general public by improving the customers' perception of the Department and increasing the customer service satisfaction rate to 85%.

**Background/Definitions:** In response to the requirement for a new 'ambitious customer service' strategic policy initiative requirement, the Department set a goal of increasing customer service satisfaction. Public perception of the agency and its facilities are important to the Department and establishing a positive reputation is vital. The Department's Office of Communications records customer service related interactions from in-person, phone, or social media activities to better guide the Department in improving customer service satisfaction.

The Office of Communications collects data and splits customer service data into different platforms.

- 1. Direct Contact:** Customers who call CDOT hotlines, encounter a courtesy patrol on CDOT's roadways, or visit CDOT locations
- 2. Information Sharing:** Social media postings, surveys

**Why this matters:** CDOT services and facilities are funded by taxpayer money. Taxpayers reap the positive and negative consequences of how CDOT invests public funds. It is vital that the Department invests this money wisely. With the Department constantly in the public's eye, either through media or facility usage, customer service satisfaction is a gauging metric for the performance of the Department and its relationship with the public.

**Environment:** CDOT manages a system that includes 23,000 travel lane miles of highway, including more than 9,100 centerline miles. In addition, the Department owns more than 3,400 bridges with more than 33 million square feet of deck area. CDOT is responsible for managing 20 tunnel bores throughout the state.

Customers commonly provide feedback about agency facilities as they use state highway facilities and services. Common feedback involves: roadway debris, signal timing, deteriorating infrastructure, construction and agency representative engagement. This feedback enables CDOT to respond to issues on those facilities and general user concerns. Simultaneously, the Department tracks the majority of customer interactions and feedback.

**Strategies:** The Office of Communications collects a plethora of data related to customer service. Some key strategies the Department uses to track customer service are related to:

- Respond to 100% of all direct customer inquiries to the department within 48 hours.
- Ensure that 90% of all customer inquiries to the department are addressed within 3 business days.
- Increase the social media and online media footprint of the department by 10% by the end of fiscal year 2019.
- Keep the public updated on the progress of our construction program and major projects by ensuring that 70% of customers are satisfied with a project's progress at the end of the project and ensuring 100% response rate for hotline calls related to construction program projects.
- Ensure that 90% of customers who were assisted by CDOT's Courtesy Patrol service were satisfied with the service provided.

**Selected operational processes:** Respond to all direct customer inquiries, resolve inquiries within 3 business days, increase social media and online media footprint, and keep public updated on the progress of construction program and major projects.

**Selected operational metric ("lead metric"):** Customer service satisfaction

**Major Functional Areas:** Operations and Maintenance

**Customer:** Customers include all highway users. This includes resident, non-resident, tourist, recreational, and "through" travelers on Colorado's state highway system. Other customer groups include business travelers including the trucking industry; construction industry; transit services; the Federal Highway Administration; law enforcement agencies; the military; counties; municipalities and others.

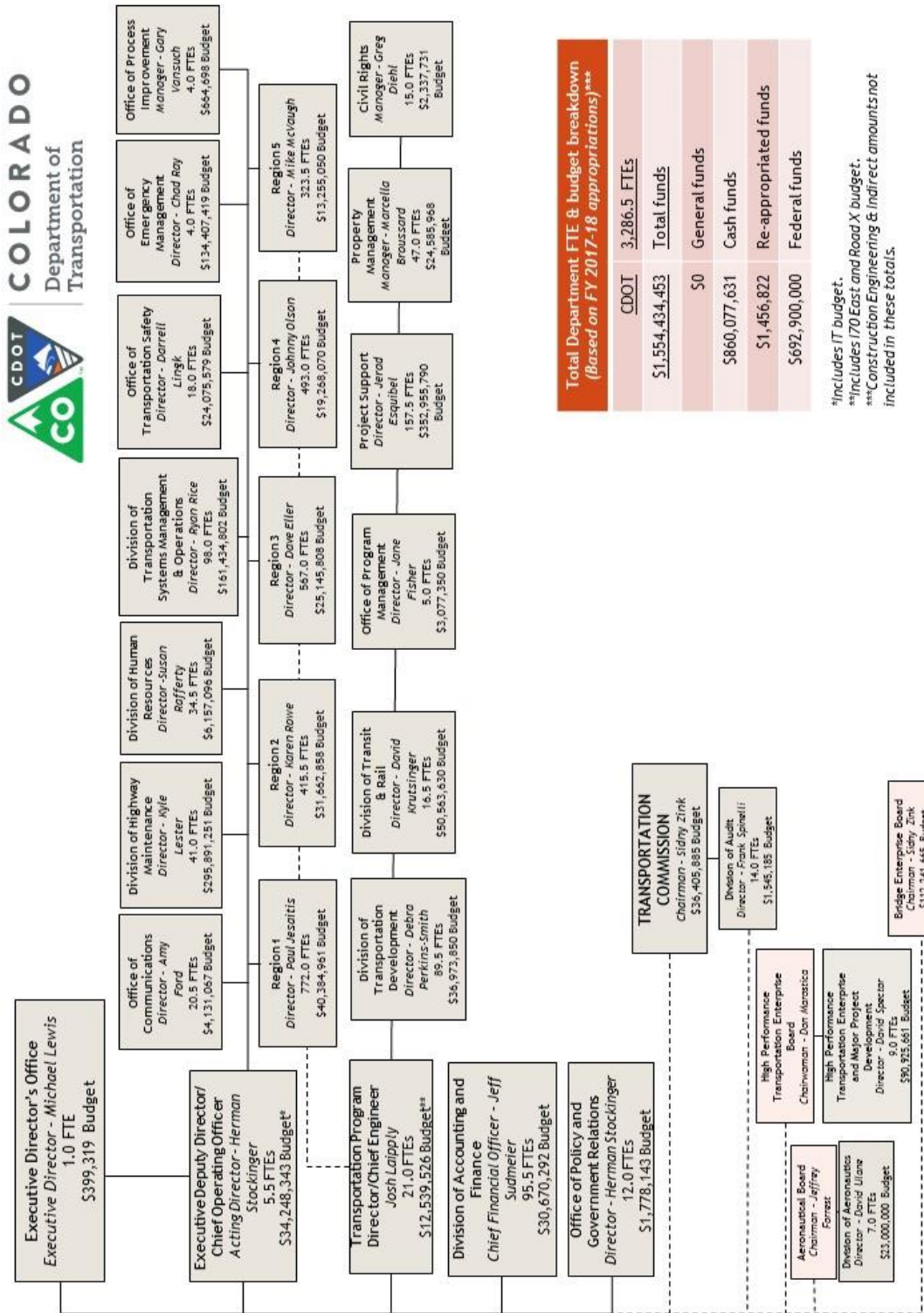
**Evaluation:** This is the first year for these performance metrics in the performance plan. The Office of Communications previously set a goal of 80% customer satisfaction rate. The goal was increased to 85% as a new ambitious customer service goal.



Metric Type	Metric Description	Process	Year Type	Associated Work Unit or Program	1- and 3-Year Targets	Performance Results
Strategic Policy Initiative/ outcome/ lag metric	Customer Service Satisfaction	Track interaction with customers	Calendar	Office of Communications	2019: 85% 2021: 87%	2017: 87%
Operational/ lead metric	Customer Inquiries	Percent of customer inquiries responded to in 48 hours.	Calendar	Office of Communications	2019: 100% 2021: 100%	2017: 100%
Operational/ lead metric	Customer Inquiries	Ensure that 90% of customers who were assisted by CDOT's Courtesy Patrol service were satisfied with the service provided.	Calendar	Office of Communications	2019: 90% 2021: 90%	2017: 96%
Operational/ lead metric	Customer Inquiries	Ensure that 90% of all customer inquiries to the department are addressed within 3 business days.	Calendar	Office of Communications	2019: 90% 2021: 90%	2017: 29%
Operational/ lead metric	Information Sharing	Increase social and online media footprint. <sup>13</sup>	Calendar	Office of Communications	2019: 2021:	2017:
Operational/ lead metric	Information Sharing	Keep public updated on progress of major projects and 70% of customers were satisfied.	Calendar	Office of Communications	2019: 70% 2021: 70%	2017:
Input	Customer Responses	Returned surveys.	Calendar	Office of Communications	N/A input	2017: 1,367

<sup>13</sup> Includes Facebook likes, Twitter followers, YouTube subscribers, Flickr followers, LinkedIn followers, unique visitors to codot.gov and unique visitors to cotrip.org.

# Appendix 1: Organizational Chart



# Appendix 2: Fiscal Year 2017-18 Performance Evaluation

*This evaluation includes data supplied for CDOT's Performance Plan update for the third quarter of fiscal year 2017. Data for the full fiscal year were not available at the time of publication.*

## Strategic Policy Initiatives

The Colorado Department of Transportation (CDOT) has identified several Strategic Policy Initiatives (SPIs) for fiscal year 2017-18 and beyond. For this performance evaluation, the Department has updated progress on initiatives from its Fiscal Year 2018 Performance Plan that capture the Department's strategic and operational priorities. The updates reflect data available in spring 2018. Additional details on these initiatives are available in the Department's Performance Plan, which may be accessed [here](#).

**Safety:** Move Colorado toward zero deaths by reducing traffic-related deaths by one-half by 2030. This includes reducing fatalities by 12 per year, from 548 in 2008 to 344 in 2025. CDOT aims to reduce fatalities to 800 for its one-year target (Dec. 31, 2018 target, or calendar year 2018 fatalities) and 890 for its three-year target (Dec. 31, 2020 target, or calendar year 2020 fatalities).

**Pavement Condition:** Attain High or Moderate Drivability Life for 80 percent of sampled lane miles of pavement on the state highway system by 2025. CDOT plans to achieve 73 percent High/Moderate Drivability Life for its one-year target (June 30, 2018 target, or fiscal year 2018 pavement condition), down from 79 percent in fiscal year 2018. The three-year target is 64 percent (June 30, 2020 target, or fiscal year 2020 pavement condition).

**Travel-Time Reliability:** Slow the growth of congestion and achieve satisfactory travel-time reliability on Interstate 25 in the Front Range and in the Interstate 70 West Mountain Corridor. One- and three-year goals include:

- Reduce the Average Travel Time for Northbound Interstate 25 from 51 minutes in calendar year 2017 to an average of 49 minutes in 2018. Achieve an ATT of 48 minutes in 2020.
- Reduce the Average Travel Time for Southbound Interstate 25 from 50 minutes in calendar year 2017 to an average of 50 minutes in 2018. Achieve an ATT of 49 minutes in 2020.
- Reduce the Average Travel Time for Westbound Interstate 70 from 92 minutes in calendar year 2017 to an average of 92 minutes in 2018. Achieve an ATT of 92 minutes in 2020.
- Reduce the Average Travel Time for Eastbound Interstate 70 from 96 minutes in calendar year 2017 to an average of 98 minutes in 2018. Achieve an ATT of 92 minutes in 2020.

**Maintenance:** Maintain CDOT's roadways and facilities to minimize the need for replacement or rehabilitation in a constrained funding environment. This includes achieving an overall Maintenance Levels of Service (MLOS) grade of B- for the state highway system in fiscal year 2018 and a C for fiscal year 2020, compared to an actual grade of C+ in fiscal year 2017.

**Workers' Compensation:** Create a high-performing culture of employee safety, ensuring workers' compensation claims do not exceed 236 in calendar year 2018 and 212 in 2020 as compared to 180 in 2017.

## Operational Measures

**SPI 1—Safety:** Move Colorado toward zero deaths by reducing traffic-related deaths by one-half by 2030. This includes reducing fatalities by 12 per year, from 548 in 2008 to 344 in 2025. CDOT aims to reduce fatalities to 800 for its one-year target (Dec. 31, 2019 target, or calendar year 2019 fatalities) and 890 for its three-year target (Dec. 31, 2021 target, or calendar year 2021 fatalities).

### Major Functional Area – Safety

**Process – CDOT implements a variety of processes to mitigate injuries and fatalities on Colorado's roadways. For example, the Department qualifies, selects, advertises and awards Highway Safety Improvement Program projects. Projects that are selected address identified crash patterns, which are mitigated by the scope of the project and meet a minimum benefit/cost ratio of 1.0. CDOT's goal is to meet a program-wide benefit/cost ratio of 2.0.**

Measure	CY15 Actual	CY16 Actual	CY17 Actual	Q1 CY18	Q2 CY18	Q3 CY18	Q4 CY18	CY18 Goal	CY20 Goal
Outcome: Fatalities on Colorado Roadways.	547	608	648	121				800	890
Lead Metric 1: Average benefit/cost ratio for Highway Safety Improvement Program projects.	2.98	2.85	2.53	4.35				Minimum 2.0	Minimum 2.0
Lead Metric 2: Dedicated law enforcement contact hours for traffic safety enforcement.	84,146	119,762 (rev.)	88,535	10,903				66,750	N/A
Lead Metric 3: Percentage of advertised FASTER Safety projects that address Level of Safety Service 3 and 4 locations.	75%	86%	95%	100%				90%	90%
Measure	FY16 Actual	FY17 Actual	FY18 Actual	Q1 FY18	Q2 FY18	Q3 FY18	Q4 FY18	FY18 Goal	FY20 Goal
Lead Metric 4: FASTER Safety Mitigation program dollars spent as a percentage of the program's fiscal-year allocation*	160%	113%	N/A	27%	54%	61%		100%	100%

*Note: Fatalities and injuries statistics are subject to frequent revision as new data become available. These data were current in spring 2018.*

*\*Metric compares program dollars spent during the specified time period to current year's allocation. The dollars spent may be revenue accumulated in any year.*

**SPI 2—Pavement Condition:** Attain High or Moderate Drivability Life for 80 percent of sampled lane miles of pavement on the state highway system by 2025. Achieve 73 percent High/Moderate Drivability Life for fiscal year 2018 pavement condition, compared to 80 percent in fiscal year 2017. Achieve 64 percent High/Moderate Drivability Life for fiscal year 2020 pavement condition.

**Major Functional Area – Various, including Capital Construction; Operations and Maintenance; Safety; and Program and Project Support**

**Process – Operational processes related to pavement condition include preserving, resurfacing, and rehabilitating roads with the optimized application of cost-effective pavement treatments.**

Measure	FY15 Actual	FY16 Actual	FY17 Actual	Q1 FY18	Q2 FY18	Q3 FY18	Q4 FY18	FY18 Goal	FY20 Goal
Outcome: Percentage of sampled lane miles of state highway pavement with High or Moderate Drivability Life.	79%	80%	80%	Annual Metric	Annual Metric	Annual Metric	Annual Metric	73% (rev.)	64% (rev.)
Lead Metric: Percentage of Surface Treatment program projects advertised for the fiscal year that match recommendations from CDOT's pavement management system.	77%	90%	89%	100%	90%	93%		80%	80%

**SPI 3—Travel-Time Reliability:** Slow the growth of congestion and achieve satisfactory travel-time reliability on Interstate 25 in the Front Range and in the Interstate 70 West Mountain Corridor. (See specific targets in chart below.)

**Major Functional Area – Operations and Maintenance**

**Process – Various processes will be used to achieve this goal, such as improving incident management, decreasing road closures and training first responders.**

Measure	CY15 Actual	CY16 Actual	CY17 Actual	Q1 CY18	Q2 CY18	Q3 CY18	Q4 CY18	CY18 Goal	CY20 Goal
<b>Outcome A:</b> Average travel time per trip for NB I-25, peak weekday periods.	49 min.	49 min.	51 min.	Jan.: 50 min. Feb.: 51 min. Mar.: 51 min.				49 min.	48 min.
Lead Measure 1: Average incident clearance time on NB I-25.***	51 min.	53 min.	43 min.	Jan.: 17 min. Feb.: 18 min. Mar.: 18 min.				48 min.	43 min.
<b>Outcome B:</b> Average travel time per trip for SB I-25 peak weekday periods.	52 min.	49 min.	50 min.	Jan.: 50 min. Feb.: 50 min. Mar.: 49 min.				50 min.	49 min.

**NOTE:** CDOT has revised the presentation of the metrics above to reflect performance for individual months, rather than year-to-date performance. \*Termini for Interstate 25 metrics are C-470 and E-470. Results and goals are for daytime and early evening weekday hours. \*\*Termini for Interstate 70 metrics are Vail and C-470. Results and goals are for daytime and early evening weekend hours. \*\*\*Calculation methods for incident clearance time have been changed to expand the number of incidents that are used in the calculation.

Lead Measure 1: Average incident clearance time on SB I-25.***	44 min.	49 min.	40 min.	Jan.: 16 min. Feb.: 18 min. Mar: 22 min.				44 min.	39 min.
<b>Outcome C:</b> Average travel time per trip for WB I-70, peak Saturday period.	93 min.	94 min.	92 min.	Jan.: 104 min. Feb.: 109 min. Mar: 98 min.				94 min.	92 min.
Lead Measure 1: Average incident clearance time on WB I-70.	74 min.	52 min.	42 min.	Jan.: 67 min. Feb.: 45 min. Mar: 64 min.				41 min.	36 min.
<b>Outcome D:</b> Average travel time per trip for EB I-70, peak Sunday period	106 min	100 min.	96 min.	Jan.: 132 min. Feb.: 110 min. Mar: 101 min.				98 min.	92 min.
Lead Measure 1: Average incident clearance time on EB I-70.	71 min.	64 min.	51 min.	Jan.: 27 min. Feb.: 28 min. Mar: 47 min.				57 min.	51 min.

**SPI 4—Maintenance:** Maintain CDOT’s roadways and facilities to minimize the need for replacement or rehabilitation in a constrained funding environment. This includes achieving an overall Maintenance Levels of Service (MLOS) grade of B- for the state highway system in fiscal year 2018 and a C for fiscal year 2020, compared to an actual grade of C+ in fiscal year 2017.

**Major Functional Area – Operations and Maintenance**

**Process – Under nine Maintenance Program Areas, CDOT performs an array of processes to maintain the state highway system. For example, the Roadway Surface area includes patching and sealing potholes and blading unpaved surfaces. The Structure Maintenance area includes painting bridges, repairing expansion joints and patching bridge decks. The Snow and Ice Control area includes plowing snow and taking avalanche control measures.**

Measure	FY15 Actual	FY16 Actual	FY 17 Actual	Q1 FY18	Q2 FY18	Q3 FY18	Q4 FY18	FY18 Goal	FY20 Goal
Outcome: Overall Maintenance Levels of Service Grade.	B-	C+	C+	Annual Metric	Annual Metric	Annual Metric	Annual Metric	B-	C
Lead Measure 1: Snow and Ice Control Grade.	B	B	B-	Annual Metric	Annual Metric	Annual Metric	Annual Metric	B	B
Lead Measure 2: Retro-reflectivity score for sampled long-line striping.*	April: 146 May: 173 June: 166	July: 161 Aug: 176 Sept: 223 Oct: 195 Nov: 178 Dec: 135 Jan: 128 Feb: 96 Mar: 155 April: 159 May: 135 June: 131	July: 144 Aug: 144 Sept: 161 Oct: 181 Nov: 193 Dec: 202 Jan: 135 Feb: 112 Mar: 138 April: 152 May: 169 June: 201	July: 182 Aug: 230 Sept: 215	Oct: 256** Nov: N/A Dec: N/A	Jan: N/A Feb: N/A Mar: N/A		≥80 mcd/m <sup>2</sup> /lux	≥80 mcd/m <sup>2</sup> /lux

\*CDOT's goal is to achieve, at minimum, a retro-reflectivity score for longitudinal pavement markings of 80 mcd/m<sup>2</sup>/lux (millicandelas per square meter per lux), a measure of luminous intensity.

\*\*Striping has updated its measures to a quarterly measurement of total striping assets that meet minimum condition requirements starting in October of 2017. Therefore, no further data is available on this lead measure.

## Appendix 3: Executive Director's Goals

The following **draft** goals have been submitted by CDOT's Executive Director to the Colorado's Governor's Office for 2019. They include many of the goals in this Performance Plan.

	Half-Year Target	FY19 Target
<p><b>Goal #1: Ambitious Customer Service Goal (required)</b>  <b>Customer Satisfaction with the Colorado Department of Transportation</b>            Increase total customer satisfaction with the Colorado Department of Transportation increase from 80 percent satisfied with the department's programs and services in 2017 to 85 percent satisfied by the end of fiscal year 2019.</p> <p><i>Statement of why ambitious:</i>            The department has conducted regular surveys of the public to gauge public support for the programs and services provided by the department. Since 2015, the department has achieved a satisfaction rating of 80%. Increasing the customer satisfaction rating to 85%, through the strategies listed below, will improve our standing with public and provide valuable feedback on how to improve our programs and services in the future.</p>	<p>CY18 Target: 82.5%</p>	<p>FY19 Target: 85%</p>
<p>Key strategies:</p> <ul style="list-style-type: none"> <li>• Respond to 100% of all direct customer inquiries to the department within 48 hours</li> <li>• Ensure that 90% of all customer inquiries to the department are resolved with 3 business days.</li> <li>• Increase the social media and online media footprint of the department by 10% by the end of fiscal year 2019.</li> <li>• Keep the public updated on the progress of our construction program and major projects by ensuring that 70% of customers are satisfied with a projects progress at the end of the project and ensuring 100% response rate for hotline calls related to construction program projects.</li> <li>• Ensure that 90% of customers who were assisted by CDOT's Courtesy Patrol service were satisfied with the service provided.</li> </ul>		

	Half-Year Target	CY19 Target
<p><b>Goal #2: Highway System Performance</b>            Slow the growth of travel times on Interstate 70 (between Vail and C-470) and Interstate 25 (between Northwest Parkway and C-470). Slowing the growth of travel times enables highway users to arrive at their destinations more quickly than otherwise and mitigates the social, economic, and environmental costs of congestion.</p> <ol style="list-style-type: none"> <li>1. Achieve actual travel times of 95 minutes in calendar year 2019 for eastbound Interstate 70 during peak Sunday hours versus a projected average of 103 minutes.</li> <li>2. Achieve actual travel times of 49 minutes in calendar year 2019 for southbound Interstate 25 during peak weekday hours versus a projected average of 53 minutes.</li> </ol>	CY18 Targets:  EB I-70: 98 minutes  SB I-25: 50 minutes	CY19 Targets:  EB I-70: 95 minutes  SB I-25: 49 minutes
<p>Key strategies:</p> <ul style="list-style-type: none"> <li>• Reduce average incident clearance times on eastbound Interstate 70 to 54 minutes on Sundays in calendar 2019.</li> <li>• Reduce average incident clearance times on southbound Interstate 25 to 15 minutes on weekdays in calendar year 2019.</li> <li>• Increase the percentage of first responders in the State of Colorado that are trained in Traffic Incident Management (TIM) training from 35% in March 2018 to 50% by the end of fiscal year 2019.</li> </ul>		

	Half-Year Target	CY19 Target
<p><b>Goal #3: Roadway Safety</b>            Limit the recent surge in roadway deaths, ensuring that roadway fatalities do not exceed 728 for calendar year 2019.</p>	CY18 Target: 800	CY19 Target: 728
<p>Key strategies:</p> <ul style="list-style-type: none"> <li>• Achieve an average benefit/cost ratio of at least 2.0 for Highway Safety Improvement Program projects in calendar year 2019.</li> <li>• Ensure at least 90 percent of advertised FASTER Safety Mitigation projects address Level of Safety Service 3 and 4 locations in calendar year 2019.</li> <li>• Ensure that the percentage of FASTER Safety Mitigation program dollars spent is 100 percent of the fiscal year budget in fiscal year 2019.</li> </ul>		





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