Transportation Commission (TC) Notes

Wednesday, December 17, 2025 - 1:00 PM

Workshops

Attendance:
Eleven Transportation Commissioners were present: Chair: Shelley Cook, Vice Chair: Barbara Bowman, Cecil Gutierrez, Elise Jones, Barbara McLachlan, Juan Marcano, Rick Ridder, Todd Masters, Terry Hart, Diane Barrett, and Hannah Parsons.

1. Budget Workshop - Jeff Sudmeier, Bethany Nicholas, and Kay Kelly

Purpose and Action: To review the fourth budget amendment to the FY 2025-26 Annual Budget in accordance with Policy Directive (PD) 703.0. The Division of Accounting and Finance (DAF) is requesting the Transportation Commission (TC) to review and adopt the fourth budget amendment to the FY 2025-26 Annual Budget, which consists of two items that require TC approval. The fourth budget amendment reallocates $5.6 million total from the Innovative Mobility Programs as follows:

- $3.0 million to the Rail Program to cover a two year intergovernmental agreement with the Front Range Passenger Rail District; and
- $2.6 million to the Agency Operations line to increase funding for Innovative Mobility Program administration and align reporting with standard practice for other CDOT divisions and programs

Discussion:

- Commissioner Cook asked about more specifics on what the $3M to the Rail Project would be used for.
    - Kay Kelly explained that the $3M would be split into two 1.5M payments with the both being used for entering an intergovernmental agreement (IGA) with the Front Range Passenger Rail District for planning and research that would help bring a ballot measure for the project to have a permanent stream of funding
    - First Phase($1.5 M) Technical part of the plan, which includes outreach, planning, refinements to service plan, and boundary determination.
    - Second Phase($1.5M) Final station plans, agreement with railroads, more advanced outreach

- Regarding adding $2.6M to the Agency Operations line, Vice Chair Bowman wanted to thank Jeff Sudmeier and Kay Kelly for their presentation and congratulate the Office of Innovative Mobility (OIM) on their strategic growth.

2. Transportation Asset Management (TAM) Planning Budget for FY 2029 - 30 and FY2030-31 2031 - Darius Pakbaz, William Johnson, and Toby Manthey

Purpose and Action: This workshop summarized recommended planning budgets developed by CDOT staff for asset classes in the Transportation Asset Management (TAM) program for fiscal years 2029-30 and 2030-31. Also described for both years is the proposed "TAM Cap," which represents the total dollars dedicated to the TAM program each year. Note: The TAM planning budgets do not represent CDOT's full investment in pavement, bridges and other assets. CDOT's assets are supported by a range of funding, including strategic funds in the 10-Year Plan, the Regional Priority Program, Commissioner Program Reserve funds, the Statewide Bridge and Tunnel Enterprise, and more. This workshop is for Information only this month. Per Policy Directive 1609.0, CDOT staff will be asking the TC in a future meeting to approve the recommended planning budgets and TAM Caps for fiscal years 2029-30 and 2030-31. The TC will review the planning budgets again the year before they become "actual" budgets during the annual CDOT budget process.

Discussion:

- Commissioner Jones requested a document showing all of the different amounts of money for asset management and pavement replacement, and expressed concern over CDOT not meeting 9 of 14 performance measures. The desire for a holistic method to understand where investments are going in order for the Commission to make decisions on the budget was emphasized. CDOT is looking at the asset elements of projects in the 10 Year Plan, not just the budgets, and once that is completed, they will be able to show a bigger picture of asset funding. The CDOT annual budget shows what is being allocated on an annual basis to each program. The 10-Year Plan is a budget program itself that goes to a wide variety of projects.
- As the 10-Year Plan moves forward, documents should provide the full picture the Commissioner is requesting.
- A question was raised regarding if there is a mechanism to understand what actions may improve performance measures.
- Appendices may be added to the 10-Year Plan that articulate some of the asset management programs. This would provide more information about everything in one place.
- The presenters were recognized and thanked for a great presentation.

3. US 50 SHIFT Passing Lane Request for Alternate Delivery-Construction Manager/General Contractor (CMGC) - Jennifer Sparks and Shane Ferguson

Purpose and Action: As stated in the Project Delivery Selection Guidelines, Chief Engineer approval is required for a project to be delivered using any Alternative Delivery Method. On September 24, 2025 and October 2, 2025, the US50 Safety/Operational Highway improvements for Freight and Transit (SHIFT) Passing Lanes Project Team held a Project Delivery Selection Matrix (PDSM) workshop facilitated by The Alternative Delivery Program, to analyze the potential benefits of using an Alternative Delivery Method to deliver the US50 SHIFT Passing Lanes project. The US50 SHIFT Passing Lanes project will construct 12 individual passing lanes across five segments of US 50B between Pueblo and the Kansas State line (MP 345.5 to 460.5). The major work features are roadway widening and related work including

pavement, embankment, extending drainage structures, signing, and striping. The project may be broken into multiple construction packages due to geographical location and the length of time needed to acquire ROW and obtain clearances. A FHWA INFRA Rural Grant was awarded to this project. The grant has requirements to begin construction no later than 18 months from the grant agreement obligation and a final FHWA obligation deadline of September 30, 2028. The project goals emphasize maximizing project scope within budget and schedule, meeting optimal passing lane length requirements, minimizing Right-of-Way (ROW) impacts, meeting Grant commitments, and minimizing inconvenience to the traveling public.

Discussion:

- Commissioners Hart and Ridder showed support for this project and said this will help to provide traffic relief and to increase safety on US 50.
- Commissioner Ridder recommended installing many signs notifying drivers when passing lanes are approaching, noting that studies show this can decrease accidents.
- Commissioner Hart wanted to make sure other commissioners knew that he supports using the CMGC alternative delivery to complete the project.
- Commissioners thanked the presenters for the level of detail they have provided on the project.

4. Audit Review Committee - Frank Spinelli

Committee Members: Rick Ridder, District 6; Diane Barrett, District 1; Shelly Cook, District 2; and Todd Maters, District 11

Meeting Notes

Call to Order

- The meeting was called to order at 1:57pm.
- Commissioner Diane Barrett, Commissioner Shelly Cook, and Commissioner Todd Masters were present meeting a quorum.

Motion to Approve the Capital Asset and Storeroom Inventory Processes and Internal Controls Report

- Motion to release the report with discussion following was approved with all members present voting yes unanimously.

External Audit Background

- The objective of this performance audit was to assess CDOT capital asset and store inventory processes and internal controls that support reliable recording and reporting of assets and effective and efficient inventory management.
- This audit was initiated based on our fiscal year 2025 to 2026 risk assessment that identified capital assets and storm inventory as higher risk areas.
- The audit was primarily focused on capital assets, looking at processes and controls that support reliable recording and reporting of these assets.

Outstanding Recommendation Status

- The audit includes six recommendations:
    1. The annual inventory count controls be updated to ensure that all capital assets are included in the count.

2. Reconciliation controls are designed and implemented to compare accounting records to other CDOT asset records on an annual basis, to align with financial reporting related to this.
3. To specifically reconcile and resolve differences between the population of buildings and CDOT's accounting records to the population of buildings maintained by property management.
4. Reconsider roles and perhaps centralize some responsibilities in the adjustment process.
5. Reassess what level of record keeping detail is adequate to support effective accounting control over capital design.
6. Consider implementing a process to record capital assets in the fixed asset module of SAP to assist with maintaining inventory control over significant assets that might not have monetary capitalization thresholds.

Transportation Commission Board Meeting

Call to Order, Roll Call

Eleven Transportation Commissioners were present: Chair: Shelley Cook, Vice Chair: Barbara Bowman, Cecil Gutierrez, Elise Jones, Barbara McLachlan, Juan Marcano, Rick Ridder, Todd Masters, Terry Hart, Diane Barrett, and Hannah Parsons.

Public Comments

- Sal Pace, General Manager of the Front Range Passenger Rail District, is in favor of entering the 3 million dollar Intergovernmental Agreement (IGA) that would create funding for research and outreach to help create a future ballot measure.
- Kathy Henson, Adams County Commissioner, Requested commissioners to keep the I-25 North and I-270 projects prioritized on the next 10-Year Plan. For I-270: Keep plan with managed lanes in each direction (with increased freight reliability that supports the economy), support express bus service, and mitigate congestion, crashes, and environmental impacts. Requested upgrades for CO 224 and Vasquez Blvd. to be included in the project. For I-25 North: Increase safety by fixing on/off ramp distances as well as mitigating congestion.

For more details on public commenters who signed up and written comments submitted to the TC, please reach out to the TC Secretary, Herman Stockinger at heman.stockinger@state.co.us.

Comments of the Chair and Commissioners

- Commissioner Masters wanted to echo Colorado State Patrol's message of staying safe on the roads and to ensure people follow traffic laws and to drive sober this holiday season.
- Commissioner Hart wanted to thank Chair Cook for visiting TC District 10 to come view transportation projects in CDOT Region 2 and Pueblo. Also wanted to thank all CDOT staff for their contributions to the Colorado transportation system.
- Commissioner Parsons appreciated Sal Pace for meeting with the City of Colorado Springs about the front range passenger rail.
- Commissioner McLachlan is going to work with CDOT Region 5 Transportation Director, Julie Constan, to post a quarterly update about Colorado transportation in local newspapers in her respective district
- Commissioner Ridder attended a workshop on traffic safety in Grand County and noted the rise in traffic incidents and an overall increase in total traffic in Grand County.
- Commissioner Gutierrez wanted to make a point that the CDOT budget displays Enterprise budgets which, he believes, gives a false picture of the Transportation Commission controlled budget.
- Commissioner Jones wanted to congratulate CDOT Headquarters on winning the DRCOG GO-Tober Challenge which seeks to transition people out of single occupancy car trips in favor of multimodal and transit options.
- Commissioner Marcano wished everyone a happy holiday, and wanted everyone to make sure to be careful and conscious of road conditions.
- Commissioner Barrett did not provide comments
- Vice Chair Bowman wanted to talk about Grand Valley transit's Polar Express Bus which included over 200 participants that had never ridden Grand Valley transit. Also wanted to thank CDOT Region 2 for their presentation on the US 50 SHIFT grant.
- Commission Chair Cook wanted to echo congratulations for winning the DRCOG Go-Tober challenge. Also wanted to thank CDOT Region 1 RTD, Jessica Mycklebust, for meeting with Arvada's mayor, city manager, and Chair Cook herself. She also visited CDOT Region 2 and got to tour the CDOT Region 2 offices and got a chance to see the US 50B interchange. She continued that she had plans to visit to all regions. She also joined the CDOT Executive Management Team (EMT) at the Joint Budget Committee meeting and was impressed by the CDOT staff.

Executive Director's Report - Shoshana Lew

- CDOT held winter preparedness driving courses to highlight state laws on the I-70 corridor including the new left lane freight restriction.
- CDOT had a meeting with Mothers Against Drunk Driving (MADD) to display and acknowledge the realities of drunk driving.
- The Joint Budget Committee was held last Friday and Director Lew wanted to thank the CDOT staff members for their presentation on a wide range of topics.
- The EMT attended several "Snowfighter" events which are a winter kick-off to plowing operations and Director Lew wanted to reiterate her thanks for the maintenance crews that are involved in plowing operations.
- Director Lew wanted to thank the Department of Maintenance and Operations and Bob Fifer for work in high wind conditions that have occurred this week, and wanted to

highlight this as an unusual event and applaud their readiness and flexibility in extraordinary circumstances.

Chief Engineer's Report - Keith Stefanik

- Keith spoke of CDOT 's capital program expenditures and how successful that has been, over $1B has been awarded this year. He reiterated his thanks for the CDOT programs evaluation team that selected the project contractors.
- The November number of fatalities doubled compared to last November. which is very concerning. He wanted to reiterate Commissioner Masters' comments on staying safe on the roads.

CTIO Director's Report - Piper Darlington

- Piper stated that the Winter Park Express partnership with Amtrak has started the season off well, with bookings up 25% and fares down 22% as of the time of the meeting. The Congestion Impact Fee is working and doing its part to mitigate congestion in the mountains.

STAC Report - STAC Chair, Gary Beedy

- N/A

Discuss and Act on Consent Agenda - Herman Stockinger

- Proposed Resolution #BTE1: Approve the Regular Meeting Minutes of November 20, 2025
- Proposed Resolution #2: IGA Approval >$750,000
- Proposed Resolution #3: Adoption of the 11th Edition of the Manual on Uniform Traffic Control Devices (MUTCD) and the Colorado Supplement to the MUTCD
- Proposed Resolution #4: US 50 SHIFT Passing Lane Project Request for Alternate Delivery (CMGC)

A motion by Commissioner Bowman was raised to approve, and seconded by Commissioner Jones, passed unanimously.

Discuss and Act on Proposed Resolution #5: Providing Financial Support to the Front Range Passenger Rail District (FRPRD) - Kay Kelly

A motion by Commissioner Jones was raised to approve, and seconded by Commissioner Barrett, and passed unanimously.

Discuss and Act on Proposed Resolution #6: 4th Budget Amendment of FY 2025-26 - Jeff Sudmeier and Bethany Nicholas

A motion by Commissioner Maracano was raised to approve, and seconded by Commissioner Masters, and passed unanimously.

Discuss and Act on Proposed Resolution #7: 5th Budget Supplement of FY 2025-26 - Jeff Sudmeier and Bethany Nicholas

With a minor text change, a motion by CommissionerGutierrez was raised to approve, and seconded by Commissioner Masters, and passed unanimously.

Discuss and Act on Proposed Resolution #8: State Infrastructure Bank (SIB) Rate Update - Jeff Sudmeier

A motion by Commissioner Maracano was raised to approve, and seconded by Commissioner Bowman, and passed unanimously.

CDOT Recognition for Winning DRCOG's "GoTober Commuting Challenge" for the Large Employee Category - Kay Kelly and Jessica Myklebust

Overview:
DRCOG Way to Go Go-Tober Challenge

- Go-Tober is a competition hosted by DRCOG's Way to Go Program that encourages employees to use non-solo driving commute options during the month of October
    - CDOT won the Go-Tober Company Challenge in the Extra Large company category!!

Presentation Highlights:

- Operated as a collaboration between CDOT Human Resources (HR) and the Office of Innovative Mobility (OIM)
    - Assists and educates employees to take advantage of alternative forms of commuting as a way to reduce vehicle miles traveled (VMT)
        - Commuter benefits offered at CDOT:
            - RTD EcoPass for full time permanent employees in the RTD service territory
            - Guaranteed Ride Home benefits for personal/family emergencies or overtime that extends beyond scheduled RTD bus/rail service hours
            - Mass Transit Reimbursement program for permanent employees who reside in other transit agency service territories
            - Bicycle Commuter program for all permanent employees

Adjournment

The TC Board Meeting was adjourned at approximately 3:54 p.m.

The next Transportation Commission Workshops and Board Meeting are scheduled for Wednesday - Thursday, January 14-15, 2026.

COLORADO
Department of Transportation
Freight Mobility & Safety Branch

Colorado SB24-100

Chain Station Feasibility Study

December 2025

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COLORADO DELIVERS

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COLORADO DELIVERS

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COLORADO DELIVERS

Executive Summary

Overview

In recognition of the importance of chain stations for safety and mobility in Colorado, Senate Bill (SB) 24-100, in part, required that CDOT conduct a comprehensive "chain station feasibility study" including; studying the feasibility of adding new chain-up and chain-down stations, identifying barriers to construction, and evaluating technological upgrades at existing stations. The study will also assess the economic and safety impacts of commercial vehicle incidents and closures, and review parking availability for commercial vehicles on I-70.

This feasibility report ("The Report") was developed in coordination with stakeholders including; CDOT Regions (engineering and maintenance), CSP, Colorado Motor Carriers Association (CMCA), planning partners, and municipalities in impacted areas, and addressed the following areas:

- **Understanding of Current Conditions:** existing chain stations, chain law activations and enforcement, existing barriers, and financial investments.
- **Analysis of Existing and Future Conditions:** comprehensive analysis, implementation options & related factors.
- **Recommendations & Next Steps:** recommendations by logical area and deployment timeframes, planning level cost estimates and immediate next steps.

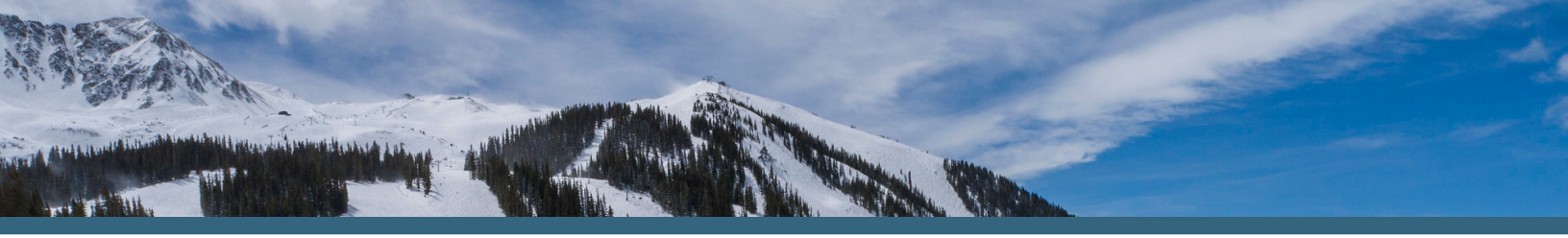
Understanding of Current Conditions

Colorado has 130 chain stations across 21 freight routes, with 75% in Regions 3 and 5 (western slope), where terrain is most challenging. Most stations have signage, paving, striping, and lighting, but variations exist due to geography. Formal stations are common on I-25 and I-70, while impromptu/converted sites serve lower-volume routes. Chain-up stations outnumber chain-down 74 to 56, and 67% of chain stations lack lighting.

Chain law activations average 228 times annually over the last three winters across Colorado's highway system, with the most frequent restrictions occurring on higher-elevation corridors statewide. While I-70 is the most visible example, other freight routes such as US-550, US-50, and US-160 also experience frequent activations. The Colorado State Patrol (CSP) conducts regular enforcement blitzes, but storm-related crash response demands often strain resources and limit proactive enforcement.

Key barriers include a lack of baseline standards for design, construction and maintenance, utility access issues, unpaired chain-up/down stations, enforcement challenges, right-of-way (ROW) acquisition difficulties, municipal concerns (noise, lighting, emissions), environmental/topographical constraints, and dual-use parking conflicts. A CDOT survey of 27 stakeholders identified these issues.

New construction funding comes primarily from the National Highway Freight Program (NHFP), with $41.5 million in state funds matched by $165.8 million federally since 2016. Nearly 20% ($41.4 million) supports chain stations, funding new construction, modernization, and technologies like variable message signs and radar detection. Maintenance funding for these locations must come from state funds.



Looking Ahead

By 2040, Colorado's freight volume is projected to grow 29% by tonnage and 50% by value, further stressing mountain corridors already prone to closures. At the same time, advances in digital signage, remote monitoring, and in-cab communications create opportunities to modernize chain stations and reduce storm-related shutdowns.

Recommendations & Next Steps

Recommendations, grouped by timeline, are:

Short-Term (0–2 Years)

- Construct eight already funded new chain stations and upgrade high-volume sites such as I-70 Vail.
- Establish statewide design, signage, and maintenance standards.
- Pilot remote activation of lighting and signage, and expand in-cab driver alerts.
- Continue CSP enforcement blitzes and targeted driver education campaigns.

Mid-Term (2–5 Years)

- Expand utility access, prioritizing grid power but testing solar and satellite options where necessary.
- Address local concerns about noise, lighting, and emissions through mitigation strategies.
- Explore multi-use facilities (truck parking, enforcement, recreation) to maximize land and community value.
- Proactively account for environmental and topographical constraints in site selection.

Immediate Actions

- Advance already funded projects now in design.
- Finalize and adopt statewide baseline standards for new and upgraded chain stations design, construction and maintenance.
- Update the Colorado Freight Plan to ensure continued eligibility for federal freight funding.
- Launch pre-season enforcement and education campaigns ahead of the 2025-26 winter.

Chain stations play an essential and critically important role in maintaining safe and efficient freight movement across Colorado's state highway system, particularly during adverse weather conditions such as snow, sleet, and ice. These steps lay a foundation for implementation, enhancing safety, mobility, and economic vitality as freight demand grows. CDOT's data-driven approach, stakeholder collaboration, and innovative solutions will strengthen Colorado's chain station network for safe winter travel.

Section 1: Introduction

1.1 Background

Chain stations play a critical role in maintaining safe and efficient freight movement across Colorado's state highway system, particularly during adverse weather conditions such as snow, sleet, and ice. With approximately 60 mountain passes—ranging from 6,100 to 12,000 feet in elevation — Colorado faces unique and often rapidly changing driving challenges for commercial motor vehicles (CMVs).

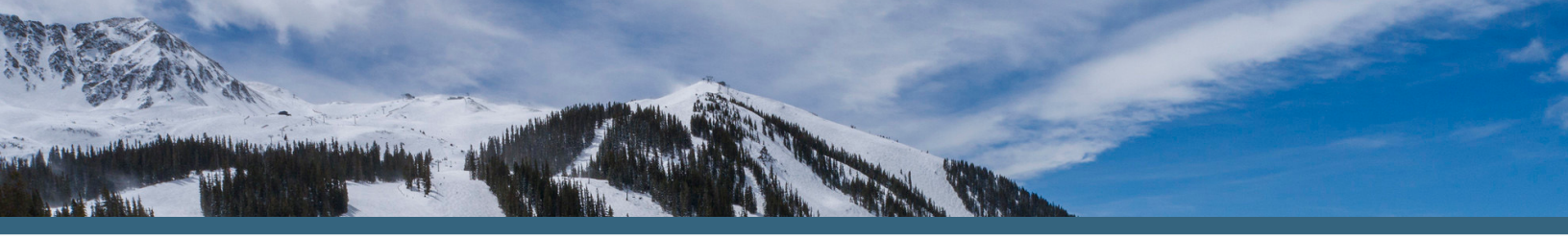
Strategically placed chain-up and chain-down stations enable CMV operators to safely install or remove tire chains, as conditions require. This proactive approach significantly reduces the risk of vehicle spin-outs, stalls, and accidents, which are contributing causes of traffic delays, road closures, and secondary incidents.

By minimizing these disruptions, chain stations help ensure the continuous flow of goods and services, while also reducing the strain on the limited resources of the Colorado Department of Transportation (CDOT), Colorado State Patrol (CSP), and local law enforcement. These stations not only enhance roadway safety and operational efficiency but also support the broader economic vitality of the state.

Colorado Law establishes three distinct traction control requirements. Two of these laws apply specifically to CMV's over 16,001 pounds and one applies to passenger, or light duty, or vehicles under 16,001 pounds. SB24-100 updated the requirements of the two laws for CMV's.

1. Colorado Chain Law (C.R.S.§ 42-4-106)
    - ◊ When the Colorado Department of Transportation (CDOT) activates the Chain Law, CMVs operating on designated routes must install tire chains or other CDOT-approved alternative traction devices or ATDs on the drive axles before proceeding. Compliance is mandatory during the period of activation.
2. Colorado Must-Carry Chain Law (C.R.S. § 42-4-106(5)(a))
    - ◊ From September 1 through May 31 each year, CMVs traveling on specified highways are required to carry a sufficient number of tire chains or alternative traction devices onboard the vehicle at all times, regardless of weather or roadway conditions. This is a proactive compliance requirement to ensure chains are available when conditions deteriorate.
3. Passenger Vehicle Traction Law (C.R.S. § 42-4-106(5)(b))
    - ◊ Applies to vehicles under 16,001 pounds when conditions warrant, requiring adequate tread depth, snow tires, chains or alternative traction devices.

The CMV provisions were first enacted in 1996 and then significantly expanded in August 2024 through SB24-100, establishing both reactive and proactive compliance requirements. CMVs must carry chains or approved traction devices from September 1 to May 31, and must install them when CDOT activates the CMV Chain Law on designated routes. Together these statutes are goal oriented around reducing weather-related crashes, preventing extended highway closures, and maintaining the safe and efficient flow of freight and passenger traffic through Colorado's mountainous corridors.



1.2 Purpose of the Report

In recognition of the importance of chain stations for safety and mobility in Colorado, Senate Bill (SB) 24-100, in part, required that CDOT conduct a comprehensive "chain station feasibility study." CDOT's Freight Mobility and Safety Branch is tasked with studying the feasibility of adding new chain-up and chain-down stations, identifying barriers to construction, and evaluating technological upgrades at existing stations. The study will also assess the economic and safety impacts of commercial vehicle incidents and closures, and review parking availability for commercial vehicles on I-70.

This feasibility report ("The Report") was developed in coordination with stakeholders including; CDOT Regions (engineering and maintenance), CSP, Colorado Motor Carriers Association (CMCA), planning partners, and municipalities in impacted areas. Below is the general outline of the Report:

- **Section 2: Understanding of Current Conditions:** This section includes important information on existing chain stations, chain law activations, enforcement data, truck parking on I-70, existing barriers, and financial investments. Appendices provide more granular information.
- **Section 3: Analysis of Current Conditions & Future Needs:** This section focuses on a high-level analysis of the existing chain station inventory, potential future locations, barriers, challenges and potential future operation and technology needs.
- **Section 4: Recommendations & Next Steps:** This section outlines recommendations by logical areas and deployment time frames, including planning level cost estimates and immediate next steps.

Section 2: Understanding of Current Conditions

This section includes the following information:

- Existing statewide chain station inventory and key features
- Chain law activations
- Truck Parking inventory on I-70 statewide
- Barriers for existing and new chain stations
- Financial investments

2.1 Chain Station Inventory Summary and Key Features

Below is a summary of CDOT's existing statewide inventory of chain stations with key features.

Summary

- There are 130 Chain Stations on 21 different freight routes.
- About 75 percent are deployed in CDOT Regions 3 and 5 (western slope and southwestern sections of the state), which have many of the state's mountain passes and most challenging terrain.
- Most of the chain stations have signage on the highway to notify CMV when chains are required, are paved, striped, and have lighting; however, due to geography and other unique circumstances, there are design and operational variations among the stations.
- Most formal and fully equipped stations are on major freight routes such as I-25, I-70, Hwy 50, and Hwy 160, while impromptu or converted sites are more common in areas with lower truck volumes.
- There are more chain-up than chain-down stations.

Here are the highlights based on the analysis of the chain station inventory:

- Chain stations exist on 21 distinct highways statewide.
- 19 of 130 (approximately 15%) chain stations are on the I-70 Mountain Corridor.
- Other corridors with a higher frequency of chain stations include US-550, US-50 and US-160.
- There are 74 chain up stations, and 56 chain down stations.
- 67 percent (87 total) of chain stations do not have lighting.
- CDOT has 8 new chain station locations funded with preparation of construction within the next few years.

Table 1 shows the types and key features of the chain stations in the state, based on the inventory provided by CDOT.

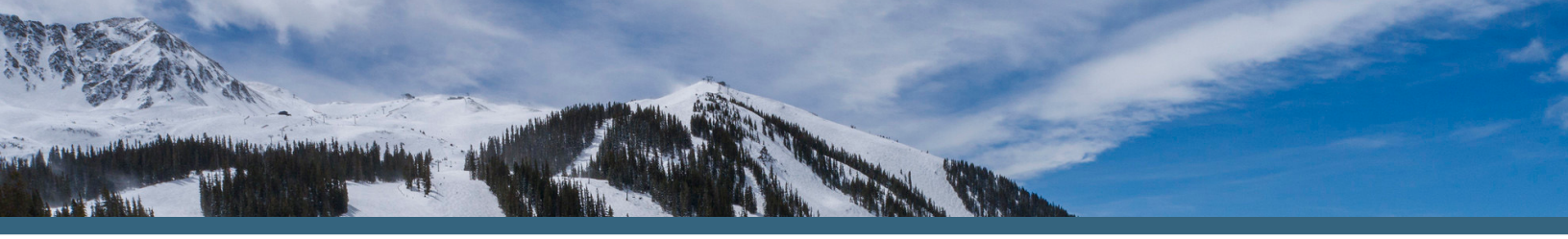


Table 1: Chain Stations Key Features

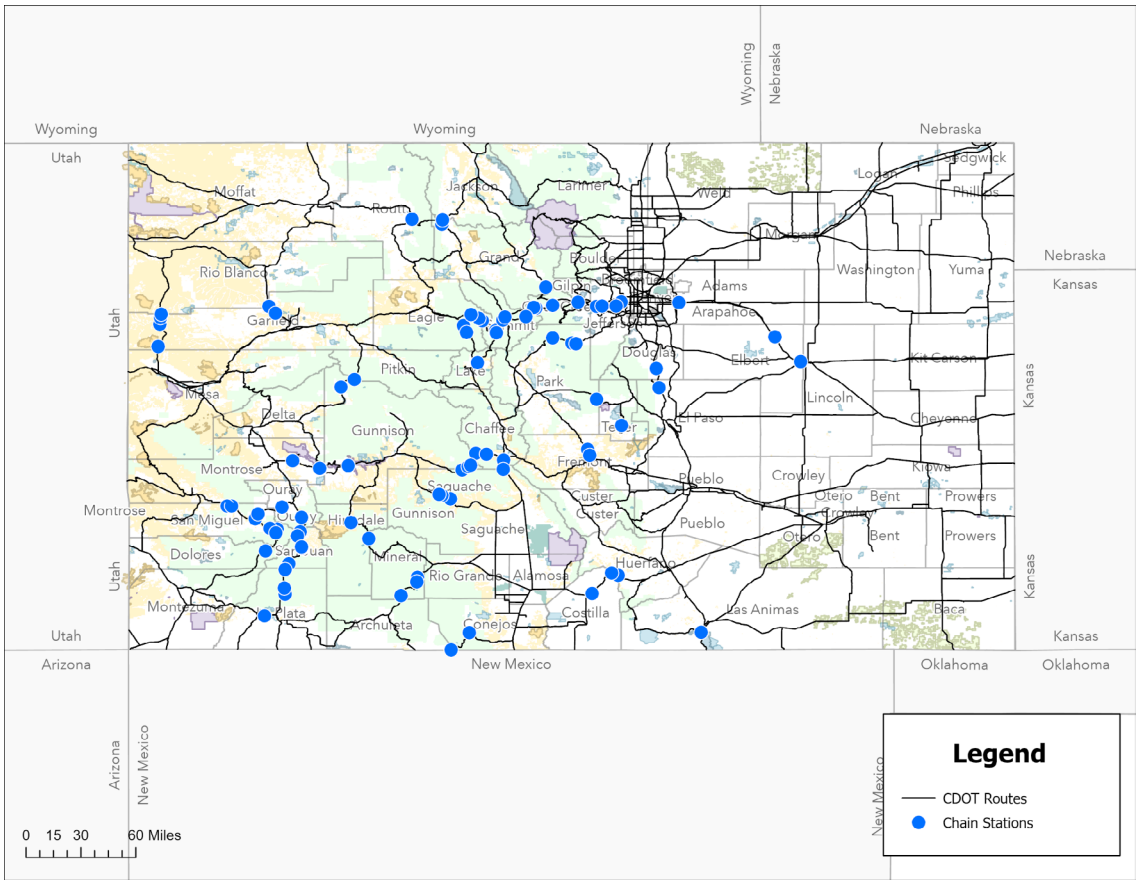
Station Type	Count	Average Length (ft)	Percent and Number of Stations with Signage	Percent and Number of Stations with Pavement	Percent and Number of Stations with Striping	Percent and Number of Stations with Lights
Formal	87	684	56% (49)	39% (34)	9% (8)	49% (43)
Impromptu[1]	41	217	12% (5)	34% (14)	0% (0)	0% (0)
Converted[2]	2	582	50% (1)	50% (1)	50% (1)	5% (0)
Totals	**130**	**436**	**42% (55)**	**38% (49)**	**7% (9)**	**33% (43)**

[1] *Impromptu chain stations are either dirt pulloffs or wider stretches of roadway where road base or pavement has been added for space off the lane of travel*

[2] *Converted chain stations are repurposed areas like old parking lots or maintenance facilities.*

Figure 1 is a map of chain station locations throughout the State.

Figure 1: Chain Stations Throughout the State



A full list of statewide chain stations can be found below.

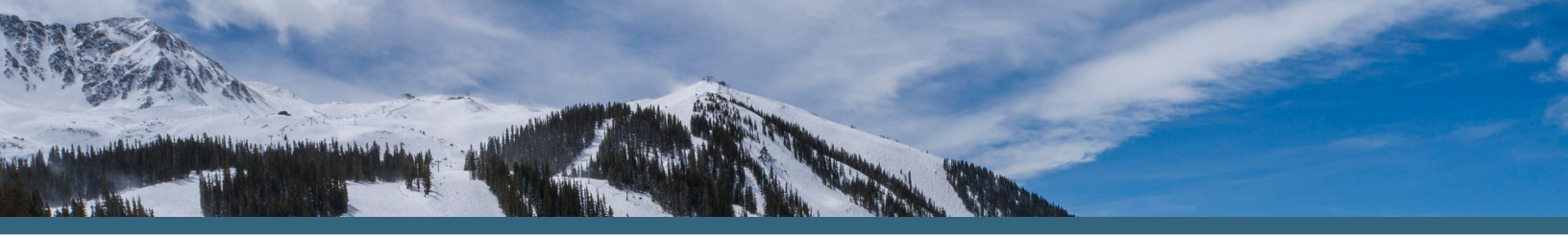
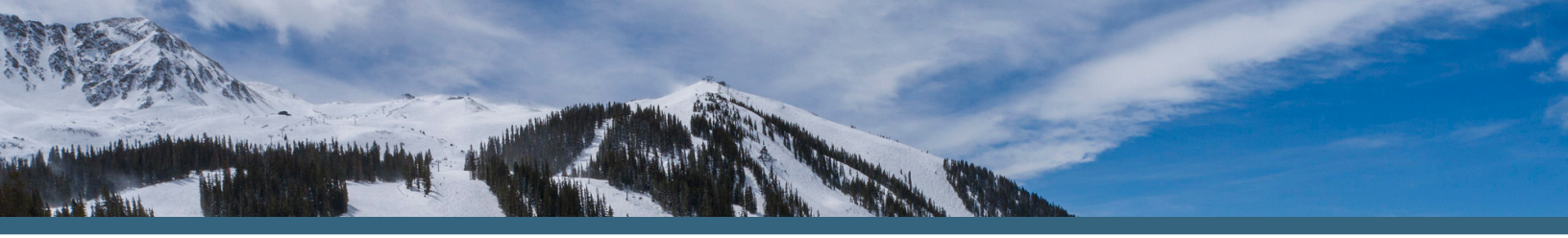
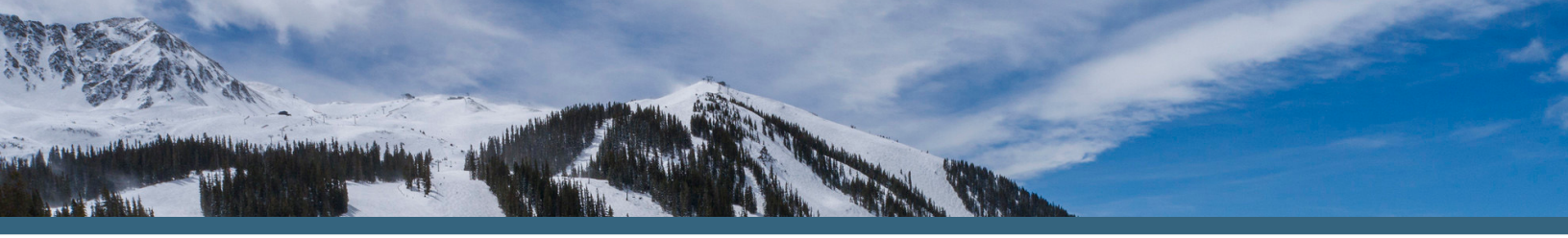


Table 2: Statewide Chain Stations & Truck Parking Measurements

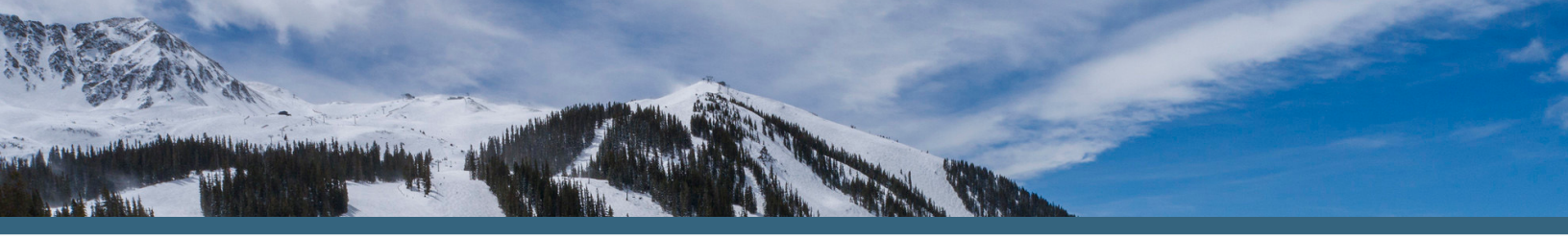
Roadway	Name	Direction	MP	Number of Spaces
14A	MUDDY PASS EB CHAIN STATION	EB	1.2	6
14A	MUDDY PASS WB CHAIN STATION	WB	1.2	7
CO-114	Cochetopa Pass, North Branch Old Spanish NHT	EB	29.6	3
CO-114	Continental Divide Summit of North Cochetopa Pass	EB	31.3	1
CO-114	Entering/Leaving Rio Grande National Forest	WB	35.8	2
CO-13	RIFLE NB CHAIN STATION MP 16.8	NB	16.8	7
CO-13	RIFLE NB CHAIN STATION MP 12	NB	12	17
CO-133	HWY 133 MP 36	NB	36	3
CO-133	HWY 133 MP 47.5	NB	47.5	3
CO-133	HWY 133 MP 47.5	NB	47.5	1
CO-133	HWY 133 MP 47.5	NB	47.5	1
CO-139	HWY 139 MP 30	SB	30	1
CO-139	HWY 139 MP 30	SB	100	3
CO-139	HWY 139 MP 39	NB	39	1
CO-139	HWY 139 MP 39	NB	39	3
CO-139	HWY 139 MP 15	NB	15	0
CO-139	HWY 136 MM 37	EB	37	3
CO-139	HWY 139 MM 37	SB	37	3
CO-139	HWY 139 MP 30	NB	30	4
CO-139	HWY 139 MP 39	SB	39	2
CO-145	CO-145 MP 98 Chain Station	NB	98	1
CO-145	CO-145 MP 100 Chain Station	NB	100	3
CO-145	Rico NB Chain Station MP 54.8	NB	54.8	3
CO-145	Rico SB Chaion Station MP 6.9	SB	68.9	6
CO-145	Rico SB Chain Station MP 71.6	SB	71.6	5
CO-145	Rico SB Chain Station MP 75	SB	75	3
CO-149	HWY 149 MP 69	SB	69	3
CO-149	HWY 149 MP 50	NB	50	2
CO-149	HWY 149 MP 50	SB	50	3
CO-17	Cumbres/La Manga Pass Chain Station MP 17	SB	17	2
CO-17	Cumbres/La Manga Pass Chain Station MP 0	NB	0	4
CO-17	MANGA PASS CHAIN STATION	NB	17	2
CO-67	HWY 67 MM 54	SB	54	2
CO-67	HWY 67 MM 54	WB	54	4
CO-67	HWY 67 MM 54	EB	54	1



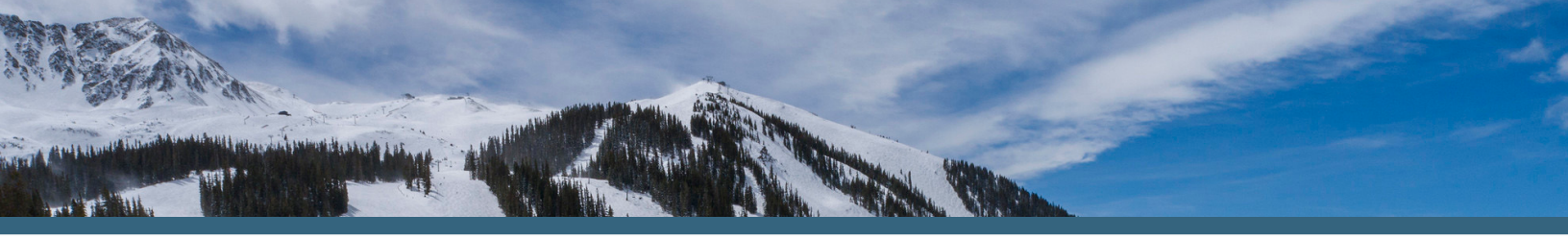
Roadway	Name	Direction	MP	Number of Spaces
CO-67	HWY 67 MM 54	SB	54	3
CO-67	HWY 67 MM 54	NB	54	1
CO-67	HWY 67 MM 54	SB	54	4
CO-9	CO-9 MP 4 Chain Station	EB	4	
CO-9	CO-9 MP 8 Chain Station	NB	8	1
CO-91	HWY 91 MP 00	NB	0	1
CO-91	HWY 91 MP 22	NB	22	1
I-25	LARKSPUR REST AREA (CLOSED) NB CHAIN STATION MP 170	NB	170	7
I-25	LARKSPUR REST AREA (CLOSED) SB CHAIN STATION MP 170	SB	170	7
I-25	TRINIDAD SB CHAIN STATION MP 11	SB	11	9
I-25	BAPTIST ROAD NB CHAIN STATION MP 158	NB	159	19
I-70	HERMAN GULTCH EB CHAIN STATION MP-219	EB	219	10
I-70	GEORGETOWN EB CHAIN STATION MP-228	EB	228	22
I-70	IDAHO SPRINGS CHAIN STATION MP-241	EB	241	4
I-70	EL RANCHO CHAIN STATION MP-250	EB	250	6
I-70	GENESEE PARK CHAIN-UP STATION MP-253	EB	253	8
I-70	AURORA EASTBOUND CHAIN STATION MP-290	EB	290	6
I-70	VAIL WB CHAIN STATION MP 178	WB	178	21
I-70	COPPER MTN EB CHAIN STATION MP 195	EB	195	3
I-70	FRISCO WB CHIAN STATION MP 202	WB	203	7
I-70	HERMAN GULTCH WB CHAIN STATION MP-219	WB	219	20
I-70	BAKERSVILLE WB CHAIN STATION MP-220	WB	220	28
I-70	GEORGETOWN WB CHAIN STATION MP-228	WB	228	30
I-70	GENESEE PARK CHAIN-UP STATION MP-253	WB	253	7
I-70	South Rooney Road Underpass Chain Station	WB	259.7	3
I-70	LAKEWOOD CHAIN STATION MP-263	WB	263	22
I-70	AURORA WESTBOUND CHAIN STATION MP-290	WB	290	6
I-70	VAIL EB CHAIN STATION MP 178	EB	178	50
I-70	VAIL PASS EB CHAIN STATION MP 182	EB	182.8	5
I-70	VAIL PASS EB CHAIN STATION MP 185	EB	185	5
I-70	COPPER MTN WB CHAIN STATION MP 195	WB	196	3
I-70	FRISCO EB CHAIN STATION MP-203	EB	203	16
I-70	DILLON CHAIN EB CHAIN STATION MP-205	EB	205	28
I-70	AGATE CHAIN STATION MP-340	EB	340	17
I-70	LIMON WEST CHAIN STATION MP-358	WB	358	31



Roadway	Name	Direction	MP	Number of Spaces
US-160	PAGOSA SPRINGS WB CHAIN STATION MP 157	WB	157	7
US-160	SOUTH FORK EB CHAIN STATION MP 176	EB	176	7
US-160	FORT GARLAND WB CHAIN STATION MP 261	WB	261	18
US-160	GARDNER EB CHAIN STATION MP 276	EB	276	5
US-160	DURANGO WB CHAIN STATION MP 77	WB	77	3
US-160	PAGOSA SPRINGS EB CHAIN STATION MP 157	EB	157	4
US-160	Wolf Creek Pass	WB	173	2
US-160	NORTHERNMOST SOUTH FORK WB CHAIN STATION MP 176	WB	176	3
US-160	FORT GARLAND EB CHAIN STATION MP 261	EB	261	14
US-160	LA VETA PASS CHAIN STATION	WB	276	6
US-160	MULESHOE WB CHAIN STATION MP 281	WB	281	5
US-24	BATTLE MOUNTAIN MP 148	WB	148	2
US-24	HWY 24 MP 154	SB	154	1
US-24	HWY 24 MM 266	WB	266	2
US-24	HWY 24 MP 154	NB	154	1
US-285	PONCHA PASS SB CHAIN STATION 119	SB	119	4
US-285	HWY 285 MM 218	EB	218	1
US-285	PONCHA PASS NB CHAIN STATION MP 119	NB	119	6
US-285	PONCHA SPRINGS NORTHERNMOST SB CHAIN STATION MP 125	SB	125	6
US-285	KENOSHA PASS WB CHAIN STATION MP 209	WB	209	17
US-285	HWY 285 MM 220	WB	220	2
US-285	HWY 285 MM 220	EB	220	1
US-40	STEAMBOAT SPRINGS WB CHAIN STATION MP 139	WB	139	7
US-40	KREMMLING WB CHAIN STATION MP 159	EB	159	5
US-40	WINTER PARK EB CHAIN STATION	EB	234	4
US-40	WINTER PARK EB CHAIN STATION	EB	234.2	3
US-40	STEAMBOAT SPRINGS EB CHAIN STATION MP 139	EB	139	7
US-40	KREMMLING WB CHAIN STATION MP 159	WB	159	10
US-50	SARGENTS WB CHAIN STATION MP 190	WB	190	4
US-50	MONARCH PASS	WB	193.5	5
US-50	MONARCH PASS EB CHAIN STATION MP 209	EB	209	9
US-50	US-50 Truck Turnaround WB MP 113.7	WB	113.7	2
US-50	HWY 50 MP 114	WB	114	0
US-50	SARGENTS EB CHAIN STATION MP 190	EB	190	2
US-50	MONARCH PASS	EB	195.2	4



Roadway	Name	Direction	MP	Number of Spaces
US-50	GARFIELD WB CHAIN STATION MP 204	WB	204	4
US-50	MONARCH PASS WB CHAIN STATION MP 209	WB	209	8
US-50	CERRO SUMMIT CHAIN STATION MP 100	EB	100	1
US-50	US-50 Truck Turnaround EB MP 113.7	EB	113.7	3
US-50	Blue Mesa Outpost' Chain Station	WB	131.8	4
US-50	HWY 50 MP 114	NB	114	2
US-550	PURGATORY DURANGO SB CHAIN STATION MP 49	SB	49	2
US-550	US-550 MP 54.8 Chain Station	NB	54.8	2
US-550	SILVERTON NB CHAIN STATION MP 71	NB	71	3
US-550	Red Mountain Pass Chain Station NB	NB	80	2
US-550	OURAY NB CHAIN STATION MP 95	NB	95	2
US-550	HERMOSA NB CHAIN STATION MP 34	NB	34	1
US-550	DURANGO NB CHAIN STATION MP 38	NB	38	3
US-550	PURGATORY DURANGO NB CHAIN STATION MP 49	NB	49	8
US-550	SILVERTON SB CHAIN STATION MP 69	NB	69	1
US-550	Silverton Overlook Chain Station SB MP 70	SB	70	2
US-550	Red Mountain Pass Chain Station SB	SB	80	1
US-550	US-550 MP 84 Chain Station NB	NB	84	5
US-550	Ouray SB Chain Station MP 95	SB	95	6
US-6	A-BASIN EB CHAIN STATION MP 218	EB	219	5
US-6	A-BASIN WB CHAIN STATION MP 219	WB	219	3
US-62	HWY 62 MM 17	NB	17	1
US-62	US-62 MP 4 EB Chain Station	EB	4	1
US-62	US-62 MP 17 WB Chain Station	WB	17	2
US-62	HWY 62 MP 1	NB	1	1
US-62	HWY 62 Mp 1	NB	1	3



2.2 Chain Law Activations and Enforcement

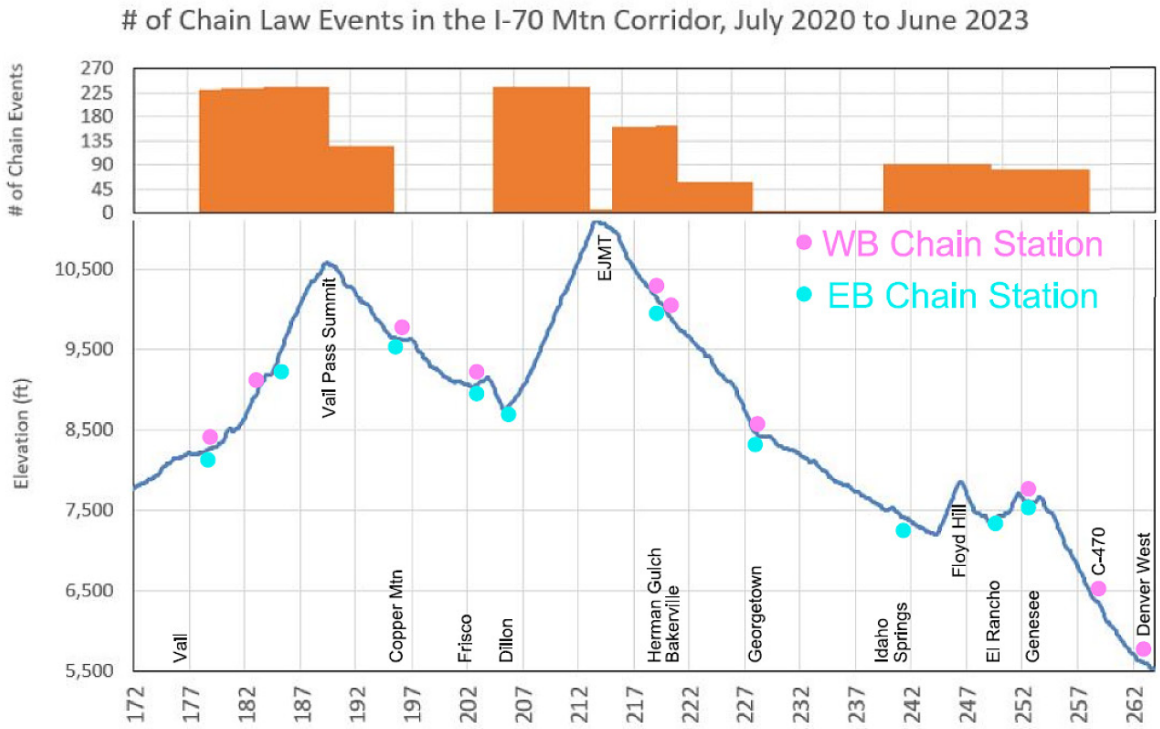
Table 3 (below) shows total chain law activations over the last 3 winter seasons. On average, chain law activations average around 228 annual chain law activations statewide.

Table 3: Chain Law Activations

	Winter 2024/2025	Winter 2023/2024	Winter 2022/2023
Chain Law Activations for CMVs	192	221	273

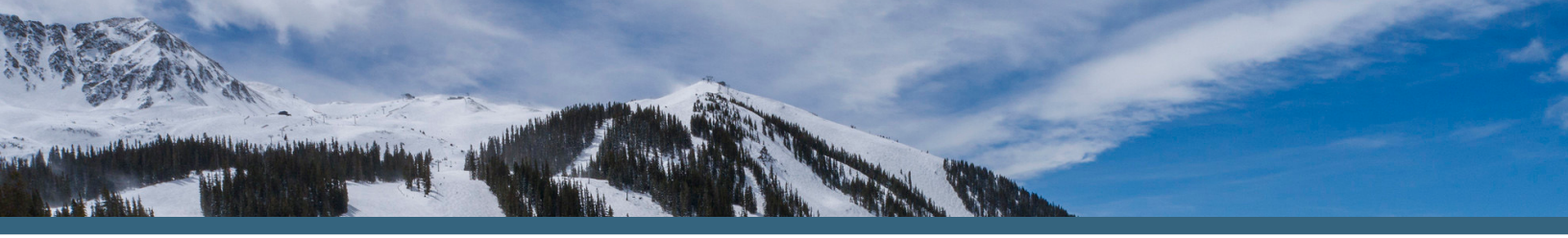
The impact of elevation plays a significant role in the frequency of severe weather events and associated chain law restrictions. **Figure 2** demonstrates the elevation impact on associated chain law events.

Figure 2: Elevation Impact on Related Chain Law Restrictions on I-70 Mtn Corridor



Proactive chain law enforcement during a storm is difficult as resources are often utilized in responding to crashes during severe storms. This creates a perception of limited enforcement, despite significant efforts on days without severe storms. This has been identified as one of the barriers and challenges in sub-section 2.3.

Starting in September of 2024, CSP has begun organizing weekly enforcement blitzes, setting up checkpoints to inspect commercial vehicles for compliance with chain requirements at locations throughout the I-70 corridor such as Dotsero truck parking lot, and the Ports of Entry locations in Dumont and Loma. These initiatives focus on the "must carry law," and highlight the critical importance of carrying tire chains or approved traction devices during the winter season, as mandated by law. Through increased enforcement, CSP aims to encourage all commercial drivers to properly equip their vehicles, ultimately enhancing safety on Colorado's highways during winter conditions.

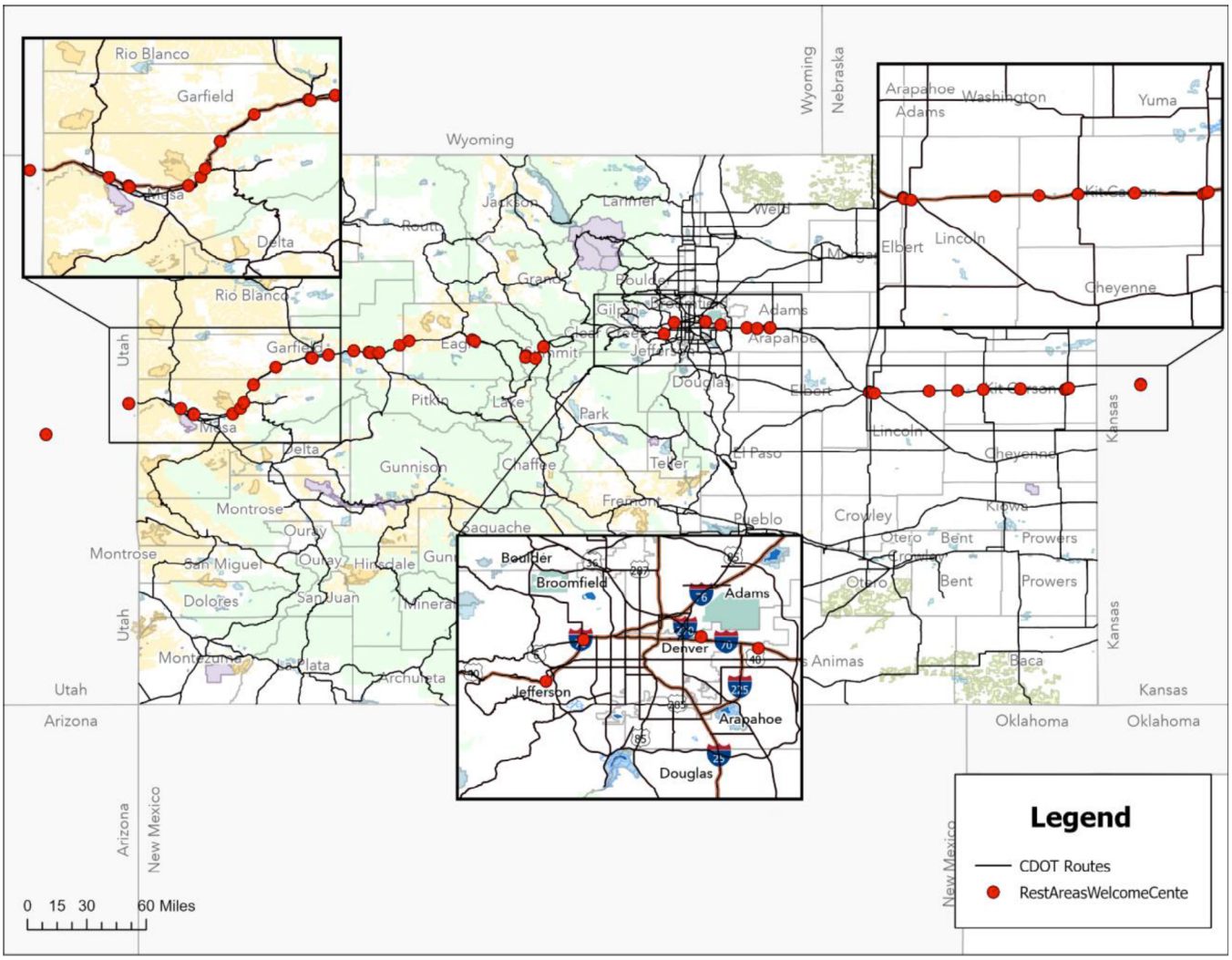


2.3 Examining Truck Parking on I-70

I-70 Truck Parking Inventory Overview from Utah to Kansas

- 1,884 total truck parking spots on the I-70 corridor statewide
- 44 unique locations between public and private
- 249 CDOT owned and maintained truck parking spots
- Truck parking spots at 16 CDOT owned locations on the corridor
- CDOT is investing in more truck parking in multiple locations on I-70

Figure 3: Truck Parking on I-70



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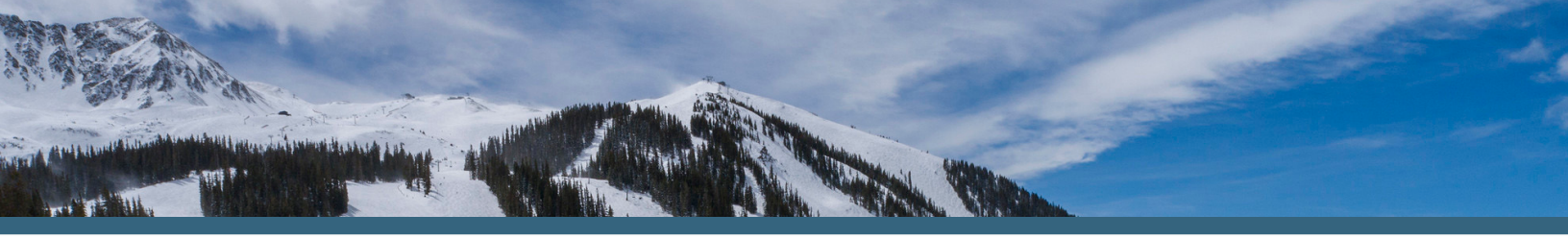
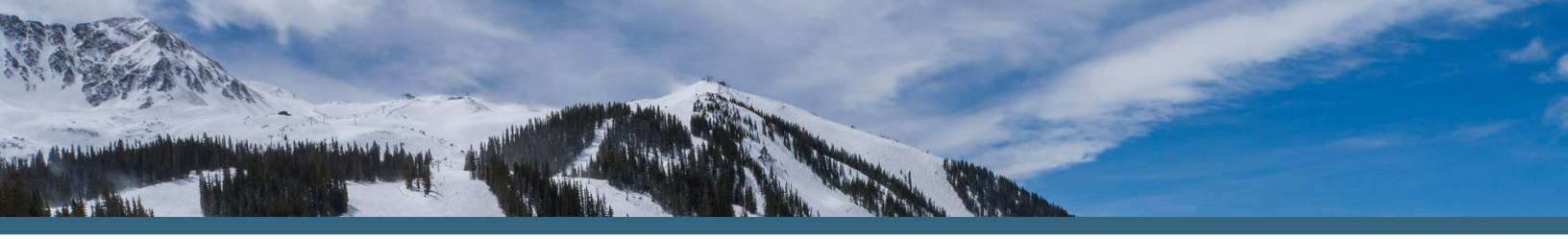


Table 4: Truck Parking Locations on I-70

Route	Exit	Area Name	Truck Spaces	Services
I 70	19	Fuita Travel Plaza	55	P, D, F, R, T, S
I 70	26	Pilot Travel Center	59	P, D, F, R, T, S
I 70	26	Love's Travel Stop	76	P, D, F, R, T, S
I 70	26	Acorn Travel Plaza	73	P, D, F, R, T, S
I 70	42	Golden Gate Petroleum	8	P, D, F, R, T
I 70	47	Palisade Exxon	98	P, D, F, R, T, S
I 70	50	CDOT - Beavert Tail Tunnel Bypass EB	75	NS
I 70	62	Maverik	11	P, D, F, R, T
I 70	75	Love's Travel Stop	50	P, D, F, R, T, S
I 70	90	CDOT Rest Area - Rifle	7	P, V, R, T
I 70	90	Maverik	2	P, D, F, R, T
I 70	97	Golden Gate Petroleum	11	P, D, F, R, T
I 70	107	CDOT Truck Parking Tibbet's Point	23	T
I 70	114	CDOT Truck Parking Glenwood Springs	27	T
I 70	114	CDOT Emergency Truck Parking - Glenwood Springs	12	EO, NS
I 70	119	CDOT Rest Area - No Name	3	P, V, R, T
I 70	128	CDOT Rest Area - Bair Ranch	6	P, V, R, T
I 70	133	CDOT Emergency Truck Parking at Dotsero	48	R, T
I 70	160.5	CDOT Rest Area - Edwards (EB)	7	R, T
I 70	163	CDOT Rest Area - Edwards	11	P, V, R, T
I 70	189	CDOT Truck Parking Vail Pass EB/WB	10	NS
I 70	190	CDOT Rest Area - Vail Pass	21	P, V, R, T
I 70	196	CDOT Parking Area - Curtain Ponds WB	8	NS
I 70	203.2	CDOT - Dillon Resevoir Overlook (E/B)	15	T
I 70	203.2	CDOT - Dillon Resevoir Overlook (W/B)	5	T
I 70	259	Sunmart Exxon	10	P, D, F, R, T
I 70	266	TA Travel Center	132	P, D, F, R, T, S
I 70	278	Sapp Bro's Travel Center	125	P, D, F, R, T, S
I 70	285	Flying J Travel Center	160	P, D, F, R, T, S
I 70	295	Watkins Truck and Auto Plaza	40	P, D, F, R, T
I 70	299	Circle K	20	P, D, F, R, T
I 70	304	Love's Travel Stop	205	P, D, F, R, T, S
I 70	304	QuikTrip	10	P, D, F, R, T
I 70	359	Flying J	136	P, D, F, R, T, S



Route	Exit	Area Name	Truck Spaces	Services
I 70	359	Limon McDonalds	11	F, R, T
I 70	359	Limon Truck Stop / TA Limon (Phillips 66)	100	P, D, F, R, T, S
I 70	361	Sinclair East Limon	19	P, D, F, R, T
I 70	383	CDOT Rest Area - Arriba	9	P, V, R, T
I 70	395	Flagler Coop/ Country Store/ Cenex	11	P, D, F, R, T
I 70	405	Seibert Travel Plaza	32	P, D, F, R, T
I 70	419	Cenex	26	P, D, F, R, T
I 70	437	Love's Travel Stop	73	P, D, F, R, T, S
I 70	437	Burlington Travel Shoppe	28	P, D, F, R, T
I 70	438	Sinclair Dino Mart	16	P, D, F, R, T
I 70	17 (KS)	Presto Travel Center (Phillips 66)	29	P, D, F, R, T
I 70	17 (KS)	Valero Truck Stop	80	P, D, F, R, T, S
I 70	187 (UT)	7-Eleven / Shell	15	P, D, F, R, T
I 70	MP 228 (UT)	UDOT Parking Area: Thompson	8	R, T

Services Key: P, Phone; D, Diesel; F, Food; V, Vending Machines; R, Restrooms; T, Trash; S, Showers; EO, Emergency Only; NS, No Service.

2.3.1 CDOT Investments into more Truck Parking on the I-70 Corridor

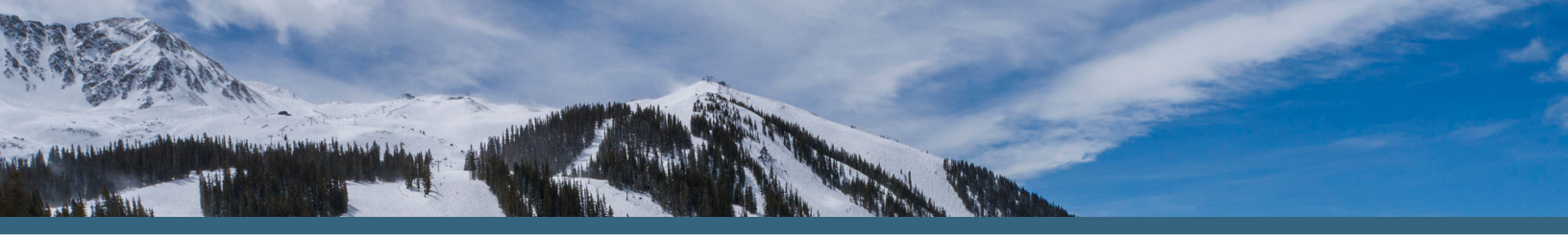
CDOT Recognizes that there are safety and regulatory needs for truck parking and are currently committed to finding and implementing innovative and sustainable strategies to increase truck parking capacity on I-70.

For the 2025 Vail Rest Area reconstruction project, CDOT committed over $3 Million of National Highway Freight Program (NHFP) funding to increase truck parking capacity from 7 to 21 parking spaces with pull-in and out access.

CDOT has also committed $4 million to expand truck parking at the top of Vail Pass. This project will increase current truck parking capacity by 20 or more parking spaces by fall of 2026. The increase in parking spaces will be synergistic with the ongoing Vail Pass safety and operational improvement project that is currently ongoing.

The Arriba rest area (which is the second most utilized rest area in the state) recently underwent major upgrades as part of a 2025 project. These upgrades have increased the building's daily operational capacity and can now support 25-30 additional truck parking spaces. CDOT's Freight teams have teamed up to contribute $ 1 million dollars of freight funding to build these parking spaces. This team is also researching the possibility of adding an oversize and overweight (OSOW) load parking area. Because I-70 is commonly used by CMVs carrying OSOW loads, it would benefit from the addition of a dedicated OSOW parking area.

CDOT continues to look for an opportunity to build more truck parking on the western I-70 corridor and is committed to working with the communities on the corridor to identify locations that will improve safety and access to services for the drivers but also limit and mitigate the impacts the locations may have on the surrounding community.



CDOT is also working to develop emergency CMV parking locations which will open during major storms with conditions that could lead to highway closures. These locations will be large parking lots which are accessible from truck routes that often close during major storms. For the 2025-2026 winter season, CDOT will be partnering with the Denver Broncos to open a lot for overflow emergency truck parking during major storms. CDOT staff will continue to work to build partnerships to expand this network of locations.

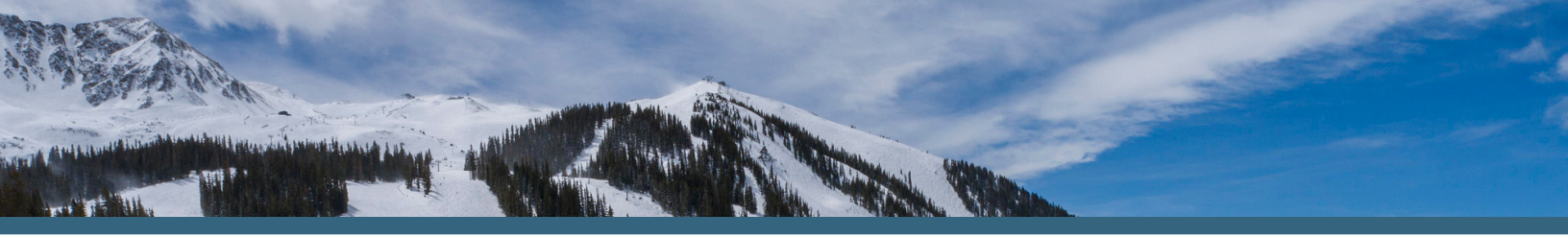
2.4 Barriers and Challenges

As part of this effort, staff from each CDOT Region that work in engineering or maintenance, were asked to respond to a survey. The objectives of the survey were to:

1. Gather feedback on the current challenges and approaches to chain station construction and management.
2. Gather any data on chain stations that was not already available from inventory data, project plan sets or budget documents.

The project team received twenty-seven (27) stakeholder responses from CDOT staff across all five Engineering Regions. Below are the major barriers and challenges to overcome regarding existing chain stations and proposed new locations, according to responses from the CDOT survey and feedback from other stakeholders:

- **National Standards:** The American Association of State Highway Transportation Officials (AASHTO) Green Book standards does not have a set standard design or guidance on chain stations. The vast majority of roadside assets have design standards that are listed in this reference manual, but the lack of information on chain stations creates challenges in standardizing design, maintenance, and operations of these assets.
- **Utility Access and Maintenance:** Providing power for lighting and technology is a recurring challenge, especially in remote areas. Maintenance and ongoing operational costs are also concerns.
- **Pairing of Chain-Up and Chain-Down Stations:** The lack of chain-down stations leads to an unsafe environment for CMV drivers to remove chains. Pavement conditions also deteriorate faster when CMVs must travel further to remove chains even after road conditions have improved and chains are no longer needed.
- **Enforcement During Storms:** Law enforcement resources are often stretched thin with responses to crashes during storms, thereby making it harder to proactively enforce chain laws. Law enforcement is usually working with heavy tow and plow drivers to get CMVs and passenger vehicles free from being stuck on the road and creating road closures. Chain Law compliance enforcement is a priority, but one that is often hard to focus resources on. CMVs are ticketed when they are stuck or spun out and do not have chains on while chain law is in place.
- **Notification Sources:** It continues to be challenging to collect and disseminate time-sensitive information (chain law restrictions or activations, construction or maintenance work zones, truck ramps, etc.) to CMVs, law enforcement and other stakeholders. Ensuring consistent, real-time and accurate updates are available to all stakeholders continues to be a focus from CDOT and CSP.
- **Right-of-Way and Land Acquisition:** Securing land, especially in mountainous or environmentally sensitive areas, can have very unique challenges depending on location and topography. The cost and feasibility of acquiring suitable sites can be prohibitive, particularly when municipal or private land is involved.
- **Municipal and Community Concerns:** Local concerns include noise, lighting (dark skies), and changes to community character. Some local mountain communities have strongly resisted new chain stations, fearing negative impacts on quality of life and/or local businesses.



- **Environmental and Topographical Constraints:** geographical conditions often limit where chain stations can be built, especially above the snow line or in areas with limited flat land.
- **Chain Stations vs Truck Parking:** No parking is allowed in chain stations during an active storm. Dual purposing the locations can lead to operational and safety concerns. The driver and/or company has the option of running through the mountain corridor while using appropriate traction control devices (chains, or approved ATDs) or to shut down and find safe off-highway parking during active chain law. During a storm, chain stations are for active chaining operations only, and not for parking. Many times this is violated as drivers shut down and park, taking up critically needed space for more drivers to apply their chains or traction devices.
- **Need for Improved Communication & Education:** There is a recognized need to better communicate accomplishments and ongoing work to stakeholders and the public, as current perceptions often underestimate what has already been achieved.
- **Contextualizing Funding Limitations:** Funding is limited, which is a common constraint for all public projects. Funding limitations force prioritization and require more stringent project selection criteria. Despite these constraints, there is a strong record of annual investment, particularly on high-priority corridors like I-70, with significant resources already committed and projects in various stages of delivery.
- **Need for Data Driven & Data Visualization Approach:** While industry and the legislature are understandably pushing for more chain stations and robust enforcement, the importance of a data-driven approach and prioritization would help in making the most effective decisions. Unfortunately during storms, data collection and consistency is challenging due to stretched resources. The Freight Team within CDOT has been and will continue to work with neighboring mountainous states to help better find a way to collect sound data to assist in making the best decisions for investment and operational improvements. Resources during storms are scarce, by working with other states to collaborate on best practices the entirety of the mountain west will have the opportunity to improve safety, awareness and operations.

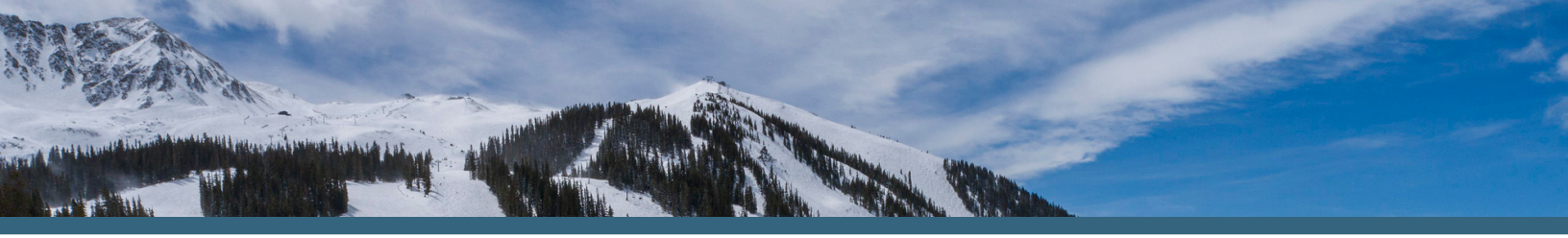
2.5 Funding Investments

Ongoing funding and financial investment are essential to maintain, improve and expand Colorado's chain station network using a strategic, data-driven approach. One key source of funding for chain station projects is the National Highway Freight Program (NHFP), which is accessible only through the federally approved Colorado Freight Plan (CFP).

The CFP is a federally mandated document, first required under the FAST Act of 2015 and reinforced by the Infrastructure Investment and Jobs Act (IIJA) of 2021. To qualify for NHFP funds, Colorado must develop a CFP that addresses at a minimum, 17 federal planning requirements. The legislation also requires that each state freight plan is updated every four years. Approval by the Federal Highway Administration (FHWA) ensures Colorado remains eligible for NHFP funding.

The NHFP was established by federal law and oversight is done by the FHWA. This program was designed to support states in delivering on their freight priorities via funding projects along the National Highway Freight Network (NHFN). The NHFN includes designated freight corridors in Colorado:

- **Primary Highway Freight System (PHFS):** I-25, I-70, I-225, I-270, I-76 (from I-70 to US 85), and E-470 (from I-70 through Peña Boulevard to Denver International Airport)
- **Interstate Highways not on the PHFS:** I-76 (from US 85 to the Colorado-Nebraska state line)
- **Critical Rural Freight Corridors (CRFC):** Various key rural highway segments across the state
- **Critical Urban Freight Corridors (CUFC):** SH 265 (from I-70 to I-76)



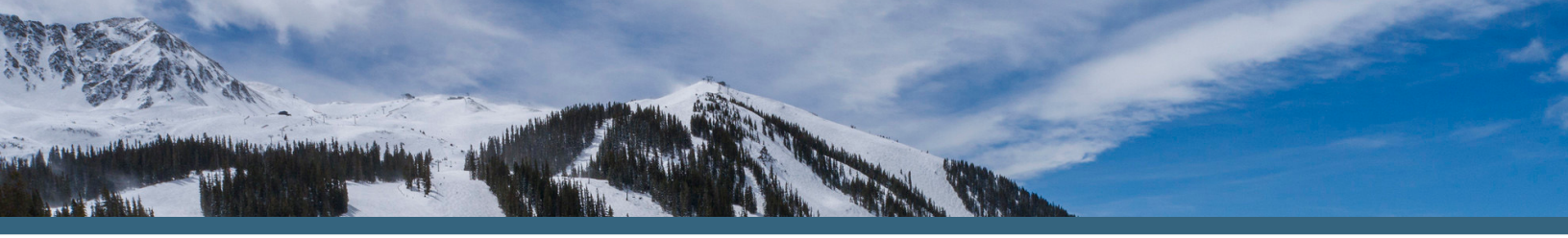
As required by FHWA via the FAST Act & IIJA, the Freight Investment Plan (FIP), an addendum to the CFP, is used to document and highlight how Colorado has spent NHFP funding since its origin in 2016. As projects are identified and selected for NHFP funding they are added to the Freight Investment Plan (FIP) which identifies what type of the above corridors they reside on, the distance (in miles) the project will encompass, and how much funding is from NHFP and how much is state match (Each years funding is an 80% federal / 20% state split). As projects are applied for and put on the FIP, FHWA reviews and approves or denies each proposed project.

An important element in the NHFP involved identifying and designating CRFC and CUFC highway segments, which join the PHFS and other Interstate Highways to comprise the NHFN. A CRFC or CUFC highway segment must be certified by FHWA before NHFP funds may be authorized for a freight project. Currently, in Colorado a total of 50.2 miles of CRFC has been designated out of an allotted 600 miles, and a total of 2.0 miles of CUFC have been designated out of an allotted 150 miles.

The NHFP is a formula-based funding program that supports investments in the NHFN across the United States. Projects funded through the NHFP contribute to efficient goods movement on the NHFN. The NHFP requires a 20 percent match from the state. Since the inception of the NHFP, CDOT has invested approximately $41.5 million dollars and received approximately $165.8 million dollars of federal funding. **Table 5** shows the federal and state funds by fiscal year since the NHFP's inception. More detailed information regarding the CFP is available at: https://freight.colorado.gov/plan-invest.

Table 5: National Freight Highway Program Funding – Federal and State – 2016 to 2026

Fiscal Year	Federal Funds (millions)	State Funds (millions)	Total
2026	$4.392	$1.098	**$5.49**
2024/2025	$21.73	$5.43	**$27.16**
2024	$5.60	$1.40	**$7.00**
2023	$27.16	$6.79	**$33.95**
2022	$14.36	$3.59	**$17.95**
2021	$19.03	$4.76	**$23.79**
2019/2020	$30.74	$7.68	**$38.42**
2018	$14.20	$3.55	**$17.75**
2017/2016	$28.61	$7.15	**$35.76**
Total	**$165.822**	**$41.448**	**$207.27**



Chain stations are vitally important to ensuring safe and efficient travel on Colorado's mountainous highways, particularly for commercial motor vehicles. Since the inception of the National Highway Freight Program (NHFP), CDOT has invested $41.4 million in chain station projects across the state, representing one-fifth of all NHFP funds deployed in Colorado. These investments have supported the construction of new chain stations, modernization of existing facilities, and the integration of technology, demonstrating CDOT's strong commitment to freight mobility and safety.

Currently, several major projects are already approved and awaiting construction, including new truck parking spots and technology upgrades at key chain station locations. CDOT is actively implementing and testing advanced technologies to enhance chain station operations and improve driver awareness. On selected I-25 and I-70 chain stations, Variable Message Signs (VMS) and new lighting controls are being integrated into CDOT's Transportation Management System (TMS) to support real-time condition monitoring and response.

Additional ongoing projects are in design that are looking at advanced parking management technologies such as radar detection, LED occupancy indicators, centralized open/close controls, and improved driver communication through VMS and in-cab alert systems. These efforts will be designed to streamline operations, reduce confusion, and promote safer driving behavior during adverse weather and seasonal travel surges.

Collectively, these investments and innovations highlight CDOT's proactive approach to improving chain station functionality as a critical element of the state's freight infrastructure.

Section 3: Analysis of Existing and Future Conditions

This section focuses on high-level Analysis of following:

- **Examining Economic and Safety Impacts:** examining the costs of shutdowns compared to safety closures.
- **Physical Inventory of Chain Stations:** identify gaps and needs for additional stakeholder input.
- **Barriers & Challenges:** provides additional details regarding the barriers and challenges identified in Section 2.3 (above) and offers options to address and implement alternative approaches.
- **Future Need:** Understanding future trends as it relates to commercial vehicle traffic, and other emergent technologies.

3.1 Examining Economic and Safety Impacts

Senate Bill 24-100 instructs this study to "Examine the economic and safety impacts of commercial motor vehicles for limited periods of time during snowstorms and working with various stakeholders on strategies and options for keeping roadways open." This section discusses the economic impacts of closures and compares the costs of safety closures and closures caused by crashes involving a CMV.

3.1.1 Introduction

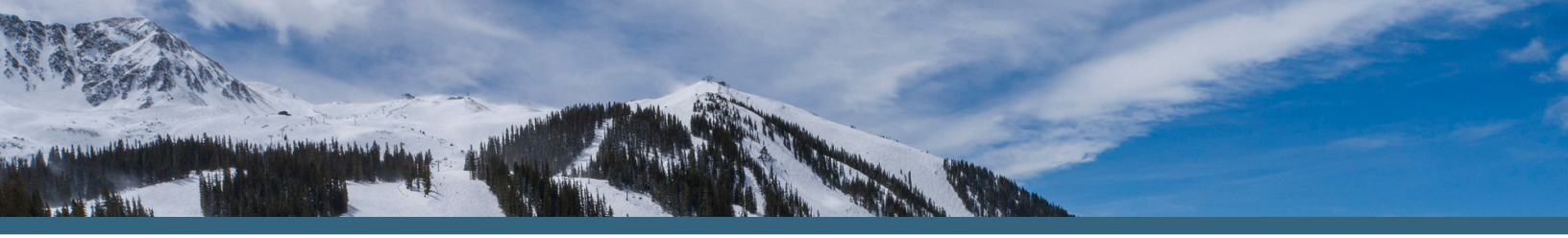
This analysis is presented to examine the economic impacts of CMV and other roadway incidents and closures during inclement weather events, and to evaluate the potential benefits of closures to commercial motor vehicles for limited periods of time during snowstorms. The following sections detail the methodology, data sources, and results of an economic impact study conducted over two locations on the I-70 Mountain Corridor designed to address specific regulatory objectives.

3.1.2 Methodology and Data Basis

To ensure a robust economic evaluation aligned with the broader goals of the associated I-70 Chain Station Study, this analysis utilized the following specific data sources and methodological parameters.

Data Scope and Locations

The analysis focused on full roadway closures occurring during winter conditions between the years 2021 and 2024. Annual Average Daily Traffic (AADT) data was utilized specifically from Vail Pass and the Eisenhower-Johnson Memorial Tunnels (EJMT). These two locations were selected due to their critical importance to freight movement along the I-70 corridor, their high susceptibility to severe weather impacts, and their strategic location adjacent to existing chain-up stations.



Economic Parameters (USDOT Guidance)

Monetary valuations for travel time delay were derived strictly using the U.S. Department of Transportation (USDOT) Benefit-Cost Analysis Guidance for Discretionary Grant Programs (May 2025 release). All economic values presented in this analysis are expressed in 2023 USD. Based on this guidance, the hourly values of travel time savings applied were approximately $32.07 per passenger vehicle hour (adjusting for standard Average Vehicle Occupancy of 1.52) and $35.70 per truck hour.

Hourly Volume Estimation (K-Factor)

To accurately estimate the traffic volume impacted during active winter storm periods, an engineering K-Factor of 9% appropriate for high-demand recreational corridors was applied to the location-specific AADT. This methodology converts daily traffic averages into realistic hourly volumes during active periods, providing the necessary basis for calculating hourly closure costs.

3.1.3 Analysis of Closure Characteristics and Mitigation Strategies

An analysis of full weather-related closures on critical corridor segments (Vail Pass and EJMT) reveals important distinctions when comparing reactive “CMV Incident Closures” versus proactive “Safety Closures” (implemented by authorities when weather severity precludes safe travel).

An examination of the distribution of full closure durations reveals a clear distinction between operational “common” events and economically disruptive “extreme” events. The incident duration data indicates a right-skewed distribution. The highest frequency of incidents (“common events”) occurs in shorter duration ranges (e.g.,1.6 hours), representing minor incidents or brief operational pauses with faster recovery times.

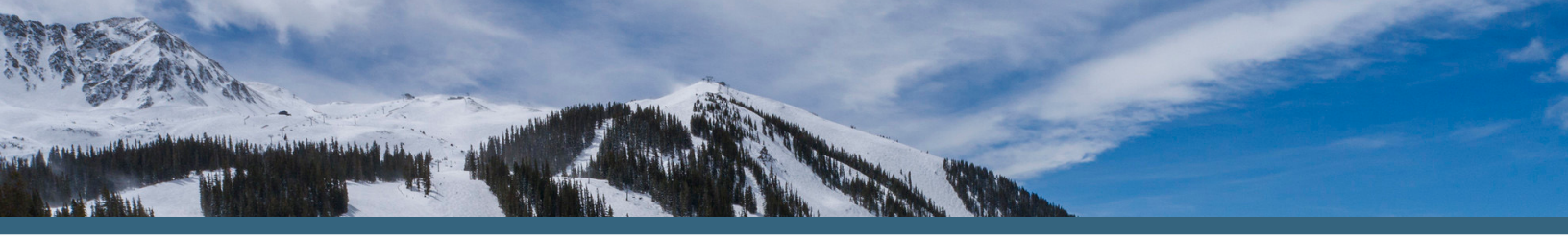
From the data analysis it was observed that the average duration difference between “Safety Closures” and CMV Incident Closures” is relatively minor, with reactive CMV incidents lasting approximately 3.7 hours compared to 2.6 hours for proactive safety closures (an average difference of 54 minutes). Thus, the critical impact of utilizing active Chain Law enforcement in conjunction with preventive Safety Closures lies not just in managing the average event, but in the prevention of non-common, extreme-duration scenarios that cause the greatest aggregate disruption to the corridor.

The current effectiveness of this layered mitigation strategy against the distribution of events is evidenced by 2024 operational data. During that winter season, severe conditions necessitated approximately 131 separate Chain Law activations, indicating periods of high risk. Yet, due to proactive management and enforcement, these periods resulted in only 31 full closures caused by CMV incidents.

3.1.4 Economic Evaluation of Proactive vs. Reactive Strategies

Based on the closure characteristics identified and the established economic parameters, this section quantifies the economic implications of current reactive management versus a proactive safety closure strategy.

Calculation of Hourly Economic Impact to determine the cost of closure, hourly traffic volumes were first estimated from the daily AADT data for the selected locations. To account for high demand during active winter storm periods, an engineering K-Factor of 9% was applied to the average AADT of 38,154. This resulted in an estimated total hourly volume of approximately 3,500 vehicles (comprising roughly 759 CMVs and 2,741 other vehicles) impacted during the analysis window.



Next, economic values for travel time delay were applied based on USDOT guidance. By multiplying the hourly vehicle volumes by their respective per-vehicle values of time (adjusted for average occupancy), the analysis calculated the aggregate hourly impact. This resulted in an estimated hourly cost of approximately $27,093 for the CMV segment and $87,912 for all other vehicles, totaling approximately $115,005 per hour of full corridor closure.

Comparative Analysis of Scenarios

Applying this $115,005 hourly cost to the average duration of reactive versus proactive events reveals significant economic disparities in typical scenarios.

- **The Reactive Strategy (CMV Incident/Recovery):** With an average duration of 3.0 hours, a typical reactive closure event generates a total direct economic cost of $414,019 due to travel time delays.
- **The Proactive Strategy (Safety Closure):** With an average duration of 2.38 hours, a planned safety closure generates a total direct economic cost of $310,514.

While both represent significant costs, the proactive strategy realizes an average direct economic saving of $103,504 per event compared to the reactive approach in common scenarios.

Economic Impact of Extreme Volatility

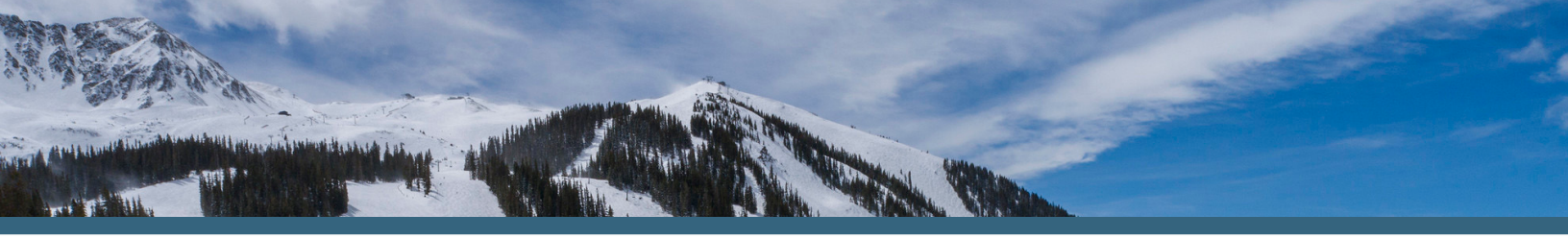
While the average cost comparison is significant, the most critical economic implication lies in managing volatility. Reactive incidents carry inherent risk of developing into the extreme-duration events identified in the "long tail" of the closure distribution data. To illustrate this severe economic risk, a single extreme 14-hour reactive closure caused by a complex CMV recovery incident generates a staggering total direct economic cost of over $1.6 million ($1,610,074) by closure. Proactive closures are designed to prevent these specific high-volatility scenarios.

Table 6: Proactive vs. Reactive Cost Strategies

	AVG AADT	Volume by hour	Total cost by hour	Proactive Strategy 2.6 hours	Reactive Strategy 3.7 hours	Savings
CMV	8273	759	$27,093.13	$73,151.46	$97,535.27	**$24,383.82**
All other vehicles	29881	2741	$87,912.20	$237,362.94	$316,483.91	**$79,120.98**
Total	**38154**	**3500**	**$115,005.33**	**$310,514.39**	**$414,019.19**	**$103,504.80**

3.1.5 Conclusion on Benefits

The primary economic benefit of the proactive strategy is twofold. First, it provides a quantifiable cost reduction in average scenarios, realizing a direct economic saving of approximately **$103,504 per event**. While this average saving is statistically significant on its own, it is relatively minor when weighed against the strategy's function as a critical risk management tool. The far greater aggregate economic value lies in preventing the catastrophic disruption associated with high-volatility, extreme-duration CMV recovery incidents, where avoided costs for a single event can exceed $1.6 million.



It is critical to note that the economic figures presented in this analysis are conservative, as they account solely for direct travel time delays. Excluded factors, such as direct operational costs for infrastructure repair, heavy recovery equipment, and the significant expenses associated with first responder services (law enforcement, fire, and EMS), are not included in these totals. These excluded costs represent significantly greater financial pressure on recovery-intensive **reactive incident scenarios** compared to planned safety closures, further reinforcing the economic imperative for adopting proactive management strategies.

3.1.6 Proactive Corridor Management Strategies

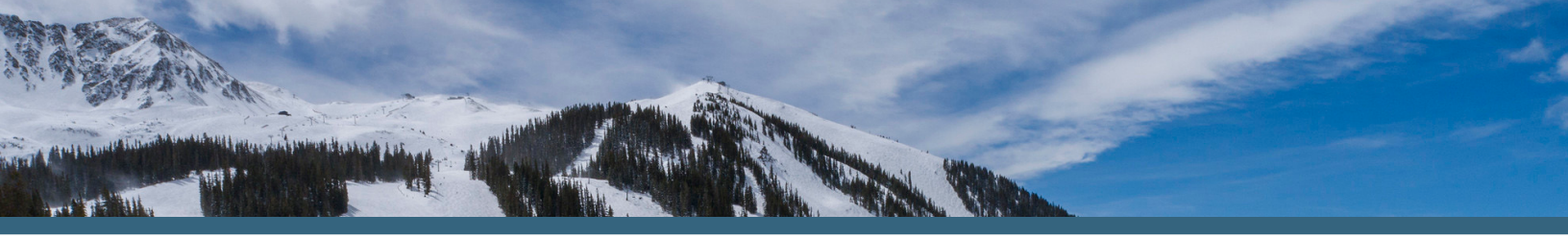
CDOT and its partners continue to develop and enhance the tools necessary to manage the key corridors within the state.

- CDOT's Winter Operations team works closely with the National Weather Service to provide detailed weather forecasting that allows CDOT and CSP leadership to align the appropriate resources with the impacts being forecasted.
- CDOT, CSP, and our local partners continue to do must-carry chain law enforcement, with a focus on educating drivers that are unfamiliar with Colorado's unique must-carry law.
- CDOT has developed and continues to optimize our Winter Operations and Traffic Incident Management Plans to ensure operational readiness when there are incidents on the roadway.
- CDOT is implementing a "Pusher Truck" on EB Vail Pass for the 2025-2026 winter season. CDOT intends to utilize the pusher truck to assist with keeping EB I70 open, especially with spun out or stuck CMVs during that critical time of initial chain law implementation. The intended benefit is less CMV issues during storm events and expediting quick clearance during safety closures.
- Safety Closures are a strategy used to address current safety issues before they get out of hand. This strategy has proven to reduce the length of closures and be less impactful to traffic conditions on the corridor.
- CDOT and CSP continue their strong collaboration with the educational program known as "The Mountain Rules." The goal of this program is to inform drivers that are not familiar with Colorado's uniquely challenging mountain driving conditions to prepare them appropriately for what they will encounter while operating a CMV in Colorado. This program has a YouTube video series and many supporting informative documents to support it.

3.2 Analysis of Current Locations and Future Opportunities

The statewide inventory of existing chain-up and chain-down stations shows that Colorado maintains strong coverage across the majority of its key freight corridors. Most high-volume truck routes contain functional, strategically located chain stations that support winter operations and commercial motor vehicle compliance. While some gaps remain, many of these locations already have funded projects in development, indicating strong momentum toward systemwide improvement.

Recent funding commitments through the National Highway Freight Program (NHFP) and other CDOT programs will meaningfully expand the network. NHFP has awarded resources for new chain stations on US 24, multiple locations within Region 5, Highway 9 in the Blue River area, and safety and operational improvements to the existing I-70 eastbound chain station in Vail. These projects aim to address both operational needs and longstanding regional safety concerns.



Region 5 Programmed Projects

As part of the 2024–2025 project call, Region 5 received $6.1 million in funding for new or improved chain stations at the following locations:

- **US 491 near Yellowjacket:** Both directions
- **US 491 near the Colorado/Utah state line:** Both directions
- **US 550 near Pinkerton Hot Springs:** Uphill direction only
- **US 550 near Red Mountain Pass:** Downhill direction only
- **US 160 near Durango West subdivision:** Uphill direction only
- **US 24 near Johnson Village:** Both directions (design phase only)

These locations represent critical winter freight corridors with steep grades, challenging weather patterns, and limited existing chain-up options.

One key operational optimization opportunity identified through the analysis is improving how commercial drivers utilize the two existing westbound chain-up stations near Bakersville. During chain-law activations, most trucks stop at the first available station, creating a bottleneck, while the second station, located just up the road, often remains underused. Rather than requiring additional capacity to be added, this challenge can be addressed through improved driver communication and the deployment of new technologies. Opportunities include enhanced variable message signage, real-time occupancy information, and coordinated chain-law alerts that direct drivers to available space and distribute demand more evenly between the two stations.

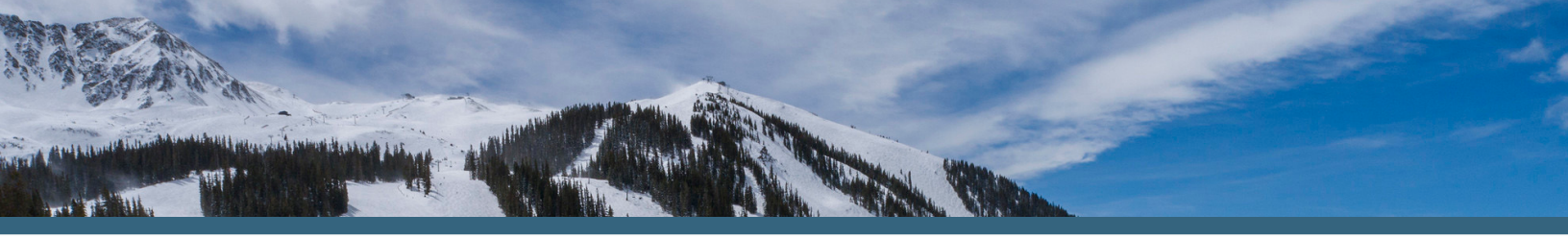
Unresolved Network Gaps

Stakeholder feedback, supported by operational data, consistently highlights two corridors with significant remaining needs:

- **Highway 285 corridor**, which is a key in-state freight corridor, has steep grades and frequent adverse weather, but lacks adequate chain-up capacity.
- **I-70 near Copper Mountain**, where winter storms, congestion, and grade transitions create bottlenecks that would benefit from an additional chain station.

However, both areas present substantial challenges—including topographical constraints, limited available right-of-way, environmental sensitivities, and existing development.

CDOT will continue to analyze these corridors to determine whether any viable opportunities exist for new chain stations or operational alternatives. Where physical construction is not feasible, the study will explore creative solutions such as operational adjustments, design innovations, managed staging options, or partnership-based approaches.



3.3 Analysis of Barriers & Challenges

Below is a detailed list of the barriers and challenges associated with chain stations and potential options to overcome them.

3.3.1 Developing Design and Maintenance Standards

Although the AASHTO green book does not contain national design standards for chain stations, CDOT has had a consistent focus on improving safety and route dependability when designing and building chain stations in mountain corridors statewide. The basic features of a chain station include a paved or compacted roadway surface that is off the roadway, but within CDOT Right-of-Way (ROW), appropriate lighting, and supportive signage. In many locations, these basic features are sufficient to provide the proper setting to allow for safe chaining operations to occur, but as we analyze the needs of a chain station on a major corridor like I-70, we must enhance the basic features to improve safety, communication, and efficiency. These enhancements can include items such as improved digital signage, concrete barrier or guardrail to separate the main right of way from the chaining operation, pavement striping and delineators, and more lighting. Each location has unique challenges to overcome in design and construction, and these challenges have been mitigated or resolved in many different ways.

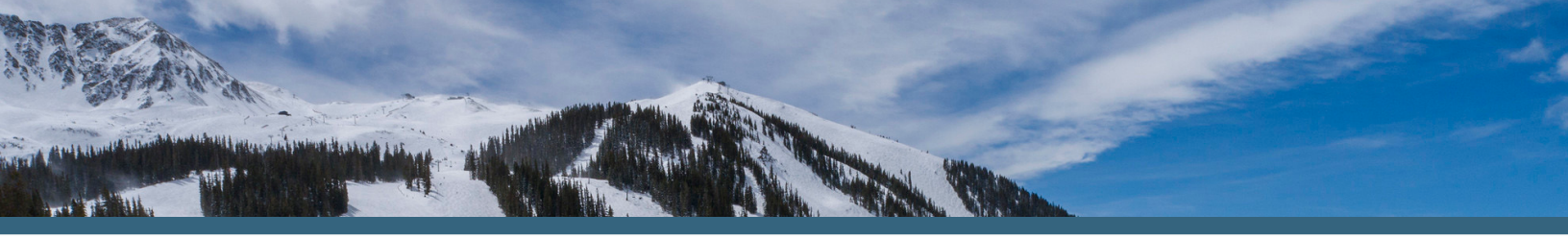
To meet these challenges consistently across the state, CDOT is working to advance a freight asset management plan that addresses infrastructure, operations, and maintenance through multiple coordinated initiatives already underway:

Enhanced Design for High-Volume Corridors (Underway)

- **Safety Infrastructure:** Installation of concrete barriers, guardrails, upgraded striping, delineators, and expanded lighting to reduce crash risks and protect drivers engaged in chaining.
- **Communications Systems:** Deployment of digital message signage, flashing beacons, and Traffic Operations Centers (TOC)-connected equipment for real-time activation and monitoring.
- **Site-Specific Adaptations:** High-demand locations such as eastbound Vail are receiving expanded staging and customized design treatments to handle peak CMV volumes.

Standardizing Operations and Signage (Underway)

- **Current Challenges:** Over decades of development, chain stations were designed and constructed under varying standards, budgets, and technologies. As a result, CDOT currently manages more than 15 different types of signage and activation systems statewide. Some stations rely on manual flip-signs that require staff to physically travel to the site, others use solar-powered flashing beacons, and newer sites are connected to fiber-optic networks for real-time digital activation. This patchwork of systems creates several issues:
  - ◊ **Driver Confusion:** Inconsistent messages and formats across corridors reduce clarity for CMV operators, especially for out-of-state drivers unfamiliar with Colorado's chain law requirements.
  - ◊ **Maintenance Burden:** A wide range of sign types requires multiple replacement parts, repair strategies, and staff expertise, leading to higher long-term costs.



- ◊ **Activation Delays:** Stations without remote connectivity depend on manual activation, creating gaps between when conditions deteriorate and when drivers are informed.
- ◊ **Data Disconnects:** Inconsistent systems make it difficult to synchronize roadside signage with COtrip.org (CDOT traveler information platform), limiting real-time accuracy.

- **CDOT Actions:** To address these issues, CDOT is actively reducing variability by:
  - ◊ Developing consistent statewide signage and activation packages.
  - ◊ Expanding fiber and cellular connections to tie more stations into TOCs for centralized activation.
  - ◊ Retrofitting existing stations to align with these new standards as funding allows.
- **Operational Benefits:** Standardization improves compliance among CMV operators, simplifies staff training, lowers long-term maintenance costs, and ensures that roadside messaging aligns with COtrip traveler information for consistent communication.

Tiered Design, Operations, and Maintenance Standards (Underway)

- **Low Density (Rural Highways):** Compact/paved pull-outs with minimal lighting and basic signage.
- **Medium Density (Moderate Corridors):** Guardrails, consistent lighting, delineators, and digital signage where feasible.
- **High Density (Major Corridors such as I-70 at Vail):** Full suite of features, including barriers, expanded staging, extensive lighting, and TOC-connected digital systems.
- **Strategic Outcomes:** Tiering supports predictable maintenance budgeting, prioritizes high-risk corridors, and ensures investment is scaled appropriately to traffic volumes.

Implementation and Long-Term Program Goals

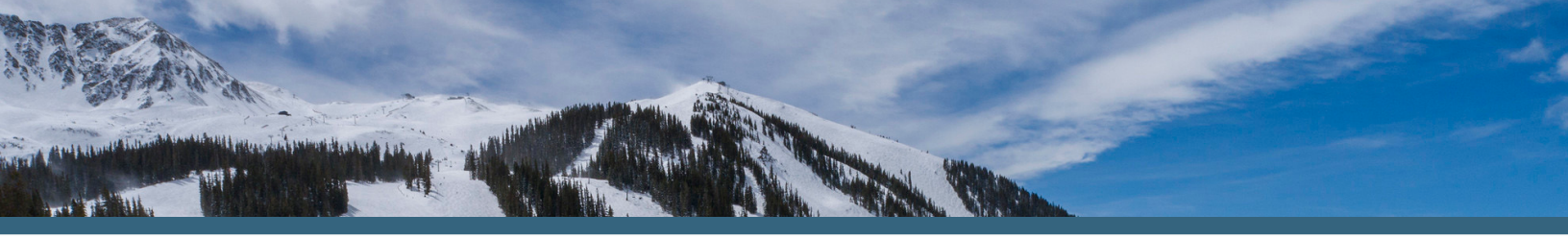
- **Cross-Department Coordination:** Freight, Maintenance, Intelligent Transportation Systems (ITS), and CSP coordinate real-time activation, enforcement, and communication during winter events.
- **Utility Solutions:** In remote areas lacking power or fiber, CDOT is reviewing potential renewable energy and wireless communications solutions (see Section 3.4.2).
- **Sustainability:** By aligning design enhancements, standardized operations, and tiered investment, CDOT is actively building a statewide chain station program that is safer, more reliable, and more efficient for both freight and passenger traffic.

3.3.2 Utility Access and Maintenance

Power and communication improve the operation of chain stations, and increase the safety of commercial vehicle operators and CDOT Maintenance crews during nighttime operations.

Option 1: Hard-Wired Power from the Grid

- **Reliability:** Dedicated electrical services offer the most dependable lighting solution and minimize maintenance burdens on staff.
- **Feasibility Challenges:** Many chain stations are in remote or topographically challenging areas where electrical grid access is limited or cost-prohibitive.



- **Cost:** Upfront installation costs can be significant, but ongoing expenses are generally limited to monthly service fees. The investment should be weighed against the long-term safety benefits and operational efficiencies.
- **Site Considerations:** Early coordination to identify nearby power sources can optimize chain station placement and reduce infrastructure costs.

Option 2: Solar and Battery-Powered Lighting

- **Advancements:** Recent improvements in solar and battery technology have made these systems more reliable and viable for remote locations lacking grid access.
- **Operational Considerations:** To maximize efficiency and battery life, the lights should only be turned on when chain law is active and the location is part of the active chaining operation.
- **Maintenance Impact:** Solar systems require regular replacement of panels, batteries, and associated equipment every 3–5 years. This results in recurring maintenance costs and may increase the demand for maintenance staff, particularly during peak winter operations.
- **Reliability Risks:** Periodic equipment failures may coincide with critical periods of snowplow activity, potentially impacting availability. Additionally, frequent theft and vandalism of equipment in remote locations have been mentioned as a risk. There is additional engineering work associated with adding panels to these poles, and the poles must be stronger than the S-standard.

Both options present clear trade-offs. Dedicated electrical service maximizes reliability but may not always be feasible. Solar and battery-powered lighting offers adaptability for remote sites, though with increased maintenance requirements. Strategic site evaluation and a thorough cost-benefit analysis are necessary to determine the optimal lighting solution for each chain station location.

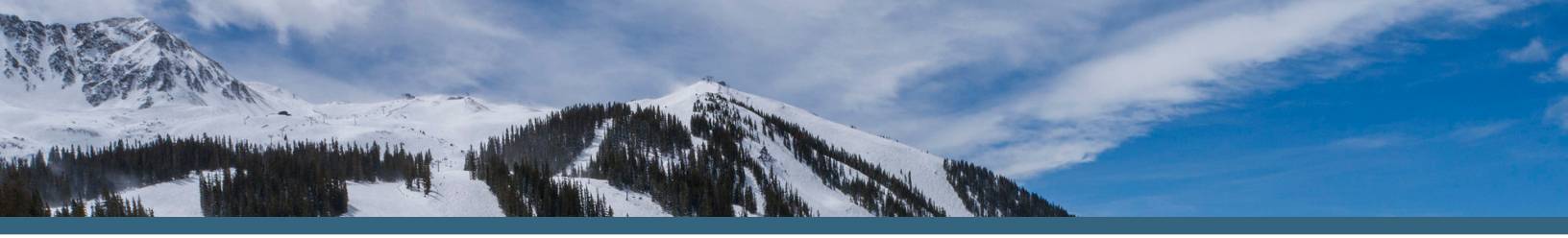
Communications such as flashing beacons, lighting, gates and in-cab messaging are helpful for keeping commercial vehicles informed while on the roadway. Reliable communications in certain areas can be tough due to terrain. With recent advances in satellite technologies, there are more potential opportunities to provide more reliable communications during bad weather.

3.3.3 Pairing Chain-Up and Chain-Down Stations

Currently, many chain-up stations are not accompanied by a designated chain-down station. This leaves CMV operators with the undesirable option to remove chains on highway shoulders, often under hazardous conditions. This practice exposes drivers to high-speed traffic on snowy or icy roads and increases the risk of highway damage when chains are driven across dry pavement in search of safe pull-outs.

Option 1: Integrate Chain-Up and Chain-Down Stations in Planning & Design

- **Best Practice:** Developing new chain-down stations in tandem with chain-up stations is ideal. This approach ensures appropriate lighting, paved surfaces, and adequate space to safely accommodate multiple vehicles.
- **Implementation Challenges:** Limited right-of-way (ROW) or geographic constraints can complicate co-location in some high-need areas.
- **Holistic Planning:** Treating chain-up and chain-down facilities as interdependent components during project planning enables better site selection, enhances overall safety, streamlines CMV operations, and minimizes highway wear.



Option 2: Focus on Adding Chain-Down Stations Downstream from Existing Chain-Up Stations in Planning and Design

- **Adding Chain-Down Stations:** Work with the CDOT Regions to prioritize adding chain-down stations downstream from existing chain-up stations. These efforts would be funded by the National Highway Freight Program.

Option 3: Utilize Pull-Outs or Nearby Parking Facilities for Existing Locations

- **Alternative Approach:** In cases where ROW or other limitations preclude dedicated chain-down stations, providing safe pull-outs or securing access to existing parking lots downstream is essential.
- **Mobility and Safety Benefits:** Designated locations allow CMV operators to remove chains efficiently, mitigating slow-moving traffic, risky passing maneuvers, and unnecessary pavement damage.
- **Implementation Consideration:** Where existing parking is insufficient, CDOT may consider leasing additional space or negotiating parking lot expansions to meet demand.

Wherever practical, paired chain-up and chain-down stations should be prioritized in the planning process to maximize public safety, optimize traffic flow, and protect roadway infrastructure. Where co-location is not feasible at a new or existing location, alternative solutions such as strategically placed pull-outs or secured parking access should be implemented.

3.3.4 Enforcement During Storms

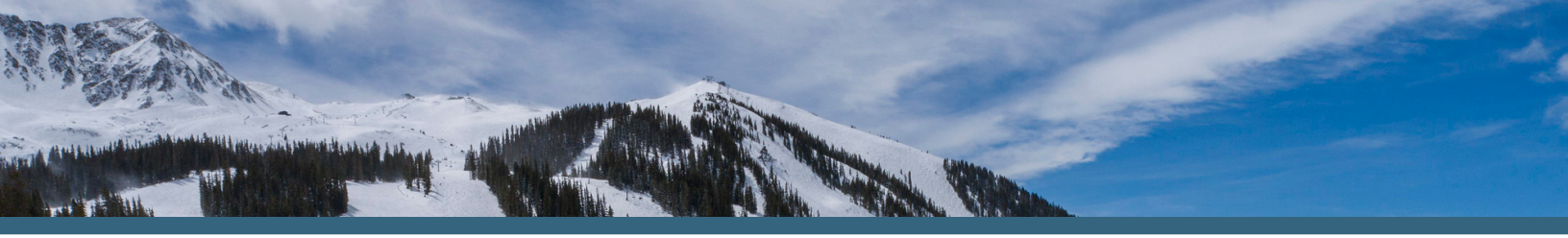
Effective CMV chain law enforcement during winter storms is crucial for highway safety but is often constrained by CSP resources, as officers are often occupied in responding to accidents and emergencies. This operational pressure extends to CDOT service patrols as well. CMV-related incidents, particularly spin-outs, stalls, and traction loss frequently disrupt traffic flow for extended periods and can lead to secondary crashes. CSP highlights the criticality of the "triangle of response." Heavy-tows need a Trooper to make the tow legal and cooperative, and the Trooper and Heavy-tow regularly need snow plows and sand to get the trucks out of the predicament and the road back open. This creates the necessary "triangle of response," but getting all three in the same place at the right time can be a real challenge. Many of the incidents involving CMVs and passenger vehicles stem from improper or lack of chain use, highlighting the value of targeted compliance and education initiatives before and throughout the entire winter season.

Current Actions: Targeted Pre-Season Enforcement and Notification

- **Strategy:** Leverage the pre-winter period to conduct coordinated enforcement notification efforts along high-priority corridors where chain laws apply.
- **Implementation:** In partnership with CSP and Port of Entry (POE) agents, require all carriers to exit at chain stations or designated parking lots to receive direct notification of chain law requirements, including distribution of educational flyers and compliance checks.
- **Resource Allocation:** While this approach requires dedicated personnel ahead of the winter season, it is anticipated to improve compliance, reducing enforcement and emergency response demands during storms.

Current Actions: Continued Focused Education Campaigns for CMV Operators

- **Preventative Approach:** Education, in conjunction with enforcement and engineering, is a foundational element of highway safety.



- **Program Scope:** Collaborate with CDOT, CSP, POE, the Colorado Motor Carriers Association (CMCA), and other industry partners to deliver targeted education on chain law compliance to all carriers, especially out-of-state operators and independent drivers.
- **Methods:** Engagements could include participation in industry events, direct outreach at POEs, distribution of educational materials and targeted social media campaigns.
- **Benefit:** While requiring a strategic investment of resources during the off-season, this proactive approach is expected to decrease CMV-related incidents and alleviate strain on enforcement and response teams during winter events.

Additional Option: Increased Resources to Provide Enforcement During Chain Law Events

- **"Chain-Check Checkpoint":** Develop a checkpoint on major corridors that all CMVs must pass through to proceed during chain law. This checkpoint would ensure the CMV has chains installed before granting permission to continue onto the corridor under chain restrictions. Other western states have implemented similar operations with some success.

Prioritizing focused, pre-season enforcement and robust educational outreach will build compliance with chain laws, leading to safer winter operations, fewer traffic disruptions, and more efficient use of enforcement and maintenance resources.

3.3.5 Multiple Data Sources

Access to timely, accurate, and trustworthy information is critical for both travelers and operational decision-making, especially during rapidly changing conditions such as construction, work zones, and inclement weather. However, reliance on multiple data sources can result in conflicting or inconsistent messaging, eroding public confidence and complicating response efforts.

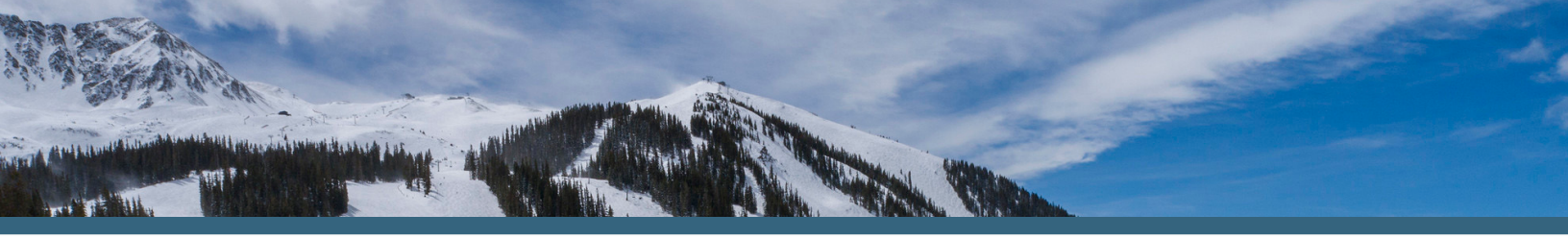
Option 1: Strengthen Coordination Among Stakeholders

To deliver clear, reliable, and unified information to the public and partner agencies, CDOT should implement targeted procedural and protocol enhancements across the department. By systematically identifying and resolving sources of data conflict, such as differences in geography, timing, or condition, CDOT can better harmonize the messaging on cotrip.org, freight.colorado.gov, variable message boards, dynamic speed limit signs and other data dissemination sources. This initiative will reinforce accountability, build public trust, and improve situational awareness for motorists and service providers alike.

Option 2: Enhanced Website Integration for Strategic CMV Data Access

Critical commercial motor vehicle (CMV) data is currently dispersed across multiple agencies, legacy systems, and platforms, which limits its accessibility and usability. CDOT can improve access and coordination by further integrating freight.colorado.gov and cotrip.org to serve as connected, user-friendly entry points for key data and insights.

Existing GIS maps hosted on freight.colorado.gov offer an opportunity to visually convey a broader range of strategic information. These maps can be expanded to include safety and enforcement data, such as crash locations, citation types, and regulatory compliance trends, building upon the infrastructure and operational layers already available.



Types of data that could be better integrated and visualized through these existing web platforms include:

- **Infrastructure Information:** Chain-up/down areas, runaway truck ramps, pull-outs, climbing lanes, and POE facilities.
- **Operational Data:** Annual Average Daily Traffic (AADT) and truck percentages, vehicle classifications, origin-destination flows, and hazmat routing.
- **Safety & Enforcement Metrics:** Crash and incident data, inspection results, and violation frequency.
- **Regulatory Content:** Policies on hazmat transport, oversize/overweight vehicle movement, and longer vehicle combinations.

Strengthening the connection between freight.colorado.gov and cotrip.org will promote more consistent and accessible information sharing across stakeholders, enhance public awareness, and support better internal coordination. This approach supports data-informed decision-making without requiring the development of a new standalone tool, ultimately advancing CDOT's safety and freight mobility goals.

3.3.6 Right-of-Way and Land Acquisition

Securing right-of-way (ROW) and land for new chain stations and pull-outs is essential for safe and efficient highway operations. However, this remains a significant challenge, particularly in mountain corridors where space is extremely limited and the cost of available land is often prohibitive.

Option 1: Continue to work with Federal and Local Partners to Identify Priority Locations

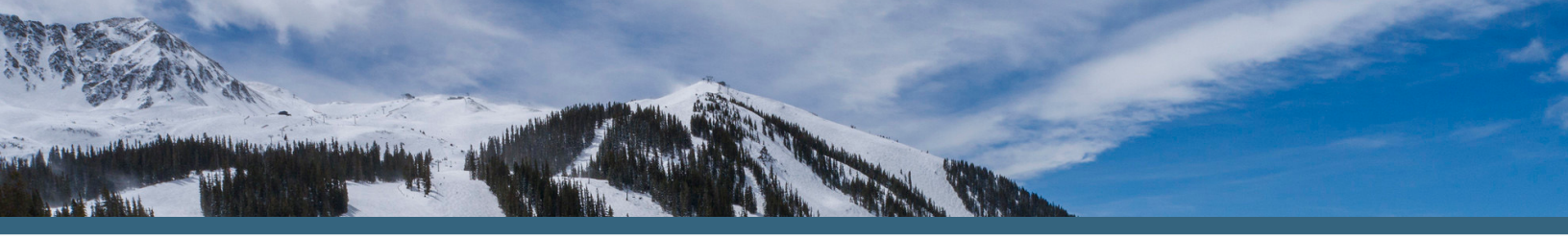
- CDOT often works with Federal partners, such as the US Forestry Department, to acquire the right of way necessary to accomplish this critical safety enhancement on our highways. CDOT also works with local partners to identify locations that meet the needs of the community as well as the CMVs on the roadway. This can be an opportunistic or well planned approach towards acquisition of the necessary right of way.

Option 2: Multi-use, Seasonal Facilities

- In recognition of the limited right of way available on mountain corridors, there may be an opportunity to design facilities that can have multiple uses. During a snow storm, the state would close the facility to all other uses outside of a chain station. This could allow for seasonal use differences such as trail access parking, brake-check/cooldown, short-term truck parking, enforcement operations, materials storage, or safety pullouts.
- **Utilizing existing infrastructure:** Transforming existing rest areas, inspection pull-outs, or other suitable ROW into chain stations presents a practical, expedited, and cost-efficient alternative to new construction. Many of these facilities already have essential infrastructure, such as paved surfaces and highway access. This streamlines the conversion process and minimizes safety risks by reducing work within active highway lanes.

3.3.7 Municipal and Community Concerns

While municipalities generally recognize the importance of chain stations for highway safety and mobility, they remain concerned about associated impacts, such as increased noise, prolonged nighttime lighting, and diesel emissions (especially in communities located close to highways and in higher density residential areas).



Option 1: Implement Targeted Mitigation Infrastructure

- **Stakeholder Engagement:** Maintain proactive dialogue with local officials to fully understand community concerns and articulate the safety and mobility benefits of chain stations. CDOT will continue to ensure the project planning is collaborative and transparent.

Through early stakeholder engagement, targeted mitigation, and thoughtful placement, CDOT can address community concerns while advancing the essential safety mission of chain stations.

3.3.8 Environmental and Topographical Constraints

Environmental and topographical factors often significantly restrict the placement of chain stations, particularly above the snow line or in areas where flat land is scarce. These constraints must be proactively addressed to ensure project feasibility and minimize regulatory or construction delays.

Option 1: Early Identification and Assessment of Environmental and Topographical Constraints

- **Proactive Planning:** Integrate comprehensive environmental and topographical assessments into the earliest stages of the planning process.
- **Site Selection:** Prioritize locations that meet operational requirements while avoiding areas with unmitigable environmental impacts or terrain challenges.
- **Feasibility Analysis:** Recognize that, in many cases, site constraints cannot be overcome, necessitating flexibility in location selection and possibly leveraging alternative strategies outlined under Right-of-Way and Land Acquisition.

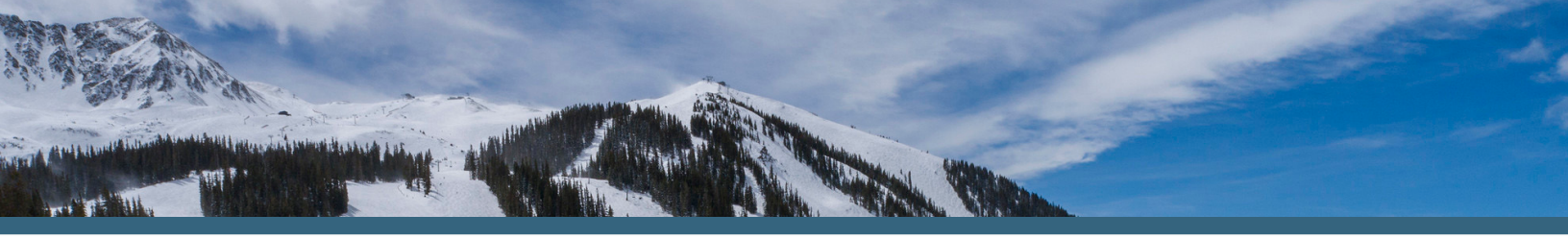
By embedding environmental and terrain analysis into the planning process and leveraging adaptive design strategies, CDOT can maximize chain station coverage even in highly constrained areas, while maintaining regulatory compliance and protecting sensitive environments.

3.3.9 Truck Parking During Chain-Law

Storm-related vehicle parking commonly occurs at chain stations as many carriers require drivers to park during severe weather. However, this illegal use creates capacity challenges, often limiting available space for vehicles that need to chain up. Overflow parking on highway shoulders compromises traffic flow and safety, particularly when approaching vehicles are unaware that chain stations are full. As snowfall rates increase, even temporary road closures can cause a driver to have to shut down for their mandatory 10 hour rest period. Without available truck parking, trucks can get stuck on the roadway, which also prevents snow removal equipment from being able to clear the roadway and get it back open.

Develop Emergency Truck Parking Network

- **Collaborative Use of Commercial Lots:** Develop use agreements with private and government facilities that have large, underutilized parking lots during snow storms.
- **CDOT Right of Way:** Use existing CDOT right of way to develop emergency parking overflow lots.
- **Operational Challenges:** Emergency truck parking needs to be more than an open parking lot. There will need to be restroom facilities and staff to manage the operation. The CDOT Freight team is exploring opportunities to partner and develop locations statewide.



3.3.10 Need for Improved Communication & Education

Consistent and effective communication of program accomplishments and ongoing initiatives is essential for maintaining stakeholder engagement and enhancing public understanding of the Freight Program's goals and value. However, these efforts are often overshadowed by daily operational priorities, resulting in missed opportunities to broaden awareness and support.

Option 1: Expand Collaborative Outreach with Partner Agencies and Industry Organizations

- **Broaden Distribution:** Leverage partnerships with agencies such as CSP, Port of Entry (POE), local municipalities, as well as key industry organizations, including the CMCA, Colorado Wyoming Petroleum Marketers Association (CWPMA), and the I-70 Coalition to regularly share brief, relevant updates regarding the Freight Program's objectives, activities, and achievements.
- **Diverse Channels:** Distribute this information via partner websites, social media platforms (including X, Facebook, LinkedIn, and TikTok), and through direct engagement at association meetings and industry events.
- **Public Engagement:** Explore opportunities for earned media, such as local news features or interviews, to reach a broader audience beyond the transportation sector.

Option 2: Strengthen Freight Program Storytelling through Web Integration and Digital Content

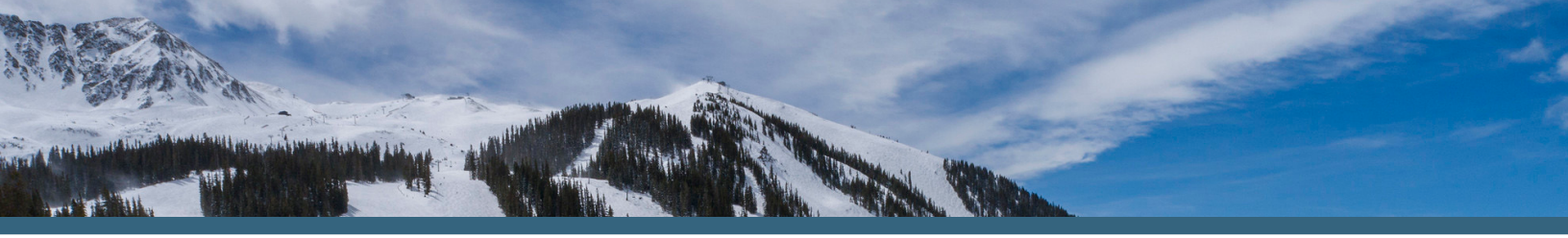
CDOT can focus on elevating public awareness and stakeholder engagement by enhancing content on freight.cotrip.org and integrating key updates with cotrip.org and CDOT's broader communications channels.

- **Narrative-Driven Web Content:** Regularly publish brief, engaging stories about Freight Program milestones, projects, safety campaigns, and partnerships. Use accessible language and compelling visuals to connect with a broader audience.
- **Interactive GIS Maps:** Enhance existing GIS maps on freight.cotrip.org to include overlays for safety, enforcement, and freight infrastructure projects, allowing users to explore data visually without the complexity of a standalone dashboard.
- **Integrated Communications Hub:** Use freight.cotrip.org as a central hub that links to relevant project pages on cotrip.org, CDOT Newsroom, and CDOT social media, creating a seamless experience for users looking for freight-related information.
- **Public Input Opportunities:** Include quick polls, short surveys, or a simple feedback form within web content to gather input from stakeholders without the need for a dedicated feedback portal.
- **Multimedia Education Campaigns:** Develop a rotating set of infographics, videos, and FAQs that explain freight's impact on safety, economy, and daily life—distributed via social media and partner channels.

This approach allows CDOT to maintain transparency, boost engagement, and support two-way communication, without overextending current limited resources or building new technology platforms.

3.3.11 Contextualizing Funding Limitations

CDOT has many funding priorities for freight projects statewide that will continue to improve the safety and mobility of goods and services. The Colorado Freight Plan, the Freight Investment Plan, and CDOT's commitment to build a maintenance funding solution for chain stations statewide shows a significant financial investment in expanding



and improving the statewide chain station network in Colorado. CDOT has invested more than $41 million into chain stations since the National Highway Freight Program was established in 2016. This investment equals 20% of the program funding. Constructing and maintaining chain stations can be more expensive due to their locations. The CDOT Freight team works closely with CDOT Region Planning and Engineering staff to try to minimize costs by packaging construction projects for multiple locations on a corridor into one project to reduce mobilization costs and drive more interest in the work.

Current Actions:

- CDOT's Colorado Freight Plan (CFP) outlines the state's priorities and strategies for investment into improving freight safety and mobility statewide. The Freight Investment Plan (FIP) is a supporting document to the CFP that outlines the accounting of the investments made through the National Highway Freight Program. This information shows CDOT's investment into chain stations over the last decade.

3.3.12 Need for Data Driven & Data Visualization Approach

Data collection on chain law compliance and corresponding incidents is tough to capture due to resource prioritization and limitations. Developing better data collection methods will enhance the opportunity to identify opportunities for operational enhancements, a more direct enforcement approach, and a better understanding of where our education campaigns need to focus.

Option 1: Establish a Real-Time Data Exchange Framework Among Agencies

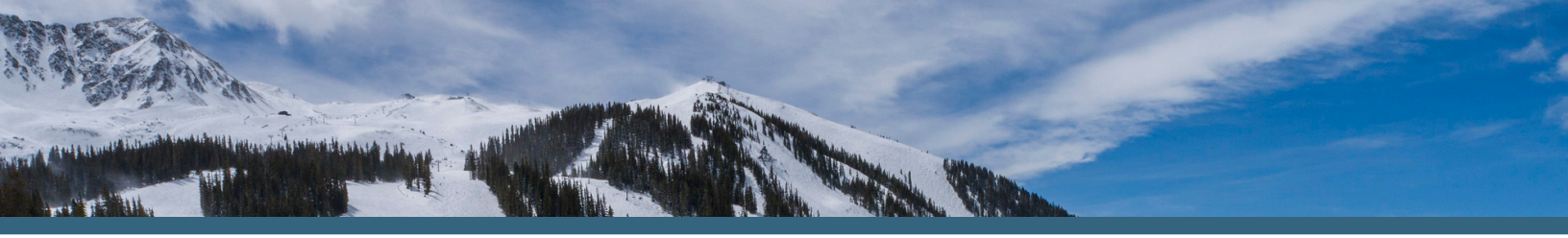
- **Interagency Collaboration:** Formalize protocols and digital infrastructure to facilitate the real-time exchange and standardization of CMV data among all relevant agencies.
- **Data Consistency:** Ensure that data formats and reporting standards are harmonized to reduce integration friction and improve reliability.
- **API Implementation:** Utilize secure API interfaces for seamless, ongoing data transmission into the dashboard, enabling up-to-date information for analysis and visualization.
- **Scalable Architecture:** Design the framework for scalability to include additional data sources and future technologies with minimal rework.
- **Enhanced Responsiveness:** This enhances situational awareness, allows for faster response to emerging issues, and expands the utility of data visualizations by ensuring they are populated with the latest available information.

3.4 Analysis of Future Impacts

This section highlights the future trucking environment, while outlining anticipated technological trends that could shape the sector in the coming years. It also explores new opportunities to enhance truck safety and operational efficiency across the highway network.

3.4.1 Colorado's Freight System – 2040 Freight Forecasts

Colorado's state highway system is central to the state's economy, serving as the main conduit for the movement of goods and commodities. In 2021, trucks transported over 228 million tons of freight valued at $241 billion, accounting for just over half the total freight value handled by all transportation modes, including rail, pipeline, and air.



The 2040 freight forecasts include the following:

- Freight movement in Colorado is projected to increase by 66 million tons by 2040, a 29% rise in overall tonnage.
- The value of freight moved is expected to grow by over 50%, reaching an anticipated $362 billion.
- The most significant growth is projected for freight flows internally to Colorado, with a 26% increase in tonnage and a 70% increase in value by 2040.

Colorado's highways are fundamental to both state and regional economies, with trucking making up the largest share of freight movement by both volume and value. The increasing freight demand highlights the need for continued investment in infrastructure to support efficient, safe, and reliable freight movement, as internal and total volumes are poised for significant long-term growth.

3.4.2 Advanced Technologies Impacts

Advances in technology continue to reshape Colorado's freight network, enhancing safety, efficiency, and system reliability. CDOT is currently analyzing how technology improvements have created opportunities to utilize technology to better help manage chain stations. As CMVs continue to improve the technology within the cab, CDOT can communicate chain law notifications and potentially even individualized messages providing instructions on what chain parking spot to go to. This could mitigate the risk of having CSP Troopers, Maintenance Workers, or Local Police Department (PD) partners managing the chain station traffic on foot.

The advanced technologies that could immediately provide significant benefits include:

- **Enhanced Communications:** Provide real-time updates on road conditions & restrictions, chain station availability, or work zone events, supporting timely decision-making for CMV operators to take safe and appropriate actions. In-Cab Communications capabilities will continue to expand and improve, building on an existing process already in place to reach CMV drivers operating in and through the state.
- **Data Integration and Visualization:** Aggregating data from various stakeholders into one location helps visualize trends, monitor performance, and support resource allocation.
- **API Integrations:** Reliable and accurate data with timely dissemination to both public and private partners can lead to more wide scale adoption that will lead to safety and operational for all users of the transportation network.

Embracing next-generation technologies positions Colorado to better meet the demands of its growing economy.

Section 4: Recommendations and Next Steps

This section presents actionable recommendations derived from stakeholder input and meetings, with reference to challenges outlined in Section 3.4, Analysis of Barriers and Challenges. The recommendations are grouped by logical areas.

Recommendations are categorized by expected implementation timelines:

- Short-term (less than 2 years),
- Mid-term (2 – 5 years)

These timelines indicate the period required to achieve full implementation, after which these initiatives will become integral to ongoing Freight Program operations. Recommendations already in progress are noted. Additionally, the section outlines estimated implementation costs and highlights several opportunities available for immediate action.

4.1 Short-Term Recommendations (0–2 Years)

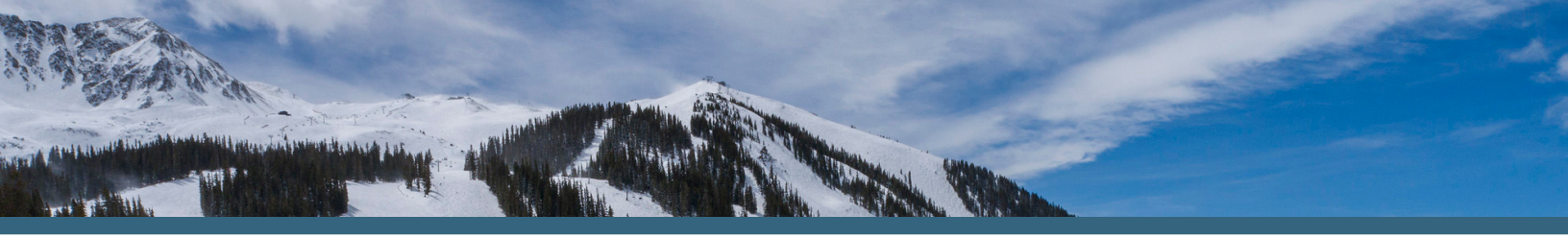
4.1.1 Project Delivery

CDOT will continue to deliver projects through the National Highway Freight Program (NHFP), as detailed in Section 2.5. The NHFP is a formula-driven funding mechanism designed to support strategic investments across the National Highway Freight Network (NHFN).

Currently, I-70 Vail chain station is in the design phase to make enhancements to improve operational safety and efficiency. Additionally, eight new chain stations are scheduled for construction. Two on SH-491, two on US-550, one on US-160, and three on US-24 in conjunction with a corridor surface treatment/paving project. CDOT will continue to work with stakeholders to develop location priorities for new chain stations. The most consistent locations that stakeholders prioritize are the Hwy 285 corridor from Morrison to Fairplay, as well as the area around Copper Mountain.

The Freight Program will collaborate closely with CDOT Regions and integrate efforts with established planning and Metropolitan Planning Organization (MPO) processes to deploy chain stations at locations selected through rigorous, data-driven analysis. These initiatives are integrated into ongoing program operations, including regular updates to Appendix B and C of the Colorado Freight Plan to reflect NHFP-approved projects. To date NHFP has funded $41.4M, nearly 20% of all NHFP funded dollars to date, toward chain stations throughout the state and the Freight Program managing this program expects this trend to continue.

This is an on-going task within the CDOT Freight program.



4.1.2 Standardization Development

CDOT will develop baseline design and maintenance standards to improve consistency and efficiency of the operation statewide and connect to Traffic Operations Centers when it is feasible to do so.

The Freight Program will collaborate with Region traffic teams to define key elements such as physical separation from traffic, surface type, striping, lighting, and additional technical requirements based on truck traffic density. The specification will also address factors including right-of-way availability, corridor characteristics and metrics, access to electrical power, and environmental considerations. All new standards will align with existing CDOT construction and materials specifications, as well as the region's lane control strategies and work zone protocols.

This recommendation is a one-time effort with periodic updates as needed.

4.1.3 Maintenance Management

CDOT will develop a comprehensive long-term maintenance and management plan for chain stations, focusing on internal coordination across program areas. The Freight Program will partner with Region traffic and maintenance teams to establish clear guidelines, defining responsibilities and standardized procedures for the ongoing operation and upkeep of chain stations. In addition, CDOT will secure and allocate dedicated maintenance funding, ensuring Region's ability to ensure that maintenance needs do not compete against other priorities.

This recommendation is a one-time effort with periodic updates as needed.

4.1.4 Technology Pilots

CDOT is working on a technology project that will allow for remote activation of signage and lighting at numerous chain stations during chain law restrictions. CDOT and CSP have partnered in developing emergency in-cab messaging. As the technology continues to progress, it creates opportunities for improved communication of closures, restrictions, and chain requirements directly to commercial drivers.

This recommendation will be an on-going effort.

4.1.5 Continued Education

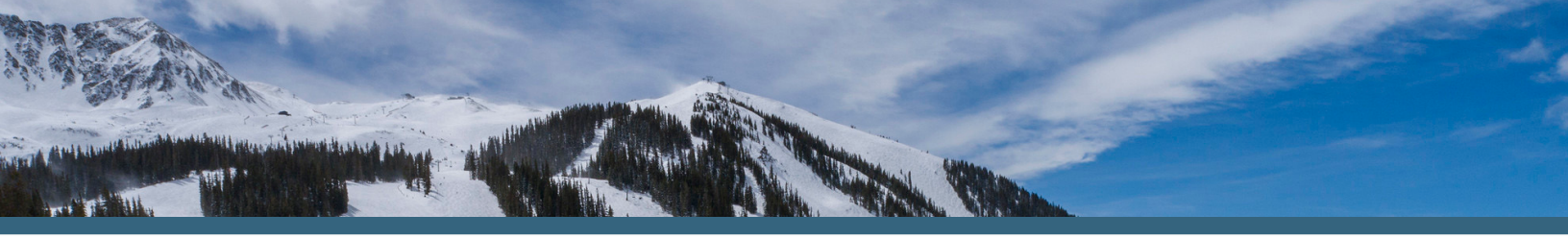
CDOT & CSP will continue concentrated CMV enforcement/education on select corridors. The CDOT Freight Program will work with CSP and POE to conduct several coordinated and concentrated enforcement/education activities beginning in August annually. CMV operators will be given informational documents during these operations that will help them stay informed and up to date on weather forecasts, road conditions, roadway restrictions, chain law details, and much more.

This recommendation is an on-going task.

4.2 Mid-Term Recommendations (2–5 Years)

4.2.1 Utilities Access

The Freight Program, as part of the chain station planning process, will analyze priority locations to determine if electric power is available, and the cost to bring it to the chain station. Electric power is preferable to solar/battery powered lighting due to its reliability and nominal maintenance requirements. In addition, CDOT will explore



potential opportunities with satellite communication companies to conduct proof-of-concept testing for electronic connectivity. This connectivity with electrical power is beneficial to turn on signage and lighting.

This recommendation is an on-going task.

4.2.2 Mitigation Measures

Municipalities generally understand and support the need for chain stations but nonetheless have concerns regarding the impact on their communities from elevated noise levels, intermittent and lengthy lighting periods during nighttime, diesel exhaust and fumes, etc. that are inherent at the chain station.

CDOT's regional engineering and planning teams will continue to do the necessary collaborative work with local municipalities and elected officials to identify issues and concerns and develop appropriate mitigating measures.

This recommendation is an on-going task.

4.2.3 Physical Constraints

Environmental and topographical constraints impact and often limit where chain stations can be built, especially above the snow line or in areas with limited flat land. CDOT's Regional engineering teams will review factors and regulations associated with these elements and include them in the earliest stages of the planning process to ensure that they are adequately addressed and mitigated so as not to negatively affect the chain station.

This recommendation is an on-going task.

4.2.4 Alternate Utility Technologies

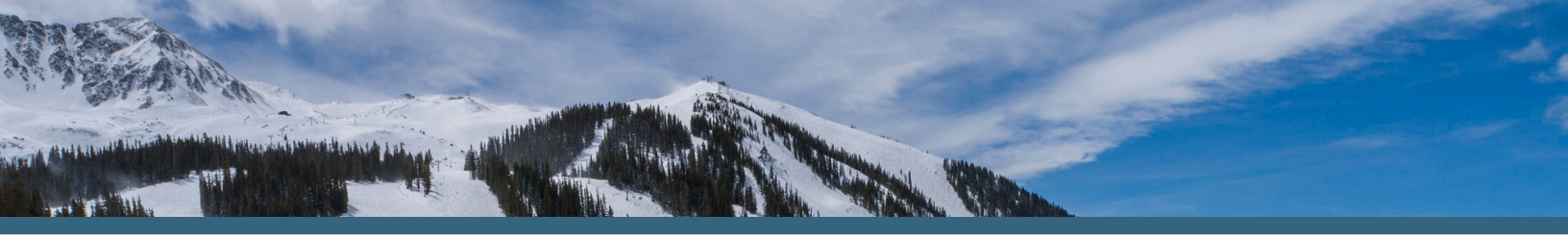
While electric power is preferable for lighting at chain stations, in certain areas it may not be available, or it may be cost prohibitive. It is essential to have lighting at the chain station for the CMV operators and the traveling public. Technological advances in solar and battery materials and manufacturing have improved their reliability and long-term viability, which provides the opportunity to consider them as a feasible and practical alternative to limited or non-available electrical power sources. The regional engineering, maintenance, and intelligent transportation systems (ITS), and freight teams will evaluate these elements in terms of cost, installation requirements, life cycle including repair and replacement, and routine maintenance requirements and incorporate it into the standards.

This recommendation is an on-going task.

4.2.5 Multi-Use Opportunities

There are potential opportunities for innovative uses (e.g., dual-purpose sites serving as chain stations). CDOT should pursue policy and regulatory adaptations to enable flexible, multi-purpose use of chain station infrastructure, such as integrating truck parking or trail parking. The Freight Program will work with CDOT Engineering and Maintenance teams along with CSP to evaluate the feasibility of utilizing existing CDOT right of way to expand current or develop new chain station areas. Locations with the potential for multiple uses could help improve the prioritization of the project.

This recommendation is an on-going task.

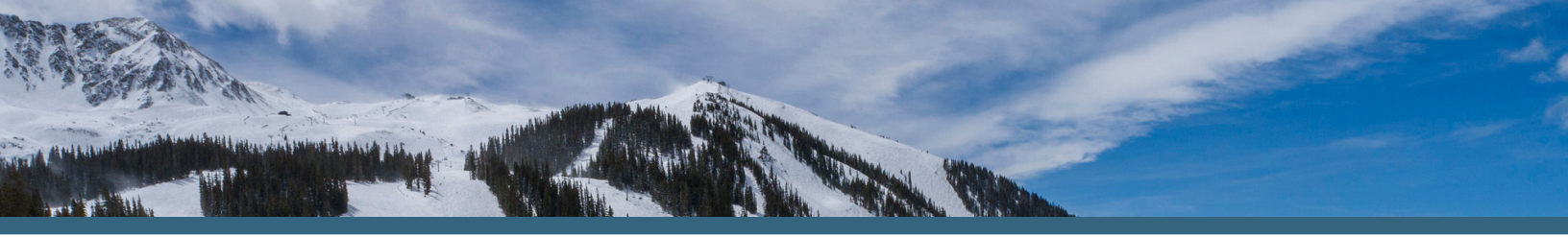


4.3 Cost Estimates

This study has included a total of 10 recommendations. The cost estimates do not include the Freight Program funding as it pertains to day-to-day activities, or working, administering, and managing consultants that perform work to implement the recommendations. The planning level cost estimates are only to provide an order of magnitude and would require a detailed scope of work to provide a more detailed cost estimate. **Table 7** shows the recommendations within each timeframe, and the estimated cost to implement the recommendation.

Table 7: Recommendations by Timeframe and Planning Level Cost Estimate

Short-Term Recommendations (0 to 2 years)	Cost Estimate
4.1.1 Project Delivery	$150,000
4.1.2 Standardization Development	$150,000
4.1.3 Maintenance Management	$250,000 annually
4.1.4 Technology Pilots	$200,000
4.1.5 Continued Education	$75,000 annually
Total Short-term Recommendations Cost	**$825,000** + Implementation costs included in Freight Program
Mid-Term Recommendations (2 to 5 years)	**Cost Estimate**
4.2.1 Utilities Access	$150,000 + Implementation costs included in Freight Program
4.2.2 Mitigation Measures	$50,000
4.2.3 Physical Constraints	$75,000
4.2.4 Alternate Utility Technologies	$100,000
4.2.5 Multi-Use Opportunities	$100,000
Total Mid-Term Recommendations Cost	**$475,000** + Implementation costs included in Freight Program
Total Recommendations Cost	**$1,300,000** + Implementation costs included in Freight Program



4.4 Immediate Next Steps

Building on the momentum of ongoing initiatives, CDOT will continue to advance a coordinated and proactive chain station program. Key next steps include:

- **Advance Projects to Completion:** Ensure all chain station projects with current funding commitments are delivered on schedule, providing immediate safety and operational benefits on priority corridors.
- **Strengthen Regional Engagement:** Continue to work with all stakeholders to identify key corridor locations for future chain station locations. Most of these efforts occur within the CDOT Regions and the stakeholder processes that occur with the Multi-modal Planning Organizations or Transportation Planning Regions. Another key stakeholder group that CDOT will continue to work with is the Freight Advisory Council, which consists of a wide range of transportation perspectives that represent all regions of the state.
- **Establish Baseline Asset Management Standards:** CDOT already designs new locations based on the organizational experience of building and maintaining these locations statewide. The Freight team will continue to work with engineering teams from CDOT headquarters, as well as engineers and maintenance teams from the Regions and Division of Maintenance and Operations to develop baseline asset management and design standards. The team believes there could be a significant cost savings by creating these design and maintenance standards.
- **Expand Education and Outreach:** Continue public education efforts across all available platforms and channels to improve driver awareness, compliance, and safe use of chain stations during winter storm events.

By advancing these actions in parallel, CDOT is reinforcing a statewide strategy that not only addresses today's operational needs but also builds long-term consistency, safety, and reliability into Colorado's mountain corridor freight system.