

# **COLORADO DEPARTMENT OF TRANSPORTATION**

## **STRATEGIC PLAN**

**FY 2012-2013 BUDGET**

## **Introduction, Statutory Authority and Department Summary**

The Colorado Department of Transportation (CDOT) presents its strategic plan for Fiscal Year 2013. The statutory authority for CDOT resides within Title 43, Part 1, Colorado Revised Statutes (2011). Article 1 vests the Colorado Transportation Commission with authority over planning, development, and adoption of the annual budget. This plan, based largely upon the department's anticipated revenue streams for the next fiscal year and beyond, incorporates measures for evaluating performance-based goals that are integrated into CDOT's budgeting and planning processes. The plan is intended to best serve the people of Colorado through effective administration and delivery of transportation-related programs and services.

CDOT is responsible for a 9,146 mile highway system, including 3,447 bridges. Each year, this system handles over 27.4 billion vehicle miles of travel. Although the Interstate system accounts for only about 10 percent (914 miles) of the total mileage on the state system, 40 percent of all travel within Colorado takes place on the Interstate highways.

The various divisions and offices within CDOT perform a wide array of functions to ensure that Colorado's transportation system meets the needs of its users. The Division of Engineering, Design and Construction designs highway projects and awards contracts to private companies submitting the lowest bids to construct the projects, while the Division of Highway Maintenance and Operations takes care of the highway system, plowing snow and repairing pavement. The Division of Transportation Development manages the statewide transportation planning process and ensures the department fulfills its environmental obligations. The Division of Aeronautics supports aviation interests statewide, including awarding and administering grants to help improve local airports. The Division of Transit and Rail provides assistance to numerous transit systems in the state. The Office of Transportation Safety helps local law enforcement agencies with special funds to apprehend drunk drivers and increase the use of safety belts.

To help guide or influence program budgeting and project funding, the Transportation Commission budgets within investment categories. These four functional categories – safety, mobility, system quality, and program delivery – serve to provide the framework and direction for Colorado's transportation system and to broadly allocate the resources available to the department. These investment categories are CDOT's official investment categories adopted by the Transportation Commission in Policy Directive 14. As the FY 2013 budgeting process progresses and as the department prepares for the development of the next statewide long range plan, it is likely CDOT's investment categories and the associated performance measures will change. If changes are made, they will be reflected in the FY 2014 Strategic Plan.

## Mission Statement and Vision Narrative

To guide the strategic planning and budgeting processes, the Commission and department have adopted mission and visions statements, core values, and operating principles. **Components of the strategic plan**, as required by Section 2-7-204(13)(a) (C.R.S. 2011) commencing with the State budget process for fiscal year 2012-13, **are highlighted in bold**.

The **vision** of the department 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 and goods and by offering convenient linkages among modal choices. It accomplishes this by relying on its core values of safety, people, respect, integrity, customer service, and excellence.

CDOT's **mission** is to provide the best multi-modal transportation system for Colorado that most effectively and safely moves people, goods and information. This mission is manifested in part through operating principles within Transportation Commission Policy Directive 13: customer focus, leadership, partnership, integrated regional and statewide priorities, financial responsibilities, balanced quality of life, environment, accessible connectivity and modal choices, and social responsibility.

From these organizational priorities, the department establishes mid- to long-term performance goals and objectives. Policy Directive 14 aspires to achieve certain performance levels for the statewide transportation system, such as maintaining 60 percent of the state highway system's pavement in good or fair condition. But Policy Directive 14 also recognizes that funding often limits CDOT's ability to reach the desired level of performance, and thus sets objectives that are at the time determined to be achievable (e.g. maintain or improve the system-wide pavement condition forecast of 40 percent for 2016). Those realistic objectives are often lower than the desired goals, but help guide annual budget and ongoing program funding decisions.

Policy Directives 13 and 14 were last substantially updated several years ago in preparation of development of the 2035 Long Range Plan. The fiscally constrained objectives and unconstrained goals or visions of Policy Directive 14 parallel the outlook of the 2035 Plan, which represents annual revenue projections and resource allocations through fiscal year 2035. The Long Range Plan is a federally mandated transportation plan with two significant variations – a fiscally constrained projection and an unconstrained vision. But uncertainty and volatility of revenues from year to year greatly complicates the projection of performance over such an extended time horizon. A federally required mid-range plan, the Statewide Transportation Improvement Program (STIP), is revised every *four* years and incorporates projects that the State can reasonably expect to complete with available funding over the next *six*-year period. Through a planning process shared by CDOT and its local partners, projects move forward through the STIP, working toward objectives within the Long Range Plan. Unfortunately due to the absence of any outline of the form federal funding will take for the balance of the current fiscal year, let alone future ones, even developing this mid-range plan is fraught with uncertainty.

## Investment Categories Goals, Objectives and Performance Measures

Goals and objectives within Policy Directive 14 are grouped into the department's four investment categories:

- Safety – Services, programs and projects that reduce fatalities, injuries and property damage for system users and providers.
- System Quality – Activities, programs and projects that maintain the physical (integrity/condition) function and aesthetics of the existing transportation infrastructure.
- Mobility – Programs, services and projects that enhance the movement of people, goods and information.
- Program Delivery – Functions that enable the successful delivery of CDOT's programs, projects and services.

The investment category *goals* as defined in Policy Directive 14 are broad, aspirational, department-wide and long term. Six of the goals identify specific desired performance levels that cannot be met with currently anticipated resources:

- Achieve a 1.00 fatality rate per 100 million vehicle miles traveled.
- Achieve 60 percent good/fair pavement condition system-wide.
- Achieve 95 percent good/fair bridge deck area condition system-wide.
- Achieve a B maintenance level of service grade for system quality measures.
- Maintain an average of 22 minutes of delay per traveler in congested corridors.
- Achieve an A maintenance level of service grade for snow and ice control.

The investment category *objectives* are specific, measurable, achievable (at adoption), results-oriented, and time-bound. The objectives focus department efforts and actions on performance that is achievable with available resources. The difference between the performance goals and objectives, depicted in Figure 1 below from the 2035 Long Range Plan, illustrates the gap between the desired level of performance and the reasonably achievable performance based upon anticipated resources as adopted by the Transportation Commission during 2008-2035 resource allocation.

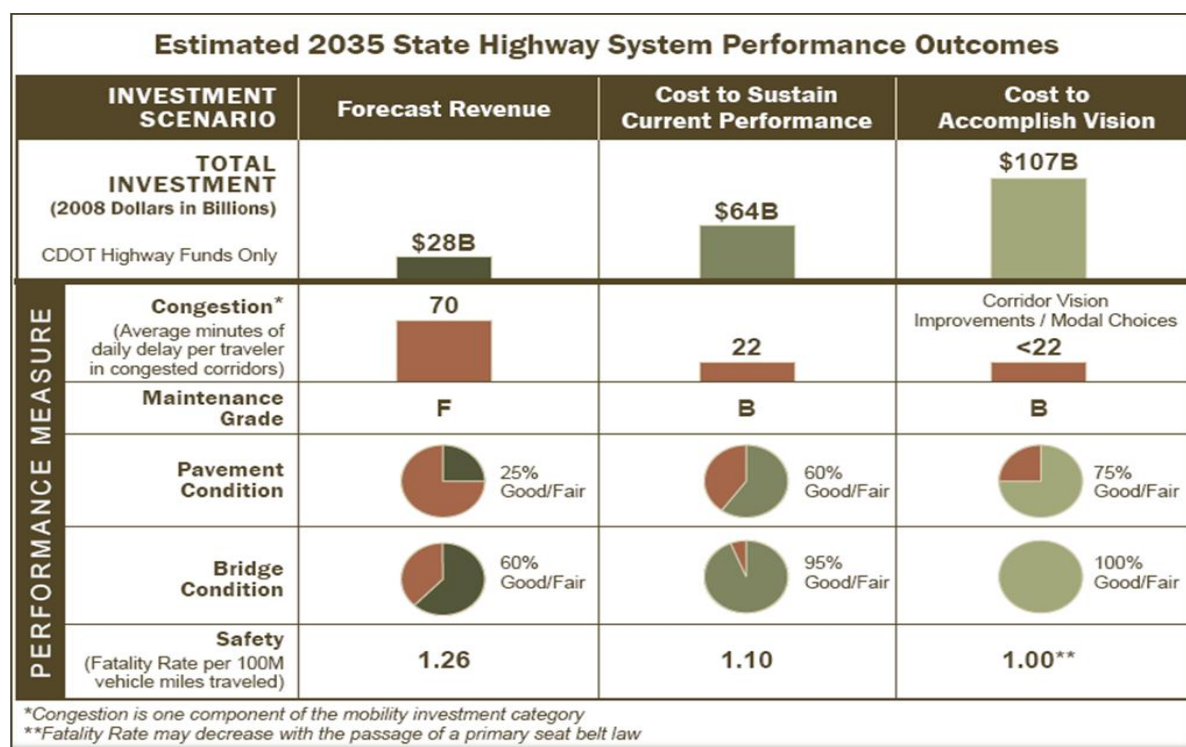
The *performance measures* associated with the investment category objectives are measurable and meaningful, understandable, realistic, and fair and balanced. These performance measures link funding decisions made through the budgeting process and allow CDOT to evaluate performance after the year has ended.

It is important to again note that the department's long-term goals and objectives are established by the Transportation Commission through Policy Directive 14. This directive is revisited less than annually, usually in conjunction with long-range planning. Thus, long-term goals

and objectives often vary from the annual performance-based goals or benchmarks established during budget development. Where benchmarks are not reset annually, Policy Directive 14 objectives are stated and/or interpolated in this report.

In addition to this strategic plan, CDOT annually publishes an Annual Performance Report that details the achievements of the state’s transportation system over the prior fiscal year and notes whether annual targets were met. Pursuant to House Bill 10-1119 and beginning in 2012, the Office of State Planning and Budget shall publish each December 1 an annual performance report that will include the Department of Transportation. For current and past CDOT Annual Performance Reports, please refer to the CDOT library at <http://www.coloradodot.info/library/AnnualReports>.

**Figure 1 – Select 2035 Long Range Plan Forecasted Revenues against Performance**



# I. SAFETY

## Services, programs and projects that reduce fatalities, injuries and property damage for all users and providers of the system.

The investment category includes two areas of focus. The first focus area includes those programs used to influence driver behavior. The second area focuses on highway improvements to increase the safety of transportation workers and the public.

### Long-Range Goals (Long-range goals are aspirational, and derived from Transportation Commission Policy Directive 14.):

- To create, promote and maintain a safe and secure transportation system and work environment
- Increase absolute investment in safety and accelerate completion of strategic projects
- Achieve a 1.00 fatality rate per 100 million vehicle miles traveled

*Objective:* Maintain federal goals for vehicle crash fatalities.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Statewide motor vehicle fatal crash rate per 100 million vehicle miles traveled	Benchmark / Performance Goal	1.00	1.00	1.00	1.00	1.00
	Actual	0.94*	0.87†	Avail. Oct 2012	Avail. Oct 2013	Avail. Oct 2017

\*Calendar Year 2009

†Calendar Year 2010

*Strategy:* Providing a safe and secure transportation system to the traveling public is among CDOT’s highest priorities. The mission of CDOT’s Office of Transportation Safety and Traffic Engineering Branch is to reduce the incidence and severity of motor vehicle crashes and the associated human and economic loss. This mission is accomplished through the incorporation of roadway safety engineering principles in all state highway construction and enhancement projects and the administration of grant programs directed at driver behavior, law enforcement and local community safety projects.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* Between 2009 and 2010, the number of fatal crashes, which can result in multiple fatalities, decreased by six percent, from 435 to 409. Total traffic fatalities fell 3.7 percent, from 465 to 448. This is a marked improvement over the eight-year high of 743 traffic fatalities in Colorado in 2002. In less than ten years, the number of traffic fatalities has fallen by 40 percent. CDOT has worked quickly to capitalize on the introduction of FASTER Safety funds. At the end of February 2011, 11 FASTER Safety Projects had been completed in FY 2011, ten were under construction and another 17 were under contract or pending a contract. Examples of FY 2011 FASTER Safety Projects include concrete repair and traffic signal replacement along University

and Wadsworth Boulevards in the Denver area, extended acceleration and deceleration lanes on I-70 in Clifton, and realignment to improve visibility and smooth turns at the intersection of SH 13 and Railroad Avenue in Rifle.

Education has been a huge factor in saving lives, but there have also been great advances in engineering that have made our roadways safer. Everything from the installation of rumble strips and cable medians to targeted safety improvements on roadways identified as high accident locations have prevented crashes or significantly increased the chances of surviving if one occurs.

The passage of traffic safety legislation has also played a role in reducing fatalities. For example, Colorado's Graduated Driver Licensing (GDL) laws, which set limits and requirements on new teen drivers, are credited with helping reduce by half the number of young people age 15 to 20 killed in crashes each year.

Safety experts are exploring ways that current laws can be strengthened to save additional lives, including expanding GDL laws and passing a primary seat belt law in Colorado. Currently, adult drivers can be ticketed for violating the seat belt law only if they are stopped for another traffic violation first.

In addition to fatalities, the Department tracks a number of other accident data and establishes objectives related to many types of accidents. For additional information related to accident prevention and reporting, please refer to the department's Annual Performance Report, available at <http://www.coloradodot.info/library/AnnualReports>.

*Objective:* Reduce the annual workplace accident rate by 10 percent per year.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Number of Workers' Compensation Claims	Benchmark	333	327	310	-10% from FY 2011-12	-10% from FY 2015-16
	Actual	363	345	Avail. Oct 2012	Avail. Oct 2013	Avail. Oct 2017

*Strategy:* The department values the safety of its employees as much as it values the safety of the traveling public. In a recent reorganization, the Office of Risk Management was moved from the Division of Human Resources and Administration to the Office of Transportation Safety, signaling increased organizational emphasis on employee safety. The Office of Transportation Safety administers a number of education and training programs in an effort to reduce workers' compensation claims each year.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* The number of workers' compensation claims fell once again in FY 2011 by five percent, from 363 in FY 2010 to 345. Incident rates for on-the-job injuries continue to trend down as a result

of many improvements to the department's employee safety programs. Winter and summer employee safety campaigns such as the 100 Safe Days of Summer have shown impressive results in reducing workplace accidents. The number of vehicle accidents and personal injuries in May through July 2011 decreased by 12.5 percent from the same time period in 2010. Two vehicle accidents involving CDOT maintenance employees in the month of August 2011 prompted the department to partner with the Colorado State Patrol and other agencies to host an event reminding the public about Colorado's "Move Over" law, which requires motorists to slow down and allow maximum clear space when passing emergency or maintenance vehicles stopped along the roadway.

## II. SYSTEM QUALITY

### **Activities, programs and projects that maintain the physical (integrity/condition) function and aesthetics of the existing transportation system**

System Quality includes all programs that maintain the functionality and aesthetics of the existing transportation infrastructure at Transportation Commission defined service levels. This investment category primarily includes the department's maintenance activities on the highway system, right-of-way, and bridge program. In addition to highway maintenance, the investment category includes maintenance activities for airports and the preservation of railroad rights-of-way for transportation uses.

#### **Long-Range Goals:**

- Cost effectively maintain the quality and serviceability of the physical transportation infrastructure
- Increase absolute investment in system quality and accelerate completion of strategic projects
- Achieve 60 percent good/fair pavement condition system-wide
- Achieve 95 percent good/fair bridge deck area condition system-wide
- Achieve a B maintenance level of service grade for system quality measures



*Objective:* Maintain or improve upon the system-wide pavement condition forecast for 2017 of roughly 39 percent good or fair condition.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Percent of pavement in good/fair condition	Benchmark	46.0%	44.0%	45.0%	43.0%*	39%*
	Actual	48.0%	48.0%	Avail. Oct. 2012	Avail. Oct. 2013	Avail. Oct 2017

\* May change during FY13 budgeting process in October 2011.

*Strategy:* Dedicate sufficient resources to prevent accelerated deterioration of the state highway system. The goal of CDOT’s Pavement Management Program is to provide the department with tools that optimize the use of public dollars and assist in project selection for the purposes of maintaining and improving overall system quality. These tools include: Statewide Surface Condition Reports (to include good/fair/poor maps); Future Surface Condition Projections; Project Recommendations; and Regional Budget Allocation Recommendations.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* CDOT’s surface treatment program is generally able to achieve the target established by the Transportation Commission at the beginning of each year. The annual target continues to be established each year at a level lower than the prior year’s actual level, which is indicative of the continued system deterioration caused by insufficient investment in surface treatment. Pavement maintenance is generally provided from discretionary CDOT funds. Just less than one half of CDOT’s funds are restricted (e.g. FASTER-Bridge funds are dedicated for bridges by state legislation, federally earmarked funds are dedicated for certain significant improvement projects, etc.). This leaves the Transportation Commission with roughly \$500 million of resources to allocate as it deems appropriate among a number of program areas that perform important functions for the transportation system. Pavement has historically received about \$100 to 150 million of the discretionary funds, an amount which is insufficient to maintain current quality and drivability of the state highway system. Without increased discretionary funding, this performance can only continue to deteriorate.

The primary measure of pavement quality is the percent of pavement statewide that is in good or fair condition. The department evaluates the condition of highway pavement based on how many years remain before reconstruction is necessary. A *good* condition rating means there is a remaining service life of 11 or more years; a *fair* rating indicates a remaining service life of six through 10 years; and, a *poor* evaluation represents a remaining service life of less than six years. A 44 percent good or fair condition objective was established for FY 2011. CDOT was able to surpass the objective and achieve a good or fair condition on 48 percent of its highways. The ability to exceed last year’s objective, and maintain the highway network condition at 48 percent good or fair, is primarily attributed to additional funding through the ARRA program, and a drop in surface treatment costs of 25% over the last several years. The significant drop in costs allowed the department to treat 25% more roadway than it had anticipated, and roughly 50% of surface treatment work occurred on poor roads.

Monitoring pavement conditions during the next several years is critical as conditions will continue to deteriorate, given projected funding levels. Based on revenue forecasts, the overall good/fair condition statewide is projected to drop to 39 percent by 2017. Through the Pavement Management Program, CDOT ensures that it utilizes its limited surface treatment funds cost effectively and responsibly but the investment in the surface treatment program is insufficient to maintain the current condition of the state highway system’s surface.

*Objective:* Maintain or improve upon the system-wide major vehicular bridge deck area condition forecast for 2017 of roughly 94 percent good or fair condition.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Percent of major vehicular bridge deck area in good/fair condition	Benchmark	94.4%	94.8%	~95.0%	~95.0%*	~94.0%*
	Actual	94.5%	94.5%	Avail. Oct. 2012	Avail. Oct. 2013	Avail. Oct 2017

\* May change during FY13 budgeting process in October 2011.

*Strategy:* As with pavement, the Transportation Commission annually resets its target for each year’s bridge performance level based on allocated funding. Policy Directive 14 had established a long-range objective of maintaining 83 percent good or fair condition by 2016. Recent developments in funding for bridges, including the passage of FASTER, have enabled the commission to establish annual objectives that demonstrate a slower deterioration than was forecasted with Policy Directive 14. With the creation of the Colorado Bridge Enterprise (CBE) under FASTER legislation passed in 2009, CDOT has an opportunity to make the most of the Bridge Safety Surcharge, which funds the Bridge Enterprise, to rehabilitate and reconstruct more poor bridges than it would be able to do otherwise.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* Due to the creation of the CBE, the percent of bridge deck area in good or fair condition did not decrease from Fiscal Year 2010 to 2011. With the CBE’s support, the department was able to avoid further degradation of bridge deck area as it was able to repair or rehabilitate poor bridges as quickly as fair bridges fell into the poor category. In the two years since the passage of FASTER, the department and the CBE have developed an aggressive program to identify, design, and repair or rehabilitate most of the current inventory of poor bridges. \$15 million of the federal portion of the CDOT Bridge Program is annually allocated to the CBE bonding program. The remaining CDOT Bridge Program funds are spent on six program activities. The first is Bridge Replacement and Major Rehabilitation. Because the CBE is concentrated on replacing poor bridges, this activity focuses on major rehabilitation of bridges where this is the preferred alternative or for replacement of bridges not transferred to the CBE. Other activities executed by the CDOT Bridge Program include: Planned Preventative Maintenance; Essential Repairs; Structure Inspection & Management; and Scour Plan of Action Updates. Each of these is a cost-saving activity, as a one percent increase in the amount of poor bridge deck area results in a \$327 million liability for the state.

CDOT reports major vehicular bridge condition by the percent of bridge deck area statewide in good or fair condition. The National Bridge Inventory standards established by the Federal Highway Administration are used to inventory and classify the condition of the major vehicular bridges. The classification is based on a sufficiency rating of 0-100 and a status of not deficient, functionally obsolete, or structurally deficient. Major vehicular bridges in poor condition have a sufficiency rating of less than 50 and status of structurally deficient or functionally obsolete. Bridges in poor condition do not meet all safety and geometry standards and require reactive maintenance to ensure their safe service. For the purpose of determining bridge-funding needs, it is assumed that bridges in poor condition have exceeded their economically viable service life and require replacement or major rehabilitation. Major vehicular bridges in fair condition have a sufficiency rating from 50 to 80 and a status of structurally deficient or functionally obsolete. Bridges in fair condition marginally satisfy safety and geometry standards and require either preventative maintenance or rehabilitation. Major vehicular bridges in good condition are all remaining major bridges that do not meet the criteria for poor or fair. Bridges in good condition generally meet all safety and geometry standards and typically only require preventative maintenance.

A bridge is structurally deficient if it does not meet minimum standards for condition or capacity. A structurally deficient bridge often has one or more members in poor condition due to deterioration or other damage. Having only a small portion of a bridge in poor condition can result in the entire bridge being classified as structurally deficient. Structurally deficient bridges require monitoring, maintenance, or repair to ensure their safe use and continued service. A bridge is functionally obsolete if it does not meet current minimum geometric requirements. Bridges classified as functionally obsolete often have inadequate roadway shoulders, insufficient number of lanes to handle current traffic volumes, overhead clearances less than minimums, or inadequate widths for roadways or streams passing underneath. Functionally obsolete bridges may need signage (e.g. vertical clearance signs), reduced speeds, or traffic control devices (e.g. additional guardrails) to ensure safety.

*Objective:* Meet or exceed the adopted annual maintenance level of service grade.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Annual statewide maintenance level of service grade	Benchmark	C+	C+	C	Avail. Oct. 2011	Avail. Oct. 2015
	Actual	B-	B-	Avail. Oct. 2012	Avail. Oct. 2013	Avail. Oct. 2017

† May change during FY13 budgeting process in October 2011.

*Strategy:* CDOT uses an extensive Maintenance Levels of Service (MLOS) budgeting system to allocate funds and evaluate all maintenance activities performed throughout the state for a given fiscal year. The main objective of MLOS is to establish an overall target level of service while staying within allocated budget dollars. Levels of service communicate targets for accomplishment inside and outside the agency. When planned levels of service are compared to actual service levels accomplished, a basis of accountability is established. Relationships between levels of service and cost enable CDOT to evaluate the impacts of different funding levels, analyze tradeoffs in resource allocation,

and monitor planned versus actual accomplishments against expenditures. The achieved LOS is determined through extensive surveys of approximately 700 randomly selected highway segments throughout the state. There are several surveys conducted throughout the fiscal year that evaluate CDOT's infrastructure and how well it was maintained.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* This year's statewide maintenance level of service grade of B- exceeded the annual objective of C+. The Maintenance and Operations Branch attributes this to a milder winter in the Eastern half of the state, which allowed them to exceed target levels of service for *non-snow* related maintenance activities. The statewide overall maintenance objective and actual grades over an eight-year period range from a C to a B+. The steady grades reflect a carefully administered maintenance management system. The decrease to a C benchmark in FY 2012 is the result of (1) budgeted dollars not keeping up with the rising costs of fuel and materials, inflation and increasing needs for bridge maintenance activities and (2) the impact of prior heavy winters on the projected cost of maintaining the system.

The nine Maintenance Program Areas (MPAs), which together with expenditures make up the MLOS grade, are: Planning, Scheduling and Training; Roadway Surface; Roadside Facilities; Roadside Appearance; Traffic Services; Structure Maintenance; Snow and Ice Control; Rest Areas, Buildings and Grounds; and Tunnel Operations. A detailed explanation of the Levels of Service for each of the nine MPAs can be found in the Appendix.

### **III. MOBILITY**

#### **Programs, services and projects that provide for the movement of people, goods and information**

The activities within this investment category address issues that impact movement. Quality of movement, accessibility to transportation, reliability of the system, connectivity of one system to another system, and environmental stewardship are all aspects of the mobility category. The programs used to address mobility include the highway performance program, alternate modes, facility management, travel demand management, and road closures program.

#### **Long-Range Goals:**

- Maintain or improve the operational capacity of the transportation system
- Increase integration of the transportation system modal choices
- Increase absolute investment in mobility and accelerate completion of strategic projects
- Maintain an average of 22 minutes of delay per traveler in congested corridors

- Achieve an A maintenance level of service grade for Snow and Ice Control

*Objective:* Reduce the growth rate in minutes of delay per traveler in congested corridors by 1.5% below the forecast for 2017 of 21.6 minutes of delay.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Travel time delay in congested corridors (minutes of delay per person)	Benchmark	18.4	18.4	19.4	20.5	21.6
	Actual	17*	17.3†	Avail. May 2012	Avail. May 2013	Avail. May 2017

\* Calendar Year 2009

† Calendar Year 2010

*Strategy:* The department’s primary measure of mobility is minutes of delay per traveler in congested state highway segments. Travel time delay is the difference between the travel time on highways at the free flow speed and the time it takes to travel with heavy traffic. Since the last increase in fuel tax, population growth and growth in vehicle miles traveled, particularly among the trucking industry, has accelerated much more rapidly than revenues. The department has therefore endeavored not to reduce congestion, but slow the rate of its increase. Gradually over the past several decades the strategy for accomplishing this has shifted from adding highway lane capacity to changing traveling behavior.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* Though the total amount of delay in congested corridors on Colorado’s state highways increased 11 percent between 2009 and 2010, the amount of time delay *per traveler* remained virtually unchanged. Total delays can increase without individual travelers experiencing an increased delay because total vehicles on congested corridors can increase and travelers can change their travel behavior by, for example, traveling with more than one occupant in a vehicle. CDOT defines a congested roadway segment as one with a vehicle volume to capacity ratio that equals or exceeds 0.85.

CDOT’s estimates for travel time delay have been revised downward since the 2035 Long-Range Plan was issued in 2008. At that time, travel time delay in 2010 was estimated to be an average of 28.3 minutes per traveler. However, when the estimated delay in 2010 was calculated based on 2009 actual data, the new time estimate was 18.4 minutes. This affects estimates for future years as well.

There are a number of factors which contribute to average travel time delay staying lower than originally estimated in 2008. A high unemployment rate results in less people traveling to work on a daily basis; high gas prices reduce discretionary travel; and, an increasing number of travelers rely on other modes of transportation, including transit and bicycles, to commute to and from work.

*Objective:* Maintain the snow & ice maintenance level of service grade at the adopted annual grade.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Snow & ice Maintenance Levels of Service (MLOS) grade	Benchmark	B	B	B	Avail. Oct. 2012	Avail. Oct. 2016
	Actual	C+	B	Avail. Oct. 2012	Avail. Oct. 2013	Avail. Oct. 2017

*Strategy:* Each year an analysis is performed based on a five-year average of materials, plow miles, and total dollars spent in maintenance activity 402 (Snow Removal and Traction Application). The objectives of these analyses are as follows:

- To assess the variation in costs and accomplishments among the five years, as a way of gauging differences in weather that affect the demand for winter maintenance;
- To test the effect of average annual daily traffic (AADT) on winter maintenance policy, work accomplishment, and costs;
- To analyze historical trends in winter maintenance work accomplishments and costs with the purpose of determining a “standard winter” for budgeting.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* CDOT was able to improve its performance of snow and ice control, rising from a C+ in 2010 to a B in 2011. Performance improved despite a more severe winter in many regions of the state in 2011. CDOT attributes this improvement to a couple of recent changes. First, during the FY 2011 budgeting process, the Transportation Commission used trade-off analysis to determine funding levels for the nine MPAs for the first time. This allowed for a more informed decision-making process and helped lay the groundwork for a broader effort to develop a software tool that enables trade-off analysis for the department’s major assets. CDOT hopes to launch this software before the FY 2014 budgeting process commences.

Second, in 2008, amid rising costs per plow mile, maintenance policy was revised, so that highway segments with an annual average daily traffic count of less than 1,000 vehicles are not plowed between the hours of 7:00 PM and 5:00 AM (exceptions may be made for school bus or hospital/emergency routes or segments with high accident rates). However, the survey procedures used to determine actual performance in snow and ice control were not changed to reflect this new policy until FY 2011. Consequently, this year’s grade more accurately reflects actual performance than grades in 2008, 2009 and 2010.

## IV. PROGRAM DELIVERY

### Functions that enable the delivery of CDOT’s programs, projects and services

An excellent organization delivers its projects and services with quality and efficiency. To do this, the organization must effectively manage its financial and human resources, act sensitively toward the environment and develop a network of suppliers that competitively meet the needs of the organization.

#### Long-Range Goals:

- Deliver high quality programs, projects and services in an effective and efficient manner
- Deliver all programs and projects on time and within budget
- Accelerate completion of the remaining strategic projects
- Increase investment in strategic projects

*Objective:* Advertised projects within 30 days of the target advertisement date established on July 1<sup>st</sup> of the fiscal year. (Note: For Fiscal Year 2011 and beyond, CDOT has revised the annual benchmark to 80 percent from a prior benchmark of achieving the previous year’s actual level.)

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Percent of CDOT projects advertised within 30 days of the ad dates established on 7/1 of fiscal year	Benchmark	>65.9%	80%	80%	80%	80%
	Actual	67.7%	47.2%	Avail Oct. 2012	Avail Oct. 2013	Avail. Oct. 2017

*Strategy:* Delivering projects on-time is one measure of the department’s ability to effectively manage resources. Projects occur in two phases: design and construction. CDOT designs the majority of its projects in house and then solicits bids for the construction phase from contractors. At the beginning of the fiscal year, the department estimates projected completion dates or ad dates for known projects to be designed in the coming year. When all design work has been completed and proper clearances are in place, a project is ready to be advertised for construction bids. One measure of department efficiency is the percent of projects that meet their planned advertisement dates (“ad dates”) that were established at the beginning of the fiscal year.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* Of the 106 projects assigned ad dates in FY 2011 as of August 1, 2010, 50 were advertised within 30 days of the original ad date. This reflects rescheduling that occurs throughout the year as

some projects' ad dates are accelerated, others are postponed and some projects are combined with others to capitalize on opportunities to be more efficient. By the close of FY 2011, projects scheduled for ad in that fiscal year had grown from 106 to 144, demonstrating how projects may be added during the year with influxes of funding, savings from completed projects, or heightened priorities.

This measure only captures Design-Bid-Build projects, where CDOT designs a project in-house and then puts the project out to bid for a private firm to construct it. More innovative types of projects, such as Construction Management/General Contractor (CM/GC), which involves more collaboration between the designers and contractors, and Design-Build contracts, where one firm handles both the design of a project and the construction phase. Project estimates show that these innovative approaches to projects can be more efficient than the traditional Design-Bid-Build model, and CDOT anticipates it will use them increasingly in the future.

*Objective:* Meet or exceed the department's annual Disadvantaged Business Enterprise (DBE) goals.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Percent Disadvantaged Business Enterprise participation	Benchmark*	13.3%	13.3%	Avail. Nov. 2011	Avail. Aug. 2012	Avail. Aug. 2016
	Actual*	22.8%	16.3%	Avail Nov. 2012	Avail Nov. 2013	Avail. Nov. 2017

\* Based on Federal Fiscal Year ending September 30

*Strategy:* In setting the overall annual goal for the department, the United States Department of Transportation (USDOT) requires that the goal setting process begin with a base figure for the relative availability of DBEs. The overall goal must be based on demonstrable evidence of the availability of ready, willing, and able DBEs relative to all businesses ready, willing, and able to participate on USDOT-assisted contracts. CDOT sets an annual objective percentage of DBE participation in construction projects. CDOT works to meet this goal through a number of activities, such as ensuring that bid notices and requests for proposals are available to DBEs in a timely manner, identifying contracts and procurements so that DBEs are included in solicitations, monitoring results, and planning and participating in DBE training seminars.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* DBEs received 16.3 percent of construction contract dollars awarded. This amount exceeds the annual target of 13.3 percent, but falls short of the 22.8 percent of contract dollars awarded to DBEs in all of 2010. In 2010, CDOT awarded a large contract to a DBE, which caused a sharp jump in the percentage of project dollars awarded to DBEs last year. Although CDOT has not awarded a similarly large contract to a DBE this year, the total number of contracts awarded to DBEs exceeded that of last year by 25.5 percent.



*Objective:* Have no environmental compliance violations.

Performance Measure	Outcome	FY 2009-10 Actual	FY 2010-11 Actual	FY 2011-12 Approp.	FY 2012-13 Request	FY 2016-17 Forecast
Number of environmental compliance violations	Benchmark	0	0	0	0	0
	Actual	0	0	Avail Oct. 2012	Avail Oct. 2013	Avail. Oct. 2017

*Strategy:* Achieving a perfect record on this measure is critical and entails mostly proactive mitigation of project area water discharge so that water quality is not impacted by a project.

*Evaluation of Success in Meeting Benchmarks — Explanation of Prior Year Outcomes:* CDOT did not receive any notices of compliance violations in FY 2011.

CDOT obtains permits from the Colorado Department of Public Health and Environment (CDPHE) to discharge stormwater from roadway projects. The permit states that only stormwater (and a few other allowable discharges, like landscape irrigation overflow) can be discharged from CDOT’s ROW into state waters. Pollutants, such as dirt, fertilizers, pesticides, oil and grease, and antifreeze must be prevented as much as practicable from entering state waters by the diligent use of best management practices.

CDOT also has a Municipal Separate Stormsewer System Permit (MS4). This is a permit that requires several different programs be in place to ensure the amount of pollutants entering the storm drain system is reduced. Those programs include:

- Construction sites program;
- New development and redevelopment program;
- Illicit discharges program;
- Industrial facilities program;
- Public education and involvement program;
- Pollution prevention and good housekeeping program; and
- Wet weather monitoring program.

CDOT is increasing its control measures to include accountability at additional levels in order to proactively secure a site against significant storm events and to respond more quickly to findings with prompt action steps.

## **Appendix to the Strategic Plan:**

### **Levels of Service Definitions**

#### **Roadway Surface**

**A** The structure, smoothness, and durability of the pavement surface are excellent. The surface is free of potholes and exhibits little or no cracking. Past repairs (e.g., patches, sealed cracks) are in excellent condition. There is little or no drop-off from the pavement or shoulder edge. Surface materials properties have not degraded.

**B** The pavement is in overall good structural condition, offers a satisfactory ride, and exhibits sound materials quality. Occurrences of distress such as cracking, potholes, rutting, and materials problems are infrequent and minor. Past repairs are in good condition, with limited need for rework. Edge drop-offs are infrequent.

**C** Pavement shows moderate problems with structural deterioration (e.g., cracking, potholes, past repairs), ride quality (excessive rutting, roughness, edge drop-off), or materials degradation (oxidation of asphalt surface, flushing / bleeding, or loss of material through raveling).

**D** Pavement deterioration is significant, with up to half of the pavement area exhibiting one or more types of serious distress: structural deterioration (e.g., large areas or numbers of cracks, potholes), ride quality (e.g., deep ruts, surface roughness, edge drop-off), and materials degradation. Surface condition may affect speed and vehicle handling.

**F** Pavement is deteriorated over more than half its area. The integrity of the surface and the ride quality it offers are degraded by extensive damage (cracking, potholes), deformation (rutting, roughness), degradation of the asphalt concrete (raveling, flushing / bleeding, or oxidation), or edge drop-off. Speed and vehicle handling likely affected.

#### **Roadside Facilities**

**A** Condition of drainage inlets, structures, and ditches, right-of-way fences, roadside slopes, and noise walls is excellent, with no damage or defacement. Drainage inlets and ditches are free of debris. Very few or no effects of slope failures or washouts have affected the road in the past year. There is no litter or debris on travel way or shoulder.

**B** Roadside facilities show only minor deterioration. Blockages of drainage inlets and ditches are infrequent. Maintenance of fencing or of sound walls is needed in only a few locations. There are scattered pieces of litter or occasional roadway / shoulder debris. A small number of slope failures / washouts affect the road annually.

**C** Roadside facilities show moderate deterioration. Several drainage structures are blocked with silt or debris. Fencing or sound walls require maintenance at a number of locations. Slope failures / washouts affect road availability. Limited patches of litter or sand or debris on the travel way or shoulder occur.

**D** A significant level of deterioration has occurred in roadside facilities, including blocked or silted drainage features, damaged right-of-way fencing, damaged or defaced sound walls, and a high annual frequency of slope failures and washouts. There are several patches of unsightly litter or sand / debris on the travel way / shoulder.

**F** More than half of roadside facilities require maintenance. The condition and intended functions of these facilities are impeded by extensive blockages of drainage inlets and roadside ditches, damaged fencing, damaged or defaced sound walls, or frequent slope failures / washouts. A lot of sand, debris, and litter cover the road and roadside.

### **Roadside Appearance**

**A** Road appearance is excellent, characterized by well tended landscaping and vegetation, grass mowing at intended locations and schedules, and absence of noxious weeds.

**B** Road appearance is superior, with only infrequent or minor instances of unkempt or infested landscaping and other vegetation, grass requiring mowing, or scattered occurrences of noxious weeds.

**C** Appearance overall is good, but with one or more of the following problems: grass requiring mowing; selected areas of landscaping or vegetation requiring trimming or treatment; and locations where noxious weeds are present.

**D** A significant number of items detract from road appearance, including high grass requiring mowing, a number of landscaped or vegetated areas requiring trimming or treatment, and noxious weeds affecting up to half of road length.

**F** Road appearance is extensively degraded by situations such as excessively high grass requiring mowing, landscaping and vegetation requiring trimming or treatment, and noxious weeds affecting most of the road length.

## **Structure Maintenance**

**A** Maintenance items of bridges are in excellent condition. Decks, deck features, and weep holes are clean. Deck, curbs, expansion joints, and railings are in good condition with all defects repaired. Bearings are clean and serviced. Paint coating on bridge steel is intact. Bridge structure, approaches, and slopes do not require maintenance.

**B** Maintenance items of bridges are in superior condition. Decks, deck features, and weep holes are mostly clean, with little debris or need for washing. Minor or infrequent defects occur in deck surface, railings, expansion joints, structure, approaches, or slopes. A small percentage of bearings and of painted steel require maintenance.

**C** Maintenance items of bridges are in good condition, but some features require work: e.g., cleaning or washing of decks, curbs, and weep holes; patching of deck surface; and repair, servicing, or painting of expansion devices, railings, bearings, structural members, approaches, or slopes.

**D** A significant number of bridge features require maintenance. Decks, deck features, and weep holes must be cleaned or washed. Decks, curbs, expansion joints, or railings may impede use and require repair. Bearings must be cleaned and serviced. Bridge steel requires painting. Bridge structure, approaches, and slopes need repair.

**F** An extensive number of bridge features require maintenance of potentially major distress. Decks, curbs, expansion joints, or railings require repair and may pose a safety hazard. Bearings must be cleaned and serviced. Bridge steel requires painting to allay structural deterioration. Bridge structure, approaches, and slopes need repair.

## **Snow & Ice Control**

**A** Plowing and chemicals or abrasives applications proactively maintain very high levels of mobility throughout storms (refer to accompanying tables). Snow drifts and localized ice patches are treated quickly to avoid closures and hazards. Proactive avalanche control minimizes traffic interruptions and avoids unanticipated road closures.

**B** Plowing and abrasives or chemicals applications maintain high levels of mobility as much as possible (refer to accompanying tables). Snow drifts and localized ice patches may be treated during storm with abrasives or chemicals. Proactive avalanche control minimizes traffic interruptions and avoids unanticipated road closures.

**C** Plowing and abrasives or chemicals applications maintain good levels of mobility on high-standard roads (refer to accompanying tables). Snow drifts and localized ice patches are treated as soon as possible at end of storm. Avalanche control focuses on high-priority locations and situations.

**D** Plowing and abrasives or chemicals applications are performed on limited basis and some traffic delays are anticipated on all roads (refer to accompanying tables). Snow drifts and localized ice patches are treated after mainline roads are cleared. Limited avalanche control is performed. Chain station operation may be scaled back.

**F** Plowing and abrasives or chemicals applications are performed on very limited basis, impairing mobility on all roads (refer to accompanying tables). Snow drifts and localized ice patches may not be treated for some time. No preventive avalanche control is performed. Chain station operations are scaled back or suspended.

### **Major Tunnels**

**A** Condition of the tunnel structure is excellent. Operation of electrical, electronic, and mechanical systems is highly reliable. Inspections and repairs are performed on schedule. Response to incidents is immediate and effective, and frequent, attentive care of the facilities (e.g., washing, clearing of ice and debris) maintains safe and efficient passage.

**B** Condition of the tunnel structure is very good. Operation of electrical, electronic, and mechanical systems is reliable. Inspections and repairs are performed on schedule. Response to incidents is virtually immediate, and care of the facilities (e.g., washing, clearing of ice and debris) maintains a high degree of safe, efficient passage.

**C** Condition of the tunnel structure is good. Operation of electrical, electronic, and mechanical systems is reliable overall, with few nonfunctioning items. Inspections and repairs are performed regularly. Response to incidents is immediate most of the time. Care of the facilities is good overall, although conditions may degrade temporarily.

**D** Condition of the tunnel structure is fair. Operation of electrical, electronic, and mechanical systems is somewhat degraded, and response time exceeds desirable limit. Inspections, calibrations, and repairs are behind schedule. Response to incidents is immediate much of the time, but delays may occur. Care of the facilities is overdue.

**F** Condition of the tunnel structure is poor. Operation of electrical, electronic, and mechanical systems is degraded, with response time exceeding desirable limit, and multiple concurrent failures in systems. Inspections, calibrations, and repairs are infrequent. Response to incidents is irregular. Care of the facilities is lacking.