COLORADO
Department of Transportation
Region 3

Region 3 has requested funds from the National Highway Freight Program Funding (NHFP)

| TPR | Project Name | Project Description | NHFP Request Amount |
|---|---|---|---|
| Grand Valley | I-70: Palisade to Debeque | Reconstruction with realignment of curves and other safety improvements. | $ 3.00M |
| Intermountain | I-70 West: Vail Pass Auxiliary Lanes and Wildlife Overpass | Completion of NEPA and preliminary engineering for permanent water quality features and recommended third lane (both directions) to increase safety and mobility. Installation of permanent water quality features, relocation of bike path, and completion of three miles of roadway widening. | $ 7.00M |
| Northwest | SH 13 Rio Blanco South | Reconstruction of NHS and high volume truck route to add shoulders, and game fence. There are two final projects in this corridor. | $13.00M |
| Gunnison Valley | US 50: Little Blue Canyon | Reconstruction and widening of existing roadway template to meet current geometric design standards and improve roadside safety, drainage and access along the corridor. Addition of passing lanes and mitigation of geohazard land-slide within the project limits. Can be implemented in phases. MP (123-128). | $ 4.00M |
| Region wide | Region 3 I-70 Truck Parking | Truck parking locations along I-70 through the I-70 Mountain Corridor | $ 2.70M |

COLORADO
Department of Transportation
Region 3

Region 3 identified strategic projects for $4 million in design funds to get them ready by:

| TPR | Project | Funding request | Readiness Level |
|---|---|---|---|
| Intermountain | I 70 West Vail Pass Safety Improvements (21685) | $500k | 30% Design by 2019 |
| Intermountain | I 70 Dowd Junction Interchange PE (15637) | $200k | Advertisement 2017 |
| Intermountain | SH 9 Frisco Main Street to Iron Springs (21778) | $500k | Advertisement 2018 |
| Intermountain | I 70 Glenwood Canyon Structure Rail Repair (17258) | $200k | 30% Design by 2019 |
| Intermountain | I 70 Garfield County Interchange - New Castle (21611) | $800k | 30% Design by 2019 |
| Grand Valley MPO | I 70 Palisade Curves (20924), | $750k | 30% Design by 2019 |
| Grand Valley MPO | US 6 and 22RD (19771) | $500k | Advertisement 2018 |
| Gunnison Valley | US 550 Corridor Study | $200k | 30% Design by 2019 |
| Northwest | US 40 Passing Lanes | $350k | Advertisement 2018 |

**Region 5 $4M Design Shelf Funding Proposal**

| Subaccount | Project Name | Project Description | County | Primary Corridor | Study | Defined Tier | Cost Estimate |
|---|---|---|---|---|---|---|---|
| 20626 | **SH 17: Safety and Mobility Improvements North of Mosca (Widen shoulders)** | Shoulder widening north of Mosca. | Alamosa | SH 17 | RTP | 1 | **$150,000** |
| 20325 | **US 160: Towaoc Passing Lanes** | Addition of passing lanes and vehicle turnouts. | Montezuma | US 160: New Mexico to Durango | Region 5 Passing Lanes & Pullouts Study | 1 | **$170,000** |
| TBD | **US 160: Wildlife Mitigation** | Wildlife mitigation from Mancos to Pagosa Springs. US 160 and SH 151 | Montezuma, La Plata, Archuleta | US 160: Four Corners to Archuleta/Mineral County line | RTP | 2 | **$745,000** |
| 20600 | **SH 145: Safety and Mobility Improvements between Sawpit and Keystone Hill (Shoulder Widening and/or Passing Lanes)** | Shoulder widening and/or addition of passing lane between Sawpit and Keystone Hill. | San Miguel | SH 145 | Region 5 Passing Lanes & Pullouts Study | 2 | **$390,000** |
| TBD | **US 160: Pagosa Reconstruction and Multi-Modal Improvements** | Reconstruction to correct wheel rutting and addition of pedestrian facilities for safety. | Archuleta | US 160: Archuleta/Mineral County Line to West of South Fork | N/A | 2 | **$945,000** |
| 20980 | **US 160: Elmore's East** | Completion of improvements consistent with the EIS and ROD, which includes widening, access improvements, and wildlife mitigation. | La Plata | US 160: Durango to South Fork | US 160: Durango to Bayfield EIS and ROD | 3 | **$900,000** |
| 19701 | **US 550: Shoulder Improvements, Deer Fencing and Animal Underpasses between Uncompahgre River and Colona (Billy Creek)** | Addition of shoulders between Uncompahgre River and Colona (Billy Creek). Construction of deer fencing and animal underpasses. | Ouray | US 550: Durango to Ridgeway | Region 5 Passing Lanes & Pullouts Study | 3 | **$700,000** |
| | | | | | | **Budget** | **$4,000,000** |

US 50 Blue Creek Reconstruction; 19495
**Cost:** $12.3 million
**Contractor:** SEMA Construction
**Resident Engineer:** Raelene Shelly 970-683-6420, cell 970-596-1554
**Work:** Installation of coupled shear piles (complete), roadway reconstruction (2017 activity)
**Improvements on:** 2 centerline miles, landslide area
**Average Annual Daily Traffic:** 3528
**Project Benefits:** Landslide mitigation, improved safety
**Work Hours/Impacts:** TBD
**Duration:** May 2016 to September 2017
**Project Information Line:** 844-281-4473
**PIM:** Ali Stahlwood/Smith Environmental
**County:** Gunnison

US 50 Blue Mesa Resurfacing; 20801
**Cost:** TBD
**Contractor:** TBD
**Resident Engineer:** Raelene Shelly 970-683-6420, cell 970-596-1554
**Work:** Resurfacing existing pavement, repair of bridge decks over the Blue Mesa Reservoir and Lake Fork (MM 132.72 and 136.19). The work consists of resurfacing which includes cold-in-place recycle (CIP), hot mix asphalt overlay (HMA), bridge deck rehabilitation, and epoxy pavement marking.
**Improvements on:** 12 centerline miles; 2 bridges
**Average Annual Daily Traffic:** 2,800
**Project Benefits:** Improved riding surface
**Work Hours/Impacts:** TBD
**Duration:** April 2017 to October 2017
**Project Information Line:**
**PIM:** TBD
**County:** Gunnison

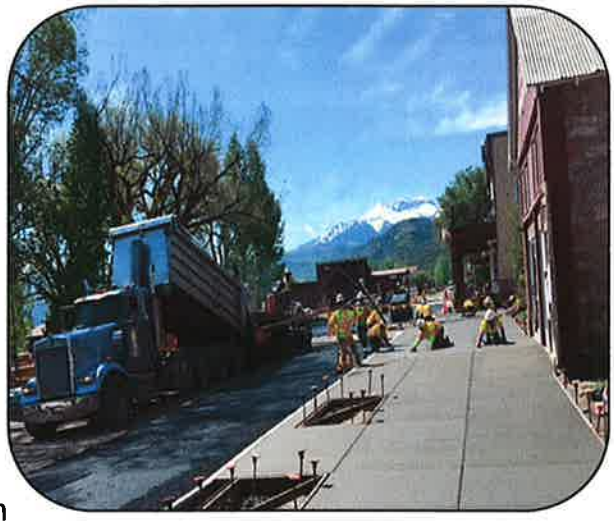
R3 Montrose Signal Replacement Project; 20565
**Cost:** $1.4M
**Contractor:**CS Construction, Inc.
**Resident Engineer:** Andi Staley (970) 683-6278, (cell) (303) 304-4116
**Work:** Traffic Signal Replacement
**Annual Daily Traffic:** 22,000
**Project Benefits:** Replace existing traffic signal equipment with newer equipment to minimize maintenance and lengthen the life expectancy for structural elements and infrastructure.
**Work Hours/Impacts:** M-F, 7am to 7 pm primarily with shoulder and right turn lane closures. Locations include US 50 (Townsend Ave) / La Salle Rd, US 550 (Townsend Ave) / S 7th St, and US 550 (Townsend Ave) / S 12th St-Columbia Wy.
**Duration:** May 2, 2016 to October 2016
**Project Hotline:**TBD
**Project Email:**TBD
**County:** Montrose

COLORADO
Department of Transportation
Region 5

March 2017

# CURRENT CY 17 PROJECTS

## SH 62 Ridgway Street Improvements- 19411



Budget: $13,791,257
(CDOT: $10,494,509) (Ridgway: $2,796,748)
Funding Type: RAMP
Awarded: American Civil Constructors

This RAMP partnership with the Town of Ridgway has two major components: The reconstruction and/or surface treatment of targeted segments of State Highway 62 and the Town of Ridgway enhancement project. The focus for SH 62, from the Uncompahgre River to Amelia Street, is to add a center turn lane along with curb, gutter, storm drainage improvements and utility relocations. Sidewalks, crosswalks, ADA ramps and bike lanes will be added along with signing and striping improvements. The Town of Ridgway will see the reconstruction of Cora Street, pedestrian ramps, lighting, traffic calming and streetscape features. Parking lots, on-street parking, irrigation and landscaping will be improved in accordance with the Town's approved streetscape plan. Progress currently includes much of the Town work being completed, the majority of SH 62 storm sewer installed with some of SH 62 paving, curb, gutter and sidewalk completed. This project has been in winter shutdown since December with expected completion in late fall 2017.

## SH 90 Bridge Replacement K-01-C – 20817

Budget: $6.5M Design and Construction
Funding Type: Bridge Enterprise
Awarded: SEMA Construction

This project will replace an original steel though-truss bridge that was damaged early in 2014 and forced to close. A temporary structure has been put in place until this project can be constructed. SEMA Construction of Denver was awarded the contract to dismantle the old truss bridge and replace it with a new pre-cast concrete structure. The new bridge will provide several improvements for the driving public including wider and higher clearance for oversized vehicles. Completion expected in late summer of 2017.

## SH 145 Chipseal MP 59.41 to 71.24 - 20170

Budget: $1.4 Million
Funding Type: Surface Treatment
Awarded: Elam Construction

This preventative maintenance project will improve the surface condition of SH 145 from MP 59.41 to 71.24. The project will consist of a double chip seal and will add years of service life to the roadway. Construction to begin spring of 2017.

## SH 145 Wall Failure MP 76.05 - 20456

Budget: $2.3 Million
Funding Type: Walls
Awarded: Myers and Sons Construction

This project will replace a retaining wall west of Deep Creek with a micropile MSE Reinforced wall. The older wall was compromised in recent mudslides that crossed SH 145. Anticipated construction slated for spring 2017.

# UPCOMING PROJECTS

## SH 145 Passing Lanes at Deep Creek- 20600

Budget: $7.1 Million
Funding Type: RPP, FSA, SUR
Ad Date: November 2018

The project is located on SH 145 at Deep Creek. The scope of work includes an uphill passing lane with associated widening, improved chain up area, intersection improvements at Illium Road, drainage improvements and possible consolidation/elimination of access points to improve safety. Surface treatment will extend from Illium Rd toward Placerville with extents determined by available funding. Project was discussed/scoped with County and County will continue to be part of project development. This project is scheduled for construction in 2019.

## US 550 Ouray to Ridgway- 20121

Budget: $ 5.0 million for Construction
Funding Type: SUR, RPP, FSA, HSIP
Ad Date: November 2018

The project is located on US 550 from Ouray to Ridgway (MP 94-103.6). The scope of work includes an HMA leveling course and overlay with a 1 mile section to include shoulder widening between MP 98 and MP 99. This project is scheduled for construction in 2019.

## R5 Region Wide Striping and Rumble Strips - 21743

Budget: $1.6 million
Funding Type: Safety
Ad Date: April 2017

This project will take place on US 550 in Montrose and Ouray counties. Centerline rumble strips will be added at targeted locations aimed at reducing motorists crossing into oncoming traffic. This project also consists of striping with high build water-based paint. Work to begin in fall 2017.

## US 550 Riverside Snowshed Lighting- 20799

Budget: $400,000
Funding Type: Tunnel Asset
Ad Date: June 2017

This project will upgrade the existing lighting and controls to energy-saving LED light. The existing snowshed lighting was sub-par. The improvement will create safer and more visible conditions for motorists traveling through this shed. Construction to start in summer 2018.

## US 550 Lighted Chain-Up Station and VMS Board- 20894

Budget: TBD
Funding Type: TBD
Ad Date: TBD

This project will take place on US 550 on the south base of Red Mountain Pass. The project will establish a designated chain-up station with adequate lighting and space for trucks to pull over and for truck drivers to chain up their tires safely. Currently, there is no established US 550 chain-up location, resulting in trucks chaining-up in an ad-hoc fashion wherever they find space. This project will improve safety for truck drivers and other motorists on the road.

COLORADO
Department of Transportation
Division of Transit & Rail

4201 E. Arkansas Ave., Rm. 227
Denver, CO 80222

**DATE:** March 15, 2017
**TO:** Transportation Commission
**FROM:** Mark Imhoff, Director - Division of Transit & Rail
**SUBJECT:** Update on Section 5311 Program Funds

Purpose
The purpose of this memo is to describe the recommended methodology that CDOT will use to distribute the FTA Section 5311 program operating funds to rural transit providers for CY 2018.

Action
March Workshop in preparation for an April resolution to approve the recommended FTA Section 5311 operating funds distribution methodology for CY 2018.

Background
Section 5311 funds are an important source of funds allocated, currently, to thirty rural general public transportation agencies across the state. The funds are used primarily for annual transit operations, and limited capital projects. In response to an increasing demand for federal operating funds, CDOT staff formed a 5311 Subcommittee of the Transit & Rail Advisory Committee (TRAC) in October 2016 to assist in creating a new methodology for distributing Section 5311 operating funds. The Subcommittee consists of ten members from around the state and is chaired by the co-executive director of the Colorado Association of Transit Agencies (CASTA); roster provided in Attachment A.

**CDOT staff and the Subcommittee have reached consensus** on how to distribute the 5311 operating funds for CY 2018. The new methodology meets the policy guidelines established by CDOT, and reviewed with the TC at the September Transit Overview Workshop: 1) fair and equitable; 2) available to all eligible providers; 3) stable; 4) transparent; and 5) performance based. CDOT needs to have the new funding distribution methodology finalized to ensure local agency contract execution by January 1, 2018: call for projects; application period; review evaluate and award; contract preparation and execution.

Details
The recommended methodology is detailed below:

- Categorize Agencies by Size: CDOT will use a categorization framework as a way to determine appropriate levels of funding for each type of agency. Each agency will be assigned to one of five categories (see table below) based on a combination of four factors: vehicle miles, vehicle hours, ridership, and budget size of agency.
- Percentage of Budget: Each category will be assigned a budget factor which is multiplied by the operating budget of each agency within the category to determine the grant level. The table below shows the five categories and their associated budget factors. As shown in the table, agencies in the Very Small category will receive a grant equal to 50 percent of their operating budget, while agencies in the Very Large category will receive a grant equal to 4 percent of their budget.

| Category | Budget Factor |
|---|---|
| Very Small | 50% |
| Small | 41% |
| Medium | 22% |
| Large | 15% |
| Very Large | 4% |

- CDOT will identify several agencies that will be "held harmless" and not be negatively affected by changing funding levels. These agencies serve areas with a high level of low-income population or other extenuating circumstances such as very low levels of service and covering a large area. Because they are so small, these accommodations have little effect on other agencies.
- Transition Plan: Transit agencies that will be affected by the new methodology have requested several years to adjust to the new funding levels associated with the methodology. This applies to all agencies, regardless of whether their funding levels will go up or down. The consensus of the Subcommittee is to incorporate a transition plan that will phase in the funding changes over five years.

The new methodology reflects the guiding principles identified at the outset of the effort. CDOT staff, CASTA and the Subcommittee believe the methodology to be fair and equitable, the budget factors can be adjusted to reflect new transit agencies or changing levels of federal funding, the new methodology is simple and provides transparency in making grants, and the new methodology will provide a stable funding base for all agencies. The Subcommittee struggled to identify performance measures that could be fairly applied to all agencies. An extensive evaluation was performed with the conclusion that all agencies receiving funds exhibit good performance, and adding additional performance measures complicated the methodology with minimal or no impact on the funding distribution. CDOT will continue to expect good performance from its grant partners and will provide technical assistance to agencies not meeting a certain level of productivity or efficiency. CDOT staff will continue to examine refinements to the methodology as future planning efforts identify opportunities to include performance measures.

The Subcommittee will continue to meet over the summer to monitor the process, and to address a few outstanding items needed to confirm (or modify) the distribution methodology for future years. The Subcommittee will also evaluate the distribution methodology of a companion program, FTA Section 5310, which provides transportation services for seniors and individuals with disabilities. Section 5310 is primarily a capital program with an established distribution methodology, however, it is a companion program to 5311 and deserves a fresh assessment, including the interface with the 5311 program.

Next Steps

- Present distribution methodology to the TRAC and seek their recommendation - March 17.
- Present distribution methodology to the STAC and seek their recommendation - March 24.
- Recommended distribution methodology approval by TC - April 20; (discussion at T&I Committee Quarterly meeting if desired).
- CDOT to release CY 2018 FTA Section 5311 Operating Call for Projects - late April.
- Subcommittee to meet over the summer to address outstanding items. Any material modifications or additions will come back to the TC for consideration.
- Execute contracts for CY 2018 operations.

Attachment

Attachment A: TRAC Subcommittee Roster

**Attachment A: 5311 Distribution Methodology - TRAC Subcommittee Members**

Ann Rajewski - Subcommittee Chair; TRAC Chair; and Co-Executive Director of the Colorado Association of Transit Agencies (CASTA)

Will Jones - TRAC Member; CASTA Vice President; and Transit Manager for City of Greeley

Vince Rogalski - TRAC Member; and STAC Chair

Larry Worth - TRAC Member; Rural Transit Consultant (formerly Transportation Director for NECALG)

Amber Blake - CASTA President; and Director of Transportation and Sustainability for Durango City

Dan Blankenship - CEO, Roaring Fork Transportation Authority (Glenwood Springs)

Frank Bruno - CEO, Via Mobility Services (Boulder)

Jonathan Flint - Transit Manager, Steamboat Springs Transit

Nate Vander Broek - Transit Director, South Central Council of Governments

Sarah Curtis - Executive Director, All Points Transit (Montrose)

COLORADO
Department of Transportation

# STAC Summary – February 24th, 2017

1) **Introductions & January Minutes** – *Vince Rogalski (Statewide Transportation Advisory Committee [STAC] Chair)*
   a) January 2017 STAC Minutes approved without changes.
2) **Transportation Commission Report** – *Vince Rogalski (STAC Chair)*
   a) Central 70 meeting on March 3 regarding Request for Proposal – obtained Record of Decision and project is moving forward.
   b) C-470 – Discussed with Corridor Coalition and agreed upon allocation of RAMP funds originally proposed for removal from the project.
   c) Changeover to HOV 3+ has gone well due to good communications; however a bill is in legislature to revert back to HOV 2+.
   d) High Performance Transportation Enterprise (HPTE) was audited and the result was no findings.
   e) Transportation Commission approved allocation of some Transportation Commission Contingency Reserve Fund (TCCRF) funds: $20 million for project design, $20 million for asset management, $10 million for maintenance and resurfacing work, and $13.5 million for RoadX.
   f) Received positive feedback from TC and STAC members regarding the February STAC/TC lunch.
   g) STAC Discussion: STAC members agreed with the assessment of the lunch with additional positive comments. The TC Chair indicated plans to attend future Colorado Counties Incorporated (CCI) and consider attending the Colorado Municipal League (CML) meetings. STAC members were impressed with the level of candor and openness in lunch discussion.
3) **TPR Reports** – *STAC Representatives*
4) **Federal and State Legislative Report** – *Ron Papsdorf (CDOT Office of Policy & Government Relations)*
   a) State: A number of bills were introduced:
      i) SB 59 failed (would have not required turn signals in roundabouts).
      ii) SB 73 failed (would have allowed for a rolling stop by bicyclists at stop signs and traffic lights).
      iii) SB 27 passed out of committee with amendments (increases texting and driving fine from $50 to $300) and will proceed.
      iv) HB 1018 passed (extends voter approval window for Regional Transportation Authority (RTA) mill levy increases by 10 years).
      v) HB 1031 was sent to House appropriations (would require five regional CDOT meetings per year)
      vi) SB 153 passed the Senate and is going to the House (would extend role of Southwest Chief Commission to include high speed rail in the Front Range).
      vii) HB 1553 was introduced (would prioritize two segments of I-25 for funding).
   b) Funding: HB1171 is a new transbond proposal dedicating a new sales tax to a project list – Governor has urged the legislature to have a solid proposal by March. Key legislators are expressing optimism in finding a funding solution.
   c) STAC Discussion: A STAC representative expressed concern with new funding proposals which would divert funds from maintenance to other projects. Maintenance improvements are badly needed in rural areas.
   d) Federal:
      i) Congress starting conversations regarding federal transportation infrastructure package.
      ii) Executive Director Bhatt and TC Commissioners Reiff and Zink to visit the American Association of State Highway Transportation Officials (AASHTO) next week.
      iii) Presidential Executive Order to allow for potential streamlining of environmental clearance for projects may help with I-25 and I-70 projects.

iv) President to address infrastructure needs in his address scheduled to occur next week.

5) **Central 70 Update** – *Tony DeVito (I-70 Central Project Manager)*
   a) Record of Decision released in January 2017 and the total project cost will be $1.2 billion.
   b) Employing a Design-Build-Finance-Operate-Maintain (DBFOM) model with a 30-year contract.
   c) Schedule: Final RFP to be released in March 2017; developer selection to occur in summer 2017; financial/commercial close in late 2017; and construction to begin in early 2018.
   d) STAC Discussion: STAC representatives confirmed that the new lane will be an express toll lane. Project segments will open to the public as they are completed.

6) **FY 17-18 Budget Update** – *Maria Sobota (CDOT Division of Accounting & Finance)*
   a) An overview of what was approved in terms of TCCRF funding was provided. Spending from the TCCRF approved included: $20 million for project design, $20 million for asset management, $10 million for maintenance and resurfacing work, $13.5 million for RoadX, and $200,000 for the a strategic communications initiative.
   b) FY 17-18 Budget to be submitted to the TC in March 2017 for adoption, prior to the Governor signing in April 2017.
   c) STAC Discussion: STAC representatives discussed the distribution of maintenance funding from the TCCRF and the status of the Division of Aeronautics. The Chief engineer explained the TCCRF funds are a statewide request, but noted Kyle Lester, CDOT Director of Highway Maintenance, may have more information regarding regional distribution. The Division of Aeronautics is back on track with grant funding and being cautious, building a reserve fund for grants.

7) **Alternative Fuels Program** – *Mike King (CDOT Multimodal Planning Branch), Wes Maurer (Colorado Energy Office) and Steve McCannon (Regional Air Quality Council)*
   a) An update was provided on the status several aligned alternative fuel programs, partnerships between CDOT, Colorado Energy Office (CEO), and Regional Air Quality Council (RAQC) including the Alt Fuels Colorado Program, and Charge Ahead Colorado Program, Alternative fuel corridor designations, a partnership with the National Renewable Energy Laboratory (NREL) to analyze electric vehicle (EV) charging locations, and status of the Volkswagen (VW) settlement.
   b) NREL, in partnership with CEO, RAQC, and CDOT, is helping evaluate alternative fuel station locations with their BLAST-V model. A report will be released in April/May 2017. Other partners are City and County of Denver, Southwest Energy Efficiency Project (SWEEP) and a company named BCS.
   c) The group will return to STAC in future months for more specific input on these programs.
   d) Recognized the STAC Subcommittee that is working to provide input on these programs – members include: Barbara Kirkmeyer, Elise Jones, Norm Steen, Thad Noll, and Terri Blackmore.
   e) Alt Fuels Colorado has $32 million for stations and vehicles (class 2-8 original equipment manufacturer [OEM], compressed natural gas [CNG], CNG bi-fuel, electric and propane). Approximately half of the funds have been awarded.
   f) Latest technology allows EV charging stations to fully charge vehicles in 20 minutes; concept is to have amenities available to clientele charging vehicles.
   g) Tri-state effort to address EV range anxiety is taking place between Colorado, Nevada and Utah.
   h) A group of STAC members (with CDOT, CEO, and RAQC) helped with Alt Fuel Corridor designation (15 corridors that were tiered) and were recognized for their participation in the submittal process to FHWA. I-25, I-70 and I-76 are now recognized as national Alternative Fuel Corridors in Colorado.
   i) I-70 is designated as an EV, CNG and hydrogen alternative fuels corridor; map of Alt Fuel corridors designates corridors by tier – dotted lines are tier 2, and solid lines tier 1, with fuel types designated by color. The corridors that were designated nationally are highlighted.

j) The VW Settlement lead agency for Colorado is the Colorado Department of Public Health and Environment (CDPHE) and they are still taking comments at cdphe.commentsapcd@state.co.us
   i) Colorado is anticipated to receive $68 million from VW settlement with 15% required to go to infrastructure.
   ii) Still need to develop a program for VW settlement funding applications; applications are planned to be solicited by CDPHE in summer 2017.
   iii) A Colorado beneficiary mitigation plan is to be developed to formally request the VW Settlement funds for the state in fall 2017.

k) STAC Discussion: Some STAC members raised concerns over areas with non-attainment being selected for funds over areas with a high percentage of alternative fuel vehicles registered in their area. It was explained that registered alt fuel vehicles in a given area will receive consideration. Team members were recognized and thanked for their participation in the Alt Fuel Corridors submittal that was only provided a month turnaround time.

8) **National Highway Freight Program** – *Debra Perkins-Smith (CDOT Division of Transportation Development)*
   a) Much discussion on this subject and feedback obtained regarding this program; currently CDOT is only evaluating the first two years of this program that will provide $35 million for freight projects from FHWA.
   b) STAC requested, at the last meeting, Freight Advisory Council (FAC) input on this program.
   c) The FAC Steering Committee (a subgroup of the FAC) met last week to review principles for project selection and a list of candidate freight projects for the first two years of funding.
   d) A FAC/STAC member explained that the group was looking for projects that show a direct freight aspect and focused on projects that these funds could leverage rather than replacing other funding types.
   e) Will return at next STAC meeting with a recommended funding scenario, prior to Transportation Commission review.
   f) STAC Discussion: STAC representatives confirmed that the input is from the FAC Steering Committee at this point and not the full FAC. Will eventually take this information to the full FAC for consideration.

9) **Traffic Incident Management** – *Ryan Rice (Division of Transportation Management and Operations) and Tim Keeton (Colorado State Patrol)*
   a) Traffic Incident Management (TIM) aligns multiple emergency response agencies (tow, CDOT, ambulance, fire, etc.) to work together to get injured to emergency care, and to remove debris and vehicles from crashes off the road as quickly as possible to keep traffic moving. The quicker traffic returns to normal the lower the probability of a secondary crash occurring.
   b) Situational awareness is taken into account via communication protocols between emergency responder agencies and team members.
   c) "Move It" is a law to clear roads of crashes as quickly as possible; working with insurance companies and need to communicate this more with the public at large.
   d) Teams, Standing Program Management Teams (SPMTs), are formed to respond to incidents by corridor – eventually want to see this statewide – covers only 20% of the state currently.
   e) FHWA provides TIM training to emergency responders; over 20% of responders in Colorado have received this training.
   f) CDOT Division of Transportation Management and Operations obtained a PlanWorks grant from FHWA to integrate into the planning process, and collaborated with NHSTA and FHWA to deliver a "Move Over" event.

g) A 2017 Colorado TIM survey to assess the current state of agency readiness, partnerships and TIM adoptions is being sent out today to local Colorado agencies.
h) Role of STAC is to encourage agencies to: participate in the 2017 survey, participate on SPMTs, and encourage everyone to promote responder safety – comply with the "Move Over" and "Move it" laws.
i) STAC Discussion: STAC members discussed need for physical improvements – shoulders for emergency responders – and stressed these need to be considered too. TIM is not just for highways/interstates, but could be applied across the state. In addition, how the TIMs survey will be distributed was explained. CDOT will use existing local agency distribution list, Local Technical Assistance Program (LTAP) and American Public Works Association lists. STAC was requested to provide any contacts to CDOT they see as important regarding participation in the TIM survey.

10) **Bicycle and Pedestrian Update** – *Ken Brubaker (CDOT Multimodal Planning Branch)*
    a) Postponed until next month (March 2017)
11) **CDOT Rest Area Plan** – *Marissa Gaughan (CDOT Multimodal Planning Branch)*
    a) A full update will be presented next month, due to this meeting's time constraints
    b) A working group for this project will be formed to help develop a vision for this Rest Area Plan study.
    c) STAC members were requested to contact Marissa if they have interest in participating on the work group.
    d) It is anticipated the first work group meeting will occur by the end of March 2017 and work through policy guidance by mid-summer 2017.
12) **Other Business** – *Vince Rogalski (STAC Chair)*
    a) CDOT has developed a draft CDOT Planning Manual that talks about the planning process, funding, and project selection. It's a great overview and you should be receiving it within the next month or so.
13) **STAC Adjourns**

# Colorado Road Usage Charge

## What is a Road Usage Charge (RUC)?

- Assesses charges based on vehicle miles traveled
- Treats roads like utilities (pay for what you use)
- RUC is also known as Mileage-based User Fee (MBUF) and Vehicle Miles Traveled (VMT) Fee
- Replaces the gas tax which is the main source of funding for our roads

Colorado legislature last raised the gas tax in 1991

22¢ Colorado

18.4¢ Federal

Gas tax does not change with the price of gas

## What is the problem with the current funding model?

### Increased Vehicle Fuel Efficiency

New fuel economy standards mandate that new vehicles in 2016 have an average fuel economy of 35.5 mpg and by 2025 that standard increases to 54.4 mpg. In addition to these new standards, alternative fuel vehicles are becoming more prevalent. Alternative fuel vehicles include full electric, hybrid, compressed natural gas, liquid natural gas, and propane. All of which pay little or no gas tax. Since the current funding model relies on fuel consumed, these new standards and alternative fuel vehicles result in less money to fix the roads.

### Declining Purchasing Power

Currently, Colorado transportation revenues come from a 22¢ per gallon tax on gasoline. This is a fixed amount that does not fluctuate with the price of gas (indexing). The gas tax rate was last raised in 1991. $1.00 in 2016 is worth approximately 57% less than in 1991.

### Increase in Population

Vehicle miles traveled is the metric used to gauge the number of vehicles on the road and how many miles they are traveling. As the number of people in the state increases, so does the number of vehicle miles traveled as well as wear and tear on our roads. However, with increased vehicle fuel efficiency, less gas is being purchased therefore, the revenue is going down.

## How will RUC address the funding problem?

RUC charges drivers for what they use versus the gas tax which currently charges more for less fuel efficient vehicles and charges nothing for alternative fuel vehicles. Under a road usage charge, all types of vehicles pay an equal amount for the same miles traveled, which captures revenue not currently being collected under the gas tax.

## History of RUC in Colorado

Colorado is exploring a number of ways to have sustainable funding for roads. The timeline below shows how the concept of RUC in Colorado has progressed over time.

**2007** — Governor Bill Ritter appoints the Transportation Finance and Implementation panel to study transportation infrastructure needs and funding sources

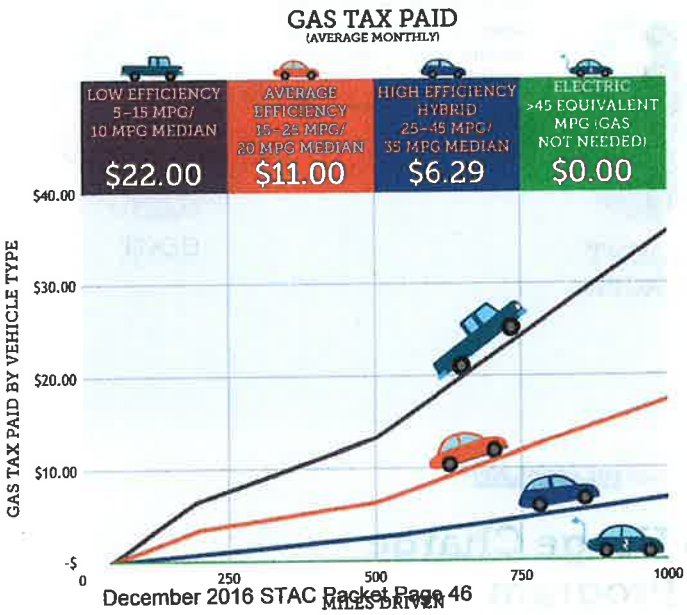
**2008** — Colorado Transportation Finance and Implementation panel recommends exploring (among others) a Vehicle Miles Traveled (VMT) fee, also known as Road Usage Charging (RUC)

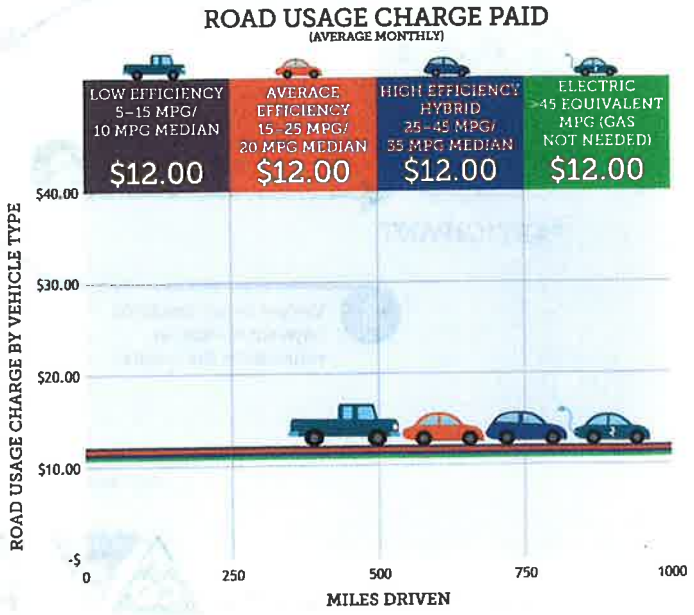
**2011 to 2013** — Colorado Mileage-based User Fee (MBUF) study engaged the public to identify strategies in developing potential MBUF options for Colorado

**2014** — CDOT becomes a member of the Western Road Usage Charge Consortium (RUC West). RUC West gathers state DOTs to collaboratively research RUC systems, feasibility, and policy development.

**2015** — CDOT submitted an internal research proposal to test the viability of a RUC system in an operational environment

**2016 to 2017** — Colorado Road Usage Charge Pilot Project



# How the Colorado RUC Pilot Program will work:

## CDOT RUC Pilot Program Goals

1. Demonstrate an operational RUC;
2. Identify and evaluate issues;
3. Test the feasibility of various mileage reporting options; and
4. Solicit feedback and ideas.

## Colorado RUC Pilot Program (RUCPP)

- 4-month statewide pilot (December 2016 - April 2017) evaluating RUC for passenger vehicles
- 100 participants consisting of legislators, transportation leaders/officials, media, and general public
- Participant mix will include geographic (urban/rural) and vehicle (MPG) stratification
- A final report will summarize the findings of the pilot, lessons learned, and identify future recommendations

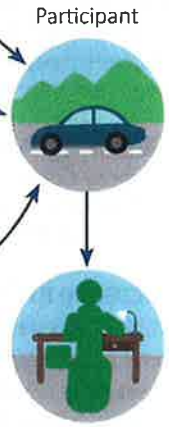
## Mileage Reporting Options

Participants will be provided their choice of mileage reporting options. Some of these options include a mileage reporting device to be installed in the vehicle and one option provides the no technology choice involving self-reporting.

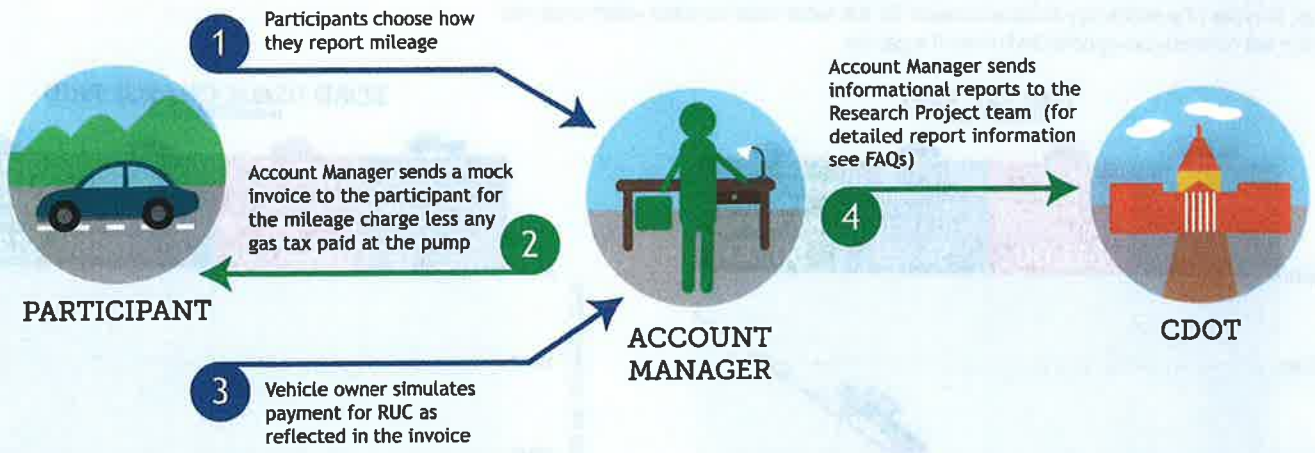
**1 Odometer Reading**
Participants who select this option will report their vehicle's odometer reading via the account management website or mobile app

**2 Non-GPS-Enabled Mileage Reporting Device**
Participants who select this option will receive a device to plug into their vehicle; this method uses a non-GPS device which counts distance traveled and gasoline consumed, but does not assess location

**3 GPS-Enabled Mileage Reporting Device**
Participants who select this option will receive a device to plug into their vehicle; this method uses location-based data to calculate total miles driven with differentiation between in-state and out-of-state roads




## How does RUC work?




For more information please visit **ruc.codot.gov**

**Road Usage Charge Pilot Program**

# Panasonic

## PROJECT OVERVIEW

**CDOT, through its RoadX program, has developed a long-term partnership with Panasonic to establish the foundation for self-driving cars in Colorado. Panasonic's efforts will initially focus on transforming vehicles traveling on the I-70 Mountain Corridor into "connected vehicles" that send and receive information about road conditions — traffic delays, icy conditions and crashes — from other vehicles, CDOT systems and sensors installed along the roadway. Panasonic is supporting the RoadX program in two major areas:**

- **Creating one centralized system - a Statewide Data Ecosystem - that collects, consolidates and validates all sources of data related to vehicles and road conditions (i.e., data directly from vehicle computers, CDOT systems, roadway sensors, navigational apps, etc.).** Once collected, within the blink of an eye, the data can be shared with drivers traveling I-70, or eventually self-driving cars.

If data is used for an automotive function, such as navigation or self-driving technologies, it must be highly validated and accurate because failures could cause crashes, injuries and even deaths.

- **Determining the best way to communicate information with drivers, and eventually directly to self-driving cars.** Panasonic is leading the effort to test the use of Dedicated Short-Range Communications (DSRC). Think of DSRC as an incredibly fast, highly secure Wi-Fi network for communication between vehicles and sensors installed along the roadway. Eventually, when the car just feet in front of you suddenly brakes, your car will immediately brake with it to avoid a crash — DSRC technology can react faster than any human ever could.

This effort is initially focused on deploying DSRC technology on the I-70 Mountain Corridor as part of the Smart 70 project. CDOT is also evaluating the use of cellular networks (i.e., smartphones) with a different RoadX partner, but all data and communications will eventually be fully integrated into the Data Ecosystem being developed by Panasonic.

THE ULTIMATE GOAL IS TO ESTABLISH A COMMUNICATION SYSTEM THAT IS ACCURATE ENOUGH AND FAST ENOUGH TO BE USED BY SELF-DRIVING CARS, CREATING A COLORADO THAT'S FREE OF CRASHES, INJURIES AND DELAYS.

ROADX
ACCELERATING TECHNOLOGY

CONNECTION

## BENEFITS

The National Highway Traffic Safety Administration (NHTSA) is looking to require the installation of DSRC technology in all passenger vehicles starting in 2021. The Panasonic partnership allows CDOT to harness this new, highly accurate data to deliver a new level of intelligence to Colorado's transportation system.

**DSRC** IN ALL PASSENGER VEHICLES — STARTING IN **2021**

With the Data Ecosystem, CDOT will collect, own and manage high quality, highly accurate data, allowing the DOT to report roadway conditions, predict future conditions and streamline operations better than any other state.

**COLLECT, OWN & MANAGE**

HIGH QUALITY, HIGHLY ACCURATE DATA

By providing real-time information directly to drivers, connected vehicles can prevent crashes, improve safety, create more reliable travel times, and reduce stop-and-go traffic — all without the immense cost of building additional lanes.

PROVIDE REAL-TIME INFORMATION

At full build-out, use of this technology could reduce the number of crashes on Colorado roads by 12,000 per year, and could eliminate or reduce the severity of up to 80 percent of non-impaired crashes.

**COULD REDUCE CRASHES** BY **12,000** PER YEAR

## STATUS

**Development of Schedule / Work Plan**

Panasonic is currently in the proccess of developing a detailed schedule and work plan for the development of the Data Ecosystem and deploying DSRC on the I-70 Mountain Corridor.

## NEXT STEPS

1. Developing a test environment to demonstrate the communications technology by summer of 2017.
2. Installing roadside sensors along I-70 to enable DSRC communications.
3. Equipping vehicles with aftermarket DSRC systems to demonstrate the early capabilities of the Data Ecosystem.
4. Establishing Colorado as a testing ground for auto manufacturers using DSRC systems (in support of the NHTSA mandate).

# SMART 25

## PROJECT OVERVIEW

The goal of the Smart 25 project is to reduce congestion along northbound I-25 between RidgeGate Parkway and University Boulevard without the cost of constructing additional lanes. The project involves installing vehicle detection devices in and along ramps entering the highway that measure the number of vehicles, their speed, and the length of the line of cars waiting to enter the highway. This information will be gathered for all 14 ramps along the corridor and be used to control the timing of the lights that allow cars to enter the highway. The project will use a computer program developed in Australia to time the release of cars onto the highway to reduce stop-and-go traffic.

- If congestion forms due to heavy traffic entering the highway from I-225, for example, this system would slow the entrance of cars from the Belleview and Orchard ramps so that cars can continue flowing smoothly through the corridor without forming a bottleneck.

- The system is also designed to prevent traffic from on-ramps backing up onto local streets. This will be done by increasing the number of cars allowed onto the highway when necessary.

- This project will allow drivers to exchange a slight increase in wait times at on-ramps for a shorter, faster and more reliable trip along the corridor.

ROADX
ACCELERATING TECHNOLOGY

COMMUTING

# SMART 25

## PARTNERS

apexdesign

TRANSMAX

vicroads

WSP | PARSONS BRINCKERHOFF

## BENEFITS

- Reduce congestion between the southeast business corridor and downtown Denver, Colorado's two largest job centers, without the cost of major construction.

REDUCE CONGESTION

SOUTHEAST BUSINESS CORRIDOR ⇄ DOWNTOWN DENVER

- Improve travel time reliability.

- Reduce traffic-related crashes, fatalities and injuries.

REDUCE

CRASHES, FATALITIES AND INJURIES

- Reduce transportation-related emissions.

REDUCE EMISSIONS

- This system was developed and first implemented by the Victoria State Department of Transportation (VicRoads) in Melbourne, Australia and resulted in:

**15%↑** INCREASE IN PER LANE VOLUMES

**10 MPH** INCREASE IN SPEED

**31%↓** DECREASE IN CRASHES

**PREVENTING BACKUPS** ONTO LOCAL STREETS

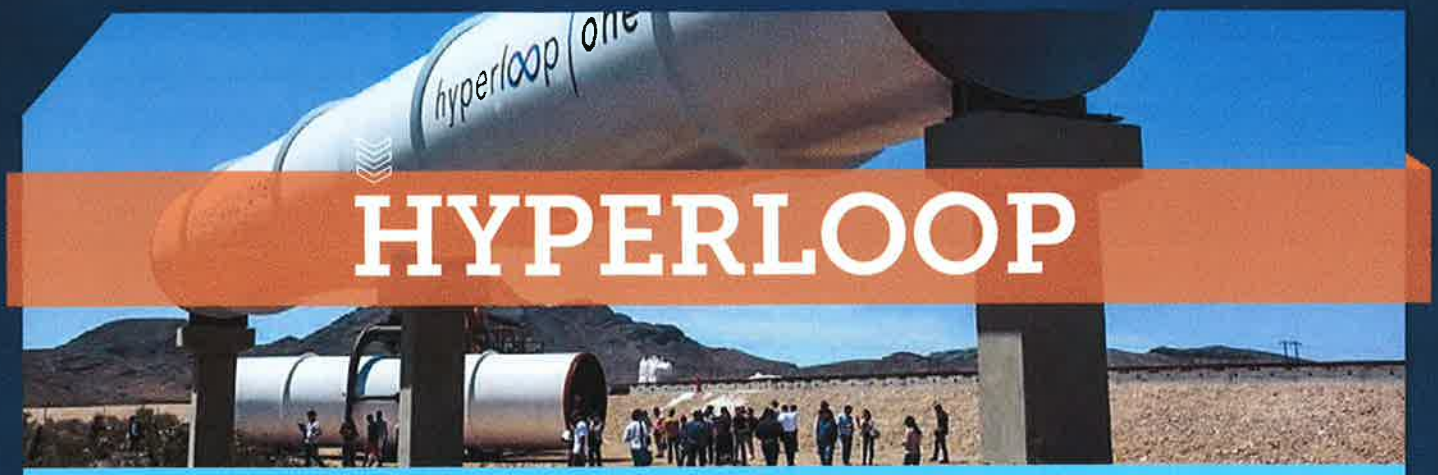
**All with minimal capital costs and no highway expansion.**

## STATUS / NEXT STEPS

**SPRING 2017**
The Smart 25 project is currently in the design phase.

**FALL 2017**
Construction (e.g., restriping and minor pavement widening) and installation of vehicle detection devices to begin fall 2017.

**SPRING 2018**
System operational Spring 2018.




# HYPERLOOP

## PROJECT OVERVIEW

**Hyperloop is a new way to move people and freight using a one-of-a-kind, linear-electric motor to quickly accelerate and decelerate a levitated sled through a low-pressure tube. This is similar to how roller coasters move cars at very high speeds, except the vacuum environment created by a pressurized system limits the impacts of friction, allowing the sleds to travel up to 700 mph. Imagine how a puck floats across an air hockey table. Now imagine that kind of movement in a tube with sleds holding people and things moving faster than any train and most planes — that's Hyperloop.**

- The Rocky Mountain Hyperloop team — a partnership between CDOT, AECOM, the cities of Denver and Greeley and the Denver International Airport (DEN) — was selected as one of 35 worldwide semifinalists to build a 40-mile Hyperloop system in Colorado.

- The proposed route between DEN and Greeley was chosen as Phase 1 of the project to connect the region's hub of transportation and commerce with the fastest-growing areas of northern Colorado.

- Looking long-term, a comprehensive Hyperloop system in Colorado is envisioned to link the Front Range urban areas and the mountain recreation areas to the west.

- On May 11, 2016, Hyperloop One conducted its first test on a 1.9-mile-long track in the Nevada Desert, demonstrating that a lightweight aluminum sled could accelerate to 116 mph in just 1.1 seconds.

ACCELERATE TO **116** MPH IN **1.1** SECONDS

## PARTNERS

AECOM

DENVER THE MILE HIGH CITY

DEN

City of Greeley

ROADX
ACCELERATING TECHNOLOGY

TRANSPORT

# HYPERLOOP

## BENEFITS

The Hyperloop would be four times faster than high speed transit and 12 times faster than express bus options studied for the I-25 corridor. The new technology would reshape travel patterns and provide transportation options for the fastest-growing areas in Colorado.

**4 TIMES** *FASTER THAN* HIGH SPEED TRANSIT

**12 TIMES** *FASTER THAN* EXPRESS BUS OPTIONS

This would dramatically reduce emissions in the region — the equivalent of taking more than 22,000 cars off the road for one year — by providing options for moving people and freight without vehicles.

**REDUCES** EMISSIONS

The project will enhance the region's economic competitiveness by improving accessibility and connectivity between industries and the workforce.

**ENHANCES** THE REGION'S ECONOMIC COMPETITIVENESS

## STATUS

**OCT 2016**
The Rocky Mountain Hyperloop team submitted an application

**JAN 2017**
Was short-listed as one of the 35 worldwide semifinalists

HYPERLOOP ONE'S GOAL IS DEVELOP ROUTES IN **5** COUNTRIES

## NEXT STEPS

**1** Now that the Rocky Mountain Hyperloop team has been shortlisted (one of 35 out of 2,600 worldwide) the next steps will be for Hyperloop One to narrow that list down to 12 teams that will be asked to submit more details on their proposals. Three final teams will be selected by late summer of 2017 to begin developing full-fledged feasibility studies for their projects.

**2** If Rocky Mountain Hyperloop is selected, a public-private partnership will be established to implement and fund the project. It is anticipated the project will be funded from a variety of private, federal and state funding. Total cost of the project still needs to be determined.

**3** Safety is the Rocky Mountain Hyperloop team's top priority. Prior to implementation, the team will develop a robust safety and testing plan to ensure the protection of any people or freight moving through the system.

COLORADO
Department of Transportation

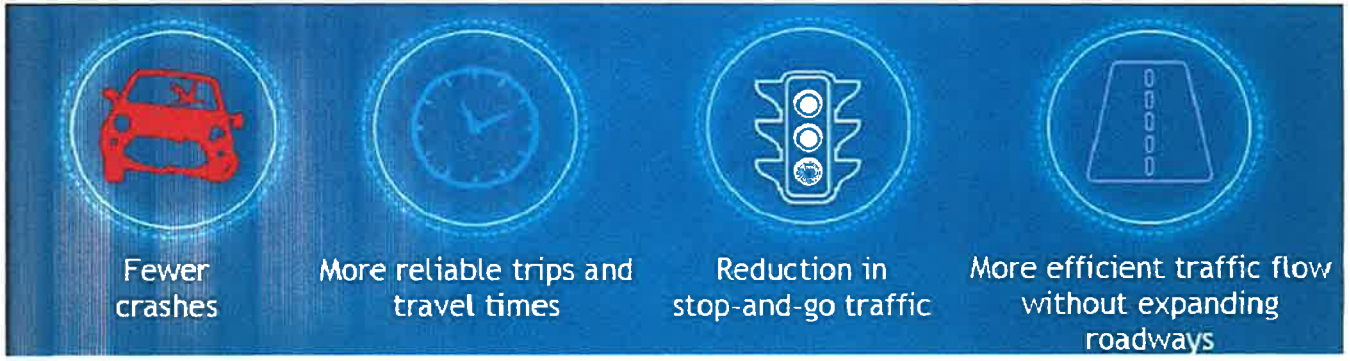
# WHAT IS CDOT DOING?

ROADX
ACCELERATING TECHNOLOGY

# PROGRAM OPPORTUNITIES
## In the Next 10 Years

### Smart 25
### Ridegate to University

Software and sensor upgrades to better manage flow resulting in:




### Smart 70
### Golden to Vail

Partnership with Here will provide real time data about hazards such as:

### Smart 70
### Panasonic

Self-driving vehicles and infrastructure share data to eventually:

ROADX
ACCELERATING TECHNOLOGY

# PROGRAM OPPORTUNITIES
## In the Next 10 Years

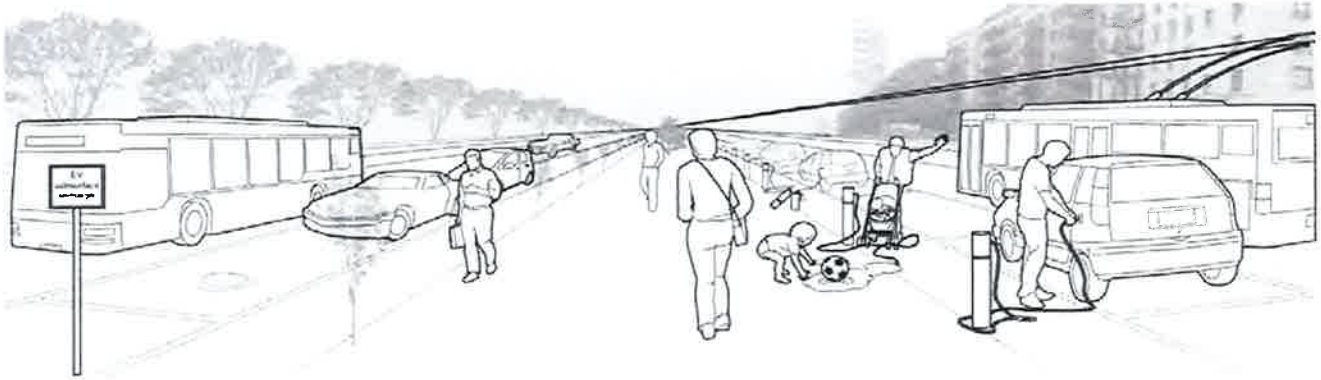
OTTO

### Transport

Self driving vehicles, platooning, smart parking

### Hyperloop

New way to move people and freight

### Inductive Charging

Pilot to embed charging in roads to power electric vehicles