

SH 71 – Truck Freight Diversion Feasibility Study

Preliminary Engineer Cost Estimates

The below costs represent the range to “widen” (lower value) and “rebuild” (higher value) per mile.

- Super 2 - \$1.75M to \$2.7M per mile (additional 14’ roadway width)
- Super 2 with passing lanes - \$2.7M to 4.2M per mile (additional 26’ roadway width)
- Super 2 with center turn lane - \$2.7M to 4.2M per mile (additional 26’ roadway width)
- 4 lane divided - \$4.8M to 7.5M per mile (additional 46’ of roadway width)

All costs are total program costs per mile (design, environmental, ROW, utilities, construction, construction engineering, indirects). This estimate is based on much of the existing corridor with only 26’ wide roadway.

As the project progresses, our team will refine these estimates. Some of the constraints with estimating the corridor in a per mile cost for this level of effort is there are several areas that ROW is undefined, there are several structures on the corridor that were “normalized” to come up with average per mile costs, and existing ROW varies from 40’ to 120’ in width and per mile costs used a “normalized” ROW cost.

CO 71 – Truck Freight Diversion Feasibility Study

Technical Advisory Group

May 9, 2019

1:00 pm to 3:00 pm

East Morgan County Library

500 Clayton St, Brush, CO 80723

1. Introductions

- a. Dan Mattson, CDOT
- b. Xuan Kong, CDOT
- c. Kathy Gilliland, CDOT
- d. Gary Beedy, ETPR
- e. Joe Kiely, Limon and Ports to Plains
- f. Cathy Shull, Pro15
- g. Matt Brown, Stolfus
- h. Myron Hora, WSP
- i. Jamie Grim, WSP
- j. Lisa Nguyen, WSP

2. Intercept Survey Results

- a. Attendees voiced concern regarding the “other” data presented on the slides. There was feedback that showing that the “other” data points did not strengthen the presentation, added confusion, and should not be included in presentations to ETPR and the Heartland Express.
- b. There was frustration expressed about the questions asked during the intercept survey. Attendees were upset that there was no question that specifically asked what roadway configurations would cause a truck driver to drive SH 71 or US 385.

3. Travel Demand Modeling

- a. Attendees asked questions pertaining to data used to perform the models. Mr. Kiely expressed frustration with modelling in general and repeatedly brought up the subject of scenario modelling; he is concerned that the models presented do not showcase individual roadway templates specifically. He feels that modelling is too heavily dependent upon historic traffic count data, making it hard to predict true future demand when human behavior and comfortableness are not part of the equation.

- b. ACTION: The WSP team will discuss options with their travel demand modelers to explore how the models can reflect specific configurations and human expectations/behavior.
- 4. CO 71 Update
 - a. Segment 3 Review
- 5. Project Priority Criteria
 - a. Segment 3 Project Ideas
 - i. Mr. Beedy expressed concern that if a project on SH 71 is small or only meets basic expectations, the project will quickly draw more trucks than it can handle, i.e. the improved stretch of 287
 - ii. Matt Brown from Stolfus suggested developing a “tiered” system for prioritizing projects.
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 - a. Finish travel demand modeling
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 - i. FLAP grant
 - 1. May not be most cost-effective solution currently, but CDOT will see if other funding is available to pursue
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 - a. Throughout the meeting there was a general sense of frustration because the committee members feel that the goal of the projects seems to have moved away from the original intention. They would like to see the six scenarios that were discussed at the outset of the project.
 - b. Mr. Beedy asked what the overall goal of the project was: to draw traffic for the front range or to spur economic development? The 385 coalition is focused on economic development whereas it seems like the 71 project is looking at diversion.
 - c. Mr. Kiley asked why the 385 group and the SH 71 group are different? Are there opportunities to have joint meetings?



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- d. Mrs. Gilliland noted the Transportation Commission will be traveling in Region 4 in June, and seeing part of SH 71.



SH 71 – Truck Freight Diversion Feasibility Study

Technical Advisory Group (TAG)

Meeting Minutes

November 13, 2018

1:30 pm to 3:00 pm

East Morgan County Library

500 Clayton St, Brush, CO 80723

1. Introductions

- a. Dan Mattson, CDOT
- b. Heather Paddock, CDOT
- c. Everett Bacon, Weld County
- d. Gary Beady, ETPR
- e. Joe Kiley, Limon and Ports to Plains
- f. Cathy Shull, Pro15
- g. Dale Colerick, City of Brush
- h. Myron Hora, WSP
- i. Randy Grauberger, WSP
- j. Ryan Mulligan, WSP
- k. Lisa Nguyen, WSP

2. Project Overview

- a. Project Overview – Dan provided an overview of the Ports-to-Plains corridor, particularly its relevance to freight delivery.
- b. Heartland Expressway – Recently opened improvements
 - i. Study of Super 2 between Alliance and Chadron (60-70 miles)
 - ii. Improvements are programmed and Nebraska has an INFRA grant to help
 - iii. South Dakota section is improved 4-lane highway
- c. Project schedule and costs (To be sent out to the group after the meeting)
 - i. Action: WSP/Dan to send out presentation to group
 - ii. Total: \$348M - \$542M (average \$445M)



d. Without either ballot measure passing, funding will be tougher

3. SH 71 Freight Study Findings

a. Assumptions- Only looked at long-haul multi-unit trucks (MUTs)

i. Freight Analysis Framework for truck commodity info

ii. Data from CDOT (OTIS) and field counts

b. 2016 – Base Year vs 2040 – Future Base Year

i. Assumes organic growth and no change to trip patterns

c. Speed Reductions

i. Modeled 10% and 7% speed reductions in Front Range (I-25) through a 0.90 and 0.93 speed factor (respectively); this accounts for a 24-hour aggregate in speed reduction- not just peak-hour

d. Modeling Results

i. S1: SH 71 speeds increase 65 mph to 70 mph

ii. There is no “S2” scenario; this was eliminated previously

iii. S3: Apply 10% speed reduction to Front Range (0.90 speed factor)

iv. S3A: Apply 7% speed reduction to Front Range (0.93 speed factor)

1. ACTION: Follow-up on map hand-outs for S3A - SH 71 north of Brush is not shown on map- should be a positive minor increase in volumes

v. S4: SH 71 speed increase (65 to 70 mph) + 10% speed reduction

1. ACTION: Follow-up on maps (issues with map)

vi. S4A: SH 71 speed increase (65 to 70 mph) + 7% speed reduction

1. ACTION: Follow-up on maps (issues with map)

vii. Take-aways: Regardless of what happens on the I-25 corridor, the investment on SH 71 will draw trucks to the corridor

viii. Autonomous vehicles & trucks – did we include this in the model? (Gary)

1. Perhaps SH 71 may be a good candidate for car-to-car or autonomous vehicles. A big item for AV is striping improvements (Heather)

e. Select Link Analysis – Shows where SH 71 or I-25 origin-destination data correlates to traffic patterns

4. Initial Survey Results

a. About 1 in 3 truckers is willing to complete the survey



b. Comments & Feedback

- i. Joe was concerned that the SH 71 TAG wasn't able to partake in comments; schedule was busy (conference and election) and unable to meet comments deadline
- ii. Was told that his comments would be addressed before the survey started
- iii. 287 isn't shown out of Dumas and up from Amarillo; only 385
- iv. Doesn't show US 83 route that Everett is familiar with
- v. Why aren't there major connectors to Denver? Burlington? I-70 is missing. US 50, US 34, SH 14 are missing, too.
- vi. This survey seems biased toward US 385 with larger symbols, and not SH 71
- vii. Let's course-correct and get a new map; we will not be using this old map. We will not use the data that was taken up through today- and will be using new survey data from here forward (Heather)

1. ACTION: Update the map, address comments on the questions, and get buy-off from SH 71 TAG

- viii. Joe: These are two different studies about two different things- can we have this shared with the truckers

- c. Moving forward- maybe need to consider have SH 71 and US 385 stakeholder groups in one, larger meeting (Heather)
- d. Goal is not to fight about US 385 vs SH 71, but goal is to get investment toward Eastern TPR (Heather)

5. Potential Projects

- a. Realign at Limon
 - i. Look at potential options
 - ii. Port may be relocated; could consider what to be done here
 - iii. Previous study from CSU Senior Design class provided options for Limon realignment
- b. Bridge repairs MP 102.3
- c. Passing lanes from Limon to Brush
 - i. Estimate 2-3 miles for passing lane design
- d. Shoulders and turn-outs
 - i. Shoulders need to be minimum of 10 feet wide for freight; could be wider to improve safety of truck drivers (Gary)



- e. Repair and repave
- f. Realign at Brush
 - i. Route 1- may run into some property owner issues
 - ii. Park to be developed from old feed lot and develop north of Brush along east side of SH 71. They are acquiring sufficient ROW to allow for an improved (widened) SH 71.
- g. Consider flood plains in Brush

6. Other Questions/Comments

- a. Ports-to-Plains is looking to have the entire route designated as an Interstate
 - i. What are the implications of Federal funding?
 - ii. May only be segments, TBD
 - iii. What are the implications if Colorado isn't involved and the "new interstate" ends at Raton, NM?
 - iv. What would impact to ROW be? Costs?



SH-71 PRIORITY PROJECTS

R4 Central Greeley Residency

2018/11/13



AGENDA

1. Introduction
2. SH-71 Freight Study Findings
3. Initial Survey Results Discussion
4. SH-71 Potential Projects



1. Introduction

High Priority Corridors:

- *Heartland Expressway Corridor*
- *Ports to Plains Corridor*
- *Theodore Roosevelt Expressway*





Ports-to-Plains (PTP)

PTP Alliance Corridor is a high-speed highway corridor that

- promotes and enhances domestic and international trade in North America
- provides connectivity to east/west interstate system components
- provides an essential economic development tool for the rural Great Plains
- improves Homeland Security throughout the Great Plains by connecting metropolitan cities and regional trade centers from Canada to Mexico via the Great Plains.

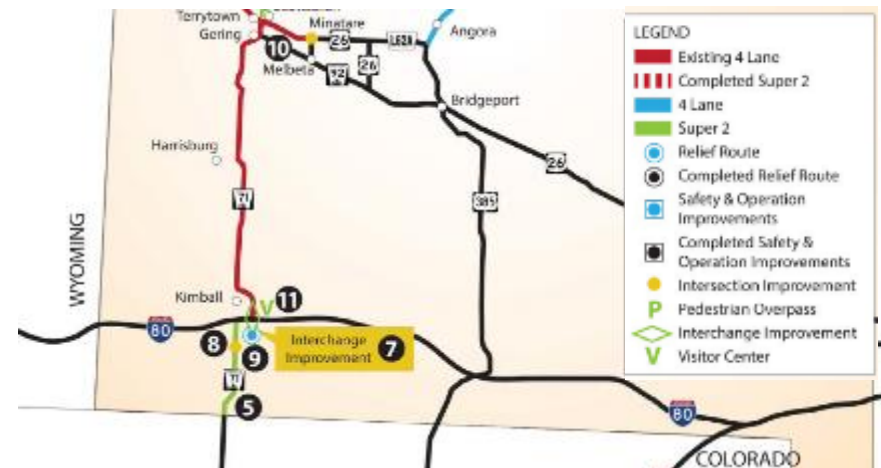


Heartland Expressway

- Connects Denver, Colorado Springs, and the PTP Corridor to Rapid City.
- Provides an essential economic development tool for **rural areas** in Colorado, Nebraska, South Dakota, and Wyoming.
- Provides an opportunity to **improve the efficiency and reliability of freight movements**. A rural route to bypass urban congestion along the I-25 corridor will provide opportunities for trucking companies to improve the efficiency and timeliness of shipments within the critical freight network.
- **Nebraska is making improvement on 71**



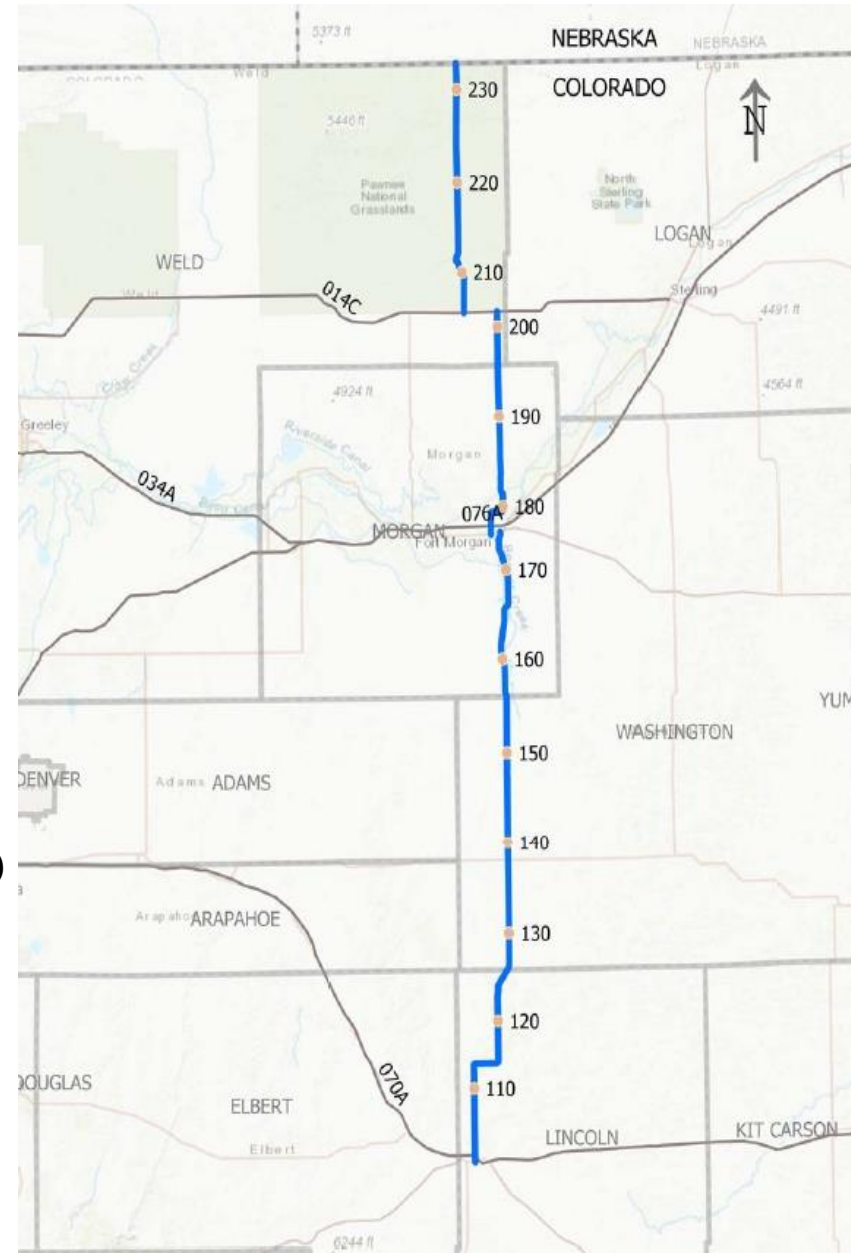
Nebraska Project Implementation Plan 2015-2020





Project Schedule and Costs (in 2017 dollars)

- Limon to Brush: \$194M - \$302M
Design and Construction 2019 - 2024
- Brush to SH 14: \$78M - \$122M
Scheduled 2026-2029
- SH 14 to Nebraska: \$76M - \$118M
Scheduled 2028-2032
- TOTAL: \$348M - \$542M (averages \$445 M)





2. SH-71 Study Findings



- SH 71 represents a segment of the Heartland Expressway, the Ports-to-Plains (P2P) Alliance. SH 71 from Limon north to the Colorado-Nebraska state line is the only **unimproved section** of the P2P Corridor.
- CDOT is studying potential safety enhancements and roadway improvements to lure freight traffic and spur economic development throughout the length of the **130-mile corridor**.
- The highway can be split into **three logical segments**:
 - Limon to Brush
 - Brush to SH 14
 - SH 14 north to the Colorado-Nebraska state line
- Improvements can be completed in **multiple phases**.



SH-71 Freight Diversion Study - Traffic Model Findings





Contents

- Assumptions and Model Background
- Scenarios
- Results
- Select Link Analysis

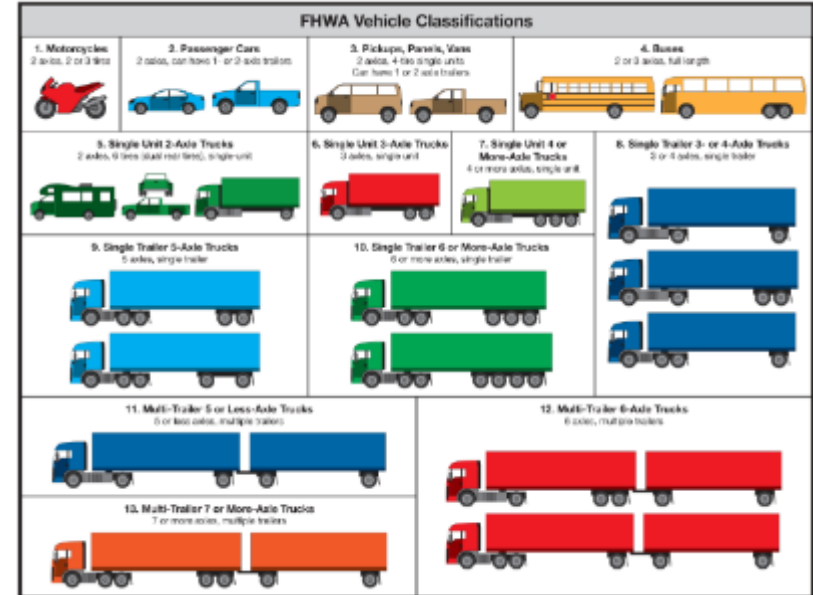
Assumptions

- Multi-Unit Trucks (MUTs) alone are modeled.
- 2016 base year was validated to recent MUT counts:
 - Over 130 CDOT counts
 - 10-15 Wyoming and Nebraska I-80 counts
 - Custom counts in the SH-71 study corridor
- CDOT's Colorado Statewide Model zone system and network are adapted. Base year CDOT statewide network used throughout.
- Daily (24-hour) model; Denver area tolls are not used.
- SH-71 is the focus with I-25 also tabulated to capture diversion effects.
- Segment geography established for reporting purposes.
- Shortest path using time is used for assignment. Starting point was posted speeds from NHPN⁽¹⁾ expanded into Colorado.
- Demand tables are extracted from the most recent Freight Analysis Framework (V4.3) truck commodity flow data.

1. NHPN - National Highway Planning Network, <https://www.fhwa.dot.gov/planning/processes/tools/nhpn/>

Definition of Multi-Unit Trucks

CDOT Category	FHWA ID	Description
Passenger Vehicles	Class 1	Motorcycles
	Class 2	Passenger Cars
	Class 3	Other Two Axle, Four Tire Single Unit Vehicles
Single-Unit Trucks	Class 4	Buses
	Class 5	Two Axle, Six Tire, Single Unit Trucks
	Class 6	Three Axle Single Unit Trucks
	Class 7	Four or More Axle Single Unit Trucks
Multi-Unit Trucks	Class 8	Four or Fewer Axle Single Trailer Trucks
	Class 9	Five Axle Single Trailer Trucks
	Class 10	Six or More Axle Single Trailer Trucks
	Class 11	Five or fewer Axle Multi Trailer Trucks
	Class 12	Six Axle Multi Trailer Trucks
	Class 13	Seven or More Axle Multi Trailer Trucks



Source: FHWA: Office of Highway Policy Information, Travel Monitoring and Surveys Division

Scenarios

- 2016 Base Year
 - Establishes a validation year
 - Captures existing conditions
- 2040 Future Base
 - Consistent with CDOT future year
 - Reports on growth in trucks 2016-2040
- 2040_S1: speed increase on SH-71 (65 to 70 MPH)
- 2040_S3: applies .90 speed factor/congestion in Front Range
- 2040_S3A: applies .93 speed factor/congestion in Front Range
- 2040_S4: 2040_S1 + 2040_S3
- 2040_S4A: 2040_S1 + 2040_S3A

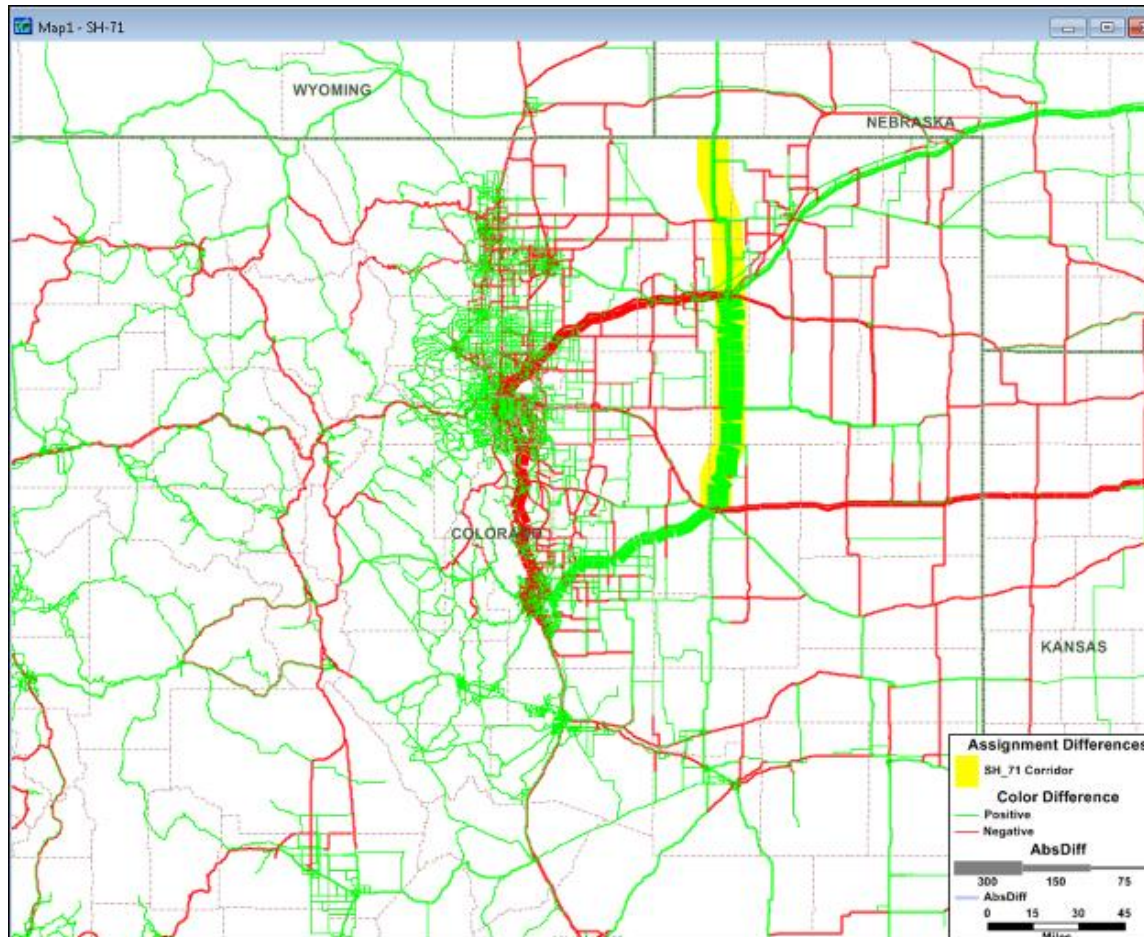


2016 and 2040 Base Scenarios Comparison

- 2016 MUT traffic at 272 directional locations validated to within plus or minus 2% of total observed MUT traffic.
- MUTs on SH-71 grow from 210 to 313.
- MUTs on I-25 grow from 2,667 to 4,861.
- Truck VMT Change 2016 to 2040
 - SH-71: 49%
 - I-25 : 82%

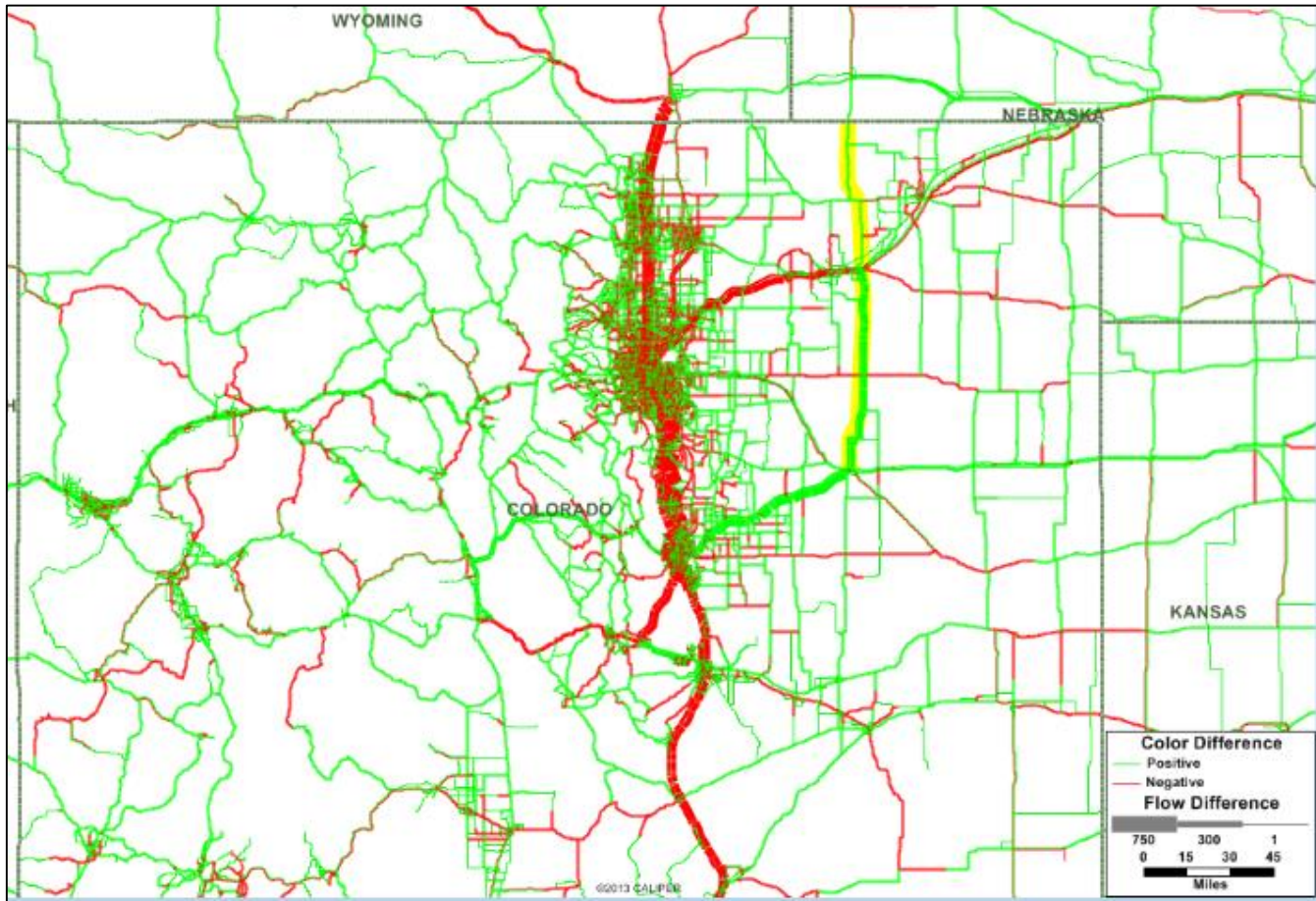
2040_S1: SH-71 speed increase 65 to 70 mph

- MUT trips to/from Colorado Springs and points south use US-24 and SH-71 instead of I-76.
- SH-71 Limon to Brush performs best of the three segments.
- Big picture: I-70 loses MUTs in Kansas while I-76 and I-80 gain them in Colorado and Nebraska as the trucks travel to and from points east.



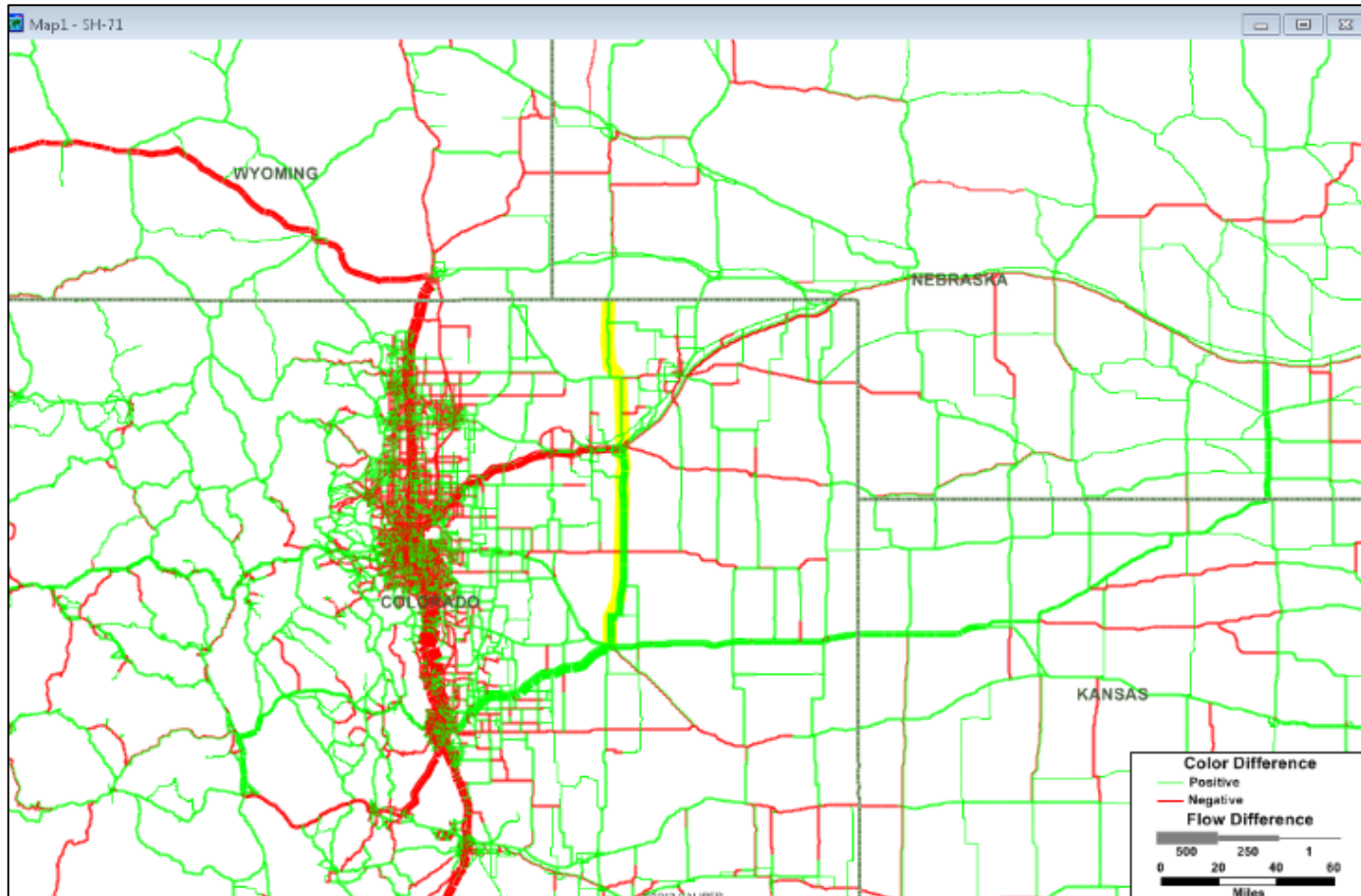
2040_S3: *Front Range congestion .90 speed factor*

- MUT trips to/from Colorado Springs and points south use US-24 and SH-71 instead of I-76.
- I-70 is replacing I-80 for some MUT trips.
- SH-71 Limon to Brush performs best of the three segments.
- In Denver, a **shifting of MUT trips off of I25 and I76**, with increased use of regional arterials.

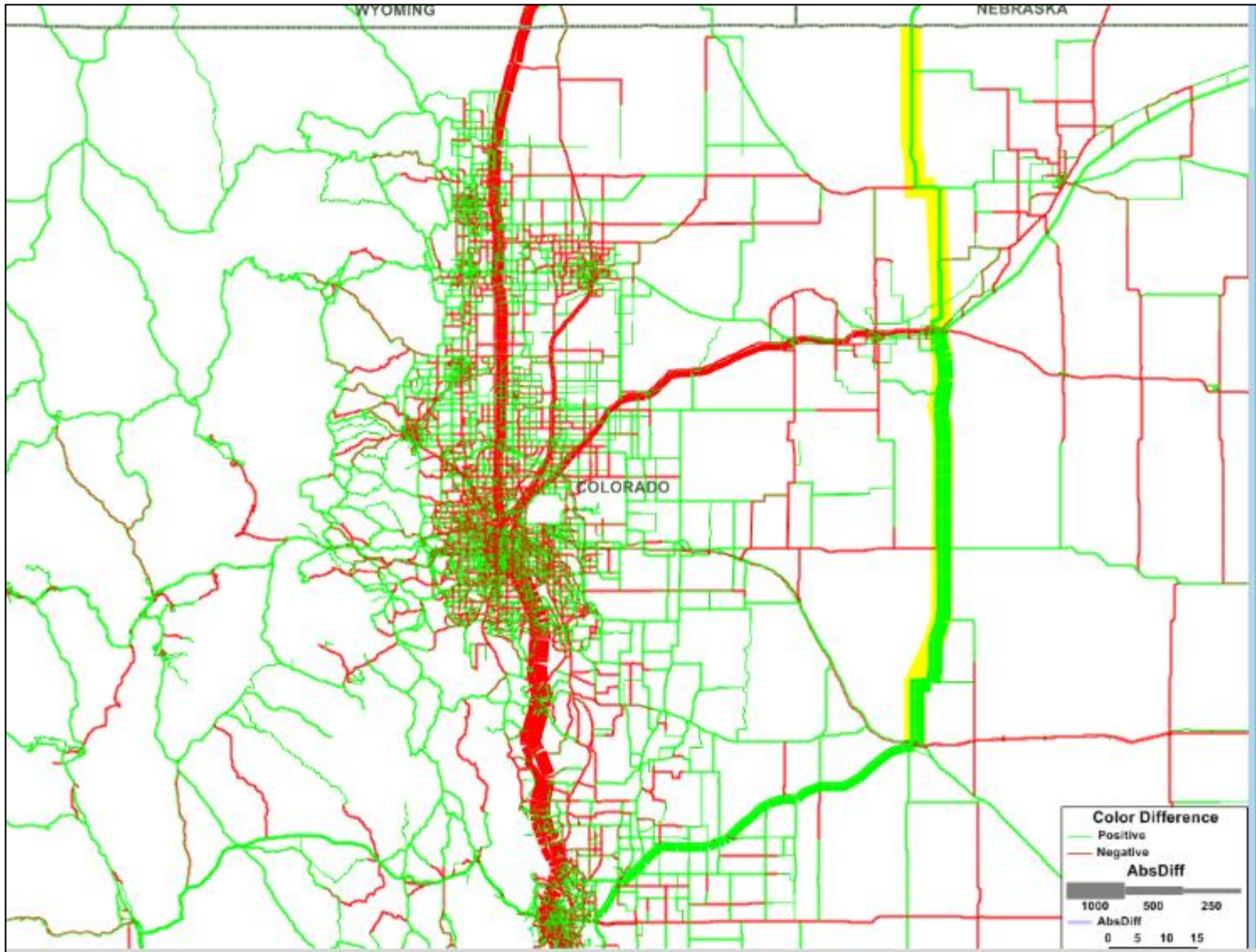


2040_S3A: *Front Range congestion .93 speed factor*

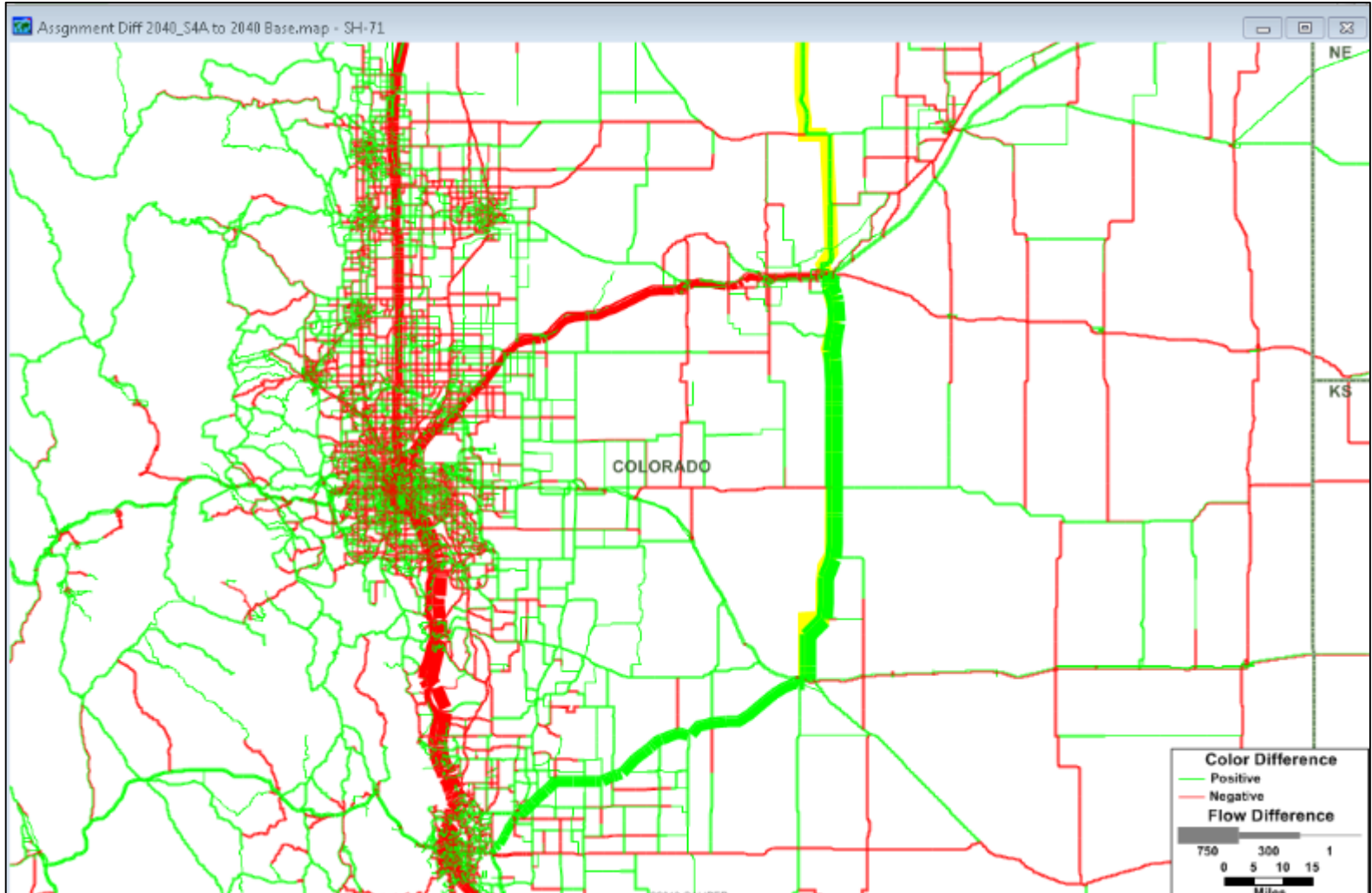
- Similar to 2040_S1 and 2040_S3 but with a larger magnitude of shifted MUT trips.
- MUT trips to/from Colorado Springs and points south use US-24 and SH-71 instead of I-76.
- SH-71 Limon to Brush performs best of the three segments.
- In Denver, a shifting of MUT trips off of I25 and I76, with increased use of regional arterials.



2040_S4: Speed increase + .90 speed factor



2040_S4A: Speed increase + .93 speed factor





Top Summary

SH-71 MULTI-UNIT TRUCK (MUT) TRAFFIC REPORT SUMMARY			
30JAN2018			
Scenario	Description	Average Daily MUT Traffic on SH-71	Average Daily MUT Traffic on I-25
		Sum of both directions	one direction
2016 Base	Validation of Base Conditions for Multi-Unit Trucks	210	2,667
2040 Future Base	2040 Future Base to verify MUT Growth	313	4,861
2040_S1	SH-71 Speeds set to 70 MPH from 65*	632	4,798
2040_S3	Congestion in the populated Front Range area (.90 speed multiplier)**	518	4,481
2040_S3A	Congestion in the populated Front Range area (.93 speed multiplier)**	476	4,583
2040_S4	Scenario S1 + S3	900	4,441
2040_S4A	Scenario S1 + S3A	833	4,541

* SH-71 local roads set to 45 MPH from 40

** congestion set at either .90 or .93 of free flow speed in both directions to reflect assumed daily speed degradation

Findings from the SH-71 MUT Model

- Average 2040 (three segment, weighted by length) MUT traffic on SH-71 ranges from 313 in the future base to 900 MUTs daily in scenario S4.
- **The speed increase on SH-71 has more influence over truck traffic growth** than does the assumption of congestion in the Front Range. This outcome is due to the distinct MUT markets – see Select Link slides to follow.
- **The Limon to Brush segment of SH-71 consistently attracts the highest number of diverted MUT traffic.** This outcome is due to this segments location between two interstates: I-76 and I-70, as well as to the specific north-south SH-71 market profile.

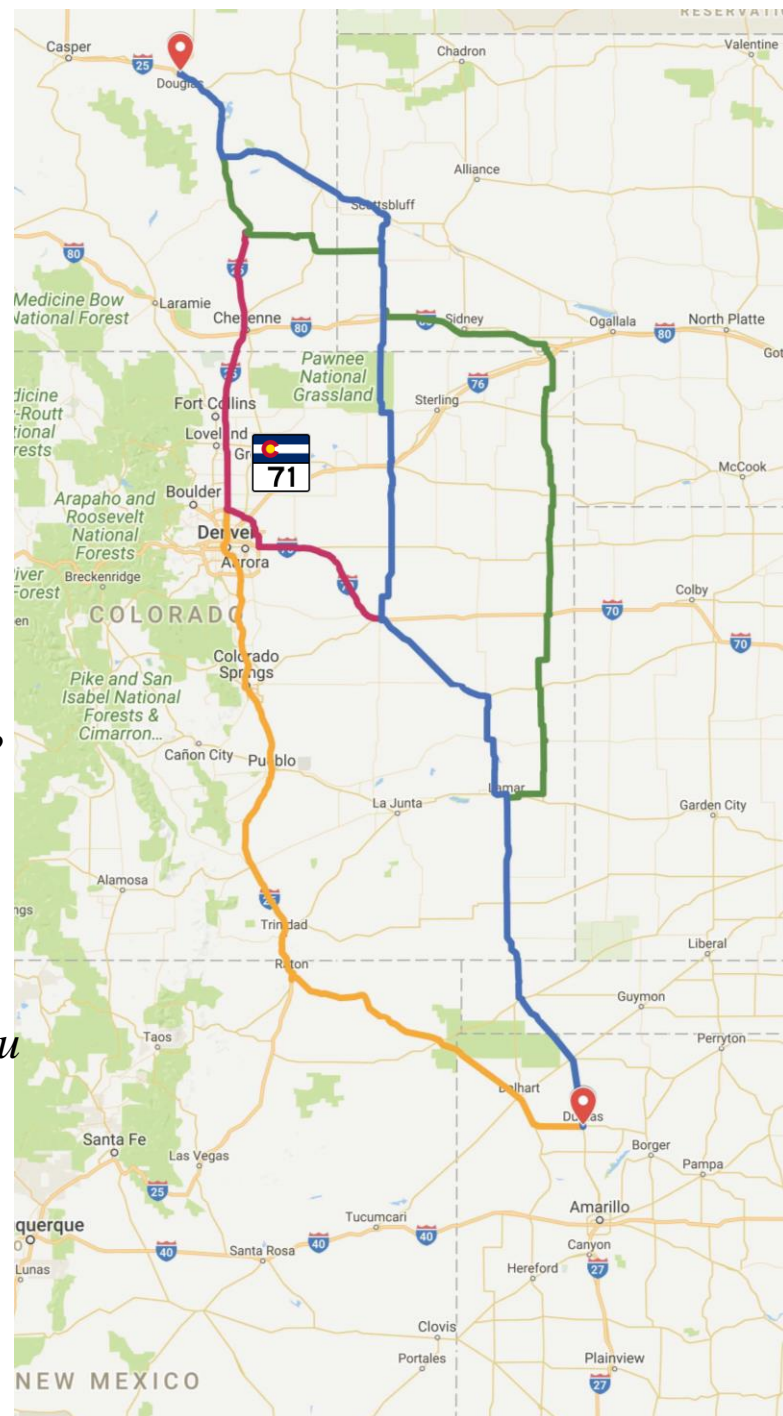


3. Initial Survey Results Discussion



Survey Questions Included:

- *Which route do you plan to take or are taking?*
- *Why do you travel on that highway?*
 - *In which city/state did your load originate?*
 - *To which city(s)/state(s) is your load destined?*
- *What road features are important to your choice of route?*
- *All things being equal, what factors would make you change your route?*





4. Potential Projects



Potential Projects

- Finished and Planned Projects on 71D
- Re-align at Limon
- Bridge repair at MP 102.3
- Resurfacing at MP102-108
- Add passing lanes at MP102-174 (Limon to Brush)
- Add shoulders and turn outs at MP102-174
- Re-align at Brush

Finished and Planned Projects

- Chipseal at MP 123-138 by Maintenance in 2018
- Chipseal at MP 138.2-154.5 (in 2015)
- Overlay at MP 166.3-167.3 by Maintenance in 2018
- Overlay at MP 170.6-171.6 by Maintenance in 2017
- Chipseal at MP 154-174 (in 2019)



Overlay at MP 166.3-167.3



Chipseal at MP 138-154

Re-align at Limon



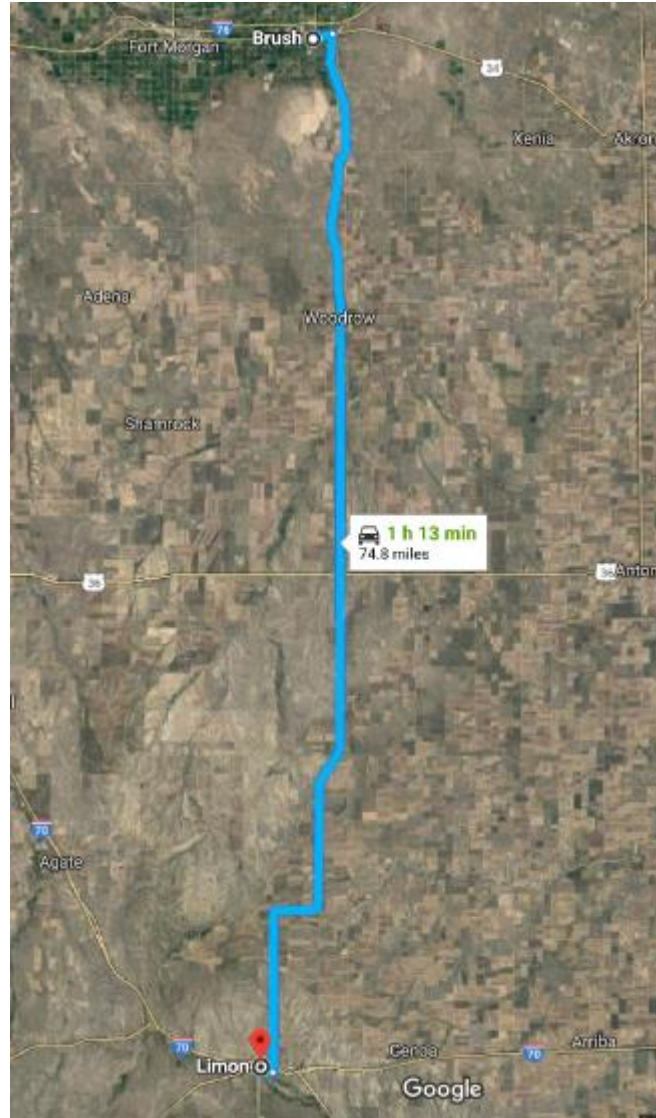
Bridge Repair at MP 102.3 (G-22-BB)



Resurfacing at MP 102-108

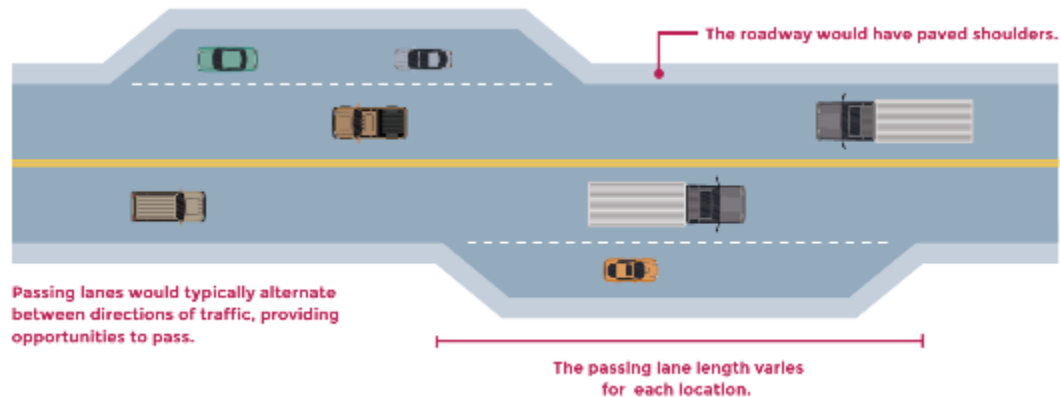


Add passing lanes at MP 102-174 (Limon to Brush)



Advantages of passing lanes

- Previous research in Texas demonstrated that **periodic passing lanes can improve operations on two-lane highways** with average daily traffic (ADT) lower than 5000; these “Super 2” highways can provide many of the benefits of a four-lane alignment at a lower cost.
- Passing lanes provide added benefit at higher traffic volumes, reducing crashes, delay, and percent time spent following.
- Simulation results indicate that **most passing activity takes place within the first mile of the passing lane**, so providing **additional** passing lanes can offer greater benefit than providing **longer** passing lanes.



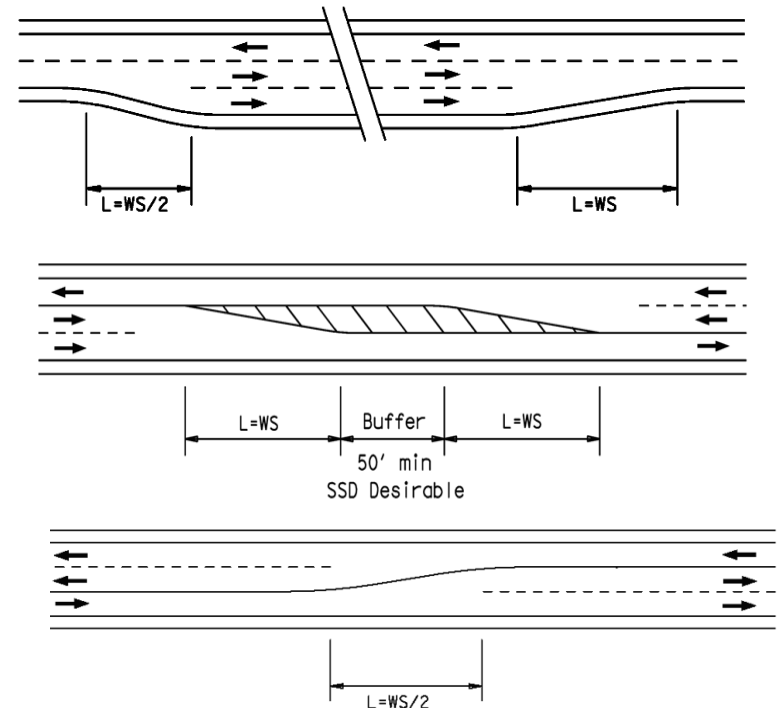
Design Criteria (TxDOT Roadway Design Manual)

	Minimum	Desirable
Lane Width	11 ft	12 ft
Shoulder Width	3 ft ^a	8 - 10 ft
Passing Lane Length	1 mi	1.5 - 2 mi ^b

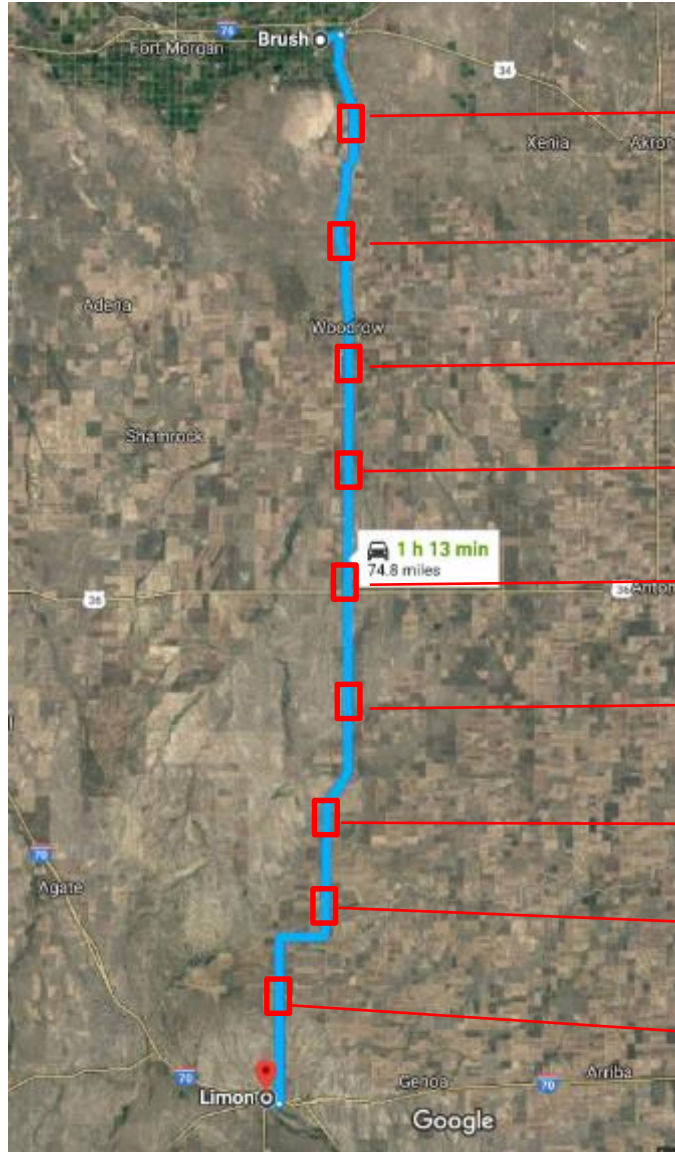
a. Where ROW is limited
b. Longer passing lanes are acceptable, but not recommended more than 4 miles. Consider switching the direction if more than 4 miles.

Recommended values of length and spacing

Two-Way ADT (vpd)		Recommended Passing Lane Length (mi)	Recommended Distance Between Passing Lanes (mi)
Level Terrain	Rolling Terrain		
≤1950	≤1650	0.8-1.1	9.0-11.0
2800	2350	0.8-1.1	4.0-5.0
3150	2650	1.2-1.5	3.8-4.5
3550	3000	1.5-2.0	3.5-4.0



Add passing lanes at MP 102-174 (Limon to Brush)



Passing line NB & SB

MP166-168

MP159-161

MP152-154

MP145-147

MP138-140

MP131-133

MP123-125

MP116-118

MP108-110

**Estimate
\$20-25M**

Add shoulders and turn outs at MP 102-174



Add shoulders (\$15-20M)



Turn outs / Emergency pullouts (\$15-20M)



Add lanes for intersection / Access to community (\$15-20M)



Re-align at Brush



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CO 71 TRUCK FREIGHT DIVERSION STUDY

TECHNICAL ADVISORY GROUP

THURSDAY, MAY 9, 2019



Project Review

- Scope: Analyze and model truck freight movement
- Determine the feasibility of diverting current and future truck freight traffic from the front range onto the SH 71
- Perform high-level environmental scan
- Identify the location, types, and cost of roadway improvements to CO 71
- Forecast the potential economic benefit to the trucking industry and local economies
- Recommend funding options and implementation scenarios.



AGENDA

1. Intercept Survey Results
2. Travel Demand Modeling
3. CO 71 Update
4. Project Priority Criteria
5. Next Steps



By Peter Romero - Own work, CC BY-SA 3.0 <https://commons.wikimedia.org/w/index.php?curid=2840909>

1. INTERCEPT SURVEY



INTERCEPT SURVEY

Methodology

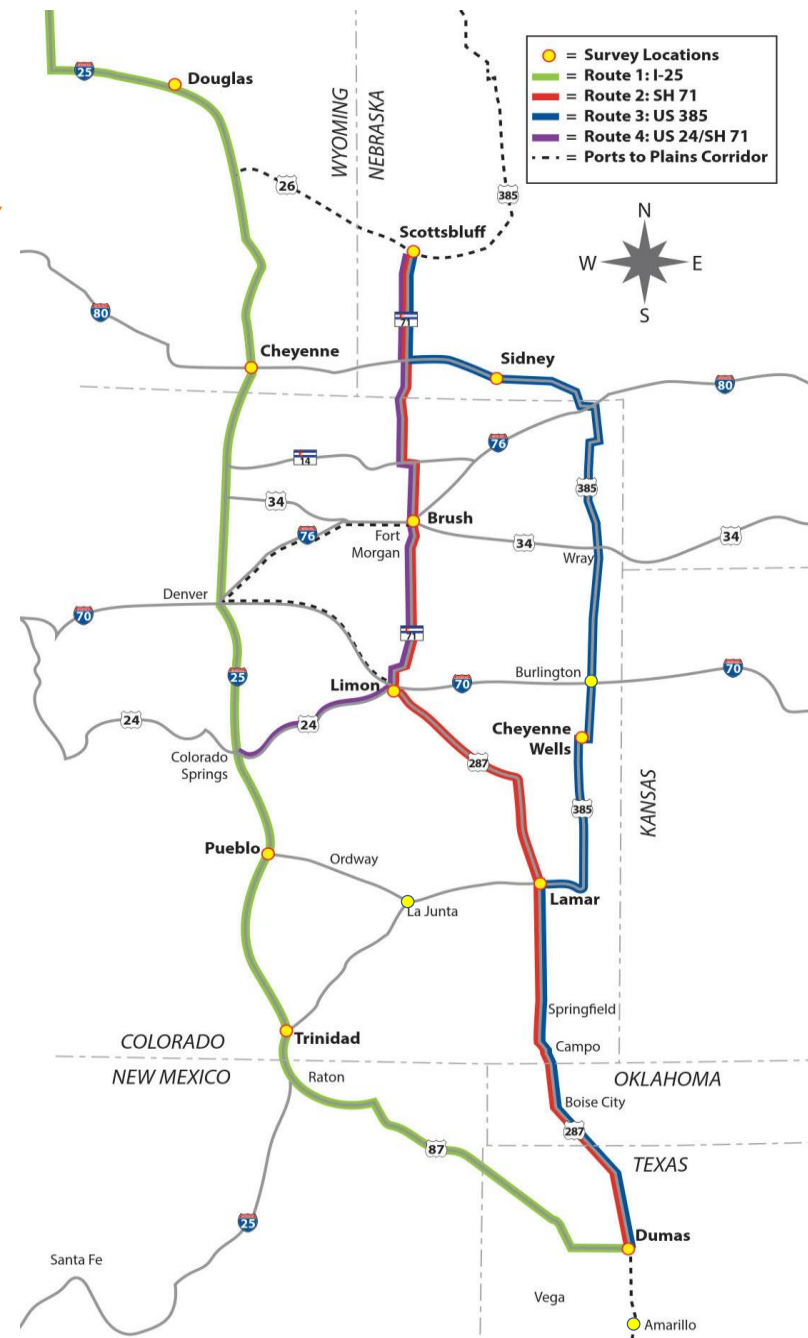
- Include trucker decision points of Dumas, TX; Lamar, CO; Douglas, WY; and Scottsbluff, NE
- Surveyors positioned in truck stops and other areas frequented by truck drivers
- Computer tablets were used to administer the surveys
- **364 valid surveys** collected across 14 locations
- Analysis was aggregated by survey location (city) and by corridor traveled (SH 71/US 385/I-25)



INTERCEPT SURVEY

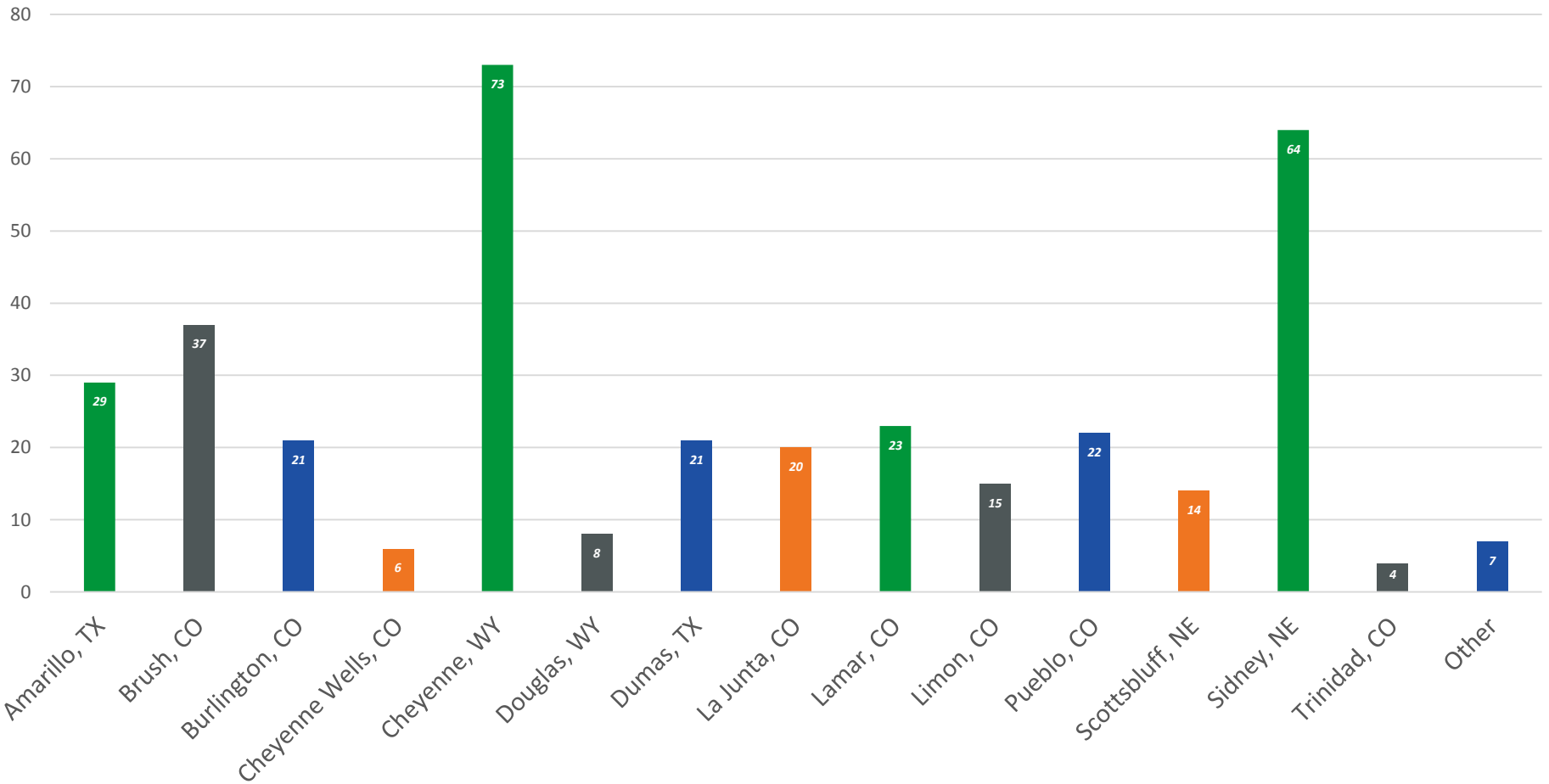
Survey Locations:

- Amarillo, TX
- Brush, CO
- Burlington, CO
- Cheyenne, WY
- Cheyenne Wells, CO
- Douglas, WY
- Dumas, TX
- La Junta, CO
- Lamar, CO
- Limon, CO
- Pueblo, CO
- Trinidad, CO
- Scottsbluff, NE
- Sidney, NE
- Trinidad, CO

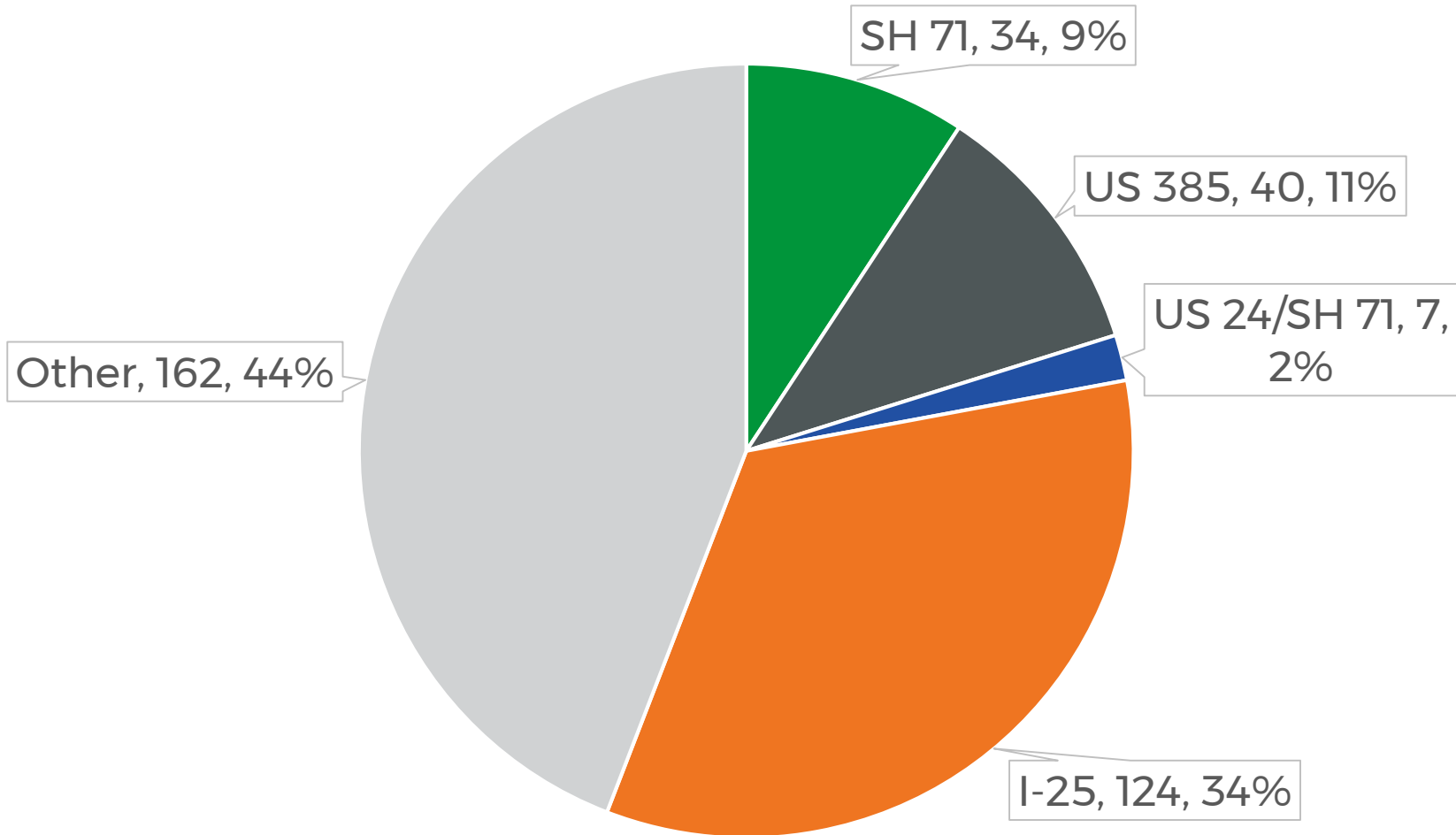




Where are you taking this survey?

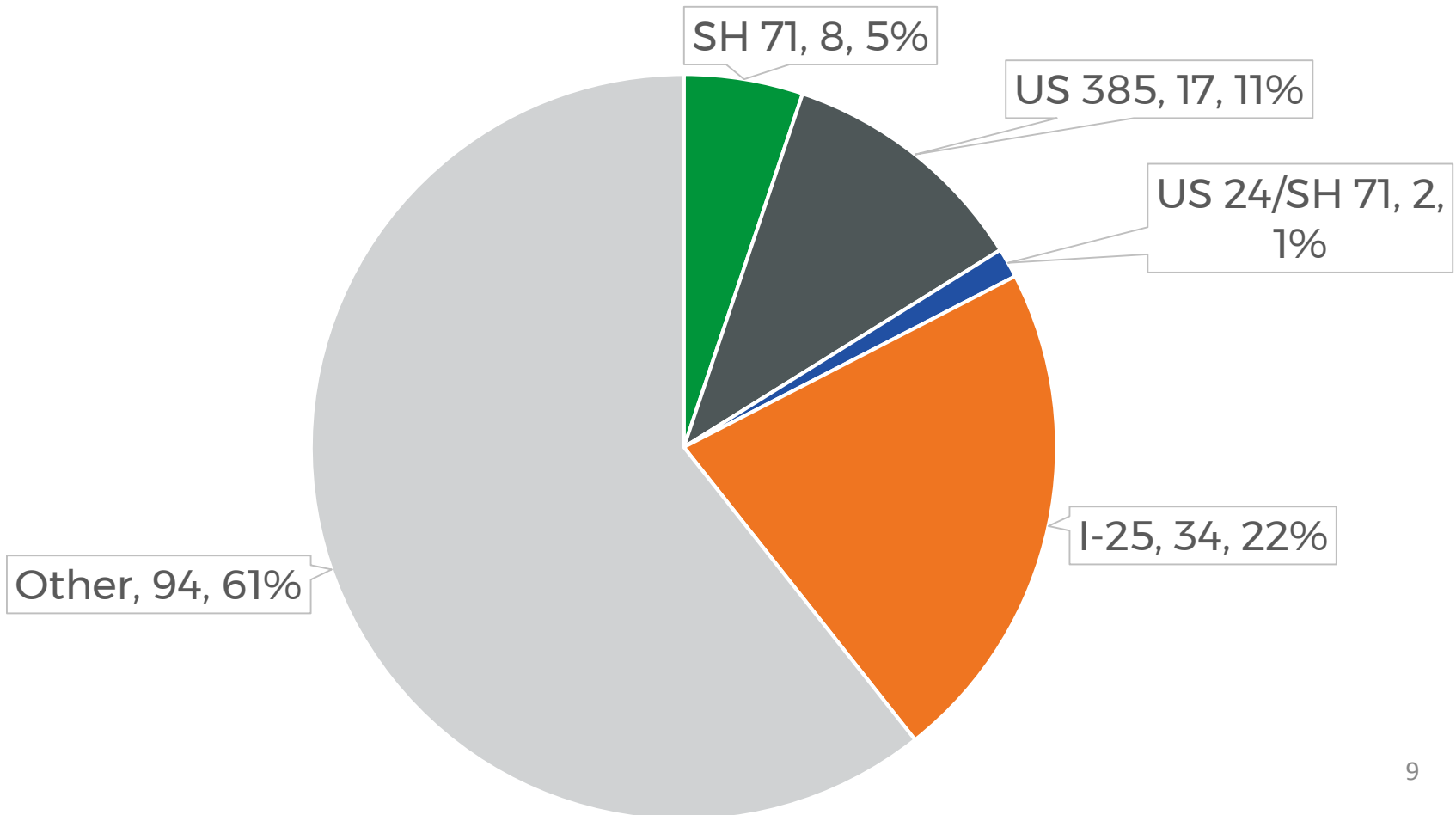


Which route do you plan on taking today? (all responses)



Which route do you plan on taking today? (non-CO O/D)

Route Used (Non-Colorado)



How is your route determined?

Size or Weight of Load
(OS/OW), 16, 3%

Other , 34, 6%

Origin or
Destination,
123, 20%

Safety, 33, 5%

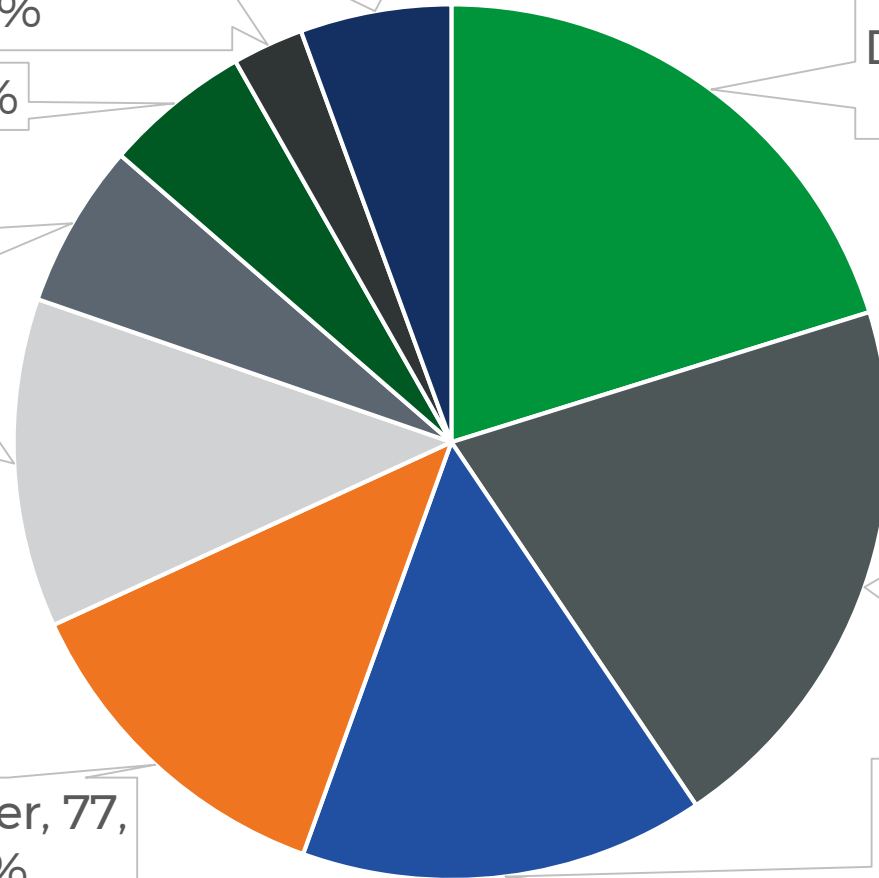
Time of Day, 37,
6%

Familiarity with
Route, 74, 12%

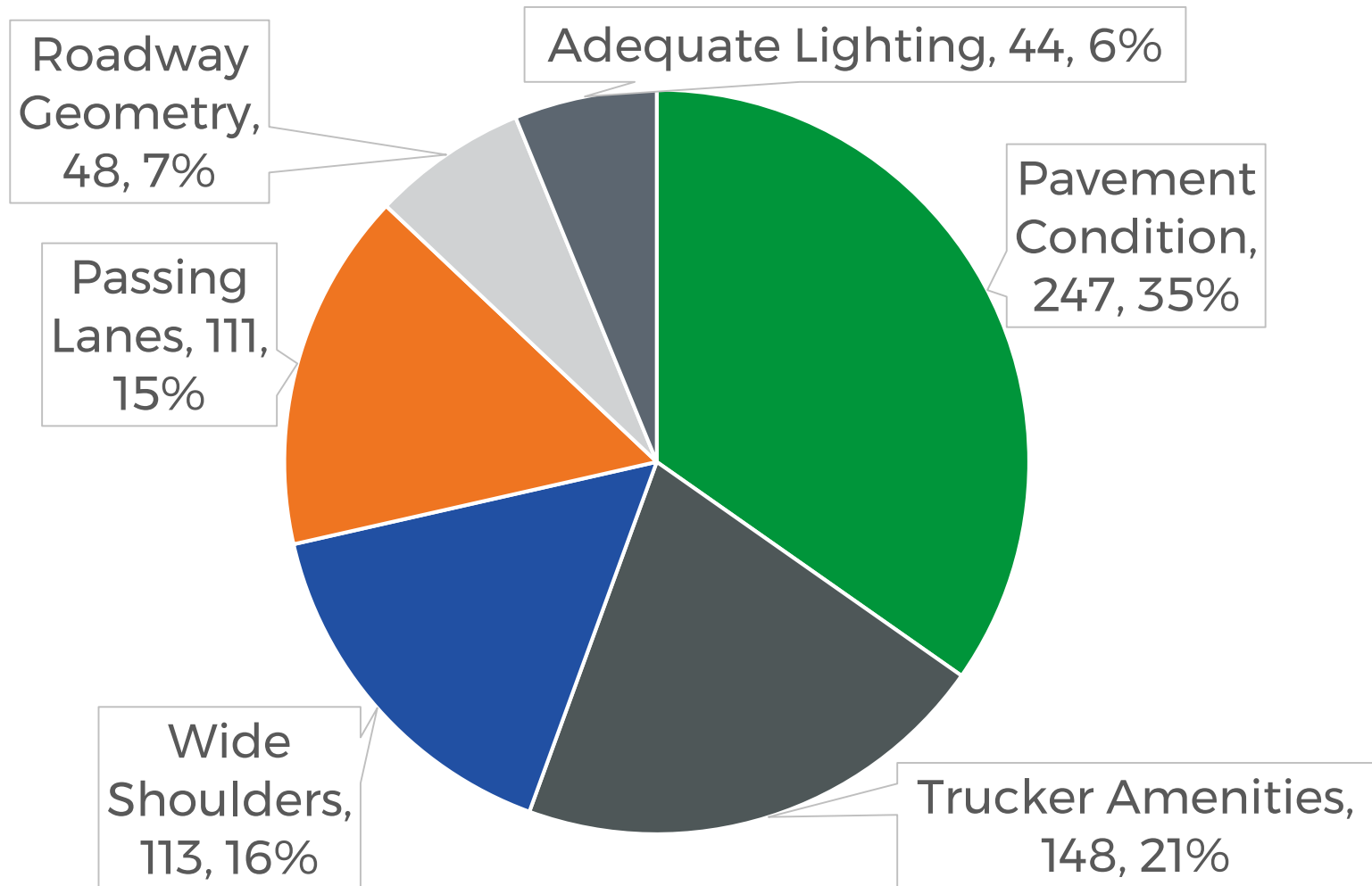
Employer, 124,
20%

Weather, 77,
13%

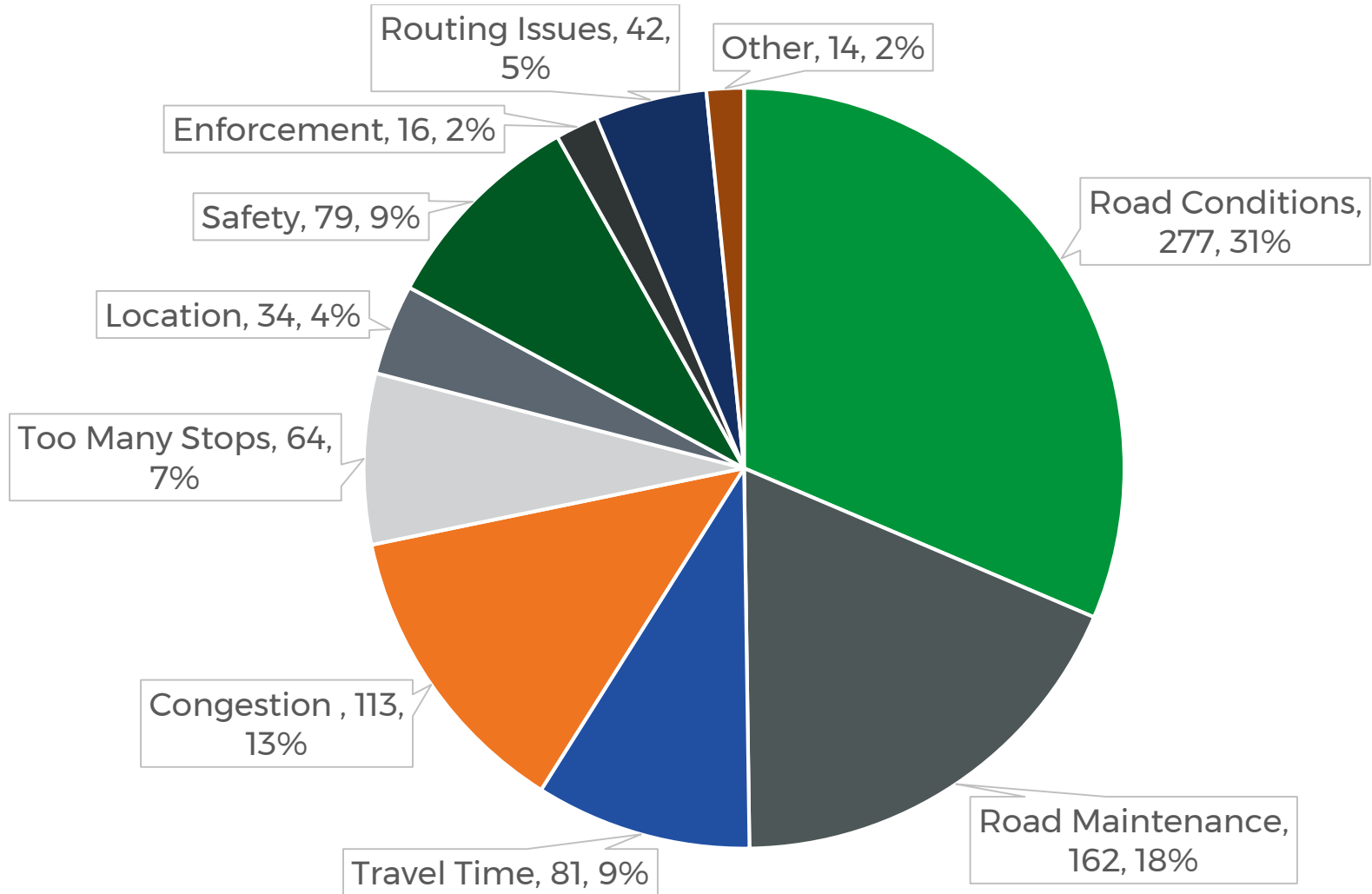
Travel Time
Reliability, 91,
15%



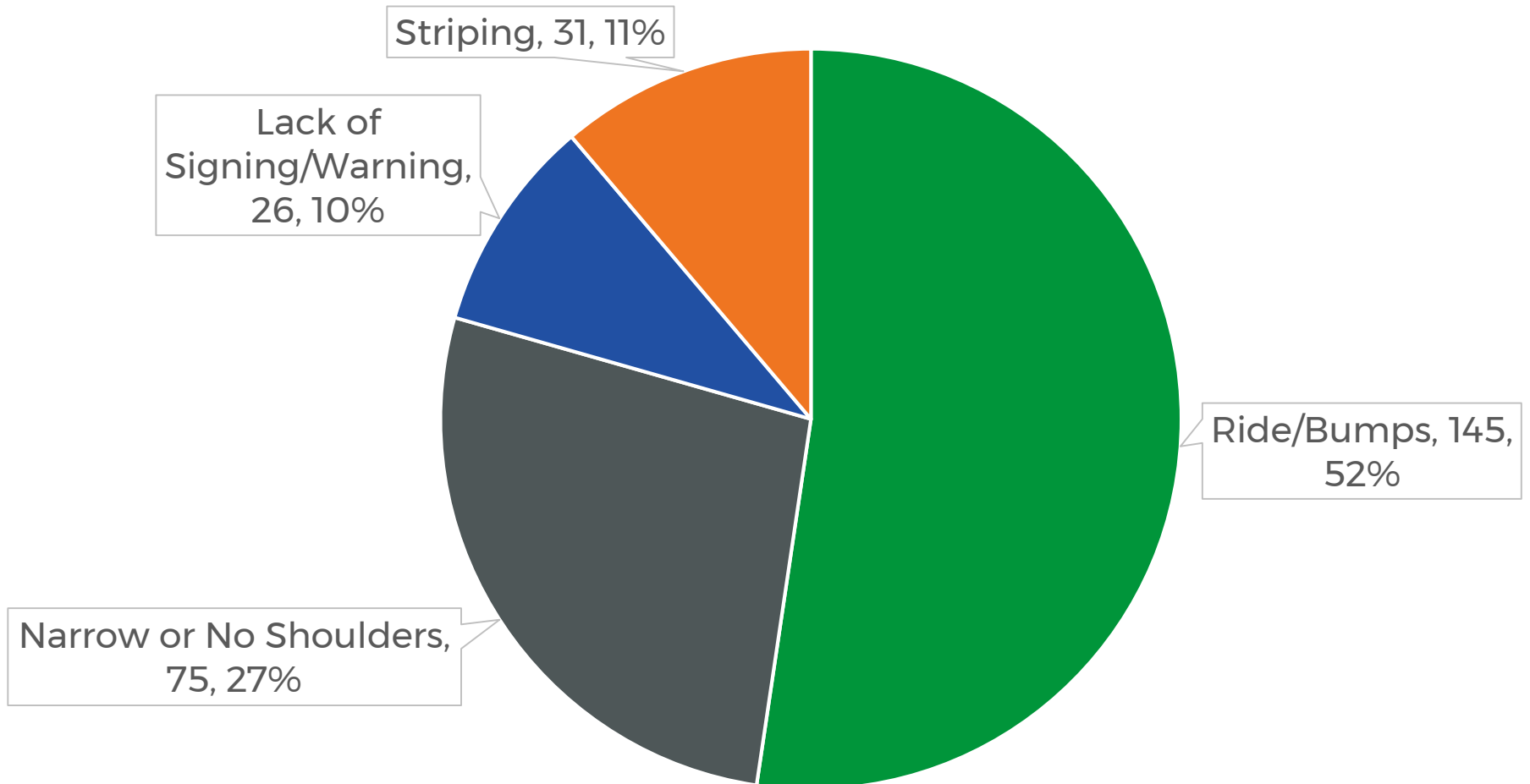
What road features are important to your choice route?



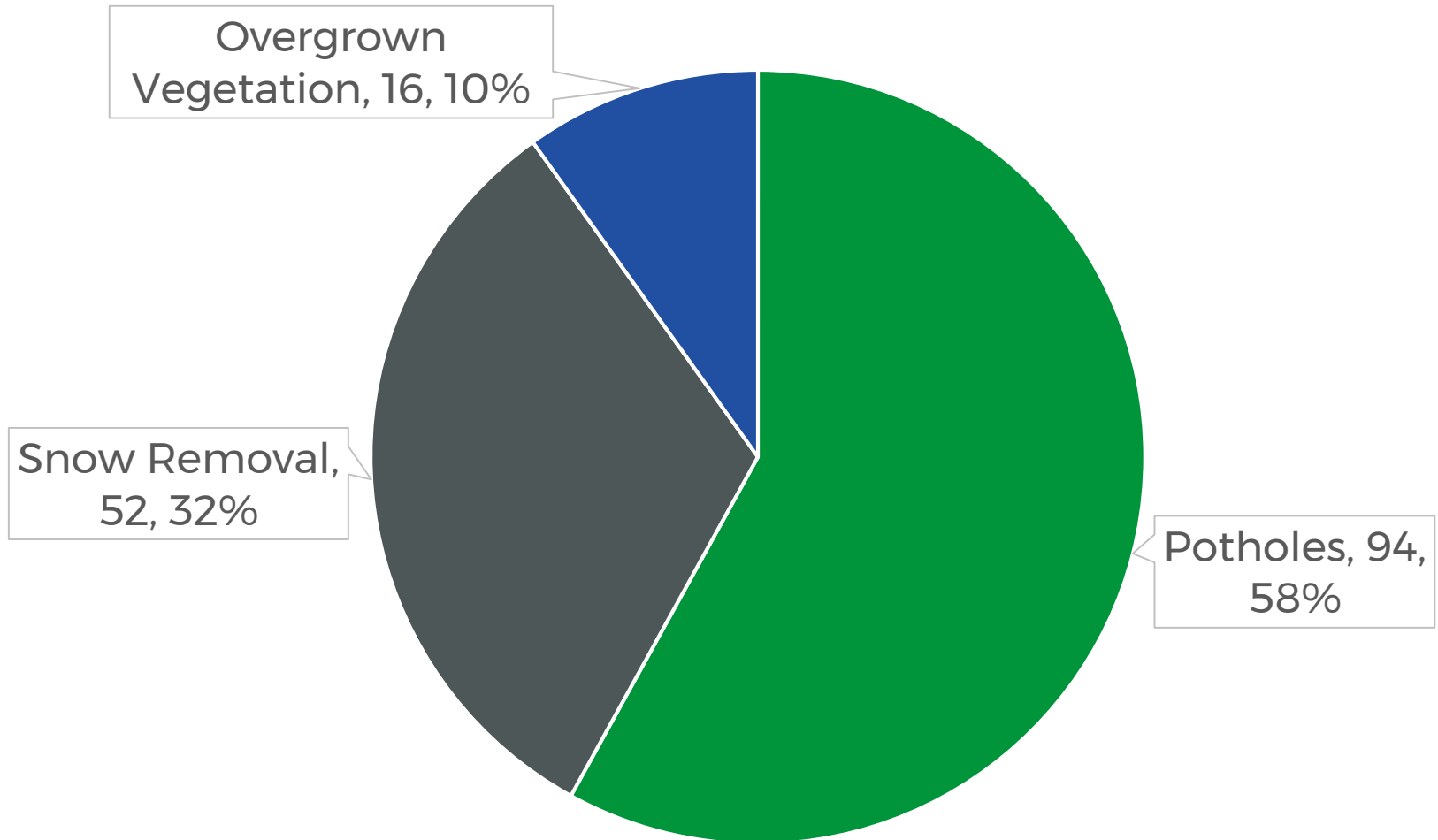
Why do you avoid certain highways?



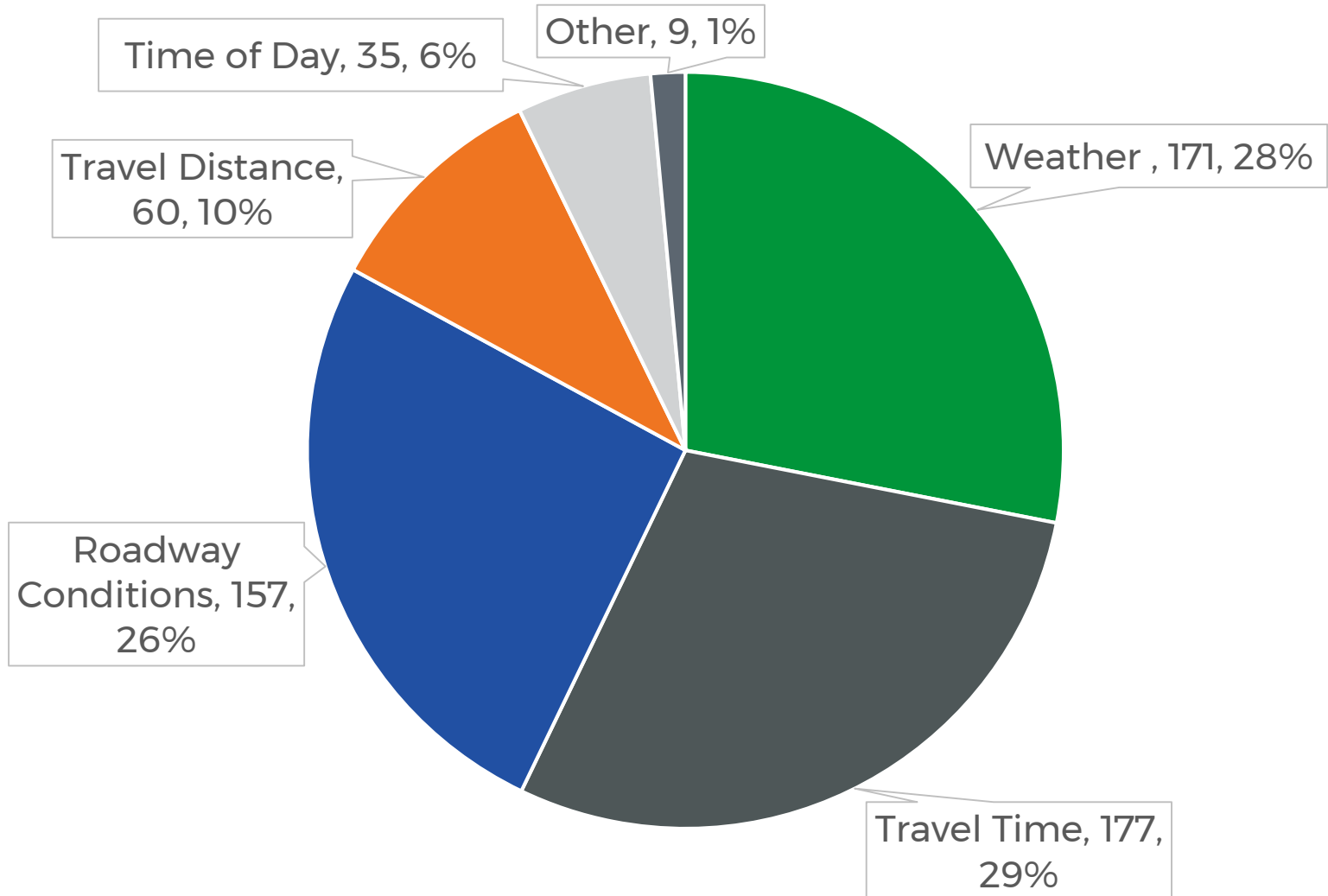
Why do you avoid certain highways? *(Road Conditions Detail)*



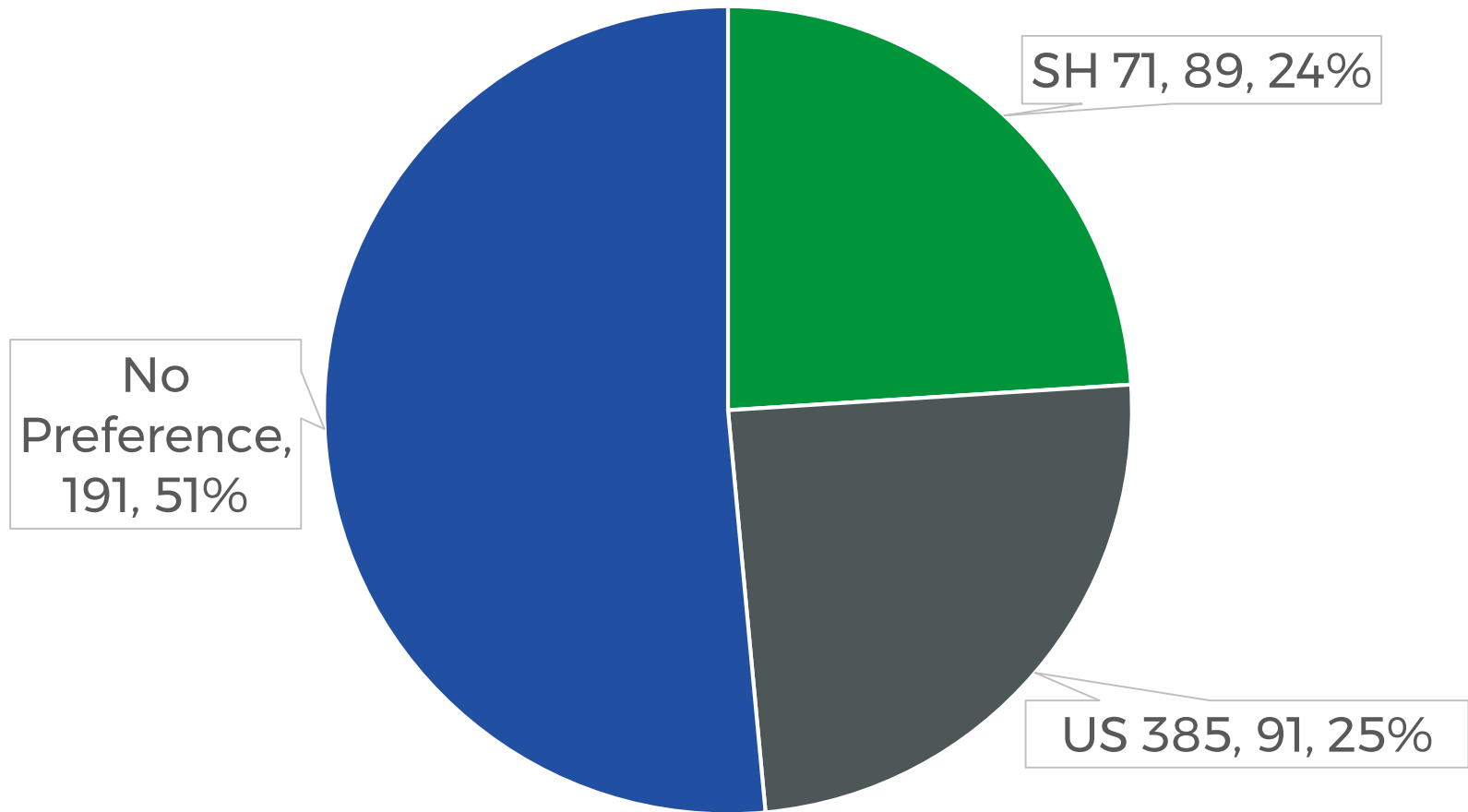
Why do you avoid certain highways? *(Road Maintenance Detail)*



All things equal, what factors would make you change your route?



If significant improvements were made to both SH 71 and US 385, which would you prefer?



INTERCEPT SURVEY

Conclusions

- Results suggest that improvements would lure north/south truck traffic to either SH-71 or US 385
- Improved travel time and roadway conditions were identified as the most influential reasons to draw truck traffic
- Rideability/Pavement condition was identified as the most important roadway condition that draws truckers to a corridor
- Passing lanes, shoulders, trucker amenities were evenly ranked as the next most important draw for truckers



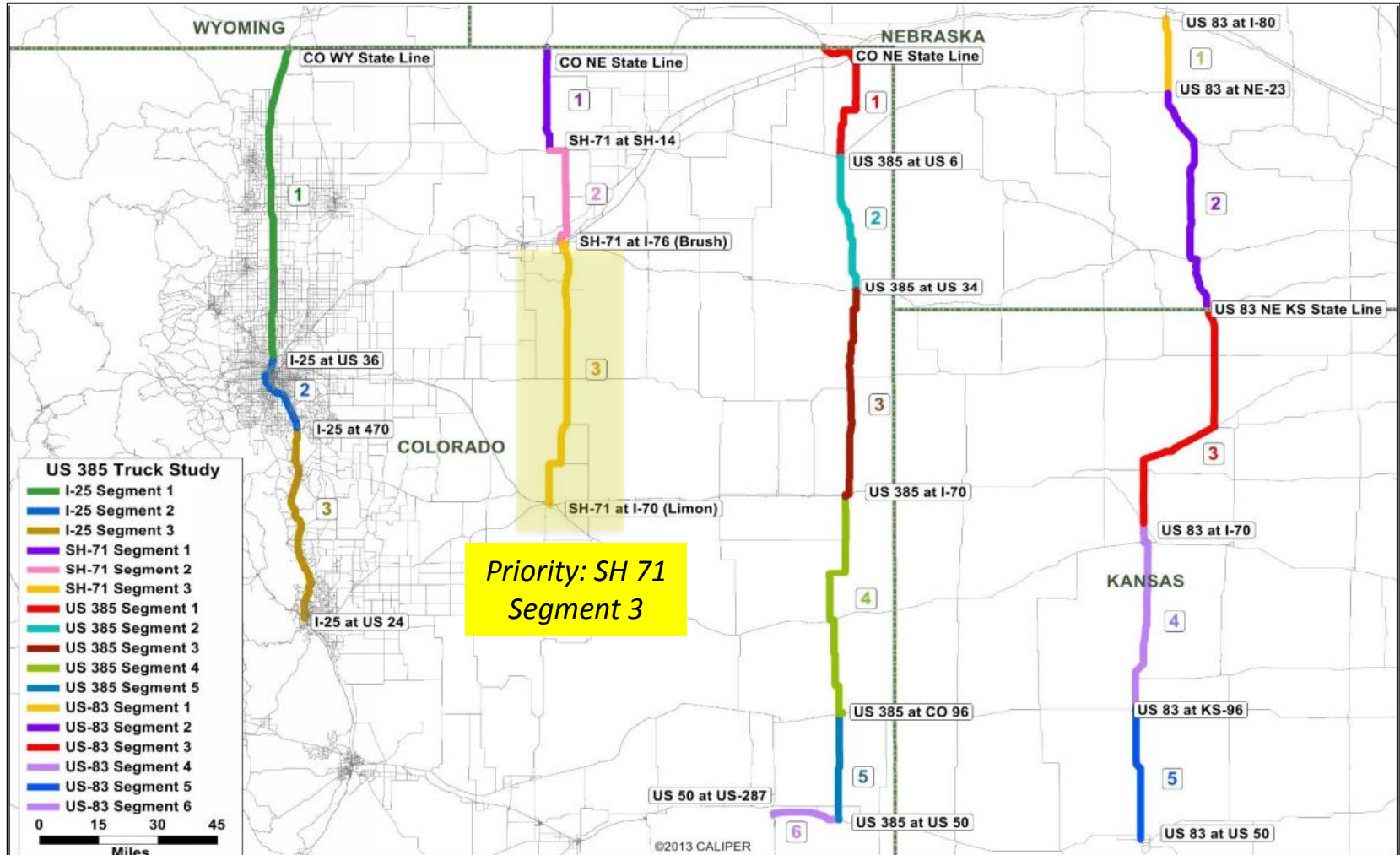


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2. TRAVEL DEMAND MODELING

Travel Demand Modeling

Segments Used for Travel Demand Model





TRAVEL DEMAND MODELING

Methodology

- Establish model to capture future growth of Multi-Unit Trucks traffic
 - Utilize the WSP National Truck Model and the Colorado State Model
- Long term analysis through 2040
- Based on Freight Analysis Framework (FAF), version 4.2
- Covers 43 commodities
- Multi-Unit Trucks (MUTs) alone are modeled.
- Daily (24-hour) model



TRAVEL DEMAND MODELING

Methodology ctd.

- Shortest path using time is used for assignment
- 2016 base year was validated to recent MUT counts:
 - Over 130 CDOT counts
 - 10-15 Wyoming and Nebraska I-80 counts
 - Custom counts in the study corridors
- Model multiple scenarios of improvement packages and congestion growth, with a mixture to help differentiate their impact
- Use the model to predict potential freight traffic changes



3. CO 71 UPDATE

CO 71 UPDATE

Preliminary Modeling - Results

- CO 71 broken into 3 segments for modeling and prioritization
 - Segment 1: Colorado State Line to SH 14
 - Segment 2: SH 14 to Brush
 - **Segment 3: Brush to Limon** (This segment consistently attracts the highest number of diverted MUT traffic)
- Segment 3 has been identified as the priority segment for improvements
- CO 71 can potentially lure 8%-10% of the freight traffic from I-25



CO 71 UPDATE

Priority Projects

- Re-align at Brush
- MP 155 to MP 174 Pavement rehab, improve shoulders (Construction planned for 2020)
 - Note Maintenance Recently Completed Overlay/Chipseal MP 166.3-167.3, 170.6-171.6
- MP102-174 - Improve shoulders, investigate turn outs
- MP102-174 Add passing lanes (Limon to Brush) – initial stretches based upon speed/vertical
- MP 138- Install dedicated north & south bound right turn lanes at US-36 intersection
- Add turn lanes for access to communities
 - Note Maintenance Recently Completed Overlay/Chipseal MP 123-138
- Resurfacing at MP102-108
- Bridge repair at MP 102.3
- Re-align at Limon



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4. PROJECT PRIORITY CRITERIA

Project Prioritization





Purpose: Identify the most promising projects to implement should funding become available

- All projects are evaluated using consistent criteria
- Relative importance of criteria is determined by project stakeholders
- Realistically, projects are not completed in rank order due to type of funding, potential for ROW, utility and environmental complications, project cost, and other factors.

Project Prioritization

Project Types

- Categorize individual projects to align with potential funding opportunities
- Projects are also grouped into logical segments based on geography, compatibility, and other factors

Project Type		Example Projects
	Bridge	Bridge widening, bridge replacements, bridge repair, guardrail
	Maintenance	Pavement rehabilitation, drainage improvements, culverts, asset replacement
	Safety	Signing, pavement markings, delineation, shoulder widening, flatten curves, superelevation, rumble strips
	Other	New roadway connections, closures, railroad crossings



Project Prioritization

Evaluation Criteria

- **Safety** – Makes the highway safer for all users
- **Freight Mobility** – Allows for the unimpeded flow of trucks, freight, and wide loads
- **Rideability** – Improve the overall ride quality
- **Economic Development** – Degree to which the project positively affects the local economy
- **Stakeholder Support** – Level of support for the project by local stakeholders and the project team



Project Prioritization

Evaluation Criteria - Ranking

Criteria ranked by importance:

1. Safety
2. Rideability
3. Stakeholder
4. Freight
5. Economy

	Safety	Freight	Rideability	Economy	Stakeholder	Score	Priority
Safety	0	1	1	1	1	4	Highest
Freight	0	0	0	1	0	1	4th Highest
Rideability	0	1	0	1	1	3	2nd Highest
Economy	0	0	0	0	0	0	Lowest
Stakeholder	0	1	0	1	0	2	3rd Highest

Key:

Is [Row Label] more important than [Column Label]? 1 is yes, 0 is no

- *Are these criteria accurate?*
- *Are there other criteria?*



Project Prioritization

Project Evaluation Example (Freight Mobility Criteria)

	Answer	Score
Can the project directly and positively address a freight mobility constraint along the CO-71 corridor?	Yes	
If No: Proceed to next goal		
If Yes:		
<i>Is there a physical constraint to freight mobility?</i>	Yes	
If Yes:		
<i>Does the project alleviate a physical constraint related to:</i>		
Roadway width (including bridges)?	Yes	1
Lack of alternate routes for freight and/or wide loads?		0
An at-grade highway rail crossing in the vicinity of a freight generator?		0
Inadequate roadway geometry not including roadway width?		0
<i>Is there an operational constraint to freight mobility?</i>	Yes	
If Yes:		
<i>Does the project alleviate an operational constraint related to:</i>		
Lack of passing lanes where passing lanes are warranted?	Yes	1
Lack of advance signing on crossroad approaches to interchanges or other truck routes?		0
<i>Answer 1 of the following 3 questions:</i>		
Does the project address a location with an average truck percentage $\geq 29.4\%$?	No	0
Does the project address a location with an average truck percentage between 10.7% and 29.4%?	Yes	1
Does the project address a location with an average truck percentage $\leq 10.7\%$?	No	0

Total Freight Mobility Score: 3 out of 8

Normalized Score: 3.8 out of 10



5. NEXT STEPS



NEXT STEPS

Travel Demand Modeling

- Finish updates to CO 71 travel demand model
- Include proposed improvements

Continue Design and Construction on Planned Projects

Identify and Prioritize Segment 3 Area Projects

Provide cost estimate

Grant Opportunities

- Federal Lands Access Program (FLAP) Grant?



QUESTIONS?