



COLORADO

Department of
Transportation

Colorado Road Usage Charge Pilot Statewide Transportation Advisory Committee

August 26, 2016



Agenda

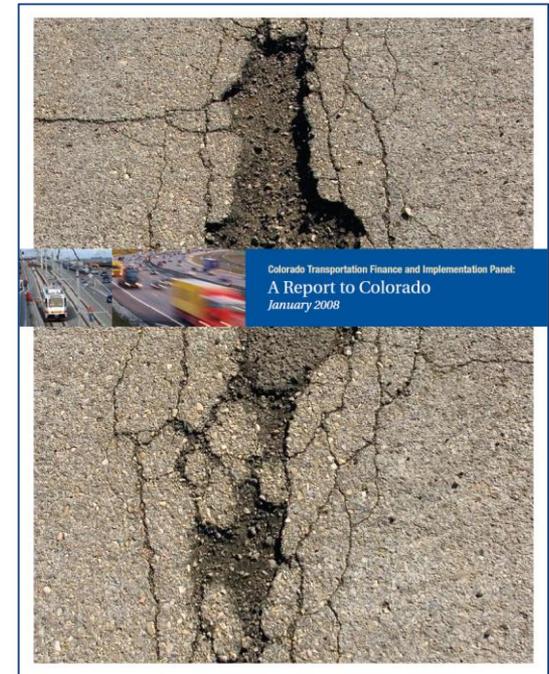
- Why is an alternative funding mechanism needed?
- What is a Road Usage Charge (RUC)?
- The Colorado Road Usage Charge Pilot

Why is an alternative funding mechanism needed?



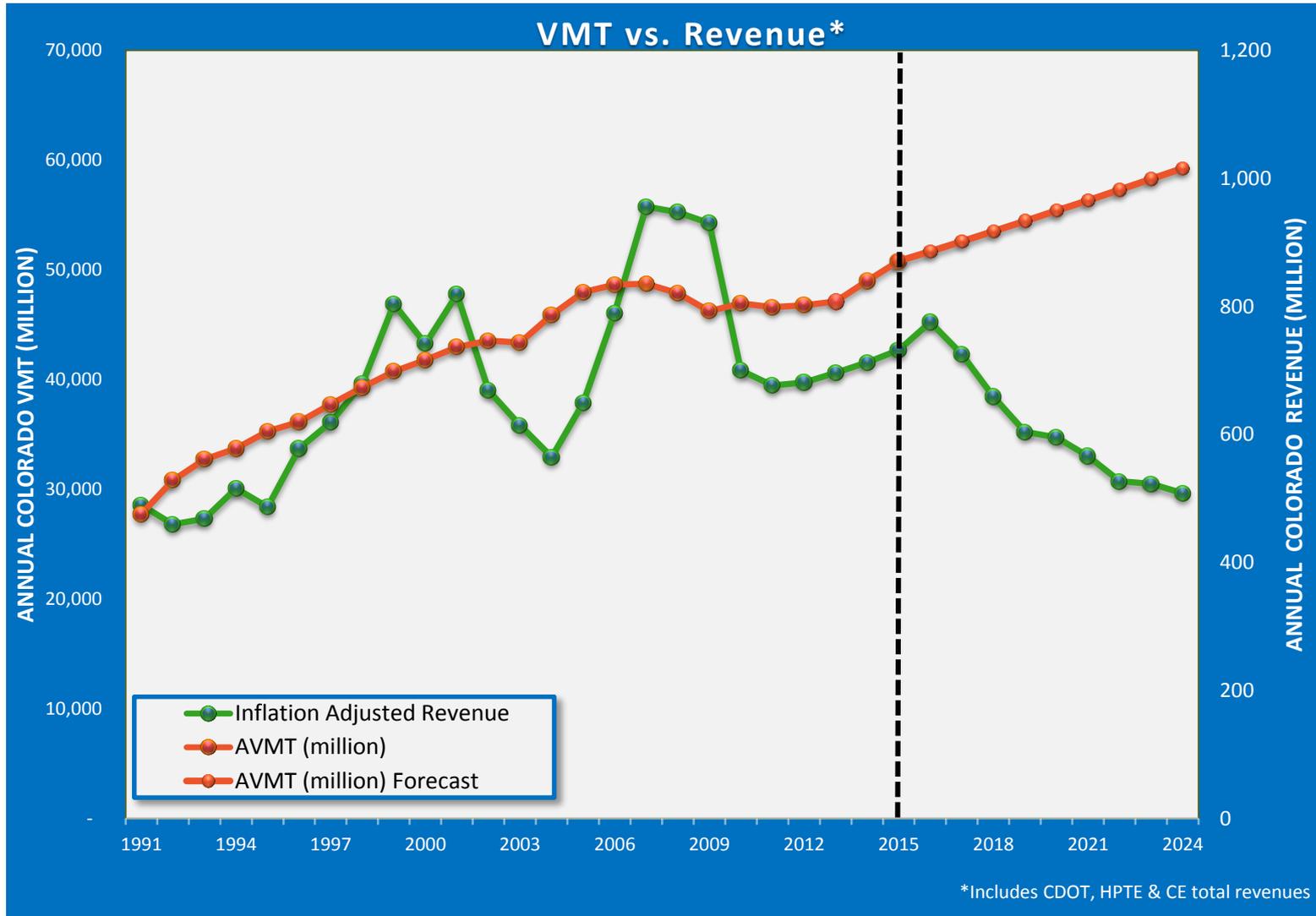
Funding Mechanisms to Close the Funding Gap

- Colorado Transportation Finance and Implementation Panel (2008)
- 39 Options Considered – 5 Final
 - Highway and Bridge User Fee
 - Vehicle Rental Fee
 - Motor Fuel Tax Increase/Indexed
 - Sales and Use Tax Increase
 - Severance Tax increase
- Vehicle Miles Traveled (VMT) Fee
 - Otherwise known as Road Usage Charging (RUC)
 - Pilot VMT Program supported by Panel





Colorado VMT vs. Revenue



Source: CDOT 2016

What is a Road Usage Charge?



What is a Road Usage Charge (RUC)?

- A user charge based on miles traveled
 - Cents per mile driven as opposed to the current excise tax on fuel consumed (cents per gallon)
 - Treats roads like utilities (pay for what you use)
 - Replaces the fuel tax
- Also called:
 - Road Usage Fee (RUF)
 - Mileage Based User Fee (MBUF)
 - Vehicle Miles Traveled (VMT Fee)





Common Misconceptions about RUC

- RUC is another tax charged by the government
 - Changes the mechanism
 - Restores equity that all users pay, instead of only gasoline or diesel vehicles
- Driver privacy is sacrificed
 - User has a choice of multiple methods for mileage measurement
 - From basic mileage counting to advanced GPS devices to no technology
 - Regardless of the option selected, privacy can be protected

The Colorado Road Usage Charge Pilot Program (RUCPP)



Colorado Road Usage Charge Pilot

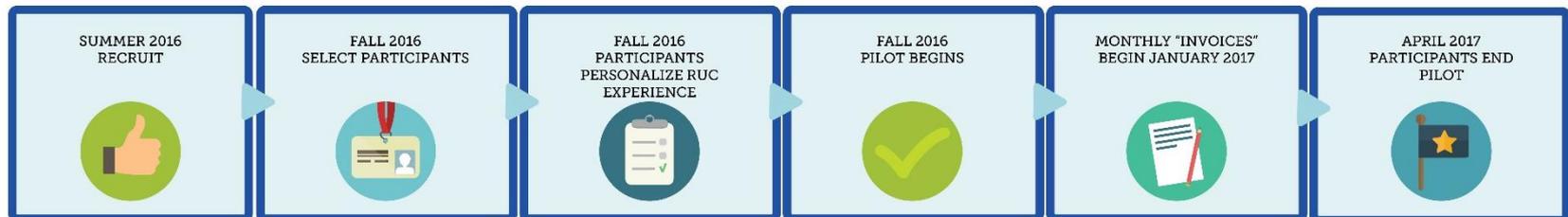
- Pilot Program Purpose (Proof of Concept)
 - Create a sandbox environment in which legislators, CDOT administrators, policy-makers, can experience elements of an operational RUC
 - Identify and evaluate potential issues related to implementation of a full system
 - Test the feasibility and acceptability of various mileage reporting methods/technologies for Colorado
 - Solicit feedback from pilot participants for future system design





Colorado Road Usage Charge Pilot

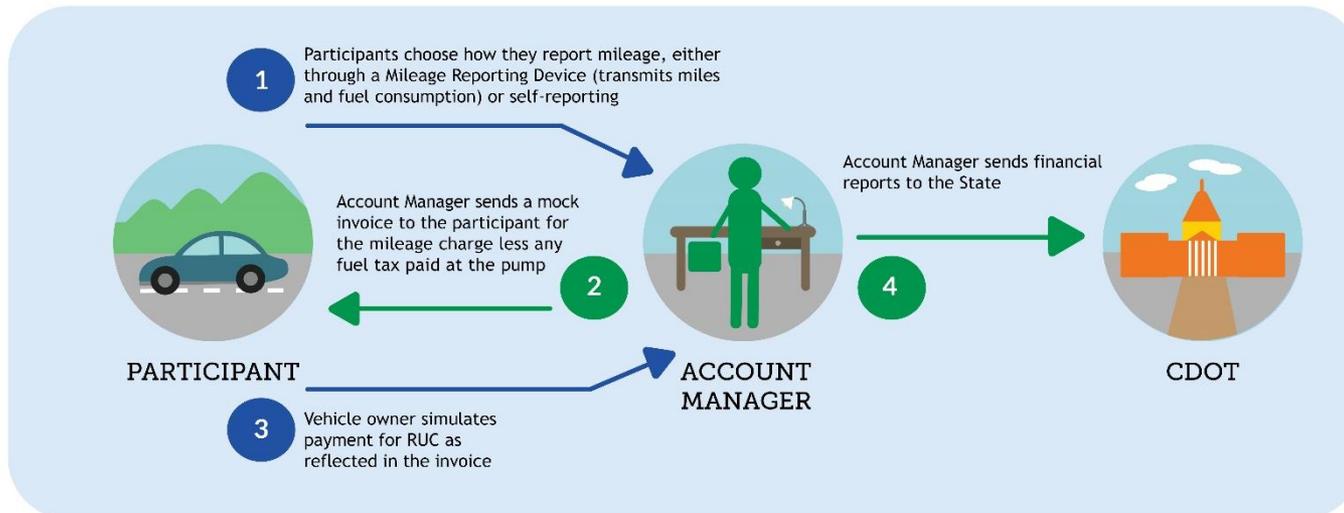
- 4-Month Statewide Pilot (December 2016 – April 2017)
- 100-participants consisting of transportation leaders, officials, media, and general public
- Geographic (Urban/Rural) and Vehicular (MPG) stratification
- Payments and associated revenues will be simulated





Participant Activities during Pilot

- Enroll in the Pilot
 - Choose Mileage Reporting Option
 - Create account/register vehicle with Account Manager
- Install Mileage Reporting Device (if applicable)
- Drive/Report Mileage
- Receive/Review invoices
- Submit “mock” payments (simulated for pilot)
- Complete surveys
- Closeout account/return device





Mileage Reporting Options

- Odometer Reading

- Participants who select this option will report their vehicle's odometer reading via the account management website or mobile app.



- Non-GPS-Enabled Mileage Reporting Device

- Participants who select this option will receive a device to plug into their vehicle's OBD-II port. This method uses a non-GPS device which counts distance traveled and gasoline consumed, but does not assess location.



- GPS-Enabled Mileage Reporting Device

- Participants who select this option will receive a device to plug into their vehicle's OBD-II port. This method uses location-based data to calculate total miles driven with differentiation between in-state and out-of-state roads.





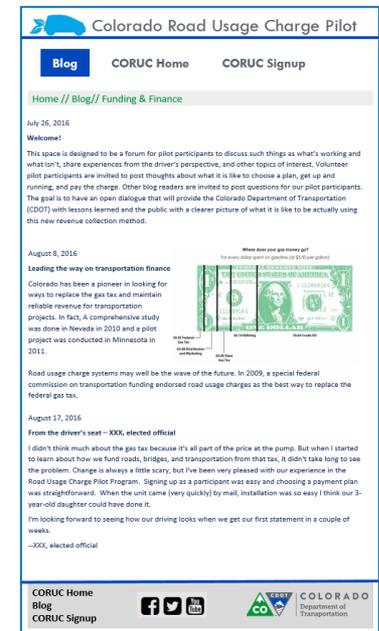
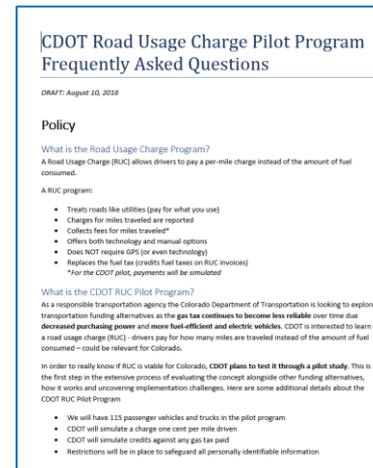
Advisory Committees

Executive Steering Committee	Technical Advisory Committee
Department of Revenue	Department of Revenue
American Civil Liberties Union (ACLU)	Data Privacy Expert
Legislative Representation	Public Engagement Expert
Colorado Contractors Association (CCA)	Toll Operations Expert
Colorado Municipal League (CML)	Intelligent Transportation Systems Expert
Statewide Transportation Advisory Committee (STAC)	CDOT Staff
Environmental Organizations	
Denver Metro Chamber of Commerce	



Communications

- External
 - Pilot Website
 - Media (stories, press releases, etc.)
 - Informational Brochures
- Participants
 - Blog
- CDOT
 - Existing communications platforms
 - The Loop
 - Intranet
 - In Motion Magazine
- Transportation Commission
 - Periodic Project Updates





Schedule

Key Milestone	Proposed Date
Kickoff Meeting	6/3/16
Planning Workshop	6/30/16
Recruiting Plan Complete	8/31/16
Public Opinion Research for Baseline	8/8/16 - /8/14/16
Recruitment	8/8/16 – 10/15/16
Soft Launch	11/1/16 – 11/19/16
Pilot	12/5/16 – 4/21/17
Final Report & Briefing	7/14/17



Questions/Open Discussion





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- FTA 5311 Program
 - Rural Public Transportation
 - \$7.5 million in operating grants to 30 transit agencies
- 5311 Funding Re-allocation Should:
 - Be equitable, with opportunity for new providers
 - Be transparent, with easy-to-use formula
 - Reflect diversity of services
 - Reward good performance
 - Provide stable funding



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Informational

Q/A Conference Call
(December 2015)

Transit Town Halls (March
2016)

CASTA Conference (May 2016)

Ideas/Analysis

Focus Groups

-July 2016

-August 2016

-September 2016

CASTA Conference (September
2016)

Policy Development

CASTA

STAC

TRAC

Transportation Commission

Preferred Policy (March 2017)

Make Awards for 2018 (August
2017)



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Scenario A

(Based on national formula)

- Land
- Population
- Miles
- Low Income Population

Scenario B1 and B2

(Variations on national formula)

- Land
- Population
- Miles
- Low Income Population
- Performance

Scenario C

(Based on operating budget)

- Percentage of operating budget
- Capped at \$500,000

Scenario D

(Various factors)

- Population
- Miles
- Hours
- Passengers
- Low Income Population
- Performance

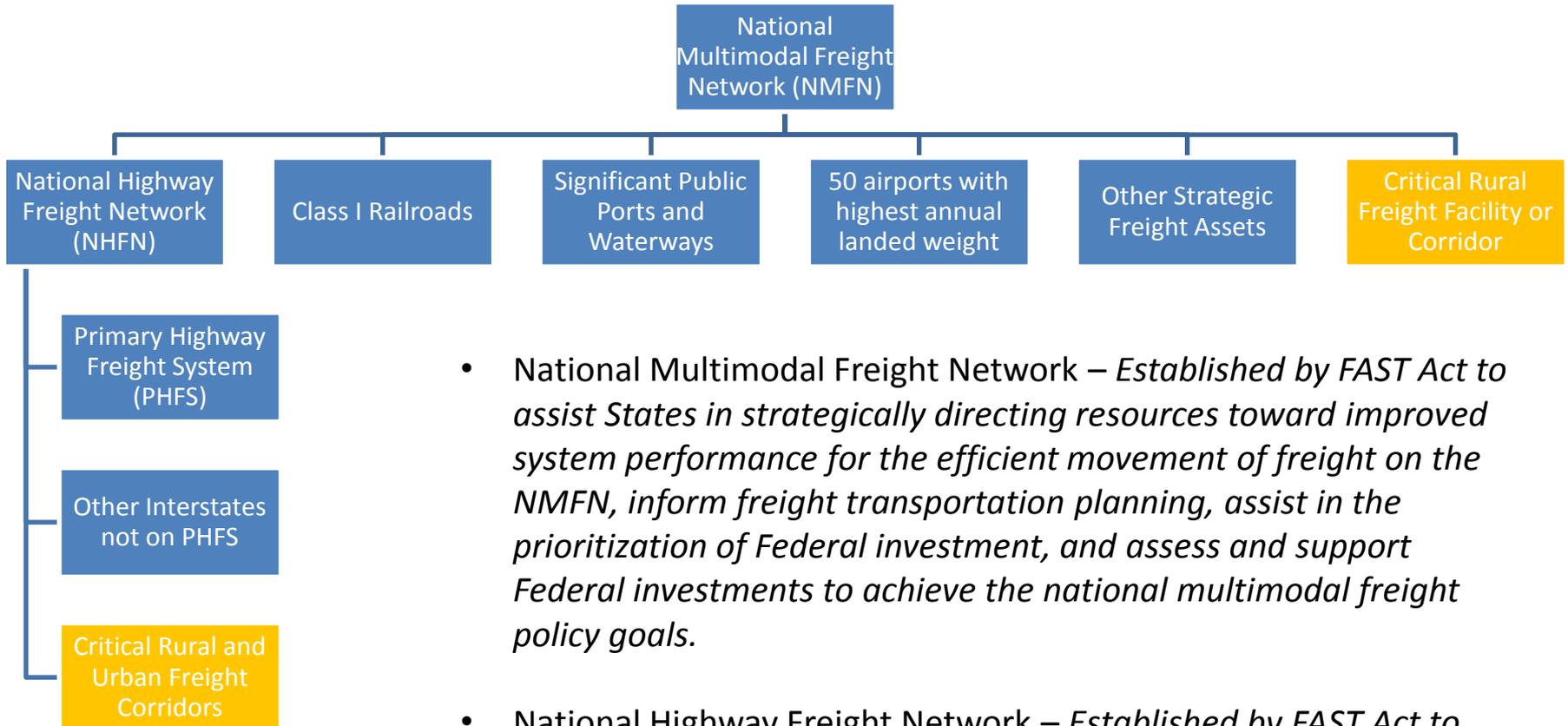


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**National Multimodal Freight Network
National Highway Freight Network
National Highway Freight Program
August 2016**



- National Multimodal Freight Network – *Established by FAST Act to assist States in strategically directing resources toward improved system performance for the efficient movement of freight on the NMFN, inform freight transportation planning, assist in the prioritization of Federal investment, and assess and support Federal investments to achieve the national multimodal freight policy goals.*
- National Highway Freight Network – *Established by FAST Act to strategically direct Federal resources and policies toward improved performance of highway portions of US freight transportation system.*



National Multimodal Freight Network (NMFN)

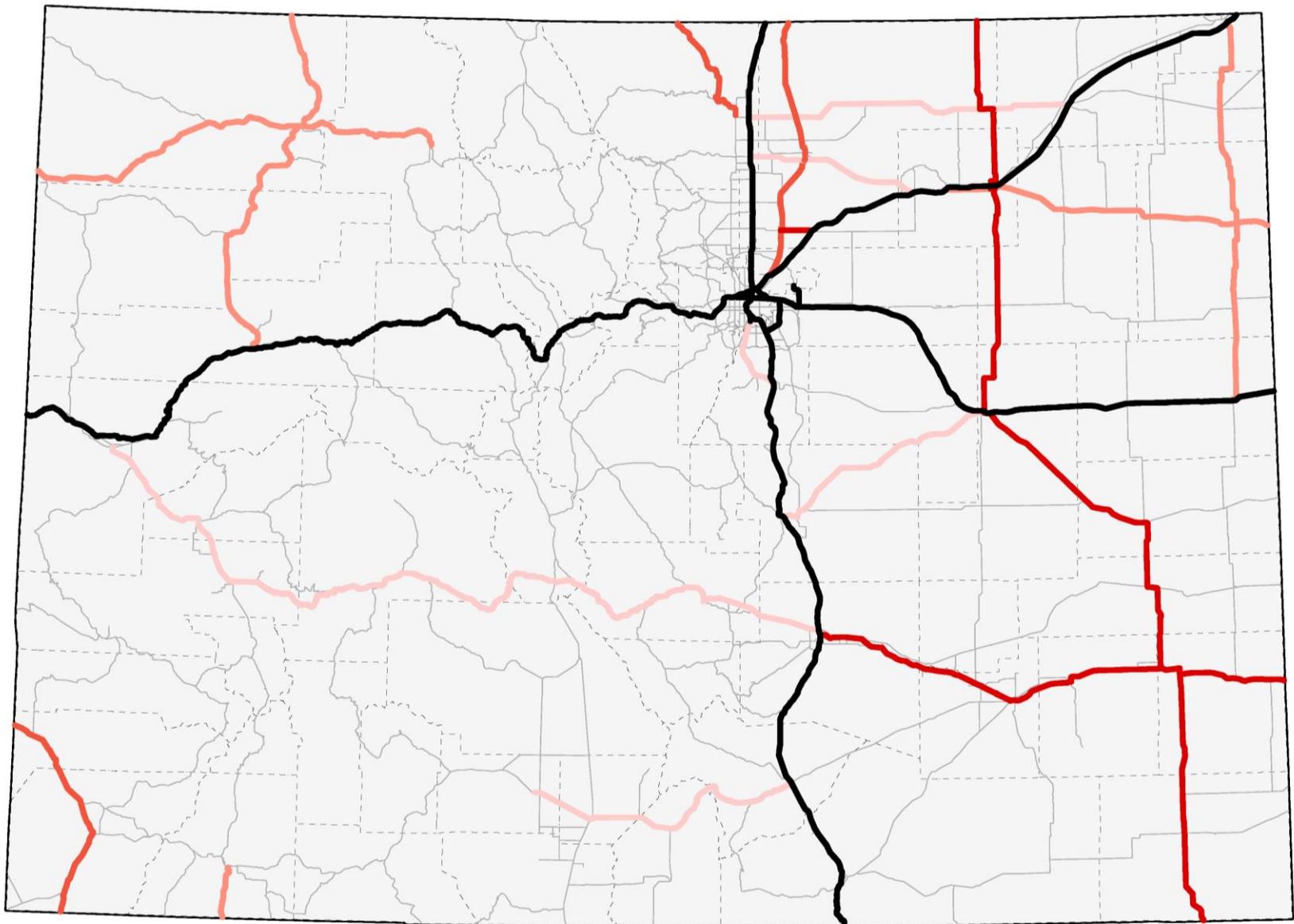
- CDOT providing comments to AASHTO and USDOT:
 - Highway elements significantly underrepresented on National Multimodal Freight Network (NMFN).
 - NMFN does not include many important freight corridors/routes and the highway miles on the NMFN should be significantly expanded.
 - Congressional High Priority Corridors should be included on NMFN.
 - Apportionment of Critical Rural and Urban Freight Corridor miles on National Highway Freight Network (NHFN) to Western States is too limited.
 - Corrections and suggested changes to existing NHFN and Interim (NMFN)
 - Replace E-470 with Pena Blvd.
 - Corrections to road and rail system
 - Recommended additions for Critical Rural Freight Facilities or Corridors



National Multimodal Freight Network Critical Rural Freight Facilities or Corridors

Minimum Criteria: 500 AADTT or => 10% truck with minimum 100 trucks per day

	Corridor	Weighted AADTT	Weighted Percent Truck	Multi-State Connectivity	Connects to Interim NMFN or Facility
Federally Designated High Priority Corridors					
	US 287, OK Border to Limon	1,575	45%	Yes	Yes
	US 50, Pueblo to KS Border	1,121	11%	Yes	Yes
	SH 71, Limon to NE Border	263	21%	Yes	Yes
Multi-State Significance, Tier 1					
<ul style="list-style-type: none"> •Multistate Connectivity, and •Min 750 AADTT, and •Min 10% Truck 	US 85, WY Border to I-76	1,591	10%	Yes	Yes
	US 287/SH 14 WY Border to I-25	839	11%	Yes	Yes
	US 491, (160) NM Border to UT Border	758	14%	Yes	No
Multi-State Significance, Tier 2					
<ul style="list-style-type: none"> •Multistate Connectivity 	US 385, I-76 to US 40	222	18%	Yes	Yes
	SH 13, Rifle to WY Border	323	11%	Yes	Yes
	US 550, Durango to NM Border	577	5%	Yes	No
	US 40, Steamboat Springs to UT Border	304	12%	Yes	No
	US 34, I-76 to NE Border	671	17%	Yes	Yes
Intrastate Significance					
	US 160, Monte Vista to Walsenburg	629	10%	No	Yes
	US 50, Pueblo to SH 9	893	4%	No	Yes
	US 50, SH 9 to Montrose	361	8%	No	No
	US 34, I-25 to I-76	1,258	9%	No	Yes
	SH 14, I-25 to I-76	581	18%	No	Yes
	US 85, I-25 to Tilton Road	1,881	2%	No	Yes
	US 85, Tilton Road to Castle Rock	1,349	2%	No	Yes
	SH 52, I-25 to I-76	782	4%	No	Yes
	US 50, Grand Junction to Montrose	729	4%	No	No
	US 24, I-70 to I-25	550	7%	No	Yes



**National Multimodal
Freight Network Tier**

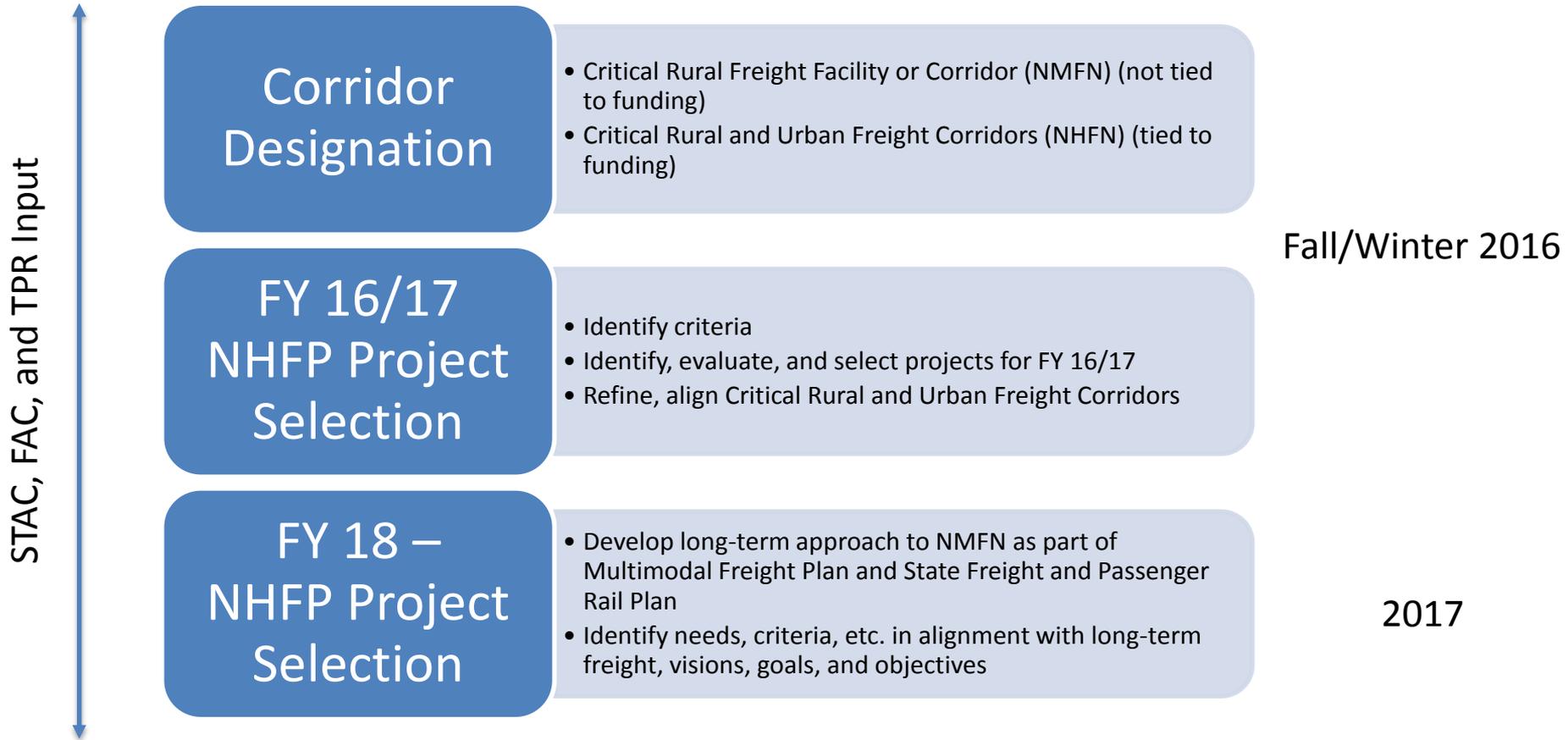
-  National Primary Freight Network
-  Federally Designated High Priority Corridors
-  Multi-State Significance, Tier 1
-  Multi-State Significance, Tier 2
-  Intrastate Significance
-  Highways
-  Counties



Data Source: CDOT 2015
 Created: August 2016
 WWW.CODOT.GOV



National Highway Freight Program (NHFP)





Next Steps

- Submittal of comments to USDOT on National Multimodal Freight Network (NMFN) and Critical Rural Freight Facilities and Corridors
- Continued MPO / TPR input on freight investment needs to support the identification of Critical Rural Freight Corridors and Critical Urban Freight Corridors
- Development of draft project selection approach, criteria, and measures

CDOT NOMINATIONS FOR FAST ACT DESIGNATION OF ALTERNATIVE FUEL CORRIDORS IN COLORADO



COLORADO
Department of
Transportation

Colorado Department of Transportation (CDOT)
Fixing America's Surface Transportation Act — Designation of Alternative Fuel Corridors
FHWA-2016-0017



CDOT NOMINATIONS FOR FAST ACT DESIGNATION OF ALTERNATIVE FUEL CORRIDORS IN COLORADO



Nominations Jointly Submitted by:

Colorado Department of Transportation (CDOT), Statewide Transportation Advisory Committee (STAC), Colorado Energy Office (CEO), Regional Air Quality Council (RAQC). For propane corridor nominations, please see the attached Letters of Support.

Statewide Network Plan:

Colorado is focused on developing a convenient and sustainable alternative fuels market (for electric, compressed natural gas (CNG), hydrogen, and propane fuels) that provides flexible statewide travel as well as meaningful connections to neighboring states and the broader national transportation network.

Stakeholders & Partnerships:

Colorado has been working for several years to develop strong alternative fuel partnerships between state agencies, local communities, and private investors that have allowed the Charge Ahead Colorado and Alt Fuels Colorado programs to successfully establish many new alternative fueling locations throughout the state. CDOT will continue to provide outreach, education, and technical assistance while building new partnerships to expand the network and the market going forward.

Statewide Goals:

Short-Term – Electric vehicle (EV) as 3% of new passenger vehicle sales and CNG as 5% of new medium/heavy duty vehicle sales by 2020.

Long-Term - Establish a sustainable statewide alternative fuels network and market for Colorado by 2040.

Benefits for Disadvantaged Communities:

Disadvantaged groups and communities within Colorado will benefit from the designation and development of alternative fuel corridors in several ways:

Air Quality - Alternative fuel vehicles produce fewer harmful emissions while traveling along highways that are disproportionately located in environmental justice zones.

Redevelopment – Alternative fueling stations built in disadvantaged communities could potentially redevelop existing blighted locations, which would be an overall benefit to disadvantaged communities.

Transit Support – In smaller communities, fueling stations could also serve as lower-cost fuel providers for transit vehicles, thereby allowing for increased investment in service improvements for disadvantage communities.

Local Government and Developer Incentives - Housing developers of low-income multi-unit dwellings in disadvantaged communities could potentially receive a rebate or tax credit for installing alt fuel stations in low-income housing developments.

Employment - The construction and operation of new alternative fuel stations will increase both temporary and long-term improvement in the immediate vicinity of the new locations.

Visibility, Convenience, and Accessibility to Corridor Users:

CDOT is working with new CNG station owners to place highway signage indicating the location of their stations, and will provide similar support for EV, hydrogen, and propane facilities as appropriate.

Tailpipe Emissions Reduction:

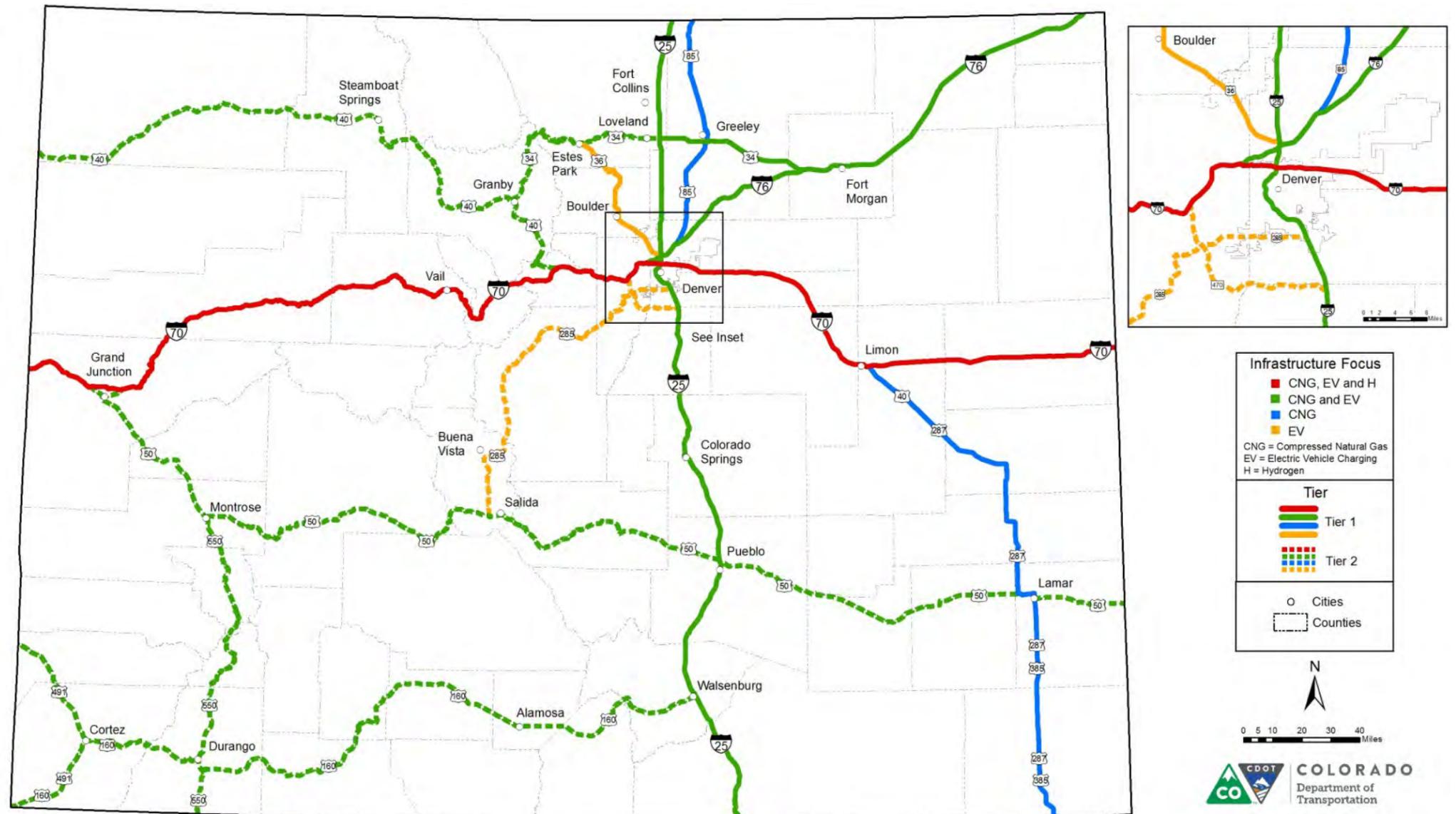
Emissions reductions are on a per vehicle basis. Tailpipe emissions reductions for each fuel type are outlined below.

EV	CNG	Hydrogen
NOx: 100%	NOx: 50%	NOx: 100%
VOC: 100%	VOC: 3%	VOC: 100%
CO ₂ : 100%	CO ₂ : 8%	CO ₂ : 100%

Distance between Existing and Planned Facilities

In general, future EV stations would be installed approximately every 30 miles. Future CNG and hydrogen stations (where applicable) would be installed approximately every 50 miles in most cases. Additional stations were also identified between these distances to address anticipated demand where warranted.

The following pages depict our approach in a more detailed, per-corridor basis.



Infrastructure Focus

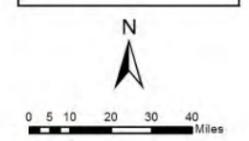
- Red line: CNG, EV and H
- Green line: CNG and EV
- Blue line: CNG
- Orange line: EV

CNG = Compressed Natural Gas
EV = Electric Vehicle Charging
H = Hydrogen

Tier

- Solid line: Tier 1
- Dashed line: Tier 2

○ Cities
□ Counties





I-70: UTAH STATE LINE TO KANSAS STATE LINE (Tier 1)

I-70 is one of Colorado's longest and busiest transportation corridors, and connects the diverse communities of the Front Range, Mountain Corridor, and Western Slope while serving as a crucial east-west link between the midwestern and western regions of the United States. As a major commuter, freight, and recreational corridor, I-70 presents numerous opportunities for the development of EV, CNG, and hydrogen infrastructure over both the short- and long-term. Colorado has already begun this work through the funding of new CNG stations in Commerce City, Rifle, and Glenwood Springs, and will continue its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

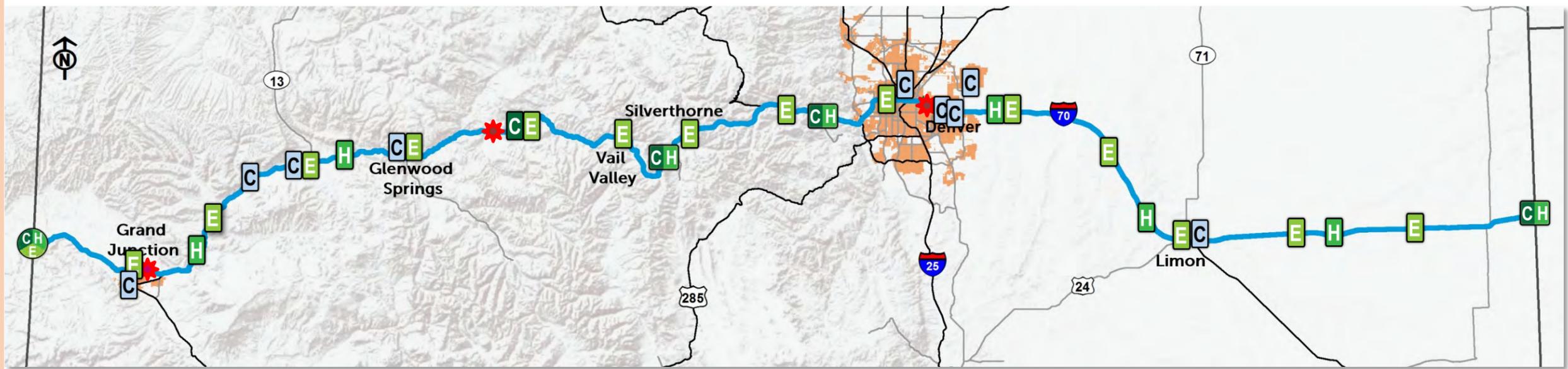
Vehicle Use (VMT) 🚗 🚗 🚗 🚗 : 🚚	Length (Miles) 450	Infrastructure Focus CNG/EV/Hydro	Population (2010) 1,388,740	Employment 766,823	Median Rural Income \$53,764	Median Urban Income \$53,125
Current Daily VMT 11,915,169	2020 Daily VMT 12,874,998	2040 Daily VMT 16,701,169	Current Truck VMT 1,498,376	2020 Truck VMT 1,615,320	2040 Truck VMT 2,081,494	National Network Connectivity Kansas, Utah, I-25, I-76
Tailpipe Emission Reduction EV ⚡ NO _x 100% VOC 100% CO ₂ 100%	Tailpipe Emission Reduction CNG 🔥 NO _x 50% VOC 3% CO ₂ 8%	Tailpipe Emission Reduction Hydro 💧 NO _x 100% VOC 100% CO ₂ 100%	Investment Need		<input checked="" type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to two adjacent states <input checked="" type="checkbox"/> Connects to major intermodal facilities	
				EV \$4,500,000	CNG \$10,000,000	Hydrogen \$36,000,000

Major Metropolitan Areas
Denver, Silverthorn, Vail Valley, Glenwood Springs, Grand Junction

Past Successes and Partnerships
To date 3 new CNG stations (Commerce City, Rifle, and Glenwood Springs) have been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).



Existing and Planned Alternative Fuel Facilities



EXISTING	PROPOSED	
CNG	CNG	CNG, Hydro, EV
Total CNG: 9	EV	Total CNG: 5
	Hydro	Total EV: 15
		Total Hydro: 9

Future EV stations every 30 miles; future CNG and hydrogen stations every 50 miles. Additional future stations where warranted.

NHS and Proposed Alternative Fuels Highways —————

NHS Highways Only —————

Intermodal connection

Short-term Strategic Goals (2020)

Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.
 Within Mesa County: By 2020, Grand Valley Transit will establish a 100% CNG bus fleet and the City of Grand Junction will convert 275 municipal vehicles to CNG.
 Within Weld County: 7-10 CNG stations, 1 liquefied natural gas (LNG) station, and 1,000 CNG vehicle conversions.

Long-term Strategic Goals (2040)

Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.
 Within Weld County: 15-25 CNG stations, 3 LNG stations, and 10,000 CNG vehicle conversions.

I-25: WYOMING STATE LINE TO NEW MEXICO STATE LINE (Tier 1)

I-25 serves as the transportation backbone of Colorado's fast-growing Front Range region, connecting major population centers in Denver, Colorado Springs, Fort Collins, Pueblo, Aurora, Loveland, and Greeley. It also provides north-south connectivity throughout the Mountain West region of the United States via links to I-80 in Wyoming and I-40 in New Mexico. As a major commuter, freight, and recreational corridor, I-25 presents strong opportunities for the development of EV and CNG infrastructure over both the short- and long-term. Colorado has already made significant progress on this work through the funding of new CNG stations in Fort Collins, Loveland, Commerce City, Colorado Springs, Pueblo, and Trinidad and will continue its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) :	Length (Miles) 299	Infrastructure Focus CNG/EV
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Population (2013) 2,686,609	Employment 1,469,543	Median Rural Income \$57,639	Median Urban Income \$55,773
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Current Daily VMT 19,514,640	2020 Daily VMT 21,857,933	2040 Daily VMT 31,211,066
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Current Truck VMT 1,723,835	2020 Truck VMT 1,927,465	2040 Truck VMT 2,740,203
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National Network Connectivity Wyoming, New Mexico, I-70, I-76

<input checked="" type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to two adjacent states <input checked="" type="checkbox"/> Connects to major intermodal facilities	Investment Need 	EV \$3,000,000 CNG \$8,000,000
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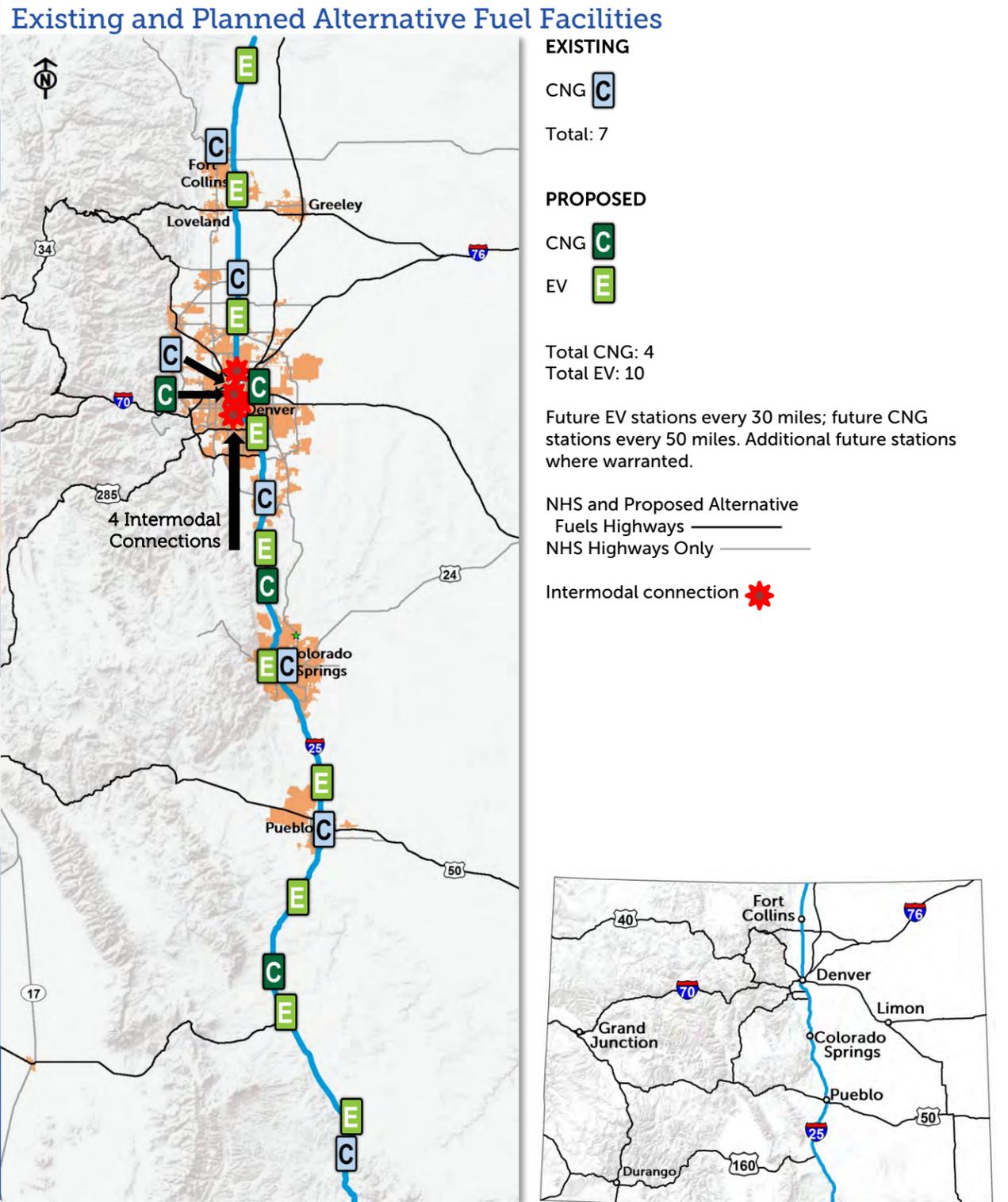
Major Metropolitan Areas Denver, Colorado Springs, Fort Collins, Pueblo, Loveland, Greeley

Tailpipe Emission Reduction EV 	Tailpipe Emission Reduction CNG 	Tailpipe Emission Reduction Hydro
NO _x 100% VOC 100% CO ₂ 100%	NO _x 50% VOC 3% CO ₂ 8%	NO _x 0% VOC 0% CO ₂ 0%

Past Successes and Partnerships
 To date 6 new CNG stations (Fort Collins, Loveland, Commerce City, Colorado Springs, Pueblo, and Trinidad) have been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).

Short-term Strategic Goals (2020)
 Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)
 Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.



US 287: LIMON TO OKLAHOMA STATE LINE (Tier 1)

US 287 is a major north-south freight artery that serves as the central link in the nationally recognized 9-state Ports-to-Plains corridor between Texas and the US-Canadian border. It connects to the broader national interstate network through Oklahoma to I-40 in Texas while feeding into I-70, I-25, and I-76 in Colorado. As a freight-intensive corridor, US 287 presents great opportunities, particularly for CNG infrastructure development over both the short- and long-term. Colorado has already begun this work through the funding of a new CNG station in Limon and targeted outreach to Lamar, and will continue its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) 	Length (Miles) 193	Infrastructure Focus CNG
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Population (2013) 24,166	Employment 10,964	Median Rural Income \$ 43,821	Median Urban Income \$ 38,875
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Current Daily VMT 697,641	2020 Daily VMT 788,610	2040 Daily VMT 1,151,739
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Current Truck VMT 304,666	2020 Truck VMT 344,636	2040 Truck VMT 504,202
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National Network Connectivity Oklahoma, I-70

<input checked="" type="checkbox"/> Connects to major metro area (Denver via I-70)	Investment Need	EV \$0
<input checked="" type="checkbox"/> Connects to one adjacent state		CNG \$6,000,000
<input type="checkbox"/> Connects to major intermodal facilities		Hydrogen \$0

Major Metropolitan Areas Denver

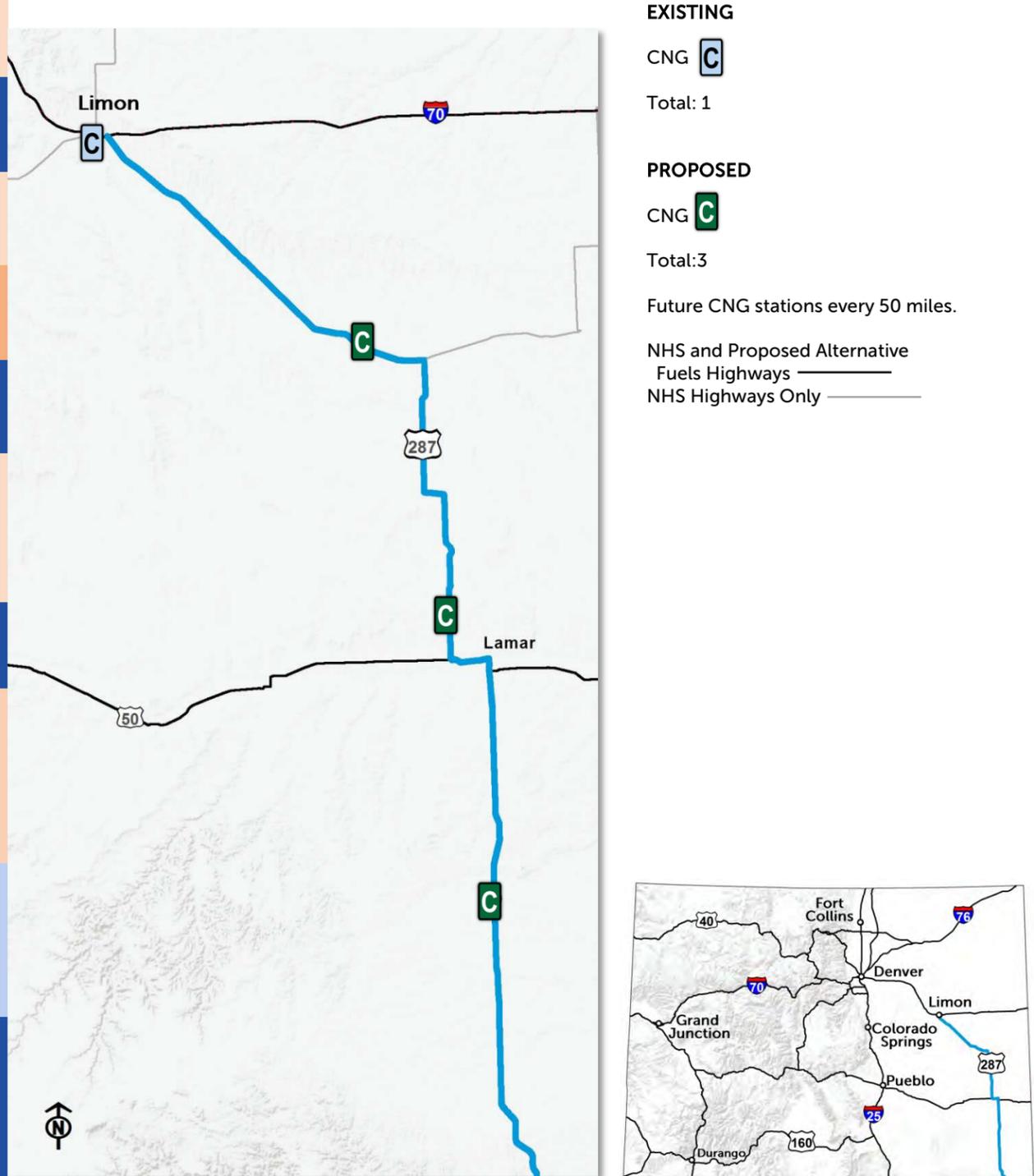
Tailpipe Emission Reduction EV NO_x 0% VOC 0% CO₂ 0%	Tailpipe Emission Reduction CNG NO_x 50% VOC 3% CO₂ 8%	Tailpipe Emission Reduction Hydro NO_x 0% VOC 0% CO₂ 0%
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Past Successes and Partnerships
To date **1 new CNG station (Limon)** has been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).

Short-term Strategic Goals (2020)
Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)
Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

Existing and Planned Alternative Fuel Facilities



US 36: DENVER TO ESTES PARK (Tier 1)

US 36 is a compact high-traffic urban corridor connecting the major population and employment centers of Denver, Boulder, and Broomfield with the world class recreational destination of Rocky Mountain National Park. As such it presents a unique opportunity for intensive EV infrastructure development and carbon-neutral transportation to one of our nation's premier natural areas while also serving millions of visitors and commuters each year in a fast-growing area of the country. Colorado is working to develop partnerships with local communities and other state agencies to develop infrastructure along the US 36 corridor and connect with a broader sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) : / 8		Length (Miles) 58	Infrastructure Focus EV
Population (2013) 785,179	Employment 442,031	Median Rural Income \$ 80,652	Median Urban Income \$ 60,417
Current Daily VMT 2,305,224		2020 Daily VMT 2,463,092	2040 Daily VMT 3,092,269
Current Truck VMT 58,812		2020 Truck VMT 62,844	2040 Truck VMT 78,913
National Network Connectivity I-25			
<input checked="" type="checkbox"/> Connects to major metro area <input type="checkbox"/> Connects to adjacent state(s) <input checked="" type="checkbox"/> Connects to major intermodal facilities		Investment Need EV \$600,000 CNG \$0 Hydrogen \$0	
Major Metropolitan Areas Denver, Boulder, Rocky Mountain National Park			
Tailpipe Emission Reduction EV NO_x 100% VOC 100% CO₂ 100%	Tailpipe Emission Reduction CNG 0% 0% 0%	Tailpipe Emission Reduction Hydro NO_x 0% VOC 0% CO₂ 0%	
Past Successes and Partnerships This corridor includes no funded CNG stations or EV chargers at this time.	Short-term Strategic Goals (2020) Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.		
	Long-term Strategic Goals (2040) Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.		

Existing and Planned Alternative Fuel Facilities

EXISTING

CNG **C**

Total: 2

PROPOSED

EV **E**

Total EV: 2

Future EV stations as warranted.

NHS and Proposed Alternative Fuels Highways

NHS Highways Only

Intermodal connection

US 85: DENVER TO WYOMING STATE LINE (Tier 1)

US 85 is an important north-south Front Range corridor connecting the Denver Metro to population and economic centers in Greeley and Cheyenne, Wyoming. It presents opportunities for CNG infrastructure development that Colorado has already pursued through the funding of new stations in Henderson, Greeley, and Eaton. Colorado will continue its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) 		Length (Miles) 82	Infrastructure Focus CNG
Population (2013) 442,055	Employment 226,823	Median Rural Income \$59,167	Median Urban Income \$55,322
Current Daily VMT 1,254,361	2020 Daily VMT 1,383,704	2040 Daily VMT 1,899,492	
Current Truck VMT 131,352	2020 Truck VMT 145,049	2040 Truck VMT 199,675	
National Network Connectivity Wyoming, I-76			
<input checked="" type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to one adjacent state <input type="checkbox"/> Connects to major intermodal facilities		Investment Need EV \$0 CNG \$2,000,000 Hydrogen \$0	
Major Metropolitan Areas Denver, Greeley			
Tailpipe Emission Reduction EV 	Tailpipe Emission Reduction CNG 	Tailpipe Emission Reduction Hydro 	
NO_x 0% VOC 0% CO₂ 0%	NO_x 50% VOC 3% CO₂ 8%	NO_x 0% VOC 0% CO₂ 0%	
Past Successes and Partnerships To date 3 new CNG stations (Henderson, Greeley, and Eaton) have been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).		Short-term Strategic Goals (2020) Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020. Within Weld County: 7-10 CNG stations, 1 LNG station, and 1,000 CNG vehicle conversions.	
		Long-term Strategic Goals (2040) Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado. Within Weld County: 15-25 CNG stations, 3 LNG stations, and 10,000 CNG vehicle conversions.	

Existing and Planned Alternative Fuel Facilities

EXISTING
 CNG Total: 5

PROPOSED
 CNG Total: 1

Future CNG stations every 50 miles.

NHS and Proposed Alternative Fuels Highways NHS Highways Only

US 34: LOVELAND TO I-76 (Tier 1)

US 34 between Loveland and I-76 is a rapidly growing passenger and freight corridor connecting major populations centers in northern Colorado to a broader statewide and interstate network. This region of the state is a hub of energy development, agriculture, and education and is expected to continue growing for future decades. As such, it provides opportunities for the development of both EV and CNG infrastructure. Colorado has already begun this work through the funding of new CNG stations in Loveland and Greeley and will continue its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) 	Length (Miles) 57	Infrastructure Focus CNG/EV	Population (2010) 284,031	Employment 146,036	Median Rural Income \$52,118	Median Urban Income \$56,375
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Current Daily VMT 1,087,698	2020 Daily VMT 1,283,964	2040 Daily VMT 2,067,807	Current Truck VMT 74,939	2020 Truck VMT 87,632	2040 Truck VMT 138,340	National Network Connectivity I-25, I-76
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Tailpipe Emission Reduction EV NO _x 100% VOC 100% CO ₂ 100%	Tailpipe Emission Reduction CNG NO _x 50% VOC 3% CO ₂ 8%	Tailpipe Emission Reduction Hydro NO _x 0% VOC 0% CO ₂ 0%	Investment Need EV \$900,000 CNG \$0 Hydrogen \$0	<input checked="" type="checkbox"/> Connects to major metro area <input type="checkbox"/> Connects to adjacent state(s) <input type="checkbox"/> Connects to major intermodal facilities
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Major Metropolitan Areas Loveland, Greeley

Past Successes and Partnerships

To date 2 new CNG stations (Loveland, Greeley) have been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).



Existing and Planned Alternative Fuel Facilities



EXISTING	PROPOSED	
CNG	EV	Future EV stations every 30 miles; additional future stations where warranted.
Total CNG: 3	Total EV: 3	NHS and Proposed Alternative Fuels Highways
		NHS Highways Only

Short-term Strategic Goals (2020)

Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.
Within Weld County: 7-10 CNG stations, 1 LNG station, and 1,000 CNG vehicle conversions.

Long-term Strategic Goals (2040)

Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.
Within Weld County: 15-25 CNG stations, 3 LNG stations, and 10,000 CNG vehicle conversions.

US 34: Loveland to US 40 (Tier 2)

US 34 between Loveland and US 40 is an urban-to-rural corridor that stretches from the fast-growing Front Range through Rocky Mountain National Park and on to the mountain communities of Estes Park, Grand Lake, and Granby. It provides a unique opportunity to integrate alternative fueling infrastructure with natural and recreational landscapes that also connect to the broader statewide infrastructure on I-25, I-70, US 36, and US 40. There is currently little to no alternative fueling infrastructure along this corridor, but Colorado will work to build partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) 🚗🚗🚗🚗🚗 : 1/8	Length (Miles) 92	Infrastructure Focus CNG/EV 🔥⚡	Population (2010) 133,613	Employment 71,904	Median Rural Income \$65,231	Median Urban Income \$60,000
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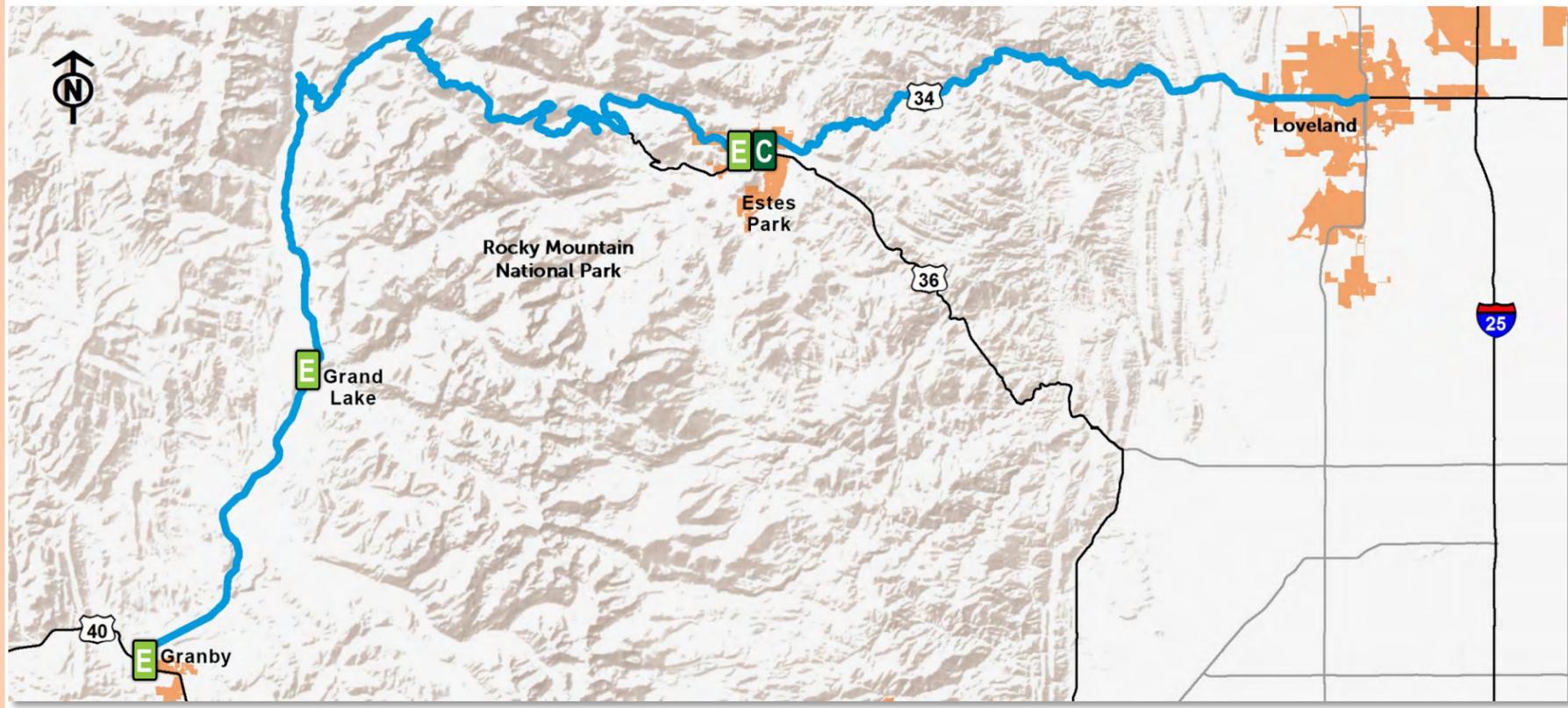
Current Daily VMT 521,592	2020 Daily VMT 569,432	2040 Daily VMT 760,012	Current Truck VMT 14,777	2020 Truck VMT 15,871	2040 Truck VMT 20,229	National Network Connectivity I-25
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Tailpipe Emission Reduction EV ⚡ NO _x 100% VOC 100% CO ₂ 100%	Tailpipe Emission Reduction CNG 🔥 NO _x 50% VOC 3% CO ₂ 8%	Tailpipe Emission Reduction Hydro 💧 NO _x 0% VOC 0% CO ₂ 0%	Investment Need ⚡ EV \$900,000 🔥 CNG \$2,000,000 💧 Hydrogen \$0	<input checked="" type="checkbox"/> Connects to major metro area <input type="checkbox"/> Connects to adjacent state(s) <input type="checkbox"/> Connects to major intermodal facilities
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Major Metropolitan Areas
Loveland, Rocky Mountain NP

Past Successes and Partnerships
This corridor includes no funded CNG stations or EV chargers at this time.

Existing and Planned Alternative Fuel Facilities



PROPOSED
 CNG **C**
 EV **E**
 Total CNG: 1
 Total EV: 3
 Future EV stations every 30 miles; future CNG stations where warranted.
 NHS and Proposed Alternative Fuels Highways ———
 NHS Highways Only ———



Short-term Strategic Goals (2020)
Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)
Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

C-470: I-70 TO I-25 (Tier 2)

C-470 is a busy corridor that serves as the southwestern portion of the partial beltway around the Denver metro area. As a high-population and predominantly passenger-oriented corridor, it presents an opportunity for the development of concentrated EV charging infrastructure in a growing urban context. There is currently no publicly accessible DC Fast Charging infrastructure along the corridor, but Colorado will work to build partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

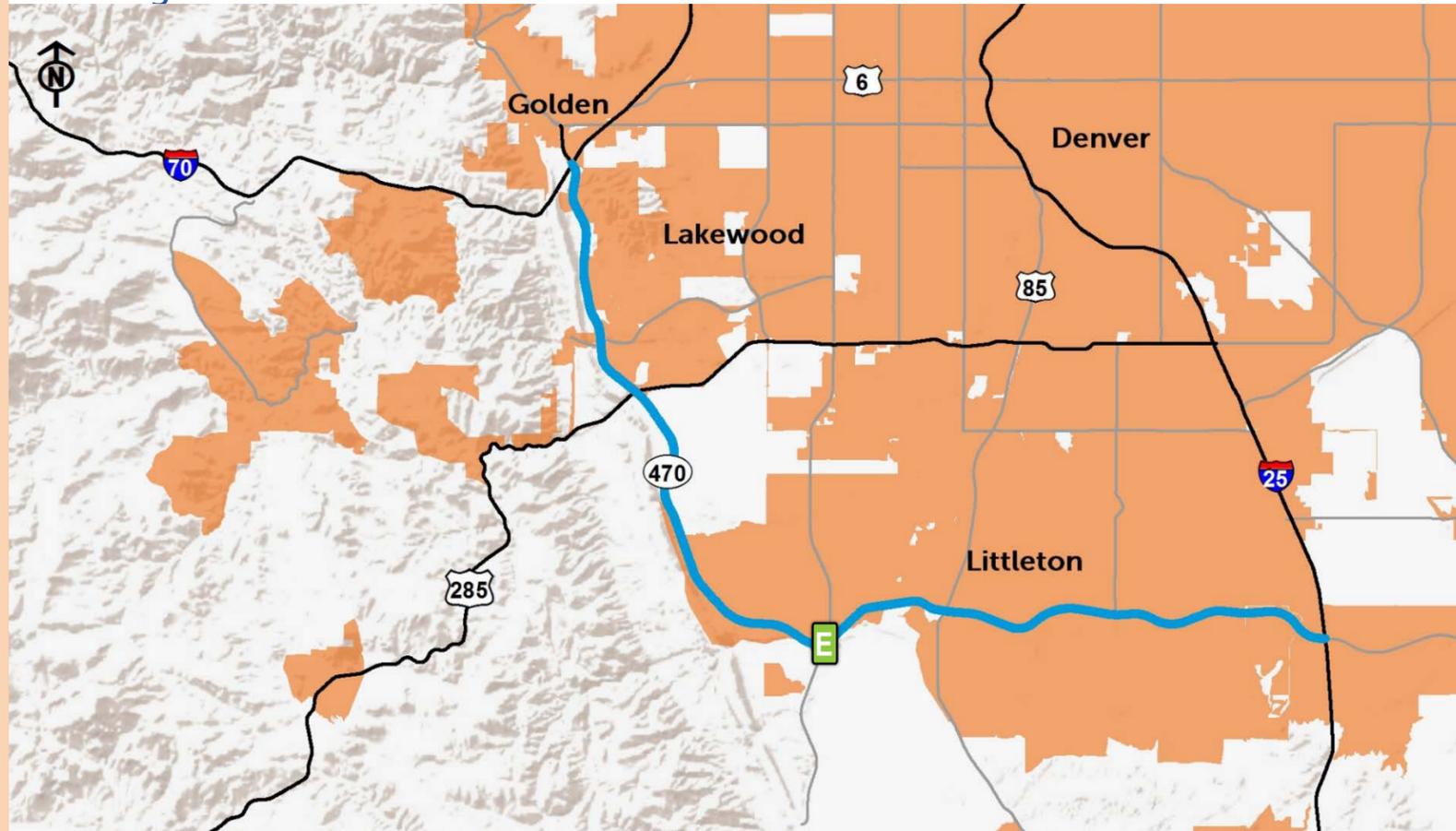
Vehicle Use (VMT) :		Length (Miles) 26	Infrastructure Focus EV	Population (2010) 661,404	Employment 369,895	Median Rural Income \$0 (no rural population)	Median Urban Income \$81,953																		
Current Daily VMT 2,194,393	2020 Daily VMT 2,470,638	2040 Daily VMT 3,572,685	Current Truck VMT 44,550	2020 Truck VMT 50,189	2040 Truck VMT 72,678	National Network Connectivity I-70, I-25																			
Tailpipe Emission Reduction EV <table border="1"> <tr><td>NO_x</td><td>100%</td></tr> <tr><td>VOC</td><td>100%</td></tr> <tr><td>CO₂</td><td>100%</td></tr> </table>		NO _x	100%	VOC	100%	CO ₂	100%	Tailpipe Emission Reduction CNG <table border="1"> <tr><td>NO_x</td><td>0%</td></tr> <tr><td>VOC</td><td>0%</td></tr> <tr><td>CO₂</td><td>0%</td></tr> </table>		NO _x	0%	VOC	0%	CO ₂	0%	Tailpipe Emission Reduction Hydro <table border="1"> <tr><td>NO_x</td><td>0%</td></tr> <tr><td>VOC</td><td>0%</td></tr> <tr><td>CO₂</td><td>0%</td></tr> </table>		NO _x	0%	VOC	0%	CO ₂	0%	Investment Need EV \$300,000	<input checked="" type="checkbox"/> Connects to major metro area <input type="checkbox"/> Connects to adjacent state(s) <input type="checkbox"/> Connects to major intermodal facilities
NO _x	100%																								
VOC	100%																								
CO ₂	100%																								
NO _x	0%																								
VOC	0%																								
CO ₂	0%																								
NO _x	0%																								
VOC	0%																								
CO ₂	0%																								

Major Metropolitan Areas
 Denver, Littleton, Lakewood, Golden

Past Successes and Partnerships

This corridor includes no funded CNG stations or EV chargers at this time.

Existing and Planned Alternative Fuel Facilities



PROPOSED

EV

Total: 1

Future EV stations every 30 miles.

NHS and Proposed Alternative Fuels Highways
 NHS Highways Only



Short-term Strategic Goals (2020)

Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)

Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

US 285: Denver to Poncha Springs (Tier 2)

US 285 is a predominantly passenger focused corridor that connects the populous and growing Denver metro area to the more rural recreational centers of central Colorado such as Fairplay, Buena Vista, and Salida. It provides connectivity between I-25 along the Front Range and the east-west corridor of US 50, an important secondary route parallel to I-70. It also serves as an important recreational travel route for those visiting Chaffee County, the San Luis Valley, and the southwest areas of the state. There is currently no DC Fast Charging infrastructure along the corridor, but Colorado will work to build partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) :	Length (Miles) 124	Infrastructure Focus EV
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Population (2013) 886,679	Employment 496,470	Median Rural Income \$ 83,212	Median Urban Income \$ 60,563
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Current Daily VMT 1,738,476	2020 Daily VMT 1,845,901	2040 Daily VMT 2,274,508
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Current Truck VMT 77,021	2020 Truck VMT 83,266	2040 Truck VMT 108,204
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National Network Connectivity

I-25	Investment Need
<input checked="" type="checkbox"/> Connects to major metro area	EV \$1,500,000
<input type="checkbox"/> Connects to adjacent state(s)	CNG \$0
<input type="checkbox"/> Connects to major intermodal facilities	Hydrogen \$0

Major Metropolitan Areas

Denver, Fairplay, Buena Vista, Salida

Tailpipe Emission Reduction EV NO _x 100% VOC 100% CO ₂ 100%	Tailpipe Emission Reduction CNG NO _x 0% VOC 0% CO ₂ 0%	Tailpipe Emission Reduction Hydro NO _x 0% VOC 0% CO ₂ 0%
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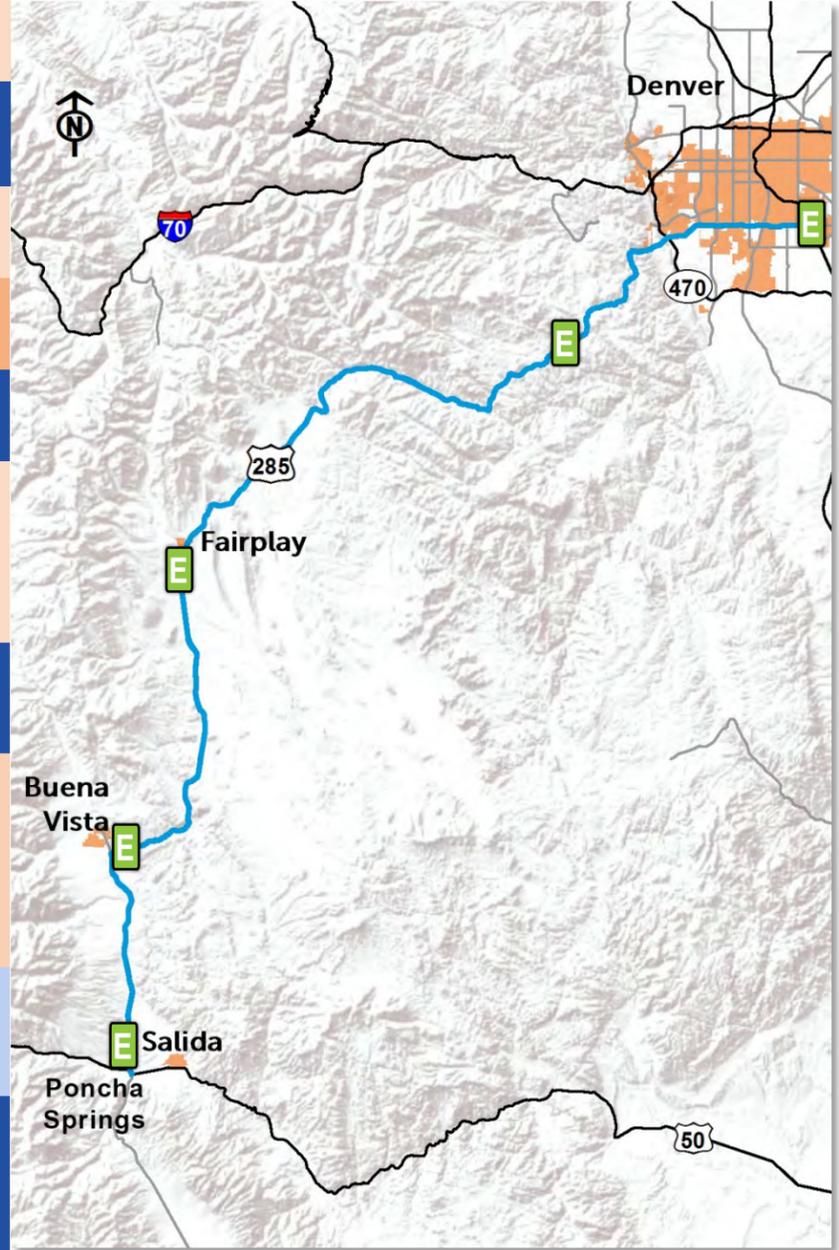
Past Successes and Partnerships

This corridor includes no funded CNG stations or EV chargers at this time.

Short-term Strategic Goals (2020)
Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)
Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

Existing and Planned Alternative Fuel Facilities



PROPOSED
EV
Total: 5
Future EV stations every 30 miles; additional future stations where warranted.
NHS and Proposed Alternative Fuels Highways NHS Highways Only





US 160: Walsenburg to New Mexico (Tier 2)

US 160 is an important secondary east-west route that connects the southern areas of the state from I-25 in Walsenburg, through Alamosa, Monte Vista, and Durango to the Four Corners area bordering New Mexico, Utah, and Arizona. It has both freight and passenger traffic and presents opportunities for the development of both CNG and EV infrastructure. Colorado has already begun this work through the funding of a new CNG station in Durango and will continue to develop its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) 		Length (Miles) 304	Infrastructure Focus CNG/EV 	Population (2010) 121,453	Employment 61,017	Median Rural Income \$49,489	Median Urban Income \$43,351
Current Daily VMT 1,973,721	2020 Daily VMT 2,106,656	2040 Daily VMT 2,636,194	Current Truck VMT 160,536	2020 Truck VMT 170,083	2040 Truck VMT 208,101	National Network Connectivity New Mexico, I-25	
Tailpipe Emission Reduction EV  NO _x 100% VOC 100% CO ₂ 100%		Tailpipe Emission Reduction CNG  NO _x 50% VOC 3% CO ₂ 8%		Tailpipe Emission Reduction Hydro  NO _x 0% VOC 0% CO ₂ 0%		Investment Need EV \$3,000,000 CNG \$2,000,000 Hydrogen \$0	
						<input type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to one adjacent state <input checked="" type="checkbox"/> Connects to major intermodal facilities	

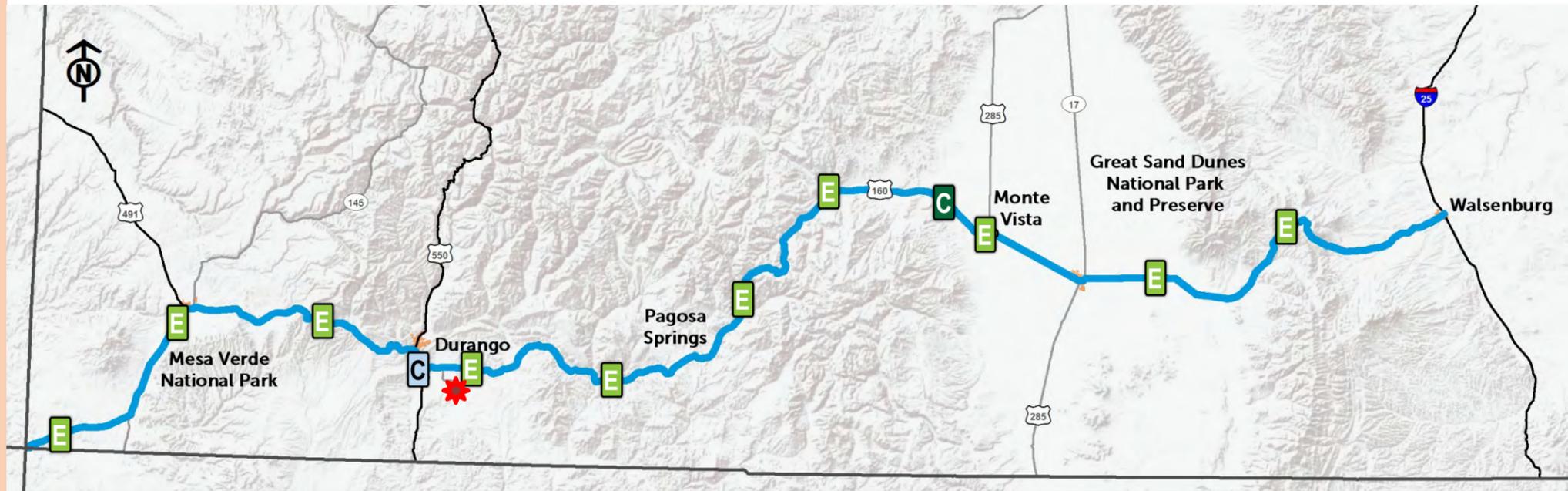
Major Metropolitan Areas
Alamosa, Monte Vista, Pagosa Springs, Durango, Great Sand Dunes NP, Mesa Verde NP

Past Successes and Partnerships

To date 1 new CNG station (Durango) has been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).



Existing and Planned Alternative Fuel Facilities



EXISTING

CNG 

TOTAL: 1

PROPOSED

CNG 

EV 

Total CNG: 1
Total EV: 10

Future EV stations every 30 miles; additional future CNG stations where warranted.

NHS and Proposed Alternative Fuels Highways 
NHS Highways Only 

Intermodal connection 

Short-term Strategic Goals (2020)

Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)

Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

US 50: Kansas to Grand Junction (Tier 2)

US 50 is an important secondary east-west route that connects the central areas of the state from Grand Junction in the west through Montrose, Gunnison, and Salida to I-25 in Pueblo and onward through the Eastern Plains to the Kansas border. It carries both freight and passenger traffic, and presents opportunities for the development of both CNG and EV infrastructure. Colorado has already begun this work through the funding of new CNG stations in Gunnison and Pueblo, and will continue to develop its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country

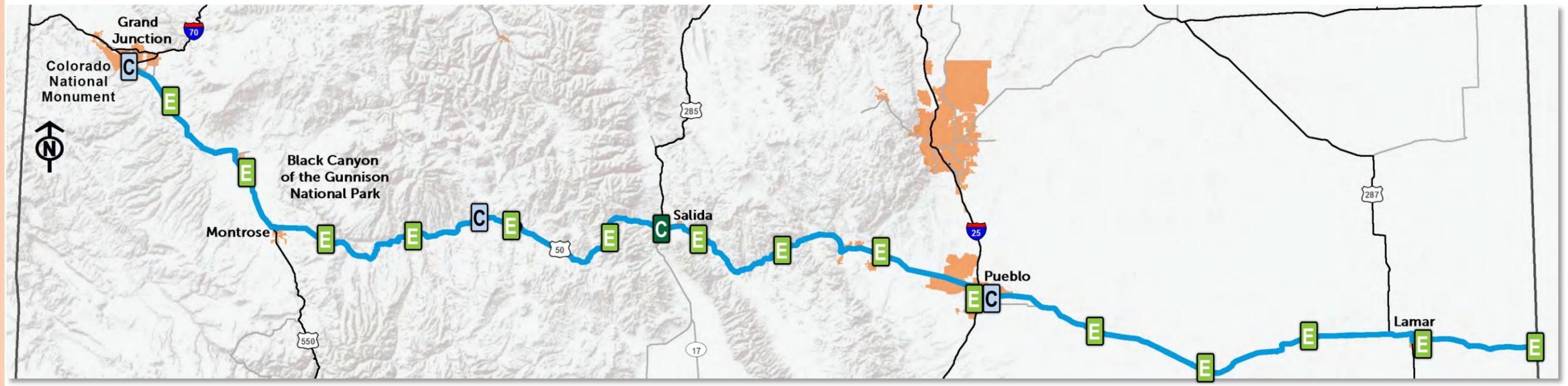
Vehicle Use (VMT) :		Length (Miles) 434	Infrastructure Focus CNG/EV	Population (2010) 453,982	Employment 208,951	Median Rural Income \$42,182	Median Urban Income \$39,443																		
Current Daily VMT 2,709,583	2020 Daily VMT 2,866,750	2040 Daily VMT 3,492,661	Current Truck VMT 240,148	2020 Truck VMT 252,130	2040 Truck VMT 299,827	National Network Connectivity Kansas, I-70																			
Tailpipe Emission Reduction EV <table border="1"> <tr><td>NO_x</td><td>100%</td></tr> <tr><td>VOC</td><td>100%</td></tr> <tr><td>CO₂</td><td>100%</td></tr> </table>		NO _x	100%	VOC	100%	CO ₂	100%	Tailpipe Emission Reduction CNG <table border="1"> <tr><td>NO_x</td><td>50%</td></tr> <tr><td>VOC</td><td>3%</td></tr> <tr><td>CO₂</td><td>8%</td></tr> </table>		NO _x	50%	VOC	3%	CO ₂	8%	Tailpipe Emission Reduction Hydro <table border="1"> <tr><td>NO_x</td><td>0%</td></tr> <tr><td>VOC</td><td>0%</td></tr> <tr><td>CO₂</td><td>0%</td></tr> </table>		NO _x	0%	VOC	0%	CO ₂	0%	Investment Need EV \$4,500,000 CNG \$2,000,000 Hydrogen \$0	<input checked="" type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to one adjacent state <input type="checkbox"/> Connects to major intermodal facilities
NO _x	100%																								
VOC	100%																								
CO ₂	100%																								
NO _x	50%																								
VOC	3%																								
CO ₂	8%																								
NO _x	0%																								
VOC	0%																								
CO ₂	0%																								

Major Metropolitan Areas
 Lamar, Pueblo, Salida, Montrose, Grand Junction, Black Canyon of the Gunnison NP

Past Successes and Partnerships
 To date 2 new CNG stations (Gunnison, Pueblo) have been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).



Existing and Planned Alternative Fuel Facilities



EXISTING CNG Total: 3	PROPOSED CNG Total CNG: 1 EV Total EV: 15	Future EV stations every 30 miles; future CNG stations where warranted. NHS and Proposed Alternative Fuels Highways NHS Highways Only
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Short-term Strategic Goals (2020)

Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.
 Within Mesa County: By 2020, Grand Valley Transit will establish a 100% CNG bus fleet and the City of Grand Junction will convert 275 municipal vehicles to CNG.

Long-term Strategic Goals (2040)

Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

US 550: Montrose to New Mexico (Tier 2)

US 550 is an important north-south route that connects the Western Slope of Colorado from Montrose to Durango and on to the border with New Mexico. It carries both freight and passenger traffic and presents opportunities for the development of both CNG and EV infrastructure. Colorado has already begun this work through the funding of a new CNG station in Durango and will continue to develop its partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) :	Length (Miles) 129	Infrastructure Focus CNG/EV
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Population (2013) 87,820	Employment 46,627	Median Rural Income \$62,778	Median Urban Income \$51,597
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Current Daily VMT 880,001	2020 Daily VMT 930,339	2040 Daily VMT 1,130,776
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Current Truck VMT 48,752	2020 Truck VMT 51,504	2040 Truck VMT 62,463
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National Network Connectivity New Mexico

<input type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to one adjacent state <input type="checkbox"/> Connects to major intermodal facilities	Investment Need EV \$1,500,000 CNG \$4,000,000 Hydrogen \$0
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Major Metropolitan Areas Montrose, Durango

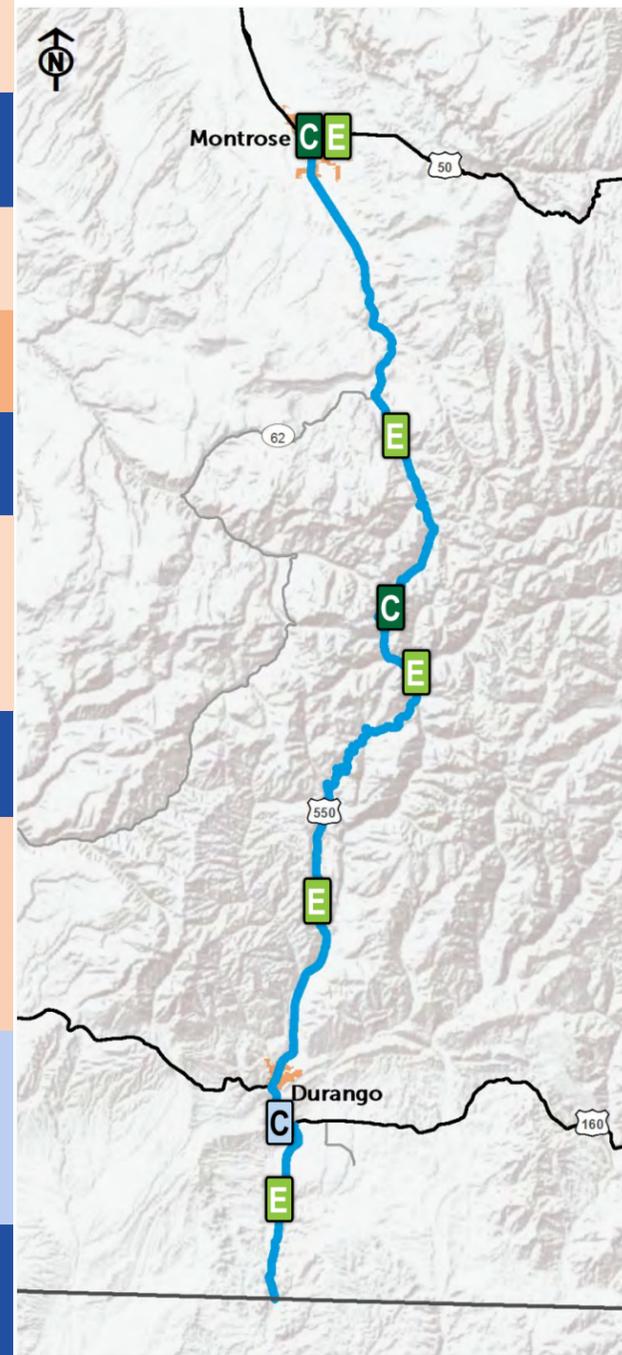
Tailpipe Emission Reduction EV NO _x 100% VOC 100% CO ₂ 100%	Tailpipe Emission Reduction CNG NO _x 50% VOC 3% CO ₂ 8%	Tailpipe Emission Reduction Hydro NO _x 0% VOC 0% CO ₂ 0%
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Past Successes and Partnerships
 To date **1 new CNG station (Durango)** has been funded along this corridor through the Alt Fuels Colorado partnership between the Colorado Department of Transportation (CDOT), the Colorado Energy Office (CEO), and the Regional Air Quality Council (RAQC).

Short-term Strategic Goals (2020)
 Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)
 Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

Existing and Planned Alternative Fuel Facilities



EXISTING
 CNG Total: 1

PROPOSED
 CNG EV
 Total CNG: 2
 Total EV: 5

Future EV stations every 30 miles;
 future CNG stations every 50 miles.

NHS and Proposed Alternative Fuels Highways
 NHS Highways Only



US 40: I-70 to Utah (Tier 2)

US 40 is an important east-west route that connects the northern areas of Colorado from I-70 through the rural and recreational communities of Winter Park, Fraser, Steamboat Springs, and Craig, to the Utah border near Dinosaur National Monument. It carries both freight and passenger traffic, and presents opportunities for the development of both CNG and EV infrastructure. There is currently no publicly-accessible DC Fast Charging or CNG fueling infrastructure along the corridor, but Colorado will work to build partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) 		Length (Miles) 257	Infrastructure Focus CNG/EV	Population (2010) 735,624	Employment 532,811	Median Rural Income \$53,284	Median Urban Income \$53,284
Current Daily VMT 1,033,210	2020 Daily VMT 1,083,706	2040 Daily VMT 1,284,531	Current Truck VMT 79,879	2020 Truck VMT 84,511	2040 Truck VMT 102,963	National Network Connectivity Utah, I-70	
Tailpipe Emission Reduction EV NO _x 100% VOC 100% CO ₂ 100%		Tailpipe Emission Reduction CNG NO _x 50% VOC 3% CO ₂ 8%		Tailpipe Emission Reduction Hydro NO _x 0% VOC 0% CO ₂ 0%		Investment Need EV \$2,700,000 CNG \$6,000,000 Hydrogen \$0	
<input type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to one adjacent state <input type="checkbox"/> Connects to major intermodal facilities							

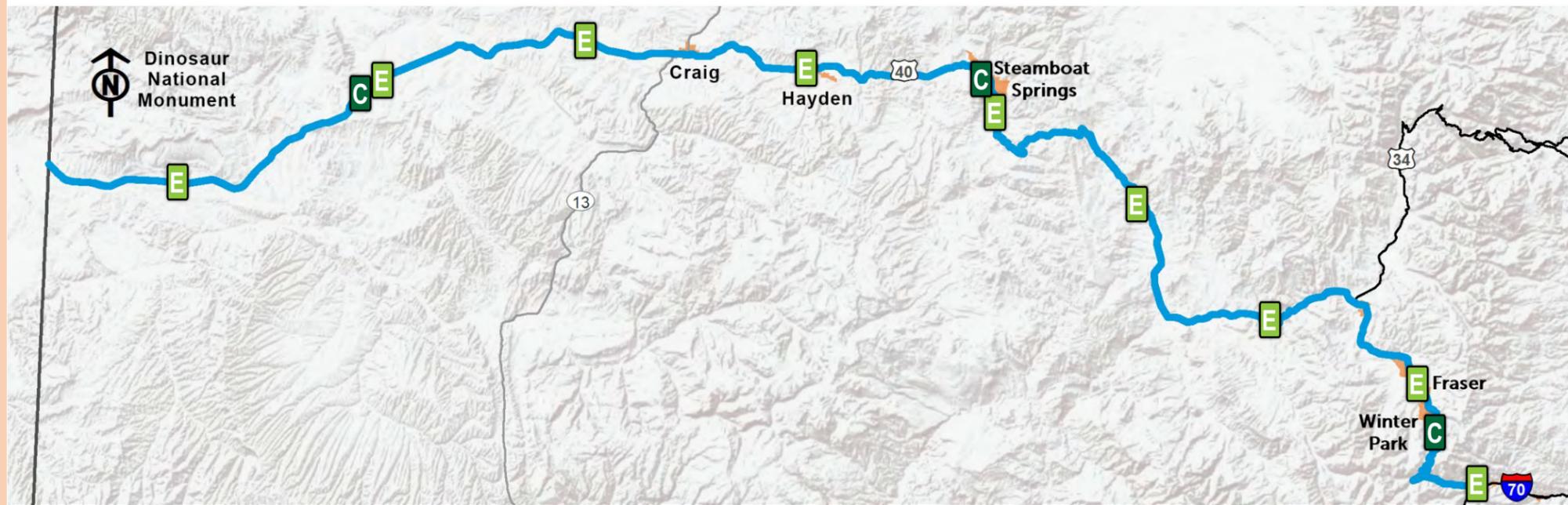
Major Metropolitan Areas
Steamboat Springs, Winter Park, Fraser

Past Successes and Partnerships

This corridor includes no funded CNG stations or EV chargers at this time.



Existing and Planned Alternative Fuel Facilities



PROPOSED

- CNG
- EV

Total CNG: 3
Total EV: 9

Future EV stations every 30 miles;
future CNG stations every 50 miles or
where warranted.

NHS and Proposed Alternative
Fuels Highways
NHS Highways Only

Short-term Strategic Goals (2020)

Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)

Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

US 491: Cortez to Utah (Tier 2)

US 491 is an important regional connector for the southwest area of Colorado from the Utah border to Mesa Verde National Park, Canyons of the Ancients National Monument, and the community of Cortez. It carries both freight and passenger traffic, and presents opportunities for the development of both CNG and EV infrastructure. There is currently no publicly accessible DC Fast Charging or CNG fueling infrastructure along the corridor, but Colorado will work to build partnerships with local communities and other state agencies to advance a sustainable alternative fueling network for Colorado and the entire country.

Vehicle Use (VMT) : **Length (Miles)** **43** **Infrastructure Focus** **CNG/EV**

Population (2013) 27,779	Employment 13,470	Median Rural Income \$46,515	Median Urban Income \$38,034
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Current Daily VMT 197,155	2020 Daily VMT 212,811	2040 Daily VMT 275,276
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Current Truck VMT 31,515	2020 Truck VMT 34,090	2040 Truck VMT 44,364
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National Network Connectivity Utah

<input type="checkbox"/> Connects to major metro area <input checked="" type="checkbox"/> Connects to adjacent state(s) <input type="checkbox"/> Connects to major intermodal facilities	Investment Need EV \$300,000 CNG \$2,000,000 Hydrogen \$0
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Major Metropolitan Areas Cortez, Mesa Verde NP

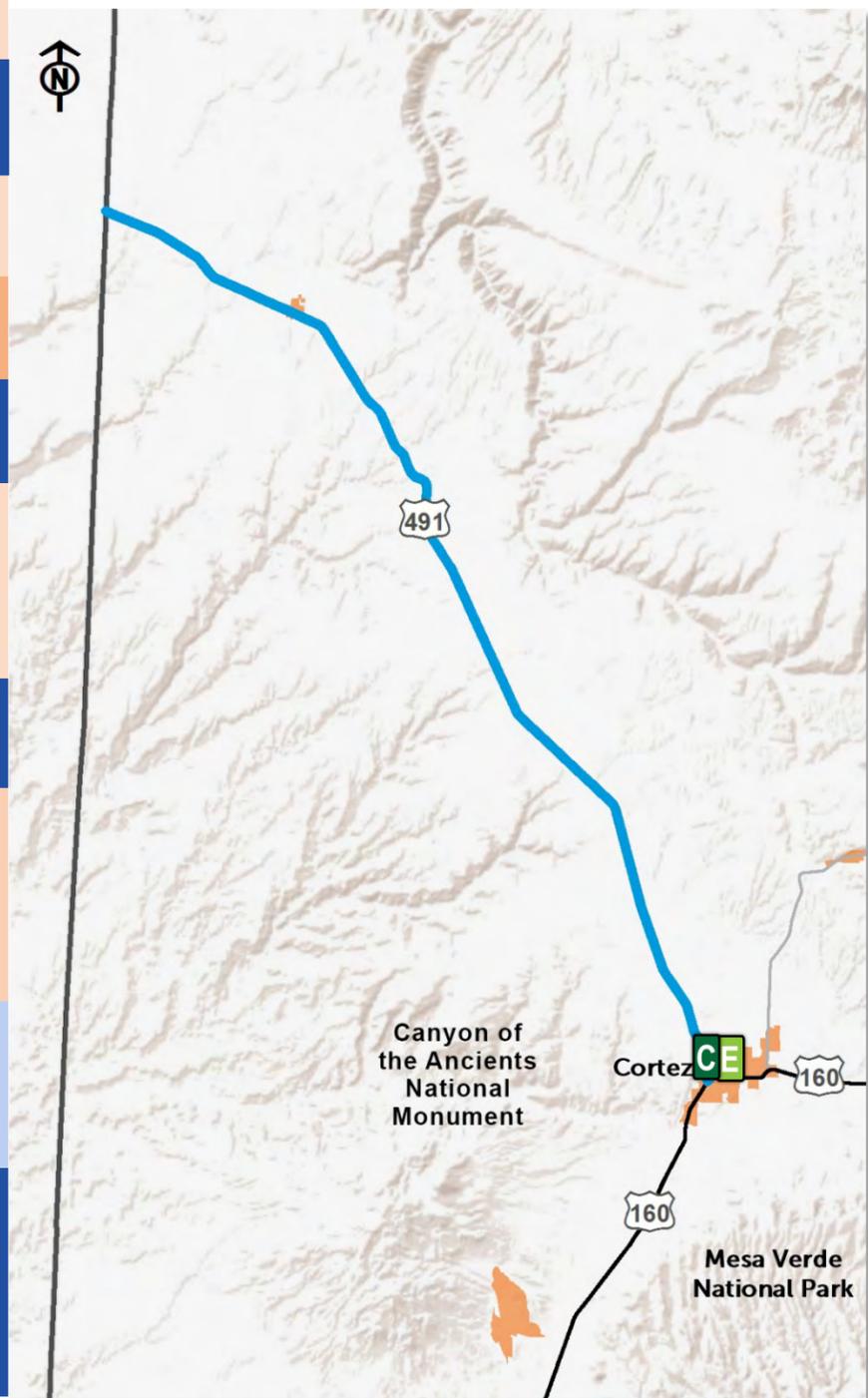
Tailpipe Emission Reduction EV NO_x 100% VOC 100% CO₂ 100%	Tailpipe Emission Reduction CNG NO_x 50% VOC 3% CO₂ 8%	Tailpipe Emission Reduction Hydro NO_x 0% VOC 0% CO₂ 0%
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Past Successes and Partnerships
This corridor includes no funded CNG stations or EV chargers at this time.

Short-term Strategic Goals (2020)
Statewide: EV as 3% of new passenger vehicle sales and CNG as 5% of new medium / heavy duty vehicle sales by 2020.

Long-term Strategic Goals (2040)
Statewide: Establish a sustainable statewide alternative fuels network and market for Colorado.

Existing and Planned Alternative Fuel Facilities



PROPOSED

CNG

EV

Total CNG: 1
Total EV: 1

Future stations where warranted.

NHS and Proposed Alternative Fuels Highways
NHS Highways Only





Memo

To: Wes Maurer, Colorado Energy Office

From: Jim Durand, Director, Renewable Hydrogen and Fuel Cell Collaborative

Date: August 10, 2016

Re: FAST ACT RFI, I-70 Alternative Fuels Corridor

I-70 Alternative Fuels Corridor

This is a Memo from the Ohio Fuel Cell Coalition (OFCC) and the Renewable Hydrogen and Fuel Cell Collaborative (RHFCC) in support of establishing an alternative fuels corridor along the I-70 route from Pennsylvania to Colorado.

The OFCC is a united group of industry, academic, and government leaders working collectively to strengthen Ohio's fuel cell industry and to accelerate the transformation of the region to global leadership in fuel cell technology. Working closely with the OFCC is the RHFCC whose mission statement is: to make the Ohio region a US and global leader in the adoption of renewable hydrogen in transportation.

Fuel cell vehicles are proven, and cost reductions through mass production have begun. The key and often forgotten component is now the refueling infrastructure. Hydrogen refueling stations are expensive, and with little chance to recover the initial investment, it is very hard to get refueling points established. And with no refueling infrastructure, it is difficult if not impossible to get car manufacturers (OEMs) to release cars to the region. This fact was underscored by a recent DOE Funding Opportunity for Alternative Fueled Vehicles (DOE FOA 0001535). Our concept was to deploy 15 fuel cell vehicles to 4 municipal fleets, and then to develop or augment 4 refueling points in the mid-Ohio region. Based on an initial concept paper, the DOE invited us to submit a full proposal. Yet despite the prospect of DOE support, our prospects have been sketchy for OEM's to sell us the fuel cell cars we needed. Toyota, for example, said that they were not planning to release fuel cell vehicles into the Ohio region until 2020. Of course this could all change if there was an existing network of hydrogen refueling points established in the region.

The I-70 corridor is a vital and heavily traveled transportation artery across the center of the US, which links key metropolitan centers along its route. In particular, I-70 cuts through Columbus Ohio, a important city on the route because of its strong commitment to alternative fuels. The Columbus area, regional Transit Authority (COTA), for example, is converting their entire fleet of 330 buses to natural gas,



which is supported by 2 large refueling stations. And the City of Columbus, with numerous top green fleets and management awards, is also converting its fleet to natural gas, which is supported by 3 large refueling stations with public access. In addition, the City of Columbus is the winner of the Department of Transportation's Smart Cities award. In conjunction with this grant, the City will be spending close to \$150 Million on a variety of projects including alternative fuels refueling infrastructure.

In hydrogen, there is a small (10 kg/day) refueling station that will be opening soon at The Ohio State University – Center for Automotive Research. In addition, nearby Canton Ohio will be opening a large (300 kg/day) refueling station to support a large fleet of 11 fuel cell buses that will be operating at the Canton based Stark county Area Regional Transit Authority (SARTA). With 11 fuel cell buses and a 300 kg/day hydrogen refueling station, SARTA will have the nation's largest fuel cell bus fleet and hydrogen refueling station outside of California.

Another regional strength is Honda. Their North American headquarters is in Marysville Ohio, just outside of Columbus. Honda has made a strong commitment to hydrogen fuel cell vehicles, with the release of the Clarity, right behind Toyota's release of the hydrogen fuel cell powered Mirai.

In summary, the I-70 corridor is a vital link across the center of our country and should be augmented with alternative refueling points including hydrogen. The government's investment in refueling infrastructure is a key to the development of alternative fueled vehicles. In Ohio, Columbus is a key city, with a number of existing and future alternative refueling points that could be linked with the I-70 corridor. And the city of Columbus itself will be adding many new alternative fuels refueling points, through the execution of the Smart Cities grant. In addition, the region is supported by strong hydrogen related activity by SARTA in Canton, and Honda in Marysville. Finally, the region has very active support from organizations like the OFCC and the RHFCC.



August 22, 2016

Wes Maurer
Colorado Energy Office
1580 Logan Street, Suite 100
Denver, CO 80203

Subject: Colorado Submission for National Alternative Fuel Refueling Corridors

Dear Wes

The Federal Highway Administration (FHWA) has issued a Federal Register Notice to solicit input from Colorado in designating national alternative fuel refueling corridors. Propane is one of the fuels explicitly listed for consideration in these corridors. The purpose of this letter is to request that you submit a nomination to the FHWA highlighting the role of propane as an alternative fuel in Colorado by the August 22, 2016 deadline.

The designation of these corridors will be quite helpful in promoting the use of alternative fuels and increasing their mainstream acceptance in the marketplace. It will be a valuable effort in continuing to grow the network of alternative fuel refueling stations, which will make it easier to utilize alternative fueled vehicles throughout the country.

The FHWA is focused on four major criteria when considering these new refueling corridors— Alternative Fuel Facilities, Corridor Scale/Impact, Emissions Reductions, and Development of Team and Degree of Collaboration and Support. As you are developing the nominations from Colorado, please include the effectiveness of propane in meeting these criteria. Below are several reasons why propane is a key fit for Colorado in these corridors. I am happy to discuss these points in further detail.

Alternative Fuel Facilities - There are more than 3,300 public propane fueling locations nationwide, including 27 public vehicle-ready stations open now, and 27 more public stations that can fill AFVs in Colorado. This is in addition to over 100 other fueling locations already utilized by fleets, rental centers and RV campgrounds throughout our state, many of which could also be used for potential public refueling sites. These fueling locations are typically located either along major highways or on feeder roads that connect to the National Highway System. Additionally, refueling infrastructure already meets uniform standards for safety across all manufacturers and providers.

Corridor Scale/Impact – There are a number of feeder routes or roads in Colorado that connect to the National Highway System, which is a part of the criteria FHWA uses that makes a given corridor eligible for designation as an alternative fuel corridor. Developing a national network of propane refueling

points will help expand its use from mainly on road fleets to more universal passenger and commercial travel.

Emission Reductions - Propane engines produce 12 percent less CO₂ emissions, 20 percent less NO_x emissions, and 60 percent less CO emissions than gasoline engines. They also produce 80 percent less smog-producing hydrocarbon emissions than conventional diesel engines.

Development of Team and Degree of Collaboration and Support – The propane industry has an established track record of working with state and national agencies, other alternative fuel industries, as well as public and private entities in increasing the utilization of alternative fuels. A key example of this has been the industry's ongoing work with the Department of Energy's Clean Cities Program and with the Colorado Energy Office.

For the US DOT request for Alt Fuel Corridors planning in Colorado, please consider including the following roads for propane for AFV corridor participation with the state.

I-70, I-25 and I-76, plus

US 40, 285, 24, 50 and 160

Propane is planning to use both new equipment, and upgrades to existing equipment to include credit card access and billing for vehicle fueling.

The deadline for nominations is quickly approaching. I think it is important for Colorado to be an active partner in developing these corridors with the FHWA. It will have a long term, positive impact on the propane and other alternative fuel industries. Please let us know any comments and other thoughts you have for this program, including any other corridors the state or local agencies may want to develop as AFV corridors.

Sincerely,

A handwritten signature in blue ink, appearing to read 'Randy A. Crane', written over a horizontal line.

Randy A. Crane

President

Colorado Propane Gas Association

40 Laurens Street
Charleston, SC 29401

www.cleanenergyfuels.com

Brett G. Barry
Senior Policy Advisor
(562) 522-7427
bbarry@cleanenergyfuels.com



August 19, 2016

RE: Alternative Fuel Corridor Nominations

To Whom It May Concern:

We are writing to support Colorado's nomination of I-70 as an Alternative Fuel Corridor. Clean Energy is North America's largest provider of natural gas transportation fuel. Our portfolio includes 589 stations in 43 states. Approximately 250 of these stations comprise America's Natural Gas Highway (ANGH) a network of truck accessible stations along the major interstate highways which facilitate goods movement. One of the main transcontinental corridors in ANGH is I-70. We have 4 stations along the route in Colorado and 19 stations along its total length.

Our fueling network continues to use more and more renewable natural gas (RNG) which is the lowest carbon intensity fuel available for heavy-duty trucks on the market today. Combined with the arrival of new low NOx engines from Cummins-Westport, ANGH is an extremely effective strategy for combating class 7 and 8 truck emissions.

The designation of I-70 as an alternative fuel corridor will focus attention on one of the heaviest traveled east to west routes in the nation. Access to alternative fuel stations on this interstate makes alternative fuel vehicles feasible to a very large market. Thank you for considering Colorado's request.

Regards,

A handwritten signature in black ink, appearing to read "Brett Barry", is written over a light gray circular stamp.

Brett Barry
Senior Policy Advisor
Clean Energy



ChargePoint, Inc.
254 East Hacienda Avenue | Campbell, CA 95008 USA
+1.408.841.4500 or US toll-free +1.877.370.3802

August 18, 2016

U.S. Department of Transportation
Docket Operations, M-30
West Building Ground Floor, Room W12-140
1200 New Jersey Avenue SE.
Washington, DC 20590

RE: State of Colorado FAST Act Nomination

To Whom It May Concern:

ChargePoint is writing in support of the Fixing America's Surface Transportation (FAST) Act Alternative Fuel Corridor nomination submitted by the State of Colorado. ChargePoint is the world's largest and most open electric vehicle charging network with more than 30,000 Level 2 EV and DC fast charging spots around the country, including 518 public and private ports in Colorado.

Colorado has identified several key highway corridors in its nomination as it seeks to connect drivers in all parts of the state and to its borders with neighboring New Mexico, Wyoming, and Kansas. The goals of this nomination align with ChargePoint's own mission to expand a national network of charging stations and make it possible for drivers to charge wherever they live, work, or travel. Colorado has a strong EV driver population and through the state's policy leadership, we expect that EV adoption will continue to grow rapidly here over the next few years.

ChargePoint is proud to support Colorado and looks forward to ongoing collaboration with the state.

Thank you for considering our support.

Sincerely,

A handwritten signature in black ink that reads "Anne Smart".

Anne Smart
Director, Government Relations and Regulatory Affairs
ChargePoint, Inc.
254 East Hacienda Avenue
Campbell, CA 95008
Phone: 408-858-5076
Email: anne.smart@chargepoint.com