



COLORADO

Department of Transportation

Division of Transportation Development

Performance and Asset Management Branch
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TO: THE TRANSPORTATION COMMISSION
FROM: REBECCA WHITE - DIRECTOR, DIVISION OF TRANSPORTATION DEVELOPMENT
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DATE: FEBRUARY 19, 2020
RE: POLICY DIRECTIVE 14.0 - PROPOSED OBJECTIVES FOR SAFETY & ASSET MANAGEMENT

Purpose

This memorandum provides proposed objectives for the safety and asset management goals areas of Policy Directive 14 for review by the Transportation Commission. Staff will provide objectives for the mobility goal area at the next Transportation Commission Workshop. After review by the Commission, the final Policy Directive 14 with the approved goal areas and objectives will be submitted for adoption.

Action

Using the framework and alignment of priorities discussed at the January 2020 Transportation Commission workshop, staff has developed a list of proposed, measurable, objectives in the safety and asset management goal areas for review by the Transportation Commission. Staff will revise the objectives based on Commission feedback for adoption in a revised Policy Directive 14 at a future Commission meeting.

Background

Staff presented a framework for annual review of Policy Directive 14, which will incorporate goals from the Department's Wildly Important Goals (WIGs), the Transportation Commission Principles, the Governor's "Bold Four" goals, and objectives required under the Fixing America's Surface Transportation (FAST) Act of 2015.



This framework creates a cadence of review of the objectives in the policy directive to allow for continuous improvement of the main goals of the department, inform funding decisions and projects, and measure the success of these initiatives. Using this framework, and input provided by the Commission at the January 15, 2020 Transportation Commission workshop, staff has developed a list of proposed Policy Directive 14 objectives in the safety and asset management goal areas for review.



Details

Asset Management

Objectives for Asset Management are broken down into four sub-categories: Pavement, Bridges, Ancillary Assets, and Transit Assets:

For the Department’s bridge assets, staff recommends moving from a structurally deficient measure to review the health of the Department’s bridge inventory to a good/fair/poor model which aligns with the requirements of the FAST Act of 2015. Additionally, staff recommends continuing to include bridge risk objectives, currently used in the Department’s Risk-Based Asset Management Plan:

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET
Maintain the percent of state-owned total bridge deck area that rated poor at or below 10%.	10%	5%
<i>NEW: Maintain the percent of state-owned bridge deck area that rated good at or above 40%</i>	<i>40%</i>	<i>45%</i>
Maintain the percent of NHS total bridge deck area that rated poor at or below 10%	10%	5%
Percentage of expansion joints in fair, poor, or severe condition (by length) on CDOT-owned bridges.	26%	15%
Percentage of CDOT-owned bridge deck area that is unsealed or otherwise unprotected.	35%	20%
Percentage of CDOT - owned bridges over waterways that are scour critical.	5.0%	1.0%
Percentage of bridge crossings over Interstates, U.S. Routes and Colorado State Highways with a vertical clearance less than the statutory maximum vehicle height of 14 feet-6 inches.	1.0%	0.0%
Percentage of bridge crossings over Interstates, U.S. Routes and Colorado State Highways with a vertical clearance less than the minimum design standards of 16 feet-6 inches.	18.0%	12.0%
Percentage of CDOT-owned bridges posted for load.	0.1%	0.0%
Percentage of CDOT-owned bridges with a load restriction.	0.9%	0.0%

For the Department’s pavement assets, staff recommends continuing to set a goal of achieving 80 percent high or moderate drivability life for pavement on the state highway system:

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET
Achieve 80% High/Moderate Drivability Life for the Interstates, based on condition standards and treatments set for traffic volume categories.	80%	90%
Achieve 80% High/Moderate Drivability Life for National Highway System, excluding Interstates, based on condition standards and treatments set for traffic volume categories.	80%	90%
Achieve 80% High/Moderate Drivability Life for the state highway system based on condition standards and treatments set for traffic volume categories.	80%	90%

For other assets on the Department’s transportation network, staff recommends continuing the objectives for these assets that are currently in Policy Directive 14, plus adding a new objective for the rest area program. These objectives are currently used in the Department’s Asset Management Program:

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET
Percent of CDOT-owned buildings graded C or better	85%	90%
<i>NEW: Percent of CDOT-owned rest areas graded C or better</i>	<i>90%</i>	<i>100%</i>
Average percent of expended life of ITS devices	90%	85%
Average percent of expended life of CDOT fleet vehicles	75%	70%
Percentage of culverts in poor condition (have a culvert rating of 4 or less)	5%	3%
Percentage of segments at or above risk grade B	85%	90%
Percentage of network tunnel length with all elements in equal or better condition than 2.5 weighted condition index	75%	100%
Percentage of traffic signal infrastructure in severe condition (dollar weighted)	2%	0%
Percent of CDOT-owned walls (by square foot) in poor condition (have a rating of 4 or less)	3.5%	2%



Staff also recommends adding into the Asset Management goal area the Maintenance Level of Service (LOS) grade objectives for the overall maintenance program and for the snow and ice removal program:

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET
Maintain an overall Maintenance Level of Service (MLOS) grade of B- for the state highway system.	B-	B
Maintain an overall Snow & Ice Removal Level of Service (LOS) grade of B.	B	B+

Finally, for the condition of transit-related assets, owned and operated by the Department’s transit grant partners, staff recommends incorporating the objectives related to vehicles, equipment, and facilities found in the Colorado Group Transit Asset Management Plan:

OBJECTIVE
<i>NEW: State of Good Repair for Transit Vehicles and Equipment</i>
<i>NEW: State of Good Repair for Transit Facilities</i>

Safety

Staff has proposed the following objectives for the Safety Goal Area, which combines objectives from the Department’s soon to be published Strategic Transportation Safety Plan (STSP), objectives required under the FAST Act of 2015, and the Department’s “Wildly Important Goals”:

OBJECTIVE
<i>NEW: Improve the safety of Colorado Transportation System by reducing the vehicle crash rate.</i>
<i>MODIFIED - Reduce the rate of traffic fatalities per 100 million vehicle miles traveled.</i>
<i>MODIFIED - Reduce the rate of traffic related serious injuries per 100 million vehicle miles traveled.</i>
<i>MODIFIED - Reduce the number of fatalities and serious injuries involving vulnerable users (young and old drivers, pedestrians, cyclists, motorcyclists, persons with reduced mobility, work zone staff, and first responders).</i>
<i>NEW - Lead by example in establish a culture of safety at CDOT in reducing vehicle crashes, traffic-related fatalities, and traffic-related serious injuries involving CDOT employees.</i>

Next Steps

- Proposed, measureable, objectives presented for the Mobility Goal Area for review - March 2020
- Adoption of revised Policy Directive 14 with Commission approval of the goal areas and objectives - April 2020
- Reporting 2019 data and condition of objectives in revised Policy Directive 14 - September 2020
- Evaluation of PD-14 goals and objectives and refresh of the policy directive (if necessary) - October 2020
- Consideration of PD-14 objective performance in preparation for FY22 annual budget process - November 2020

Attachments

- Attachment A: PD-14 Briefing - Asset Management & Safety Proposed Objectives





COLORADO

Department of Transportation

Policy Directive 14 Briefing

Proposed Objectives for Asset Management & Safety

February 12, 2020



PD-14 Goal Areas & Objectives

Alignment with Budget/Planning Structure & Objective Topics

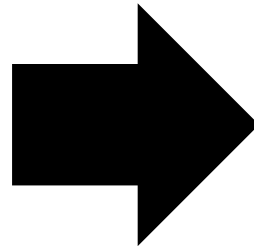
Previous Goal Areas

Safety

Infrastructure Condition

System Performance

Maintenance



Proposed Goal Areas

Safety

Asset Management

Mobility

OBJECTIVE TOPICS

- Vehicle Crashes
- Fatalities
- Serious Injuries
- Vulnerable Users
- Bridges
- Pavement
- Other CDOT Assets
- Maintenance
- Transit Assets
- Reliability & Congestion
- Sustainability
- ?

Focus for February's Meeting



Asset Management Goal Area

Current Objectives and Performance

- **CURRENT GOAL AREAS**

- **Infrastructure Condition:** Preserve the transportation infrastructure condition to ensure safety and mobility at a least life cycle cost.
- **Maintenance:** Annually maintain CDOT's roadways and facilities to minimize the need for replacement and rehabilitation.
- **Asset performance tracked across four main categories:**
 - Bridges
 - Pavement Condition
 - Transit Assets
 - Other Assets



Asset Management Goal Area

Proposed Bridge Objectives

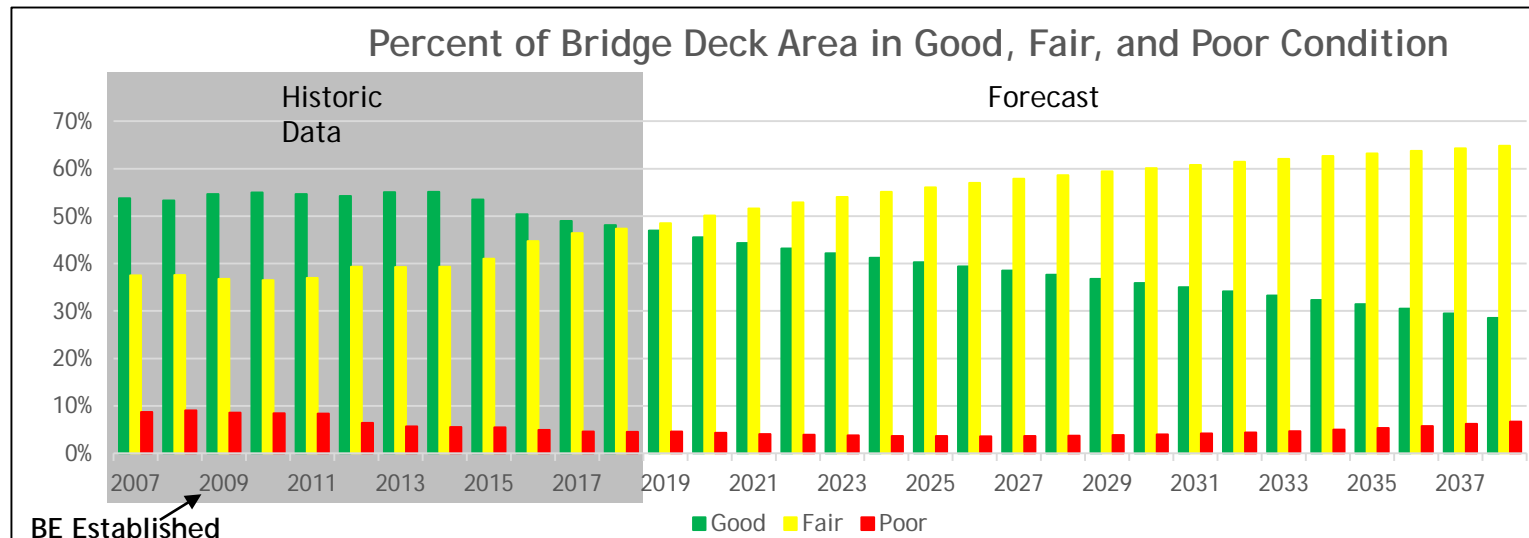
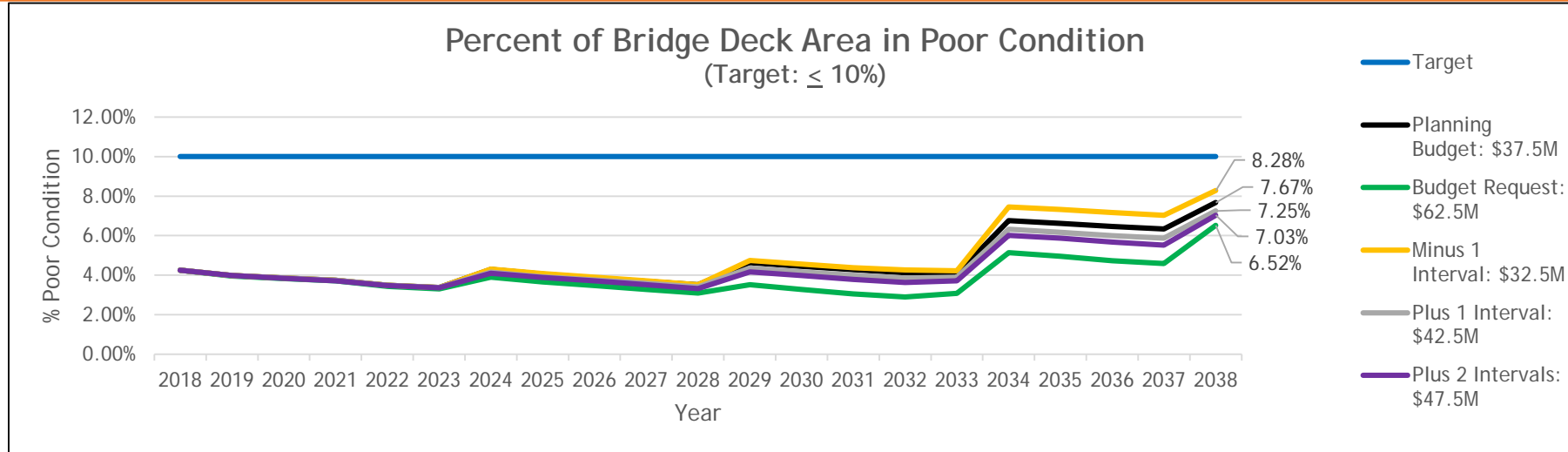
ASSET MANAGEMENT - Maintain a high-quality transportation network by working to maintain a state of good repair for all assets and a highly traversable road network.

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET	2018 RESULTS	2018 TARGET MET?
MODIFIED: Maintain the percent of state-owned total bridge deck area that rated poor at or below 10%	10%	5%	4.43%	✓
NEW: Maintain the percent of state-owned bridge deck area that rated good at or above 40%	40%	45%	47.29%	N/A
MODIFIED: Maintain the percent of NHS total bridge deck area that rated poor at or below 10%	10%	5%	3.81%	✓
Meet bridge objectives in the Risk-Based Asset Management Plan.	N/A	N/A	N/A	N/A



Asset Management Goal Area

Proposed Bridge Objectives





Asset Management Goal Area

Proposed Bridge Risk Objectives

ASSET MANAGEMENT - Maintain a high-quality transportation network by working to maintain a state of good repair for all assets and a highly traversable road network.

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET	2018 RESULTS	2018 TARGET MET?
Percentage of expansion joints in fair, poor, or severe condition (by length) on CDOT-owned bridges	26% or less	15% or less	33.00%	X
Percentage of CDOT - owned bridge deck area that is unsealed or otherwise unprotected	35% or less	20% or less	39.61%	X
Percentage of CDOT - owned bridges over waterways that are scour critical	5.0%	1.0%	6.16%	X
Percentage of bridge crossings over Interstates, U.S. Routes and Colorado state highways with a vertical clearance less than the statutory maximum vehicle height of 14 feet - 6 inches	1.0%	0.0%	2.15%	X
Percentage of bridge crossings over Interstates, U.S. Routes and Colorado state highways with a vertical clearance less than the minimum design requirement of 16 feet - 6 inches	18.0%	12.0%	20.58%	X
Percentage of CDOT - owned bridges posted for load	0.1%	0.0%	0.43%	X
Percentage of CDOT - owned bridges with a load restriction	0.9%	0.0%	2.20%	X



Asset Management Goal Area

Proposed Pavement Objectives

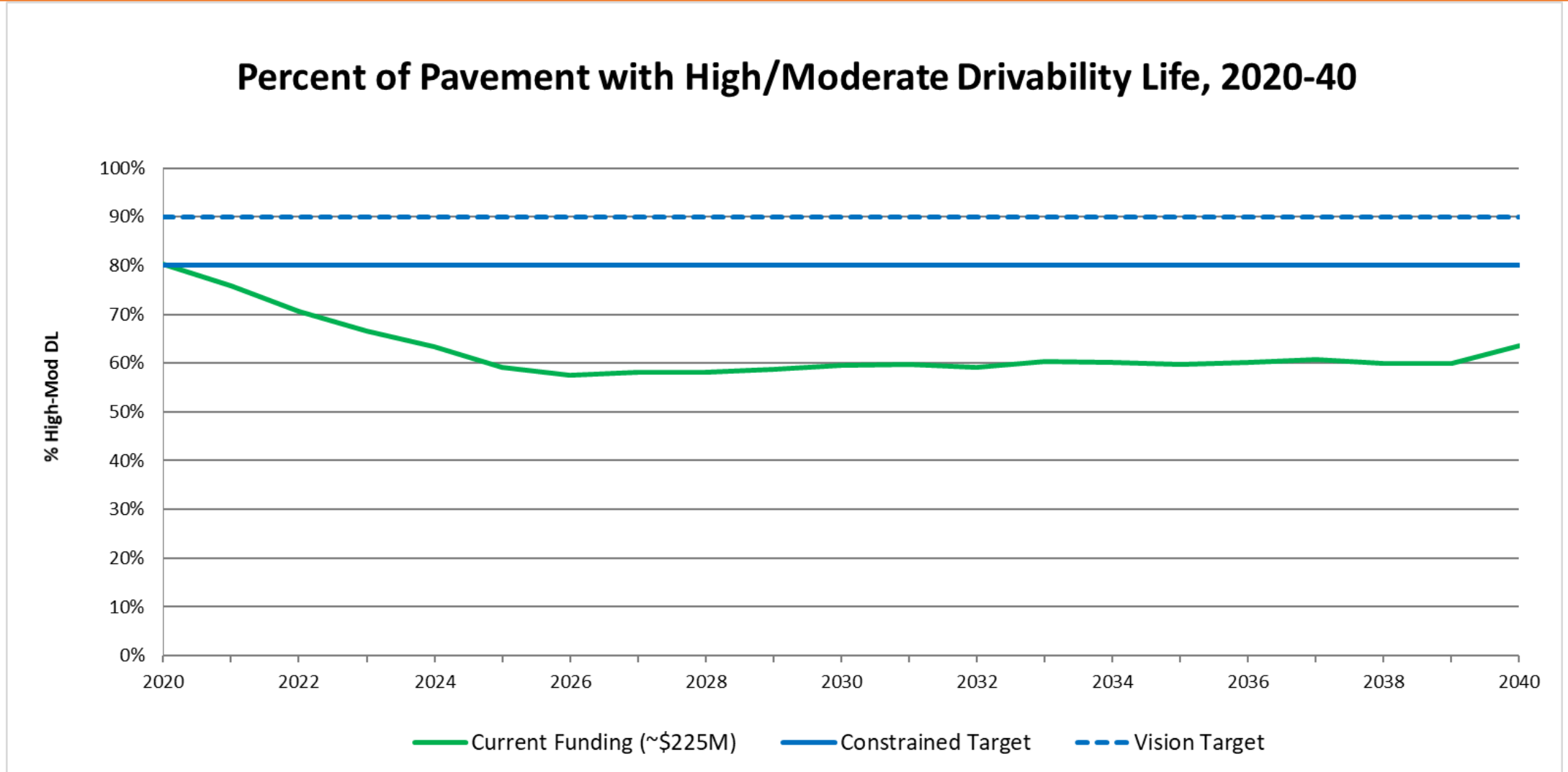
ASSET MANAGEMENT - Maintain a high-quality transportation network by working to maintain a state of good repair for all assets and a highly traversable road network.

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET	2018 RESULTS	2018 TARGET MET?
Achieve 80% High/Moderate Drivability Life for Interstates based on condition standards and treatments set for traffic volume categories.	80%	90%	89.4%	✓
Achieve 80% High/Moderate Drivability Life for NHS, excluding Interstates, based on condition standards and treatments set for traffic volume categories.	80%	90%	84.2%	✓
Achieve 80% High/Moderate Drivability Life for the state highway system based on condition standards and treatments set for traffic volume categories.	80%	90%	80.1%	✓



Asset Management Goal Area

Proposed Pavement Objectives





Asset Management Goal Area

Proposed Other Assets Objectives

ASSET MANAGEMENT - Maintain a high-quality transportation network by working to maintain a state of good repair for all assets and a highly traversable road network.

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET	2018 RESULTS	2018 TARGET MET?
Percent of CDOT-owned buildings graded C or better	85%	90%	80%	✘
NEW: Percent of CDOT-owned rest areas graded C or better	90%	100%	61%	N/A
Average percent of expended life of ITS devices	90%	85%	92%	✘
Average percent of expended life of CDOT fleet vehicles	75%	70%	69%	✔
Percentage of culverts in poor condition (have a culvert rating of 4 or less)	5%	3%	5.44%	✘
Percentage of geohazard segments at or above risk grade B	85%	90%	77%	✘
Percentage of network tunnel length with all elements in equal or better condition than 2.5 weighted condition index	75%	100%	91%	✔
Percentage of traffic signal infrastructure in severe condition (dollar weighted)	2%	0%	7%	✘
Percent of CDOT-owned walls (by square foot) in poor condition (have a rating of 4 or less)	3.5%	2%	4.2%	✘



Rest Area Inventory

- 26 Rest Areas
- 140 Structures for Analysis
 - ✓ Storage sheds and picnic shelters are grouped with the Rest Area building to develop an aggregate score
 - ✓ Each Rest Area was assigned a Tier based on the amount and type of services provided and the level of service expected by users of Rest Areas.

PD-14 Metric, Target and Current Condition

- Not in PD-14. Utilizing initial level of service within tiers to assess how well each Rest Area is performing.
 - ✓ Metric: 90% C Grade or Better
 - ✓ Aspirational Target: 100% C Grade or Better
 - ✓ Current Condition: 61% C Grade or Better



Asset Management Goal Area

Proposed Maintenance & Transit AM Objectives

ASSET MANAGEMENT - Maintain a high-quality transportation network by working to maintain a state of good repair for all assets and a highly traversable road network.

Proposed Maintenance Objectives

OBJECTIVE	FISCALLY CONSTRAINED TARGET	ASPIRATIONAL TARGET	2018 RESULTS	2018 TARGET MET?
Maintain a Maintenance Level of Service (LOS) of B minus grade for the state highway system.	B-	B	B	✓
Maintain a Level of Service (LOS) of B grade for snow and ice removal.	B	B+	B	✓

Proposed Transit Asset Management Objectives

PROPOSED OBJECTIVES
NEW - Achieve a state of good repair on transit vehicles and support equipment.
NEW - Achieve a state of good repair for transit facilities.



Safety Goal Area

Current Goal & Objectives

SAFETY - Moving Colorado toward zero deaths by reducing traffic-related deaths and serious injuries by one-half by 2030.

Highway Safety								
PM#	Policy Directive 14 Objectives	Desired Trend	Results	Target	Target Met?	10-Year Trend (2009-2018)	FY2018 Budget	Dedicated Funding Sources
#338	Reduce fatalities by 12 per year from 548 in 2008 to 344 in 2025.	↓	632 ▼16	428	✗		\$124.9 million	<ul style="list-style-type: none"> - FASTER Safety - Projects - Highway Safety Improvement Program (HSIP) - Safety Education - Railway-Highway Crossings - Hot Spots
#329	Reduce the fatality rate per 100 million VMT by 0.02 per year from 1.03 in 2013 to 0.79 in 2025.	↓	1.17 ▼0.04	0.93	✗			
#355	Reduce serious injuries by 90 per year from 3,200 in 2013 to 2,120 in 2025.	↓	3,195 ▲165	2,750	✗			
#354	Reduce the serious injury rate by 0.2 per 100 million VMT per year from 6.86 in 2013 to 4.46 in 2025.	↓	5.92 ▲0.24	5.86	✗			
#751	Reduce economic impact of crashes annually by one percent over the previous calendar year.	↓	\$5.89B ▲\$0.26B	\$5.57B	✗			
Bike & Pedestrian Safety								
PM#	Policy Directive 14 Objectives	Desired Trend	Results	Target	Target Met?	10-Year Trend (2009-2018)	FY2018 Budget	Dedicated Funding Sources
#652	Reduce the number of bicyclist and pedestrian fatalities involving motorized vehicles from 67 in 2013 to 47 in 2025.	↓	112 ▲4	59	✗		N/A	N/A
#653	Reduce the number of bicyclist and pedestrian serious injuries involving motorized vehicles from 469 in 2013 to 311 in 2025.	↓	420 ▼21	403	✗			



Safety Goal Area

Proposed Goal & Objectives

SAFETY - The future of Colorado is zero deaths and serious injuries so all people using any transportation mode arrive at their destination safely.

OBJECTIVE

NEW - Improve the safety of Colorado's Transportation System by reducing the vehicle crash rate.

MODIFIED - Reduce the rate of traffic fatalities per 100 million vehicle miles traveled.

MODIFIED - Reduce the rate of traffic related serious injuries per 100 million vehicle miles traveled.

MODIFIED - Reduce the number of fatalities and serious injuries involving vulnerable users (young and old drivers, pedestrians, cyclists, motorcyclists, persons with reduced mobility, work zone staff, and first responders).

NEW - Lead by example in establish a culture of safety at CDOT in reducing vehicle crashes, traffic-related fatalities, and traffic-related serious injuries involving CDOT employees.

Safety goal area, objectives, and targets will align with Colorado Strategic Transportation Safety Plan (STSP).

FEEDBACK AREAS:

- Are there additional areas the Commission would like to set objectives around?
- Is there an interest in tracking performance in rural and urban areas separately?



Next Steps

- Proposed Objectives for Commission Review - *February/March 2020*
- Adoption of Revised PD-14 with new objectives and goal areas - *April 2020*
- Reporting 2019 data and condition of new objectives - *September 2020*
- Evaluation of PD-14 Goals and Objectives and Refresh of PD (if necessary) - *October 2020*
- Consideration of PD-14 objective performance in preparation for FY22 annual budget process - *November 2020*

