Colorado Department of Transportation

SMART Act Presentation

December 2016

COLORADO
Department of Transportation

WHAT DOES CDOT DO

CDOT RESPONSIBILITIES

CDOT
MAINTAINS & OPERATES
23,000
TOTAL
LANE MILES
OF HIGHWAY

DIVISION OF
TRANSIT
AND RAIL
ADMINISTERS FED/STATE
GRANTS AND OPERATES
BUSTANG

6.1 MILLION
MILES
PLOWED
PER YEAR

MOUNTAIN
PASSES
OPEN YEAR-ROUND

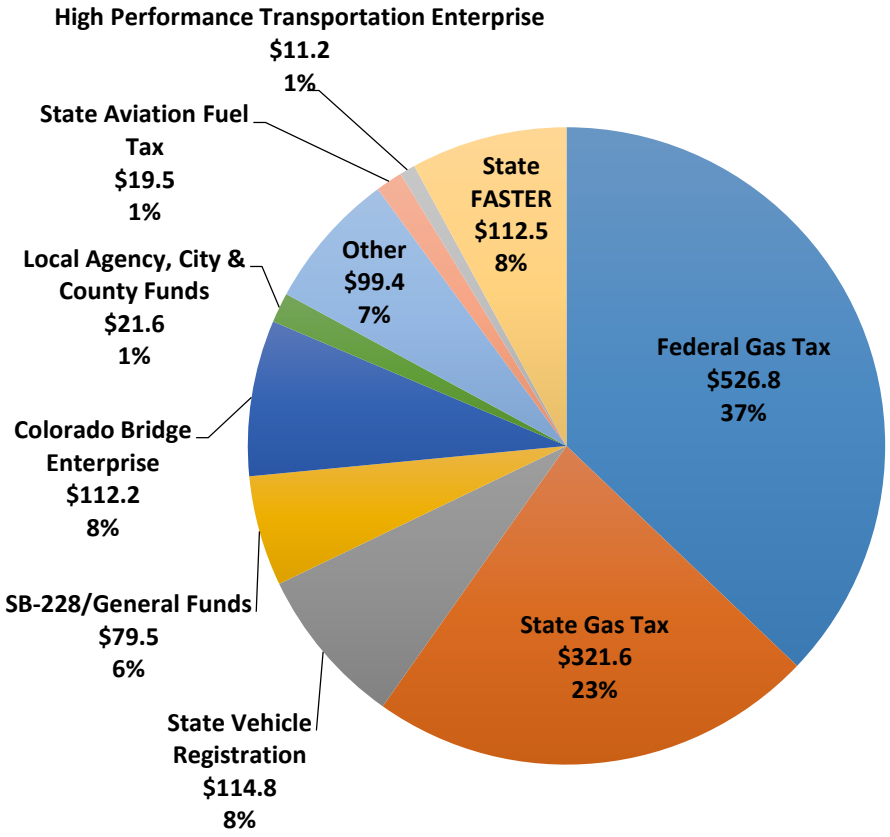
AIRPORT
OPERATIONS
INTERFACE WITH FFA

$1.41 BILLION BUDGET

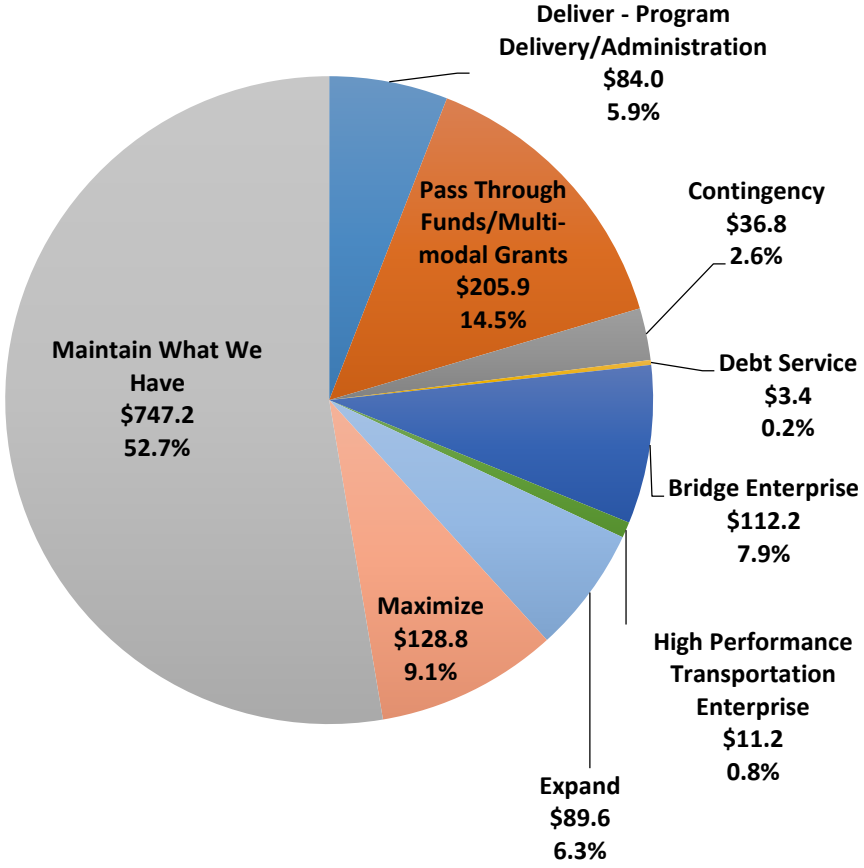
COLORADO
Department of Transportation

FY 2017 – 18 SOURCES & USES ($1.41B)

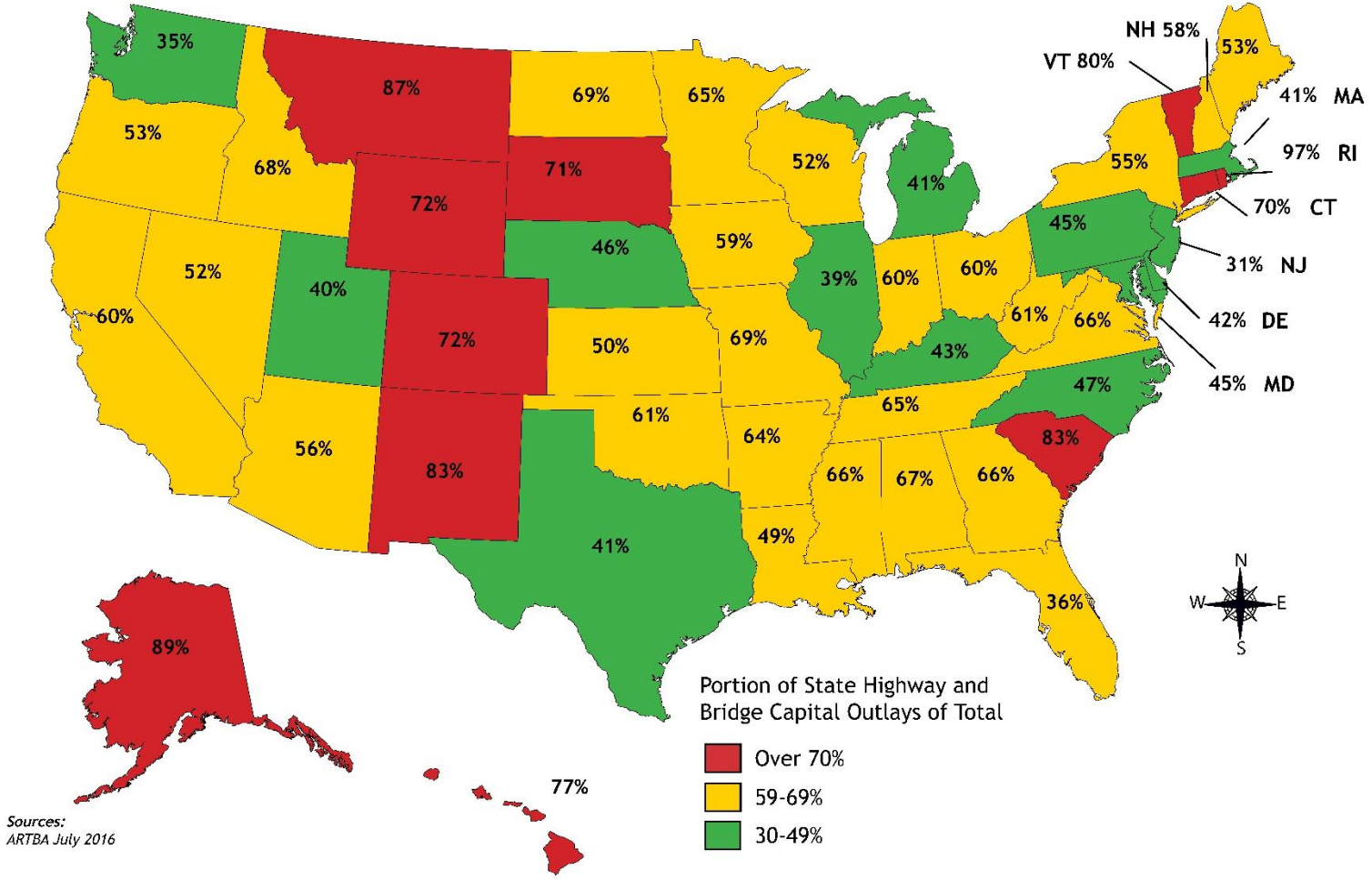
Sources of Funds



Maintain What We Have

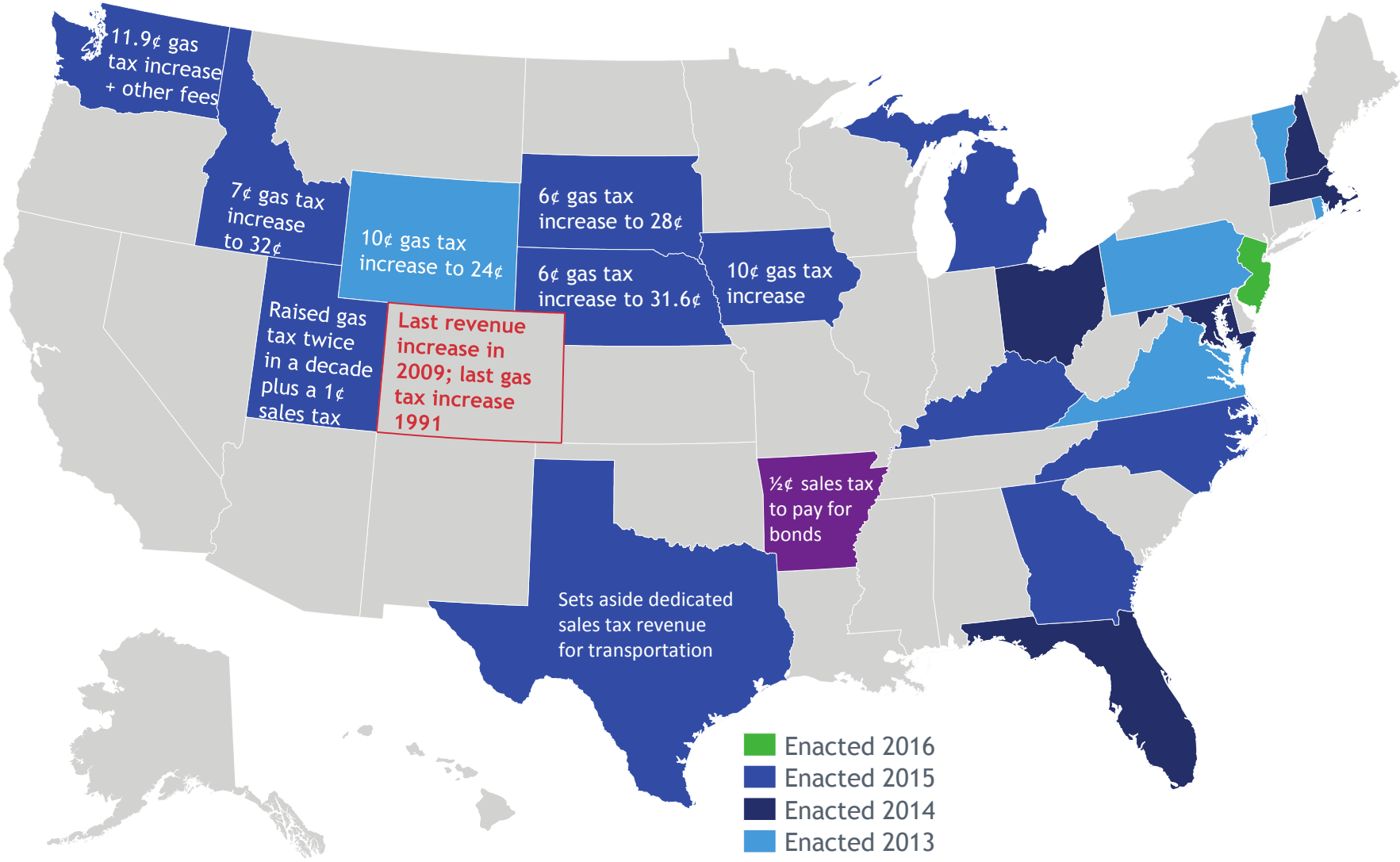


Federal funds, nationally, provide an average 52% of State DOT annual capital outlays for highway & bridge projects



COLORADO
Department of Transportation

STATES THAT RAISED REVENUE



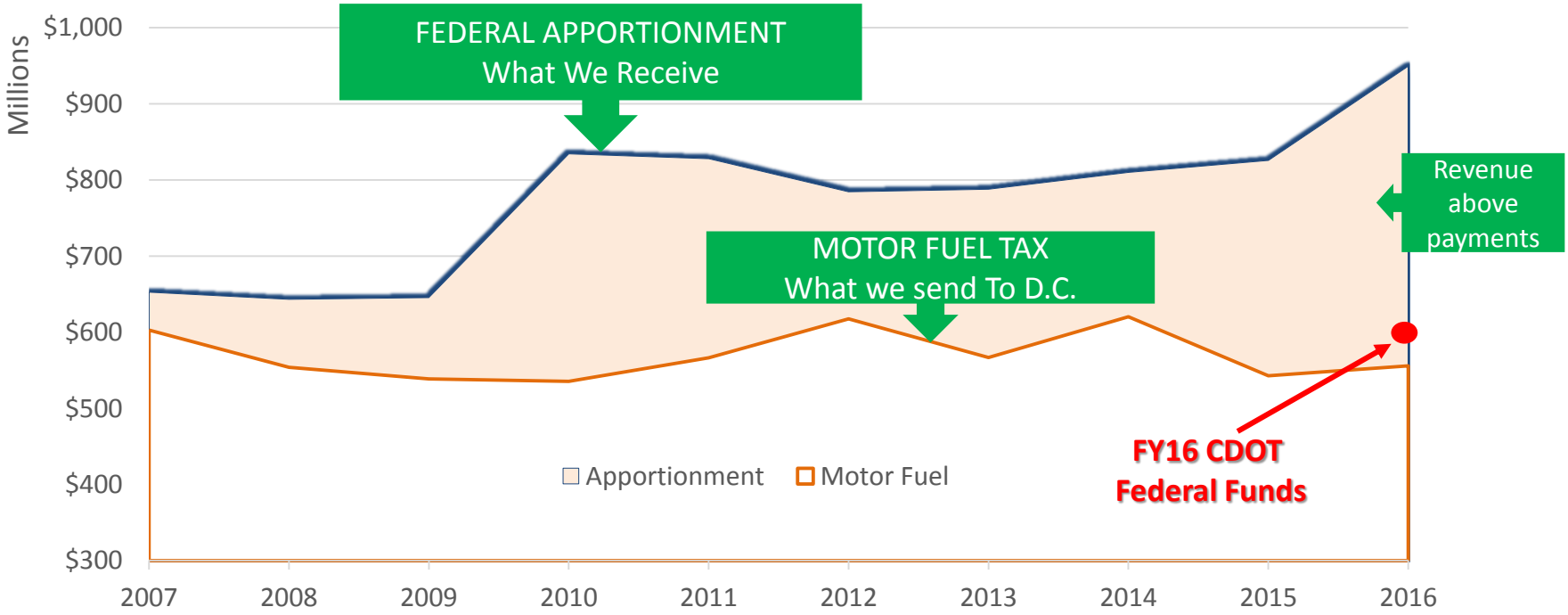
http://t4america.org/maps-tools/state-transportation-funding

*Delaware passed bills in 2014 and 2015

COLORADO
Department of Transportation

COLORADO IS A DONEE STATE

Colorado Total Federal Funding (not just CDOT)
Federal Apportionment vs. Collected Motor Fuel Taxes

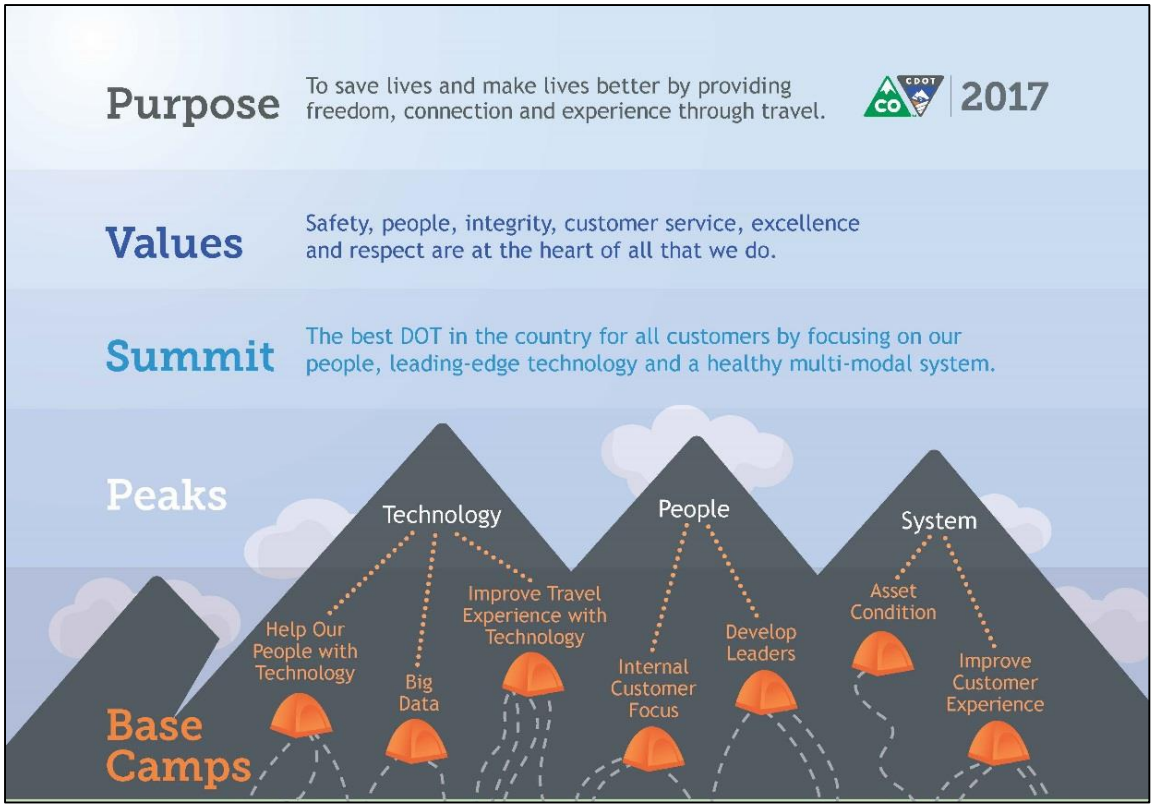


Total Apportionment	$ 7,759,400,000
Total Motor Fuel	$ 5,700,207,124
Donee Percentage	36.12%

*Does not include Permanent Recovery

CDOT'S STRATEGIC FRAMEWORK

- New strategic framework began in June 2015. Updated summer 2016
- Performance Plan focus is mainly on "System Peak" measures
  - Asset Condition
  - Improve Customer Experience



COLORADO
Department of Transportation

SOME OF OUR CUSTOMERS AND HOW WE SERVE THEM

THE TRAVELING PUBLIC

Revised and revamped all external websites to be more customer friendly and accessible

TRANSIT/ RAIL

Over one million page views for codot

BIKE/PED

Over one million calls into 511

FREIGHT/ TRUCKING

Hosted events like tours of Eisenhower Tunnel to show the public behind the CDOT curtain

AGRICULTURE

Over 15,000 emails and phone calls annually from customers responded to within 36 hours.

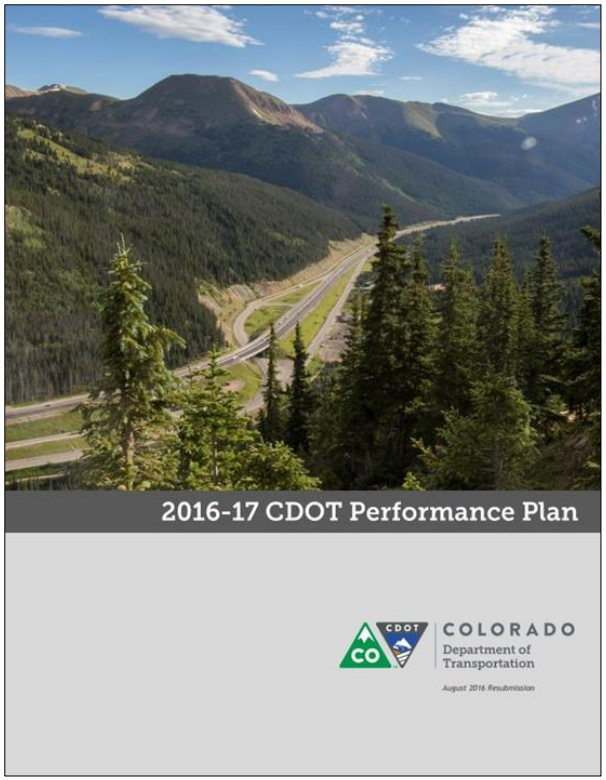
AVIATION

Engaged over 8,000 customers to talk about overall transportation priorities and issues through telephone town halls, events and fairs with *Together We Go*. Done in collaboration with Transportation Planning Regions.

TOURISM

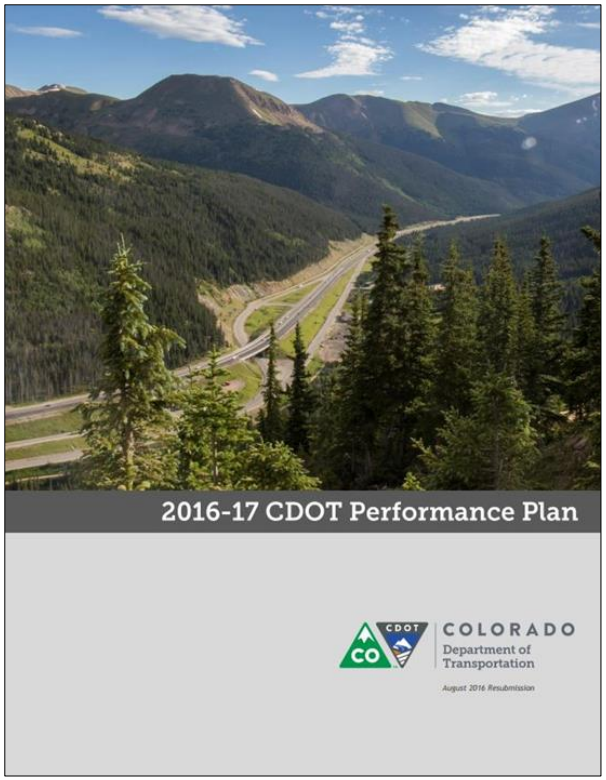
CDOT FY 2016-17 PERFORMANCE PLAN

- Helps department effectively administer and deliver transportation-related programs and services.
- Monthly meetings to review progress on measures
- Quarterly and yearly performance results submitted to Office of State Planning and Budgeting and posted online
- Aligned with goal areas set by Transportation Commission and Federal Highway Administration



CDOT FY 2016-17 PERFORMANCE PLAN

- Key elements: Four Strategic Policy Initiatives (SPI) and supporting operational performance metrics
  - Safety
  - Pavement Condition
  - Maintenance
  - Travel-Time Reliability



What We're Doing (Sample Lead Measures)	1-3 Year Goal (Lag Measure)

Fund 66,750 law enforcement contact hours to enforce traffic safety

Heat Is On campaigns

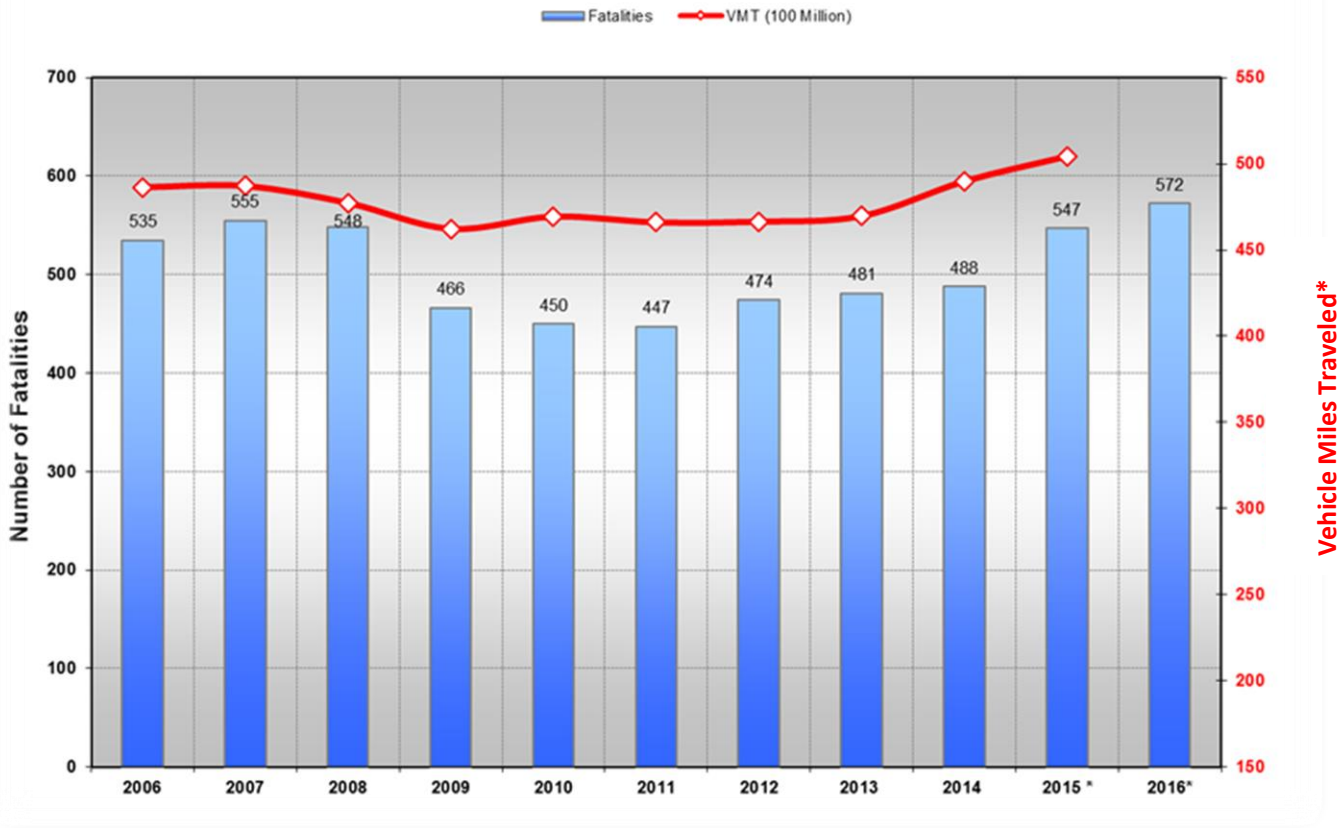
Ensure 90% of FASTER safety projects address high priority locations around the state

Achieve Reduced Fatalities of:

440 = calendar year 2017

416 = calendar year 2019

Colorado Roadway Fatalities, 2006-16



COLORADO
Department of Transportation

PAVEMENT CONDITION SPI

What We're Doing (Sample Lead Measure)	1-3 Year Goal (Lag Measure)
Ensure that 80% of advertised pavement projects match recommendations from CDOT's pavement management system	**Achieve High/Moderate Drivability Life* of:** 69%: FY17 57%: FY19

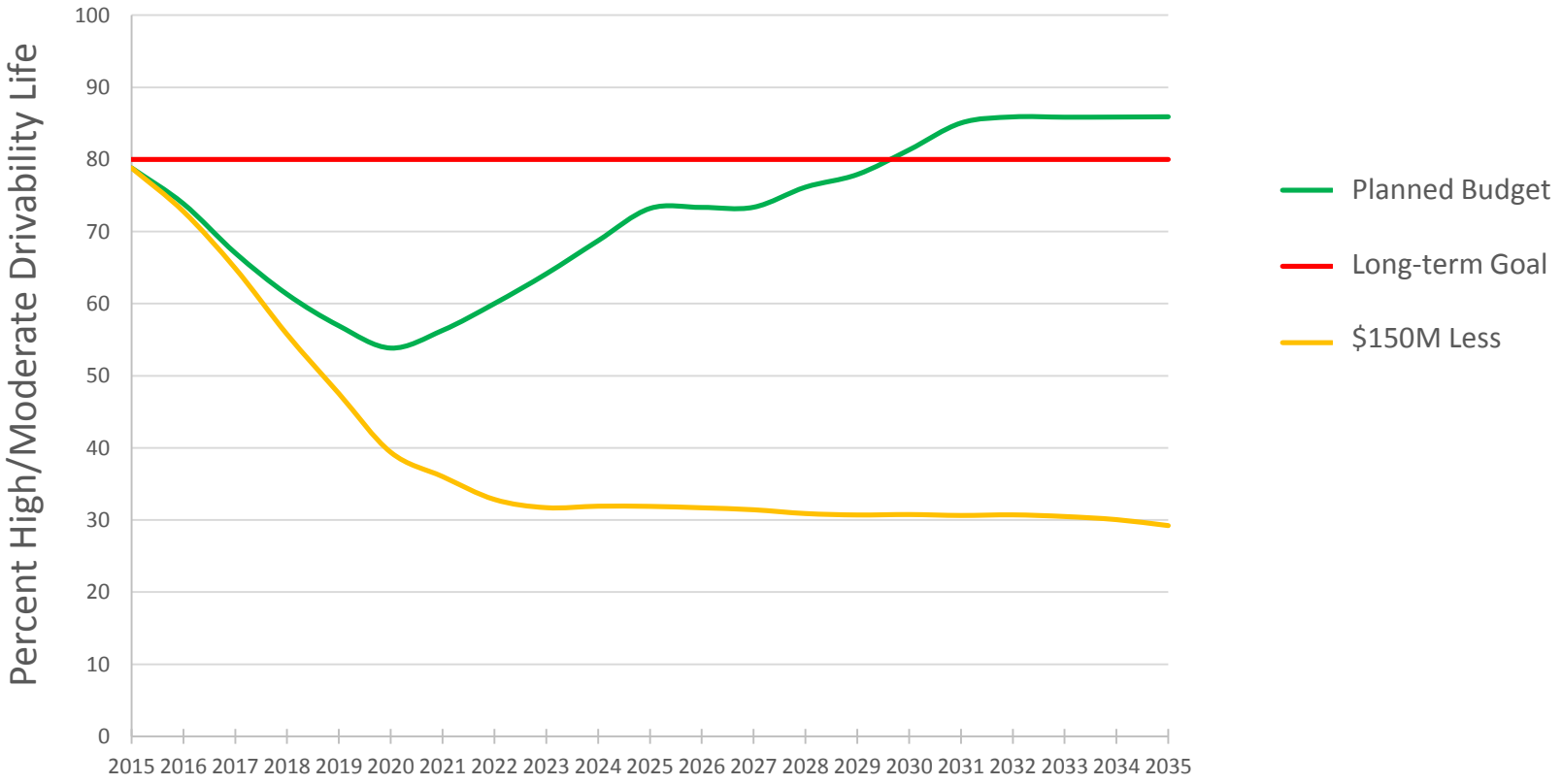
*Drivability Life = measurement in years of how long a stretch of highway will have acceptable** driving conditions

**Acceptable = measurement of smoothness and safety

COLORADO
Department of Transportation

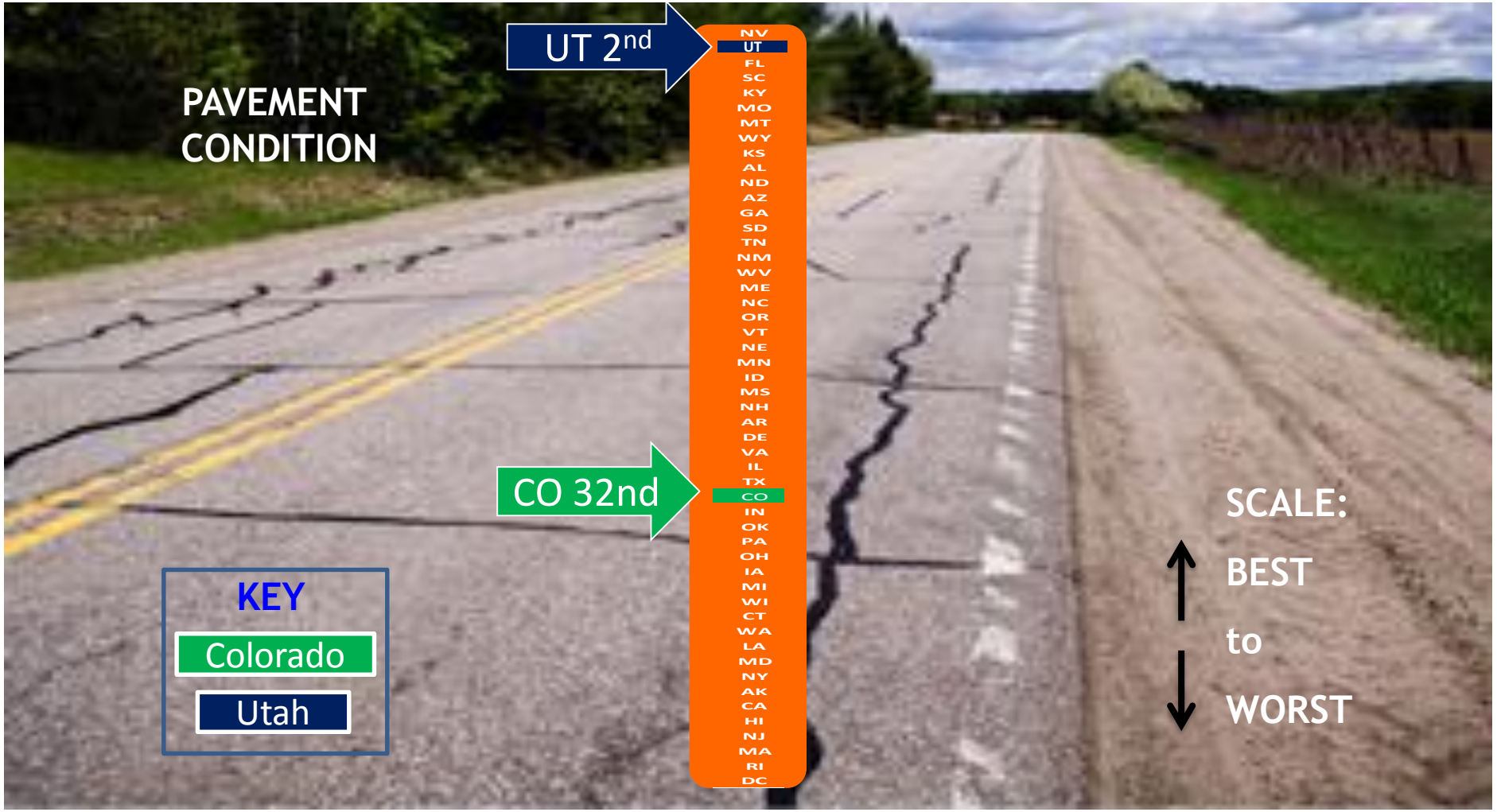
SURFACE TREATMENT

Planned Pavement Condition



COLORADO
Department of Transportation

HOW DO WE COMPARE? PAVEMENT CONDITION



Source:
Highway Statistics
FHWA 2015

MAINTENANCE SPI

What We're Doing (Sample Lead Measures)	1-3 Year Goal (Lag Measure)
Achieve a B in snow and ice control for FY 17 Ensure that striping achieves a minimum reflectivity score based off of monthly reports Reduce 30 & 90 day overdue essential repairs on major structures.	<u>Achieve Maintenance Levels of Service (MLOS) grade for the state highway system* of:</u> C+: FY17 C : FY19 *compared to a B- in FY15*

**Within existing fiscal constraints*

COLORADO
Department of Transportation

MAINTAINING WHAT WE HAVE
GOALS FOR ASSET MANAGEMENT

FY2016-17 Asset Management Category	Fiscally Constrained Transportation Commission Goal for Asset Management Category (CDOT needs over $950M to meet the goals)	Funding Available ($791.5M)
Surface Treatment	80% of system with “high” or “moderate” drivability life	$242.1M
Bridge	90% of Colorado bridges not structurally deficient	$163.2M
Buildings	90% of buildings with a “C” condition or greater	$21.4M
Culverts	95% of culverts not structurally deficient	$11M
Tunnels	80% of tunnel length with ≥ 2.5 weighted condition index	$7.6M
ITS	90% of assets within useful life	$24.5M
Road Equipment	70% of vehicles still within useful life	$26.4M
Geohazards/Rockfall	80% of segments above "C" risk grade	$10 M
Walls	1% of walls sq. ft. structurally deficient	$5.8M
Traffic Signals	Have only 15% of intersections with at least one component above 100% useful life	$16.9M
Annual Maintenance	**B- overall condition**	**$262.6M**

COLORADO
Department of Transportation

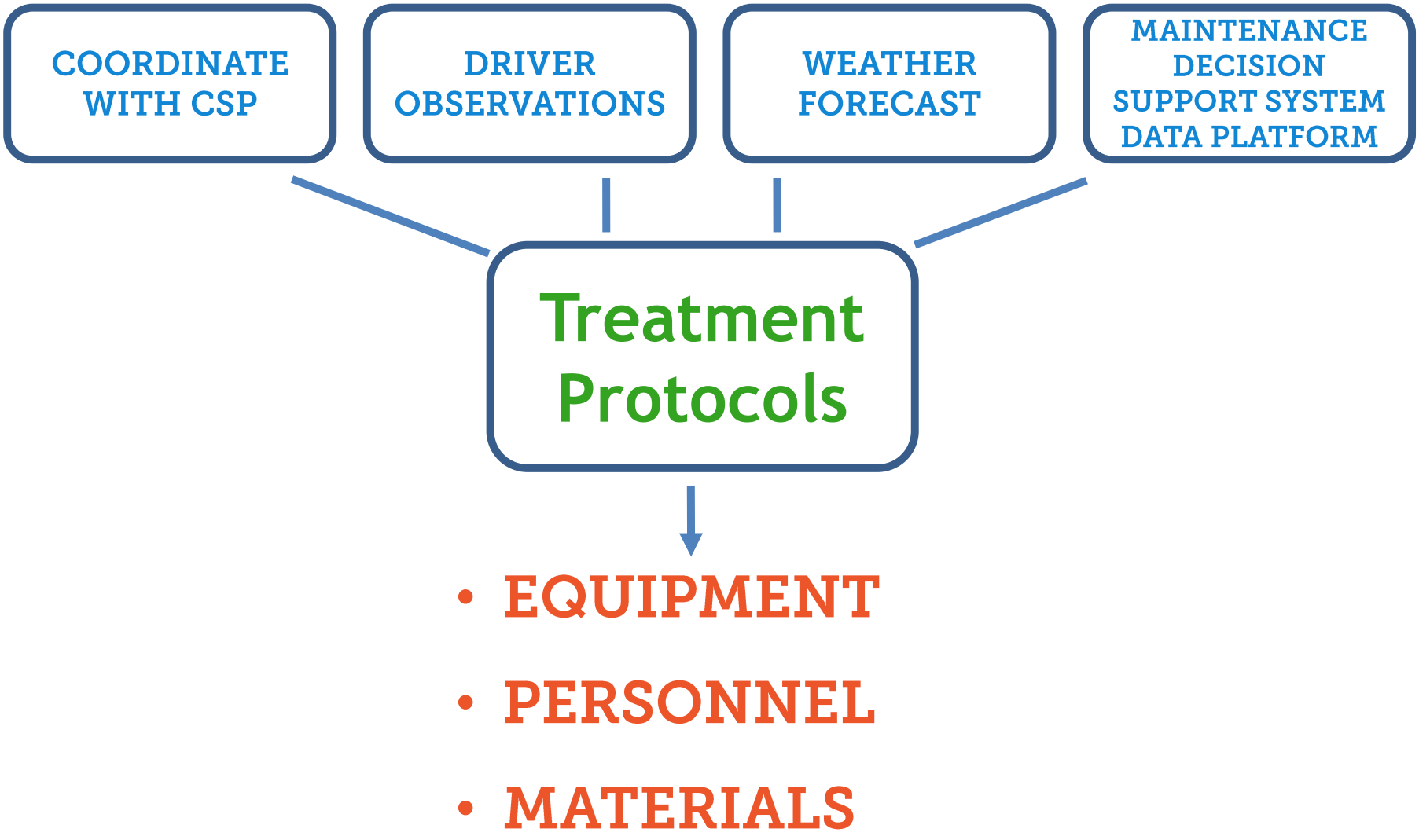
MAINTAINING WHAT WE HAVE
ANNUAL MAINTENANCE

Maintenance Levels of Service by Program Area

Maintenance Program Area Description	Funding Needed for 'A' Rating	Budget FY2016-17 Funding	FY 2013-14 Budget	FY 2014-15 Actual	FY 2016-17 Projected
Planning, Training and Scheduling	$25.4M	$15.9M	C-	C	C-
Roadway Surfacing	$177.2M	$40.0M	B+	B+	C+
Roadside Facilities	$41.7M	$22.3M	A-	B+	C
Roadside Appearance	$12.7M	$8.6M	B	B-	C
Traffic Services	$109.5M	$67.7M	C+	C+	C-
Bridges & Structures	$122.0M	$12.2M	B-	C+	C
Snow & Ice	$88.5M	$73.5M	B	B	B
Service Equipment, Buildings & Grounds	$25.1M	$15.7M	C+	B-	C-
Tunnels	$9.8M	$6.2M	C+	B-	C+
US 36 (mtc. contract)		$1.2 M			
OVERALL MLOS	**$611.9M**	**$262.6M**	**B-**	**B-**	**C+**

COLORADO
Department of Transportation

MAINTENANCE OPTIMIZATION



Winter – time to bare pavement rating: based on highway category

HIGHWAY CATEGORY DESIGNATIONS	
Category 1	Interstate, > 75,000 ADT
Category 2	Interstate, 15,000 – 75,000 ADT
Category 3	Interstate, < 15,000 ADT
Category 4	NHS, > 75,000 ADT
Category 5	NHS, 15,000 – 75,000 ADT
Category 6	NHS, < 15,000 ADT
Category 7	Other, > 50,000 ADT
Category 8	Other, 5,000 – 50,000 ADT
Category 9	Other < 5,000 ADT
Category 10	Mountain Passes (Non-Interstate)
Category 11	Seasonal Highways (Mt. Evans and Independence Pass) (No survey on Cat 11 highways for winter maintenance)

"<" means "less than" ">" means "more than"

Winter – time to bare pavement rating: based on highway category

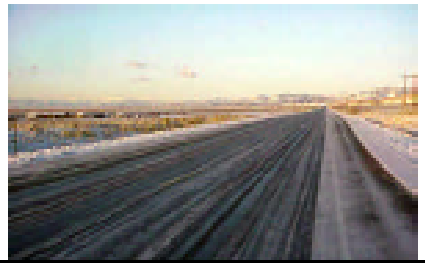
Traveled Way Condition (Edge Line to Edge Line):
Condition Indicator: Presence of bare pavement.
End of Event Indicator: A cessation of precipitation for two hours with clearing skies
Outcome Measurement: Elapsed time from the end of precipitation to 95% Bare Pavement in traveled way

Elapsed Time to Regain Bare Pavement:

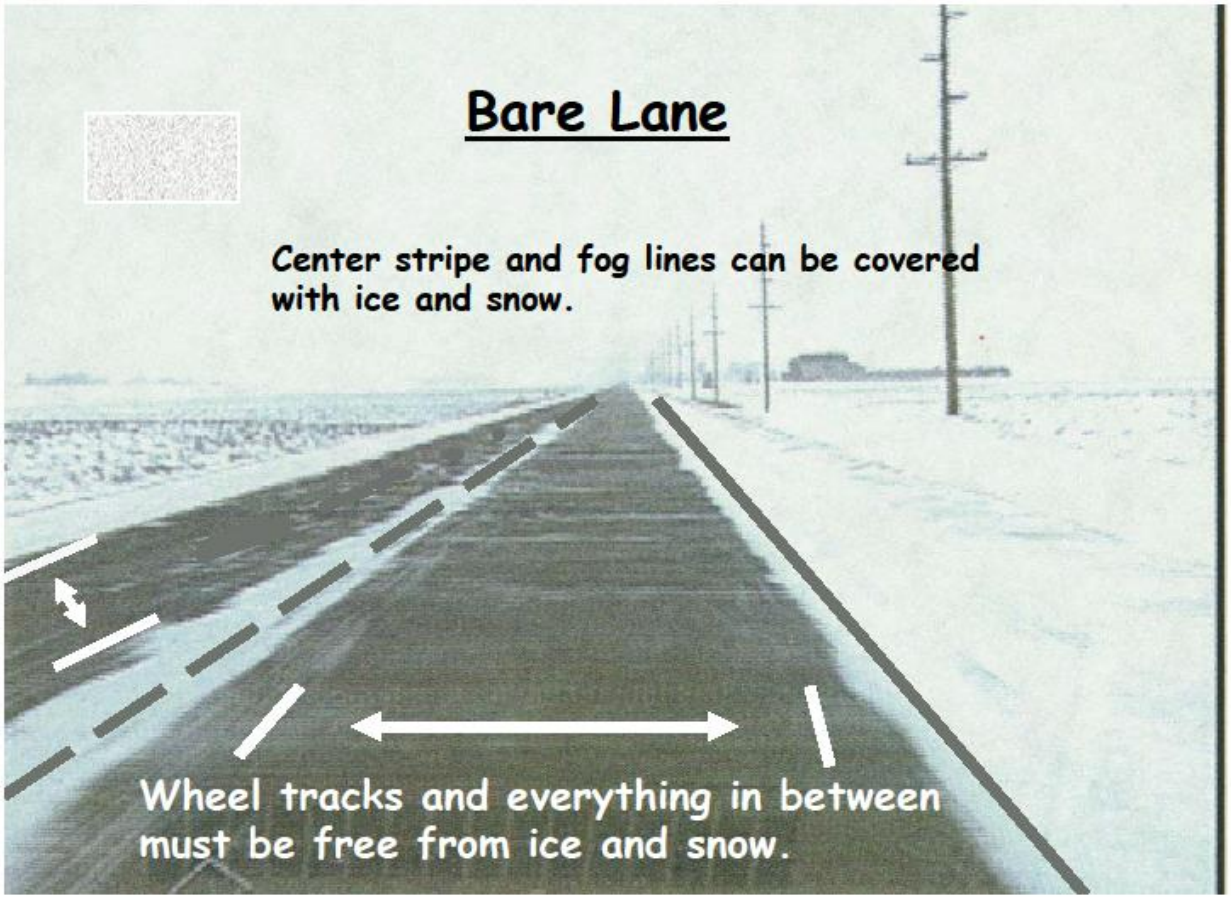
Category 1	Category 2	Category 3	Category 4	Category 5
4 Bare Pvmt Maint	4 Bare Pvmt Maint	4 < 2 Hours	4 Bare Pvmt Maint	4 < 2 Hours
3 < 1 Hour	3 < 2 Hours	3 < 4 Hours	3 < 2 Hours	3 < 4 Hours
2 < 2 Hours	2 < 4 Hours	2 < 6 Hours	2 < 4 Hours	2 < 6 Hours
1 < 3 Hours	1 < 6 Hours	1 < 8 Hours	1 < 6 Hours	1 < 8 Hours
0 > 3 Hours	0 > 6 Hours	0 > 8 Hours	0 > 6 Hours	0 > 8 Hours

Category 6	Category 7	Category 8	Category 9	Category 10
4 < 4 Hours	4 < 2 Hours	4 < 4 Hours	4 < 6 Hours	4 < 8 Hours
3 < 6 Hours	3 < 4 Hours	3 < 6 Hours	3 < 8 Hours	3 < 24 Hours
2 < 12 Hours	2 < 6 Hours	2 < 12 Hours	2 < 16 Hours	2 < 48 Hours
1 < 16 Hours	1 < 8 Hours	1 < 16 Hours	1 < 24 Hours	1 < 72 Hours
0 > 16 Hours	0 > 8 Hours	0 > 16 Hours	0 > 24 Hours	0 > 72 Hours

MPA: Snow and Ice Control

Illustrations	LOS	Description
LOS A 	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.
LOS B	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.

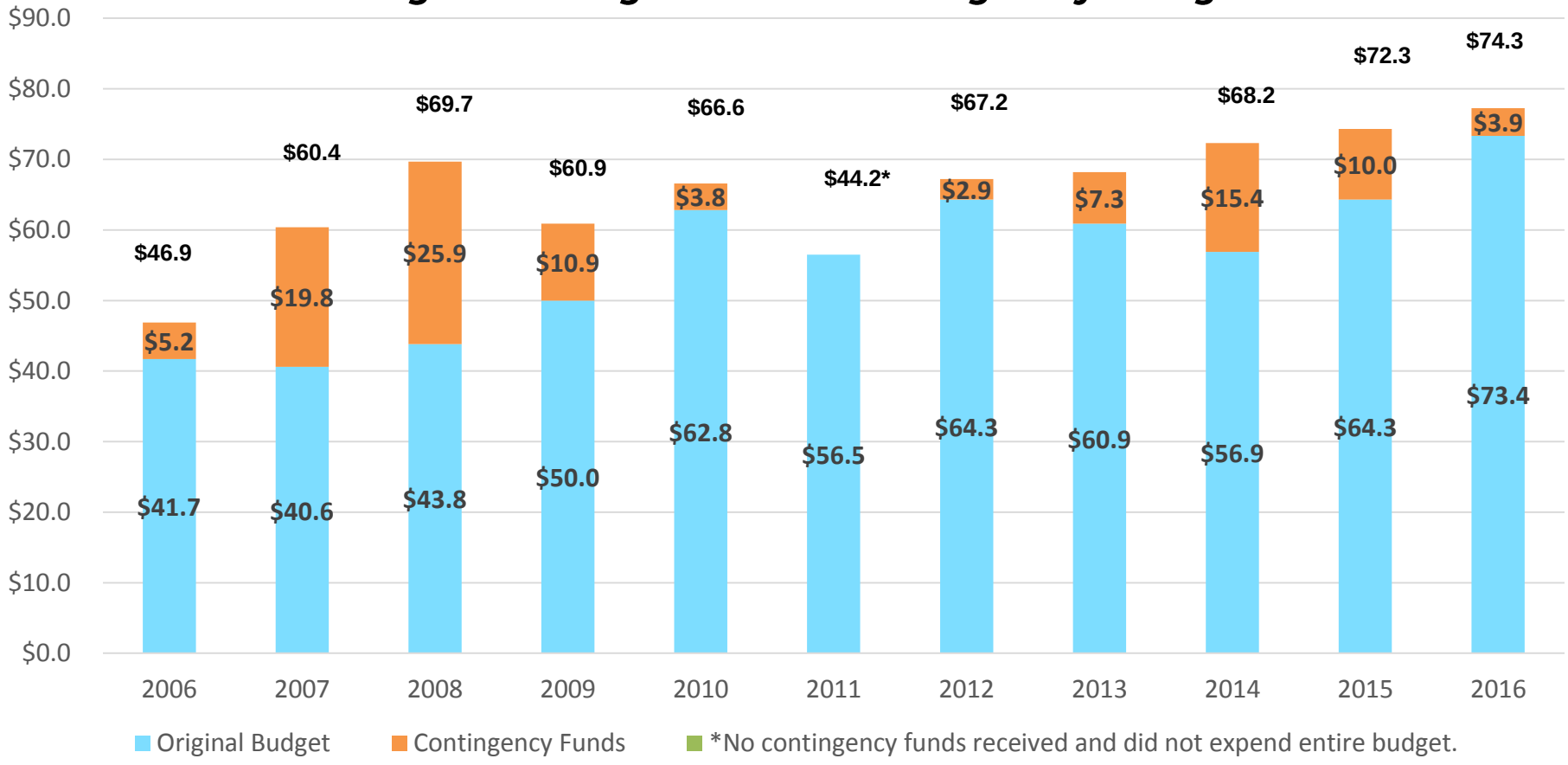
Performance Measure for Snow and Ice
Time Back to Bare Pavement



COLORADO
Department of Transportation

MAINTENANCE LEVELS OF SERVICE

Snow and Ice History
Original Budgets and Contingency Usage



COLORADO
Department of Transportation

TRAVEL-TIME RELIABILITY SPI

What We're Doing
(Sample Lead Measures)

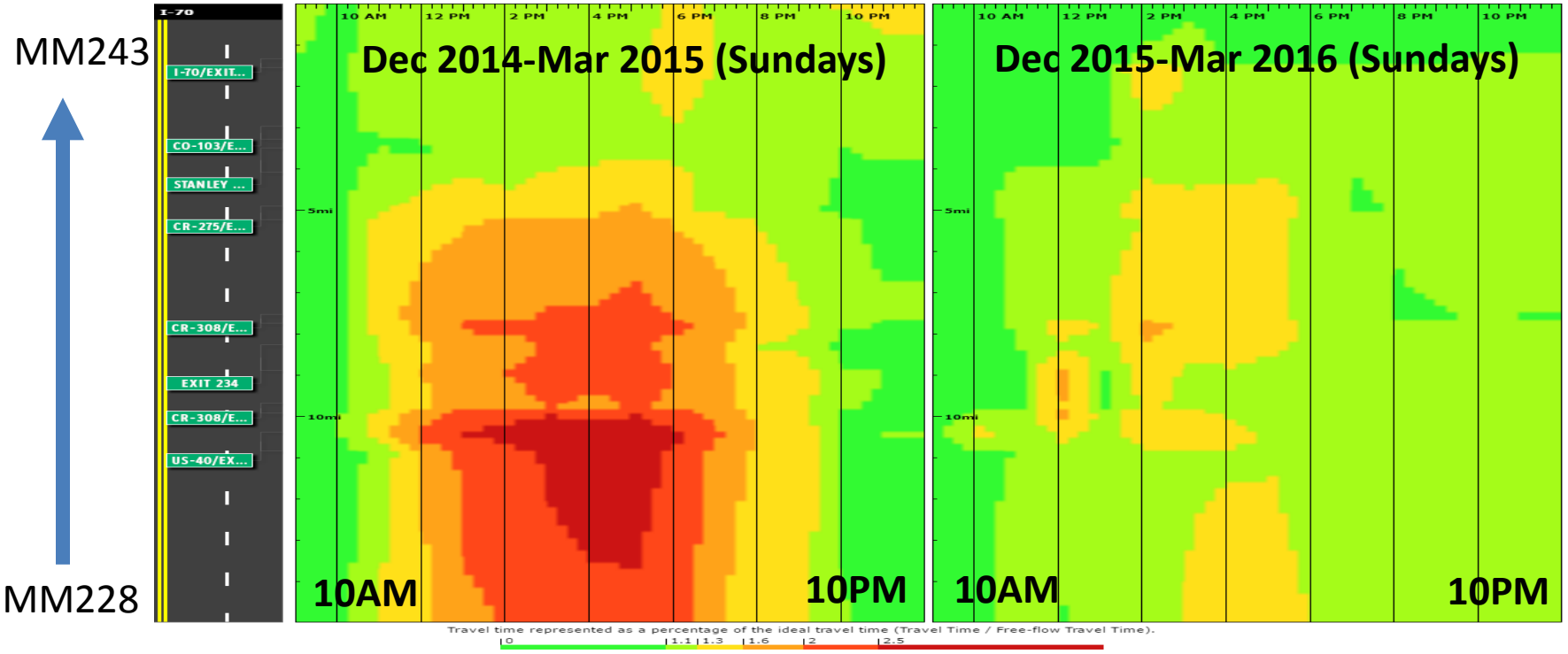
- **Reduced incident clearance times:**
  - Launch enhanced Motorist Safety Patrol
  - Increase % of first responders trained in Traffic Incident Management on I-25 corridor.
  - Establish Traffic Incident Management quarterly meetings with I-25 corridor first responders
  - Expand incident detection video analytics software on I-70 and I-25 cameras to reduce time to detect and respond to incidents.
- **Complete construction on US-6 Acceleration Lane project to improve traffic flow on EB I-70 from Loveland Pass.**

1-3 year Goal
(Lag Measure)

Minimize the increase in travel time on I-70 and I-25

- Express Lane delivers operational improvements and all lanes benefit
  - Compare speeds from 2012 pre-construction to present/Express Lane (2012 – 2016):
    - More consistent speeds, improved incident clearance and faster overall speeds. Travel times reduced by 26-52%

Travel Time Index (EB Sundays on I-70 from MM 228-243-Georgetown-Veterans Memorial Tunnel)



ROAD X Projects

- Intelligent ramp metering project on NB I-25 from Ridgegate to University
- Complete construction of 12 ramp meters on I-25
- Conduct 1,000 smartphone-connected vehicle tests and begin design for the Dedicated Short Range Communication (DSRC) connected vehicle pilot
- Complete construction on US-6 Acceleration Lane project to improve traffic flow on EB I-70 from Loveland Pass
- Deploy chain station management contractors to improve safety of chain station operations and commercial vehicle compliance with chain law
- Expand incident detection video analytics software on I-70 and I-25 cameras to reduce time to detect and respond to incidents

Efficiency Examples

- Using Unmanned Aircraft Systems (drones) as a more efficient way of identifying rockfall hazards and creating safer ways to monitor geohazards across the state.
- Reduced training burden on contractors by approx. 80% by implementing specialty software Erosion Sediment Control Assessment Notebook (ESCAN)
- Additional new software that is better able to analyze best pavement for projects – resulted in $15M savings to taxpayers
- Integration of Colorado Oversize Overweight Permitting and Routing (COOPR) system improvements for trucking customers and companies

COLORADO Department of Transportation

SMART ACT

LEGISLATIVE & REGULATORY AGENDAS

Bills:

- **Snowplow safety**

Budget Requests:

- **Drive High Get a DUI Campaign = $1M**

Other Potential Legislation:

- **Primary Seat Belts**
- **Autonomous Vehicles**
- **Funding for Transportation**

Planned Rule Revisions

- Transport Permits for Movement of Extra-Legal Vehicles or Loads
- State Highway Utility Accommodation

Publicly Available

CDOT Website

https://www.codot.gov/business/rules

COLORADO
Department of Transportation

QUESTIONS?