SOUTHWEST COLORADO REGIONAL TRANSPORTATION PLANNING COMMISSION

Date: **Friday, June 5, 2015**
Place: **CDOT Maintenance Facility** 20581 Hwy 160 W
Phone conferencing available at 877-820-7831, Passcode 306349#
Time: **9am to 12:00pm**

AGENDA

9am **I. Introductions** (additions/changes to agenda)

II. Accept Minutes: April 2015*
Accept Financial Report: April 2015*

9:05 **III. Reports**

1. **Airport Plans Presentation:** Tony Vicari, Airport Operations Specialist
2. **STAC update**
   a. **April meeting:** Kevin Hall
   b. **May meeting:** Kevin Hall
3. **Transportation Commissioner Report:** Sidny Zink

10:35 **IV. CDOT Report**:

1. **Intersection Prioritization Study:** Mike McVaugh
2. **Construction Project Update:** Ed Archuleta

11:45 **V. Other Business**

1. **Transit Provider Updates**
2. **Community Updates –Round Robin** (pending available time)

VI. Adjourn

Next proposed meeting date: August 7, 2015

vote requested

SOUTHWEST REGIONAL TRANSPORTATION
PLANNING COMMISSION
Friday, April 3, 2015 9am to 12pm
Durango Public Library, Durango

TPR Members
Kevin Hall, City of Durango
Bentley Henderson, Archuleta County
Lee San Miguel, Town of Ignacio
Phillip Johnson, City of Cortez
Lee San Miguel, Town of Ignacio
Clifford Lucero, Archuleta County
John Egan, Town of Pagosa Springs
Chris La May, Town of Bayfield
Greg Schulte, Town of Pagosa Springs
Keenan Ertel, Montezuma County
Matt Salka, Town of Bayfield
Jim Davis, La Plata County
Rodney Class Erickson, Southern Ute Indian Tribe
Regina WhiteSkunk UMUT

Others Present
Miriam Gillow-Wiles, SWCCOG
Sara Trujillo, SWCCOG
Mike McVaugh, CDOT
Ed Archuleta, CDOT
Matt Muraro, CDOT
Tony Cady, CDOT
Kerrie Neet, CDOT
Tim Web, CDOT materials engineer
Nancy Shanks, CDOT Region 5 Communications
Sidny Zink, Transportation Commissioner

I. Introductions:
The meeting was called to order by Chairman Kevin Hall at 9:08 am. Everyone introduced themselves, and there were no changes to the agenda.

II. Minutes & Financial Reports:
Minutes –
Keenan Ertel motioned to approve the February 2015 minutes as presented. Lee San Miguel seconded, and the motion passed with all in favor.

Financials –
Bentley Henderson motioned to approve the February 2015 financials as presented. Clifford Lucero seconded, and the motion passed with all in favor.

III. Reports:
STAC Updates
February STAC meeting: Kevin Hall
Kevin Hall attended this meeting via phone conference as weather conditions were not appropriate for travel. This made participation a bit difficult but some key takeaways included:

- The unanimous approval of the State Transportation Plan
- There was discussion in regards to STIP, which will be talked about a bit further in the agenda by Matt Muraro.
- The STAC would like to get more interest out in the western part of the state in regards to alternative fuels. There is interest in Durango through a company called Sparq Natural Gas and working with 4CORE to find a site that may work. This is preliminary at this point, but there is activity going on as quite a few companies are interested in alternative fuels. The Front Range is seeing quite a bit of outreach in regards to alternative fuels and hopes to provide additional outreach in the eastern part of state.
- The Safe Routes to School Program went from being federally funded to being recently state funded. There were questions if this funding will continue.

March STAC meeting: Bentley Henderson
Highlights of this meeting included:

- Bentley offered our TPR report and mentioned several large projects that have been ongoing.
- There was a federal and state legislative report that talked about different senate bills moving through the process one of them with regards to the placement and attachment of temporary tags. This is moving through the process and being supported by county clerks as it is a uniform action that has fallen behind.
- Safe Routes will be receiving approximately $3 million appropriated out of the CDOT operating budget to support this program; however this is still up in the air.
- Discussed was SB 228 funding and the challenges associated with this as far as TABER limitations; some funding may be required to be given back.
- TIGER grants were discussed. Representatives from CDOT talked about the challenges of the TIGER grant process. The state is looking at forwarding about four projects for TIGER funding including the I70 bus shoulders expansion lanes, improvements to the highway west of Denver, and the underpass in Vail. There has been a focus towards determining reasons for the success rate of previous TIGER projects and why some projects are funded and some are not. Looked at were valuation factors attached to projects and how much CDOT money was involved in projects. The results found that successful grants through TIGER have had more local participation and support with less state funding.
- The statewide freight plan was discussed. This plan is a moving target right now but freight corridors have been identified. An advisory committee is in the process of further evaluating the process.
- A video was presented regarding the statewide transportation plan. This video talked a lot about forecasted changes and forecasted miles traveled that will be most important to our state. Bentley found this video very interesting and would like it made available to the TPR members. Matt Muraro said the link to the video is on the statewide plan website, and Kerrie Neet stated that she would be happy to share this video at the next TPR meeting.
- An oil and gas study updated was given. Some consulting firms were hired to evaluate impacts of oil and gas development in the state. Graphics showed where in the state some of the primary areas of intensive exploration and production are. The consultants tried to quantify the incremental impacts to local rights of ways, mostly county roads but a lot of state highway, of the various types of production activities. These were broken down from construction to development to production showing trips per day and impacts of those trips, which were significant.

Transportation Commissioner Report: Sidny Zink
Reported items are as follows:

- The February meeting resulted in the approval of PD 14. The significance of this approval is that there has been so much effort that establishes a lot of the measures and objectives. What was approved has a lot of bullet points in it to say this is what we want to accomplish and this is how we will

determine if we do so. Therefore, in the future it will be easy to determine what programs are successful and what programs may need to be tweaked.

- The March meeting involved the audit for the commission and approving of a PD that established policy and a new audit charter. To be effective we need to deal with issues then produce a report that says this is what we found, we have some problems, but this is how we are addressing issue. Fuel card issue was an example and has been an ongoing process surprisingly slow in resolution when technology is available to control the fuel card.
- The commission did approve the budget of over a billion dollars. This was challenging because the budget that is approved is a balanced budget that does not take into account actual cash flow and RAMP money but simply revenues and expenses.
- Officially adopted the statewide plan that was then released to the public.
- The commission discussed the I70 viaduct and certainly feels this project has to go forward in some form or another. Talk involved making sure all bridges in state are in good shape then taking the bulk of bridge enterprise funds and CDOT funds to put towards the investment in the I70 viaduct. The bridge enterprise fund will contribute around $850million of the 1.3 billion for the project. Additional funding will come from DRCOG (who is contributing approximately $50 million, although this may move up), the City of Denver, and other entities. This will be a public private partnership with tolls.

IV. CDOT Reports

Stand Up for Transportation Day: Nancy Shanks

A Stand Up for Transportation event will be held in Durango April 8 at 10am. The event involves CDOT and local transit partners for media events to discuss the role of transportation in our communities, the economy and for our residents. In addition, discussion will take place about how CDOT and local transit partners have been working to address the transportation needs in our regions, upcoming signature projects and how important funding is to addressing those needs. A banner signing will take place April 6-7 where CDOT and local transit partners will be at a key transit location with a street team to talk to residents and riders about the role of transportation in their communities. All are welcome to join and asked to support this endeavor.

CDOT Zero Deaths Initiative: Mike McVaugh

Stats and highlights of this initiative are as follows:

- Colorado deaths annually average about 500 people per year with 753 deaths in 2002 and 480 in 2014.
- Urban versus rural – most accidents happen on rural roads. CODT is trying to make some strategic moves to try and work on data driving analysis and how to work those numbers down.
- The goal by 2019 is to reduce fatal accidents by 2.5% each year and reduce injuries by 2.9% each year.
- There is additional need to focus on aging road driver, 65 and older as there has been a substantial increase in elderly drivers.
- Pedestrian and cycle fatalities have been found to be on the rise.
- Impaired driving has resulted in 30% of fatalities.
- Large issue with younger drivers is driver behaviors.
- Safety assessments are being conducted for every project using data to find the worst areas.
- CDOT's focus is on highways as there has not been a way to focus on other roads as of yet.
- A program is in place to branch out, provide more data, outreach, and educate.
- A copy of the Zero Deaths Initiative will be sent out to TPR.

STIP update: Matt Muraro

A new STIP is in the works; the Transportation Commission approved the draft STIP. This endeavor is currently in a 30 day public comment period, and a public hearing will be held on April 16. The STAC will review public comments and final approval will happen on May 21 by the Transportation Commission that will go into effect on July 1, 2015.

New features of this STIP include:

- New STIP will be a 4-year rolling STIP
- There will be a 10-year plan
- Going to expenditure based format versus a budget based format
- Trying to streamline for more flexibility and to make more public use- friendly

Submissions for TIGER grants must be received by June 5. There is approximately $500 million overall where $100 million will be awarded to rural areas. Each agency can submit up to 3 applications, and the local contribution will be fairly high to keep the money competitive.

Construction Project Update: Ed Archuleta

- US 491/160 New Mexico to Towaco – This is a current RAMP Surface Treatment project expected to be completed July or August, 2015.
- US 160 Wilson Gulch Road Extension – Started construction January 2015 and will be completed by the end of 2015.
- US 160 Bayfield to Yellow Jacket – Started work March 2015 and is expected to be completed late summer 2015.
- SH 145 at CR P North of Cortez – This is a RAMP project consisting of intersection improvement and turn lanes. Construction to begin 2015.
- SH 172/151 Signalization – This project is underway. Two underground storage tanks were located using non-invasive technology. There was ground sampling completed. The next step is to figure out how to dispose of the tanks based on concentration. Adjustment to the plan is underway. CDOT would prefer not to touch the tanks. Adding hazardous waste and hazardous waste monitoring to the project has substantially increased expenses. However, it is essential to take care of dewatering and disposal. This is very expensive and CDOT is already at budget.
- US 550 Cribwalls Phase II/III Project – This project involves three cribwalls up Red Mountain pass; construction will begin September 2015.
- US 160 Mancos Hill to Hesperus – Essentially a resurfacing project excepted to begin spring of 2015.
- FY 15 Priority Culvert US 160 – Consists of installing a new culvert; construction to begin September 2015.
- US 160 W. Wildlife Crossing at Dry Creek – This is part of the highway safety improvement plan as 75% of accidents in this area are wildlife hits. Wildlife fencing and underpass along with shoulder improvements are part of the project; construction set to begin May 2015.
- US 160 McCabe Creek Pagosa –This project consists of replacing the existing culverts near downtown Pagosa Springs; construction to begin spring 2016.
- FY 15 Bridge Preventative Maintenance – This RAMP project includes maintenance on bridges outside Salida, by Big Sandy Creek, north of Hermosa, north of Ignacio, in Saguache County, and other areas.
- US 291 Cortez to MCR 30 – This project includes relocation of utilities, replacement of storm sewer system, new median islands and street lighting, and repaving with approximately 8 inches of concrete pavement. In addition, there will be a re-alignment of the Lebanon Road with US 491 to improve sight distance and protect turning movements in to and off of this roadway.
- FY 15 Priority Culverts – This project consists of the lining of four existing culverts, may just have to do three, and most on public lands with one on private land. Construction to begin September 2015.

V. Other Business:

Transit Provider Updates

John Egan:

When Archuleta County was last together at Transportation Summit meeting, there was a significant turnout of around 30 people. Transit between Archuleta County and Durango for medical needs was most of the discussion. The conversation helped identify needs and how to move forward to implement actions to meet those needs.

Community Updates – Round Robin

Rodney Class-Erickson:

- The Southern Ute Indian Tribe (SUIT) is on the verge of doing a long-range transportation update and tribal traffic safety planning. This will include county and state roads and will kick off the first part of May. A discussion list is being put together to present to consultants help verify the areas of concern that are in exterior boundaries of reservation. If you have items for this discussion list Edward Box III will be the prime mover and can be contact at 970-563-4749. You may also contact Rodney himself. The SUIT wants to establish a standing committee will tribal community members but feels it would be beneficial to have outsiders involvement. Timeline for this endeavor goes to the end of November.

Regina Whiteskunk:

- In the last month, the Ute Mountain Ute Tribe (UMUT) passed a resolution to continue to advocate for STAC voting seats.
- In order to be a part of a long-term transportation plan an RFP was issued on March 9 to update this plan that has a deadline of April 6.

Chis La May:

- The town of Bayfield is working on bridge replacement that should be underway in the fall 2015.
- Currently wrapping up the access control plan; needing to execute IGAs.
- There is a small cracked seal program going on.

Phillip Johnson:

- Currently going through IGA process; the city and CDOT are to sign IGAs.

Keenan Ertel:

- On CR G, Camel Canyon road, there is a 5-mile grind and resurface project going on.

Bentley Henderson:

- At Archuleta County airport there is only one taxi strip for takeoff and landing Efforts are underway to build a parallel taxi way. Bids have been opened for this $4.3 million project. There was supposed to be $6.5 million but now funds are down to $4.3 million.
- Efforts to start work on bridge replacement off highway 84 are underway
- The annual mag project for all county roads will begin soon.

Lee San Miguel:

- The town of Ignacio is currently waiting on the drilling and contamination water results.
- Ignacio is starting some dialogue with county on CR 320B expansion. With this expansion, there will need to be an alternate route to the top of the mesa as busses will need to get up to the school.

Greg Schulte:

- Currently working with CDOT on a sidewalk project along 160
- Bids will open on April 23 for a surfacing project.
- Pagosa Springs is looking at traffic flow through down town and potentially looking at restriping and making more efficient.

- Cape creek project is a big deal because it will happen downtown, which will create a significant impact on commerce in downtown area. All everts will be made to provide assistance to businesses and residents.

Kevin Hall:

- There is a planning analysis of North Main Avenue underway. A grant has been received to do a bike/ped mobility in the corridor. ADA accessibility is also being evaluated.
- Recently, an IGA was signed to work with La Plata County and CDOT on an update to the transportation modeling plan. (2030 TRIP)
- A number of trail projects are continuing.

Nancy Shanks:

- If you cannot make it to the Stand Up for Transportation Day on Wednesday, Nancy will be working with Journals if anyone is willing and interested in being in a release to local media and give a quote or even a photo, Nancy would be happy to coordinate a time to meet.

Kevin Hall asked for agenda item requests for the next meeting. A couple of items mentioned include intersection priority report from Mike McVaugh and an update on the Durango La Plata County airport process. If any other agenda items are requested, please email those to Sara Trujillo.

The next meeting date is scheduled for Friday, June 5th.
The meeting was adjourned at 11:13am

Southwest Colorado Council of Governments
Profit & Loss
April 2015

	Apr 15
Income	
4007 · TPR	5,367.10
Total Income	5,367.10
Gross Profit	5,367.10
Expense	
5510 · Travel Exp	519.20
5512 · Meeting Exp	14.54
5527 · Internet & software	44.50
5545 · Equipment/Computers	429.13
5580 · Salary & Wages	615.62
Total Expense	1,622.99
Net Income	**3,744.11**

COLORADO
Department of Transportation

STATE HIGHWAY FREIGHT PLAN

DRAFT - FOR REVIEW ONLY

5/22/2015

PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

CHAPTER I: INTRODUCTION

CHAPTER I KEY POINTS

- Exports from Colorado contribute $79 billion to the Gross Regional Product of the state's economy.
- Development of a State Highway Freight Plan is a two-phased process that is MAP-21 compliant and fosters STAC, TRAC, and FAC collaboration.
- Freight Corridors have been identified for Colorado with input from the freight industry, and other key stakeholders will provide input prior to this Plan being finalized.

The reliable movement of goods affects our daily lives. Almost every item in our homes and every product on our store shelves have been transported as freight. Every commercial enterprise requires resources delivered as freight, whether it be raw materials, or finished products to serve its clientele. The necessities of the modern world, so readily available, are delivered through a complex system of sourcing, production, and transportation that spans states, countries, and the globe. Perhaps most importantly, every shipment of goods provides tangible economic benefits to Colorado's people, businesses, communities, and the broader state economy.

Freight movement is closely connected to the health of our economy and the transportation system in our state. The Colorado Freight System, which includes highways, rail lines, airports, and other intermodal facilities, delivers goods, creates jobs, and provides economic opportunities to people across the state. The transportation and warehousing sector in Colorado contributed $5.9 billion to Colorado's Gross Regional Product (GRP) in 2012 (source: OEDIT 2013). GRP is a state level indicator that is similar to the Gross Domestic Product at the national level. Although representing only 2.5% of the state's GRP, the transportation and warehousing sector is vital to the success of Colorado's economy, because it provides a critical link to almost every other industry. A number of Colorado's key industries, including agriculture, energy development, and the aerospace industry, rely heavily on the movement of freight in order to produce and deliver their products to market in a timely and cost-effective manner. Businesses transport their products within the state and export goods to other states and countries. Exports from Colorado contribute approximately $79 billion to Colorado's $262 billion GRP each year (source: CDOT, Economic Valuation of the State Highway System, 2013).

Freight will continue to serve a vital need in the future. Colorado's population is projected to grow to over 7.8 million residents by 2040 (source: Colorado State Demographers Office, 2013), meaning that more freight movement will become necessary to meet the demand for goods and services. Given that a great majority of this growth is expected to occur within the I-25 and I-70 corridors, and that highway expansion is not likely to occur, congestion will continue to be a challenge for freight movement in the future. When these projections are combined with economic growth in key industries, it is clear that Colorado's future economic vitality relies on the continuation of a well-functioning and integrated statewide freight system. In order to make this a reality, we need to start planning now.

PHASED APPROACH

The Colorado Department of Transportation (CDOT) is developing its freight plan in two phases in order to:

- Collect and analyze data on highway freight and freight industry needs.
- More quickly position itself for the increased federal share for freight funding under MAP-21 (MAP-21 is described in more detail in Chapters II and III). The increased federal share reduces the local match requirement for eligible projects, but does not increase the total amount of federal funding received by the state.
- Provide additional opportunity to work with key stakeholders, industry, and planning partners (members of Metropolitan Planning Organizations [MPOs] and rural Transportation Planning Regions [TPRs]) to integrate highway freight, freight rail, and aviation modes, incorporate additional input, identify coordinated strategies, and develop an implementation plan.

Phases will occur as follows:

- Phase I (State Highway Freight Plan):
  - Collect and analyze data.
  - Engage freight industry to identify needs.
  - Develop the State Highway Freight Plan to meet MAP-21 requirements and submit to FHWA.

- Phase II (Integrated Freight Plan):
  - Develop approach to integrate highway freight planning with freight rail and aviation planning.
  - Continue to work with key stakeholders and planning partners to incorporate additional input, strategies, and develop an integrated implementation plan.
  - Re-establish industry engagement via the Freight Advisory Committee (FAC) and expand membership to other key stakeholders and planning partners, including the Statewide Transportation Advisory Committee (STAC) and the Transit and Rail Advisory Committee (TRAC). See Chapter IV for more details on key stakeholders and planning partners.
  - Develop freight strategies integrating highway freight, freight rail, and aviation.

FREIGHT RAIL AND AVIATION

This State Highway Freight Plan, developed as part of Phase I, focuses on freight movement primarily along Colorado's state highways. The other freight modes -- rail and aviation -- will be integrated further during Phase II of the freight planning process. Pipelines are another freight mode in Colorado and are regulated by the Public Utility Commission (PUC) and the Pipeline Hazardous Material Safety Administration (PHMSA). Currently, freight activities on non-highway modes are addressed in two other statewide plans -- the Colorado State Freight and Passenger Rail Plan of 2012 and the Colorado 2011 Aviation System Plan. These two plans will serve as a resource when integrating rail and aviation into the Phase II plan.

COLORADO'S STATE HIGHWAY SYSTEM

CDOT's mission is to:

To provide the best multi-modal transportation system for Colorado that most effectively and safely moves people, goods, and information.

Colorado's State Highway System, depicted in Figure 1, includes 9,104 centerline miles and more than 23,000 total lane miles. CDOT is responsible for the construction, maintenance, and operations of this State Highway System, which also includes 3,454

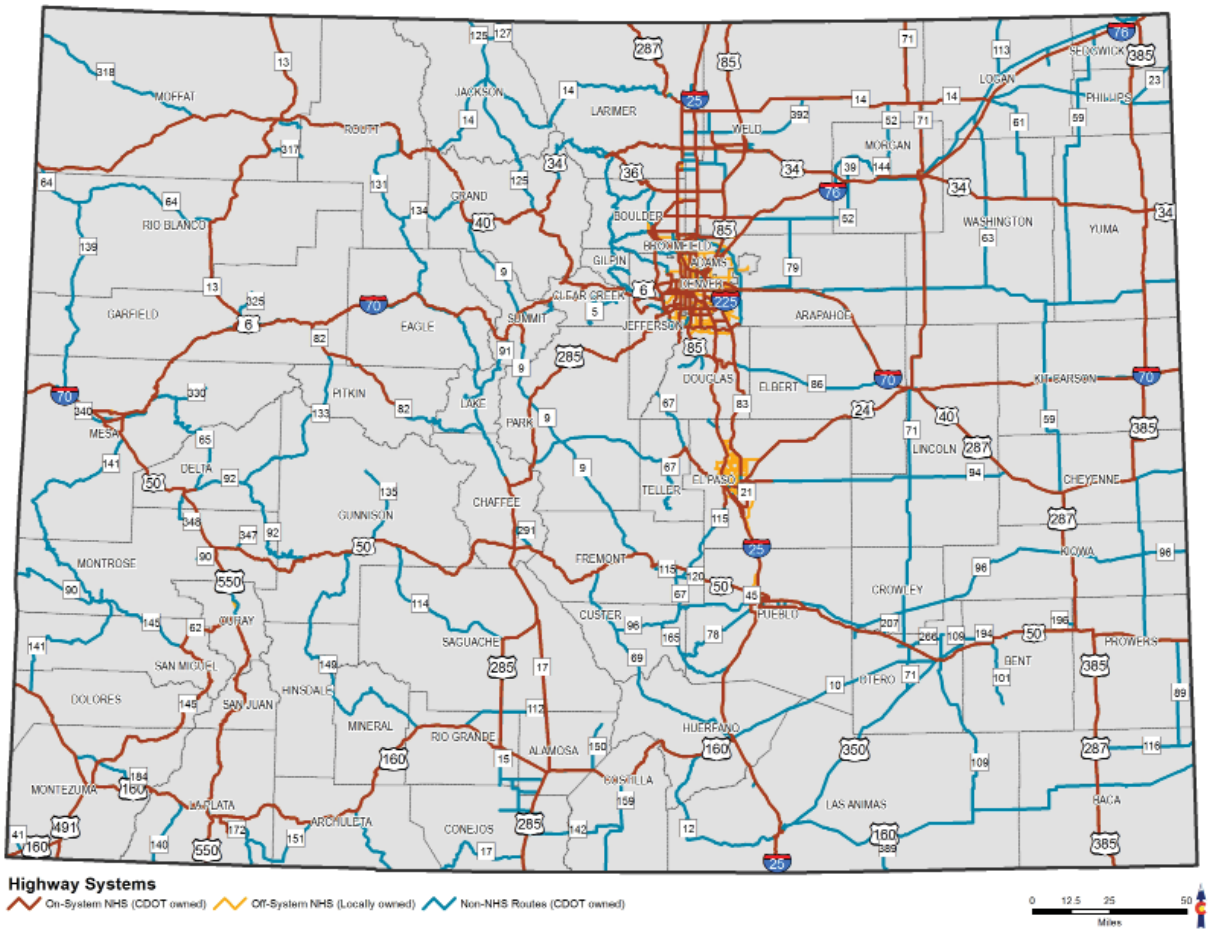


Figure 1: Colorado State Highway System *Source: CDOT, 2013*

bridges, 21 tunnels, 6,064 culverts, and 35 year-round mountain passes. The entire system spans a wide variety of landscapes and elevations, and often experiences extremes of temperature and weather.

The State Highway System, as defined in this plan, includes all of the highways that CDOT owns, operates, and maintains.

A subset of the State Highway System includes a portion of the National Highway System (NHS). NHS facilities are routes designated as important to the nation's economy, defense, and mobility. NHS facilities can be either on-system (CDOT owned, operated, and maintained) or off-system (locally owned and maintained by cities and counties). The off-system NHS routes are not part of the State Highway System.

The State Highway System includes:

NHS On-System routes, which include all of the Interstates (i.e., I-70, I-25), various US Highways (i.e., US 40, US 50) and certain State Routes (i.e., SH 13, SH 71). Colorado NHS on-system routes total approximately 4,423 highway miles.

Non-NHS routes, which are US Highways and State Routes that are not designated on the NHS but are owned, operated, and maintained by CDOT. A few US Highways are not on the NHS; for example US 350 and a portion of US 160. State Routes, for example sections of SH 318, and SH 149 are additional highways not on the NHS that are owned, operated, and maintained by CDOT, and provide important state connections between cities, towns, and other highways. Colorado Non-NHS routes total approximately 4,680 highway miles. The State Highway System includes roadways in both rural and urban areas, many of which serve as main streets or key arterial roads in local communities. Colorado's State Highway System has approximately 9,104 highway miles of which: 952 miles are interstates, 3,497 miles are US Highways, and 4,654 miles are State Routes.

Local roads and NHS facilities not on the State Highway System include:

the remaining roads throughout the state that CDOT does not own, operate or maintain. Local roads are generally the responsibility of the local cities and counties. However, certain local roads are part of the NHS, and receive federal transportation funding for improvements. Some of these local roads are labeled Off-System NHS, because they are not part of the State Highway System as defined above. Local roads in Colorado total approximately 12,068 highway miles, including 485 miles of Off-System NHS routes. Many local roads are neighborhood streets with low traffic volumes.

Intermodal connectors are state highway and other off-system roadways that provide access to major intermodal freight facilities. FHWA has identified 15 such facilities in Colorado that include airports, truck/rail facilities, and truck/pipeline facilities. These facilities are presented and described in Figure 2 and Table 1.

The incorporation of intermodal facilities and other facilities (i.e., NHS) that support the movement of freight, but are not part of the State Highway System will be a key topic covered during the development of the Integrated Freight Plan, Phase II of the freight planning process.

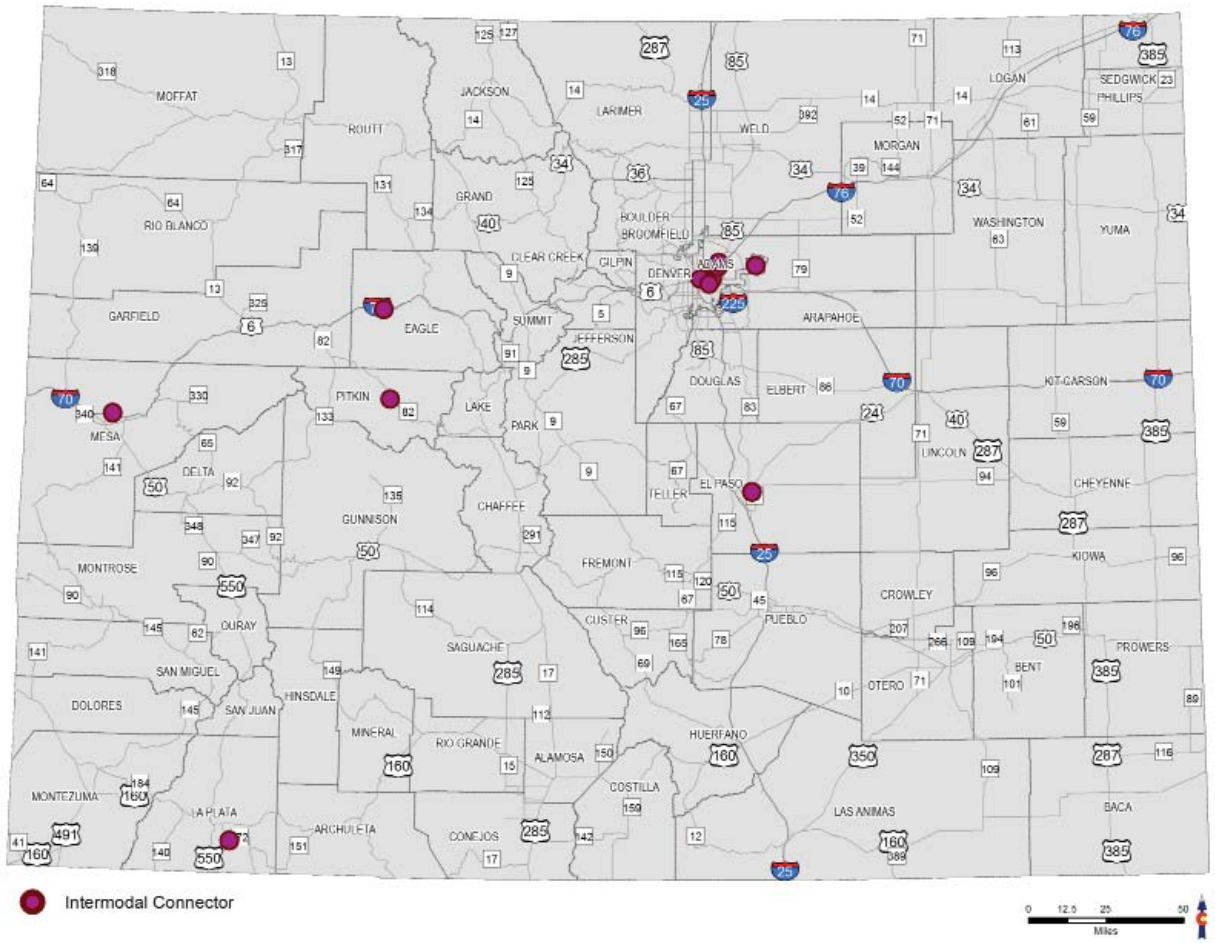


Figure 2: Colorado Intermodal Connectors *Source: CDOT, 2014*

Table 1: Intermodal Connectors

FREIGHT FACILITIES SERVED BY INTERMODAL CONNECTORS	INTERMODAL TYPE
ASPEN-PITKIN COUNTY AIRPORT	AIRPORT
BURLINGTON NORTHERN RR AUTO TRANSFER	TRUCK/RAIL FACILITY
BURLINGTON NORTHERN RR TRANSFER FACILITY	TRUCK/RAIL FACILITY
COLORADO SPRINGS AIRPORT	AIRPORT
CONOCO PIPELINE TRANSFER	TRUCK/PIPELINE TERMINAL
DENVER INTERNATIONAL AIRPORT	AIRPORT
DURANGO-LA PLATA COUNTY AIRPORT	AIRPORT
EAGLE COUNTY REGIONAL AIRPORT	AIRPORT
KANEB PIPELINE TRANSFER	TRUCK/PIPELINE TERMINAL
PHILLIPS PIPELINE	TRUCK/PIPELINE TERMINAL
SOUTHERN PACIFIC RR TRANSFER FACILITY	TRUCK/RAIL FACILITY
TOTAL PETROLEUM PIPELINE TERMINAL	TRUCK/PIPELINE TERMINAL
UNION PACIFIC RR AUTO TRANSFER	TRUCK/RAIL FACILITY
UNION PACIFIC RR TRANSFER FACILITY	TRUCK/RAIL FACILITY
GRAND JUNCTION REGIONAL AIRPORT	AIRPORT

FREIGHT CORRIDORS

Freight on Colorado's State Highway System is key to Colorado's economic prosperity because it represents the economy in motion. Efficient and reliable truck deliveries allow businesses, residents, and visitors to get the right products to the right people at the right time at a reasonable cost. If freight stops, the economy stops.

During Phase I, Freight Corridors on the State Highway System were identified using criteria based on:

- Annual Average Daily Truck Traffic (AADTT)
- Percentage of Trucks
- Truck Throughput
- Roadway Classification
- Urban or Rural Classification
- Network Connectivity
- Industry Stakeholders

Freight industry engagement via the FAC supported this identification effort. See Chapter V for more detailed information on the method used to identify Freight Corridors.

Colorado's Freight Corridors, shown in Figure 3, include 4,156 centerline miles and 12,116 total lane miles. These roadways are considered critical for the interregional, intrastate, interstate, and national movement of freight, and they include the entirety of the state's interstate highways (I-25, I-70, and I-76), roughly 87% of the state's on-system NHS roadway, all four High Priority Corridors as defined by the Intermodal Surface Transportation Efficiency Act (ISTEA) (the 1991 federal authorization bill for transportation), and those primary and secondary roads providing access to the state's 15 multimodal connectors. Elements of the Freight Corridor System: Federally Designated High Priority Corridors, intermodal connectors, and other attributes of the Freight Corridors are discussed in more detail in Chapter V. See Appendix A for information on facilities with national freight designations.

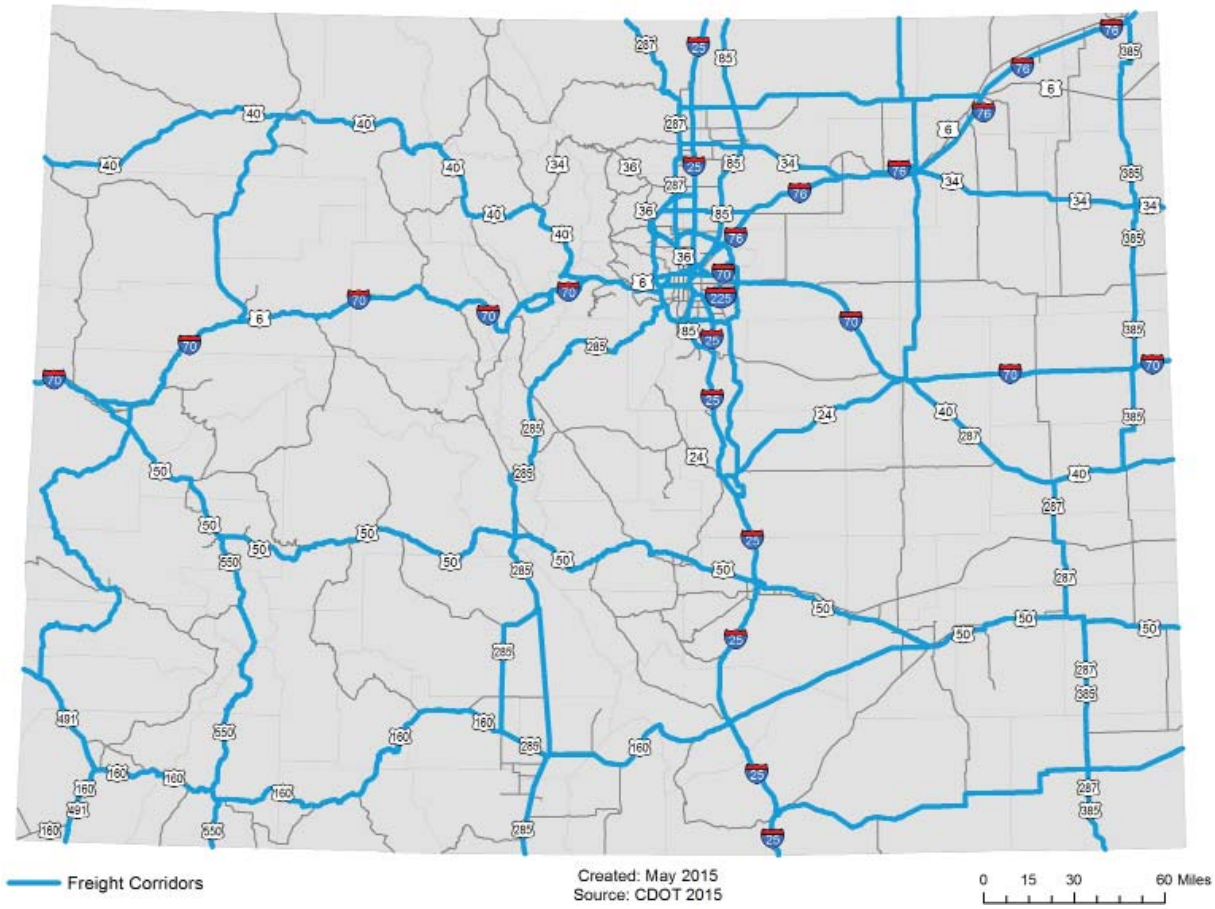


Figure 3: Colorado Freight Corridors

PAGE INTENTIONALLY LEFT BLANK

CHAPTER II: PURPOSE OF THE STATE HIGHWAY FREIGHT PLAN

CHAPTER II KEY POINTS

- An increased federal share under Moving Ahead for Progress in the 21st Century (MAP-21) (82.79% up to 95%), permits freight projects to receive a higher percentage of the existing federal dollars states receive to go to projects that improve freight movement.
- A vision, goals and objectives for Colorado's freight system are outlined in this Plan.
- Strategies have been identified to help CDOT meet the objectives of this Plan. An implementation framework and performance measures to track Plan progress has been developed.

This Plan is intended to guide improvement of the overall effectiveness of the Colorado Freight System and support the vision of a safe, efficient, coordinated, and reliable system for the movement of freight.

This State Highway Freight Plan complies with the most recent transportation legislation MAP-21, and positions CDOT to become eligible for an increased federal share (from 82.79% up to 95%) for freight funding. The increased federal share reduces the local match requirement for eligible projects, but does not increase the total amount of federal funding received by the state. MAP-21 requires states to have a freight plan as a condition for applying for increased freight funding in the future. More details on MAP-21 and its requirements for a freight plan are provided in Chapter III.

The development of the Plan was also guided by state planning regulations, specifically the 2009 Funding Advancements for Surface Transportation and Economic Recovery (FASTER) Act. FASTER outlined seven key planning factors to be addressed by CDOT, one of which is "effective, efficient, and safe freight transport." The seven FASTER planning factors are as follows:

VISION

The Colorado Freight System will support the economic vitality of the state by providing for the safe, efficient, coordinated, and reliable movement of freight.

GOALS

Improve the SAFETY of the Colorado Freight System.

Improve the MOBILITY of the Colorado Freight System.

Improve ECONOMIC VITALITY through freight investment, programs, and initiatives.

Improve MAINTENANCE of the Colorado Freight System.

Improve SUSTAINABILITY and reduce ENVIRONMENTAL impacts of freight movement.

- Preservation of the existing transportation system infrastructure
- Safety enhancement
- Strategic mobility and multimodal choice
- Support of urban or rural mass transit
- Environmental stewardship
- Effective, efficient, and safe freight transport
- Reduction of greenhouse gas emissions

In addition to these federal and state requirements, more specific objectives were developed through plan scoping meetings and discussions with freight industry stakeholders. The objectives provide a framework for how the Plan will be implemented and how it will be used in relation to other CDOT plans. Further refinement of implementation strategies will occur during development of the Integrated Freight Plan for Phase II.

Objectives of the State Highway Freight Plan by goal area are:

SAFETY:

- Reduce the number of fatalities and serious injuries on Freight Corridors.
- Reduce truck crashes on Freight Corridors and in commercial vehicle crash hot spots.
- Reduce the number of truck crashes statewide.

MOBILITY:

- Limit increases in congestion and increase travel reliability (as measured by Planning Time Index).
- Improve connectivity between freight facilities and destinations.
- Mitigate non-recurring congestion and improve travel time by reducing crashes on Freight Corridors and improving clearance time.
- Address highway geometric issues affecting freight safety and movement.

ECONOMIC VITALITY:

- Support freight decision-making through expanded analysis, dissemination, and use of data and industry trends in the planning process.
- Identify freight investments, programs, and initiatives that enhance the competitiveness of the Colorado Freight System.

MAINTENANCE:

- Improve bridge and pavement condition on Freight Corridors.
- Maintain auxiliary assets (lights, signage, tunnels, culverts, etc.) on Freight Corridors.

SUSTAINABILITY AND ENVIRONMENT:

- Improve the energy efficiency of freight movement and reduce the associated levels of greenhouse gas emissions.
- Improve the sustainability of the freight system in the face of natural disasters and extreme weather events.

PLAN INTEGRATION

This Plan focuses on freight movement primarily on the State Highway System, connectivity between modes, and integration of key goals, objectives, and strategies from the 2040 Statewide Transportation Plan with those of CDOT's other modal and topical plans, including:

- Statewide Transit Plan
- Strategic Highway Safety Plan
- Transportation Systems Management and Operations Plan
- Freight and Passenger Rail Plan
- Bicycle and Pedestrian Plan
- Aviation Plan
- Risk-Based Asset Management Plan
- CDOT Action Plan

This Plan includes a vision for the Colorado State Highway Freight System and outlines issues and opportunities related to the safety, mobility, connectivity, economic vitality, system maintenance, and environmental aspects of the freight sector. It then proposes improvement and policy strategies to achieve the goals and objectives for each of these areas and provides an implementation framework and performance measures to track progress made. See more details on the strategies, and performance measures in Chapters VI and VII. See more information regarding the implementation framework in Chapter VIII.

CHAPTER III: NATIONAL FREIGHT POLICY AND REQUIREMENTS

CHAPTER III KEY POINTS

- MAP-21 Section 1116 established a national freight policy.
- Seven national freight policy goals and six plan content requirements are identified in the MAP-21 regulations.

MAP-21 Section 1116 established a national freight policy, creating a framework for the federal government and state transportation departments for future freight transportation planning, programs and decision making. It states that:

"It is the policy of the United States to improve the condition and performance of the national freight network to ensure that the national freight network provides the foundation for the United States to compete in the global economy and achieve each goal described in subsection (b)…" 23 U.S. Code § 167.

The goals of the national freight policy (described in subsection (b) of 23 U.S. Code § 167) are:

- To invest in infrastructure improvements and to implement operational improvements that:
  - Strengthen the contribution of the national freight network to the economic competitiveness of the United States;
  - Reduce congestion;
  - Increase productivity, particularly for domestic industries and businesses that create high-value jobs;
- To improve the safety, security, and resilience of freight transportation;
- To improve the state of good repair of the national freight network;
- Use advanced technology to improve the safety and efficiency of the national freight network;

- To incorporate concepts of performance, innovation, competition, and accountability into the operation and maintenance of the national freight network;
- To improve the economic efficiency of the national freight network; and
- To reduce the environmental impacts of freight movement on the national freight network.

FREIGHT PLAN REQUIREMENTS

MAP-21 further established freight plan requirements in alignment with the national freight policy. MAP-21 freight plan requirements include:

Requirement 1: An identification of significant freight system trends, needs, and issues with respect to the State.

Requirement 2: A description of the freight policies, strategies, and performance measures that will guide the freight-related transportation investment decisions of the State. MAP-21 has identified two freight related performance measures which will be implemented when guidance is finalized by FHWA: Hours of Truck Delay and Truck Reliability Index.

Requirement 3: The Plan should improve the ability of the State to meet the national freight goals established under section 167 of title 23, United States Code.

Requirement 4: Evidence of consideration of innovative technologies and operational strategies, including intelligent transportation systems that improve the safety and efficiency of freight movement.

Requirement 5: In the case of routes on which travel by heavy vehicles (including mining, agricultural, energy cargo or equipment, and timber) is projected to substantially deteriorate the condition of roadways, a description of improvements that may be required to reduce or impede the deterioration.

Requirement 6: An inventory of facilities with freight mobility issues, such as truck bottlenecks, within the State, and a description of the strategies the State is employing to address those freight mobility issues.

While federal law does not require the states to have freight plans, the inclusion of projects for consideration in a State Freight Plan is an express statutory requirement to be eligible for increased federal share from the normal 82.79 percent to 95 percent for interstate projects that improve freight movement or 90 percent for any other projects that meet the requirements of the legislation. This State Highway Freight Plan will position CDOT for the increased federal share for freight projects. The increased federal share reduces the local match requirement for eligible projects, but does not increase the total amount of federal funding received by the state.

To be eligible for the increased federal share projects must demonstrate an improvement to the efficient movement of freight, including making progress toward meeting performance targets for freight to be established under MAP-21. States should describe how the project makes progress toward achieving the national goal for freight movement and economic vitality stipulated in regulations to improve the national freight network, strengthen the ability of rural communities to access national and international trade markets, and support regional economic development.

The U.S. Department of Transportation (DOT) is required to establish measures for states to use to assess freight movement on the Interstate System, per MAP-21 §1203 and 23 USC 150(c). These freight performance measures are forthcoming. Once these performance measures are identified, each state will be required to set performance targets in relation to the federal measures, and integrate the targets within their planning processes. States will also be required to report periodically on their progress in relation to meeting targets, and on how they are addressing congestion at freight bottlenecks. [§1201, 1203; 23 USC 135(d)(2), 135(f)(7), 150(d)-(e)]. (Source: http://www.fhwa.dot.gov/map21/factsheets/freight.cfm).

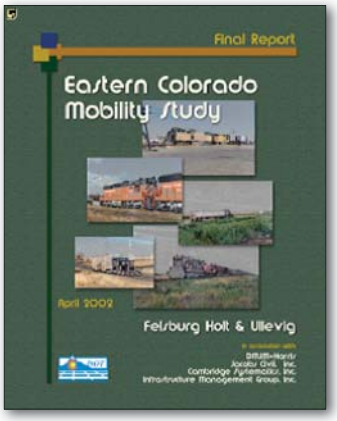
CHAPTER IV: STAKEHOLDER ENGAGEMENT

CHAPTER IV KEY POINTS

- Previous freight planning efforts served as the foundation for the current State Highway Freight Plan development process.
- Stakeholder input and comprehensive freight data were integral in the development of the State Highway Freight Plan.
- Stakeholders' top concerns centered on safety, maintenance, mobility, and support for economic vitality.
- Data analysis was performed to identify current and potential future conditions of the Colorado Freight Corridors.

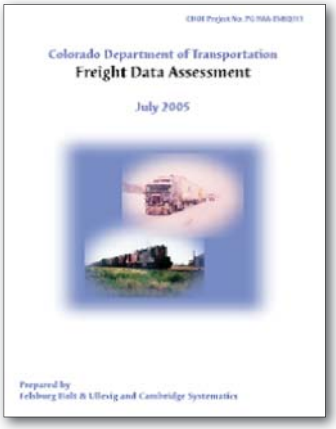
PRIOR FREIGHT PLANNING EFFORTS

CDOT has performed a number of studies and activities in the past that were intended to help address freight issues faced by the state at the time of their publication. These documents served as a resource and foundation for the state's first State Highway Freight Plan, which seeks to build upon their findings and recommendations. The major freight studies and reports utilized during this plan's development process are discussed below.



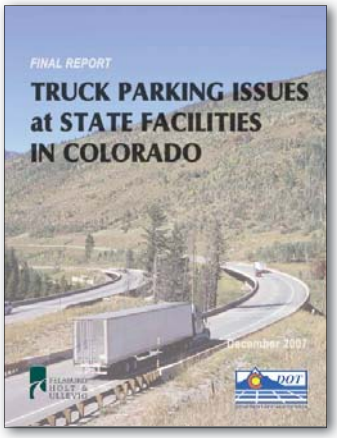
EASTERN COLORADO MOBILITY STUDY (2002)

The Eastern Colorado Mobility Study was conducted to evaluate the feasibility of improving existing and/or constructing future transportation corridors and intermodal facilities to enhance the mobility of freight services within and through eastern Colorado. One of the recommendations of this study was the establishment of a Freight Advisory Committee to support freight planning activities in Colorado, which has since been implemented. Another development related to the document is the recent redevelopment of the two lane US 287 Ports-to-Plains route to a "Super Two" configuration with wider shoulders and more frequent passing lanes.



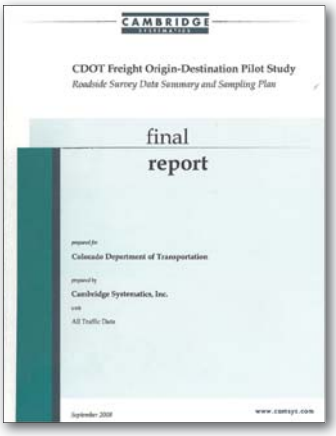
FREIGHT DATA ASSESSMENT (2005)

The Freight Data Assessment's primary objectives were to identify current and future freight data requirements, to assess the availability and the quality of such freight data, and to develop a framework plan to collect, maintain and make available needed freight data. This assessment report recommends the completion of a number of surveys and analyses related to freight flow, economic significance, and origins and destinations of freight traffic. As a result of this study, a pilot Origin and Destination Study was completed in 2008 and is described on this page.



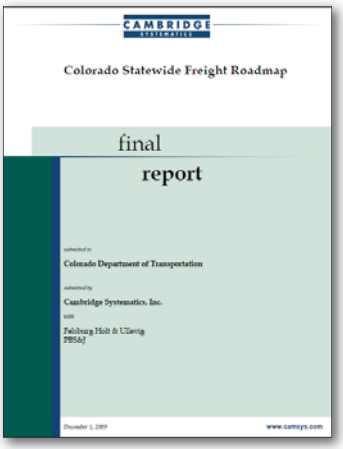
TRUCK PARKING ISSUES AT STATE FACILITIES IN COLORADO (2007)

The Truck Parking Issues at State Facilities in Colorado study was conducted to identify the deficiencies in truck parking throughout Colorado, identify potential public and private opportunities to expand available parking, and make recommendations on alternative policy approaches to the issue. In 2012, CDOT Region 1 produced a Colorado Truck Parking Guide aimed at improving safety and convenience for truck operators on interstates in Colorado, and an update to this effort is one of the strategies recommended in Chapter V of this State Highway Freight Plan.



FREIGHT ORIGIN AND DESTINATION PILOT STUDY (2008)

The Freight Origin and Destination Pilot Study was designed to lay out a framework for future data collection activities related to freight movement within Colorado. This pilot study is considered the first step in the implementation of the Freight Data Assessment that was published in 2005.



COLORADO FREIGHT ROADMAP (2009)

The Colorado Freight Roadmap was developed to determine the current conditions of selected freight-related issues within the state, identify areas in need of improvement, gain consensus on a clear vision for a statewide freight program, and establish goals to realize that vision. It was meant to serve as a roadmap to guide CDOT in the future development of the transportation system and navigate emerging trends with the potential to affect freight movement in Colorado moving forward.

A number of the tasks identified for implementation have been completed in the years since the Freight Roadmap's completion. These include the development of the Statewide Freight and Passenger Rail Plan, the inclusion of freight issues in the CDOT NEPA manual, and a restructuring of the Freight Advisory Committee. Other tasks included in the Freight Roadmap that are currently underway include the development of a Statewide Travel Demand Model, the investigation of the potential for truck stop electrification, and the development of Priority Freight Corridors.

STAKEHOLDER ENGAGEMENT

Stakeholder outreach related to the development of this State Highway Freight Plan during Phase I included activities that occurred in association with the Freight Advisory Committee (FAC) and outreach that occurred during the development of the 2040 Statewide Transportation Plan. Stakeholders that provided input included: the FAC, CDOT staff, Federal Highway Administration staff, Metropolitan Planning Organizations (MPOs), Transportation Planning Regions (TPRs), and the public. The freight-specific goals of the stakeholder outreach were to:

- Better understand the costs to Colorado's economy of a deteriorating freight network
- Identify potential projects that would be most effective in supporting freight movement and the economy, if additional funds were identified
- Solicit input on strategies to make businesses and communities more economically competitive, including the freight sector

FREIGHT ADVISORY COMMITTEE

A Freight Advisory Committee (FAC) was formed in 2013 to provide input on freight industry needs and collect data for Phase I of the freight planning process. The formation of the FAC provided a forum for a discussion of freight needs and issues with industry. The objectives of the FAC upon formation were to:

- Serve as a forum for discussion regarding freight movement and infrastructure in Colorado
- Educate freight interests regarding the local, regional, and statewide transportation planning processes
- Educate the public sector regarding the importance of freight infrastructure improvements throughout the state
- Improve statewide understanding of the importance of freight transportation to the state of Colorado
- Assist in the development of the State Highway Freight Plan

The membership of the FAC constituted a wide array of stakeholders with interest in freight. The following industries and groups were represented on the FAC:

- BNSF Railway
- Colorado Motor Carriers Association
- Colorado State Patrol
- Colorado Wyoming Petroleum Marketers Association
- Denver International Airport
- Colorado Office of Economic Development and International Trade
- OmniTrax
- Port-to-Plains Alliance
- Union Pacific Railroad
- University of Denver

The FAC worked with staff to identify a freight vision, and develop goals, objectives, and strategies to implement the Plan. The continued participation of industry through the FAC, and the participation of stakeholders from the TPRs and MPOs will be critical to implementation of the Plan.

CONSISTENT FAC THEMES

Consistent themes which came from the discussions with the FAC included the need for:

- Improved intermodal connectivity.
- Resolution to last-mile (the last leg of the trip required for final delivery of goods) issues including but not limited to: limited parking opportunities especially in downtown areas, and safety concerns related to making deliveries in congested areas.
- Increased collaboration between the public and private sectors.

In Phase 2, which includes the development of the Integrated Freight Plan, a FAC including freight industry representatives and a broader group of freight stakeholders, including CDOT's planning partners, will convene to guide the process of the integration of other freight modes, and identify implementation actions for the Integrated Freight Plan.

TRANSPORTATION PLANNING REGIONS AND METROPOLITAN PLANNING ORGANIZATIONS

Stakeholders from Colorado's 10 Transportation Planning Regions (TPRs) and five Metropolitan Planning Organizations (MPOs) provided additional input during the development of the 2040 Statewide Transportation Plan. This coordination took the form of participation in periodic regional plan development meetings in communities statewide as well as presentations and discussion with the Statewide Transportation Advisory Committee (STAC), which is composed of representatives from each TPR and MPO. Colorado's 10 TPRs and five MPOs are as follows, and are depicted graphically in Figure 4.

- Central Front Range TPR
- Eastern TPR
- Gunnison Valley TPR
- Intermountain TPR
- Northwest TPR
- San Luis Valley TPR
- South Central TPR
- Southeast TPR
- Southwest TPR
- Upper Front Range TPR
- Denver Regional Council of Governments (DRCOG)
- Grand Valley MPO (GVMPO)
- North Front Range MPO (NFRMPO)
- Pikes Peak Area Council of Governments (PPACG)
- Pueblo Area Council of Governments (PACOG)

As part of this 2040 Statewide Transportation Plan development, CDOT and its TPR and MPO planning partners engaged in an extensive and multifaceted public outreach effort to better understand the needs and desires of the public at large, including those related to freight issues. Between 2013 and 2014, over 60,000 Coloradans participated in this outreach effort, which employed a variety of approaches discussed below.

- Press releases, newspapers, radio, public access TV announcements, and letters to the editor
- 2040 Statewide Transportation Plan website: www.ColoradoTransportationMatters.com
- Public surveys – online and hard copy
- Online mini-polls
- Environmental webinars with transportation planning regions, state and federal agencies, and environmental advocacy groups
- 16 Telephone Town Halls – interactive public meetings conducted over the telephone and hosted by local officials and Colorado Transportation Commissioners
- Public meetings with the TPRs and MPOs

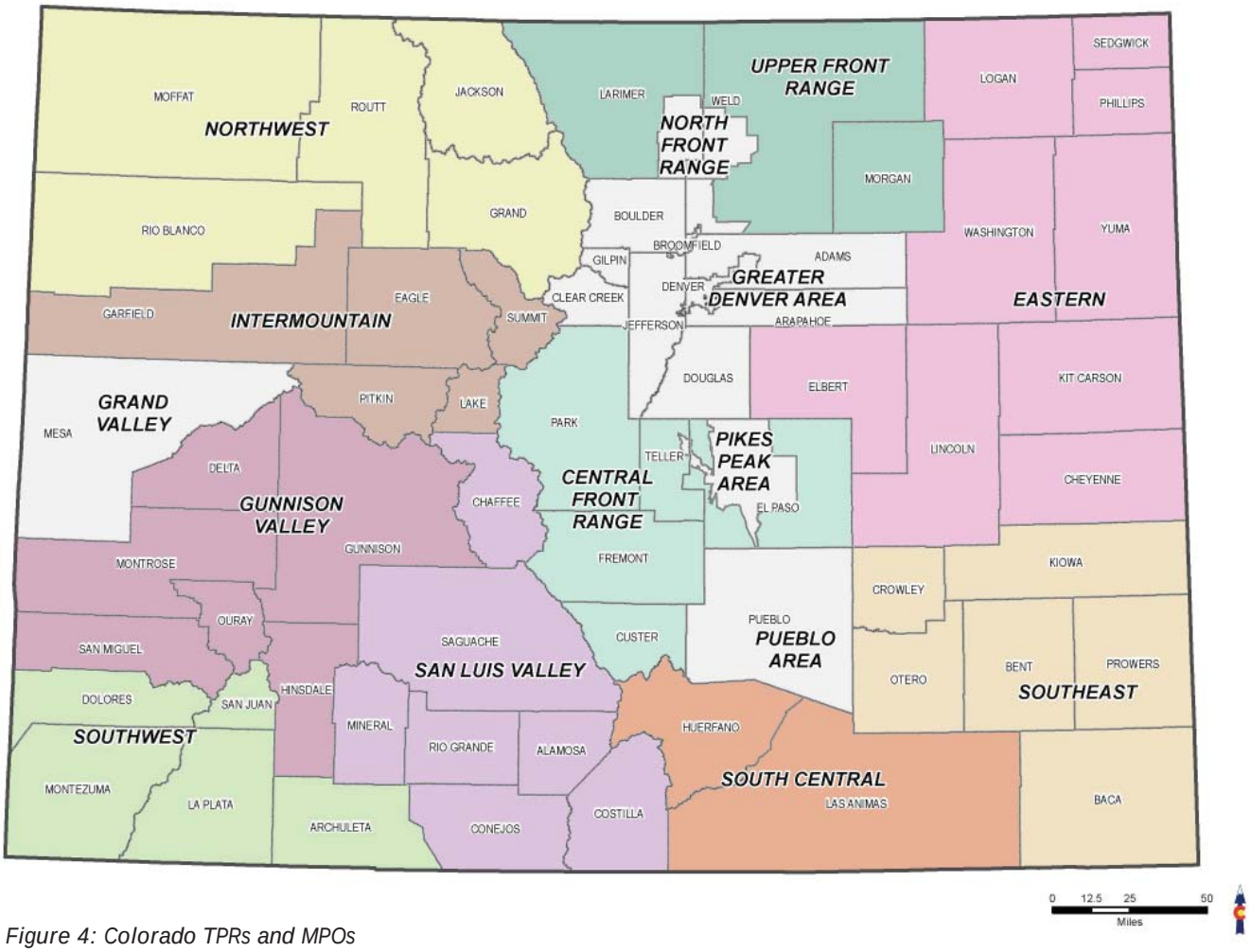


Figure 4: Colorado TPRs and MPOs

CONSISTENT REGIONAL THEMES

Consistent themes which came from MPO and TPR Telephone Town Halls and TPR meetings included:

- More work is needed at the regional level to identify freight bottlenecks, factors hindering freight movement, and the importance of freight corridors to the entire state
- Multi-state freight corridors are important to the state and regional economies and should be prioritized for improvements
- Reliability of freight movement enables many regional businesses to compete in global markets
- Many planned highway improvements will benefit the movement of truck freight
- Air is vital to regional businesses to bring in shipments of important components and enable client and employee travel
- TPRs and MPOs could facilitate the creation of more or improved freight intermodal transfer points (train/truck, truck/train, and truck/plane)
- Truck freight is very sensitive to consumer demand and economic activities
- Mitigation of impacts of freight movement on communities and highways is needed, particularly because freight movement is increasing and trucks are getting larger and hauling heavier loads

CONSISTENT STATEWIDE THEMES

Through these statewide planning outreach efforts, CDOT received public feedback on all aspects of transportation in Colorado. Much of this stakeholder input related, directly or indirectly, to the topic of freight. Some of the most common themes included:

- Coloradans see a clear connection between the transportation system and the economic vitality of their area and the state
- Freight movement was a common concern among participants in Telephone Town Halls and public surveys statewide
- A majority of public survey respondents consider "the safe movement of people and goods" as the most important goal of the transportation system
- Reducing congestion was an important priority highlighted by public surveys
- Coloradans' top priorities in light of limited funding are maintaining the existing transportation system and improving highway pavement

PURPOSES OF KEY STAKEHOLDER INPUT

The FAC provided input related specifically to freight industry issues. In addition, multiple public outreach activities occurred during the development of the 2040 Statewide Transportation Plan , and the 10 rural Regional Transportation Plans. These activities included collecting public sentiment on freight-related issues. Stakeholders provided input on:

- Regional Priority Corridors
- Statewide Priority Corridors
- Freight Vision, Goals, and Objectives
- Identification of Freight Corridors
- Identification of Potential Freight Project Areas
- Freight Implementation Strategies

PHASE II ENGAGEMENT

Future coordination strategies with the FAC, STAC, and TRAC will be identified during Phase II of the freight planning process that will develop implementation strategies, and incorporate rail and air freight in the final document. A framework for the implementation plan can be found in Chapter VIII.

PAGE INTENTIONALLY LEFT BLANK

CHAPTER V: FREIGHT DATA AND TRENDS

CHAPTER V KEY POINTS

- Four Federally Designated High Priority Corridors are: the Heartland Expressway from Denver/Limon to Rapid City, SD; Ports to Plains from Loredo, TX to Denver, CO; Camino Real from EL Paso, TX to the Canadian border; and the High Plains from Newton, KS to Pueblo, CO.
- The heaviest amount of truck vehicle miles traveled occurs on the interstates, I-25, I-70, and I-76.
- Sideswipes are the most frequent type of crashes for trucks.
- Colorado's top commodities are: by tonnage, gravel/sand, broken stone or riprap, and ready-mix concrete; by value, field crops, petroleum refining products, and missile or space vehicle parts.
- Trucks represent the highest mode share for moving freight for both imports and exports.

This chapter presents Colorado freight data collected and analyzed during Phase I of the freight planning process for the State Highway Freight Plan. Information described includes: Freight Corridor identification and infrastructure, infrastructure condition, system performance, regional variations, safety, freight facilities that enhance safety and mobility, freight movement by mode, top commodities produced in Colorado, freight and the economy, and emerging challenges and trends.

FREIGHT CORRIDOR IDENTIFICATION

Freight Corridors were identified based on several factors described below including input from the freight industry and other stakeholders.

FACTORS CONSIDERED

The following factors were used to identify potential candidates for further analysis and consideration as Freight Corridors.

- Federally Designated High Priority Corridors: Federally Designated High Priority Corridors were identified as part of the ISTEA in 1991 to promote collaborative planning along corridors. All Federally Designated High Priority Corridors were included on the Freight Corridor System. See Figure 5: Federally Designated High Priority Corridors. See Appendix B for a list of studies completed at CDOT on Federally Designated High Priority Corridors.
- Interstate Highways: All interstate highways were included on the Freight Corridor System. Because of the order of magnitude of freight movement carried along the interstates, these routes were not analyzed along with the other potential routes.
- National Highway System (NHS): All on-system NHS system facilities were considered. See Figure 6: NHS Facilities in Colorado.
- Expressways and Principal Arterials: Expressways in urbanized areas and principal arterials in rural areas were considered, as these classifications of roadway typically serve through traffic rather than local traffic.
- Hazardous Materials Routes: Hazardous materials routes were considered as they have been designated as routes to be used by a subset of commercial vehicles. See Figure 7: Hazardous Materials Routes in Colorado
- Other On-System Routes: Additional on-system routes were considered for connectivity to adjacent regions.
- Annual Average Daily Truck Traffic (AADTT)
- Percent of truck traffic (Off-Peak) compared to all vehicles

See Figures 8 and 9 for details on AADTT and Percent of Truck Traffic (Off-Peak Hours) in Colorado.

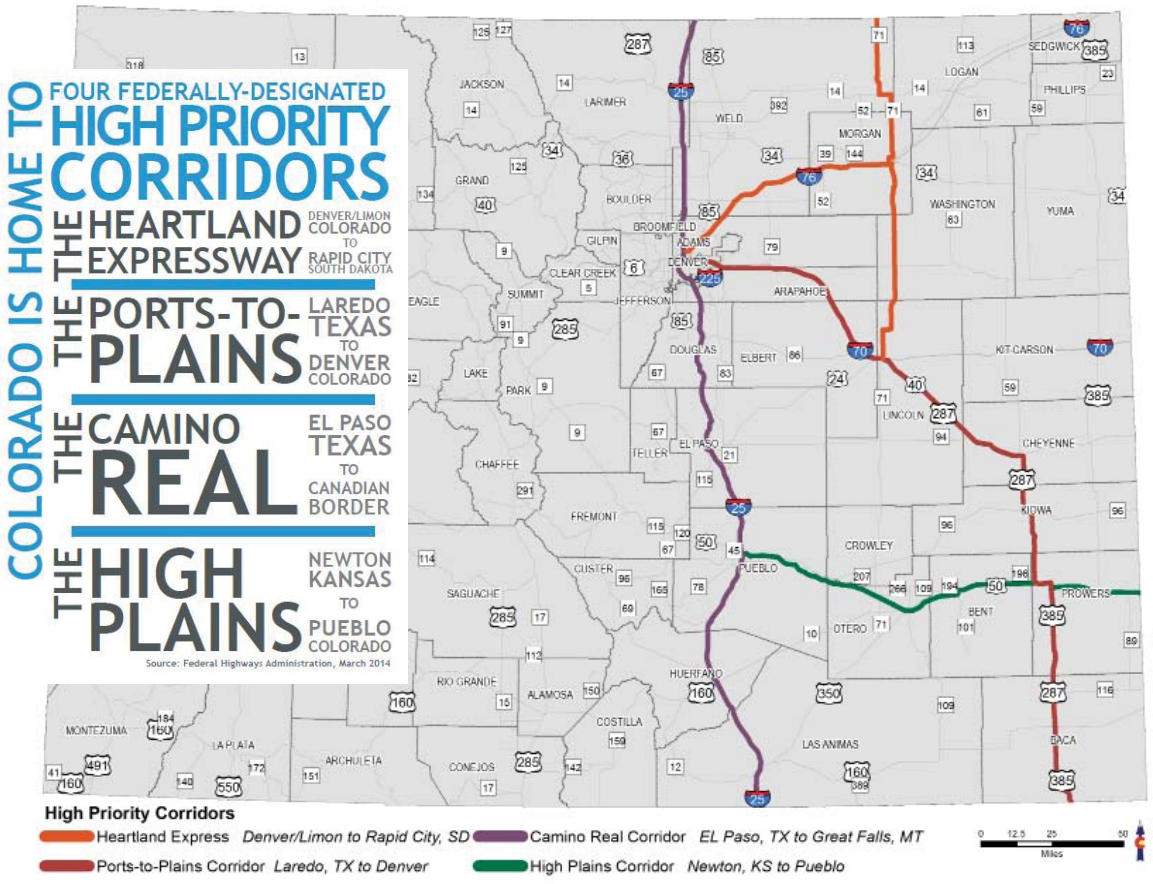


Figure 5: Federally Designated High Priority Corridors *Source: CDOT, 2014*

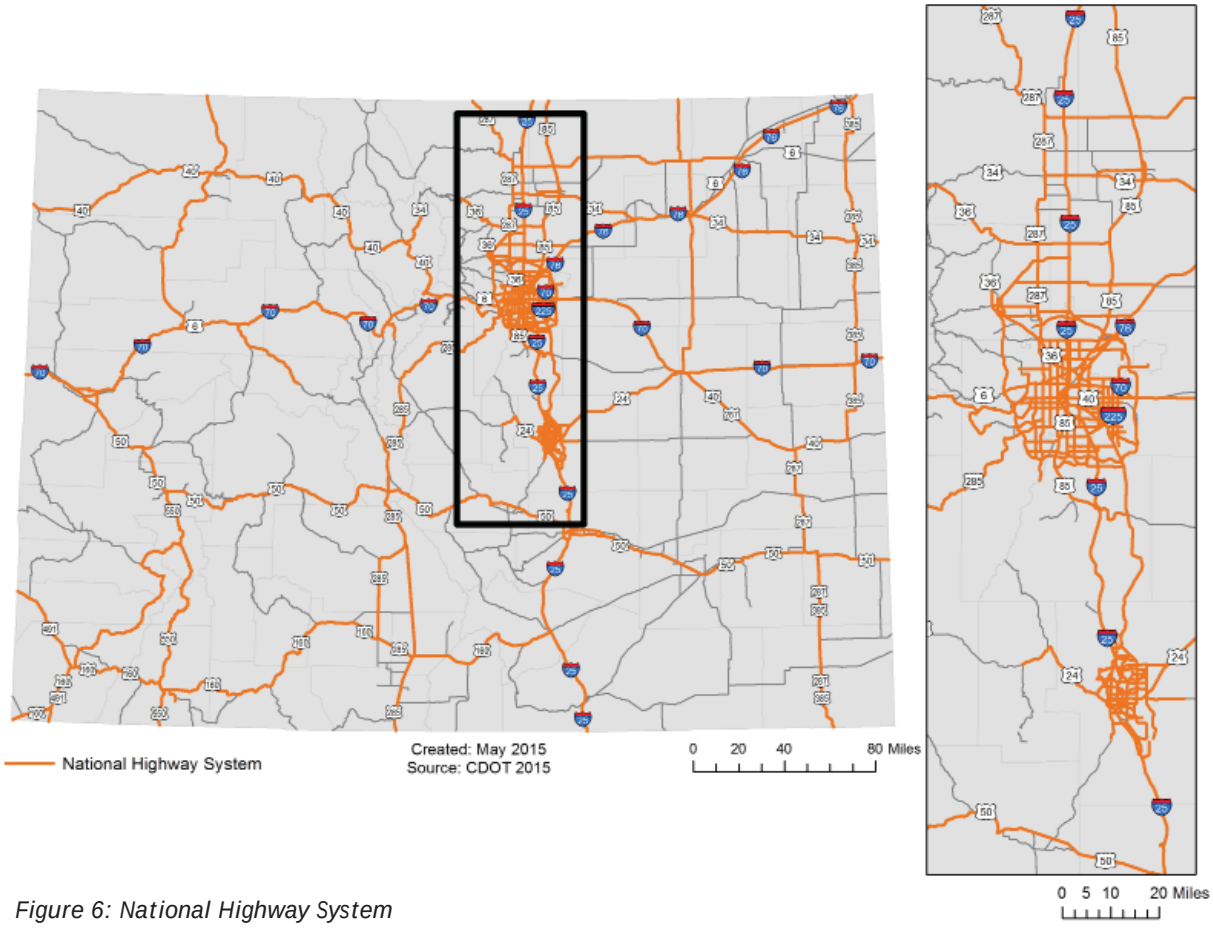


Figure 6: National Highway System

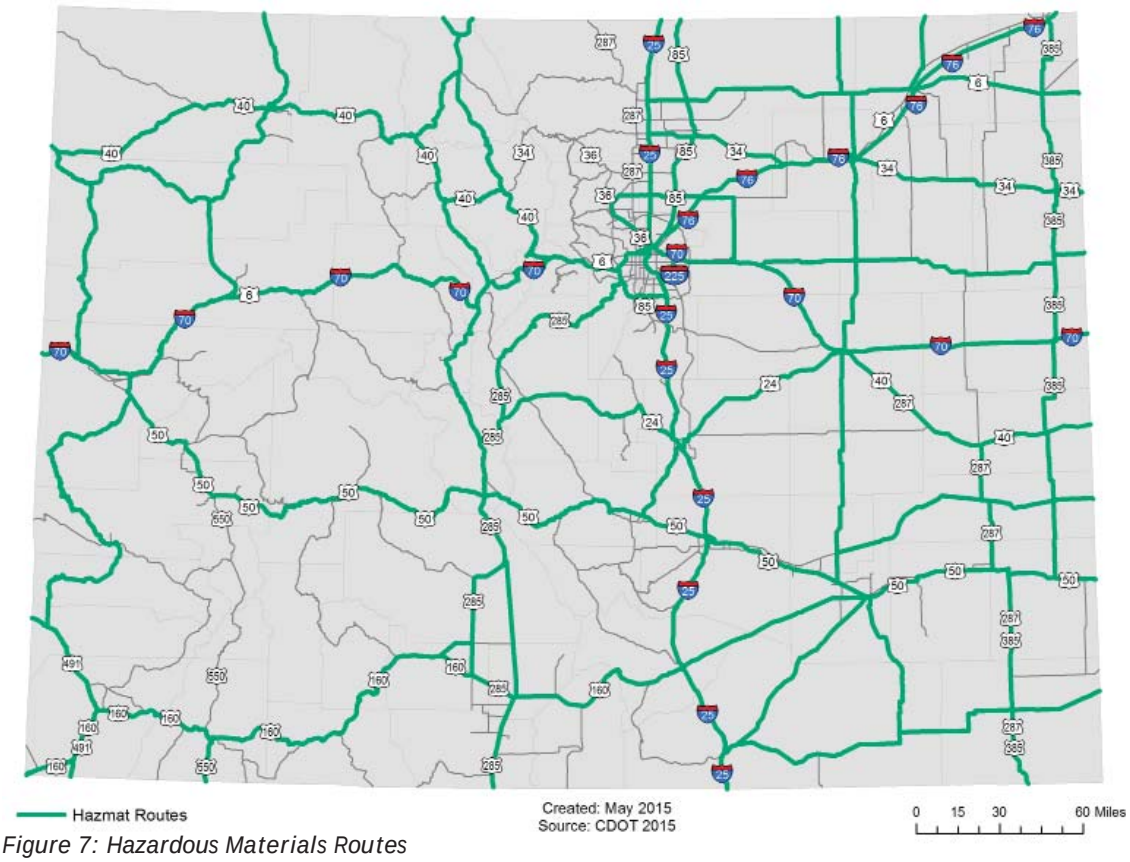


Figure 7: Hazardous Materials Routes

CURRENT AND FUTURE TRUCK TRAVEL DEMAND ON THE FREIGHT CORRIDOR SYSTEM

Trucks currently travel approximately 6.7 million vehicle miles daily on the State Highway System, representing roughly 9% of all vehicle miles traveled (VMT) on the State Highway System.

It is anticipated that by 2040 truck VMT will increase in response to changes in population and land use, and commodity movement. The volume of freight movement in tons in Colorado is projected to increase by 74% between 2010 and 2040. Total VMT is projected to increase by approximately 47% by 2040.

Truck traffic is measured as Annual Average Daily Truck Traffic (AADTT or Truck AADT). Truck AADT represents the average daily number of trucks on a given segment of roadway, calculated over a one year period. Figures 8 and 9 show levels of truck AADT and percent of truck traffic across Colorado. Figure 8 illustrates that the interstates, I-70, I-25 and I-76, are the highway corridors where the heaviest amount of truck travel occurs in Colorado.

In terms of truck percent of traffic, Figure 9 shows that the most concentrated areas for truck traffic occur in the eastern portion of Colorado, with other high percentages of truck traffic represented on segments of roadways in western Colorado, and in the south central portion of the State.

Within geographic areas (TRPs, MPOs, and CDOT Regions), routes were compared to each other (excluding interstates) using AADTT and percent truck traffic (for off-peak hours). Those routes with significantly higher numbers in either category were considered for further analysis. At each geographic level these routes were assessed for:

- Throughput across regional boundaries.

Corridors were further assessed for:

- Connectivity
- Continuity

After the Freight Corridors were identified, CDOT identified characteristics and attributes of the Freight Corridors, and how Freight Corridor needs compared to the State Highway System in terms of condition, performance/congestion, and safety.

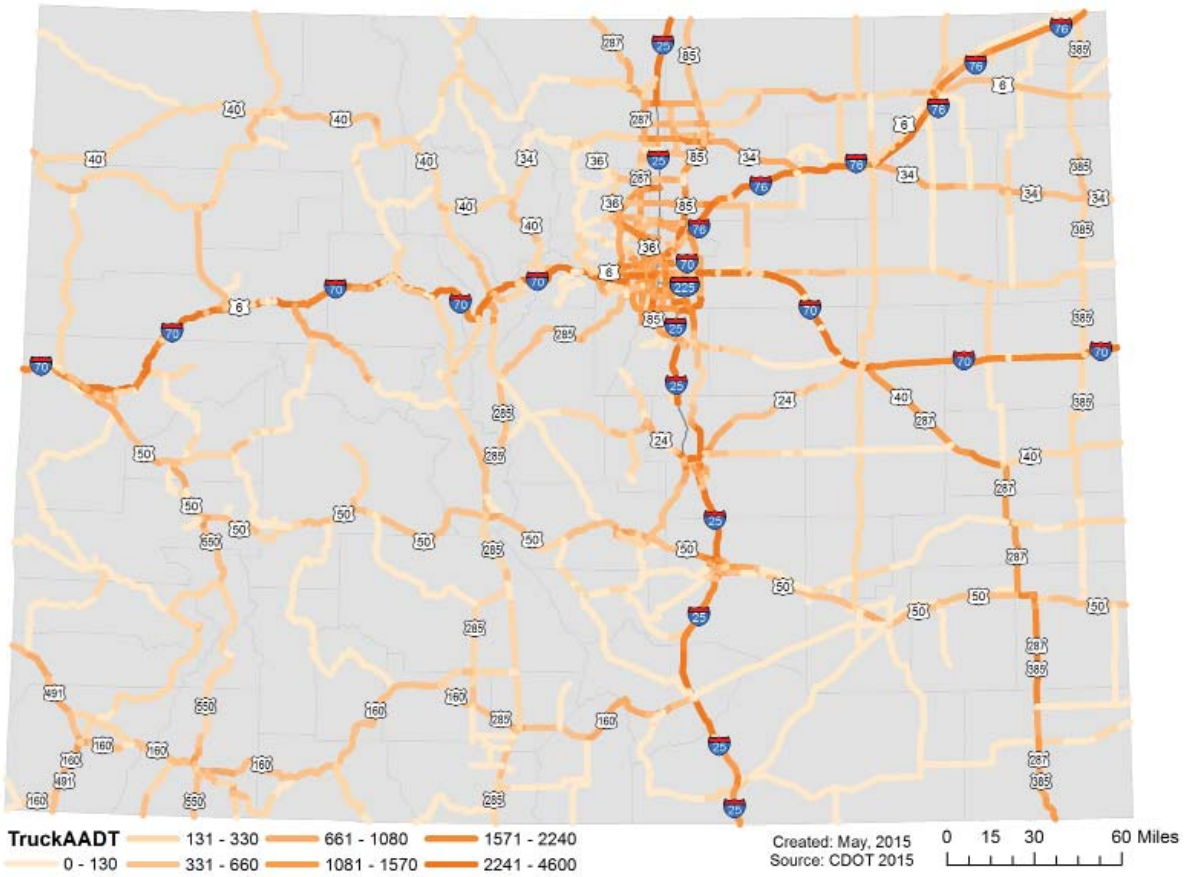


Figure 8: Colorado Truck AADT

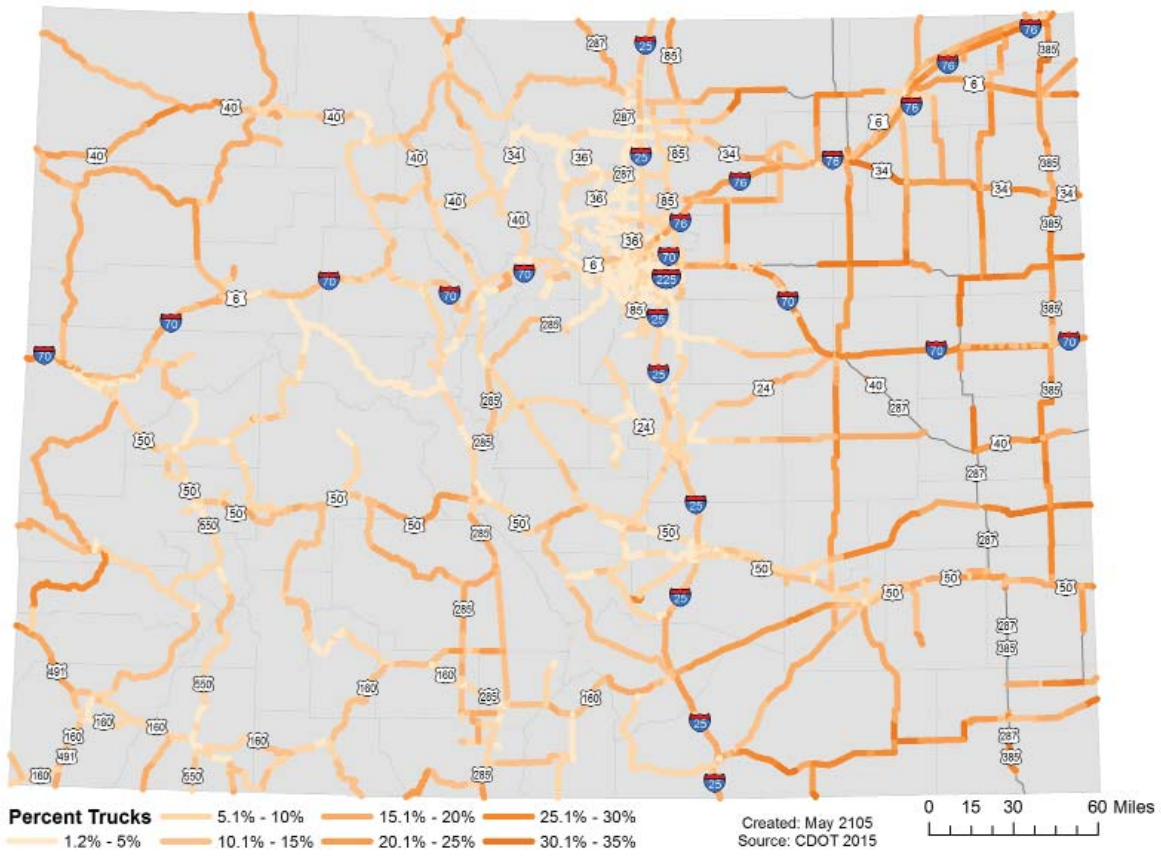


Figure 9: Off Peak Percent of Truck Traffic

STAKEHOLDER INPUT

In addition, three significant modifications were made to the Freight Corridor System based on freight industry and regional input.

- US 34 from US 40 (Granby) to US 36 (Estes Park) was removed from the system after industry input based on it traversing Rocky Mountain National Park.
- SH 10 was added to improve connectivity between the San Luis Valley and the Eastern Plains.
- SH 145/SH62 was removed and replaced with SH 141 on the basis of SH 141 providing a more direct north and south route on the western edge of the state, and SH 145's rougher terrain, and proximity to US 550 (east of SH 145).

As a result of the corridor identification process, the following corridors were identified as Freight Corridors. See Figure 10: Colorado Freight Corridors.

FREIGHT CORRIDOR INFRASTRUCTURE

The Freight Corridors as depicted in Figure 10 include:

- 4,156 centerline miles; 12,116 total lane miles;
- Interstate highways (1-25, I-70, and I-76);
- 87% of on-system NHS roadways; and
- Approximately 2,200 Bridges.

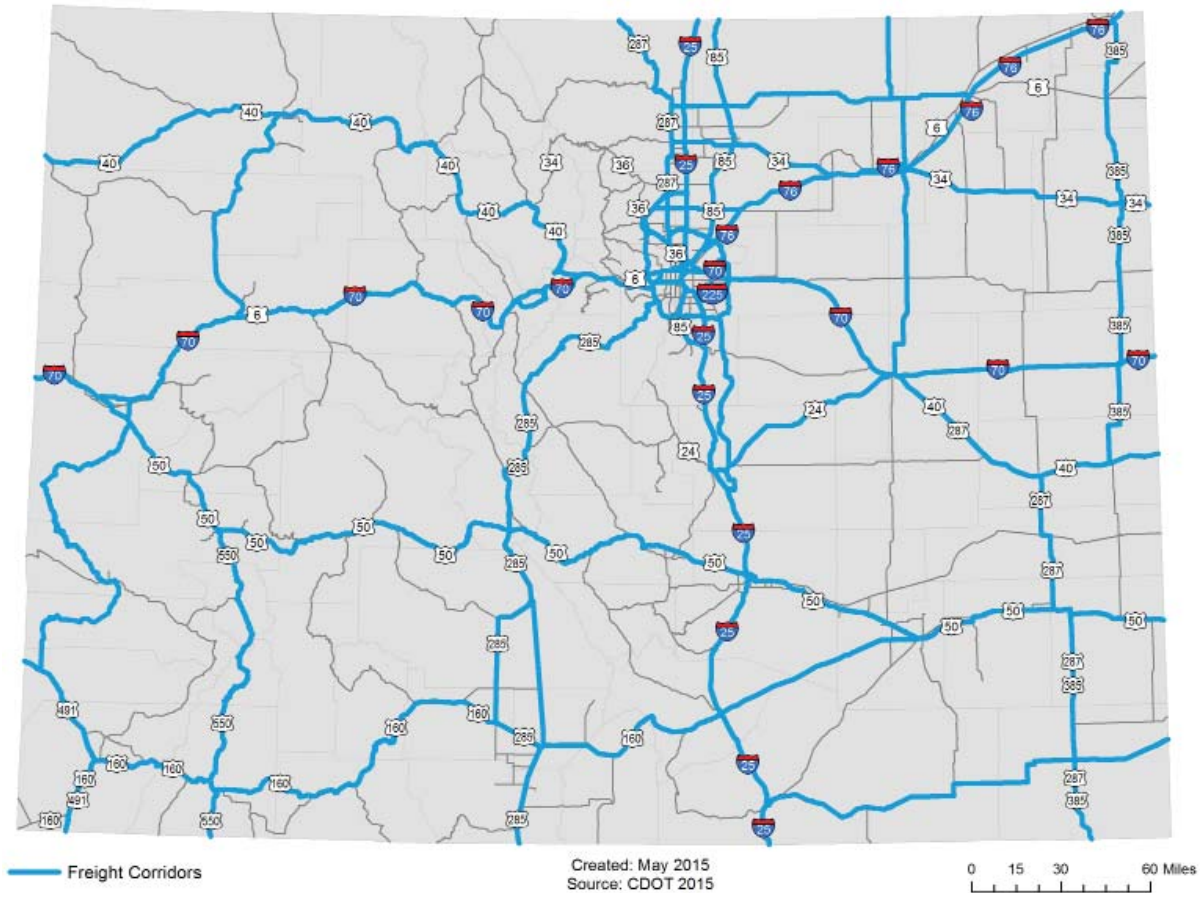


Figure 10: Colorado Freight Corridors

INFRASTRUCTURE CONDITION

The pavement condition of a highway has important impacts on the speed, comfort, and safety of the driver and their cargo. Drivability Life is a new method developed by CDOT to assess pavement condition and prioritize statewide treatments in light of limited funding. The Drivability Life system promotes more frequent surface treatment than its predecessor and results in the optimization of pavement investment. Under Drivability Life, prioritized roads will receive more minor treatments more frequently, and the entire system will receive more frequent treatment. This new method is anticipated to increase the number of treated highway miles by 64% between FY 2012 and FY 2017. Pavement is designated as high, moderate or low condition based on how long in years before treatment is needed. Roadways rated with high Drivability Life do not require treatment until ten years pass. Roadways rated as moderate need treatment in 4-10 years, and for low rated roadways in 3 years or less. As presented in Figure 11, approximately 84% of the freight corridors have high or moderate Drivability Life ratings, while 82% of all state highways have high to moderate ratings.

Maintaining good pavement condition on Freight Corridors is critical to ensuring the safe and efficient movement of freight across the state. Freight Corridors, with a higher percentage of heavy truck traffic, require more frequent maintenance to keep up the same level of pavement condition on other roads with less heavy truck traffic. Trucks cause a higher degree of wear and tear on pavement due to the substantial size and weight difference compared to other vehicles.

In terms of low Drivability Life ratings, 16.3% of Freight Corridors are considered low compared to 18% statewide.

The ongoing maintenance of key Colorado Freight Corridor assets will be critical for the continued viability of the state's freight economy. CDOT has identified several strategies related to maintaining the state's freight transportation system, which are described in detail in Chapter VI and Chapter VII.

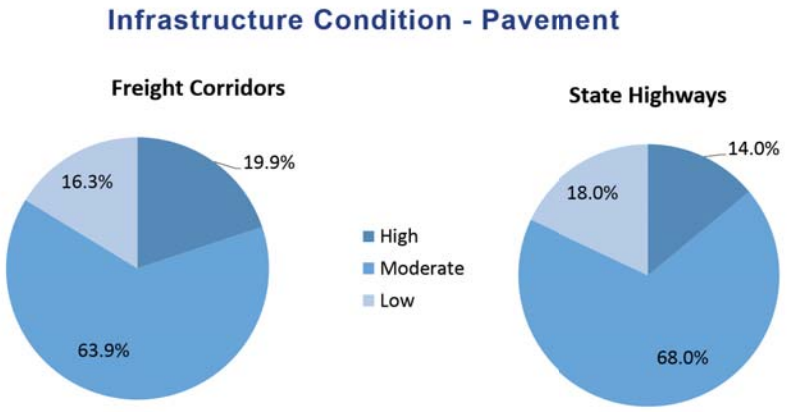


Figure 11: Infrastructure Condition - Pavement

BRIDGES ON THE FREIGHT CORRIDOR SYSTEM

Bridges are an integral part of the statewide transportation system and their condition must be monitored to ensure continued safety and functionality. The State Highway System includes over 3,400 bridges, approximately 2,200 of which are located on Colorado Freight Corridors. Currently, 97.6% of bridges on the State Highway System are rated in good or fair condition, and about the same level, 97.4%, are rated good or fair on all of Colorado's state highways, as shown in Figure 12.

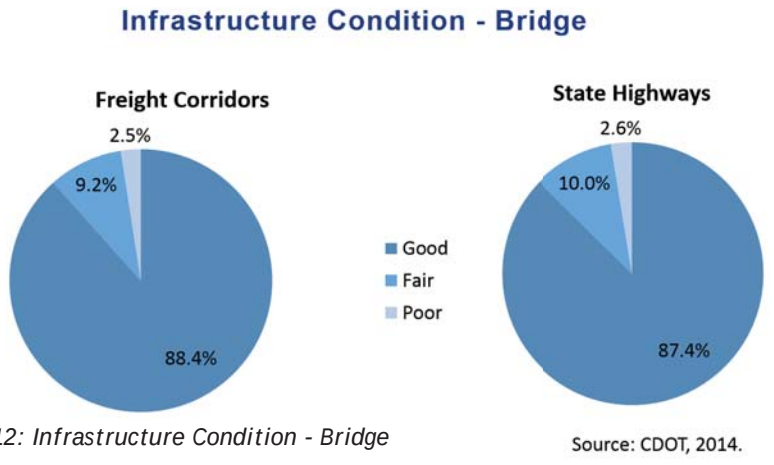


Figure 12: Infrastructure Condition - Bridge

SYSTEM PERFORMANCE

Highway congestion can be a major barrier to the smooth movement of traffic, particularly in urban centers with large populations. As the state's population continues to outpace highway capacity in the decades ahead, the problem of congestion may worsen significantly if strategies are not employed to counteract the trend.

CURRENT AND FUTURE CONGESTION ON FREIGHT CORRIDORS

Highway congestion is defined as corridors having a volume to capacity ratio (V/C) of greater than 0.85. Figure 13 represents congested segments of state highways in Colorado. Freight Corridors represent 4,156 centerline miles of the state's transportation system with roughly 4% of the centerline miles being congested. This is in comparison to 3% of the statewide highway system's 9,104 centerline miles that are considered congested, as presented in Figure 14.

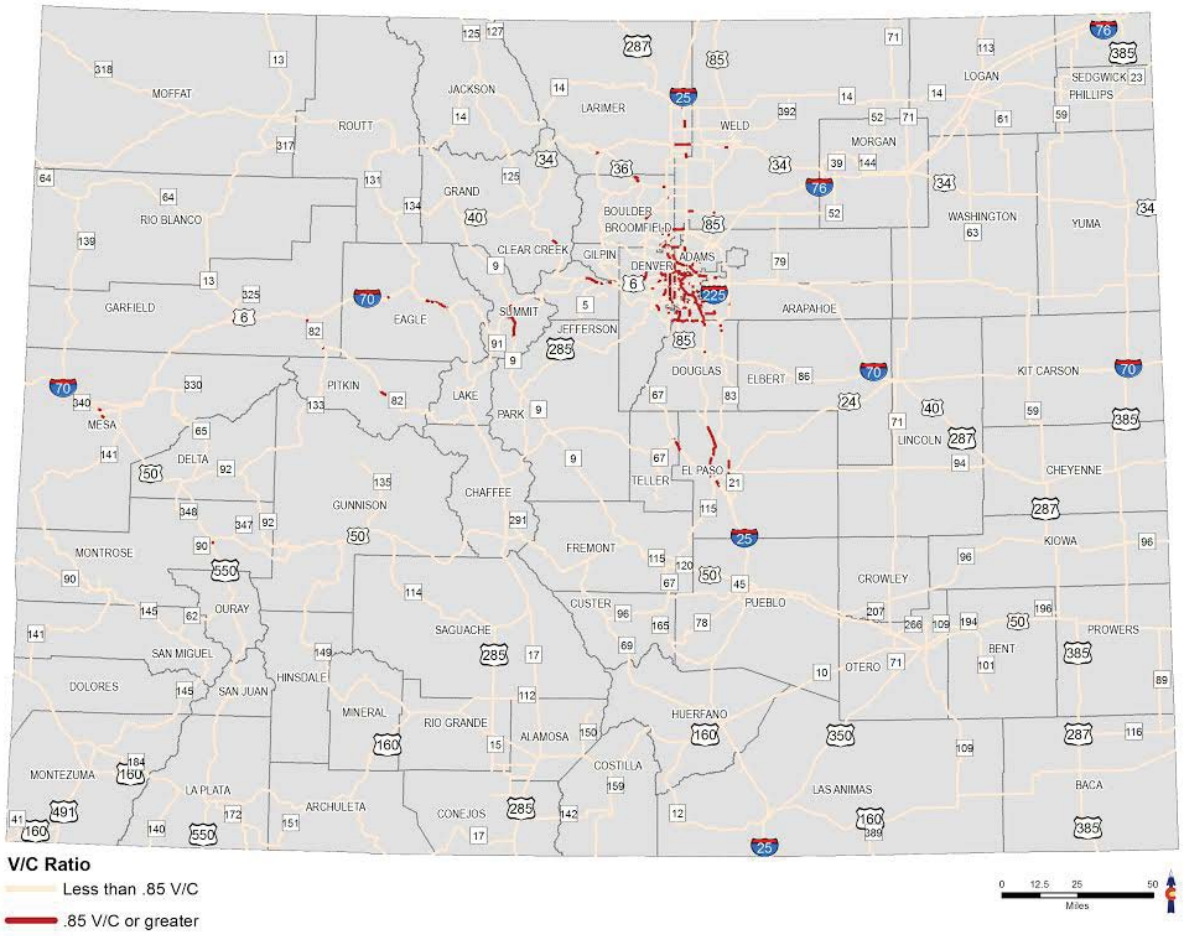


Figure 13: Congested State Highway Segments

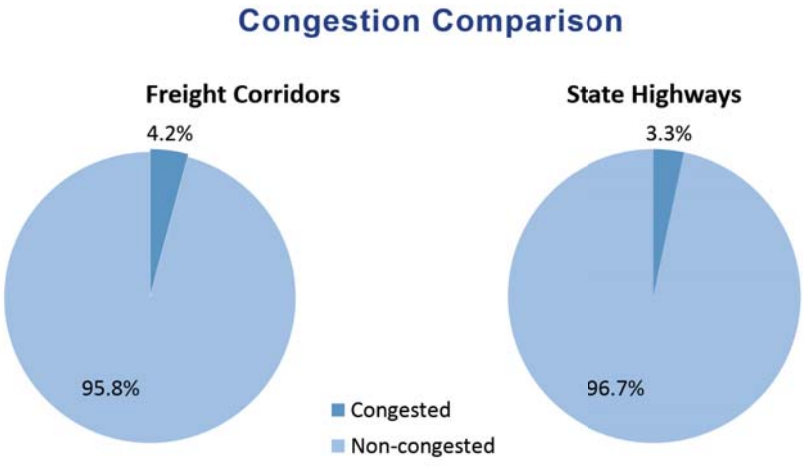


Figure 14: Percent of Congested Freight Corridors Source: CDOT, 2013.

Assuming that no significant additional roadway lane miles are added to the network within the next 10 years, CDOT's trend analyses highlighted that by 2025 the network is projected to have 479 centerline miles of congestion, or approximately 12% of Freight Corridor centerline miles. For 2040, the projections are for 803 centerline miles of congestion, roughly equivalent to 19% of Colorado Freight Corridor centerline miles. This correlates to percentage increases of 3 times between now and 2025, and almost five times by 2040, exacerbating existing freight mobility challenges.

CDOT has identified several improvements designed to mitigate the forecasted increase in congestion along the Colorado Freight Corridors, which are described in detail in Chapter VI and Chapter VII.

REGIONAL DIFFERENCES IN VMT AND CONGESTION

The characteristics of transportation system use in Colorado vary between rural and urban areas, and freight movement is no exception. As shown in Figure 15, there are important distinctions between Colorado's rural and urban areas related to population, lane miles of state highway, and vehicles miles traveled (VMT). While population and the total VMT is more heavily weighted towards the urban areas, a significantly larger percentage of total roadway lane miles are located in the rural areas. As a result, congestion and travel delay issues tend to occur more frequently in urban areas than rural areas due to the combination of fewer lane miles and greater levels of travel demand, while the extent of need related to maintenance and good repair of existing transportation infrastructure can be more significant in rural settings.

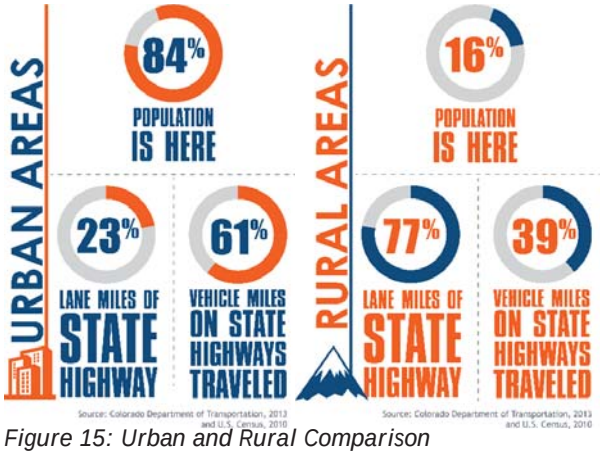


Figure 15: Urban and Rural Comparison

One particular area of difference between rural and urban areas as it relates to freight is in terms of congestion. While traffic congestion and delay can occur on roadways of any size or geographic location, the causes vary significantly between urban and rural areas. Regardless of the cause, congestion negatively impacts freight movement, but knowing the roots of the problem in a given area is a necessary first step in devising strategies to mitigate or eliminate it. Figure 16 depicts where urban and rural roadways are located in Colorado.

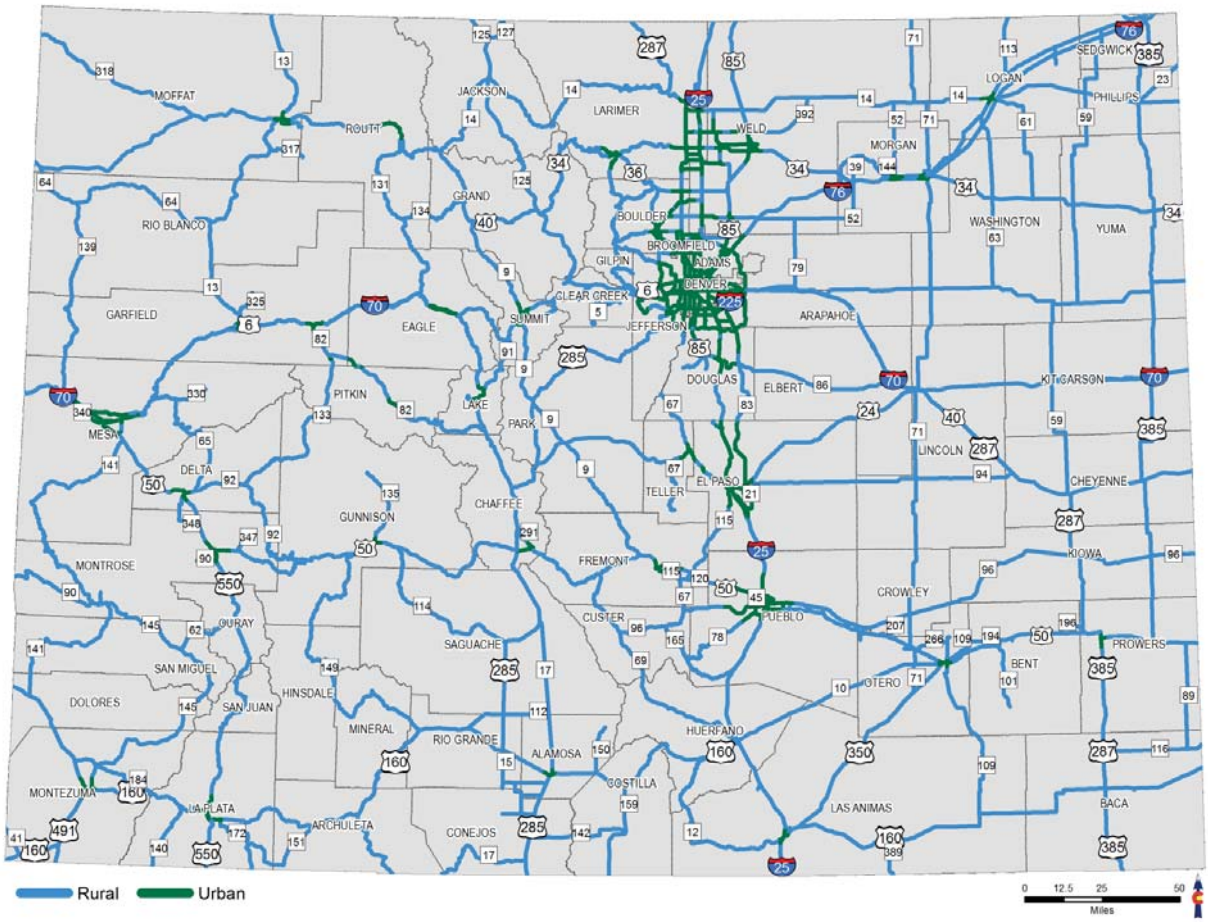


Figure 16: Urban and Rural Roadways in Colorado *Source: CDOT, 2013*

As indicated by Figure 17, the causes of roadway congestion can be classified as either recurring or non-recurring. Recurring causes are those, which are to a certain extent, predictable given the physical characteristics of the corridor, such as bottleneck areas and inefficient signal timing. Non-recurring causes of congestion are less predictable and derived from non-design factors such as bad weather, special events, work zones, or crashes. While the negative effects of recurring and non-recurring congestion may be similar, the approaches required to resolve them are very different.

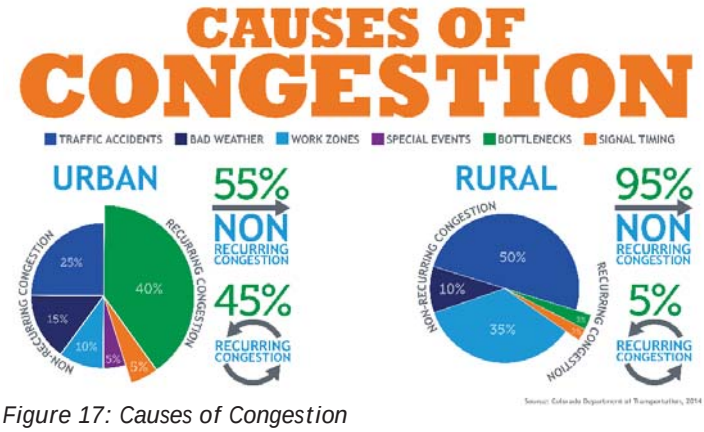


Figure 17: Causes of Congestion

As Figure 17 shows, urban areas experience an approximately balanced split between recurring and non-recurring congestion nationally, largely due to the higher traffic volumes that they experience. Rural areas, on the other hand, see very little recurring congestion given that bottlenecks and poor signal timing only tend to produce congestion when a large number of vehicles are present. Therefore rural areas more typically see recurring congestion only at specific times or seasons based on recreational traffic. For the purposes of freight planning it is important to recognize the potential times and locations at which recurring congestion is likely to occur and may potentially be avoided, as well as develop strategies for dealing with more unpredictable non-recurring congestion in both rural and urban areas.

SAFETY

Safety always has been and always will be CDOT's top priority, and in recent decades Colorado has made substantial progress in reducing deaths and injuries on the State Highway System. Within the last 15 years, the total number of fatalities occurring on the entire statewide transportation system fell from 742 in 2002 to 472 in 2012, as shown in Figure 18. This decline occurred during a period in which the total number of vehicle miles traveled was increasing statewide.

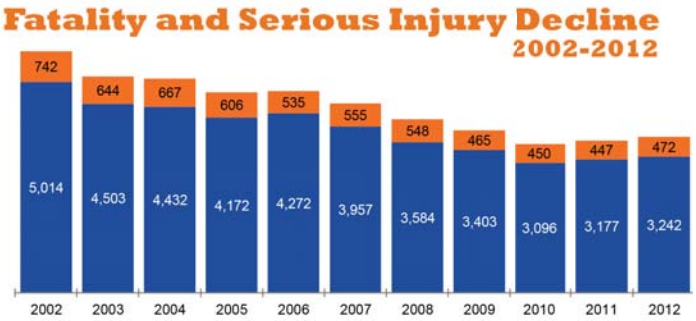


Figure 18: Fatality and Serious Injury Decline
Source: CDOT Crash Data, 2013

In the recently completed Strategic Highway Safety Plan (SHSP), CDOT adopted a statewide goal of Moving Towards Zero Deaths. CDOT believes that the goal of zero traffic deaths is both realistic and attainable, particularly given the potential of new emerging technologies, ongoing educational campaigns, and targeted safety investments to dramatically improve roadway safety in the future. In order for this goal to become a reality, it will be necessary to coordinate efforts along all state highways, including the Colorado Freight Corridors.

While freight vehicles travel on the same roads as the general traveling public, the safety issues that they confront are often different. In order to better understand safety on Colorado Freight Corridors, an analysis was completed to compare truck crash rates on Colorado Freight Corridors with total crash rates. Crash data of Freight Corridor segments was analyzed to compare crash rates (crashes per million vehicle miles traveled) of trucks to crash rates for all vehicle types for years 2008-2012.

The percent difference was calculated between the truck crash rate and the general crash rate. A negative percent difference indicates that the truck crash rates were lower than the overall crash rate for a given Freight Corridor segment. The majority of these corridor segments' crash rates were negative numbers, indicating that truck crash rates are mostly lower than the overall crash rate for all vehicle types. This is likely due to the fact that truck drivers are generally well-trained professionals, who exhibit safe driving behavior. However, the analyses also identified certain segments of Freight Corridors where the truck crash rates were higher than the overall crash rate. CDOT will focus on these segments with relatively higher truck crash rates. CDOT is working to obtain additional data to assess the causes of these increased crash levels and determine potential mitigation strategies.

As with crash rates, freight vehicle crash types also differ from those of the general traveling public in Colorado. As Figure 19 indicates, trucks have twice the rate of involvement in sideswipe crashes as the total vehicle population, a rate of 21.5% as compared to 11.2%. They likewise show a greater chance of overturning, albeit with a smaller difference of 8.6% versus 5.4% for all vehicles. Overall, sideswipe and rear end crashes account for a combined 43% of truck crash types, indicating that these may be the key areas to focus on with various educational safety campaigns related to driver awareness.

As in the case of crash rates, additional data collection and analysis will be needed in order to devise proper strategies for improving safety performance in this area.

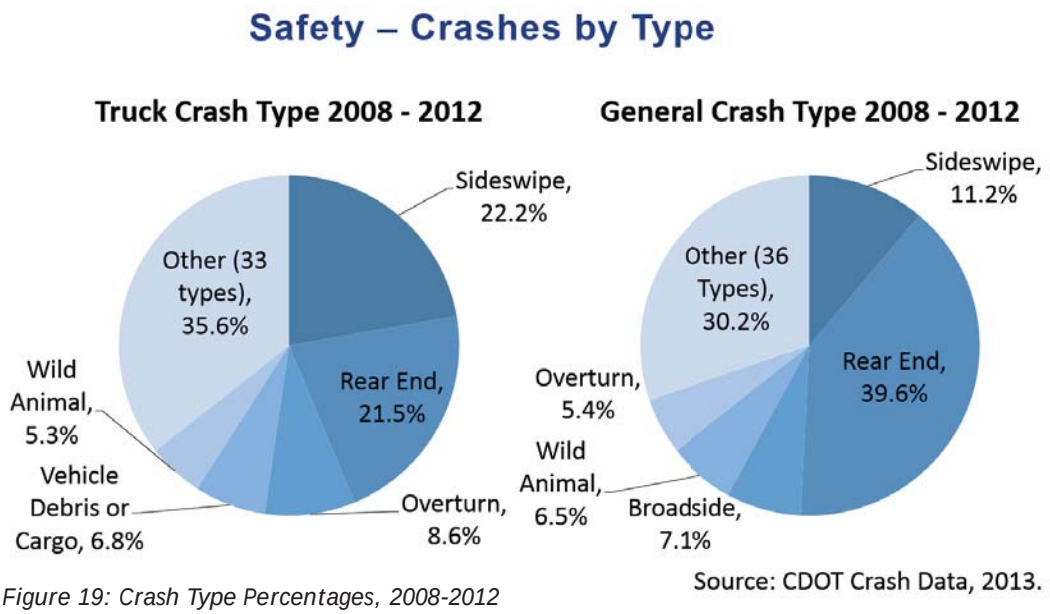


Figure 19: Crash Type Percentages, 2008-2012

CDOT has identified a variety of strategies designed to improve the safety of freight transport in Colorado, which are described in Chapter VI and Chapter VII.

FACILITIES TO ENHANCE SAFETY AND MOBILITY OF FREIGHT

Types of facilities which enhance the safety and mobility of freight movement on the State Highway System include:

- Runaway Truck Ramps
- Chain Up Areas
- Weigh Stations Located at Ports of Entry – these facilities are managed and owned by the Colorado State Patrol, for more information on these facilities see: http://www.coopsareopen.com/colorado-weigh-stations.html for more information.
- Truck Parking Facilities
- Rest Areas

See Figure 20: Other Freight Supporting Facilities for the location of runaway truck ramps, chain up areas, and weigh stations in Colorado.

See Figure 21: Truck Parking Needs that resulted from a study completed in 2007. Since that time a new *Truck Parking Guide: Long-Term Parking — Emerging Parking — Chain Stations* was produced in April 2012 that covers facilities along all Colorado interstates, I-70, I-25, and I-76.

In addition, CDOT oversees permitting for oversize/overweight vehicles. CDOT recently conducted a LEAN process improvement for these permits. The oversize/overweight permitting process is now approximately 30% faster and 60% more accurate than it was previously (Source: CDOT 2014). This permitting process helps to ensure that oversize and overweight vehicles follow safety procedures, and that their travel routes can accommodate their size and weight.

Figure 22 shows the location of Rest Areas in Colorado.

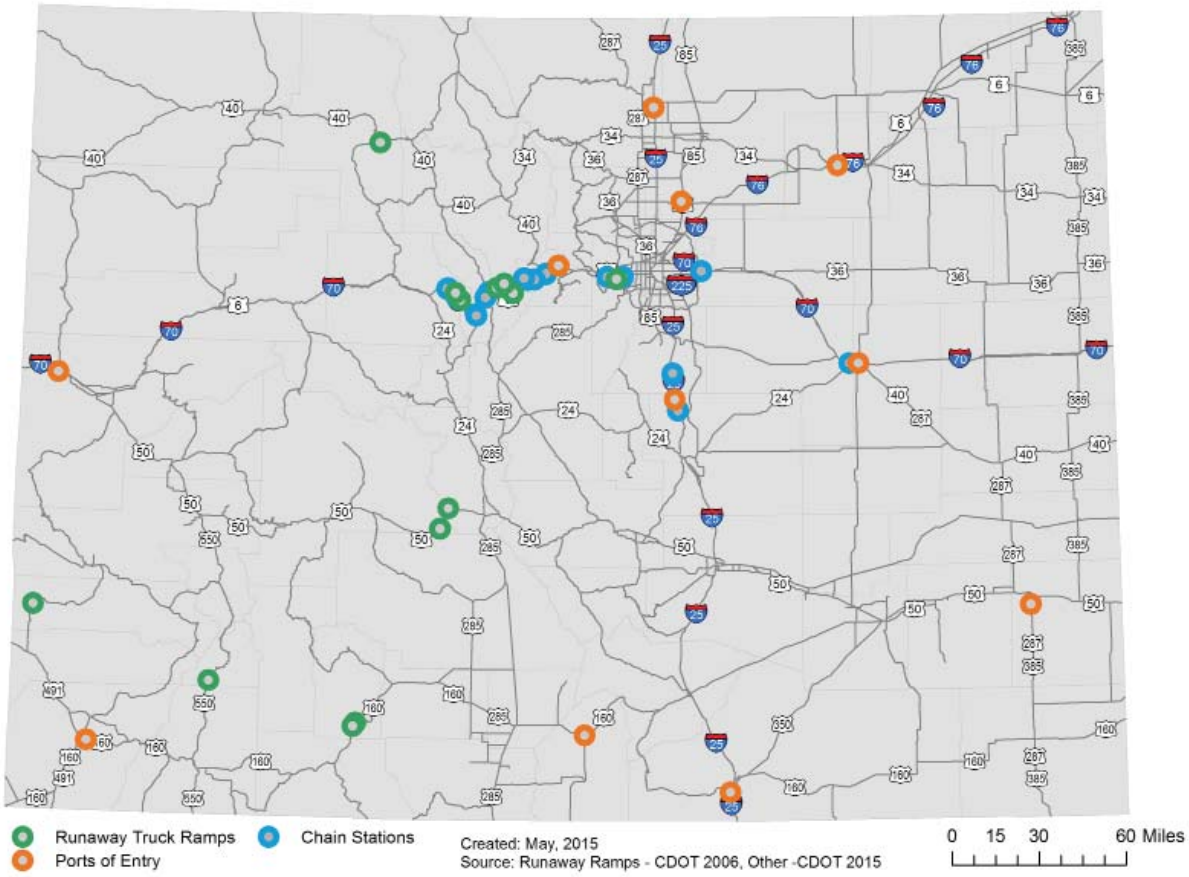


Figure 20: Other Freight Supporting Facilities

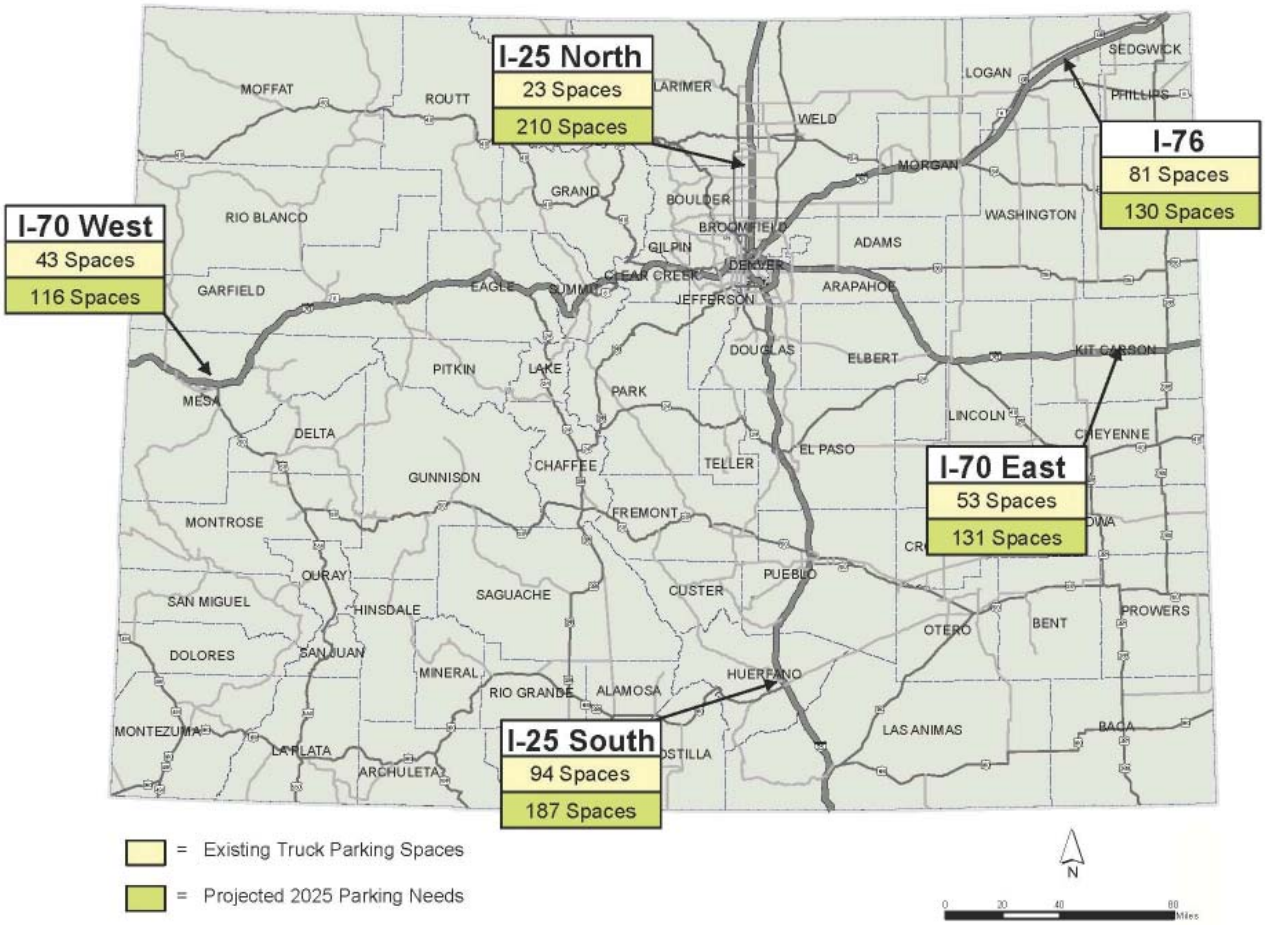


Figure 21: Truck Parking Needs

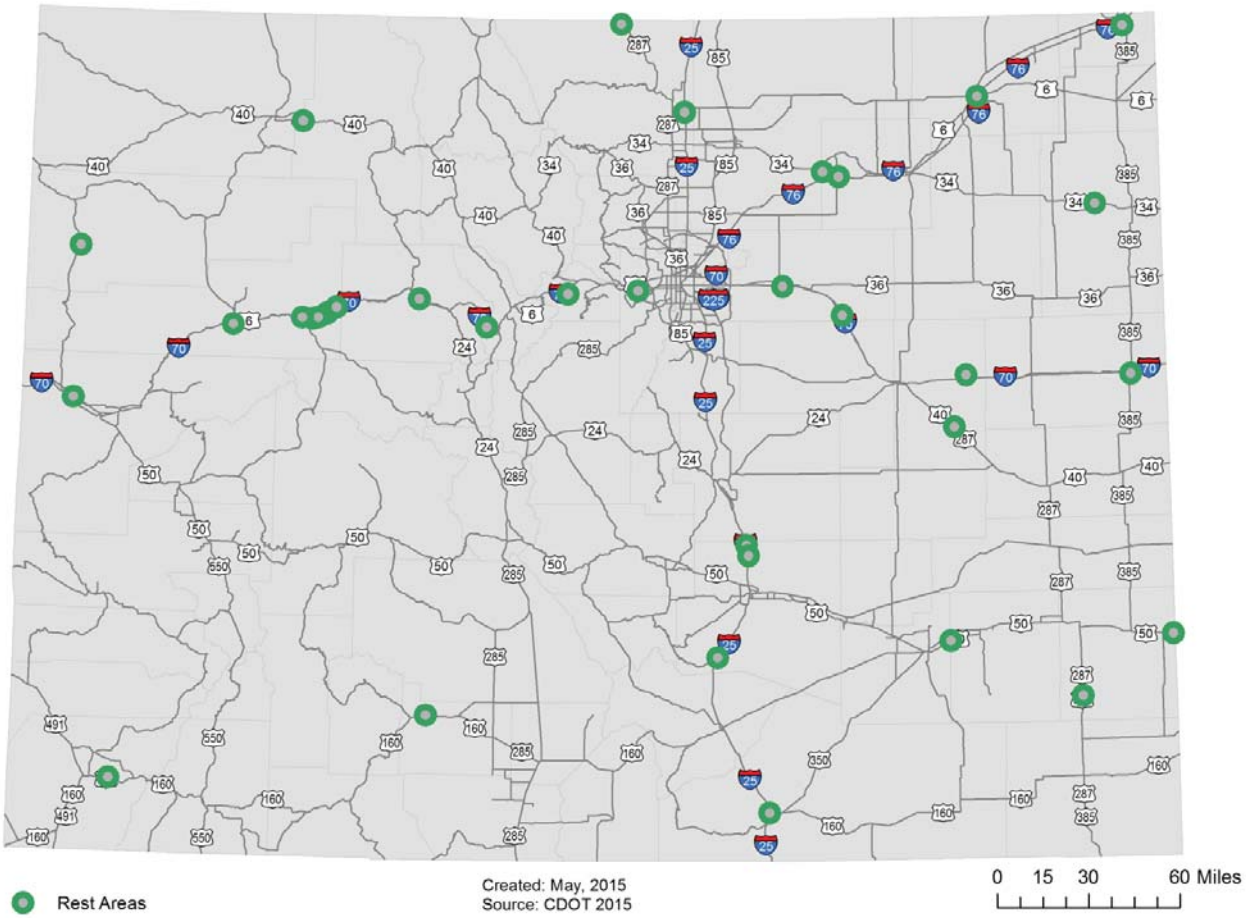


Figure 22: Colorado Rest Areas

FREIGHT MOVEMENT BY MODE

Although this State Highway Freight Plan focuses primarily on freight transported along state highways, CDOT was able to obtain the following information regarding the modal share of freight that is presented below in Figures 23 and 24. The pie charts compare rail, air and truck modes for exports, and the same three modes plus pipeline, for imports. Through trips (freight trips that pass through Colorado versus initiating or making final deliveries in Colorado) are not included in this information. Regarding both exports and imports moving from and within Colorado, trucks represent, by a substantial degree, the largest mode for transportation of freight in Colorado.

More discussion on the other freight modes and how they integrate with Colorado's State Highway System will occur during the development of the Integrated Freight Plan during Phase II of the freight planning process.

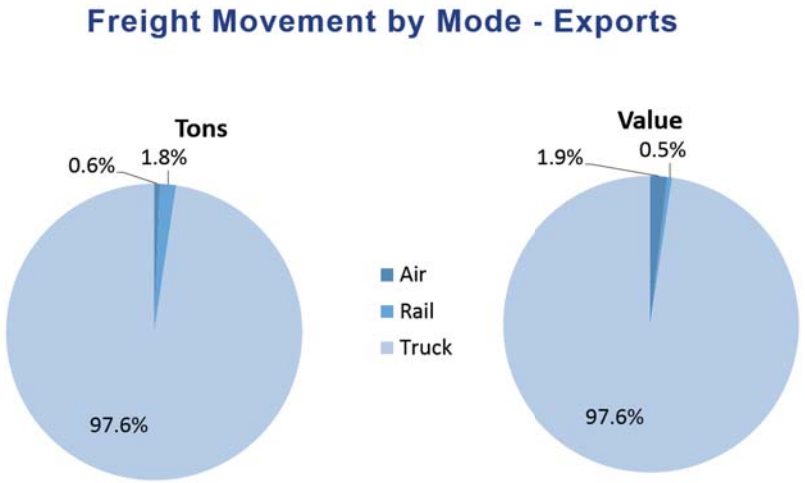


Figure 23: Freight Movement by Mode - Exports Source: IHS Global Insight, 2010.

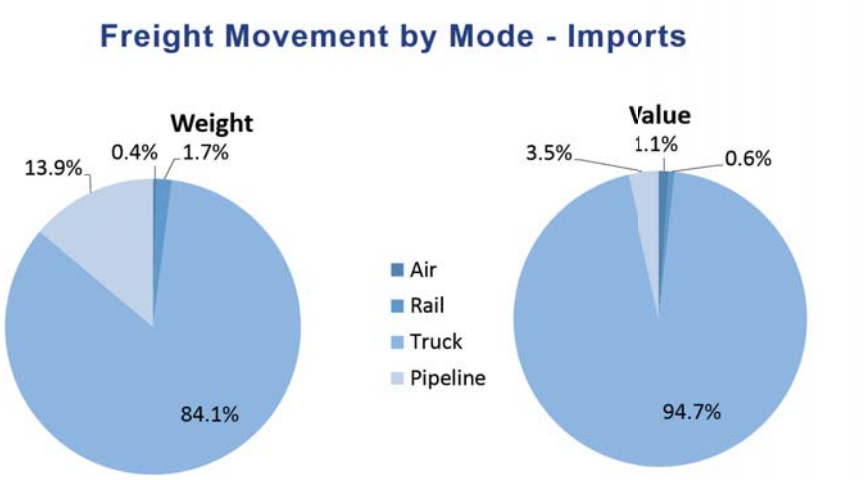


Figure 24: Freight Movement by Mode - Imports Source: IHS Global Insight, 2010.

TOP COMMODITIES IN COLORADO

Tables 3 and 4 present Colorado's top commodities categorized by Standard Transportation Commodity Code (STCC) ranked by tonnage and value. A STCC does not represent any particular industry but rather a commodity. Several industries may use the same commodity; likewise a single industry may use several commodities. The tables also provide estimates on how rank, tons and value will change between years 2010, 2025 and 2040.

Colorado's top commodities by tonnage, shown in Table 3, include gravel or sand, broken stone or riprap, and ready-mix concrete. These high weight/low value commodities are generally transported short distances and do not make up a large share of inter-regional movement. It is anticipated that these will remain the top commodities by tonnage in 2025 and 2040.

By value, the top commodities are field crops, petroleum refining products, and missile or space vehicle parts. By 2040, however, it is anticipated that these top three commodities will be supplanted by solid state semiconductors, drugs (medicine), and electronic data processing equipment. The percentage increase by weight, value, and unit between 2010, 2025, and 2040 for all Colorado highway freight movement are highlighted in Table 2. Increases by weight and unit are comparable, but by value the increase is more substantial, indicating Colorado is poised to produce higher value products.

Table 4 also depicts three high value categories which are directly related to the logistics and transportation industries (shaded in gray). These categories represent a mixture of commodities which are combined, repurposed, or repackaged at a point along the supply chain. These mixed commodities include, but are not limited to, retail goods. As an example, products which enter a grocery distribution center, a dairy product and a cereal product, will be transported to the grocery store under the STCC "warehouse and distribution center".

Table 2: Percent Increase of All Freight Movement on Highways in Colorado from 2010 Baseline

MEASURE	2025	2040
WEIGHT	42%	74%
VALUE	70%	162%
UNITS	43%	75%

Table 3: Colorado's Top Commodities Ranked by Tonnage

	2010		2025		2040	
	RANK	TONS	RANK	TONS	RANK	TONS
GRAVEL OR SAND	1	31,813,295	1	46,004,383	1	55,021,883
BROKEN STONE OR RIPRAP	2	22,243,359	2	33,758,537	2	40,083,957
READY-MIX CONCRETE, WET	3	12,763,536	3	22,278,068	3	26,909,522
WAREHOUSE & DISTRIBUTION CENTER*		10,208,165		15,163,250		21,406,092
MISC. FIELD CROPS	4	9,979,941	4	10,534,427	6	21,406,092
GRAIN	5	7,682,931	5	9,215,708	4	10,682,437
CONCRETE PRODUCTS	7	4,685,274	6	8,340,373	5	10,505,382

Table 4: Colorado's Top Commodities Ranked by Value

	2010		2025		2040	
	RANK	VALUE	RANK	VALUE	RANK	VALUE
WAREHOUSE & DISTRIBUTION CENTER*		$10,834,490,486		$16,093,596,170		$22,719,470,192
RAIL INTERMODAL DRAYAGE FROM RAMP*[T]		$7,833,901,736		$13,819,376,356		$20,119,830,222
MISC. FIELD CROPS	1	$5,443,742,602	2	$5,746,113,726	6	$5,610,380,528
PETROLEUM REFINING PRODUCTS	2	$4,990,433,478	3	$5,419,395,797	7	$4,595,539,274
MISSILE OR SPACE VEHICLE PARTS	3	$2,576,025,326	5	$4,760,574,303	4	$6,699,138,508
RAIL INTERMODAL DRAYAGE TO RAMP*[T]		$2,498,435,029		$4,546,396,491		$6,826,658,532
DRUGS (MEDICINE)	4	$2,255,147,456	6	$4,449,321,950	2	$8,431,827,245
MALT LIQUORS	5	$2,221,370,378	8	$2,727,814,610	9	$3,062,615,449
SOLID STATE SEMICONDUCTORS	9	$1,700,145,047	1	$20,058,373,640	1	$61,461,298,907
ELECTRONIC DATA PROCESSING EQUIPMENT	10	$1,647,308,028	4	$4,787,777,279	3	$7,954,489,140
ORTHOPEDIC OR PROSTHETIC SUPPLIES	12	$1,265,490,981	7	$2,782,386,820	5	$5,757,333,475

**Warehouse & Distribution Center, Rail Intermodal Drayage from Ramp, and Rail Intermodal Drayage to Ramp (highlighted in gray) aren't included in rankings because the identity of the commodity has been altered and is no longer identifiable.*
[t]Commodity moved to or from rail.
Source: Transearch 2010, IHS Global Insight

COLORADO'S LEADING TRADE PARTNERS

Colorado's leading freight trade partners are anticipated to change slightly over time. The following Figures 25 to 30 tell the story of how Colorado's leading trading partners, by Business Economic Area (BEA), will evolve between 2010, 2025, and 2040 for value and tonnage.

BEAs are regional markets, defined by the Bureau of Economic Analysis, that are geographic areas surrounding metropolitan statistical areas (core urban areas with populations of 50,000 or more) or micropolitan statistical areas (with urban core populations over 10,000 but less than 50,000).

Per Transearch 2010, IHS Global Insight data, in 2010 Colorado's leading trade partners by value include:

- Imports – Los Angeles, CA; Salt Lake City, UT; Edmonton, Canada (in Alberta Canada to the north), Wichita, KS; and Grand Island, SD
- Exports – Casper, WY; Albuquerque, NM; Dallas, TX; Salt Lake City, UT; and Wichita, KS

In addition, leading trade partners by tonnage in 2010 include:

- Imports – Casper, WY; Salt Lake City, UT; Edmonton, Canada; Wichita KS; and Pueblo, CO
- Exports – Casper, WY; Salt Lake City, UT; Edmonton, Canada; Albuquerque, NM; and Farmington, NM

Although some shift in trading partners is anticipated over time, in general Colorado's leading trading partners in 2010 are expected to remain significant trading partners in the future. The locations of these trading partners indicate the importance of certain Freight Corridors to inter-state freight movement, including I-25, I-70, I-76, and US 287.

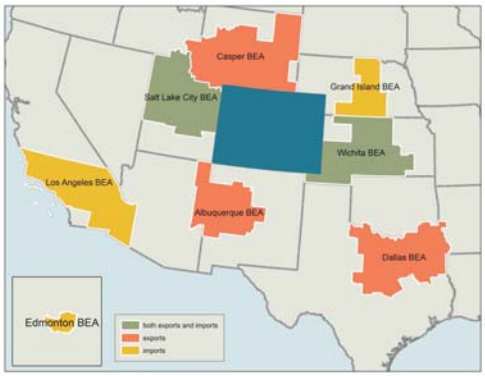


Figure 25: Leading Trading Partners by Value in 2010

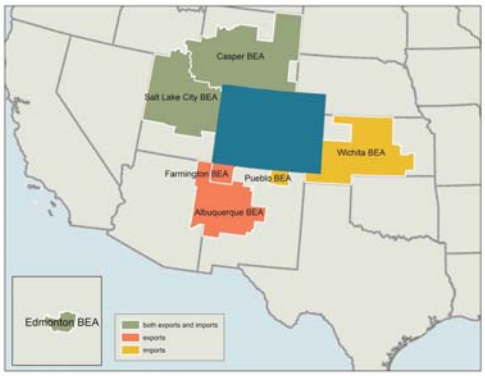


Figure 26: Leading Trading Partners by Weight in 2010

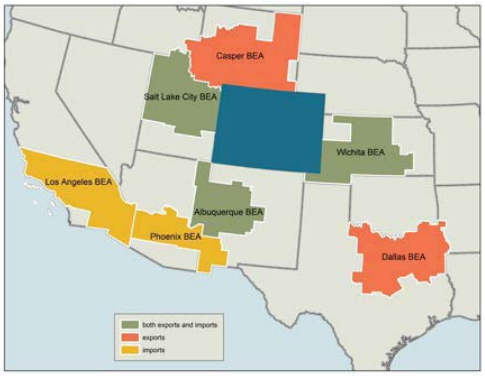


Figure 27: Leading Trading Partners by Value in 2025

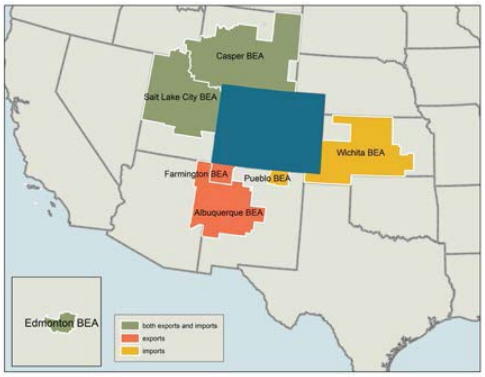


Figure 28: Leading Trading Partners by Weight in 2025

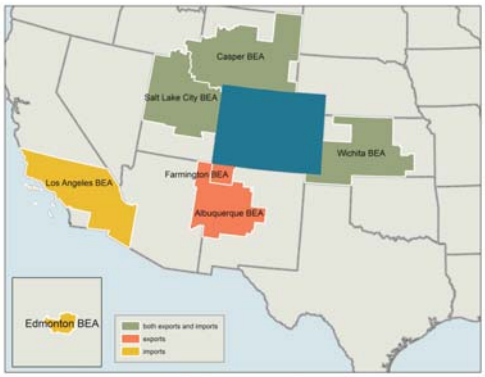


Figure 29: Leading Trading Partners by Value in 2040

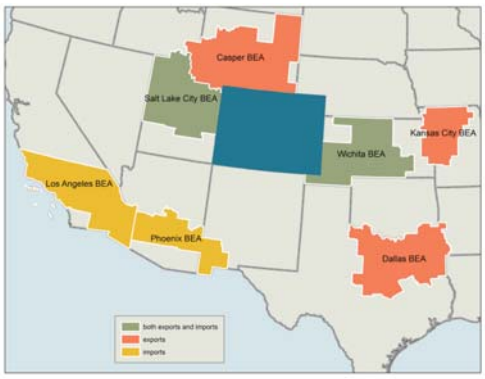


Figure 30: Leading Trading Partners by Weight in 2040

FREIGHT AND THE ECONOMY

Colorado's economy is heavily dependent on freight. Freight movement and the Colorado freight system support the state's economy by:

- Allowing Colorado manufacturers to bring in raw materials and parts (for manufacturing) and transport products to and from other parts of State and around the world.
- Allowing farmers and agricultural producers to get products to market and bring feed, seed, and equipment to their farms.
- Ensuring that the goods Colorado residents and employees need are available in local stores or can be delivered to their homes or place of work.

As the importance of trade and the demands of customers continue to evolve, Colorado companies often find freight to be an increasingly important factor in sustaining and enhancing their competitive position in the marketplace. They need reliable connections to customers and links to a multitude of markets to ensure timely deliveries of goods and services.

KEY FREIGHT ISSUES RELATED TO THE ECONOMY

Key industry issues related to freight movement on the State Highway System include:

CONGESTION

- Congestion can cause lost hours by drivers and equipment stuck in congestion, this includes costs for hourly wages, wasted fuel, and idle equipment. These cost are then passed onto consumers.
- Congestion also disrupts industry supply chains and production schedules. Some industries measure in minutes the downtime costs due to lack of products and inputs – time matters
- Congestion creates costs due to lack of system reliability, which is the ability of shippers to accurately predict the length of time to ship and receive goods and inputs. All freight modes including trucks have reliability issues related to congestion. As a result additional inventory must be stored to address potential shortages and shippers must account for extra time in planning production and delivery schedules.

CDOT is making effort to determine the best method to calculate the cost of congestion related to freight.

LAST MILE CONNECTIONS

Often, the last mile of delivery of a product or service takes place on the local roadway network, normally maintained by cities, and counties. If these local connections aren't efficient due to lack of capacity, traffic conflicts, poor intersections, safety issues, or poor maintenance, then the last mile of a delivery will be delayed or fail to occur. Cities and Counties play an important role in the movement of freight, by maintaining the condition and operation of the local transportation networks for the last mile. These local issues will be an area of focus during development of the Integrated Freight Plan, Phase II of the freight planning process.

KEY FREIGHT INDUSTRIES

The key industries related to freight movement in Colorado include:

- Construction (Gravel, Sand, Broken Stone, Rip Rap, Ready Mix Concrete)
- Retail products industry (passing through Warehouse and Distribution Centers)
- Agriculture (Miscellaneous Field Crops)
- Aerospace (Missile or Space Vehicle Parts)
- Oil and Gas (Petroleum Refining Products)

Construction

All roads in Colorado potentially lead to areas where construction occurs. Trips for these heavier commodities are usually shorter in trip length and more local in nature.

Retail Products that pass through Warehouse Distribution Centers

Warehouse Distribution Centers in Colorado generally are located adjacent to interstates, highways, and/or intermodal facilities to capitalize on easy access for receiving and dispatching large shipments.

Agriculture

Agriculture is a key freight industry in Colorado. According to the Office of Economic Development and International Trade (OEDIT), Colorado's agriculture industry generates more than $5 billion in economic output annually, and in 2011 Colorado agricultural exports grew by 20% to $718 million (Source: OEDIT, 2014).

IHS Global Insight reports that every Colorado county produces some sort of agricultural product in 2010, and is projected to continue to produce similar products into the future. Agricultural production is the highest on the Eastern Plains and in the San Luis Valley as indicated on Figure 31. During times of harvest potentially every road in areas of high agricultural production serve as movers of freight.

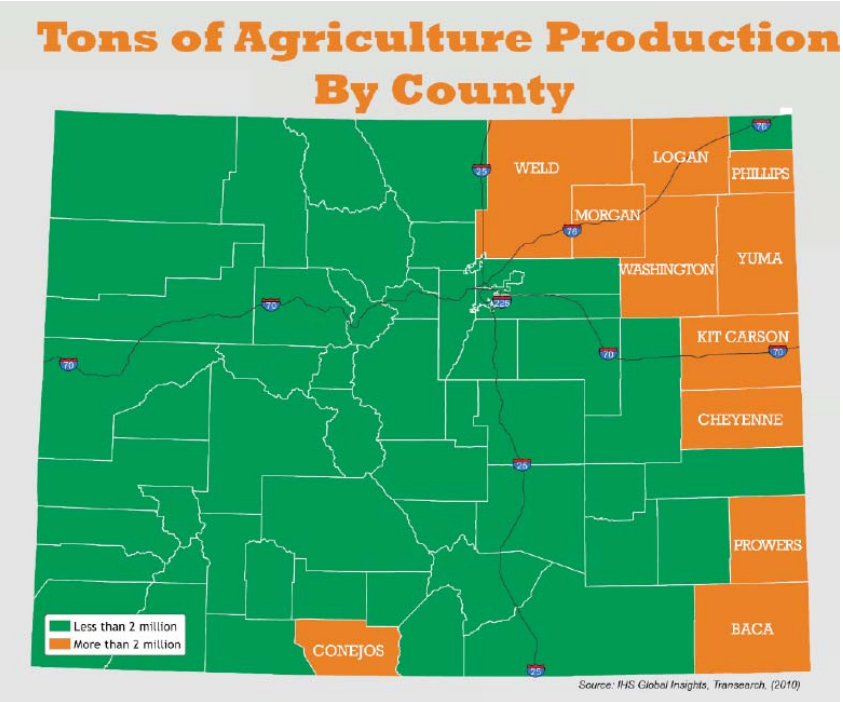


Figure 31: Tons of Agriculture Production by County

Aerospace

Colorado's aerospace industry ranks 2nd in the nation for private sector aerospace employment. With four military commands: Air Force Space Command, Army Space Command, NORAD and USNORTHCOMM and three space-related Air Force bases, Colorado is a strategic location for the space industry. Many of the nation's major aerospace contractors base important operations in Colorado, including Ball Aerospace, Boeing, ITT Exelis, Lockheed Martin, Northrop Grumman, Raytheon, Sierra Nevada Corporation, and United Launch Alliance. Key locations in the state include: Colorado Springs, Littleton, Aurora, and the Boulder area. (Source: OEDIT, see: http://www.advancecolorado.com/key-industries/aerospace). Freight needs on the State Highway System for this industry vary greatly due to the diversity of supplies in terms of size and value.

Oil and Gas

CDOT is in the process of studying the impacts of oil and gas development of the State Highway System. See the following section for more detailed information.

OIL AND GAS DEVELOPMENT

As natural resource development continues throughout the state, Colorado is faced with increasing infrastructure demands and corresponding higher costs. Due to technological advancements and favorable economic conditions, onshore oil and gas development has significantly increased across the country over the past five years and Colorado is one of several states to experience dramatic increases in industry activity. With this economic growth has come increased pressure on highway infrastructure in oil and gas development areas, that affects all transportation system users, including freight.

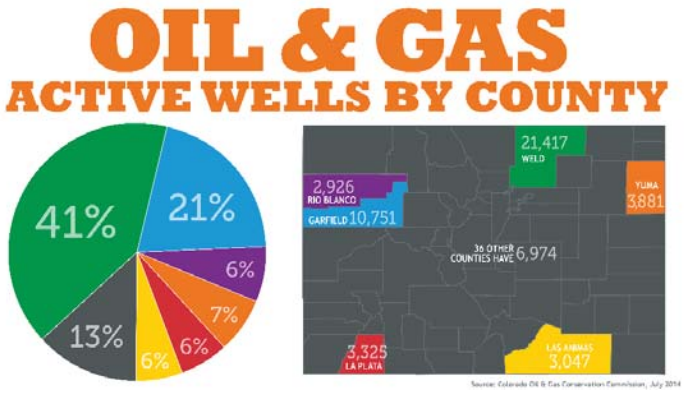


Figure 32: Oil and Gas Active Wells By County

Recent oil and gas activity in Colorado depicted in Figure 32 has been primarily concentrated in the Denver-Julesburg and Piceance Basins. The Denver-Julesburg Basin is located beneath Weld, Broomfield, Adams, and Denver Counties, although the vast majority of the formation underlies Weld County. The Piceance Basin lies on the western edge of the state, primarily in Garfield County.

As of July 2014, Colorado has about 52,000 active wells. Over the past five years, Colorado's active well count has increased by approximately 26 percent. Oil and gas activity is heavily concentrated in Weld County, which has nearly 21,500 active wells or roughly 40 percent of all active wells within the state.

The number of oil and gas truck trips and the types of trucks used are factors in determining the order of magnitude of industry impacts on the State Highway System. Oil and gas development requires the transport of heavy equipment to the well site to build access roads, construct a well pad, and transport a drilling rig. Heavy trucks are also needed to bring fresh water to the well site and often to transport produced water and extracted resources off site. Based on producing oil and gas wells and well permits provided by the Colorado Oil and Gas Conservation Commission (COGCC), CDOT has identified the following key energy corridors, presented in Figure 33, that receive significant amounts of oil and gas related truck trips. Those corridors are identified on the following map.

CDOT is in the process of investigating potential approaches to mitigating the increased wear and tear on highways associated with oil and gas development and plans to publish its findings and recommendations in the forthcoming Oil and Gas Impacts on Transportation study, to be completed in 2015.

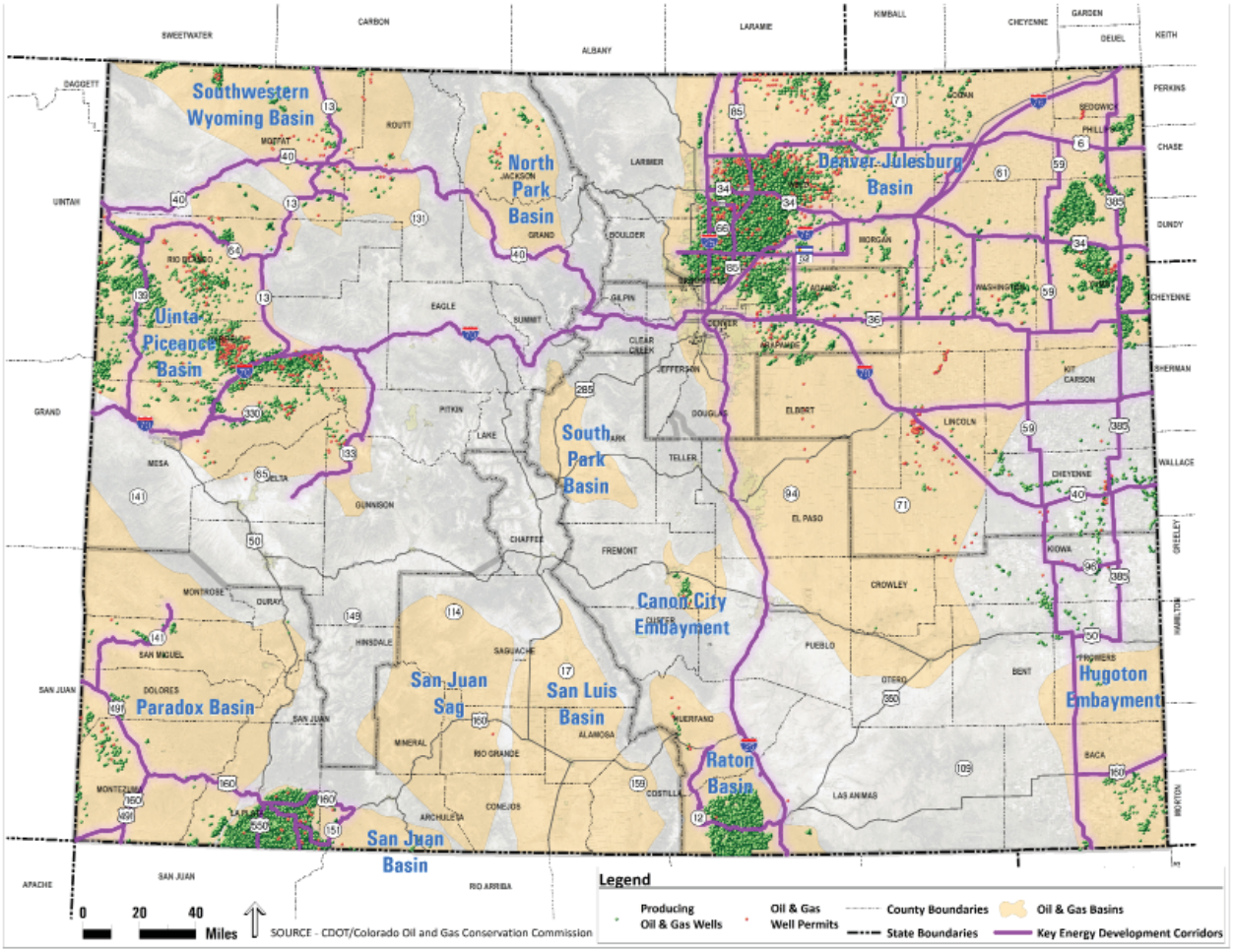


Figure 33: Colorado's Energy Corridors

EMERGING CHALLENGES AND TRENDS

In developing this State Highway Freight Plan, CDOT realized the importance of identifying emerging challenges and trends related to freight movement. Advances in technology are occurring rapidly, and socio-demographic changes will also influence travel demand on the State Highway System. Table 5 below highlights and summarizes key trends that will influence the movement of freight.

It is noted that how fast these trends will evolve is difficult to predict. Monitoring these trends is critical to successfully adapting. Some trends may prove to be counter measures to another, for example, the increase in congestion associated with increased population and travel demand may be mitigated by the many technological advances for transport and the operational improvements that are likely to occur.

Initial steps taken by CDOT to address emerging challenges and opportunities include:

- Creation of the Transportation Systems Management and Operations (TSMO) Division to explore operational efficiencies for the State Highway System in greater detail and give operations more department-wide prominence.

- Formation of the Office of Emergency Management, in response to Colorado's extreme weather and natural hazard events (floods and wildfires).

The TSMO Division recently completed a Statewide System Management & Operation Plan, which was integrated into this State Highway Freight Plan. The Office of Emergency Management is currently developing an Emergency Management Plan.

Other examples of CDOT preparing for challenges and opportunities include: monitoring improvements on speed data to assist with informing travelers on state highways of congestion and traffic incidents as they occur; and a potential pilot study being conducted along I-70 to test connected vehicle technology that would be connected to highway infrastructure, known as vehicle to infrastructure (V2I) technology.

Table 5: Emerging Issues and Trends

POTENTIAL FUTURE TREND	POSSIBLE IMPACTS ON FREIGHT SYSTEM
TECHNOLOGICAL ADVANCES in **COMMUNICATION TOOLS**	More informed trip planning: ■ Road Weather Information System (RWIS) that uses environmental sensor stations to report weather in real-time and improve predictive capabilities ■ Traffic conditions ■ Infrastructure condition and location information on: wifi access, runway truck ramps, chain up areas, staging areas, truck parking, etc.
TECHNOLOGICAL ADVANCES in **GOODS DELIVERY**	■ Unmanned Aerial Vehicles mean fewer trucks on the road. ■ Weigh-in-motion translates to more efficient truck travel on the State Highway System
Advances in **INTELLIGENT TRANSPORTATION SYSTEMS (ITS)** and **TRAFFIC MONITORING**	Increased safety and efficiency in travel on the State Highway System due to improvements such as, but not limited to: ■ Variable Speed Limit (VSL) advisory Signs ■ Radios, fiber optic cable, and cameras ■ Friction sensors ■ Managed Lanes ■ Live detour and emergency planning ■ Digital Camera Receiving Stations (DCRS)
Potential widespread usage of **3D PRINTING TECHNIQUES**	■ Decreased congestion due to reduced need for long-distance delivery of goods
Increase in **"BUY LOCAL"** trends	■ Decreased congestion due to reduced need for long-distance delivery of goods
Growth in **GLOBAL E-COMMERCE**	■ Increased congestion due to rising demand for product delivery
POPULATION GROWTH	■ Increased congestion based on need for freight transportation to supply growing population and increased vehicle miles traveled
AGING STATE and **NATIONAL POPULATION**	■ Increased congestion based on greater home delivery need to aging residents
INCREASED URBANIZATION	■ Increased congestion due to dense settlement patterns
Widespread adoption of **CONNECTED VEHICLES**	■ Significant safety improvement across the entire transportation system ■ Improved operational efficiencies related to travel times and getting more capacity out of the highway system
Widespread adoption of **AUTONOMOUS VEHICLES**	■ Platooning of trucks making freight movement more efficient on State Highways by getting more capacity out of the highway system; thereby reducing congestion and improving travel times
Changes in **ENERGY EXTRACTION** and **PRODUCTION TECHNIQUES**	■ Increased asset management costs resulting from heavy vehicle traffic on key energy corridors
Increased use of **ALTERNATIVE TRANSPORTATION FUELS**	■ Decreased environmental impact of freight transportation, i.e., CNG vehicles

Source: CDOT, 2015

PAGE INTENTIONALLY LEFT BLANK

CHAPTER VI: STATE HIGHWAY FREIGHT PLAN CORRIDOR PROJECT AREAS AND POTENTIAL IMPROVEMENT STRATEGIES METHODOLOGY

MAP-21 requires that areas for potential freight corridor projects be identified in a State Highway Freight Plan, in order to be eligible for the increased federal share of freight funding. The increased federal share reduces the local match requirement for eligible projects, but does not increase the total amount of federal funding received by the state.

PURPOSE AND INTENT

The purpose of this analysis was to identify areas along Colorado's freight corridors with freight mobility needs/issues along with potential improvement strategies to address them. This is in compliance with MAP-21 State Highway Freight Plan guidance to include "an inventory of facilities with freight mobility issues, such as truck bottle necks, within the State, and a description of the strategies the State is employing to address those freight mobility issues." Colorado's freight corridors were identified early in the development of this Plan. For more information on the freight corridors please see Chapter I.

Through this analysis, freight facilities with mobility needs/issues, *Freight Corridor Project Areas* and *Potential Improvement Strategies* were identified that preliminarily address bottlenecks, congestion and safety issues based on a data driven process that links the 2040 Statewide Transportation Plan Goals, Colorado State Highway Freight Plan Goals and the National Freight Goals. The identification of these Freight Corridor Project Areas and Potential Improvement Strategies will ensure flexibility in planning and serve as a starting point for future stakeholder discussions and collaboration in identifying specific freight projects.

FRAMEWORK

The State Highway Freight Plan used the 2040 Statewide Transportation Plan as a framework for establishing freight goals, that also align with MAP-21 National Freight Policy Goals as shown in Table 6.

Table 6: State Highway Freight Plan Goals

STATE HIGHWAY FREIGHT PLAN GOALS	MAP -21 NATIONAL FREIGHT POLICY GOALS
Improve the safety of the Colorado Freight System.	Safety, Security and Resilience
Improve the mobility of the Colorado Freight System.	Infrastructure and Operational Improvements
	Use of Advanced Technology
	Performance, Innovation, Competition, and Accountability
Improve economic vitality through freight investments, programs, and initiatives.	Economic Competitiveness and Efficiency
	Productivity
Improve maintenance of the Colorado Freight System.	State of Good Repair
	Infrastructure and Operational Improvements
Improve sustainability and reduce environmental impacts of freight movement.	Reduce Environmental Impacts

PERFORMANCE MEASURES

For each of the 2040 Statewide Transportation Plan goals, a series of basic objectives and anticipated performance measures were identified in Policy Directive 14 (PD 14). PD 14 guides the development of the 2040 Statewide Transportation Plan, its implementation, and future investment decisions that balance preservation and maintenance, efficient system management and operation strategies, and capacity improvements. PD 14 objectives and measures will be developed for the goal areas of Freight Rail, Economic Vitality, and Environmental Sustainability in collaboration with the planning partners. The five Metropolitan Planning Organizations Plans, 10 rural Regional Transportation Plans, and various CDOT Plans, including but not limited to the Transit, Strategic Highway Safety, and Transportation Systems Management and Operations Plans, were used to develop the goals, objectives, and performance measures identified in the 2040 Statewide Transportation Plan and PD 14. For more detailed information on PD 14, please see the PD 14 Technical Memorandum on the www.ColoradoTransportationMatters.com website.

METHODOLOGY

The methodology used to identify the potential Freight Corridor Project Areas was data-driven and aligns with the 2040 Statewide Transportation Plan and this Plan's vision, goals, objectives and strategies.

The following key steps were used to identify the Freight Corridor Project Areas and Potential Improvement Strategies:

- Conducted a data driven analysis as a tool to identify the freight corridors with identified needs/issues.
- Refined the Freight Corridor boundaries so that they align with the corridor based framework of the 2040 Statewide Transportation Plan. This allows for more consistent analysis of travel and safety data, issues/needs and potential improvements across modes.
- Used the Highway Expansion Needs Analysis from the 2040 Statewide Transportation Plan Expansion Needs Analysis database as a tool to overlay corridors with identified issues/needs and help identify additional needs and Potential Improvement Strategies.
- Identified and eliminated from further analysis the freight corridors without Areas for Potential Freight Projects (identified as part of this State Highway Freight Plan or issues/needs identified in the highway Expansion Needs Analysis as part of the 2040 Statewide Transportation Plan). The freight corridors removed from the analysis remain designated freight corridors, they just do not have specific issues/needs necessitating improvement strategies at this time.
- Developed a list of Potential Improvement Strategies to address the issues/needs identified.
- Developed two tables:

  a. The Freight Corridor Project Areas and the Needs/Issues (see Table 7).

  b. The Potential Improvement Strategies and the connection to State Highway Freight Plan Goals and the MAP-21 National Freight Policy Goals (see Table 8).

1. Conducted data driven analysis of Freight Corridor Needs/Issues. The freight corridor network was used as a base to identify the areas for potential freight projects areas. These project areas were identified based on data linked to the analysis of safety and congestion issues in the state, which are described in detail in Chapter V.

The analysis identified areas with safety or mobility issues, which have a greater likelihood of having a negative impact on the movement of freight. The identification of the potential freight projects areas included the following:

- Freight Corridor Safety Hotspots: Areas in which the truck crash rate (crashes per 100 million vehicle miles traveled) is higher than the general crash rate
- Freight Corridor Bottlenecks: Areas in which geometric conditions lead to reduced mobility; including areas with lane drops and/or intersection/interchange deficiencies. Bottlenecks were identified using established FHWA methodologies.
- Congested Highway Segments: Highway segments experiencing congestion as indicated by a Volume/Capacity (V/C) ratio of 0.85 or greater.
- Low Vertical Clearance Structures: Bridges with low vertical clearance with documented bridge strike incidents.

At a minimum, CDOT will update this list annually to refine methodology, add additional criteria, and incorporate more recent data. Additional project areas may be added to this list, when appropriate analysis determines that projects in these areas will improve the overall safety and mobility of freight movement.

The result of this analysis closely aligns with the results found in the Highway Expansion Needs Analysis conducted as part of 2040 Statewide Transportation Plan.

2. Refined the Freight Corridor boundaries to match the corridors in the 2040 Statewide Transportation Plan. Transportation corridors are a key part of the overall framework for the multi-modal transportation system and the 2040 Statewide Transportation Plan. A framework of 308 corridors across the state covering all Interstate, US Highways, and State Routes was established. CDOT defines a corridor as a transportation system that includes all modes and facilities within a described geographic area. For the 2040 Statewide Transportation Plan the corridor framework has been used as part of the identification of transportation needs, development of priorities, and as a focus for public and agency input. The State Highway Freight Plan identified 208 freight corridor segments which make up the freight corridor network.

For consistency and to support the comparison of data, the 208 Freight Corridor segments were overlaid with the 308 corridor structure defined for the 2040 Statewide Transportation Plan. As a result, the termini for Freight Corridors (segments of Freight Corridors) will match the termini for 2040 Statewide Transportation Plan corridors. These termini tend to be planning region borders and intersections of major routes.

3. Used 2040 Statewide Transportation Plan Highway Expansion Needs Analysis and the State Highway Freight Plan as a foundation. The next step in the process was to overlay the Freight Corridors and the Areas for Potential Freight Projects (lane drops bottlenecks, congestion bottlenecks) with the needs identified during the Highway Expansion Needs Analysis for the 2040 Statewide Transportation Plan.

   To identify needs/issues during the Highway Expansion Needs Analysis, safety data, travel time data and speed data for the NHS was used, in addition to extensive coordination with the 10 rural Transportation Planning Regions. For more information on the Highway Expansion Needs Analysis, please see the Technical Memorandum on the www.ColoradoTransportationMatters.com website.

4. Identified and eliminated Freight Corridors from further analysis that do not have identified Freight Corridor Project Areas. For these areas where no needs or issues were identified, the corridors were removed from further analysis. The freight corridors removed from the analysis remain designated freight corridors, they just do not have specific identified needs/issues necessitating improvement strategies at this time.

   As an example, a notable highway on the freight corridors which does not show up in the needs analysis is US 287 south of Lamar. Over the past two decades CDOT has worked to improve the Ports-to-Plains corridor. This roadway has been improved to address specific freight needs and is now a "super two" highway.

5. Developed a list of Potential Improvement Strategies. For the Freight Corridor Project Areas the results of the 2040 Statewide Transportation Plan Highway Expansion Needs Analysis was used to identify preliminary strategies to address the Freight Corridor Project Areas. This will insure this Plan is not proposing significant Potential Improvement Strategies that are inconsistent with the Highway Expansion Needs Analysis conducted as part of the 2040 Statewide Transportation Plan or precludes future options. The Potential Improvement Strategies that were identified include:

   SAFETY
   - Auxiliary Lanes
   - Climbing Lane
   - Communication
   - Education
   - Maintenance
   - Operations/ITS
   - Passing Lanes
   - Railroad Grade Crossing Improvements
   - Runaway Truck Ramps
   - Shoulder Improvements
   - Truck Parking

   MOBILITY/CONGESTION
   - Climbing Lanes
   - Communication
   - Education
   - Interchange Reconstruction
   - Maintenance
   - Managed Lanes
   - New Interchange
   - Operations/ITS
   - Passing Lanes
   - Shoulders
   - Widening

   GEOMETRICS
   - Bridge Replacement
   - Interchange Improvements
   - Managed Lanes
   - Ramp Improvements
   - Runaway Truck Ramps
   - Shoulders
   - Widening

6. Developed a Freight Corridor Project Areas with Identified Needs/Issues Matrix and a Potential Improvement Strategies with Goals Matrix. The information is commutated in two separate tables. The first identifies the Freight Corridor Project Areas and the Needs/Issues (see Table 7). The second identifies the Potential Improvement Strategies and the connection to State Highway Freight Plan Goals and the MAP-21 National Freight Policy Goals (see Table 8). These tables were developed using this methodology

CDOT will use the results of this analysis for future freight project planning and decision making. At a minimum, Table 7 will be updated annually to reflect the latest information and data analysis. As a result, Freight Corridor Project Areas may be added or removed to this list (Table 7).

Table 7: Freight Corridor Project Areas and Needs/Issues

FREIGHT CORRIDOR PROJECT AREA	NEEDS/ISSUES
US 6: SH 9 junction at I-70 in Dillon to I-70 E of Keystone	Intersection Bottleneck, Lane Drop Bottleneck
US 6: I-25 to I-70	Intersection Bottleneck, Lane Drop Bottleneck, Speed Drop, Bridge Clearance
US 6: SH 58 TO I-70	Intersection Bottleneck
SH 13: Wyoming SL to Rifle	Speed Drop, Capacity, Level of Safety Service
SH 14: Logan County Line to US 138	Capacity, Level of Safety Service
SH 14: US 287 to I-25	Speed Drop, Capacity
SH 14: I-25 to Logan County Line	Lane Drop Bottleneck, Level of Safety Service, Safety Hot Spot
SH 17: US 160 to US 285	Level of Safety Service
SH 21: SH 86 TO US 24	Intersection Bottleneck, Lane Drop Bottleneck
US 24: US 285 to US 285/US 24 split	Level of Safety Service
US 24: I-70 to US 24	Speed Drop, Level of Safety Service
US 24: US 24 to SH 21	Intersection Bottleneck, Speed Drop, Level of Safety Service
US 24: SH 21 in Limon to I-25	Intersection Bottleneck, Lane Drop Bottleneck, Level of Safety Service
I-25: I-70 to Broadway in Denver	Speed Drop, Capacity, Intersection Bottleneck, Lane Drop Bottleneck, Bridge Clearance, Safety Hot Spot
I-25: Broadway in Denver to C 470	Intersection Bottleneck, Lane Drop Bottleneck
I-25: C-470 to El Paso County Line	Intersection Bottleneck, Lane Drop Bottleneck, Capacity
I-25: Stem Beach to New Mexico SL	Speed Drop, Level of Safety Service
I-25: SH 14 in Ft Collins to I-70 in Denver	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottleneck, Level of Safety Service,
I-25: Purcell Blvd to Stem Beach	Speed Drop, Lane Drop Bottleneck, Intersection Bottleneck, Level of Safety Service, Capacity
I-25: Douglas County Line to S Powers	Lane Drop Bottleneck, Intersection Bottleneck, Level of Safety Service, Capacity
US 34: US 85 to I-76	Intersection Bottleneck, Lane Drop Bottleneck
US 34: US 287 to US 85	Intersection Bottleneck, Lane Drop Bottleneck, Level of Safety Service, Capacity
US 34: I-76 to SH 71	Speed Drop, Level of Safety Service
US 34: SH 71 to the Nebraska State Line	Speed Drop, Level of Safety Service, Safety Hot Spot
US 36: Iris Ave to Baseline Rd	Lane Drop Bottleneck
US 36: BASELINE RD TO I-25	Intersection Bottleneck, Lane Drop Bottleneck, Capacity, Safety Hot Spot
US 36: SH 9 to the US 36/US 385 split	Level of Safety Service
US 40: Utah SL to SH 13	Level of Safety Service
US 40: SH 13 to I-70	Speed Drop, Capacity, Intersection Bottleneck, Level of Safety Service, Safety Hot Spot
US 40: US 287 to Kansas SL	Speed Drop
US 40: I-70 to US 287	Speed Drop, Level of Safety Service
SH 47: I-25 to US 50B	Level of Safety Service
US 50: Sargents to SH 115	Speed Drop, Level of Safety Service
US 50: Canon City to McCulloch Blvd	Speed Drop
US 50: Montrose to Sargents	Speed Drop, Level of Safety Service, Safety Hot Spot
US 50: McCulloch Blvd to I-25	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottlenek
US 50: SH 141 to Grand Junction	Level of Safety Service
US 50: Pueblo County Line to Kansas SL	Speed Drop, Level of Safety Service, Safety Hot Spot, Capacity
US 50: I-12 to Pueblo County Line	Intersection Bottleneck, Lane Drop Bottleneck, Capacity
US 50 Bus: MP 367 E of Rocky Ford to MP 370 E of Rocky Ford	Capacity
SH 52: SH 119 to I-76	Speed Drop, Capacity

FREIGHT CORRIDOR PROJECT AREA	NEEDS/ISSUES
I-70: C-470 to I-25	Speed Drop, Capacity, Intersection Bottleneck, Level of Safety Service
I-70: US 6 to Parachute	Level of Safety Service
I-70: Glenwood Springs to Vail Pass	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottleneck, Level of Safety Service, Bridge Clearance, Safety Hot Spot
I-70: I-25 to E 470	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottleneck, Level of Safety Service, Bridge Clearance, Safety Hot Spot
I-70: E 470 to Kansas SL	Level of Safety Service
I-70: Parachute to Glenwood Springs	Speed Drop
I-70: Utah SL to SH 139	Level of Safety Service
I-70: SH 139 to US 6	Speed Drop, Level of Safety Service, Safety Hot Spot
SH 71: US 34 to I-70	Speed Drop, Level of Safety Service
SH 71: SH 14 to US 34	Speed Drop, Level of Safety Service
SH 71: Nebraska SL to SH 14	Level of Safety Service
I-76: Weld County Line to Nebraska SL	Bridge Clearance, Safety Hot Spot
I-76: I-70 to Weld County Line	Lane Drop Bottleneck, Intersection Bottleneck
SH 83: C-470 to SH 86	Lane Drop Bottleneck, Capacity
SH 83: SH 86 to SH 21	Capacity, Level of Safety Service
US 85: I-25 at MP 208 to I-25 at MP 184	Lane Drop Bottleneck, Intersection Bottleneck, Capacity
US 85: US 34 to I-76	Speed Drop, Lane Drop Bottleneck, Intersection Bottleneck, Level of Safety Service
US 85: Wyoming State Line to US 34	Speed Drop, Intersection Bottleneck, Level of Safety Service, Safety Hot Spot
SH 93: SH 72 to SH 58	Lane Drop Bottleneck, Intersection Bottleneck, Capacity
SH 119: US 36 to SH 157	Intersection Bottleneck
SH 119: US 287 to E 3rd Ave	Lane Drop Bottleneck
SH 119: SH 157 to US 287	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottleneck
SH 119: E 3rd Ave to I-25	Speed Drop, Intersection Bottleneck
SH 121: US 287 to US 36	Lane Drop Bottleneck
SH 141: US 50 to Grand Junction	Capacity
SH 141: Grand Junction to I-70 Business	Capacity
SH 157: SH 119 to US 36	Lane Drop Bottleneck, Intersection Bottleneck
US 160: E of Monte Vista to E of Alamosa	Safety Hot Spot
US 160: UPRR in Walsenburg to US 160 Business Loop	Speed Drop, Level of Safety Service
US 160: E of La Veta Pass to UPRR in Walsenburg	Level of Safety Service
US 160: W of South Fork to E of Monte Vista	Level of Safety Service
US 160: Archuleta County Line to W of South Fork	Level of Safety Service
US 160: Four Corners to the Archuleta County Line	Speed Drop, Intersection Bottleneck, Lane Drop Bottleneck, Safety Hot Spot
I 225: I-25 to I-70	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottleneck
I 270: I-76 to I-70	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottleneck
I 270: I-25 to I-76	Capacity, Lane Drop Bottleneck, Intersection Bottleneck
US 285: US 160 to US 50	Level of Safety Service
US 285: US 24 to US 50	Speed Drop
US 285: C-470 to Park County Line	Intersection Bottleneck, Capacity
US 285: SH 9 in Fairplay to US 24	Level of Safety Service

FREIGHT CORRIDOR PROJECT AREA	NEEDS/ISSUES
US 285: MP 222 to SH 9 in Fairplay	Speed Drop, Level of Safety Service
US 285: Park County Line to MP 222	Level of Safety Service
US 287: US 40 to US 50	Level of Safety Service
US 287: SH 14 to Larimer County Line	Speed Drop, Safety Hot Spot, Capacity
US 287: Wyoming State Line to SH 14	Level of Safety Service
US 287: Larimer County Line to US 36	Lane Drop Bottleneck, Safety Hot Spot
US 385: US 36 to US 40	Speed Drop, Level of Safety Service
US 385: I-76 to US 36	Speed Drop, Level of Safety Service
C 470: US 6 to I-25	Speed Drop, Capacity, Lane Drop Bottleneck, Intersection Bottleneck
C 470: I-25 S to I-25 N	Intersection Bottleneck
C 470: US 6 to I-70	Intersection Bottleneck
US 550: New Mexico SL to Durango	Intersection Bottleneck, Capacity
US 550: Durango to Montrose	Speed Drop, Intersection Bottleneck, Lane Drop Bottleneck, Level of Safety Service, Capacity

Table 8: Potential Improvement Strategies and the connection to State Highway Freight Plan Goals and the MAP-21 National Freight Policy Goals

POTENTIAL IMPROVEMENT STRATEGIES	NEEDS/ISSUES							STATE HIGHWAY FREIGHT PLAN GOAL AREAS					MAP-21 NATIONAL FREIGHT POLICY GOALS									
	SPEED DROP	CAPACITY (V/C)	LANE DROP BOTTLENECK	INTERSECTION BOTTLENECK	LEVEL OF SAFETY SERVICE	BRIDGE CLEARANCE	SAFETY HOT SPOTS	SAFETY	MOBILITY	ECONOMIC VITALITY	ENVIRONMENTAL STEWARDSHIP*	MAINTAINING THE SYSTEM	INFRASTRUCTURE AND OPERATIONAL IMPROVEMENTS	ECONOMIC COMPETITIVENESS AND EFFICIENCY**	CONGESTION	PRODUCTIVITY***	SAFETY, SECURITY, AND RESILIENCE	STATE OF GOOD REPAIR	USE OF ADVANCED TECHNOLOGY	PERFORMANCE, INNOVATION, COMPETITION, AND ACCOUNTABILITY**	ECONOMIC EFFICIENCY OF THE NFN**	REDUCE ENVIRONMENTAL IMPACTS*
Safety																						
Auxillary Lanes	✓	✓	✓	✓	✓		✓	✓	✓			✓	✓				✓					
Climbing Lanes	✓	✓	✓		✓		✓	✓	✓			✓	✓				✓					
Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓				✓		✓			
Education	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓				✓	✓	✓			
Maintenance	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓					✓	✓				
Operations/ITS	✓	✓	✓	✓	✓	✓	✓	✓	✓				✓				✓		✓			
Passing Lanes	✓	✓			✓		✓	✓	✓			✓	✓				✓					
Railroad Grade Crossing Improvments	✓	✓	✓		✓		✓	✓	✓			✓	✓				✓					
Runaway Truck Ramps					✓		✓	✓				✓	✓				✓					
Shoulders	✓	✓			✓		✓	✓	✓			✓	✓				✓					
Truck Parking	✓	✓			✓		✓	✓	✓			✓	✓				✓		✓			
Mobility/Congestion																						
Climbing Lanes	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓		✓			✓				
Communication	✓	✓	✓	✓	✓	✓	✓		✓						✓		✓		✓			
Education	✓	✓	✓	✓	✓	✓	✓		✓						✓		✓		✓			
Interchange Reconstruction	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓			✓				
Maintenance	✓	✓	✓	✓	✓	✓	✓		✓	✓		✓	✓		✓			✓				
Managed Lanes	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓			✓	✓			
New Interchange	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓			✓				
Operations/ITS	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓			✓		✓		✓		✓			
Passing Lanes	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓		✓			✓				
Shoulders	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓		✓			✓				
Widening	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓			✓				
Geometrics																						
Bridge Replacement	✓	✓			✓	✓	✓	✓		✓		✓	✓				✓	✓				
Interchange Improvements	✓	✓		✓	✓		✓	✓		✓		✓	✓					✓				
Managed Lanes	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓			✓	✓			
Ramp Improvements		✓		✓	✓		✓	✓				✓	✓					✓				
Runaway Truck Ramps					✓		✓	✓				✓	✓					✓	✓			
Shoulders	✓	✓	✓		✓		✓	✓	✓	✓		✓	✓		✓			✓				
Widening	✓	✓	✓	✓	✓		✓	✓	✓	✓		✓	✓		✓			✓				

** Environmental Issues will be addressed on all proposed projects. In general projects that address congestion or mobility issues would have a postive impact on air quality.*
*** The National Freight Network has not been identified by FHWA at the time of publication.*
**** This requires a local economic analysis to be conducted during proposed project development.*

PAGE INTENTIONALLY LEFT BLANK

CHAPTER VII: VISION, GOALS, OBJECTIVES, AND POLICY STRATEGIES

CHAPTER VII KEY POINTS

- Vision, goals, objectives and policy strategies for the Colorado Freight System have been developed that support the national freight policy and are in alignment with MAP-21.
- Policy strategies were identified to make progress towards achieving objectives.

VISION

In recognition that Colorado's transportation system constitutes a valuable resource and a major public investment that directly affects the economic vitality of the state. The following vision was developed for the Colorado Freight System:

The Colorado Freight System will support the economic vitality of the state by providing for the safe, efficient, coordinated, and reliable movement of freight.

DEVELOPMENT OF GOALS, OBJECTIVES, AND POLICY STRATEGIES

THE STATEWIDE PLANNING PROCESS AND PLAN INTEGRATION

The vision, goals, and policy strategies identified in this Plan where developed in alignment with various CDOT plans:

- 2040 Statewide Transportation Plan
- Statewide Transit Plan
- Strategic Highway Safety Plan
- Transportation Systems Management and Operations Plan
- Freight and Passenger Rail Plan
- Bicycle and Pedestrian Plan
- Aviation Plan
- Risk-Based Asset Management Plan
- CDOT Action Plan

Figure 34: Statewide Planning Process

The 2040 Statewide Transportation Plan incorporated goals, and identified strategic actions derived from other CDOT plans (both existing and some still under development). The 2040 Statewide Transportation Plan is updated approximately every five years, includes an extensive public involvement process, and incorporates available information from all areas within CDOT that have relevant information related to statewide planning. CDOT then links the 2040 Statewide Transportation Plan's goals to the project programming process through the development of the four-year Statewide Transportation Improvement Program (STIP), which CDOT uses to directly program dollars to projects.

A depiction of the statewide planning process that includes freight plan development is presented in Figure 34.

Several plans are first time plans, such as the Transportation Systems Management and Operations Plan, the Statewide Transit Plan, and the Action Plan. Other plans are required or are strongly encouraged to be developed by MAP-21, including this State Highway Freight Plan. Several plans have been developed on an on-going basis for many years, due to state and federal requirements, such as: the State Highway Safety Plan, and the Regional Transportation Plans.

PERFORMANCE MEASURES, POLICY STRATEGIES, AND LINK TO NATIONAL GOALS

Appendix C shows a summary of the connections between the goals, objectives, targets, and policy strategies of the State Highway Freight Plan, both with one another and with MAP-21 and 2040 Statewide Transportation Plan goals. Table 9 conveys how the State Highway Freight Plan goals and policy strategies align with MAP-21 National Freight Policy Goals.

Table 9: State Highway Freight Plan Goals

STATE HIGHWAY FREIGHT PLAN GOALS	STATE HIGHWAY FREIGHT PLAN POLICY STRATEGIES	MAP-21 NATIONAL FREIGHT POLICY GOALS								
		ECONOMIC COMPETITIVENESS AND EFFICIENCY	CONGESTION	PRODUCTIVITY	STATE OF GOOD REPAIR	SAFETY, SECURITY, AND RESILIENCE	INFRASTRUCTURE AND OPERATIONAL IMPROVEMENTS	USE OF ADVANCED TECHNOLOGY	PERFORMANCE, INNOVATION, COMPETITION, AND ACCOUNTABILITY	REDUCE ENVIRONMENTAL IMPACTS
Improve the safety of the Colorado Freight System.	Data-Driven Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Highway Truck Crash Reduction	✓	✓	✓			✓		✓	✓
	Bridge Strike Reduction	✓	✓	✓	✓	✓	✓		✓	✓
	Targeted Crash Type Mitigation	✓	✓	✓		✓	✓		✓	✓
	Improved Access to Safe Truck Parking Facilities	✓		✓	✓	✓	✓	✓		✓
	Geometric Improvements	✓	✓	✓	✓	✓	✓		✓	
Improve the mobility of the Colorado Freight System.	Bottleneck Assessments	✓	✓	✓		✓	✓	✓	✓	✓
	Travel Time Reliability on Freight Corridors	✓	✓			✓	✓	✓	✓	✓
	Intelligent Transportation Systems	✓	✓	✓		✓	✓	✓	✓	
	Monitor Local Freight Ordinances			✓			✓		✓	✓
	Corridor Studies	✓	✓	✓		✓	✓	✓	✓	✓
	Identify Connectivity Gaps	✓	✓	✓			✓	✓		
	Freight Trip Planning Resource	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Enhanced Incident Management	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Heavy Tow	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Risk and Resiliency Planning	✓	✓	✓	✓	✓	✓	✓	✓	✓
Improve economic vitality through freight investments, programs, and initiatives.	Monitor Freight Trends	✓	✓	✓		✓	✓	✓	✓	
	Stakeholder Communication	✓	✓	✓	✓	✓	✓	✓	✓	✓
Improve maintenance of the Colorado Freight System.	Prioritize Infrastructure Improvements	✓	✓	✓	✓	✓	✓		✓	✓
	Freight Project Criteria	✓	✓	✓	✓	✓	✓	✓		✓
Improve sustainability and reduce environmental impacts of freight movement.	Truck Electrified Parking	✓		✓		✓	✓	✓		✓
	Promote Vehicle Efficiency			✓		✓	✓	✓	✓	✓

FREIGHT GOALS

IMPROVE THE SAFETY OF THE COLORADO FREIGHT SYSTEM

CDOT's 2040 Statewide Transportation Plan includes a safety goal intended to "move Colorado toward zero deaths by reducing traffic-related deaths and serious injuries." CDOT believes that this is an achievable goal, and the policy strategies needed to make it a reality are laid out in detail in the Strategic Highway Safety Plan, available on the 2040 Statewide Transportation Plan website: www.ColoradoTransportationMatters.com.

While freight related crashes occur at a lower rate than those of the general traveling public, some corridors experience higher instances and require safety improvements to advance this goal. Freight vehicle crashes also show a higher elevation of certain crash types in comparison to the general population, indicating specific vulnerabilities to be addressed.

The State Highway Freight Plan establishes three objectives in support of the safety improvement goal:

- Reduce the number of fatalities and serious injuries on Freight Corridors
- Reduce truck crashes on Freight Corridors and in commercial vehicle crash hot spots
- Reduce the number of truck crashes statewide

IMPROVE MOBILITY OF THE COLORADO FREIGHT SYSTEM

The 2040 Statewide Transportation Plan includes the goal to "improve mobility and connectivity with a focus on operations and transportation choice." The Transportation Systems Management and Operations (TSM&O) Plan details policy strategies to use operational solutions to address system performance and mobility issues, and is available on the 2040 Statewide Transportation Plan website.

While congestion is a problem for all users of the State Highway System, the effects of congestion on the efficient movement of freight are of particular concern due to the economic impacts of delayed freight arrival and other inefficiencies.

The State Highway Freight Plan establishes four objectives in support of the mobility goal:

- Limit increases in congestion and increase travel reliability (as measured by Planning Time Index)
- Improve connectivity between freight facilities and destinations
- Mitigate non-recurring congestion and improve travel time by reducing crashes on Freight Corridors and improving clearance time
- Address highway geometric issues affecting freight safety and movement

IMPROVE ECONOMIC VITALITY THROUGH FREIGHT INVESTMENTS, PROGRAMS, AND INITIATIVES

The 2040 Statewide Transportation Plan identifies economic vitality as a goal to "improve the competitiveness of the state economy through strategic transportation investments." CDOT is currently working to develop the tools and policies needed to effectively incorporate economic benefit considerations into the planning process.

Apart from the freight industry's role in transporting necessary goods, it also encourages national and international trade by Colorado's businesses and allows for key industries like agriculture and energy development to sell their products. In recent years the critical importance of the transportation system to the state economy has become more widely recognized, and a greater emphasis is being placed on the economic benefits of transportation investments.

The State Highway Freight Plan establishes two objectives in support of the economic vitality goal:

- Support freight decision-making through expanded analysis, dissemination, and use of data and industry trends in the planning process
- Identify freight investments, programs, and initiatives that enhance the competitiveness of the Colorado Freight System

IMPROVE MAINTENANCE OF THE COLORADO FREIGHT SYSTEM

A key goal of the 2040 Statewide Transportation Plan is to "preserve and maintain the existing transportation system." CDOT's guide for maintaining the existing system is the Risk-Based Asset Management Plan (RB-AMP), available on the 2040 Statewide Transportation Plan website.

The good condition of pavement and bridges is critical to a safe and efficient freight system, as are bridge and highway geometrics that adequately accommodate freight traffic. Highways and bridges in poor condition or not meeting geometric standards can limit freight movement and create safety issues.

The State Highway Freight Plan establishes two objectives in support of the infrastructure improvement goal:

- Maintain bridge and pavement condition on Freight Corridors
- Maintain auxiliary assets (lights, signage, tunnels, culverts, etc.) on Freight Corridors

IMPROVE SUSTAINABILITY AND REDUCE ENVIRONMENTAL IMPACTS OF FREIGHT MOVEMENT

CDOT's 2040 Statewide Transportation Plan includes Sustainability and the Environment as a strategic policy action to "continue to implement CDOT's Sustainability Plan and other environmental initiatives" and "ensure all projects undergo timely and proper environmental review and compliance." More information can be found on the CDOT Environmental Programs webpage at http://www.codot.gov/programs/environmental.

The transportation system provides the backbone of a vibrant economy by connecting people with jobs and providing for the movement of goods, but it is also the source of substantial environmental impacts. Transportation is the 2nd highest producer of greenhouse gas emissions in the U.S., while on-road vehicles account for 84% of transportation emissions, and medium and heavy duty account for a little more than a quarter of on-road vehicle emissions. Freight activities can also produce other forms of pollution, such as excessive noise.

The State Highway Freight Plan establishes two objectives in support of the Sustainability and Environment goal:

- Improve the energy efficiency of freight movement and reduce the associated levels of greenhouse gas emissions
- Improve the sustainability of the freight system in the face of natural disasters and extreme weather events

FREIGHT POLICY STRATEGIES

The following freight policy strategies are presented by their primary goal areas of: Safety, Mobility, Economic Vitality, Maintenance, and Sustainability and Environment. Plans for implementing these freight policy strategies will be determined during the development of the Integrated Freight Plan.

SAFETY

DATA DRIVEN PLANNING

- **Primary Goal Area:** Safety
- **Summary:** Identify and prioritize local road safety problems on all roadways using data-driven processes to support implementation of the most effective improvements to reduce roadway crashes.

Data-driven planning helps to more objectively spotlight emerging or ongoing data issues and assess the best means of addressing them. It also removes potential political or geographic biases from the equation in order to target funds where they are needed most. Additionally, data-driven planning as described in the Colorado Strategic Highway Safety Plan, allows for better performance measurement and assessment following an investment.

CDOT is continuing to work on incorporating data at all levels of planning, including efforts related to safety and freight.

HIGHWAY TRUCK CRASH REDUCTION

- **Primary Goal Area:** Safety
- **Summary:** Identify corridors and hot spots with truck crash rates higher than the overall crash rate and prioritize improvements for investment.

Freight Corridors with a truck crash rate higher than the total crash rate will be identified and prioritized for safety improvements, in keeping with the Colorado Strategic Highway Safety Plan's overall vision to reach zero deaths from traffic crashes and the 2040 Statewide Transportation Plan safety goal to move the state toward zero deaths by reducing traffic-related deaths and serious injuries. A hot spot analysis will also be completed in order to identify specific locations on Freight Corridors with safety issues. This information will be used by CDOT staff when considering where to make safety investments and post-improvement monitoring will occur in order to identify the most effective methods for addressing common safety issues.

BRIDGE STRIKE REDUCTION

- **Primary Goal Area:** Safety
- **Secondary Goal Area:** Maintenance
- **Summary:** Identify causes and trends of bridge strike incidents and actions to reduce future bridge strikes.

A comprehensive list of "low clearance" structures has been developed in an effort to prevent infrequent but often damaging bridge strike crashes. An analysis of the elements of bridge strikes will be conducted to determine factors such as location, truck / equipment type, or driver habits which contribute to bridge strike incidents, and policy strategies will be identified to prevent future bridge strikes. Findings will be made available in an annual report on bridge strike incidents.

TARGETED CRASH TYPE MITIGATION

- **Primary Goal Area:** Safety
- **Summary:** Analyze data to identify trends in truck crash types and identify solutions including public outreach to educate drivers concerning factors relating to the most common truck crash types.

Crash data will continue to be analyzed to identify crash types and trends, better understand the causes of specific crash types, and develop programs to inform all drivers (commercial vehicles and others) of ways to avoid the most common types of truck crashes, such as sideswipes and rear-end collisions. Reducing truck crashes is in keeping with the Colorado Strategic Highway Safety Plan's overall vision to reach zero deaths from traffic crashes and the 2040 Statewide Transportation Plan goal to move the state toward zero deaths by reducing traffic-related deaths and serious injuries.

IMPROVED ACCESS TO SAFE TRUCK PARKING FACILITIES

- **Primary Goal Area:** Safety
- **Secondary Goal Area:** Mobility
- **Summary:** Update truck parking facility study and develop action plan for addressing current and future truck parking needs.

In 2007, CDOT published Truck Parking Issues at State Facilities in Colorado, which identified deficiencies in truck parking across the state. The report found 774 additional truck parking spaces were needed to meet statewide demand. Existing truck parking and projected needs can be found in Chapter V.

The truck parking facility study will be updated to identify current and future truck parking needs on the State Highway System and include an action plan for addressing them, including the potential for funding through the National Highway Performance Program (NHPP), Surface Transportation Program (STP), and Highway Safety Improvement Program (HSIP) under MAP-21.

GEOMETRIC IMPROVEMENTS

- **Primary Goal Area:** Safety
- **Secondary Goal Area:** Mobility
- **Summary:** Identify segments on Freight Corridors with deficient geometric conditions.

The American Association of State Highway and Transportation Officials (AASHTO) recommends minimum geometric designs for the safe and efficient movement of freight, including elements such as lane and shoulder width, grade, and climbing lane requirements.

Freight corridor segments with deficient geometric conditions will be identified and prioritized for improvement as a means of improving the safety and operational efficiency of the statewide freight system.

MOBILITY

BOTTLENECK ASSESSMENTS

- **Primary Goal Area:** Mobility
- **Summary:** Identify and monitor freight bottlenecks, and develop proposed solutions.

Bottlenecks are areas in which the volume of traffic is constricted to the point that it affects flow into other segments of roadways. This may be due to inadequate roadway capacity, major intersections and interchanges, lane drops, or highways with severe grades. Bottlenecks are one of the sources of congestion targeted for operational policy strategies in the Statewide Transportation System Management & Operations Plan.

CDOT is currently able to identify bottlenecks at intersections, interchanges, and lane drops but data is insufficient for identifying those caused by severe grades. CDOT will continue to work to establish a more comprehensive inventory of bottlenecks on the State Highway System including those on Freight Corridors, and to identify associated improvements.

TRAVEL TIME RELIABILITY ON FREIGHT CORRIDORS

- **Primary Goal Area:** Mobility
- **Summary:** Further develop the travel time program to include specific freight and commercial vehicle measures and objectives.

Travel time is used to measure the performance of a roadway by comparing expected travel times to observed travel times. Currently CDOT and other state departments of transportation do not have truck Planning Time Index (PTI) and travel time delay data for commercial vehicles separate from general traffic data. The field of study is rapidly changing with emerging technologies having the potential to make such information available in the future.

CDOT will continue to develop the travel time program including the development of PTI measures and objectives for individual Freight Corridors and, as the data becomes available, PTI measures and objectives specific to commercial vehicle traffic. Once developed, freight-specific travel time information will be made available to industry stakeholders in order to improve the predictability of travel times.

INTELLIGENT TRANSPORTATION SYSTEMS

- **Primary Goal Area:** Mobility
- **Summary:** Explore use of all types of ITS enhancements, and develop “push” notifications for in-cab systems and improve the accuracy and timeliness of personalized traveler information based on individual preferences.

The Colorado Transportation Management Center currently uses a variety of tools and technologies to actively address real-time traffic movement on certain segments of the State Highway System. Information is provided to the traveling public through the www.CoTrip.org website, variable message signs along the highways, and other means of communication.

To address freight-specific needs, CDOT will explore all types of potential ITS enhancements including but not limited to:

- Roadway Weather Information System (RWIS)
- Variable messaging signs (VMS)
- Radios and cameras
- Friction Sensors
- Managed Lanes
- Live detour and emergency planning

In addition, the development of a system to send “push” notifications to in-cab systems advising drivers of current weather and traffic conditions or other pertinent information will be investigated. CDOT will also explore using its existing personalized traveler information tools and identify

opportunities to use these systems to target commercial drivers and their unique needs.

ENHANCED INCIDENT MANAGEMENT

- **Primary Goal Area:** Mobility
- **Secondary Goal Area:** Safety
- **Summary:** Enhance traffic incident management and response using real time road information.

Traffic Incident Management is the systematic, planned, and coordinated use of staff, institutional, and technical resources to reduce the duration and impact of non-recurring roadway incidents such as crashes. The goal is to improve the safety of motorists, crash victims, and responders as well as limit the operational effects on the broader transportation system, such as secondary crashes or congestion on adjacent segments. The enhancement of incident management therefore produces both system performance and safety benefits for the movement of freight, as well as for the general traveling public. Reducing the amount of time it takes to clear crashes is one of the goals of the Statewide Transportation System Management & Operations Plan.

CDOT will continue to employ its Traffic Incident Management Plans already in place for key corridors while enhancing its ability to use technology to better monitor incidents in real time. The Colorado Transportation Management Center will transition in its role from primarily providing information to the traveling public into one of more actively managing operations and incident response on a statewide level.

HEAVY TOW

- **Primary Goal Area:** Mobility
- **Summary:** Continue to implement Heavy Tow program for commercial vehicles on I-70 corridor and consider options for expansion to I-25.

Heavy Tow is a service provided by CDOT to assist commercial vehicle drivers stranded along the State Highway System due to mechanical or operational issues. By providing this service, CDOT helps to ensure that commercial truck drivers can continue their journeys as quickly and as safely as possible, while also minimizing the delay for other vehicles.

Currently this service is only available for commercial vehicles on the I-70 West corridor. CDOT will continue the Heavy Tow program along this corridor and examine options for extending the service to I-25 and other corridors. By using predictive traffic data, crash patterns, and weather data, CDOT proposes in the Statewide Transportation System Management & Operations Plan to optimize Heavy Tow on I-70 West.

IDENTIFY CONNECTIVITY GAPS

- **Primary Goal Area:** Mobility
- **Summary:** Identify gaps in the connectivity of freight infrastructure.

Connectivity gaps may occur in the freight system due to physical barriers, congestion, or other travel restrictions. No matter the source, these gaps increase delays and are responsible for a disproportionate amount of the total cost of shipping goods.

CDOT will work to identify connectivity gaps in the Colorado Freight System and devise potential solutions to limit their negative effects on cost, travel time, and overall economic efficiency.

RISK AND RESILIENCY PLANNING

- **Primary Goal Area:** Mobility
- Secondary Goal Areas: Safety, Economic Vitality, Maintenance, Sustainability and Environment
- **Summary:** Develop a Risk and Resiliency Framework for the State Highway System to better prepare for the structural and economic impacts of future natural or man-made disasters.

Recent high-profile weather events in Colorado have highlighted the importance of resiliency and redundancy to the effective operation of the State Highway System, including the movement of freight. As part of its Futures Forward Initiative, CDOT has identified Extreme Weather as one of five future-oriented topics meriting increased study and advanced planning. This includes potential policy strategies to prepare for increased extreme weather events, better mitigate their effects, and ensure continued highway operations and freight movement in the face of both natural and man-made disasters.

As outlined in the 2040 Statewide Transportation Plan, CDOT will consider the information gathered by the Futures Forward Initiative and use it to develop a Risk and Resiliency Framework. The CDOT Emergency Management Office will also develop an emergency preparedness and response program focusing on community and agency coordination, communications protocols, and the identification of key alternative routes for freight and all other highway traffic for use in the event of an emergency.

CORRIDOR STUDIES

- **Primary Goal Area:** Mobility
- **Summary:** Conduct Freight Corridor studies as deemed appropriate to determine phased approach to implementation of needed freight improvements.

With Freight Corridors identified for Colorado, next steps for CDOT will include assessing corridors further to identify the most cost-effective measures to improve freight movement along these corridors.

CDOT will investigate methods to conduct corridor studies or follow up on existing studies, including benefit/cost analysis of freight improvements along Freight Corridors.

FREIGHT TRIP PLANNING RESOURCE

- **Primary Goal Area:** Mobility
- **Summary:** Compile freight trip planning information in one convenient on-line location.

Truck drivers would benefit significantly from having a one-stop location to identify information to aid in trip planning - from real-time weather and traffic conditions, to locations of rest areas, truck parking facilities, runaway truck ramps, weigh stations, chain up areas, and other information, prior to embarking on a trip.

CDOT will work towards compiling freight trip planning information in one convenient on-line location to increase the convenience and efficiency of freight trip planning and freight trip implementation.

MONITOR LOCAL FREIGHT ORDINANCES

- **Primary Goal Area:** Mobility
- **Summary:** Monitor and disseminate information on local freight ordinances to assist industry compliance with local ordinances.

Every year local jurisdictions report to CDOT on the locally maintained roadway system as statutorily required for the state Highway Users Tax Fund (HUTF). This established reporting process can also be used to monitor local ordinances affecting freight movements such as curfews, noise restrictions, or others.

Information collected from local jurisdictions will be published and made available to transportation providers and other interested freight stakeholders through a directory of statewide ordinances and regulations, allowing the freight industry to better adjust its operations to comply with local ordinances and thereby avoid fines, delays, and other inefficiencies. This information would potentially feed into a freight trip planning resource.

ECONOMIC VITALITY

MONITOR FREIGHT TRENDS

- **Primary Goal Area:** Economic Vitality
- Secondary Goal Areas: Maintenance, Mobility
- **Summary:** Monitor freight trends to better support freight decision-making.

The important connection between the state transportation system and Colorado's freight industry cannot be overstated. This relationship flows both ways, with transportation problems and solutions impacting the success of industry and freight sector trends likewise affecting the overall needs and performance of the statewide transportation system. A better understanding of current and future freight trends will strengthen planning and project selection, and maximize the benefits of transportation investments. The importance of freight and economic growth is further underscored in the 2040 Statewide Transportation Plan objective to support policy strategies and operational improvements that facilitate multi-modal freight movement and promote state, regional, and local economic goals.

CDOT will work to improve freight policy and decision-making by expanding the analysis, dissemination, and use of economic data and trends, and seeking closer collaboration with industry stakeholders. This information would potentially be a component of an on-line freight trip planning resource.

STAKEHOLDER COMMUNICATION

- **Primary Goal Area:** Economic Vitality
- **Summary:** Enhance communication and coordination with freight stakeholders and federal, state, and local agencies while seeking out opportunities to support local economies.

Economic vitality is the central goal of the Colorado Freight Corridors and one which stakeholders from across the state are interested in advancing. It is important to develop relationships between the numerous parties who have a stake in successful freight movement in Colorado, including representatives of business, government, and local communities. Recognizing that business needs often change more swiftly than those of the general public, it should be a goal of CDOT and its partners to maximize the participation of the private sector in freight planning activities moving forward.

MAINTENANCE

PRIORITIZE INFRASTRUCTURE IMPROVEMENTS

- **Primary Goal Area:** Maintenance
- **Summary:** Identify pavement and bridge projects on Freight Corridors where the current condition of infrastructure or geometrics deficiencies have a significant limiting effect on freight movement and work with Asset Managers to prioritize for investment.

Infrastructure deficiencies can reduce mobility and decrease operational efficiencies. A priority list of freight corridor infrastructure improvements, including geometric issues, will be developed in conjunction with the Freight Advisory Committee (FAC), key stakeholders, and CDOT Asset Managers. Maintaining the condition of bridges, highway pavement, and other assets – among the objectives of the 2040 Statewide Transportation Plan – also will assist freight movement.

FREIGHT PROJECT CRITERIA

- **Primary Goal Area:** Maintenance
- **Summary:** Employ project criteria from the State Highway Freight Plan in selection and prioritization of asset management projects.

Freight infrastructure needs can be distinct from those of the broader traveling public and infrastructure deficiencies on Colorado Freight Corridors may have more negative economic consequences than elsewhere. CDOT will work to integrate freight project criteria and data on the economic benefits of freight projects into the asset management decision-making process. This will help implement the project selection and programming strategic policy action in the 2040 Statewide Transportation Plan. The strategic policy action states that CDOT will continue to make more effective and efficient use

of limited funding through data-driven decision making for project selection.

SUSTAINABILITY AND ENVIRONMENT

TRUCK ELECTRIFIED PARKING (TEP)

- **Primary Goal Area:** Sustainability and Environment
- **Secondary Goal Area:** Mobility
- **Summary:** Explore opportunities to implement TEP at rest areas and other locations.

Truck idling during driver rest periods wastes fuel and contributes to GHG emissions. In 2012, CDOT investigated the potential to install truck electrified parking (TEP) equipment at rest areas to reduce truck idling by allowing drivers to use cabin lights, heat, and electrical outlets without running vehicle engines. Plans for a TEP pilot project were stalled due to statutory conflicts relating to the commercialization of rest areas.

TEP remains a promising opportunity to improve truck parking facilities and reduce environmental impacts. CDOT will explore possible resolutions to the regulatory conflict and explore opportunities to partner with the private sector in developing TEP locations.

PROMOTE VEHICLE EFFICIENCY

- **Primary Goal Area:** Sustainability and Environment
- **Summary:** Promote and disseminate information on policy strategies and programs to improve freight vehicle efficiency.

Significant fuel cost savings and emissions reduction benefits are attainable through the use of alternate fuel vehicles, retrofits to existing vehicles (i.e., CNG or electric), or aerodynamic improvements such as truck fairings.

CDOT will work with industry stakeholders, the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC) to identify best practices, share information and resources, and promote the availability of funding for alternate fuel vehicles and efficiency improvements, as detailed in the 2040 Statewide Transportation Plan's strategic policy action for sustainability and the environment.

CHAPTER VIII: NEXT STEPS AND IMPLEMENTATION

CHAPTER VIII KEY POINTS

- This Plan will guide improvement of the overall effectiveness of the Colorado Freight System and help guide future investment decisions.
- This Plan was developed to position CDOT to become eligible for an increased federal share (from 82.79% up to 95%) for projects that improve freight movement. The increased federal share reduces the local match requirement for eligible projects, but does not increase the total amount of federal funding received by the state.
- The development of this Plan will be followed by a Phase II freight planning process to integrate planning for highway freight, rail freight, and aviation.
- A process and mechanism for reporting progress will be developed and used to communicate accomplishments with stakeholders and the public.

PLAN IMPLEMENTATION

This Plan will guide improvement of the overall effectiveness of the Colorado Freight System, and support the vision of a safe, efficient, coordinated, and reliable system for the movement of freight. This Plan will help guide future investment decisions and position CDOT for dedicated funding opportunities by establishing its eligibility for an increase in the federal share payable to 95 percent for freight projects on the Interstate System and 90 percent for any other project that meets the requirements outlined in MAP-21 Section 1116.

This State Highway Freight Plan is part of the first phase of a two phase approach to freight planning. The second phase will include:

- Development of approach to integrate highway freight planning with freight rail and aviation planning
- Continued work with key stakeholders and planning partners to incorporate additional input, strategies, and develop an integrated implementation plan, although it does not increase the total amount of federal funding received by the state
- Re-establishment of industry engagement via the Freight Advisory Committee (FAC) and expansion of membership to other key stakeholders and planning partners
- Development of freight strategies (improvement and policy) integrating highway freight, freight rail, and aviation

During the second phase, CDOT will work with the FAC, Statewide Transportation Advisory Committee (STAC), and Transit and Rail Advisory Committee (TRAC) to develop an integrated implementation plan. This integrated plan will:

- Integrate the vision, goals, objectives, and strategies for highway freight, freight rail, and aviation
- Identify a plan for implementation, including the identification of champions, roles, and responsibilities for implementation activities
- Identify key undertakings of the FAC
- Establish priorities and a timeline (short and long-term) for completion of policy strategies and other implementation activities
- Establish a process for monitoring and reporting progress

PLAN MONITORING

Monitoring of the State Highway Freight Plan will be an ongoing and continuous process to ensure the state moves efficiently and effectively towards meeting the goals and objectives outlined in this Plan. Monitoring will include not only the State Highway Freight Plan, but the integrated plan once developed. This process will include various parts of CDOT, multiple regional and local planning partners, FHWA, other state and federal agencies, and the public. By monitoring and reporting progress, CDOT will also reveal successes and the potential need for adjustment in goals, objectives, or strategies.

A process and mechanism for reporting progress will be developed during the second phase of freight planning efforts, and used to communicate accomplishments with stakeholders and the public.

APPENDIX A: NATIONAL FREIGHT DESIGNATIONS

For more than a quarter century, networks and corridors have been identified in transportation laws. These designations have had their own unique priorities, with a varying emphasis on freight movement. When addressing freight issues it is important to consider the practical, financial, and policy implications a route designation may have on a specific route, corridor, or project.

NATIONAL NETWORK (NN)

The National Network (NN) was established by the Surface Transportation Assistance Act of 1982. The network identifies routes nationwide that meet the minimum geometric requirements to carry commercial vehicles – which meet standard dimensions and configuration – and consists of more than 200,000 miles. Although still in existence, in practice the NN was largely replaced by the National Highway System (NHS) when it was established in 1995. Colorado has not updated any routes since the National Network's inception in 1982.

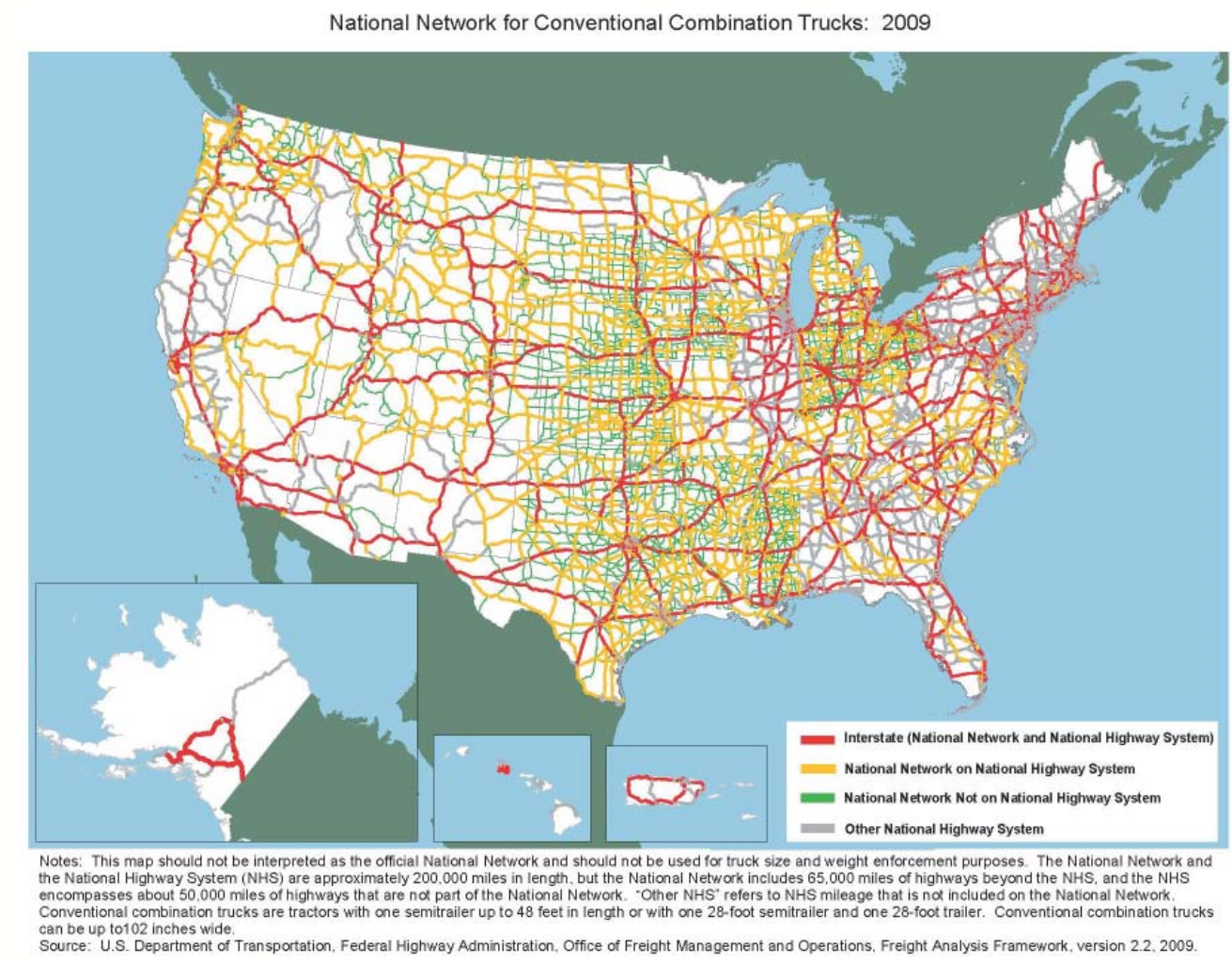


Figure A-1: National Network for Conventional Combination Trucks: 2009

NATIONAL HIGHWAY SYSTEM (NHS)

The National Highway System Designation Act of 1995 created a strategic highway system which focused on the nation's economy, defense, and mobility. NHS, unlike the NN, is not freight-specific, and gives preference to corridors for improvements, rather than just identifying those corridors that meet certain qualifications. The system is comprised of more than 160,000 miles of roadway nationally. A major update often referred to as expanded NHS was completed in 2013 as required by MAP-21. The original approved and expanded NHS system in Colorado includes 4,705 centerline miles on the State Highway System, and 192 of centerline miles off the State Highway System. See Figure 6 for a map of NHS facilities in Colorado.

STRATEGIC HIGHWAY NETWORK

The Strategic Highway Network (STRAHNET) system, developed by the Federal Highway Administration (FHWA) and the Department of Defense (DOD), is a system of public highways which provides access, continuity, and emergency transportation of personnel and equipment to provide for national defense and security. There are seven active military installations in Colorado and many Colorado National Guard facilities. Fort Carson, located just south of Colorado Springs in El Paso County, is a major military deployment site. This facility has direct access to I-25/US Hwy 87, which is on the STRAHNET and the Colorado freight network. Buckley AFB, adjacent to Aurora is a prominent military installation, but is not a major deployment site. However, it is important for active military installations to maintain connectivity, inclusive of all transportation modes, to the STRAHNET and the Colorado freight network. The STRAHNET in Colorado includes 952 centerline miles on the Interstate Highway System, and 58 centerline miles of non-Interstate highway roadways.

FEDERALLY DESIGNATED HIGH PRIORITY CORRIDORS

The Intermodal Surface Transportation Efficiency Act of 1991 established eighty priority corridors nationwide intended to promote collaborative planning along corridors. Four priority corridors are partially within Colorado. The Heartland Expressway between Denver and Rapid City, South Dakota, follows I-76 east from Denver to Brush, then SH 71 north to the Nebraska border. A spur runs south on SH 71 from Brush to Limon. The Camino Real Corridor from El Paso, Texas to the Canadian border in Montana follows I-25 through Colorado. The Port-to-Plains Corridor connects Laredo, Texas, to Denver. Beginning at the Oklahoma border, the corridor follows US 287 north to Limon and then continues west to Denver on I-70. The Route 50 High Plans Corridor follows US Route 50 from Newton, Kansas to Pueblo.

These corridors did not receive funding under MAP-21, but under the three previous (ISTEA, TEA-21, and SAFETEA-LU) federal authorizations these corridors either directly or indirectly received funding. (Source: http://www.fhwa.dot.gov/planning/national_highway_system/high_priority_corridors/).

INTERMODAL CONNECTORS

NHS intermodal connectors are public roads leading to major intermodal terminals having a critical bearing on the efficient operation of that facility, where intermodal terminals are facilities which provide for the transfer of freight from one mode to another. Source: http://ops.fhwa.dot.gov/FREIGHT/freight_analysis/nhs_connectors/role_nhs_conn/role_sys_conn_2.htm.

NATIONAL FREIGHT NETWORK (NFN)

The National Freight Network, established in MAP-21, is being developed by the Federal Highway Administration (FHWA). The network will be comprised of three parts:

PRIMARY FREIGHT NETWORK (PFN)

By law, this is to consist of no more than 27,000 miles of existing roadways nationwide with potentially 3,000 miles added for future needs. In February 2014, the Federal Highway Administration (FHWA) ended its comment period regarding development of the PFN. Based on comments received from organizations across the country, FHWA will review its approach to identifying the PFN.

INTERSTATE HIGHWAYS

Any interstate highway that was not included in PFN.

CRITICAL RURAL FREIGHT CORRIDORS (CRFC)

A state may designate a route as a CRFC if a corridor meets the following criteria identified in MAP-21:

- It is a rural Principal Arterial roadway and has a minimum of 25 percent of the Annual Average Daily Traffic (AADT) of the road measured in passenger vehicle equivalent units from trucks (FHWA vehicle classification scheme 8 to 13);
- It provides access to energy exploration, development, installation, or production areas;

- It connects the primary freight network or Interstate System to facilities that handle either the following volumes of commercial vehicles or commodity movement:
  - 50,000 20-foot equivalent units (TEU)* per year; or
  - 500,000 tons per year of bulk commodities

    * A non-standardized unit roughly equivalent to 1/2 truck load by volume.

FHWA is currently developing rulemaking to allow states to identify CRFCs. CDOT has begun the initial analysis to determine what corridors meet the minimum criteria. Further action will be taken to designate the appropriate corridors when FHWA has established procedures.

Local municipalities, counties, or planning organizations may include other federal or state routes or local roadways important to freight movement in a particular geographic area in their respective local or regional transportation plans.

PAGE INTENTIONALLY LEFT BLANK

APPENDIX B: CDOT STUDIES RELATED TO THE FEDERALLY DESIGNATED HIGH PRIORITY CORRIDORS

US 385 HIGH PLAINS CORRIDOR

July 2007 - Development and Management Plan - The High Plains Highway is a 222-mile corridor that begins near Kit Carson and ends at I-80 in Nebraska. It was identified as a corridor connector in the Eastern Colorado Mobility Study. The High Plains Highway Corridor Coalition (HPHC) – a formal association of towns and counties along the corridor - asked the Colorado Department of Transportation (CDOT) to assist the member communities in developing a plan for the corridor to anticipate and prioritize future corridor transportation needs. See the link to more information on this report at: https://www.codot.gov/library/studies/385_final_web.pdf/view

EASTERN COLORADO MOBILITY STUDY

April 2002 - The Eastern Colorado Mobility Study was undertaken to assist the Transportation Commission of Colorado in making investment decisions regarding infrastructure improvements to enhance freight mobility in a large part of the state. The study area includes all of eastern Colorado, extending to the I-25 corridor on the west and Colorado's borders on the north, east and south. See the link to more information on this report at: https://www.codot.gov/library/studies/EastCoMobilityStudy.pdf/view

PORTS TO PLAINS

February 2007 - This study was a joint effort by four state Departments of Transportation (DOTs) including Colorado, Texas, Oklahoma, and New Mexico. It includes I-70 from I-25 east to US 40/287 and then south along US 40/287 to the Colorado/Oklahoma border. The purpose was to create a Development and Management plan for the Ports to Plains Corridor, which outlines a proposed plan for the corridor and serves as an essential tool for securing federal funding for corridor development. It contains several elements that improve the transportation network's ability to move people and goods. Nearly 1,400 miles long, the corridor consists of 511 miles of 4- to 6-lane roadway, 755 miles of 2-lane roadway, and 113 miles of roadway in metropolitan areas. See the link to more information on this report at: https://www.codot.gov/library/studies/ports2plains

US 287 AT LAMAR ENVIRONMENTAL ASSESSMENT AND FONSI

November 2014 - The Federal Highway Administration (FHWA), in cooperation with the Colorado Department of Transportation (CDOT), has prepared this Environmental Assessment (EA) and Finding of No Significant Impact (FONSI) to identify and assess a new alignment for U.S. Highway (U.S.) 287 and U.S. 50 through the City of Lamar, Colorado in Prowers County. Keywords: Studies, US Highways. See the link to more information on this report at: https://www.codot.gov/library/studies/us287-at-lamar-ea-fonsi

PAGE INTENTIONALLY LEFT BLANK

APPENDIX C: GOALS, OBJECTIVES, AND STRATEGIES

PAGE INTENTIONALLY LEFT BLANK

STATE HIGHWAY FREIGHT PLAN VISION: THE COLORADO FREIGHT SYSTEM WILL SUPPORT THE ECONOMIC VITALITY OF THE STATE BY PROVIDING FOR THE SAFE, EFFICIENT, COORDINATED, AND RELIABLE MOVEMENT OF FREIGHT.														
STATEWIDE PLAN GOAL AREAS & STRATEGIC POLICY ACTIONS	**STRATEGIC HIGHWAY FREIGHT PLAN GOALS**	**OBJECTIVES**	**TARGETS**	**POLICY STRATEGIES**	**MAP-21 NATIONAL FREIGHT POLICY GOALS**								
					ECONOMIC COMPETITIVENESS AND EFFICIENCY	CONGESTION	PRODUCTIVITY	STATE OF GOOD REPAIR	SAFETY, SECURITY, AND RESILIENCE	INFRASTRUCTURE AND OPERATIONAL IMPROVEMENTS	USE OF ADVANCED TECHNOLOGY	PERFORMANCE, INNOVATION, COMPETITION, AND ACCOUNTABILITY	REDUCE ENVIRONMENTAL IMPACTS
SAFETY: Move Colorado toward zero deaths by reducing traffic-related deaths and serious injuries.	Improve the safety of the Colorado Freight System.	Reduce the number of truck-related fatalities and serious injuries.	Move Colorado toward zero deaths, with an interim target of a 50% fatality reduction by 2030.* Reduce the fatality rate per 100 million VMT by .02 per year.* Reduce the serious injury rate per 100 million VMT by .2 per year.*	**Data-Driven Planning** - Identify and prioritize local road safety problems on all roadways using data-driven processes and to support implementation of the most effective improvement to reduce roadway crashes.	✓	✓	✓	✓	✓	✓	✓	✓	✓
				Highway Truck Crash Reduction - Identify corridors and hot spots with truck crash rates higher than the overall crash rate and prioritize improvements for investment.	✓	✓	✓		✓	✓		✓	✓
		Reduce the number of crashes on Freight Corridors.	Maintain a positive truck-to-general crash rate ratio by corridor of 10% or less. Reduce the economic impact of crashes annually by 1% over the previous calendar year.*	**Bridge Strike Reduction** - Identify causes and trends of bridge strike incidents and actions to reduce future bridge strikes.	✓	✓	✓	✓	✓	✓		✓	✓
		Reduce truck crashes on Freight Corridors and in commercial vehicle crash hot spots.	Further crash data will need to be collected and analyzed in order to better understand the causes of common crash types and develop performance targets. To be developed with the Freight Advisory Council.	**Targeted Crash Type Mitigation** - Analyze data to identify trends in truck crash types and identify solutions including public outreach to educate drivers concerning factors related to the most common truck crash types.	✓	✓	✓		✓	✓		✓	✓
				Improved Access to Safe Truck Parking Facilities - Update truck parking facility study and develop action plan for addressing current and future truck parking needs.	✓		✓	✓	✓	✓	✓		✓
		Address highway geometric issues affecting freight movement or safety.	Additional analysis is required in order to identify the appropriate targets and performance measures for geometric issues. To be developed with the Freight Advisory Council.	**Geometric Improvements** - Identify segments on Freight Corridors with deficient geometric conditions.	✓	✓	✓	✓	✓	✓		✓	

STATE HIGHWAY FREIGHT PLAN VISION: THE COLORADO FREIGHT SYSTEM WILL SUPPORT THE ECONOMIC VITALITY OF THE STATE BY PROVIDING FOR THE SAFE, EFFICIENT, COORDINATED, AND RELIABLE MOVEMENT OF FREIGHT.														
STATEWIDE PLAN GOAL AREAS & STRATEGIC POLICY ACTIONS	**STRATEGIC HIGHWAY FREIGHT PLAN GOALS**	**OBJECTIVES**	**TARGETS**	**POLICY STRATEGIES**	**MAP-21 NATIONAL FREIGHT POLICY GOALS**								
					ECONOMIC COMPETITIVENESS AND EFFICIENCY	CONGESTION	PRODUCTIVITY	STATE OF GOOD REPAIR	SAFETY, SECURITY, AND RESILIENCE	INFRASTRUCTURE AND OPERATIONAL IMPROVEMENTS	USE OF ADVANCED TECHNOLOGY	PERFORMANCE, INNOVATION, COMPETITION, AND ACCOUNTABILITY	REDUCE ENVIRONMENTAL IMPACTS
MOBILITY: Improve mobility and connectivity with a focus on operations and transportation choice.	Improve the mobility of the Colorado Freight System.	Limit increases in congestion and increase travel reliability (as measured by Planning Time Index).	Maintain a PTI of 1.25 or less on 90% or greater of Colorado Freight Corridor centerline miles.*	**Bottleneck Assessments** - Identify and monitor freight bottlenecks and develop proposed solutions.	✓	✓	✓		✓	✓	✓	✓	✓
				Travel Time Reliability on Freight Corridors - Further develop the travel time program to include specific freight and commercial vehicle measures and objectives.	✓	✓	✓		✓	✓	✓	✓	✓
				Intelligent Transportation Systems -Explore use of all types of ITS enhancements, and develop "push" notifications for in-cab systems and improve the accuracy and timeliness of personalized traveler information based on individual preferences.	✓	✓	✓		✓	✓	✓	✓	✓
			Additional analysis is required in order to identify the appropriate targets and performance measures for monitoring ordnances. To be developed with the Freight Advisory Council.	**Monitor Local Freight Ordinances** - Monitor and disseminate information on local freight ordinances to assist industry compliance with local ordinances.			✓			✓		✓	✓
			Additional analysis is required in order to identify the appropriate targets and performance measures for a Freight Trip Planning Resource. To be developed with the Freight Advisory Council.	**Corridor Studies** - Conduct Freight Corridor studies as deemed appropriate to determine phased approach to implementation of needed freight improvements.	✓	✓	✓		✓	✓	✓	✓	✓
		Improve connectivity between freight facilities and destinations.	Additional analysis is required in order to identify the appropriate targets and performance measures for connectivity , To be developed with the Freight Advisory Council.	**Identify Connectivity Gaps** - Identify gaps in the connectivity of freight infrastructure.	✓	✓	✓			✓	✓		
			Additional analysis is required in order to identify the appropriate targets and performance measures for a Freight Trip Planning Resource. To be developed with the Freight Advisory Council.	**Freight Trip Planning Resource** - Compile freight trip planning information in one convenient on-line location.	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Mitigate non-recurring congestion and improve travel time by reducing crashes on Freight Corridors and improving clearance times.	Additional analysis is required in order to identify the appropriate targets and performance measures for mitigating non-recurring congestion. To be developed with the Freight Advisory Council.	**Enhanced Incident Management** - Enhance traffic incident management and response using real time road information.	✓	✓	✓	✓	✓	✓	✓	✓	✓
				Heavy Tow - Continue to implement Heavy Tow program for commercial vehicles on I-70 corridor and consider options for expansion to I-25.	✓	✓	✓	✓	✓	✓	✓	✓	✓
		Improve the resiliency of the freight system in the face of natural disasters and extreme weather events.	Additional analysis is required in order to identify the appropriate targets and performance measures for resiliency . To be developed with the Freight Advisory Council.	**Risk and Resiliency Planning** - Develop a Risk and Resiliency Framework for the State Highway System to better prepare for the structural and economic impacts of future natural or man-made disasters.	✓	✓	✓	✓	✓	✓	✓	✓	✓

STATE HIGHWAY FREIGHT PLAN VISION: THE COLORADO FREIGHT SYSTEM WILL SUPPORT THE ECONOMIC VITALITY OF THE STATE BY PROVIDING FOR THE SAFE, EFFICIENT, COORDINATED, AND RELIABLE MOVEMENT OF FREIGHT.														
STATEWIDE PLAN GOAL AREAS & STRATEGIC POLICY ACTIONS	**STRATEGIC HIGHWAY FREIGHT PLAN GOALS**	**OBJECTIVES**	**TARGETS**	**POLICY STRATEGIES**	**MAP-21 NATIONAL FREIGHT POLICY GOALS**									
					ECONOMIC COMPETITIVENESS AND EFFICIENCY	CONGESTION	PRODUCTIVITY	STATE OF GOOD REPAIR	SAFETY, SECURITY, AND RESILIENCE	INFRASTRUCTURE AND OPERATIONAL IMPROVEMENTS	USE OF ADVANCED TECHNOLOGY	PERFORMANCE, INNOVATION, COMPETITION, AND ACCOUNTABILITY	REDUCE ENVIRONMENTAL IMPACTS
ECONOMIC VITALITY: Improve the competitiveness of the state economy through strategic transportation investments.	Improve economic vitality through freight investments, programs, and initiatives.	Support freight decision-making through expanded analysis, dissemination, and use of data and industry trends in the planning process.	Additional data and analysis are required in order to identify appropriate targets for incorporating economic factors into the freight planning process. To be developed with the Freight Advisory Council.	**Monitor Freight Trends** - Monitor freight trends to better support freight decision-making.	✓	✓	✓		✓	✓	✓	✓	
		Identify freight investments, programs, and initiatives that enhance the competitiveness of the Colorado Freight System	Additional data and analysis are required in order to identify appropriate targets for identifying freight investments that enhance competitiveness. To be developed with the Freight Advisory Council.	**Stakeholder Communication** - Enhance communication and coordination with freight stakeholders and federal, state, and local agencies while seeking out opportunities to support local economies.	✓	✓	✓	✓	✓	✓	✓	✓	✓
MAINTAINING THE SYSTEM: Preserve and maintain the existing transportation system.	Improve maintenance of the Colorado Freight System.	Maintain bridge and pavement condition on Freight Corridors.	Achieve 80% high/moderate pavement Drivability Life on freight corridors as compared to XX% in 2014. Maintain the percent of freight corridor bridge deck area that is not structurally deficient at or above 90%.	**Prioritize Infrastructure Improvements** - Identify pavement and bridge projects on Freight Corridors where the current condition of infrastructure or geometrics deficiencies have a significant limiting effect on freight movement and work with Asset Managers to prioritize for investment.	✓	✓	✓	✓	✓	✓		✓	✓
		Address highway geometric issues affecting freight movement or safety.	Additional data and analysis are required in order to identify appropriate freight project criteria for the selection and prioritization of asset management projects. To be developed with the Freight Advisory Council.	**Freight Project Criteria** - Employ project criteria from the State Highway Freight Plan in selection and prioritization of asset management projects.	✓	✓	✓	✓	✓	✓	✓		✓
SUSTAINABILITY AND THE ENVIRONMENT: Continue to implement CDOT's Sustainability Plan and other environmental initiatives.	Improve sustainability and reduce environmental impacts of freight movement.	Improve the energy efficiency of freight movement and reduce associated levels of greenhouse gas emissions.	Additional data and analysis are required to determine appropriate targets and tools for measuring energy efficiency and greenhouse gas emissions related to freight movement. To be developed with the Freight Advisory Council.	**Truck Electrified Parking** - Explore opportunities to implement TEP at rest areas and other locations.	✓		✓	✓	✓	✓	✓	✓	✓
				Promote Vehicle Efficiency - Promote and disseminate information on policy strategies and programs to improve freight vehicle efficiency.			✓	✓	✓	✓	✓	✓	✓

PAGE INTENTIONALLY LEFT BLANK

COLORADO
Department of
Transportation

CURRENT PROJECTS

US 491/160 New Mexico to Towaoc - 19202

Budget: $19,708,000
Funding Type: RAMP- Surface Treatment
Ad Date: April 2014
Awarded: Skanska USA for $13,715,000

Milling northbound lane at Indian Creek

Shoulder gravel operation

This is a RAMP Surface Treatment project from the New Mexico Stateline to Towaoc along US 491 and US 160. The funding includes a 1" leveling course and 2" overlay from the state line to the US160/491 intersection (milepost 6.422). A full depth reclamation overlay will then proceed north to Towaoc and tie into the Towaoc to Cortez Resurfacing Project constructed in 2013.

Work began July 8, 2014. Pipework, including headwalls and wingwalls, have been completed. Earthwork has been seeded and mulched ahead of schedule. The project was suspended in mid-January and construction resumed March 16, 2015. Current construction activities include HMA paving, curb and gutter, light standard installations and the placement of pavement markings. The 14-mile long project is expected to be completed in August, 2015.

US 160 Bayfield to Yellow Jacket - 19710
Budget: $8,650,000
Funding Type: Surface Treatment
Ad Date: January 2015
Awarded: Oldcastle SW Group, Inc. for $6,322,392

This project consists of 1" levelling course and 1.5" HMA overlay. It will include new guardrail, new mailboxes, shoulder gravel, rumble strips, pavement markings and other safety improvements. There will also be patching at milepost 109 and 113. The project was awarded to Oldcastle SW Group, Inc. for $6,322,392. Work began March 24, 2015. Paving operations, leveling course, on US 160 commenced on May 7th and will progress eastward. Upcoming construction activities include milling the old asphalt adjacent to the concrete median and continued paving operations. This project is expected to be completed late summer 2015.

US 160 Wilson Gulch Road Extension - 19902
Budget: $6,400,000 (CDOT: $4,288,000; La Plata County: $180,000; City of Durango: $180,000)
Funding Type: RAMP
Ad Date: September 2014
Awarded: Oldcastle SW Group, Inc.

This is a RAMP Project which will be managed by the City of Durango. It will construct a connector road between the US 160 Interchange and the Grandview development. The roadway will serve as a frontage road for US Highway 160 from Three Springs Blvd to the Grandview Interchange, a distance of approximately 1.1 miles. Construction began January 26, 2015 and will be completed by the end of 2015.

US 160 Mancos Hill to Hesperus - 19632
Budget: $8,250,000
Funding Type: Surface Treatment
Ad Date: January 2015
Awarded: Oldcastle SW Group, Inc. for $5,953,190

This project consists of resurfacing and overlay from MP 62 to MP 71.1. Work began March 27, 2015. Concrete barrier is going in as well as the deep patch repair the last week of May. This project is expected to be completed by the end of the year.

R5 FY15 Bridge Preventative Maintenance - 20305
Budget: $2,800,000
Funding Type: CBR
Ad Date: December 2014
Awarded: G.A. Western Construction Co. for $1,492,270

Class II Bridge Deck Repair

Sawcutting asphalt curb

This RAMP project includes maintenance on Bridges: J-12-AK one mile outside of Salida, I-12-B location by Big Sandy Creek, K-11-G located East of Doyleville, M-01-C which is by Dove Creek, O-05-AW just north of Hermosa, P-05-R north of Ignacio, P-06-D which is east of Junction US 55, and K-09-C in Saguache County. Work began April 13, 2015. Maintenance on (2) US 160 locations has commenced and will go through June. After June, other locations will be worked on. This project is expected to be completed by the end of November.

Region-wide Highway Striping, all counties in Region 5 - 20567
Budget: $1.6 million budget
Awarded: PMI (Pavement Markings, Inc.)

This project consists of epoxy and water-based highway striping and traffic markings (crosswalks, arrows, etc.) on 750 miles throughout the region. The project benefits motorists' visibility and provides safer travel. This project duration is March 30 through June 24, 2015

US 160 W. Wildlife Crossing at Dry Creek - 20430
Budget: $6,546,331
Funding Type: HSIP
Ad Date: March 2015
Awarded: Crossfire, LLC for $ 5,360,587

This project will consist of improvements for safer wildlife migration east of Durango between mile marker 97 and 98, which includes a large mammal underpass. Wider shoulders and wildlife fencing on either side of the highway is also in the plans. There is a pre-con for this project May 29, 2015. Construction to commence in June and end late spring 2016.

US 550 Cribwalls Phase II/III Project- 18928/19305
Budget: $4M
Funding Type: Rockfall
Ad Date: May 2015
Awarded: Rock & CO. for $ 4,632,800

The project is located on US 550 from MP 77.0-79.6. The scope of work includes widening the roadway to the west using blasting and scaling so that the centerline is shifted a maximum of 15 feet. Additional work includes the replacement of three cribwalls, two cross-culvert replacements, and guardrail installation. This project will also build a concrete cap at Ruby Walls, MP 89.7, which was damaged by rockfall in 2014. Construction to begin summer and should finish up late Fall 2016.

UPCOMING PROJECTS

SH 145 at CR P North of Cortez - 19397
Budget: $1,660,194 (CDOT: $1,577,185; Montezuma County: $83,036)
Funding Type: RAMP
Ad Date: May 2015

This RAMP project consists of the intersection improvements and turn lanes north of Cortez at County Road P. Minor widening is needed to accommodate additional turn lanes. Construction to begin September and end in November.

SH 172/151 Signalization - 19908
Budget: $1,800,000 (CDOT: $1,430,000; La Plata County: $180,000; Southern Ute Tribe: $180,000, Town of Ignacio: $10,000)
Funding Type: RAMP
Ad Date: July 2015

This RAMP project consists of the signalization and intersection improvements in the Town of Ignacio at the intersection of SH 151 and SH 172. This is a partnership with the Town, La Plata County and the Southern Ute Indian Tribe. Construction will begin in September and should finish in November 2015.

FY 15 Priority Culvert US 160 MP 136.61 - 19791
Budget: $961,480
Funding Type: Priority Culvert
Re-Ad Date: Fall 2015

This project consists of the installation of a new culvert on US 160 at MP 136.61. Construction to begin spring 2016.

US 491 Cortez to MCR 30 (CR M) - 19399
Budget: $7,500,000
Funding Type: FSA/RPP/SUR
Ad Date: January 2016

This project involves 3 components. (1) A full-depth reclamation from approximate milepost 26.3 to 27.3. This includes relocation of utilities, replacement of storm sewer system, new median islands and street lighting, and repaving with approximately 8 inches of concrete pavement. (2) Includes the re-alignment of the Lebanon Road (CR 25) with US 491 to improve sight distance and protect turning movements in to, and off of this roadway. (3) A 4” mill and 3” fill from approximate milepost 27.3 to 29.2 (CR M).

US 160 McCabe Creek Pagosa - 19263
Budget: $5.4M
Funding Type: Priority Culverts
Ad Date: September 2015

This project consists of replacing the existing culverts on US 160 at MP 143.25, near downtown Pagosa Springs, with a box culvert. Construction to begin in spring of 2016.

FY 15 Priority Culverts, SH 141 - 20380
Budget: $2,100,000
Funding Type: Priority Culvert
Ad Date: June 2015

This project consists of lining culverts at four locations on SH 141 which are located at MP 41.51, MP 43.49, MP 44.89, and MP 54.91. Construction to begin in September 2015.

COLORADO
Department of Transportation
Region 5

JUNE 2015

CURRENT PROJECTS

US 550 Ridgway Rockfall Mitigation- 19860

Budget Estimate: $1.8M/RAMP
Duration: March – October 2015

This work involves extensive rock excavation between MM 106 and 107, two miles north of Ridgway. Work includes drilling, blasting, rock scaling, installation of 37 anchors from which to hang approximately 16,000 sq. ft of wire rockfall mesh, and installation of approximately twenty 25-foot long rock bolts. There will be 30 extra feet between the highway's edge and the hillside to serve as a rock catchment area. Finally, crews will install a 12-foot high retaining wall at the base of the hillside. At project's end, crews will have removed some 22,000 cubic yards of rock material from the hillside. Current construction activities include large volume production blasting beginning May 28th and mesh post installation.

SH 62 Chip Seal over Dallas Divide, Phase II - 20332

Budget: $1.9 million
Duration: June 2015

This project continues chip sealing of the corridor, starting from MM 5 (five miles northeast of Placerville) and extending east to MM 18 on the west side of Dallas Divide. (Three miles remain unchipped from MM18 east to Ridgway.) A chip seal is a preventative maintenance project to extend the life of a roadway surface by about 10 years, depending upon weather and traffic conditions.

UPCOMING PROJECTS

SH 62 Ridgway 3 Lane- 19411

Budget: $13,791,257
(CDOT: $10,494,509) (Ridgway: $2,796,748)
Funding Type: RAMP
Ad Date: December 2015

This project was surveyed from Amelia Street to US 550. Preliminary design began this winter. The goal of the project is to construct a 3 lane section from approximately Laura Street to US 550 with drainage, detour, and streetscape amenities. The Town will partner on this CDOT project through the RAMP Partnership Program.

US 550 Skyrocket Creek Culvert Replacement, 19263

Budget Estimate: $2.0M (CDOT: $1,600,000; Ouray: $400,000)
Funding Type: RAMP
Ad Date: Spring/Summer 2015

This project will replace an undersized culvert that carries the Skyrocket drainage across US 550 in the Town of Ouray. This project is currently in the preliminary design phase. An 8' x 16' x 100' pre-cast concrete box culvert is being proposed. Outlet ditch improvements will be performed by Town of Ouray. Construction planned for fall 2016.

SH 141 Priority Culverts, San Miguel County; 20380
Budget: $2 million
Ad Date: 6/25/15
Duration: September 2015 to March 2016 (with a winter suspension)

This project includes the lining of existing culverts at four locations south of Naturita on SH 141 at MM 41.51, MM 43.49, MM 44.89, MM 54.91. This will improve drainage through these culverts, as well as the integrity of the roadway above.