Appendix F
Technical Advisory Group Meeting Materials

COLORADO HIGHWAY 71
(Limon north to Colorado/Nebraska state line)
TRUCK FREIGHT DIVERSION FEASIBILITY STUDY

PREPARED FOR:

COLORADO
Department of Transportation

CDOT Region 4
10601 W. 10th Street
Greeley, CO 80634

PREPARED BY:

WSP USA
1600 Broadway, Suite 1100
Denver, CO 80202

SH 71 – Truck Freight Diversion Feasibility Study

Stakeholder Meeting Log

DATE	MEETING
12-18-2017	Technical Advisory Group (TAG) Meeting
11-13-2018	Technical Advisory Group (TAG) Meeting
05-09-2019	Technical Advisory Group (TAG) Meeting

COLORADO
Department of Transportation

SH 71 – Truck Freight Diversion Feasibility Study

Technical Advisory Group

December 18, 2017
2:00 pm – 4:00 pm
East Morgan County Library
500 Clayton St, Brush, CO 80723

1. Introductions
    a. Myron Hora, WSP
    b. Eric Salemi, CDOT
    c. Rich Christy, CDOT
    d. Rick Yost, CMCA RY Truck Lines
    e. Monty Torres, City of Brush
    f. Dale Colerick, City of Brush
    g. Randy Grauberger, WSP
    h. Steve Hofmeister, CDOT
    i. Joe Kiely, Limon, P2P
    j. Kathy Gilliland, CDOT
    k. Cathy Shull, Pro 15
    l. Jim Flesher, Weld County
    m. Lisa Nguyen, WSP
    n. Ryan Mulligan, WSP
2. Safety Moment
    a. It's cold and flu season, wash your hands
3. Desired meeting outcomes
    a. Understand project concept, existing conditions and data
    b. Develop improvement packages
4. Project Concept –Scope and Overview
    a. Purpose & objectives
    b. Project schedule
    c. Other meetings briefing
5. Technical review and input
    a. Existing Conditions
    b. Define templates and review cost estimates
    c. Identify Improvements

WSP

6. Next Steps
    a. Modeling
    b. Review with TAG
    c. Implementation Plan

Discussion:

- Monty Torres- recently attended a meeting regarding a flood plains study – Don't want to duplicate efforts- Also heard there is another 71 study- collecting LIDAR data?
- Rich Christy –The LIDAR data collection is for field measurements, part of the same study. Has not heard anything about the flood plain study, he will find out more and make sure we are not duplicating effort.
- Monty Torres – Are we going to have any discussions about a bypass?
    - Myron Hora – that's why we're here today – we can look at that
    - Randy Grauberger- it was looked by CDOT region 4 several years ago
    - Dale Colerick – It doesn't make a lot of sense to get so far away from 76
    - Steve Hofmeister- the issue is the conflicts with the two lines of the BNSF Railway
    - Myron Hora- a lot of towns want the trucks out of town, but not the cars. Always a challenge. We are going to look at multiple packages to model. Does a bypass encourage truckers because they won't have to slow down?
    - Steve Hofmeister- we don't want to have the same issue that Lamar is having for the "reliever route"
        - Rick Yost – Kimball, NE built one
        - Steve Hofmeister – and its hurt business in Kimball
    - Monty Torres- This is something city council will need to weigh in about
    - Joe Kiley- Whenever you talk about new highway alignments – changing the flow of traffic is always a challenge. Can damage businesses.
    - Kathy Gilliland – If you're talking about more volume how will that volume impact business? is it possible to bring in more business?
    - Randy Grauberger- We had a meeting with the economic development directors for all the counties and they weighed in
        - Myron Hora- the economic development directors were very excited. We asked them what they were looking for and they said if you can get us 10 jobs it will make a difference.
        - Joe Kiely: the economic development folks were really impressive in that they were looking down the line at the future rather than only what is about to happen in the immediate future

        - Myron Hora- Bypasses in other towns have had good economic development outcomes. 119 in to Longmont is a good example
        - Kathy Gilliland- Berthoud struggled but now their businesses are moving
        - Joe Kiely- Limon is the 2nd highest per capita revenue community in the state because of road side services
    - Steve Hofmeister- Are there better alternatives for the bypass?
    - Myron Hora- "What is the next project?" Is part of the discussion today.
- Monty Torres- ADA Safety issue because the sidewalks are not wide enough now, aging population needs wider sidewalks. Look at safety issues in areas of congestion
    - Kathy Gilliland- There is a "bucket of money" within CDOT's budget to look at ADA issues; this sounds like a good candidate
    - Dale Colerick- School in Brush is going away in 2 years – should the signaling be updated? Things to consider before making improvements.
- Monty Torres- Is there current data about daily truck traffic? Projections?
    - Myron Hora- ACTION: We have current counts and we can send it to you (Lisa)
    - Randy Grauberger- traffic counts – did we do any turning movements in brush?
        - Lisa Nguyen- No we didn't do turning counts
        - Myron Hora- That might be something to do as we get further into the study - This is a microscopic project in a national freight corridor. How much detail do we get in to?
    - Kathy Gilliland- Met with Senator Gardner- at the meeting we asked what to expect in an infrastructure plan– Senator Gardner said he has focused on the freight corridors
        - Myron Hora: Nick Amrhein at WSP is looking at what info we need for TIGER / INFRA grants
    - Joe Kiely- A study like this can't answer all the questions- there will need to be more studies
    - Randy Grauberger- a study like this will identify pinch points and different possibilities for improvements, but there needs to be further studies
- No roundabouts. Unanimous consent
- Steve Hofmeister- If we can't get the money to do the super 2 for the whole corridor – what portions of 71 need immediate attention?
    - Rick Yost- Start at the north and head south to connect the Kimball improvements to Colorado, but down by Limon there is a lot more travel on the truck routes.

  - Rick Yost – A comment on the cross sections: There is only an 8-foot shoulder on the cross sections – trucks are 8 .5 feet – there needs to be 10 feet for pulling off the road safely
  - Myron Hora- The cross sections were developed to AASHTO recommendations
  - Joe Kiely- On 287 from Limon south, shoulders are 8 ft. in some places
- Myron Hora- if you have a passing lane, do you need 10 foot shoulders?
  - Everyone- Yes
  - Steve Hofmeister, Rick Yost- we need to always be looking at a minimum of 10 feet – snow plows need additional width
  - Joe Kiely- The movement of farm machinery also needs to be a consideration
- Myron Hora- Quick Overview of cross sections
  - Super 2 Alternative
    - Two lanes, no passing lane and wide shoulders
  - Super 2 with passing lane alternative
    - Passing lanes alternate
    - Joe Kiely- Texas did a super 2 that is essentially a 3 lane- a passing line that shifts- trucks get impatient
  - Center Turning Lane Alternative
    - There may not be many pieces along this corridor that this layout will work
    - Rich Christy – does this help in situations where vehicles are trying to turn in to their homes? Account for farm traffic?
  - Myron Hora - Do these definitions work for everyone? Yes
  - Monty Torres- is there a document with pro-cons sheet about the alternatives? We can develop such a document and use it in the final report
  - Steve Hofmeister- To attract truckers it must be a minimum 3 lanes with 10-foot shoulders
    - Rick Yost- If you want truckers it needs to be a 4 lane
  - Steve Hofmeister- Does it need to be divided?
    - Myron Hora- not necessarily, we'll look at various scenarios when we make cost estimates
    - Rick Yost- it has to be unless the speed is kept at 65, any higher it needs to be 4 lanes separated- truckers will reroute if drivers are on better roads
  - Steve Hofmeister- building 71 is cheaper than building on the front range – do we know yet how many trucks this will take off of I-25?
    - That is what the model is looking at

  - Rick Yost- what right of way does the state need to get for the 4 lanes?
  - Cathy Schull- it is cheaper to buy right of way out here!
  - Myron Hora -To build 4 lanes, we'd need 80'-120' of additional right of way.
  - Risk Yost – What would the speed limit be?
    - Kathy Gilliland – Do truckers prefer 65 or 75? Is 65 ok?
    - Rick Yost- our trucks are set at 69mph
- LN- Cost estimates are very high level per WSP's Andy Garton
  - Super 2 - $1.75M-2.7M per mile (additional 14' roadway width)
  - Super 2 with passing lanes - $2.7M to $4.2M per mile (additional 26' width)
  - Super 2 with center turn lane- $2.7M to 4.2M (additional 26' width)
  - 4 lanes divided - $4.8M- $7.5M per mile (additional 46' of width)
  - 8' to 10' shoulders will add 5%-10%
  - These estimates are based on a 75mph road
- Steve Hofmeister – Is it cheaper to go in and buy easement where you have existing road and widen that road or is it cheaper to build a completely new road?
  - Myron Hora- It depends where you are and what your base and the roadway template looks like. As an example, Highway 23 would be cheaper to build new because there wasn't much road to begin with.
  - Steve Hofmeister, would we be better off coming straight south and then curving across towards Brush?
  - Myron Hora- Joe suggested building two lanes beside the original two lanes so that traffic doesn't need to be stopped
    - Joe Kiely, this is how South Dakota built their Super 2
- Kathy Gilliland- What segment can we do/should we do first? Can the model predict that?
  - Myron Hora- we will model the high-end "Cadillac" version but then as we go down do we go from the 4 lane to the 3 lane with alternating passing lanes? Does it make sense to improve Brush to Limon first? These are questions that we will model. What do you all think?
    - Rick Yost- From Limon South to Oklahoma it needs to be 4 lane all the way.
    - Joe Kiely- When they did 287 south, the determination of what to improve first was based on pavement quality. NE is doing a 12 mile 4 lane expansion on 385 south of Alliance. They're adding two lanes, it was $2.2 million per mile.
- Myron Hora- in a section like that- could you get by with 4 foot shoulders on a 4-lane highway?
  - Joe Kiley – that's the difference – their existing road had 10 foot shoulders, whereas we have none.

    - Jim Flesher- On county road 49 we put 8 foot shoulders with 2 feet of gravel to get 10 feet.
        - Steve Hofmeister- You see that in Iowa, hard packed dirt shoulders
        - Myron Hora- CDOT tried that many years ago and caught a lot of flak for it
- Steve Hofmeister- No one has looked down the road they have only looked at "what can we fix now?" We don't want to do this job half way. If you build it they will come
    - Kathy Gilliland- we need to build the case that it deserves the $$
    - Steve Hofmeister – does anyone have any numbers on the traffic on Kersey road since it was improved?
        - Jim Flesher – We don't have any traffic counts yet
- Myron Hora- Thank you, this is great information. We'll start looking at some modeling and we'll bring that back to the group.

Next Meeting: February 5, 2018, 1pm at the Brush Public Library

State Highway 71 Truck Freight Diversion Feasibility Study

TAG Meeting #1

December 18, 2017

Project Team

CDOT	
Eric Salemi	Project Manager
Rich Christy	Resident Engineer
Heather Paddock	Program Engineer
Travis Miller	Resident Engineer
Jeff Vickers	Resident Engineer

WSP	
Myron Hora	Project Manager
Randy Grauberger	Deputy Project Manager/Freight Specialist
Mary Lupa	Travel Demand Modeling
Nick Amrhein	Economic Analysis
Andy Garton	Cost Estimates
Lisa Nguyen	Traffic Analysis
Shane Roberts	GIS Mapping
Jamie Grim	Existing Conditions and Report

Purpose and Objectives

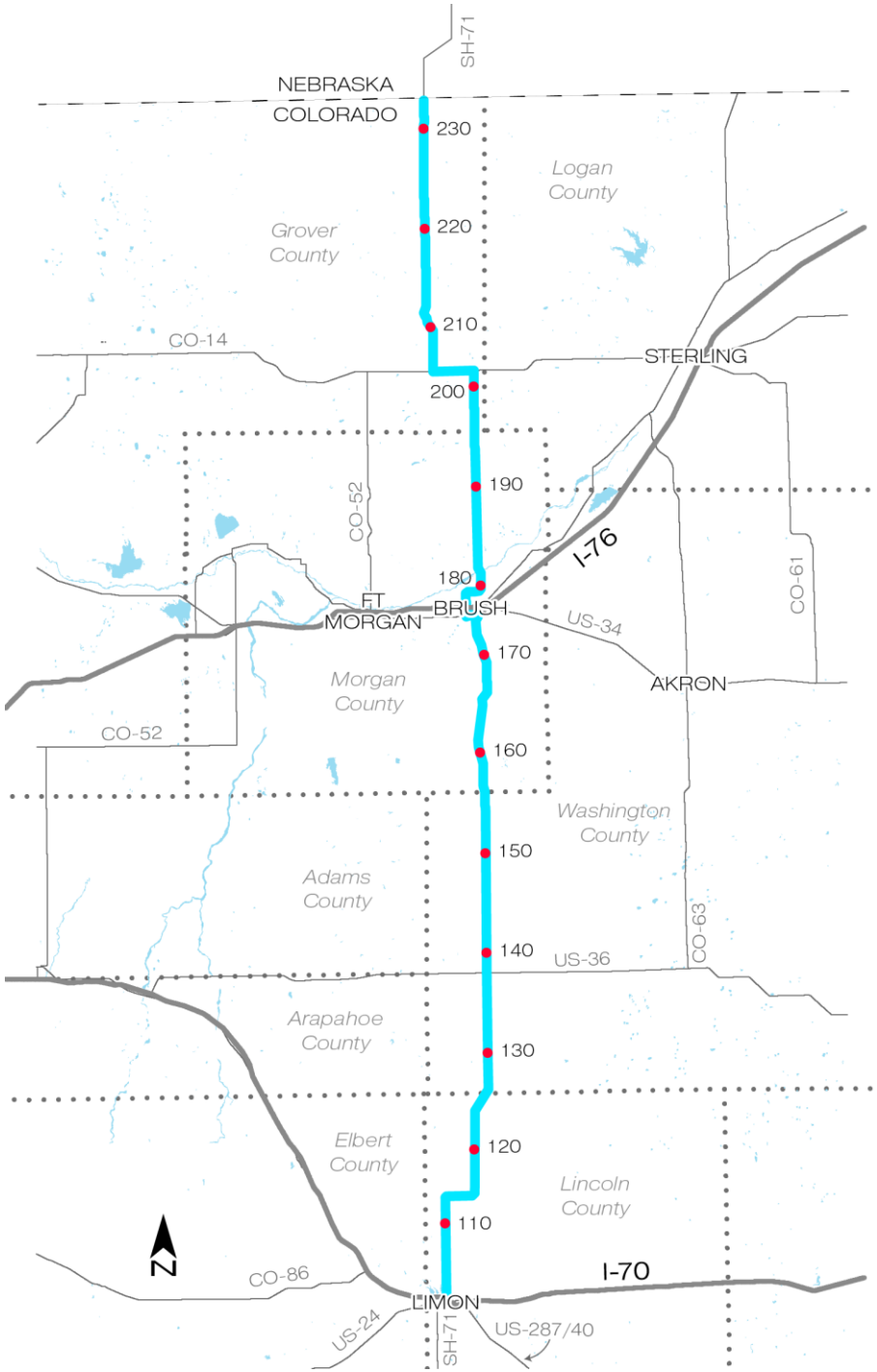
- Analyze freight movement and the impact of SH 71 improvements on truck traffic
- Identify the types and cost of improvements to SH 71 that will draw additional truck traffic
- Determine the potential economic benefit to the trucking industry and local economies
- Develop funding options and implementation scenarios

State Highway 71

- High priority designation as part of the Heartland Expressway Corridor
- Part of the Ports to Plains Alliance (P2P)
- Surrounding states have made significant improvements to their segments
- **SH 71 is the only segment of the P2P corridor in Colorado that remains unimproved**

COLORADO Department of Transportation

wsp



Project Limits

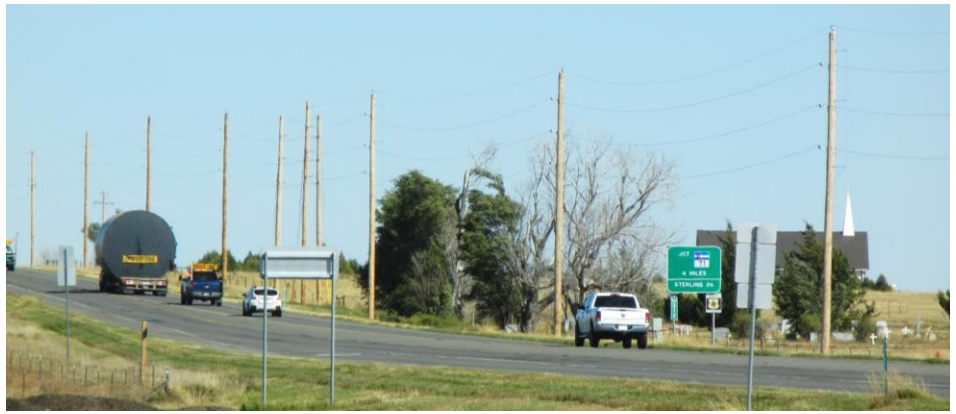
- SH 71 from Milepost 102 to Milepost 232
- Limon, CO to the Colorado/Nebraska state line
- Regional connections for freight traffic
  - *Northern Texas to Nebraska/Wyoming*

COLORADO Department of Transportation

wsp

Goals of the Analysis

- Identify the types and cost of improvements to SH 71 that will draw additional truck traffic,
- Determine the potential economic benefit to the trucking industry and local economies, and
- Develop funding options and implementation scenarios.



Project Schedule

TASK	2017						2018					
	Jul	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
Project Mgmt				X					X			
Existing Conditions												
Modeling & Improvements Evaluation												
Implementation Plan												
Final Report												

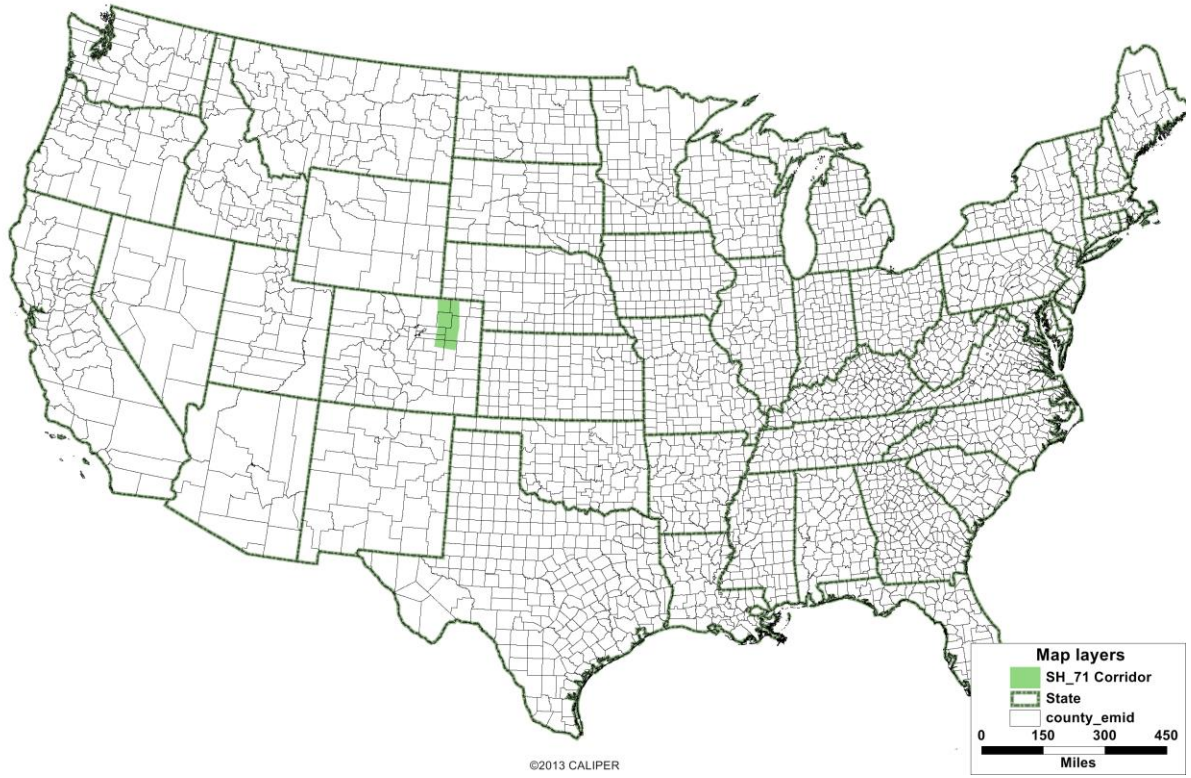
X = Stakeholder Meeting

Proposed Improvements Analysis and Evaluation

- Model up to six scenarios of improvement packages, with a mixture of improvements to help differentiate their impact
- Use the model to predict potential freight increases based on proposed improvements
- Determine potential crash reductions on SH 71 and I-25 if improvements are implemented

WSP National Truck Model Zones

- Covers the Lower 48 states + Alaska
- Provides base 2014 and 2040 truck demand
- Can be fitted to a smaller sub-county zone system.
- Covers 43 commodities
- Based on Freight Analysis Framework (FAF), version 4.2



Opportunities for Improvements

- Passing Lanes
- Climbing Lanes
- Safety Improvements

- Roadway Improvements
  - *Shoulders*
  - *Geometry*
  - *Sight Distance*

Thank you

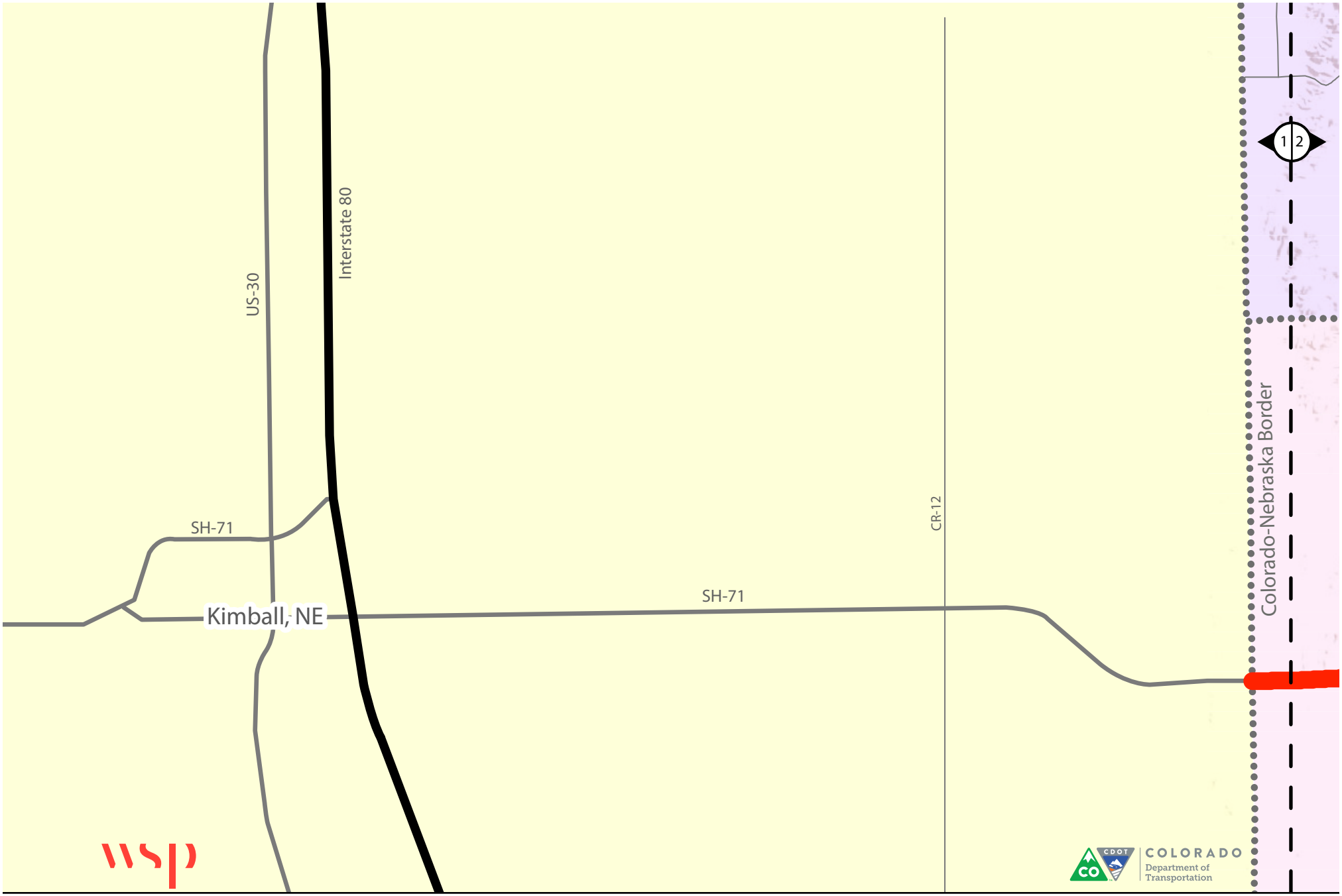
Questions?

Myron Hora

Project Manager

Myron.Hora@WSP.com

COLORADO Department of Transportation



State Highway 71: Existing Conditions

(sheet 1 of 7)

1" = 2 mi

N

County Boundaries

Railroads

Interstate

State Highways

County Roads

Matchlines

Major Structures

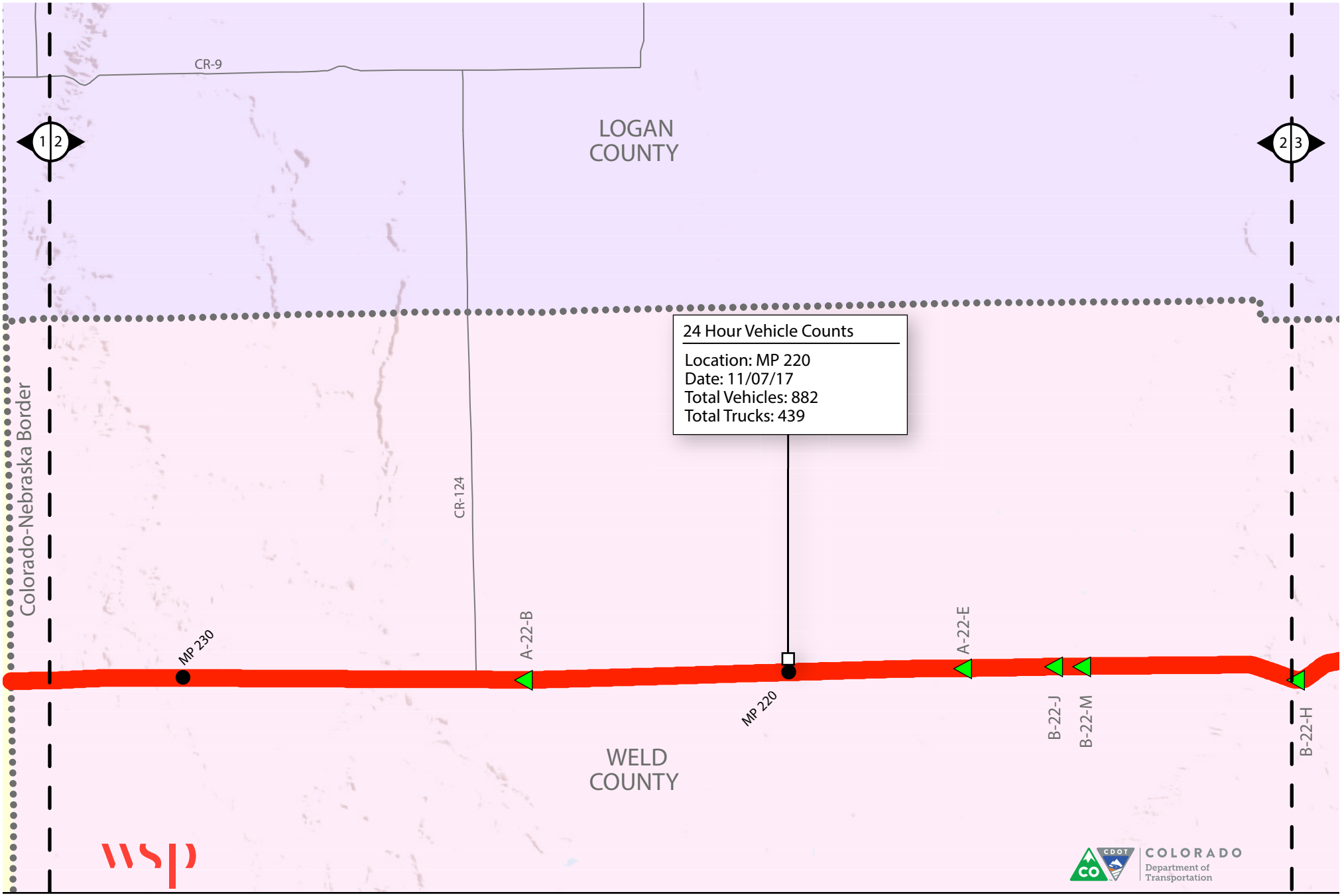
Mileposts

SH-71 Speed Limit

- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 50 MPH
- 55 MPH
- 65 MPH

wsp

COLORADO Department of Transportation



State Highway 71: Existing Conditions

(sheet 2 of 7)

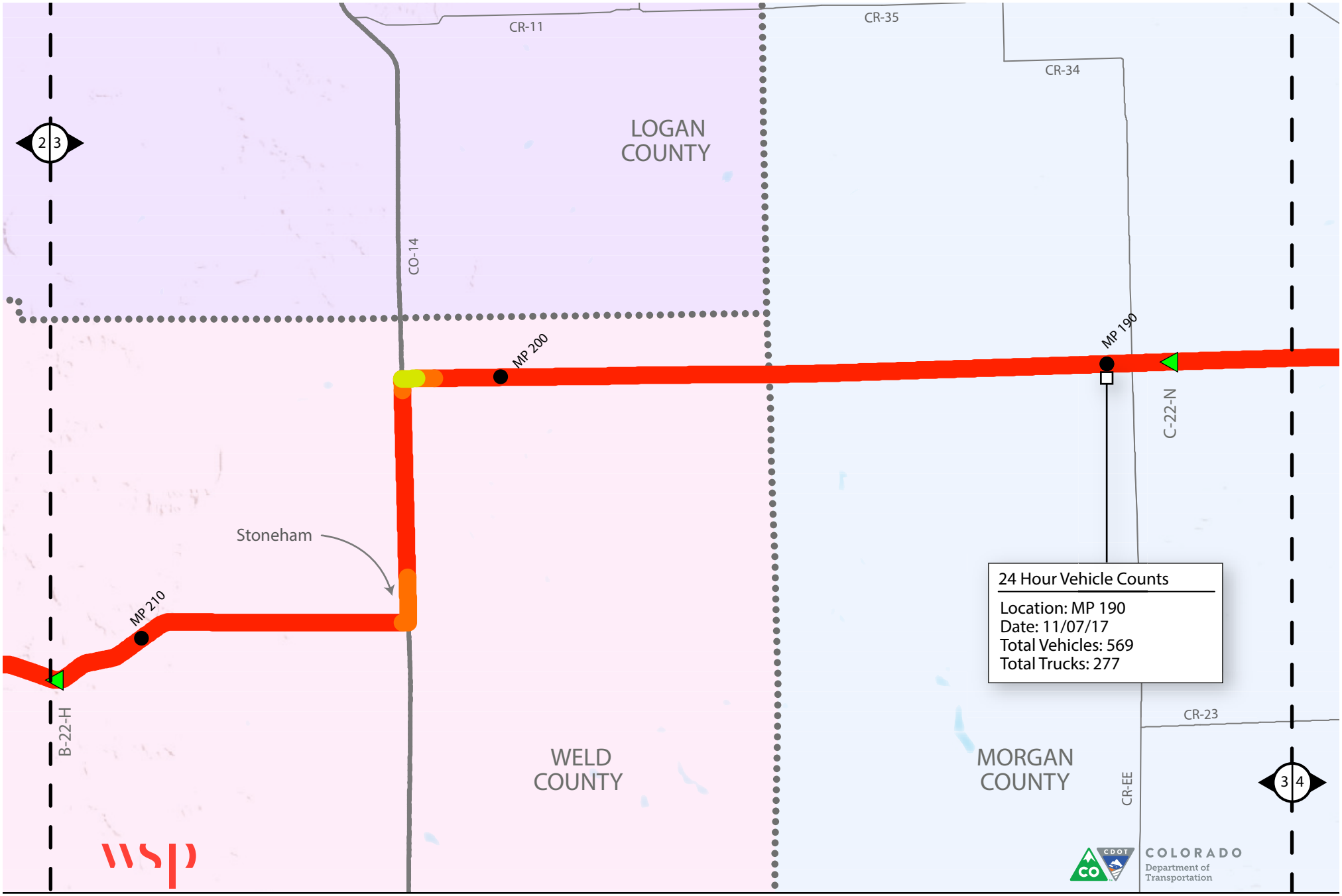
1" = 2 mi

N

County Boundaries
Railroads
Interstate
State Highways
County Roads
Matchlines
Major Structures
Mileposts

SH-71 Speed Limit

- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 50 MPH
- 55 MPH
- 65 MPH



State Highway 71: Existing Conditions

(sheet 3 of 7)

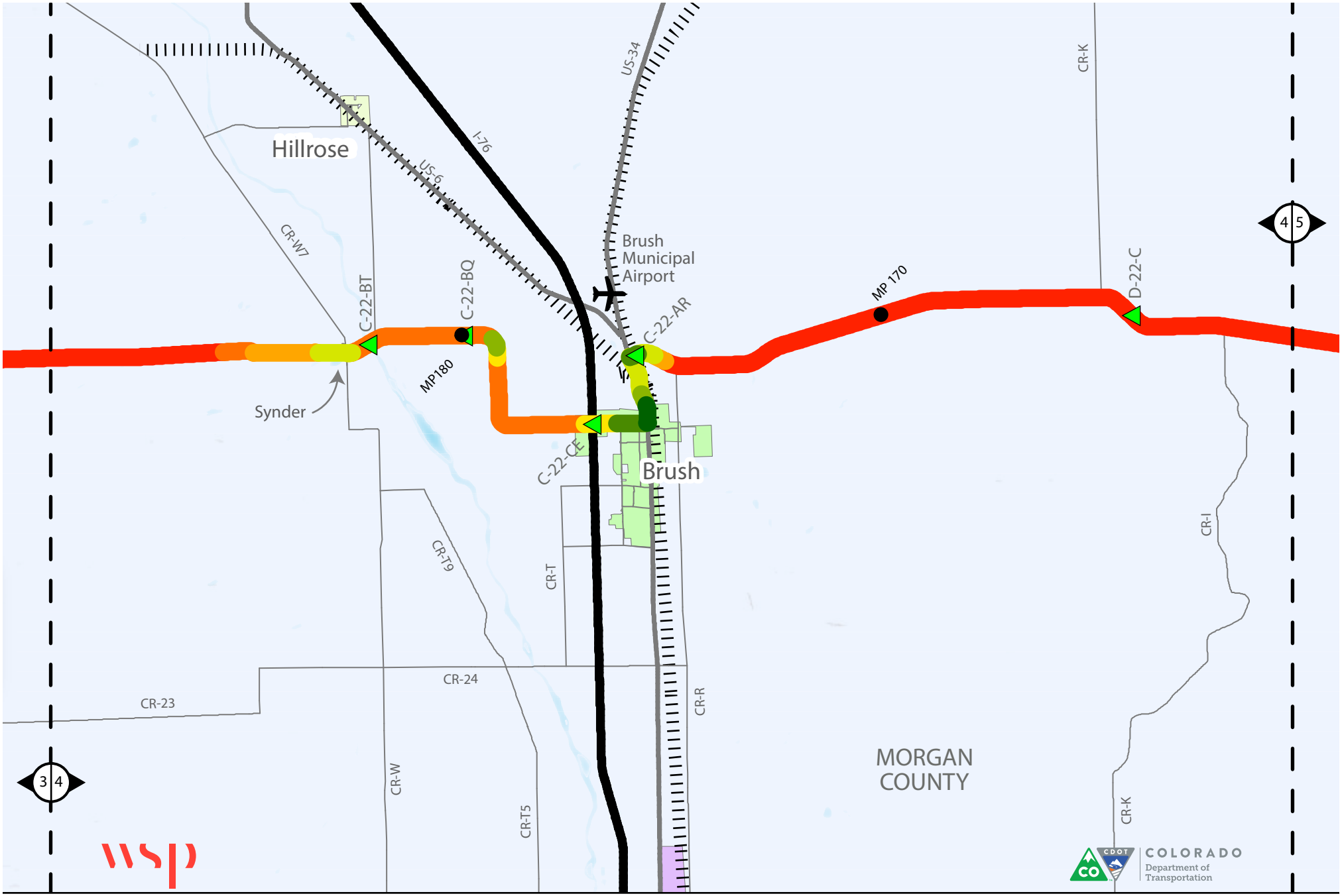
1" = 2 mi

N

County Boundaries
Railroads
Interstate
State Highways
County Roads
Matchlines
Major Structures
Mileposts

SH-71 Speed Limit

- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 50 MPH
- 55 MPH
- 65 MPH



State Highway 71: Existing Conditions

(sheet 4 of 7)

1" = 2 mi

N

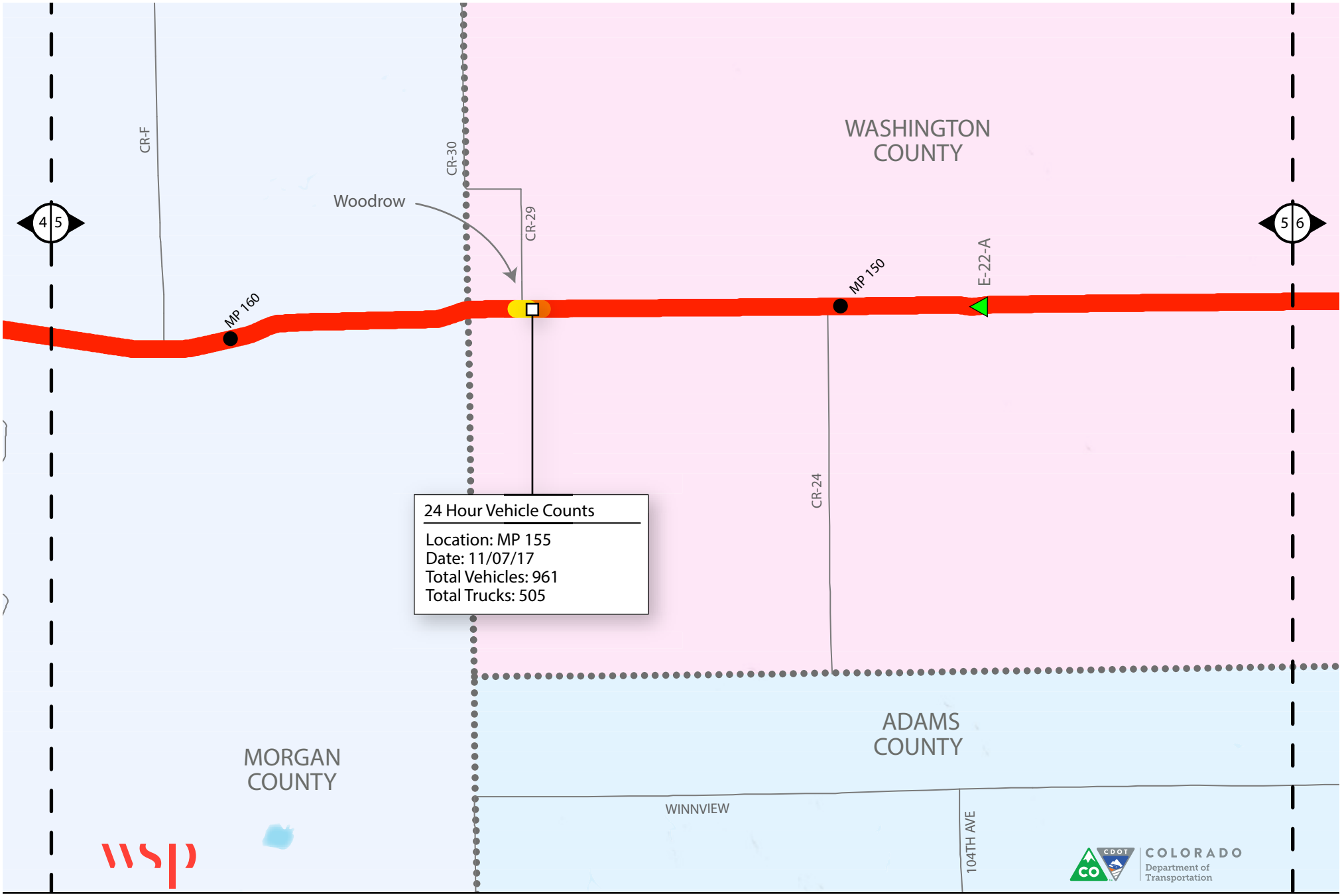
- County Boundaries
- Railroads
- Interstate
- State Highways
- County Roads
- Matchlines
- Major Structures
- Mileposts

SH-71 Speed Limit

- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 50 MPH
- 55 MPH
- 65 MPH

wsp

COLORADO Department of Transportation



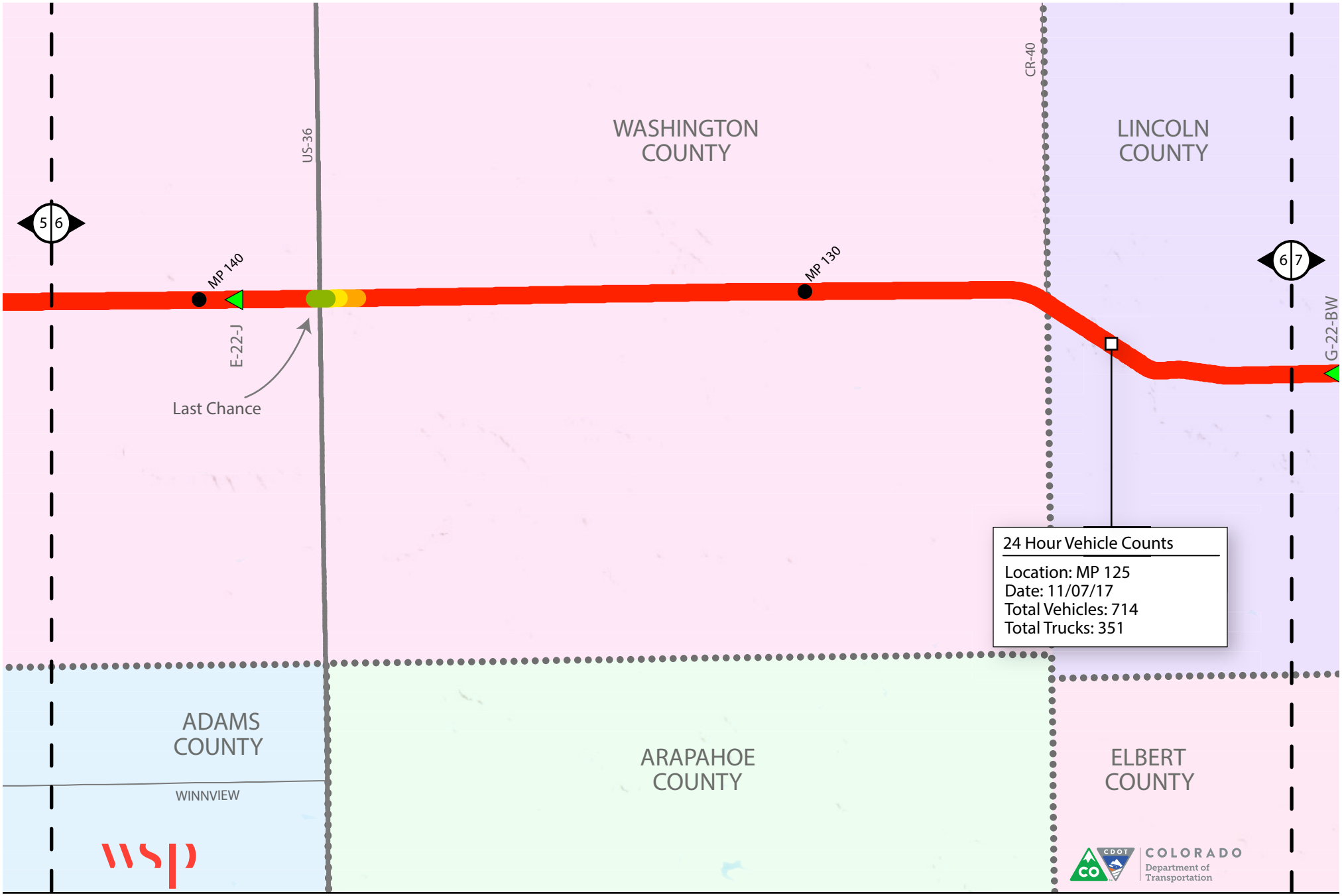
State Highway 71: Existing Conditions (sheet 5 of 7)

1" = 2 mi

N

County Boundaries
Railroads
Interstate
State Highways
County Roads
Matchlines
Major Structures
Mileposts

SH-71 Speed Limit
25 MPH
30 MPH
35 MPH
40 MPH
45 MPH
50 MPH
55 MPH
65 MPH



State Highway 71: Existing Conditions

(sheet 6 of 7)

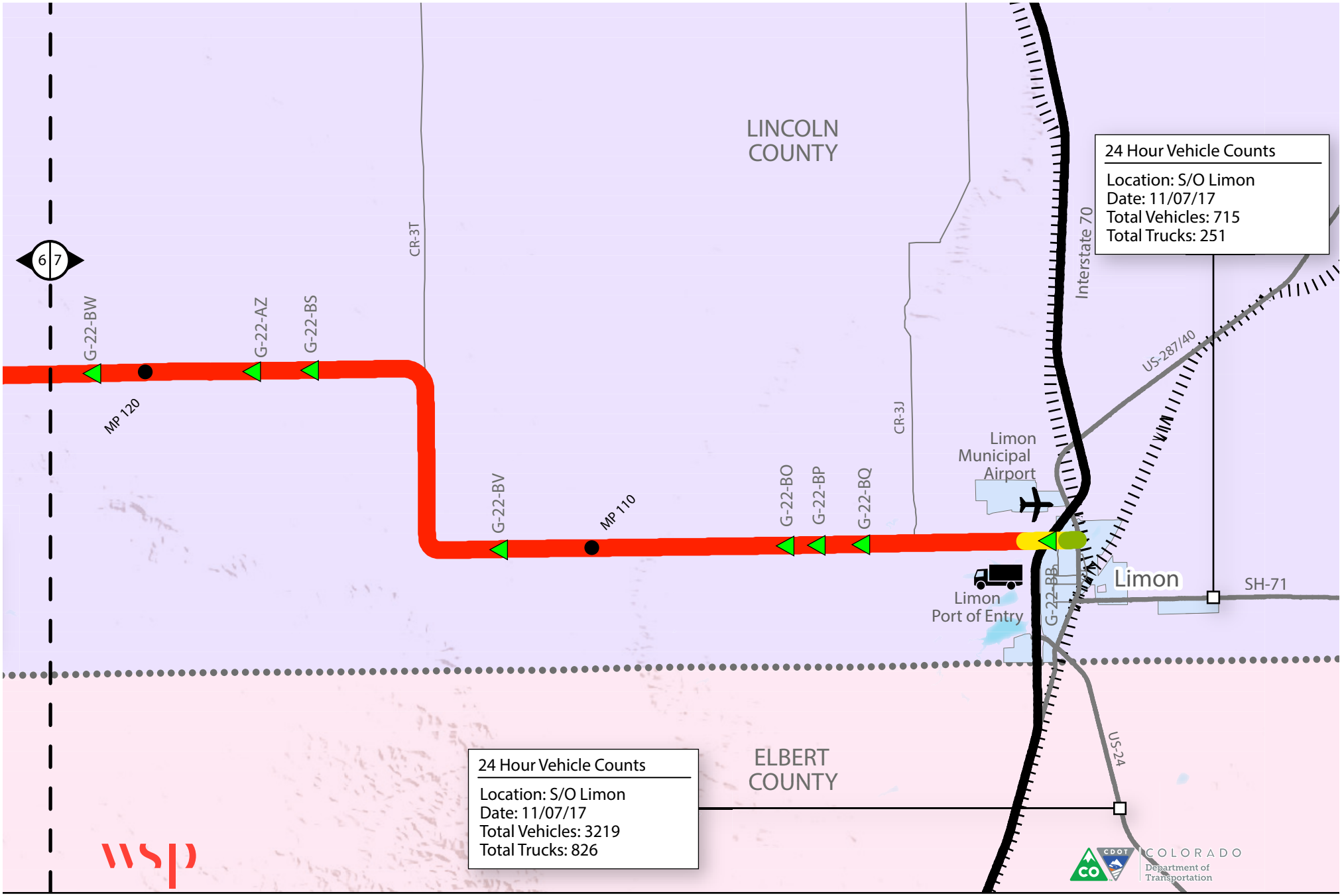
1" = 2 mi

N

County Boundaries
Railroads
Interstate
State Highways
County Roads
Matchlines
Major Structures
Mileposts

SH-71 Speed Limit

- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 50 MPH
- 55 MPH
- 65 MPH



State Highway 71: Existing Conditions

(sheet 7 of 7)

1" = 2 mi

N

SH-71 Speed Limit

- 25 MPH
- 30 MPH
- 35 MPH
- 40 MPH
- 45 MPH
- 50 MPH
- 55 MPH
- 65 MPH

County Boundaries
Railroads
Interstate
State Highways
County Roads
Matchlines
Major Structures
Mileposts