US 85

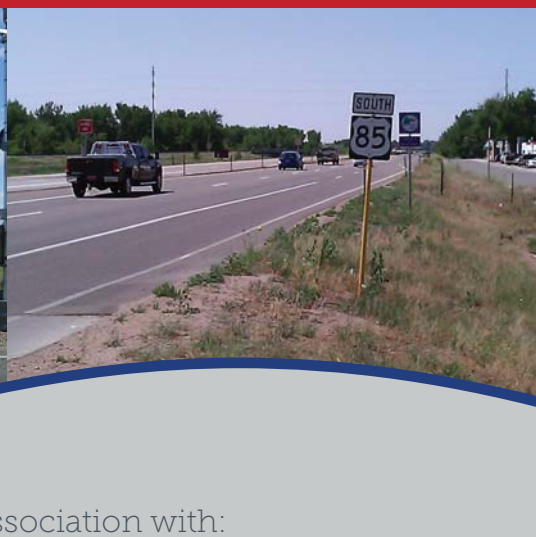
Planning and Environmental Linkage Study

submitted to:

CDOT

Region 1 & Region 4

April 2017



submitted by:

FELSBURG HOLT & ULLEVIG

ATKINS

in association with:

Pinyon Environmental, Inc.
All Traffic Data Services

US 85 Planning and Environmental Linkages (PEL) Study

Prepared for:

Colorado Department of Transportation

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April 2017

FHU Reference No. 112196-04

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Agency Support

The public agencies that were engaged in the preparation of this Planning and Environmental Linkages (PEL) study for US Highway 85 (US 85) between Interstate 76 (I-76) and Weld County Road 100 have expressed their support of the vision set forth in this plan, as defined in this report, dated April 2017.

- The Federal Highway Administration (FHWA) and Colorado Department of Transportation (CDOT) agree that this study fits the criteria for the FHWA PEL process. Through this process, the evaluation and findings of the PEL study can be more readily applied to subsequent National Environmental Policy Act (NEPA) documentation. Resource agencies with jurisdiction in the interchange area have expressed support for the process and a willingness to work cooperatively on future NEPA processes for individual interchange improvements.
- CDOT, with the support of the appropriate local agencies, will work to complete the NEPA requirements for specific improvements for individual projects along the US 85 corridor. After future NEPA approval, the local agencies will work cooperatively with CDOT to support applying funding for and implementation of the improvements.
- The local agencies will strive to develop collaborative transportation partnerships to support the improvement recommendations through the Denver Regional Council of Governments (DRCOG) and North Front Range Metropolitan Planning Organization (NFRMPO) planning process to facilitate improvements to this area.
- While this PEL is not a legally-binding document, it presents the vision for the US 85 Corridor. The US 85 Access Control Plan (ACP) is the current legally-binding document and the ACP will be amended as funding becomes available for the improvements identified in this document.

Your signature below as a representative of a participating public agency represents that the US 85 PEL was developed with the participation of your agency and information was made available to all interested parties.

(***Signature pages for all participating public agencies can be found in Chapter 8.0***)

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Acronyms and Abbreviations

AASHTO	American Association of State Highway and Transportation Officials
ACP	Access Control Plan
APCD	Air Pollution Control Division
BMP	best management practice
BTPD	black-tailed prairie dog
CAP-X	Capacity Analysis for Planning of Junctions
CatEx	Categorical Exclusion
CBD	Central Business District
CDOT	Colorado Department of Transportation
CDPHE	Colorado Department of Public Health and Environment
CDPS	Colorado Discharge Permit System
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CLOMR	Conditional Letter of Map Revision
CM/GC	Construction Management/General Contractor
CPW	Colorado Parks and Wildlife
CR	County Road
DB	Design-Build
DBB	Design-Bid-Build
DDI	diverging diamond interchange
DIA	Denver International Airport
DRCOG	Denver Regional Council of Governments
EA	Environmental Assessment
EC	Executive Committee
EIS	Environmental Impact Statement
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
FACWet	Functional Assessment of Colorado Wetlands
FASTER	Funding Advancements for Surface Transportation and Economic Recovery Act of 2009
FEIS	Final Environmental Impact Statement

FHWA	Federal Highway Administration
FIR	Field Inspection Review
FOR	Final Office Review
FTA	Federal Transit Administration
GET	Greeley-Evans Transit
HAP	Hazardous Air Pollutant
HOV	High Occupancy Vehicle
HSM	Highway Safety Manual
I-76	Interstate 76
IGA	Intergovernmental Agreement
ITS	Information Technology Service
LEP	limited English proficiency
LOMR	Letter of Map Revision
LOS	level of service
LOSS	Level of Service of Safety
LWCF	Land and Water Conservation Fund
MBTA	Migratory Bird Treaty Act
MOU	Memorandum of Understanding
MSAT	Mobile Source Air Toxic
MVRTP	2035 Metro Vision Regional Transportation Plan
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act of 1969
NFRMPO	North Front Range Metropolitan Planning Organization
NPS	National Park Service
NRHP	National Register of Historic Places
PDO	property damage only
PEL	Planning and Environmental Linkages
PTI	planning time index
RAMP	Responsible Acceleration of Maintenance and Partnership
RIRO	Right-in/Right-out
ROW	right-of-way
RRFB	Rectangular Rapid Flash Beacon

RTD	Regional Transportation District
RTP	Regional Transportation Plan
SB 40	Senate Bill 40
SH	State Highway
SHPO	State Historic Preservation Officer
SPF	Safety Performance Function
SPUI	single point urban interchange
SWMP	Stormwater Management Plan
TAC	Technical Advisory Committee
TDM	Transportation Demand Management
TEL	Tolled Express Lanes
TIP	Transportation Improvement Program
TIPID	Transportation Improvement Plan Identification Number
TPR	Transportation Planning Region
TTI	travel time index
UFR	Upper Front Range
UNC	University of Northern Colorado
UPRR	Union Pacific Railroad
USACE	United States Army Corps of Engineers
US DOT	United States Department of Transportation
USFS	USDA Forest Service
v/c	volume to capacity
vpd	vehicles per day
WCR	Weld County Road
WQCD	Water Quality Control Division
WTCC	Weld County Trails Coordination Committee
WUS	waters of the US

EXECUTIVE SUMMARY

The Colorado Department of Transportation (CDOT) has conducted a Planning and Environmental Linkages (PEL) study for the segment of United States Highway 85 (US 85) between Interstate 76 (I-76) and Weld County Road (WCR) 100. The objective of the US 85 PEL study is to develop a strategic vision for US 85 that addresses safety, mobility, and access concerns.

The goals of the project are to:

- Identify the transportation needs along US 85 from I-76 to WCR 100
- Create a vision for development improvements that address the needs
- Determine the short-term and long-term transportation priorities for US 85
- Position the corridor for successful and streamlined implementation of improvements

Short-term and long-term improvements have been identified and prioritized through a collaborative process with stakeholders and the public along the corridor. The US 85 Access Control Plan (ACP) (1999) serves as a foundation for the PEL study.

What is a PEL?

PEL is a study process used to identify transportation issues, priorities, and environmental concerns. A PEL study can lead to a seamless decision-making process that minimizes duplication of effort, promotes efficient and cost-effective solutions, promotes environmental stewardship, and reduces delays in project implementation. The purpose of a PEL study is to perform preliminary analysis and to make decisions not completed as a part of traditional regional level planning that will make NEPA-level evaluation and decision-making more transparent to resource agencies and the public.

PEL represents an approach to transportation decision-making that considers environmental, community, and economic goals early in the planning stage and carries them through project development, design, and construction. This leads to a seamless decision-making process that minimizes duplication of effort, promotes efficient and cost-effective solutions and environmental stewardship, and reduces delays in project implementation.

More information about the PEL process can be found on the CDOT website at https://www.codot.gov/programs/environmental/planning-env-link-program

ES.1 Study Location and Description

The US 85 PEL study area includes approximately 62 miles of US 85 between I-76 in Commerce City and WCR 100 in the Town of Nunn, Colorado. US 85 is a north-south expressway under the jurisdiction of CDOT. This stretch of US 85 passes through:

- 13 municipalities (Commerce City, Brighton, Fort Lupton, Platteville, Gilcrest, LaSalle, Evans, Greeley, Garden City, Eaton, Ault, Pierce, and Nunn);
- 2 counties (Adams County and Weld County); and
- 3 regional planning organizations: Denver Regional Council of Governments (DRCOG), North Front Range Metropolitan Planning Organization (NFRMPO), and Upper Front Range (UFR) Transportation Planning Region (TPR).

Figure ES.1 shows the study area and the municipal, county, and regional boundaries.

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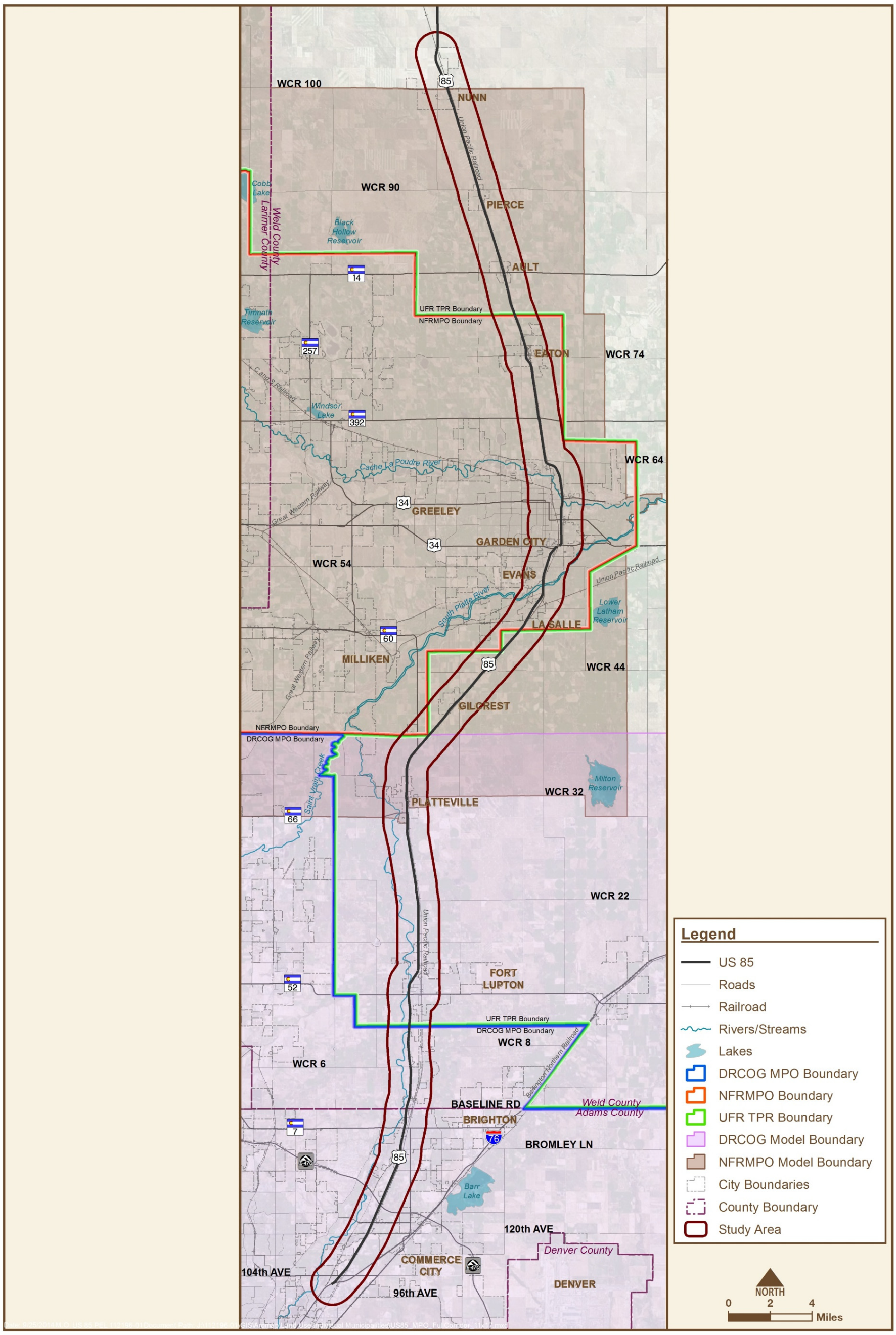
Figure ES.1 Study Corridor and Vicinity Map



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ES.2 Purpose

The purpose of transportation improvements along the US 85 corridor is to improve safety, reduce existing and future traffic congestion, provide efficient access for existing and future development, and improve mobility and connectivity for all transportation modes (cars, trucks, transit, bicycle, and pedestrian) that match the context of the adjacent communities.

ES.3 Need

These transportation improvements are needed to address the following problems:

- **Safety** — Several intersection and mainline locations along the US 85 corridor have a higher than expected number of crashes.
- **Mobility** — Traffic congestion, inadequate intersections that fail to accommodate users' needs, highway design, and unreliable travel times substantially impact the ability of people to move across and along the corridor. These conditions are expected to worsen in the future as the region grows due to local and regional population and employment growth.
- **Railroad Proximity** — The close proximity of the UPRR and US 85 can negatively affect the operations of US 85. Passing or standing trains restrict travel to and from the east of US 85 and can cause substantial queuing at some cross streets, sometimes extending into the through lanes of US 85. The facilities are so close at some cross streets that a single large truck cannot queue between US 85 and the UPRR without either overhanging the tracks or encroaching on US 85, resulting in a safety problem.
- **Access** — The current number, locations, and design of public roadway accesses have contributed to traffic operational and safety deficiencies along the corridor. The access problem is exacerbated by the proximity of the highway to the railroad tracks throughout most of the corridor, which further contributes to operational and safety deficiencies, especially for large commercial vehicles.
- **Alternative Modes** — The traveling public has limited or no access to public transportation for essential human services, commuting, recreational, and other travel needs along the corridor. Current infrastructure does not safely accommodate bicyclists and pedestrians traveling parallel or across US 85. Corridor demand for transit, biking, and walking trips is expected to increase in the future.

ES.4 Alternatives Development, Refinement, and Evaluation Process

A multi-level, iterative process was used to develop, refine, and evaluate alternatives for the US 85 corridor. The development, refinement, and evaluation process focused on identifying alternatives that both meet the Purpose and Need for the corridor and match the context of the corridor.

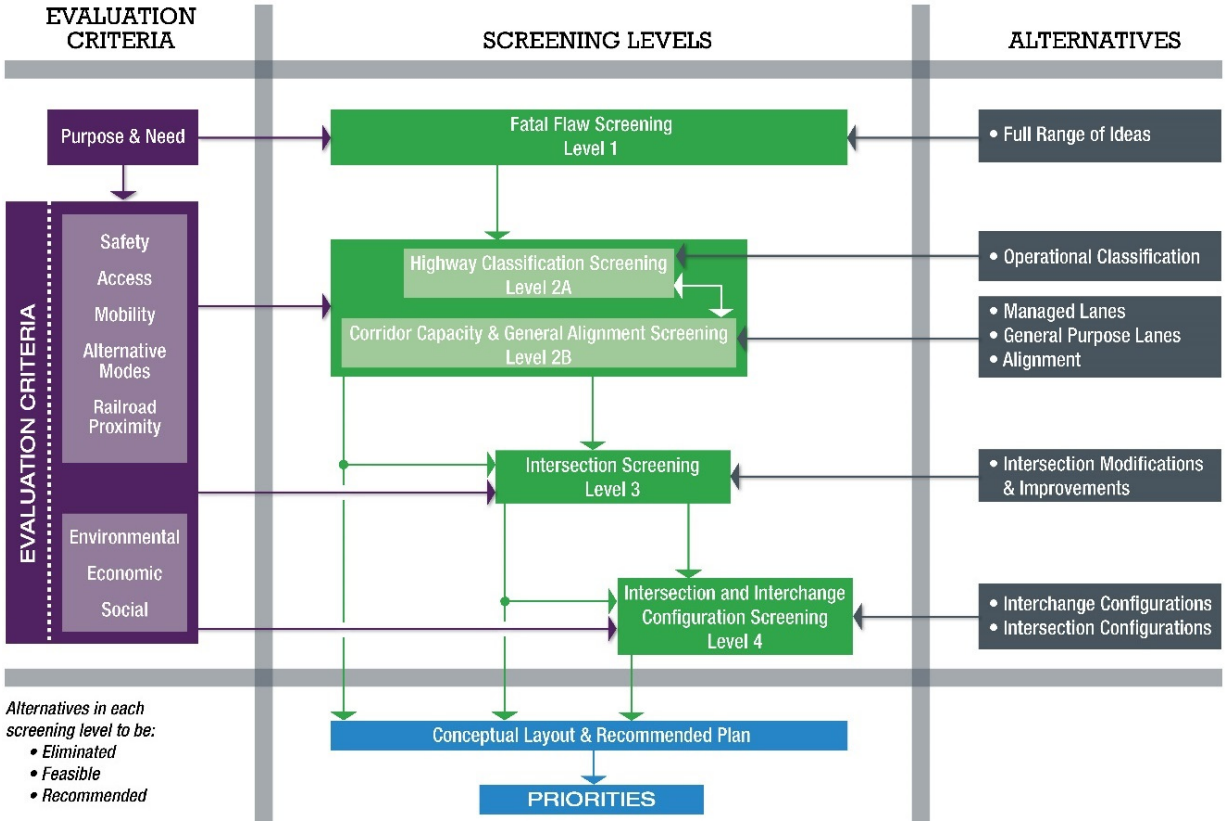
Broad, overarching alternative development occurred at the initial level of the process. These alternatives set the stage for subsequent levels where alternative refinement and evaluation occurred with increasing amount of detail. At each level, the alternatives were refined to match the overall goal of each level and then removed alternatives appropriately. This approach provided an efficient way to evaluate contextually appropriate alternatives throughout the corridor. Because the context of the corridor varies extensively (urban in the south to very rural in the north), not all alternative types were suitable throughout the corridor. The corridor was split into sections based on geography and operational classifications. The Alternatives Development, Refinement, and Evaluation Process was developed as a systematic way to evaluate a reasonable range of alternatives at each location.

The iterative Alternatives Development, Refinement, and Evaluation Process defined an overarching direction for corridor sections as a whole and then added detail and focus for specific locations. For example, the overarching alternative types were removed (functional classification, general purpose lanes, managed lanes, alignment, etc.) based on comparison against the Purpose and Need. Those that did not address the Purpose and Need were eliminated, while those that did were carried forward. The next level determined the context and capacity of each corridor section. The final two levels focused on refining and evaluating specific alternatives at intersection locations throughout the corridor.

Figure ES.2 presents the Alternatives Development, Refinement, and Evaluation Process:

- **Level 1 Development and Evaluation —** Developed overarching alternatives and eliminated alternatives with fatal flaws or that did not meet the Purpose and Need categories (Safety, Mobility, Railroad Proximity, Access, and Alternative Modes).
- **Level 2 Refinement and Evaluation** — Included two sublevels that identified all potential operational classifications and capacity for each corridor section and then removed alternatives to identify the appropriate operational classification and capacity for each corridor section. Alternatives were evaluated to show how they met the needs (Safety, Mobility, and, Access) and to identify impacts to the natural environment and the surrounding community.
- **Level 3 Refinement** — Identified all potential intersection improvement types (closure, intersection improvement, or interchange) for each location and then removed those to match the context of each section of US 85. Level 3 heavily used Level 2 results to define each section's context.
- **Level 4 Development and Evaluation —** Developed specific improvement configurations and layouts to determine their ability to meet Purpose and Need (Safety, Mobility, Railroad Proximity, Access, and Alternative Modes). Level 4 also considered impacts to the natural environment and to the adjacent community. Alternatives were identified as *Recommended*, *Feasible-Not Recommended*, or *Eliminated*.

Figure ES.2 Alternative Development, Refinement, and Evaluation Process



Level 4 Development and Evaluation results for each intersection location represent the results of the US 85 PEL recommendations. The Recommended Alternatives (some locations have more than one recommended alternative) are to be advanced to the next stage of project development (see **Section 6.0**). **Appendix C** contains a one-page summary document for each Recommended Alternative with information pertinent to the next stages of project development.

Locations were prioritized throughout the corridor based on the current and future need categories (Mobility, Safety, and Railroad Proximity). **Section 6.7** describes the prioritization process and results.

ES.5 Alternative Development, Refinement, and Evaluation Results

The Alternative Development, Refinement, and Evaluation Process resulted in a recommendation or multiple recommendations for each of the 93 intersections in the 62-mile corridor. In every instance, the No Action Alternative was carried forward for consideration in subsequent NEPA evaluations. Every option for each intersection was given one of the following designations:

- **Recommended** — This alternative would sufficiently meet the corridor's Purpose and Need and provide the needed improvement to the local transportation system to meet future demands. This alternative is recommended for further consideration and evaluation in subsequent NEPA steps.
- **Feasible, Not Recommended** — This alternative would meet the Purpose and Need to a certain degree, but other factors, such as community impacts or environmental impacts, were too much to recommend this alternative for further consideration. However, during subsequent NEPA evaluations, situations could change, and as a result, this alternative could become more advantageous and, thus, be revisited.
- **Eliminated** — This alternative would not meet the Purpose and Need or provide adequate improvements to Access, Mobility, Safety, or Railroad Proximity to justify the improvement.

In some cases, more than one alternative may be recommended for a given intersection because differentiation between alternatives may not be great enough to make one recommendation over another. In these cases, it is proposed that multiple alternatives be advanced and evaluated in NEPA to determine which alternative would be the most reasonable for the location and context at that time.

Table ES.1 provides the results of the Alternative Development, Refinement and Evaluation Process. **Appendix C** provides detailed information for each alternative that met or did not meet each criterion discussed in the section. **Section 3.0** presents a depiction of the Recommended Alternatives throughout the corridor. **Appendix E** presents the location recommendations and alternative concepts for each of the Recommended Alternatives. These summary sheets are intended to serve as guide and summary for local agencies to advance the identified improvements.

Section 4.0 presents information on the natural and cultural resources present in the US 85 PEL Corridor. **Section 4.0** discusses the impacts from the implementation of the Recommended Alternatives and presents next steps and mitigation recommendations.

The PEL study included a detailed local agency stakeholder, resource agency, and public outreach process. These groups were presented with information regarding the PEL study at key milestones. Information and feedback from these groups helped shape the study and the alternative development and evaluation process. **Section 5.0** presents the details of this coordination process.

Section 6.0 outlines the next steps in the project development process needed to advance the Recommended Alternatives for each location throughout the corridor. The US 85 Access Control Plan (ACP) that governs the amount and types of accesses on US 85 from I-76 to Weld County Road 80 will be required to be updated to incorporate the Recommended Alternatives from this PEL. The US 85 ACP will continue to serve as the legally-binding, governing document for the US 85 Corridor. **Table ES.1** identifies the recommended improvements that will require an amendment to the US 85 ACP. Amendments to the US 85 ACP will take place only when funding is available for the identified improvement.

It should be noted that there are many cases where a road closure is recommended, but the actual closure should not occur until an adjacent improvement is implemented. This commonly occurs when a new interchange is identified and a nearby road is recommended for access closure because of the proximity to the interchange. In these cases, the road access closure would not occur until the

interchange is implemented. Other occurrences include those closures that are incorporated between the parallel roadways between WCR 18 and WCR 28. These access closures would not occur until the parallel road systems are implemented. This document identifies the parallel road system as a common vision for the system, but the precise location can change, as development occurs. Additionally, each location throughout the corridor was prioritized based on the need categories in the Purpose and Need, as presented in **Section 6.0**.

Table ES.1 Level 4 Evaluation Recommendations

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Commerce City	104th Avenue	***Split Diamond (with I-76)***	***Recommended***	***$80,500,000***	***No***
		SPUI with Flyover	***Recommended***	***$38,200,000***	***No***
		DDI	***Recommended***	***$48,700,000***	***No***
		Partial Cloverleaf	***Recommended***	***$61,800,000***	***No***
	Longs Peak Drive	***Closed***	***Recommended***	***$200,000***	***No***
	112th Avenue	***SPUI***	***Recommended***	***$45,900,000***	***No***
		Skewed SPUI	***Recommended***	***$47,700,000***	***No***
	120th Avenue	***Tight Diamond***	***Recommended***	***$44,000,000***	***No***
		DDI	***Recommended***	***$49,700,000***	***No***
Brighton	124th Avenue	***Closure***	***Recommended*** (Closure will not happen until access to the interchange at 120th Avenue is provided)	***$200,000***	***No***
	E-470	No Action	N/A	*N/A*	***N/A***
	132nd Avenue	***Closed***	***Recommended*** (Closure would happen in conjunction with new interchange at 136th Avenue)	***$200,000***	***No***
	136th Avenue	***SPUI***	***Recommended***	***$39,100,000***	***No***
	144th Avenue	***Closed***	***Recommended*** (Closure would happen in conjunction with interchange at Bromley Lane)	***$300,000***	***Yes***
	Bromley Lane	***SPUI***	***Recommended***	***$27,400,000***	***No***
	Bridge Street / SH 7	***Bus Slip Ramps to Station***	***Recommended***	***$600,000***	***No***

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Brighton	Denver Street	***Closed***	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 2)	***$100,000***	***No***
	168th Avenue/ WCR 2	***SPUI***	***Recommended***	***$31,000,000***	***No***
	WCR 2.5	***Closed***	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 2)	***$100,000***	***No***
Weld County	WCR 4	***Closed***	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 2 and WCR 6)	***$100,000***	***No***
Fort Lupton	WCR 6	***Partial Cloverleaf***	***Recommended***	***$24,700,000***	***No***
	WCR 6.25	***Closed***	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 6)	***$100,000***	***No***
	WCR 8	***Hook Ramps***	***Recommended***	***$24,700,000***	***No***
	WCR 10	***No Action, No Access***	***Recommended***	***N/A***	***No***
	SH 52	***Pedestrian Improvement***	***Recommended***	***$200,000***	***No***
	WCR 14.5/ 14th Street	***Junior Interchange***	***Recommended***	***$31,400,000 (includes WCR 16)***	***No***
	WCR 16	***RI/RO***	***Recommended*** (Completed in coordination with improvements at WCR 14.5. Outcome at WCR 16 could be different depending on action taken at WCR 14.5/14th Street.)	***$31,400,000 (includes WCR 14.5/14th Street)***	***Yes***
	WCR 18	***SPUI***	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)	***$27,500,000***	***Yes***

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Fort Lupton	WCR 18.5	***Closed***	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 18. Would happen in conjunction with parallel road system between WCR 18 and WCR 28)	***$200,000***	***Yes***
	WCR 20	***RI/RO***	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)	***$800,000***	***Yes***
Weld County	WCR 22	***Diamond***	***Recommended***	***$32,000,000***	***Yes***
	WCR 22.5	***Closed***	***Recommended*** (Closure would happen in conjunction with interchange at WCR 22. Would happen in conjunction with parallel road system between WCR 18 and WCR 28)	***$100,000***	***Yes***
	WCR 24.5	***RI/RO (West); Closure (East)***	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)	***$400,000***	***Yes***
	WCR 26	***RI/RO***	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)	***$800,000***	***Yes***
	WCR 28	***SPUI***	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)	***$37,900,000***	***Yes***
Platteville	WCR 30	***Closed***	***Recommended*** (Requires new parallel connection to WCR 32)	***$3,000,000***	***No***
	SH 66	***Channelized-T with SB Grade Separation***	***Recommended*** (SB grade separation; consider groundwater and shifting alignment to the east)	***$16,500,000***	***Yes***

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Platteville	Marion Avenue	***Partial Closure***	***Recommended*** (¾ movement)	***$200,000***	***Yes***
	WCR 32, Grand Avenue	***Signalization***	***Recommended*** (Frontage road relocation to eliminate phasing. Improvements work in conjunction with parallel road to WCR 30 in Platteville.)	***$400,000***	***No***
	WCR 34	***Diamond***	***Recommended***	***$38,700,000***	***Yes***
	WCR 36	***Closed***	***Recommended*** (With connections to next intersections north and south. Closure will happen in conjunction with interchange at WCR 34 and SH 60)	***$100,000***	***Yes***
	SH 60	***Diamond***	***Recommended*** (interim storage lengths)	***$38,500,000***	***Yes***
	WCR 38	***Closed***	***Recommended*** (When signal improved connection to WCR 40 and WCR 60. Closure happens in conjunction with improvements at SH 60)	***$100,000***	***Yes***
	WCR 29/38.5	***Closed***	***Recommended*** (When signal improved connection to WCR 40 and WCR 60)	***$200,000***	***Yes***
Gilcrest	WCR 40	***Traffic Signal***	***Recommended*** (Realign west frontage road at the intersection)	***$1,200,000***	***Yes***
	Elm Street	***¾ Access***	***Recommended*** (East side closure only when signal at WCR 40)	***$300,000***	***Yes***
	Main Street	***Channelized-T***	***Recommended*** (Must cul-de-sac western frontage roads)	***$800,000***	***Yes***
	WCR 31/Ash Street	***No Action***	***Recommended*** (Maintain current ¾)	***N/A***	***No***
	WCR 42	***Add EB Right Turn Lane***	***Recommended*** (Create EB turn lanes; consider signal phasing during pre-emption)	***$600,000***	***No***

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Weld County	WCR 33	***Closed***	***Recommended*** (Improvements work in conjunction with WCR 44 improvements, including interim improvements)	***$4,200,000 (includes Interim Improvements at WCR 44)***	***No***
	WCR 44	***Interchange***	***Recommended*** (Improvements work in conjunction with WCR 33 improvements. Includes interim improvements of a signal)	***$30,600,000 (Interim Improvements = $4,200,000)***	***Yes***
	WCR 46/WCR 35	***Channelized-T with Closure on the East Side***	***Recommended***	***$1,400,000***	***No***
	WCR 48/ WCR 37	***Channelized-T with East Side Closure***	***Recommended***	***$600,000***	***Yes***
La Salle	1st Avenue	***Traffic Signal***	***Recommended*** (Turn lane extensions, to address railroad operations)	***$300,000***	***No***
	2nd Avenue	***RI/RO***	***Recommended***	***$300,000***	***Yes***
	3rd Avenue	***No Action***	***Recommended***	***N/A***	***No***
	4th Avenue	***RI/RO***	***Recommended***	***$300,000***	***Yes***
	5th Avenue	***No Action***	***Recommended***	***N/A***	***No***
	1st Street	***¾ Access***	***Recommended*** (Median channelization for left turn lane)	***$200,000***	***Yes***
	SH 394	***Couplet Intersection***	***Recommended***	***$5,400,000***	***No***
Evans	42nd Street	***Auxiliary Lane Additions***	***Recommended*** (Can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)	***$900,000***	***No***
	37th Street	***Auxiliary Lane Additions***	***Recommended*** (Can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)	***$1,000,000***	***No***

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Evans	31st Street	***Auxiliary Lane Additions***	***Recommended*** (Can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)	***$1,800,000***	***No***
	US 34 Interchange	TBD	Feasible	***N/A***	***N/A***
Greeley	22nd Street	***Texas Turnaround***	***Recommended*** (Requires parallel road connection to allow business access on the east side of the railroad. Context of Texas U fits better because of more space and access exists off existing frontage roads)	***$19,600,000***	***Yes***
	18th Street	***Texas Turnaround***	***Recommended*** (Context of Texas U fits better because of more space and access exists off existing frontage roads)	***$16,900,000***	***Yes***
	16th Street	***Texas Turnaround***	***Recommended*** (Context of Texas U fits better because of more space and access exists off existing frontage roads)	***$14,600,000***	***Yes***
	13th Street	***Texas Turnaround***	***Recommended*** (Context of Texas U fits better because of more space and access exists off existing frontage roads)	***$16,500,000***	***Yes***
	8th Street	***Texas Turnaround***	***Recommended*** (Fits context of surrounding land uses and parcels than split diamond)	***$23,500,000***	***Yes***

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Greeley	5th Street	***Texas Turnaround***	***Recommended*** (Fits context of surrounding land uses and parcels than split diamond)	***$17,700,000***	***Yes***
	O Street	***Closure and Combine with Signal at WCR 66***	***Recommended*** (Constructed in conjunction with a traffic signal at WCR 66. Has some out of direction travel but fits context of surrounding land use)	***$10,900,000 (includes WCR 66)***	***Yes***
	WCR 66	***Traffic Signal***	***Recommended*** (Constructed in conjunction with closures at O Street. Lane additions to be studied)	***$10,900,000 (includes WCR 66)***	***No***
Lucerne	SH 392	***Auxiliary Lane Improvements***	***Recommended***	***$1,400,000***	***No***
	WCR 70	***No Action***	***Recommended***	***N/A***	***No***
Eaton	WCR 72	***Closure (on East Side Only***	***Recommended*** (Closure at WCR 72 in conjunction with new improvements in Eaton and full access maintained at WCR 70. East side only; enhance CR 39)	***$100,000***	***Yes***
	Colorado Pkwy	***¾ Movement***	***Recommended***	***$800,000***	***No***
	Orchard Street	***RI/RO***	***Recommended***	***N/A***	***No***
	Collins Street	***No Action***	***Recommended***	***N/A***	***No***
	1st Street	***No Action***	***Recommended***	***N/A***	***No***
	2nd Street	***No Action***	***Recommended***	***N/A***	***Yes***
	3rd St	***No Action***	***Recommended***	***N/A***	***Yes***
	4th Street	***No Action***	***Recommended***	***N/A***	***No***
	5th Street	***Traffic Signal***	***Recommended*** (HAWK)	***$600,000***	***No***
	7th Street	***No Action***	***Recommended***	***N/A***	***Yes***
	WCR 76	***Signal***	***Recommended***	***$400,000***	***No***

Community	Location	Improvement Type	Recommendation	Cost	ACP Amendment Required?
Eaton	WCR 37	***Close on East Side and Parallel South to CR 76***	***Recommended*** (Would happen in conjunction with signal at WCR 76)	***$100,000***	***No***
	WCR 78	***No Action***	***Recommended***	***N/A***	***No***
	WCR 80	***No Action***	***Recommended***	***N/A***	***Yes***
Ault	SH 14	***No Action***	***Recommended***	***N/A***	***N/A***
	2nd Street	***No Action***	***Recommended***	***N/A***	***N/A***
	3rd Street	***No Action***	***Recommended***	***N/A***	***N/A***
	WCR 84	***No Action***	***Recommended***	***N/A***	***N/A***
	WCR 86	***No Action***	***Recommended***	***N/A***	***N/A***
Pierce	WCR 88	***No Action***	***Recommended***	***N/A***	***N/A***
	Main Street	***No Action***	***Recommended***	***N/A***	***N/A***
	WCR 90	***Traffic Signal***	***Recommended*** (HAWK interim)	***$500,000***	***N/A***
	WCR 92	***No Action***	***Recommended***	***N/A***	***N/A***
	WCR 94	***No Action***	***Recommended***	***N/A***	***N/A***
	WCR 96	***No Action***	***Recommended***	***N/A***	***N/A***
Nunn	WCR 98	***No Action***	***Recommended***	***N/A***	***N/A***
	4th Street	***No Action***	***Recommended***	***N/A***	***N/A***
	WCR 100	***Signal with Closure***	***Recommended*** (Closure east side only)	***$400,000***	***N/A***

1 Notes:

CR = County Road
DDI = Diverging Diamond Interchange
EB = eastbound
I-76 = Interstate 76
RI/RO = right-in/right-out
RR = railroad
SB = southbound
SH = State Highway
SPUI = Single Point Urban Interchange
TBD = to be determined
v/c = volume to capacity ratio
WCR = Weld County Road

2

1.0 INTRODUCTION AND PURPOSE AND NEED

The Colorado Department of Transportation (CDOT) has conducted a Planning and Environmental Linkages (PEL) study for the segment of United States Highway 85 (US 85) between Interstate 76 (I-76) and Weld County Road (WCR) 100. The objective of the US 85 PEL study is to develop a strategic vision for US 85 that addresses safety, mobility, and access concerns.

The goals of the project are to:

- Identify the transportation needs along US 85 from I-76 to WCR 100
- Create a vision for development improvements that address the needs
- Determine the short-term and long-term transportation priorities for US 85
- Position the corridor for successful and streamlined implementation of improvements

Short-term and long-term improvements have been identified and prioritized through a collaborative process with stakeholders and the public along the corridor. The US 85 Access Control Plan (ACP) (1999) serves as a foundation for the PEL study.

As part of the US 85 PEL study, CDOT prepared a *Corridor Conditions Report*, which documents current and anticipated future corridor conditions in regard to land use, the transportation system, and environmental resources. Information from the *Corridor Conditions Report* was used as a foundation for determining the transportation needs and potential improvements in the corridor. The *Corridor Conditions Report* is hereby incorporated by reference (CDOT 2015) into this PEL document; however, the *Corridor Conditions Report* is available electronically as **Appendix A** to this document. In compliance with the Federal Highway Administration (FHWA) guidance, **Appendix B** contains the FHWA Colorado Division Planning/Environmental Linkages Questionnaire prepared for this PEL study. **Appendix C** presents the detailed summary of Alternatives Development and Evaluation, which is summarized in **Section 3.0**.

What is a PEL?

PEL is a study process used to identify transportation issues, priorities, and environmental concerns. A PEL study can lead to a seamless decision-making process that minimizes duplication of effort, promotes efficient and cost-effective solutions, promotes environmental stewardship, and reduces delays in project implementation. The purpose of a PEL study is to perform preliminary analysis and to make decisions not completed as a part of traditional regional level planning that will make NEPA-level evaluation and decision-making more transparent to resource agencies and the public.

PEL represents an approach to transportation decision-making that considers environmental, community, and economic goals early in the planning stage and carries them through project development, design, and construction. This leads to a seamless decision-making process that minimizes duplication of effort, promotes efficient and cost-effective solutions and environmental stewardship, and reduces delays in project implementation.

More information about the PEL process can be found on the CDOT website at https://www.codot.gov/programs/environmental/planning-env-link-program

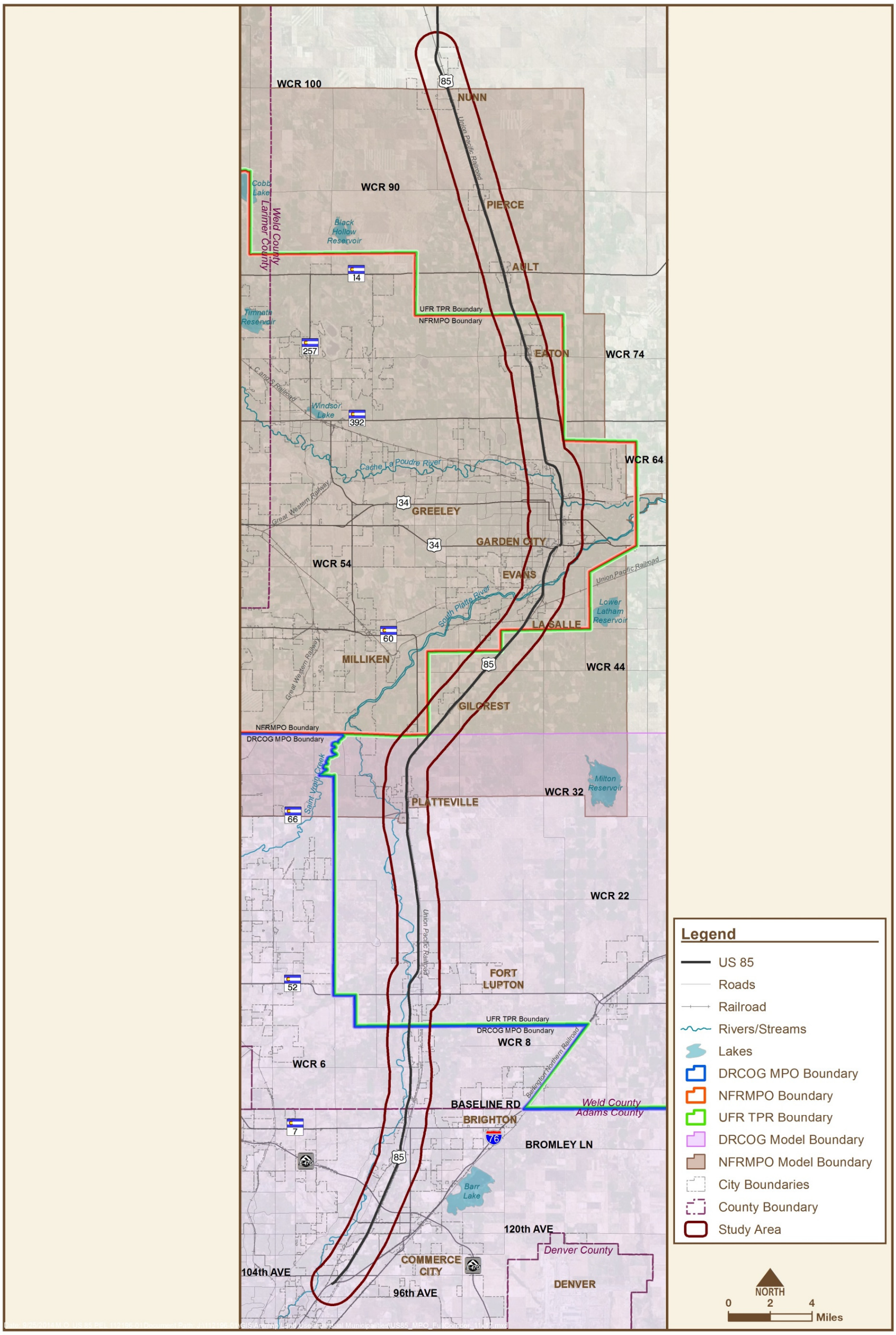
1.1 Study Location and Description

The US 85 PEL study area includes approximately 62 miles of US 85 between I-76 in Commerce City and WCR 100 in the Town of Nunn, Colorado. US 85 is a north-south expressway under the jurisdiction of CDOT. This stretch of US 85 passes through:

- 13 municipalities (Commerce City, Brighton, Fort Lupton, Platteville, Gilcrest, LaSalle, Evans, Greeley, Garden City, Eaton, Ault, Pierce, and Nunn);
- 2 counties (Adams County and Weld County); and
- 3 regional planning organizations: Denver Regional Council of Governments (DRCOG), North Front Range Metropolitan Planning Organization (NFRMPO), and Upper Front Range (UFR) Transportation Planning Region (TPR).

Figure 1.1 shows the study area and the municipal, county, and regional boundaries.

Figure 1.1 Study Corridor and Vicinity Map



1.2 Planning Context and Other Transportation Projects in the Vicinity

Regional planning agencies, coalitions, counties, and municipalities have developed several transportation studies and plans that relate to the project corridor in various capacities. The following subsections summarize the plans related to the US 85 corridor.

1.2.1 Regional Planning Agencies

Colorado Department of Transportation

US 85 Access Control Plan (1999)

The US 85 Access Control Plan (ACP), completed by CDOT Region 4 in 1999, includes US 85 from I-70 to WCR 80. This long-range plan addresses how each access along this segment should be treated, the cost for the recommended access modifications, and the relative priority of the improvements. The ACP was adopted through an Intergovernmental Agreement (IGA) among CDOT and the corridor towns, cities, and counties. The ACP serves as a blueprint for improvements along the corridor. All parties in the IGA must agree to any changes to the plan. **Figure 1.2** identifies the ACP generalized recommendations.

North I-25 Environmental Impact Statement (2011)

In 2011, CDOT completed a Final Environmental Impact Statement (FEIS) to identify and evaluate multimodal transportation improvements along approximately 60 miles of the I-25 corridor from the Fort Collins-Wellington area to Denver. The North I-25 FEIS study area included the two major transportation corridors that surround I-25 (US 287 and US 85). The US 85 corridor that was studied included US 85 from the northern Denver metropolitan area north through Greeley and to Ault. The FEIS addressed regional and inter-regional movement of people, goods, and services along I-25 and the US 85 corridors. The FEIS identified a Preferred Alternative with the following elements:

- **General Purpose Lanes** – One new general purpose lane in each direction of I-25 between State Highway (SH) 66 and SH 14.
- **Tolled Express Lanes (TEL)** – One buffer-separated TEL in each direction of I-25 from the existing High Occupancy Vehicle (HOV)/Express Toll lanes at approximately 84th Avenue north to SH 14. Wellington to Denver.
- **Interchanges** – Thirteen upgraded I-25 interchanges.
- **Express Bus** – Express bus with 13 stations along I-25, US 34, and Harmony Road with service from Fort Collins and Greeley to downtown Denver and Denver International Airport (DIA).
- **Commuter Rail** – Commuter rail service with nine stations connecting Fort Collins to Longmont using the BNSF Railway right-of-way (ROW), generally paralleling SH 119 then County Road (CR) 7 and tying into FasTracks North Metro line in Thornton, providing service to downtown Denver. Passengers may also connect to the FasTracks Northwest line in Longmont, which will travel to Boulder.
- **Commuter Bus** – Commuter bus service with eight stations along US 85 connecting Greeley to downtown Denver. Commuter bus stations were included as part of the commuter bus system and are located in Fort Lupton, Platteville, Evans, and two in Greeley.

Commuter Bus – Commuter bus service with eight stations along US 85 connecting Greeley to downtown Denver. Commuter Bus Stations were included as part of the Commuter Bus system and are located in Fort Lupton, Platteville, Evans, and two in Greeley.
North I-25 FEIS

- **Congestion Management** — Accommodations for ridesharing, carpools, and vanpools, along with additional bicycle and pedestrian facilities and improved signal timing, ramp metering on I-25, and signage.

In late 2011, CDOT issued a Record of Decision (ROD) for Phase 1 of the Preferred Alternative. The following elements of the Preferred Alternative were included in ROD 1:

- Widening I-25 between SH 14 and SH 392
- Widening I-25 between SH 56 and SH 66 with one TEL in each direction.
- Widening I-25 between approximately US 36 and 120th Avenue with one buffer-separated TEL in each direction and interchange modifications, as necessary
- Replacement and reconstruction of five interchanges to their ultimate configurations
- Replacement or construction of 46 structures, modification of 2 existing structures, and rehabilitation of (minor) 2 structures
- Installation of six carpool lots at I-25 interchanges
- I-25 express bus, including transit stations and service
- US 85 commuter bus, including transit stations and service

In 2014, CDOT and FHWA completed ROD 2, which addresses the inclusion of a TEL from 120th to SH 7. ROD 3, approved in June 2016, addresses the interchange at I-25 and Crossroads Boulevard.

US 85 FASTER Intersection Prioritization Study (2013)

In 2011, CDOT identified 10 intersections along US 85 from WCR 18.5 near Fort Lupton to SH 394/ WCR 52 just north of LaSalle as candidates for safety improvements under CDOT's Funding Advancements for Surface Transportation and Economic Recovery Act of 2009 (FASTER). The US 85 FASTER Intersection Prioritization Study evaluated each intersection based on safety, access, benefit/cost, and clearance and then assigned a relative prioritization. The study focused on unsignalized intersections along this section of the US 85 corridor. The proposed projects focused on low to moderate cost improvements that could be implemented in the immediate future without significant impacts to environmental resources, properties, or utilities. The following locations were ranked as high priority:

- **US 85 and WCR 44 & 33** — Recommendations included the addition of a signal at WCR 44, reconfiguration of WCR 33 access, and improvement of existing auxiliary lanes. Adding the signal, reconfiguring WCR 33 access, and improving the existing auxiliary lanes provide both safety and operational benefits for the highest accident location in the study area.
- **US 85 and SH 394 & WCR 52** — Recommendations included the addition of southbound right-turn deceleration and eastbound to northbound left-turn acceleration lanes. Adding the auxiliary lanes and extending the southbound left-turn deceleration lane provide both safety and operational benefits for a location with high truck turning volumes.

Intercity Bus

The CDOT Division of Transit and Rail has recently updated the *Intercity and Regional Bus Network Plan* (CDOT 2014), which includes US 85. It identifies the current intercity bus service along US 85 that is served by Greyhound. It also recommends the towns along the US 85 corridor between Greeley and Denver be served with Essential Regional Services. The report defines "Other Essential Regional Services" as primarily operating on a fixed route and fixed schedule for traveling from rural to urban areas, with flexible routing at either end of the route. They are designed to serve areas within 200 miles of a regional service center (3.5 hours' drive time), allowing a same day trip with 4 to 5 hours to conduct business (CDOT 2014).

Denver Regional Council of Governments

The 2035 DRCOG long-range regional plan, the *2035 Metro Vision Regional Transportation Plan* (MVRTP), was used to address the challenges and guides the development of Denver's multimodal transportation system over the next 25 years. MVRTP recognizes the importance of US 85 as one of the main thoroughfares between Denver and northeast Colorado. DRCOG has released the 2040 Fiscally Constrained Regional Transportation Plan (RTP) since the US 85 PEL was substantially completed. It was determined that the modeling and analyses performed in the US 85 PEL would not be updated to the 2040 RTP. However, the following does recognize the improvements from the 2040 RTP. The 2035 MVRTP Fiscally Constrained Plan lists the following projects related to the US 85 corridor:

- 104th Avenue from US 85 to SH 2 — Locally funded capacity project (roadway widening)
- US 85 — 104th Avenue Intersection Operations (Completed Project-2015, Transportation Improvement Plan Identification Number [TIPID] 2003-135)
- US 85 — New Interchange at Bromley Lane (Ongoing Project, TIPID 2005-137)

Additionally, the DRCOG 2040 RTP identified the following projects relating to the US 85 Corridor:

- 104th Avenue from Grandview Ponds to SH 2 — Widen from two to four lanes (Listed as three projects in the RTP)
- East Bromley Lane—US 85 to Sable Boulevard — -Widen from four to six lanes
- SH 7—Riverdale Road to US 85 — Widen from two to four lanes

SH 7 (Lafayette to Brighton) PEL

In 2014, CDOT completed a PEL study on SH 7 from US 287 in the City of Lafayette to US 85 in the City of Brighton to establish existing conditions, to identify future transportation challenges (using the year 2035 as a planning horizon), and to create a vision that will serve as a blueprint for future multimodal transportation improvements in this approximately 16-mile corridor. This study developed a Recommended Alternative for multimodal transportation improvements along the entire length of the corridor and presented an approach to the prioritization and funding of those improvements. For the segment of SH 7 from Holly Street to US 85, much of the development is expected to be low density residential in nature (single family homes). Consequently, the communities preferred to retain a rural character in this section of the corridor. Therefore, the recommended cross-section included two 12-ft travel lanes in each direction, a painted median, 12-ft shoulders/bike lanes, roadside ditches for drainage, and 10-ft shared use paths. The median was not carried across the bridge over the South Platte River. On the easternmost portion, from Miller Avenue to US 85, the cross-section narrowed to an urban section without shoulders to reflect the restricted ROW in this area.

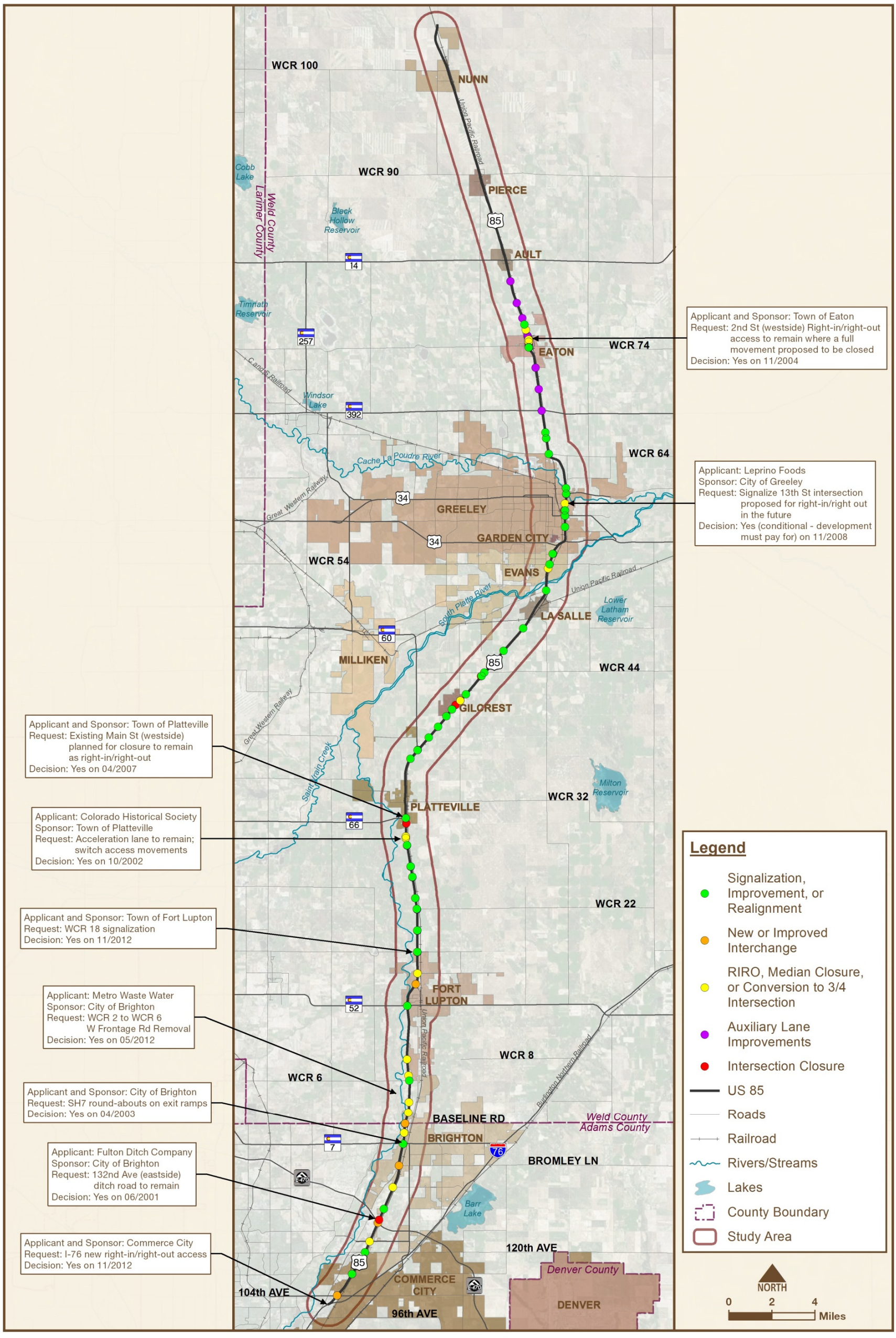
SH 7 (Boulder to Brighton) Bus Rapid Transit (BRT) Feasibility Study

Boulder County initiated a feasibility study to evaluate BRT along SH 7 in April 2016. The feasibility study will evaluate BRT capital improvement and operational options, as well as BRT build-out scenarios including travelway features, service plans, stations, associated land use, and total capital and operation conceptual cost. The feasibility study is expected to be completed in 2017 and will provide a phased blueprint for implementation of the recommended BRT scenario(s), including a prioritized list of projects.

Northeast Area Transit Evaluation (NATE)

RTD conducted NATE in 2007 to investigate ROW preservation opportunities for future, post-FasTracks, fixed guideway bus and/or rail transit between Denver and Brighton. The study area was generally located between US 85 and I-76, north and east of Commerce City to the Weld County line. Based on the conceptual-level comparative analysis, the most favorable alignment was commuter rail operation along the Union Pacific – Greeley line between the North Metro Corridor (serving Denver Union Station) and downtown Brighton. Potential station locations were identified in the area between 64th Avenue and 72nd Avenue (connection to the North Metro Corridor), 120th Avenue/US 85, and Downtown Brighton near the Old Depot station area.

Figure 1.2 Access Control Plan Recommendations



North Front Range Metropolitan Planning Organization

NFRMPO's 2035 Regional Transportation Plan Update (2011), a corridor-based long-range plan, prioritizes corridors in the North Front Range Planning Area. The Plan identifies US 85 from WCR 48 on the south to WCR 70 on the north (including US 85 Business Route through Greeley and the Union Pacific Railroad [UPRR]) as a regionally significant corridor with the following goals:

- Increase mobility — Construct intersection and interchange improvements such as traffic signals, auxiliary lanes, and roadway improvements
- Support commuter travel by expanding transit usage and initiating travel demand management (TDM) — Expand transit service coverage and provide improved transit amenities
- Increase travel reliability with a focus on supporting commuter travel and increased freight transport

Upper Front Range Transportation Planning Region

The UFR TPR is one of 15 TPRs in the state. A fiscally constrained plan was developed as a part of the *Upper Front Range 2030 Regional Transportation Plan* to identify those highest priority projects that are likely to be funded by the year 2030 based on the projected financial resources available to the region. The fiscally constrained plan identified the following US 85 projects:

- Intersection improvements at US 85 and SH 60 in Platteville
- Traffic signal and intersection improvements at US 85 at WCR 42 in Gilcrest
- Traffic signal and intersection improvements at US 85 at WCR 74 in Eaton
- Intersection improvements (right-in/right-out [RI/RO] or ¾ movements) at US 85 at WCR 2.5, WCR 4, and WCR 6.25
- Corridor improvement plan on US 85 from WCR 40 to WCR 42 in Gilcrest

1.2.2 Highway 85 Coalition

The Highway 85 Coalition was created via a Memorandum of Understanding (MOU) in 2009 among Weld County and Ault, Brighton, Eaton, Evans, Fort Lupton, Gilcrest, Greeley, LaSalle, Pierce, and Platteville. This effort is in partnership with CDOT and UPRR. The Coalition desires to continue implementing the ACP vision so that the vitality of the corridor can be preserved for future improvements. The Coalition intends to expand the efforts of the ACP and incorporate not only transportation but also land use and sustainability resources.

1.2.3 Counties

Two counties are active in the progress and development of US 85. Adams County lies on the southern end of the study corridor, while most of the study area lies within Weld County. Both counties have their own distinct characters, industries, housing, and associated growth patterns. Each county is discussed relative to its transportation planning surrounding US 85.

Adams County

Adams County identified US 85 as a regional strategic road corridor as a part of their Comprehensive Plan (2012) and Transportation Plan (2012). According to these plans, mobility is the predominant function for this corridor, and access will be limited to provide safe and efficient through travel. The Transportation Plan will incorporate the recommendations from the US 85 PEL study for multiple intersections within Adams County, including US 85 at 104th Avenue, 112th Avenue, 120th Avenue, 136th Avenue, and 144th Avenue.

Weld County

Weld County's 2035 Transportation Plan (2011), a needs-based plan, summarizes existing transportation conditions and recommends policy, funding, and roadway development for Weld County. This plan recognizes US 85 as a major north-south route that provides regional mobility to and through their county. This plan mentions the importance of the Highway 85 Coalition, which is a direct follow-up to the IGA for the US 85 ACP.

1.2.4 Municipalities

Thirteen cities and towns along the study corridor have a vested interest in the decisions made for US 85. The corridor varies in character from community to community. It is urban in character as it passes through several communities. The highway serves as an integral part of the local transportation network in some communities. In other communities, the corridor is primarily agricultural in nature and very rural.

City of Brighton

The City of Brighton cites US 85 in two planning documents. First, the *2020 Comprehensive Plan* wants to manage surrounding US 85 for the protection of prime farmland, working toward open space objectives and goals while allowing limited development to occur. In respect to transportation planning, the City of Brighton plans to minimize environmental and quality of life disturbances while maximizing efficiency and multimodal opportunities.

In the *South Sub-Area Plan* (2005), the City of Brighton discusses three roadway improvements that intersect US 85:

- SH 22 or 124th Avenue would be closed to allow the development of an interchange at 120th Avenue and US 85, as recommended by the US 85 ACP (1999).
- 136th Avenue would increase to a six-lane major arterial from US 85 to I-76.
- 144th Avenue would be reduced to a four-lane major arterial with dual left turns.

City of Commerce City

The City of Commerce City references US 85 in three City documents: the US 85 ACP (1999), the *Highway 85 Corridor Study* (2002), and the *Comprehensive Plan* (2010). The US 85 ACP and the *Highway 85 Corridor Study* recommend improvements at 104th Avenue and 120th Avenue, as well as required multimodal improvements. The *Comprehensive Plan* identified US 85 as a priority corridor for appearance and way-finding enhancements.

Town of Eaton

In their *Transportation Plan* (2013), the Town of Eaton adopted the US 85 ACP (1999) improvements for the following intersections:

- **5th Street** — Signalize, improve bicyclist and pedestrian access, and install Rectangular Rapid Flash Beacon (RRFB)
- **Collins Street** — Improve pedestrian crossing, install channelized right-turn lanes, and improve all turn lanes to meet state standards

City of Evans

The City of Evans has two documents that recommend improvements along US 85. The *Comprehensive Plan* (2004) recommends creating a US 85 business district since the highway divides east and west sides of the city rather than being a connector. In addition to the *Comprehensive Plan*, the

Transportation Plan (2004) describes access issues and operational deficiencies with US 85 throughout the city. To look toward the future, the plan develops four goals for the City of Evans:

- To ensure that adequate transportation facilities will serve new development
- To support a variety of transportation choices
- To develop a network of continuous and direct streets, walkways, and bicycle lanes
- To coordinate long-range land use and transportation decisions

City of Fort Lupton

The City of Fort Lupton recognizes US 85 in their *Comprehensive Plan* (2007) and a *Business Corridor Plan* (2004). Both plans recognize the importance of creating community gateways at major intersections, including the grade-separated intersection of US 85 at Highway 52 (1st Street).

Town of Garden City

The Town of Garden City does not have a transportation plan; however, the Town is a stakeholder in the corridor and has participated with planning efforts as part of this PEL. Additionally, Garden City plans to continue to work with the Highway 85 Coalition to seek enhancements to the US 85 corridor that complement the US 85 ACP.

Town of Gilcrest

In 2003, the Town of Gilcrest developed their *Comprehensive Plan*, which adopted the ACP (1999) recommendations. The *Comprehensive Plan* also adopted goals to efficiently and economically service the existing and new businesses and to ensure an effective and safe transportation system for the town's citizens.

In this plan, the Town of Gilcrest accepted and recommended the US 85 ACP (1999) improvements. The related improvements to US 85 include the following:

- Relocate Frontage Road (Railroad Street) farther away from US 85
- Realign WCR 40
- Realign and signalize Elm Street, WCR 31 (Ash Street), and WCR 42
- Close intersection with Main Street

City of Greeley

The City of Greeley identified US 85 as an important corridor in the City's 2060 Comprehensive Plan (City of Greeley 2009). In this study, the City identified to work with other transportation agencies and local municipalities to improve US 85 and to "promote the development of comprehensive, effective, efficient and attractive travel along this transportation and entryway corridor."

Additionally, the City recently undertook a substantial infrastructure improvement to create an interconnected traffic signals along the US 85 Bypass. This allows for adaptive signal control to facility traffic flow throughout the City and along US 85 Bypass.

The US 85 Bypass crosses the City of Greeley through one distinct neighborhood, Sunrise Neighborhood. This neighborhood has a plan that discusses issues regarding US 85.

The Sunrise neighborhood is located between the UPRR to the east and US 85 to the west and is bordered on the north by 5th Street and on the south by 16th Street. Their Neighborhood Plan (2006) notes the relatively low traffic despite being adjacent to US 85 and the desire to improve maintenance activities for their local street network.

From a broader perspective, the *2060 Comprehensive Plan* (2009) aims for a transportation goal that optimizes safe, efficient, and pleasing movement of people, goods, and services into and throughout

the community through a comprehensive local and regional interconnected transportation system. In 2013, the City of Greeley developed the *Parks and Open Lands Plan*, which indicates that the city plans to create connective open spaces and illustrates a possible bike and pedestrian path crossing US 85.

Town of LaSalle

In 2010, LaSalle worked to develop and release their *Transportation Plan*. Proposed improvements related to US 85 include the following:

- Intersection signalization at WCR 46/WCR 35, WCR 48/WCR 37, Crystal River Road, and WCR 394/WCR 52
- Extending transit service to LaSalle (Greeley-Evans Transit [GET])
- Intersection improvements at WCR 48/WCR 37, Sunset Drive, 1st Avenue, WCR 46/WCR 35, and WCR 394/WCR 52

Town of Platteville

The Town of Platteville cites US 85 as a part of the *Comprehensive Plan* (2010) and *Amendment* (2013). The Town of Platteville incorporated the recommendations of the US 85 ACP (1999) as a part of their *Comprehensive Plan*. The Town plans to continue to work with the Highway 85 Coalition to seek enhancements to the US 85 corridor that complement the US 85 ACP.

Town of Ault

In their *2008 Comprehensive Plan*, the Town of Ault describes the current conditions related to US 85. Most businesses on the US highway are auto-oriented, light industrial uses with nondescript architecture and limited landscaping. The railroad, running parallel to US 85, and the granary hold the biggest presence on US 85. The Town of Ault envisions developing a transportation plan, encouraging multimodal transportation use, and coordinating with local and regional agencies such as the towns of Eaton and Pierce, cities of Fort Collins and Greeley, Weld and Larimer counties, Colorado Parks and Wildlife (CPW), USDA Forest Service (USFS), and the NFRMPO. The Town of Ault was not included in the US 85 ACP, because the northern extent of the US 85 ACP was WCR 80, which is south of the Town of Ault; however, Ault has been a participant in the US 85 Coalition.

Town of Pierce

The Town of Pierce does not have a comprehensive plan or a transportation plan; however, the Town has been consistently involved in the Highway 85 Coalition. The Town of Pierce was not included in the US 85 ACP, because the northern extent of the US 85 ACP was WCR 80, which is south of the Town of Pierce; however, Pierce has been a participant in the US 85 Coalition.

Town of Nunn

The Town of Nunn completed a *Comprehensive Plan* (2008) that seeks to find new economic development revenue streams and to promote the town as a historic tourist destination and as a tourist connection to the Pawnee National Grasslands. The Town of Nunn plans to seek regional coordination with the development of the High Plains Loop Trail with Fort Collins, Greeley, Wellington, Cheyenne, and other communities along US 85. The Town of Nunn was not included in the US 85 ACP, because the northern extent of the US 85 ACP was WCR 80, which is south of the Town of Nunn; however, Nunn has been a participant in the US 85 Coalition.

1.3 Purpose

The purpose of transportation improvements along the US 85 corridor is to improve safety, reduce existing and future traffic congestion, provide efficient access for existing and future development, and improve mobility and connectivity for all transportation modes (cars, trucks, transit, bicycle, and pedestrian) that match the context of the adjacent communities.

1.4 Need

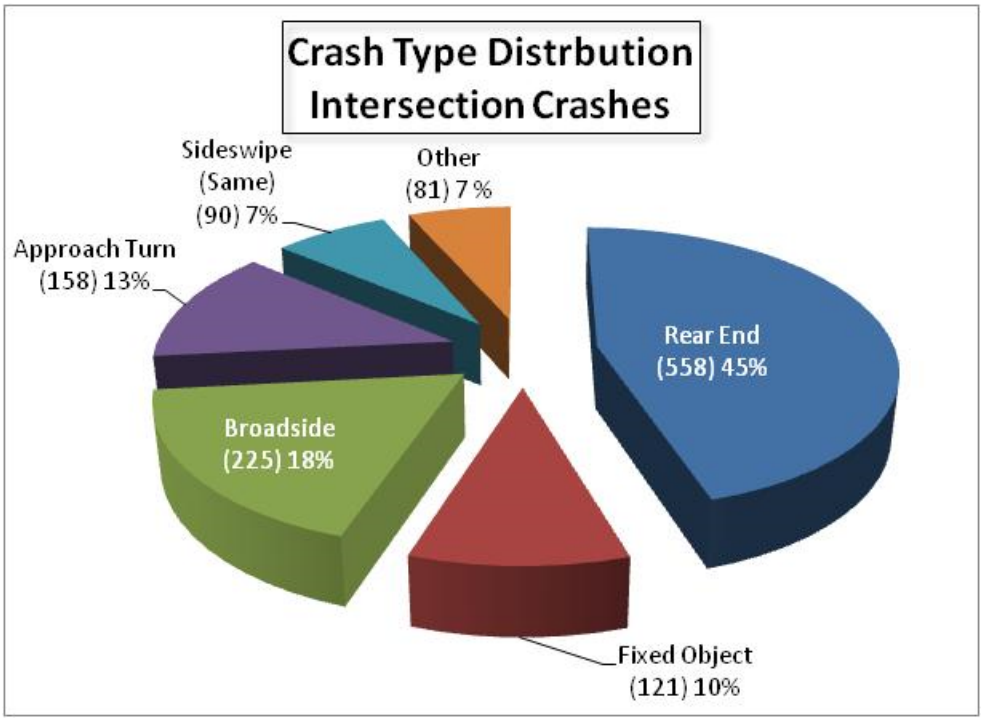
These transportation improvements are needed to address the following problems:

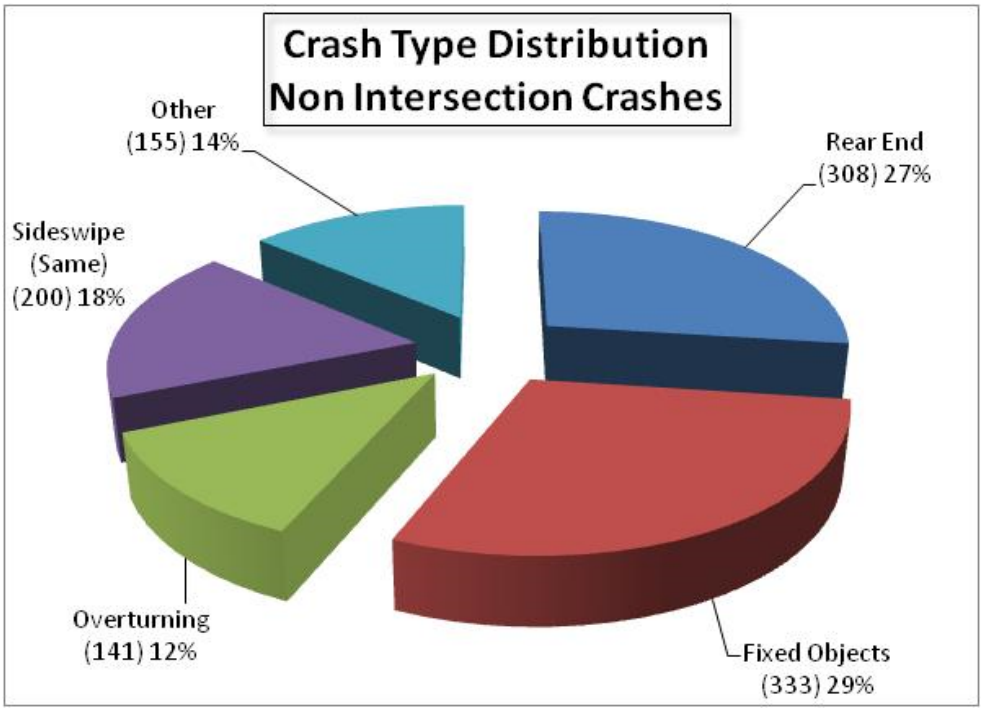
- **Safety** — Several intersection and mainline locations along the US 85 corridor have a higher than expected number of crashes.
- **Mobility** — Traffic congestion, inadequate intersections that fail to accommodate users' needs, highway design, and unreliable travel times substantially impact the ability of people to move across and along the corridor. These conditions are expected to worsen in the future as the region grows due to local and regional population and employment growth.
- **Railroad Proximity** — The close proximity of the UPRR and US 85 can negatively affect the operations of US 85. Passing or standing trains restrict travel to and from the east of US 85 and can cause substantial queuing at some cross streets, sometimes extending into the through lanes of US 85. The facilities are so close at some cross streets that a single large truck cannot queue between US 85 and the UPRR without either overhanging the tracks or encroaching on US 85, resulting in a safety problem.
- **Access** — The current number, locations, and design of public roadway accesses have contributed to traffic operational and safety deficiencies along the corridor. The access problem is exacerbated by the proximity of the highway to the railroad tracks throughout most of the corridor, which further contributes to operational and safety deficiencies, especially for large commercial vehicles.
- **Alternative Travel Modes** — The traveling public has limited or no access to public transportation for essential human services, commuting, recreational, and other travel needs along the corridor. Current infrastructure does not safely accommodate bicyclists and pedestrians traveling parallel or across US 85. Corridor demand for transit, biking, and walking trips is expected to increase in the future.

1.4.1 Safety Problem

The crash history for the most recent five-year period (2008 through 2012) reveals that there were 2,370 total reported crashes in the study corridor. Most crashes (about 71 percent) were property damage only (PDO) crashes. Of the remaining crashes, there were 675 injury crashes and 23 fatal crashes. Most fatal crashes involved overturning, followed by crashes involving fixed objects and approach turns. The number of crashes along the corridor was evenly split between intersection and non-intersection crashes (52 percent and 48 percent, respectively). **Figure 1.3** presents the types of crashes in the corridor along US 85 and at intersections.

Figure 1.3 Corridor Crash Overview





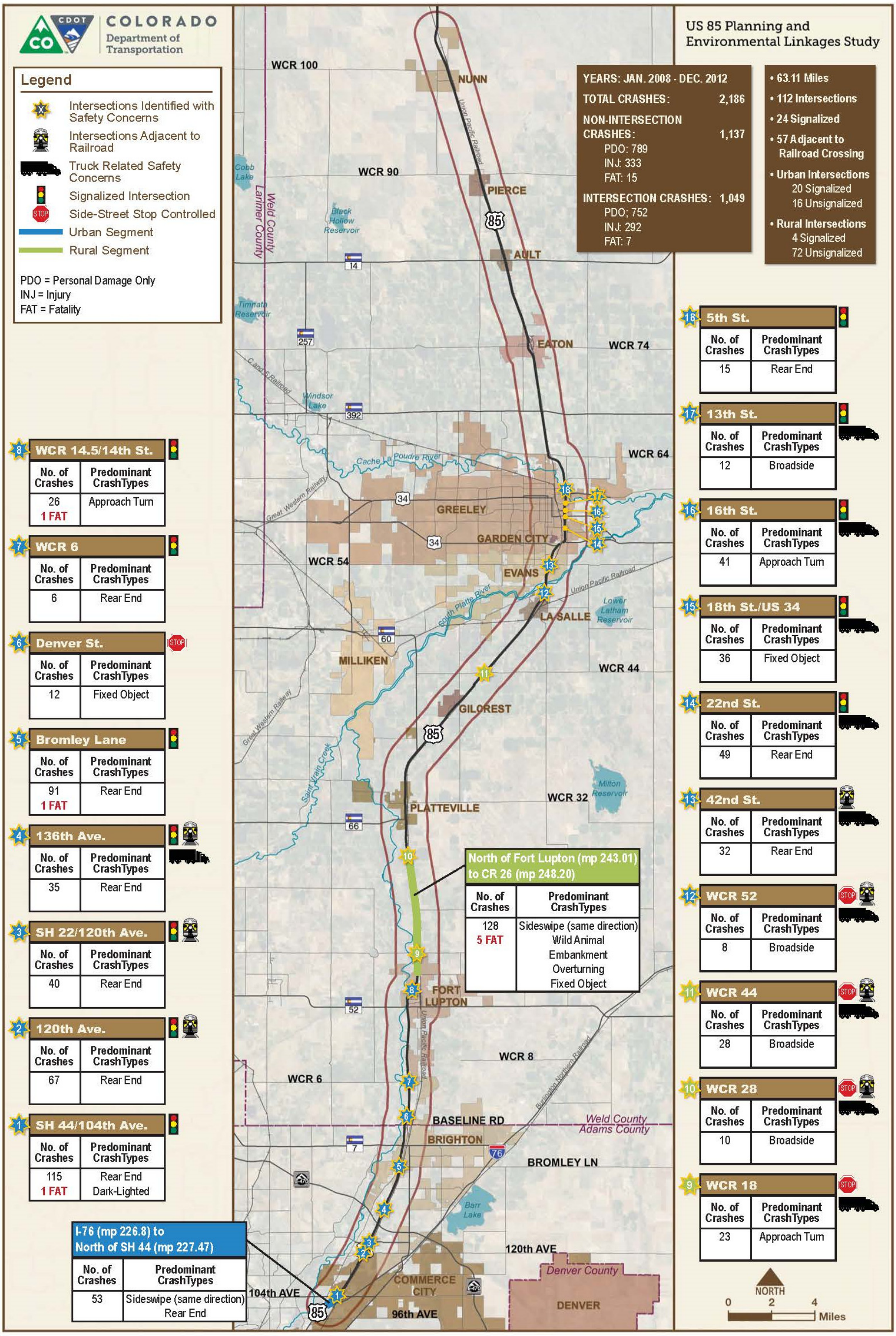
The safety analysis showed 15 urban intersections and 3 rural intersections along the corridor in which crash experience exceeded what is expected for those intersection types (**Appendix D**). Safety analyses indicate that two segments of US 85 (which do not encompass signalized intersections) have shown a higher than expected crash experience when compared to other similar facilities. This comparison used CDOT diagnostic norms according to location (urban versus rural), number of approach lanes, traffic control, and number of approach legs. The rural segment from north of Fort Lupton to WCR 26 experienced above average crash rates, including 5 fatal accidents. Along other corridor segments, there were higher than average injury crashes. **Figure 1.4** shows the intersections and segments with higher than expected crash experience. This highest amount of crashes occurred in the southern portion of the corridor, specifically the US 85 and 104th Avenue intersection and the US 85 section between Fort Lupton and WCR 26.

1.4.2 Mobility Problem

Conditions along the entire study corridor inhibit people's ability to move easily and freely across, onto, and along US 85. The existing daily traffic volumes along US 85 range from approximately 5,400 vehicles per day (vpd) in the northern end of the study area between Pierce and Nunn to 33,000 vpd on the south end of the study area through Commerce City. Daily traffic volumes north of Brighton through Greeley range from approximately 21,000 to 29,000 vpd, while volumes north of Greeley range from 5,400 to 13,000 vpd. In addition, most of the corridor is experiencing substantial daily truck volumes of greater than 2,000 trucks per day. Because of varying land uses and community needs, the US 85 traffic impacts mobility along the entire study corridor. The following are a few specific examples that highlight these mobility impacts:

- In the rural portions of the corridor, traffic volumes, speeds, and inadequate acceleration/ deceleration lanes make it difficult for drivers to access and cross US 85 during certain times of the day, depending on the location.
- In Greeley, the bypass no longer functions as a bypass because of the number of signalized intersections, resulting in delays for local and regional travel through Greeley.
- In Adams County, many substandard cross-streets/intersections impact the ability of the corridor to provide the travel speeds and travel time reliability intended for the high functional classification indicative of that stretch of US 85.

Figure 1.4 High Crash Locations



Regional Mobility

Congestion caused by intersections hinders regional mobility along US 85. The worst performing intersections include: 104th Avenue, 120th Avenue, Bromley Lane, SH 66, and 37th Avenue. Based on recent travel time data, drivers are experiencing up to eight minutes of congestion-related delay through Commerce City and Brighton between 104th Avenue and 168th Avenue daily. Between 1st Avenue in La Salle and O Street on the north side of Greeley, drivers can experience up to six minutes of congestion-related delay. Because of the many intersections through these congested areas, US 85 does not function as intended. The high truck volumes and many access points along the corridor create situations where slow-moving truck traffic negatively affects desired speeds of passenger cars.

Local Mobility

The ability for all travel modes to cross and to access US 85 is an important component of local mobility for the communities along the corridor. Many see US 85 as a barrier to local mobility. The speed and volume of traffic and roadway width, combined with insufficient pedestrian facilities, turn lanes, and acceleration/deceleration lanes, hinder the ability of all travel modes to access or cross the highway. Locations where the Project Team has heard this to be a challenge is Bromley Lane in Brighton, 1st Avenue in LaSalle, and 37th Avenue in Evans.

Traffic Operations

As shown on **Figure 1.5**, many major intersections along the corridor are signalized, and most intersections operate well during the AM and PM peak hours. However, five intersections (104th Avenue, 112th Avenue, Bromley Lane, WCR 32, and 31st Street in Evans) currently have long delays and queues associated with level of service (LOS) E or F during the AM and/or PM peak hours. **Figure 1.5** identifies these intersections as existing traffic operations hot spots. The operation of these intersections also impacts corridor travel speeds. Currently, during the AM and PM peak hours, travel speeds are lower than the posted speed limits for the portions of US 85 containing traffic signals. In the southern end of the corridor, travel speeds are as low as 30 percent of the posted speed limit.

Figure 1.6 identifies the existing travel speeds, posted speed limits, projected 2035 travel speeds for urban sections classified as expressways along US 85. As traffic volumes continue to increase, these speeds will reduce to half the posted speed limit.

The unsignalized intersections along US 85 are two-way stop-controlled. Due to the amount of through traffic on US 85 during the peak hours, drivers from the side streets at unsignalized intersections have difficulty finding a gap in traffic and, therefore, experience longer delays.

US 85 carries a high portion of large truck traffic, generally 10 to 20 percent, with some sections as high as 32 percent truck traffic. Likewise, many side street approaches carry high truck volumes entering onto US 85. The difficulty finding adequate gaps to complete turning movements and crossings is exacerbated because of design deficiencies in accommodating turning trucks such as lack of adequate lane storage and lane width. Furthermore, the slow acceleration of large commercial vehicles contributes to delay on US 85 as the trucks enter onto the highway and accelerate slowly from a stopped condition.

The area in and around the US 85 corridor is forecast for substantial growth. By 2035, the NFRMPO and DRCOG project an additional estimated 45,700 households and 49,300 jobs within the transportation analysis zones intersected by a 2-mile buffer of the study corridor. This growth represents a 77 percent increase of households and a 73 percent increase of employment. The 2035 fiscally constrained regional travel demand models were used to develop 2035 traffic forecasts, using projected land use as an input.

Figure 1.5 Existing and 2035 Projected Traffic Operations

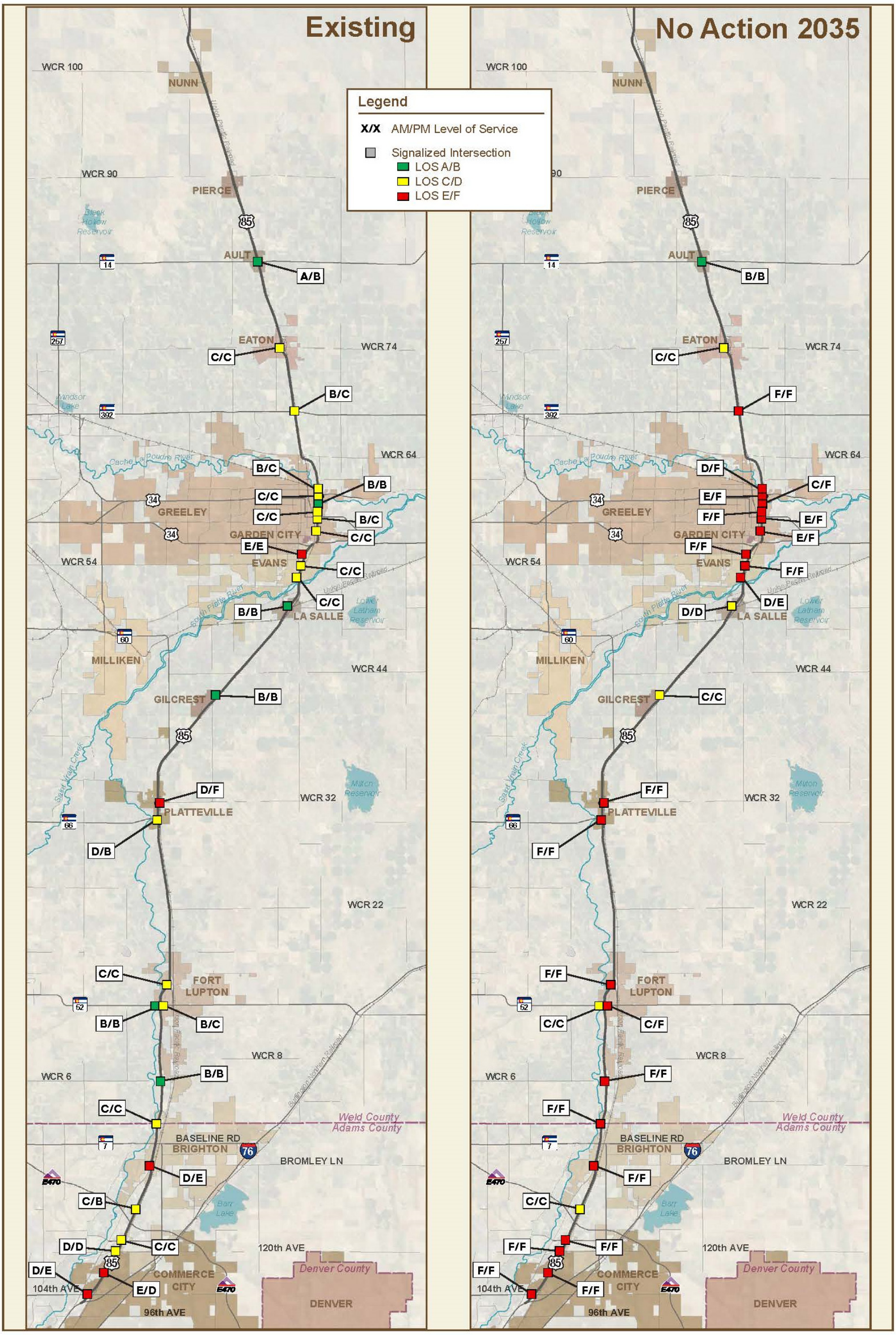
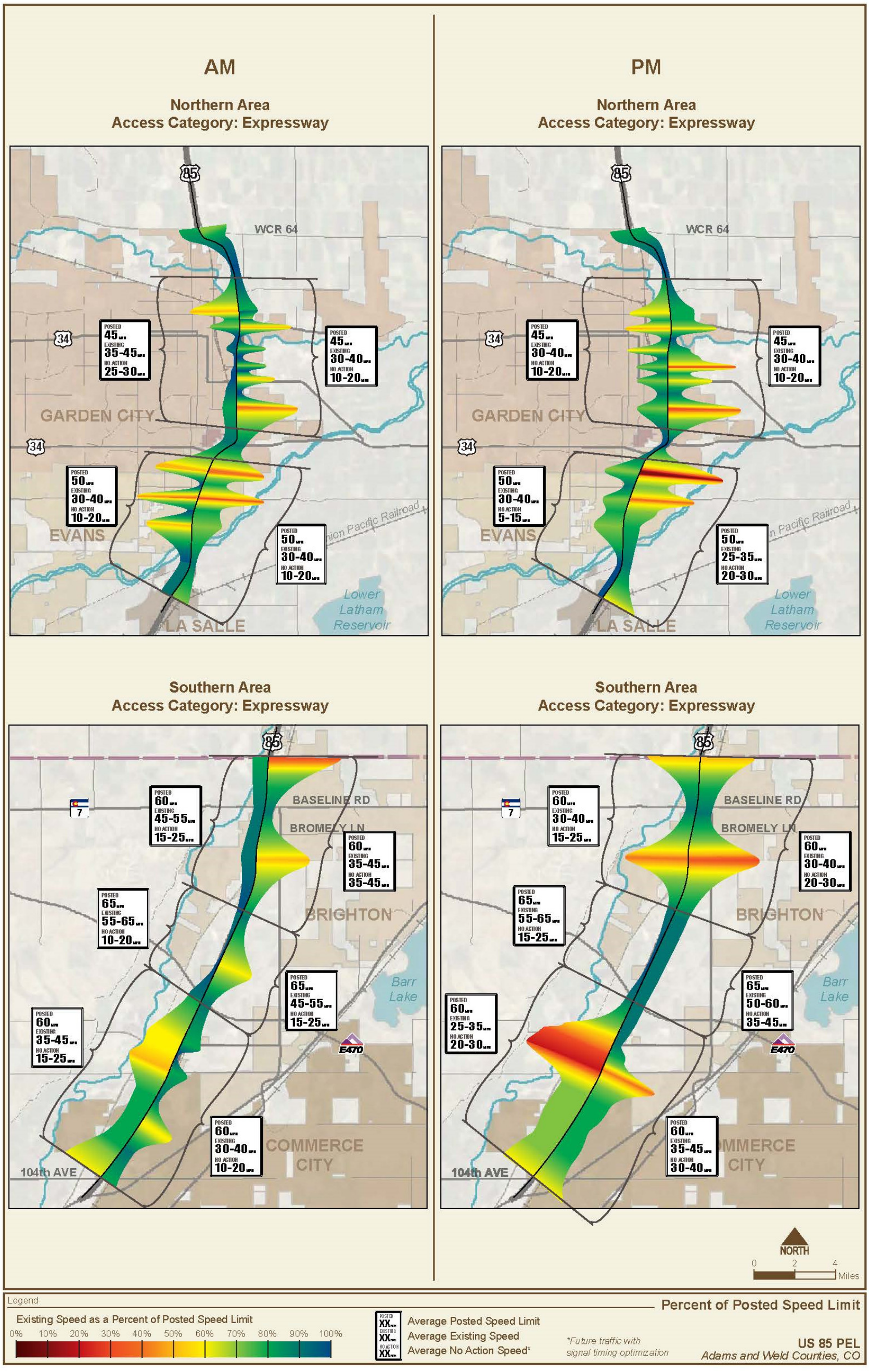


Figure 1.6 Existing Speeds, Speed Limits, and Future Speeds



Due to forecasted household and employment growth along the US 85 corridor and the surrounding area, traffic volumes through the corridor are projected to increase. By 2035 the traffic volumes along corridor sections are expected to double (one segment increases from 19,000 to 44,500 vpd). The projected future operations of the corridor show that by 2035, 21 signalized intersections will operate at LOS E or F, as shown on **Figure 1.5**.

The traffic volume within the study area impacts regional arterials that provide east-west connectivity through the area and intersect with US 85. As traffic volumes on these regional facilities and US 85 continue to increase, there will be additional impacts to intersection operations and overall corridor mobility. Specifically, travel times will increase, and corridor travel speeds will be reduced to half the posted speed limit. As traffic increases along the corridor, access onto and across US 85 for all modes will become increasingly difficult.

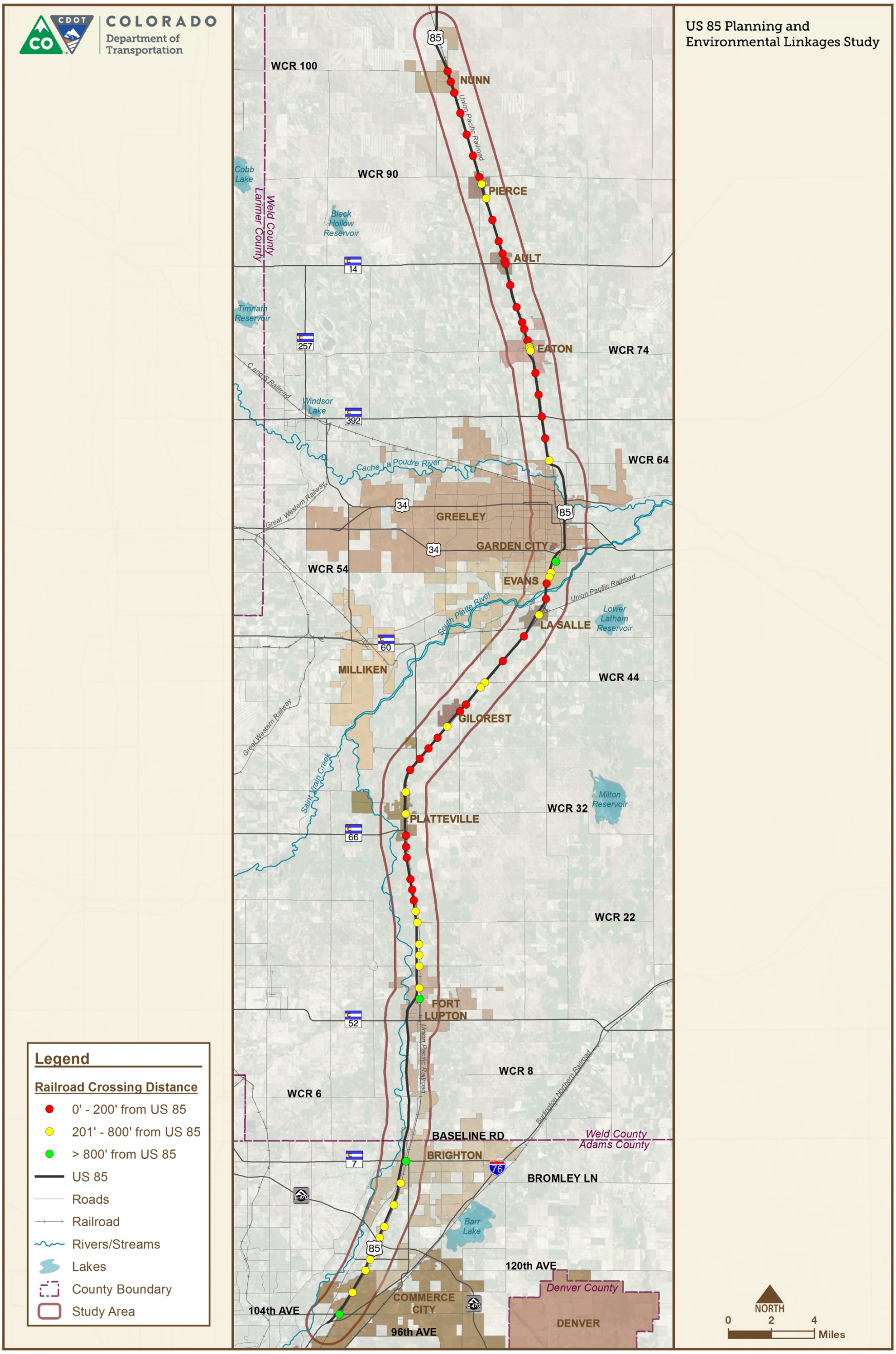
1.4.3 Railroad Proximity Problem

The UPRR parallels US 85 for the entire length of the corridor and can be very close to one another, as shown on **Figure 1.7**. The proximity of US 85 and the UPRR impacts traffic operations along US 85. The impact tends to be the greatest where the two facilities are closest, depending on other factors. This situation is prevalent in the corridor north of Greeley and between Greeley north of Fort Lupton:

- 37 intersections along the entire corridor are less than 200 feet from the railroad
- 27 intersections are between 200 and 800 feet from the railroad in that same area
- Only 4 intersections (not including Greeley) are more than 800 feet from the railroad

Most US 85 cross-street intersections cross the railroad are at-grade, and a significant queue can build when a train is present. Further, there are locations in which the train blockage duration of the US 85 cross-street can be significant, and vehicles attempting to enter, exit, or simply cross US 85 queue significantly. This difficulty is further compounded by a heavy large-truck presence; up to 30 percent of the traffic at some locations along US 85 is made up of trucks. An example of this proximity problem is shown in the following photo.

Figure 1.7 Intersection Proximity from the Railroad



As such, many intersections along the corridor are not adequate to safely accommodate the significant queues that form between US 85 and the UPRR, as well as along the highway when a train is present. One large truck can overwhelm the available distance between them, resulting in the truck trailer overhanging the railroad tracks while waiting to turn on to (or cross) US 85. Because of the difficulty entering or crossing US 85 during peak hours of traffic, the rear of a truck may sit on the tracks for a long period, or it may be forced to encroach into traffic on US 85. Areas with substantial railroad and roadway proximity problems are WCR 22.5 to SH 66, generally north of Platteville to LaSalle, and WCR 66 to WCR 100.

1.4.4 Access Problem

There are a substantial number of accesses along the 62-mile US 85 corridor. Most of the corridor is categorized E-X, or Expressway, Major Bypass, but there are many more access points than an E-X typically allows. In December 1999, 15 governmental agencies entered into an IGA with CDOT approving the US 85 ACP for US 85 from I-76 to WCR 80 in Ault. The ACP identifies the permitted changes in access, including closures, turn movement restrictions, signalization, intersection reconfiguration, and interchanges. The ACP and associated IGA demonstrate a history of the need for access improvements or removals and strong support by CDOT and the local agencies for making these access modifications.

The ACP has gradually been implemented as development and funding have allowed, but many improvements in the plan are yet to take place. As such, many access points throughout the corridor are still open, unsignalized, and/or have not been reconfigured. With recent traffic increases due to energy and sand/gravel development along the corridor, some of these access points have become overly congested and resulted in unsafe conditions along US 85. The proximity of the railroad along many sections of the corridor further contributes to the US 85 access problems. The continued growth in households and jobs in the area is expected to exacerbate the problem that the high number of accesses along the corridor causes with increased traffic along US 85. This will lead to increased congestion along US 85 and side streets, which could lead to more crashes.

1.4.5 Alternative Travel Modes Problem

The current lack of alternative travel modes accommodation along most US 85 limits the ability for alternative travel modes (transit, bicycle, and pedestrian) to serve current and future travel needs. As residential and employment growth occurs, the demand for travel by transit, biking, and walking is expected to increase. Additionally, several demographic and employment trends in the study area suggest an increased propensity for use of alternative travel modes.

Transit Infrastructure

Transit service in the study area is limited to fixed-route and demand-responsive bus service provided by the Regional Transportation District (RTD) in the southern portion of the study area and by GET in the Greeley and Evans area, leaving 46 miles of US 85 without access to transit. While an intercity bus route runs along the US 85 corridor (operated by the Black Hills State Line and El Paso-LA Limo), this route is limited to eight trips per day and stops only in Greeley and Denver.

The need for interregional transit service on the US 85 corridor has been recognized in two recent studies completed by CDOT: *North I-25 EIS* (2011) and *Colorado Statewide Intercity and Regional Bus Network Plan* (2014). Both studies demonstrate the demand and community support for transit service. The *Statewide Intercity and Regional Bus Network Plan* recommends interregional express service on the US 85 corridor between Greeley and Denver with near-term and mid-term ridership projections of 62,200 annual riders (based on 12 one-way trips per day, 6 days per week). The study also recommends essential services transit on the US 85 corridor between Greeley and Denver with near-term and mid-term ridership projections of 3,150 annual riders (based on 2 one-way trips per day, 5 days per week).

Some population segments are more likely than others to use transit service and depend on it as their primary form of transportation. Typically, the reasons relate to economics, ability, or age, and whether individuals own or have access to a private vehicle. In general, the two key markets for public transportation services are:

- "*Transit Dependent*" riders who do not always have access to a private automobile. This group includes individuals who may not be physically (or legally) able to operate a vehicle, or those who may not be able to afford to own a vehicle. Transit dependency characteristics based on age include both youth (individuals 18 or younger) and older adults (persons age 65 or older). Others who typically rely on public transit include people with disabilities, individuals with low income, zero-vehicle households, veterans with disabilities, and persons with limited English proficiency (LEP).
- "*Choice*" riders are those who usually or always have access to a private automobile (either by driving a car or getting picked up by someone) but choose to take transit because it offers them more or comparable convenience. For example, a choice rider might choose to add 10 minutes to their overall trip via bus to save a $10 all-day parking charge. A commuter might choose to take a bus if they can work along the way rather than focusing on driving.

Based on the Colorado Department of Local Affairs demographic forecasts, Weld and Adams counties are expected to experience a 111.1 percent and 51.6 percent growth in population, respectively, between 2013 and 2040. Both growth estimates are higher than the statewide average of 47.1 percent growth. The percentage of residents age 65 and older in Weld and Adams counties are expected to grow 180 percent and 173 percent, respectively, over the same time period, compared to the statewide average of 120.5 percent growth. Weld County has populations below the federal poverty level, LEP, and disabilities that are higher than statewide average percentages. Adams County has populations below federal poverty level and LEP that are higher than statewide average percentage. These measures are indicators of a higher likelihood and need for transit use.

Table 1.1 Demographic Data

	2011 Population Below Federal Poverty Level		2011 Limited English Proficiency		2012 Disabled Population	
	2011	%	2011	%	2012	%
Adams	60,147	14.0	53,932	13.6	41,531	9.5
Weld	33,351	13.8	16,715	7.3	25,610	10.2
Statewide	607,727	12.5	264,397	5.7	487,297	9.8
Source: 2011 and 2012 U.S. Census American Community Survey Five-Year Estimate						

By 2035, 75 percent more households and 70 percent more jobs are expected. Substantially higher growth in households is anticipated in the southern portion of the corridor (generally from Platteville south). Higher growth in employment is anticipated in the northern portion of the corridor (generally from Gilcrest north). This trend will likely result in a balancing of commuter travel demand for employment access along the corridor; that is, more people will commute from the southern portion of the corridor to the Greeley area for work, demonstrating the need for bi-directional transit service along the corridor.

As the need for transit service increases, the surrounding infrastructure needs to be improved to accommodate the transit services described. Not all the current configurations of the current corridor can sufficiently accommodate the additional services. Transit stations and additional connections are needed to sufficiently serve this service.

Bicycle and Pedestrian Infrastructure

High traffic volumes and high travel speeds along US 85, paired with a lack of bicycle and pedestrian facilities on the corridor, create safety concerns for bicyclists and pedestrians traveling along and across US 85. During the five-year period between 2008 and North I-25 EIS, there were three vehicle/bicycle crashes and eight vehicle/pedestrian crashes within the US 85 corridor. Two of the three bicycle crashes involved an injury. Of the eight pedestrian crashes, four involved injuries, and three involved fatalities. There was more than one bicycle or pedestrian related crash at the following three intersections:

- US 85/Bromley Lane in Brighton (1 bicycle crash, 3 pedestrian crashes; 2 fatal crashes)
- US 85/37th Street in Evans (2 pedestrian crashes; 1 injury, 1 fatal)
- US 85/22nd Street in Greeley (1 bicycle crash, 2 pedestrian crashes; 3 injury)

While the history of bicycle and pedestrian crashes on US 85 demonstrates a safety problem at spot locations along the corridor, the condition for bicyclists and pedestrians along the entirety of US 85 is unsafe and discourages bicycling or walking as a viable travel option within and between communities.

US 85 passes through 13 communities and creates a barrier for bicyclists and pedestrians wanting to cross the highway. In several communities, US 85 splits the community, with homes on one side of the highway while many community facilities such as schools and parks are on the opposite side. US 85 acts as a barrier to the community, making it inefficient and unsafe for bicyclists and pedestrians to cross the highway.

2.0 ALTERNATIVE DEVELOPMENT AND EVALUATION

Section 2.0 presents the methodology used to develop and evaluate alternatives along the entire 62-mile portion of US 85. The alternatives developed and evaluated include a wide range of potential solutions that provide additional lanes, interchanges, intersection improvements, and intersection and access point closures along the corridor. **Appendix C** presents detailed matrices showing the quantitative and qualitative information used in the evaluation process. **Section 2.0** also discusses the criteria and evaluation methods applied during the various evaluation levels. This portion of the PEL represents the vast majority of the effort and coordination between the CDOT and the corridor stakeholders.

Agency coordination and public involvement played a major role in this process, as summarized in **Section 5.0**. Agency involvement activities included regular progress committee meetings with agency participants and a series of resource agency scoping meetings. To ensure that the needs and concerns of affected entities and groups would be heard and considered in the alternatives development and evaluation process, a Technical Advisory Committee (TAC) was formed. The TAC, as further described in **Section 5.0,** was involved in each level of the evaluation process and during alternative development and refinement. An Executive Committee (EC) consisting of elected officials from corridor jurisdictions also provided insight during the evaluation process.

2.1 Alternatives Development, Refinement, and Evaluation Process

A multi-level, iterative process was used to develop, refine, and evaluate alternatives for the US 85 corridor. The development, refinement, and evaluation process focused on identifying alternatives that both meet the Purpose and Need for the corridor and that match the context of the corridor.

Broad, overarching alternative development occurred at the initial level of the process. These alternatives set the stage for subsequent levels where alternative refinement and evaluation occurred with increasing amount of detail. At each level, the alternatives were refined to match the overall goal of each level and then removed alternatives appropriately. This approach provided an efficient way to evaluate contextually appropriate alternatives throughout the corridor. Because the context of the corridor varies extensively (urban in the south to very rural in the north), not all alternative types were suitable throughout the corridor. The corridor was split into sections based on geography and operational classifications (see Figure **2.1**). The *Corridor Conditions Report* detailed the process of dividing the corridor into sections (CDOT 2015). The Alternatives Development, Refinement, and Evaluation Process was developed as a systematic way to evaluate a reasonable range of alternatives at each location.

The iterative Alternatives Development, Refinement, and Evaluation Process defined an overarching direction for corridor sections as a whole and then added detail and focus for specific locations. For example, overarching alternative types (functional classification, general purpose lanes, managed lanes, alignment, etc.) were evaluated on the Purpose and Need elements and eliminated those that did not address the Purpose and Need and carried forward those that did. The next level determined the context and capacity of each corridor section. The final two levels focused on refining and evaluating specific alternatives at intersection locations throughout the corridor.

Figure 2.1 US 85 Sections

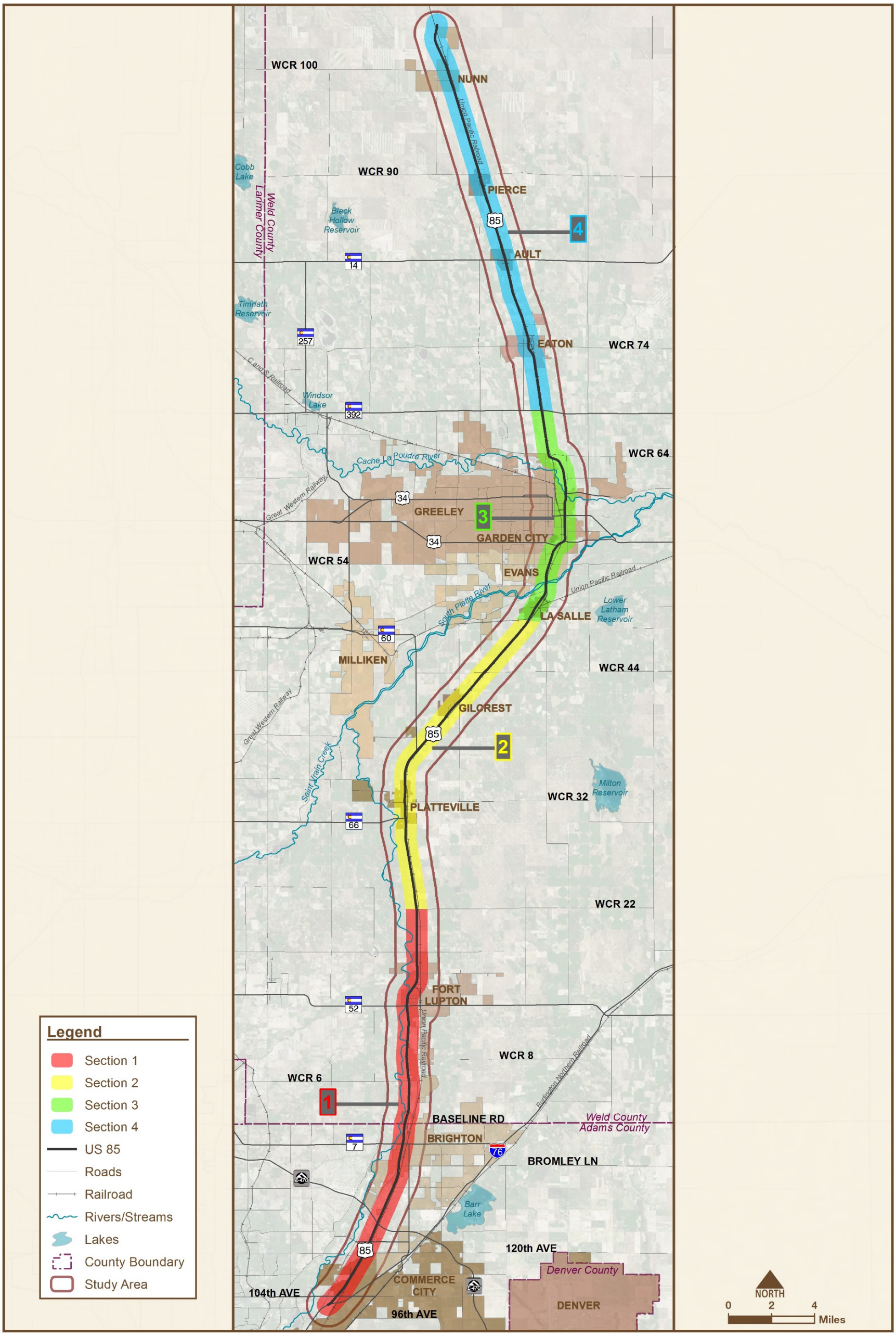
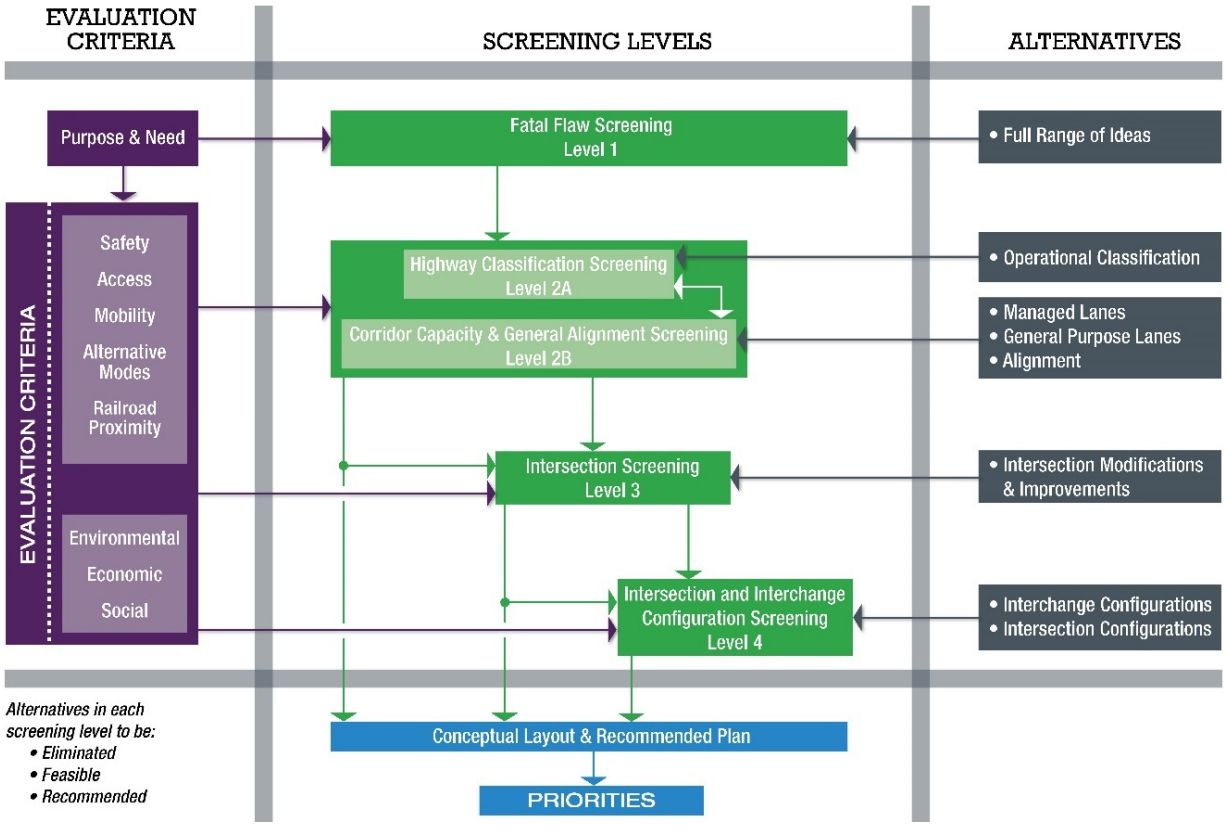


Figure 2.2 presents the Alternatives Development, Refinement, and Evaluation Process:

- **Level 1 Development and Evaluation** — Developed overarching alternatives and eliminated alternatives with fatal flaws or that did not meet the Purpose and Need categories (Safety, Mobility, Railroad Proximity, Access, and Alternative Modes).
- **Level 2 Refinement and Evaluation** — Included two sublevels that identified all potential operational classifications and capacity for each corridor section and then removed alternatives to identify the appropriate operational classification and capacity for each corridor section. Alternatives were evaluated to show how they met the needs (Safety, Mobility, and, Access) and to identify impacts to the natural environment and the surrounding community.
- **Level 3 Refinement** — Identified all potential intersection improvement types (closure, intersection improvement, or interchange) for each location and then removed to match the context of each section of US 85. Level 3 heavily used Level 2 results to define each section's context.
- **Level 4 Development and Evaluation** — Developed specific improvement configurations and layouts to determine their ability to meet Purpose and Need (Safety, Mobility, Railroad Proximity, Access, and Alternative Modes). Level 4 also considered impacts to the natural environment and to the adjacent community. Alternatives were identified as *Recommended*, *Feasible*, or *Eliminated*.

Figure 2.2 Alternative Development, Refinement, and Evaluation Process



Level 4 Development and Evaluation results for each intersection location represent the results of the US 85 PEL recommendations. The Recommended Alternatives (some locations have more than one recommended alternative) are to be advanced to the next stage of project development (see **Section 6.0**). A one-page summary document has been prepared for each recommended alternative with information pertinent to the next stages of project development (**Appendix C**).

Locations were then prioritized throughout the corridor based on the current and future need categories (Mobility, Safety, and Railroad Proximity). **Section 3.7** describes the prioritization process and results.

2.2 No Action Alternative

The No Action Alternative would essentially leave US 85 as-is and provide no major infrastructure improvements. However, the No Action Alternative would include safety and maintenance improvements that would be required to maintain an operational transportation system. The No Action Alternative does not meet the Purpose and Need but is used as a baseline against which to compare alternatives for evaluation and environmental analysis purposes.

For the purposes of forecasting travel demand and identifying resource impacts directly related to traffic volume, the No Action Alternative would include transportation projects currently planned in the project vicinity. These other transportation projects have committed or identified construction funds and would be built regardless of any identified improvements that are a part of this study. Travel demand forecasting predicts traffic conditions that are expected to occur on US 85 in the design year (2035). **Table 2.1** represents regional improvements included in the travel demand forecasting for the No Action Alternative.

Table 2.1 Projects Included in the No Action Alternative

ID	Project Name	Project Description	Source
SR45218	US 85 MP 236–242	Surface Treatment Pool	DRCOG / CDOT
SST6803.073	Commerce City to Denver CBD Regional Bus Service	Regional Bus Service	DRCOG
SR46601	US 85 and WCR 6	Region 4 Bridge Off-System Pool	DRCOG
SNF5788.030	US 85 Access Control at 37th St (Evans)	Implementation of Access Control at the Intersection of US 85/37th Street	NFRMPO
SNF5788.031	US 85 Access Control at 31st St (Evans)	Implementation of Access Control at the Intersection of US 85/31st Street	NFRMPO
SR45218.105	US 85: Ault to Wyoming	Bridge On-System TC Directed; FASTER Safety Projects; Surface Treatment; Surface Treatment Pool Staging Program	CDOT
SR45218.148	US 85 Nunn to Carr 288–300	Surface Treatment; Surface Treatment Pool Staging Program	CDOT
SR45001.009	US 85 Bypass Signals 22nd St – 5th St (Greeley) (4-13) MP 266–268.5	Regional Priority Program	RAMP

ID	Project Name	Project Description	Source
SR46606.021	US 85, Upper Front Range Intersection Improvements (Various Locations)	FASTER Safety Allocation Staging Program; FASTER Safety Projects	CDOT
SR47005.004	Carpool Lots (Fort Lupton US 85 – WCR 14.5 & Evans US 85/ 42nd Avenue)	FASTER Transit Staging Program; Transit and Rail Statewide Grants	CDOT
SST8103.028	R4 B-17-DF US 85 Nunn Bridge over UPRR	FASTER Bridge Enterprise Bond Issuance Proceeds Pool	CDOT
SDR6754.999	Bromley Lane & US 85 Intersection	National Highway Fund; Local Match; Highway Safety Improvements Program	DRCOG

Notes:
CBD = Central Business District
CDOT = Colorado Department of Transportation
DRCOG = Denver Regional Council of Governments
FASTER = Funding Advancements for Surface Transportation and Economic Recovery Act of 2009
MP = milepost
NFRMPO = North Front Range Metropolitan Planning Organization
RAMP = Responsible Acceleration of Maintenance and Partnerships
UPRR = Union Pacific Railroad
WCR = Weld County Road

2.3 Level 1 Development and Evaluation – Fatal Flaw/Purpose and Need

The Alternatives Development, Refinement, and Evaluation Process began with the development of corridor-wide alternatives. More than 70 alternatives (in 12 categories) were developed and assessed relative to their ability to meet the Purpose and Need of the study. Elements were developed based on information provided by the corridor communities, feedback from the public, and professional judgment. Elements included a broad range of functional classifications, lane management strategies, alignments and parallel facilities, multimodal elements (including transit, bicycle, and pedestrian), intersection modifications, intersection and interchange configurations, safety-specific improvements, and other elements such as Information Technology Service (ITS), TDM, and maintenance elements.

Level 1 evaluation focused on eliminating any alternative that did not address the Purpose and Need in such a way that they would be considered a fatal flaw. Level 1 evaluation eliminated 5 alternatives and retained 57 alternatives. Some alternatives were eliminated only for the study's planning horizon (2035). For example, the Commuter Rail Alternative (Transit Service category) was eliminated for the planning horizon because anticipated ridership does not match the need for commuter rail through 2035. However, future corridor needs beyond 2035 may result in a scenario where this alternative is viable.

2.3.1 Evaluation Criteria

The criteria used to evaluate the alternatives in Level 1 evaluation represented a broad measurement of consistency with the Purpose and Need. Each criterion asked if an alternative could meet an individual need at a basic level. The intent was not to provide a multitude of quantitative measures but to eliminate any alternatives that could not address corridor needs, did not fit the corridor context, or had a fatal flaw.

The following questions represent the overarching ability of the alternatives to meet the individual needs. If an alternative could not meet any of the following criteria, then the alternative was eliminated from further consideration. However, if an alternative met only one need, it was included for further consideration.

- **Safety Problem** — Will the alternative potentially improve existing and future conditions crashes?
- **Mobility Problem** — Will the alternative potentially improve existing and future conditions crashes?
- **Railroad Proximity Problem** — Does the alternative address congestion and safety on US 85 caused by the proximity of the Union Pacific Railroad (UPRR)?
- **Access Problem** — Does the alternative remove or improve problematic accesses in order to decrease congestion in the corridor?
- **Alternative Mode Problem** — Does the alternative address the configuration of US 85 to accommodate the current and future transit infrastructure and enhance bicycle/pedestrian crossings?

2.3.2 Development and Evaluation Results

The results of the Level 1 Development and Evaluation process eliminated five alternative types from consideration during the remainder of the study. Major transit services that require major separate infrastructure (i.e., commuter rail, light rail, and separated bus rapid transit) were eliminated through the planning horizon at the time of evaluation (2035). This was done to not preclude these alternatives if future project ridership numbers eventually justify these alternatives. The retained alternatives were not necessarily appropriate for each section of US 85 but could be combined with other elements as part of a thematic package to address the corridor needs or refined in later levels to match the appropriate context of the location. **Table 2.2** summarizes the elements developed for each category and whether the alternative was eliminated or retained. **Appendix C** presents a more detailed matrix for Level 1 evaluation results.

Table 2.2 Level 1 Development and Evaluation Results

Alternative	Summary of Results	Additional Comments
Functional Class		
Freeway (F-W)	Retained	—
Enhanced Expressway (E-X)	Retained	—
Standard Expressway (R-A or R-B)	Retained	—
Enhanced Arterial (NR-A)	Retained	—
Arterial Roadway (NR-B)	Retained	—
Main Street (NR-C)	Retained	—
No Action		
No Action	Retained	Retained to evaluate as baseline condition.
Managed Lanes		
High Occupancy Vehicle (HOV) Lanes	Retained	None
Toll Lanes	Retained	None
High Occupancy Toll (HOT) Lanes	Retained	None
Truck Only Lanes	Retained	None
General Purpose Lanes		
2 Additional General Purpose Lanes (one in each direction)	Retained	None

Alternative	Summary of Results	Additional Comments
Alignment		
Bypass Towns	Retained	Retained for consideration within municipal areas.
Realign US 85 to the East (Extended Lengths—greater than one mile)	***Eliminated***	Moving the roadway to the east would be too close to the planned upgrade to Weld County Road (WCR) 49, thereby negating the benefits of a parallel system. It would also create substantial community disruption by removing residential and business accesses, splitting properties along realigned roadway, and requiring substantial improvements to the surrounding transportation system.
Realign Northbound (NB) US 85 East of Union Pacific Railroad (UPRR) to create a two-way couplet with the railroad in the middle	***Eliminated***	This alternative would cause the highway to be a more substantial barrier by creating a wider swath of southbound, railroad, and northbound traffic needing to be crossed by pedestrians and vehicles. This would result in additional safety and capacity issues with smaller cross-street queue areas between the lanes and railroad.
Realign US 85 to the West (Short Lengths—less than one mile)	Retained	None
Transit Service		
Commuter Rail	***Eliminated (to 2035)***	Anticipated ridership does not match the need for commuter rail for the entire length of the US 85 PEL corridor through the current planning horizon (2035). This alternative would far exceed the transit needs in the corridor. The anticipated ridership for this corridor is 62,200 annual riders. Comparable commuter rail lines carry 1 to 2 million annual riders. Future corridor needs beyond 2035 may result in situations where this option is viable.
Light Rail	***Eliminated (to 2035)***	Vehicles are unsuited for long distance trips; unproven technology for this corridor length. Future corridor needs beyond 2035 may result in situations where this option is viable.
Bus Rapid Transit	Retained	None
Commuter/Express Bus	Retained	None
Expanded Human Service Transit	Retained	None

Alternative	Summary of Results	Additional Comments
Transit Infrastructure		
Separate Transit Guideway	***Eliminated (to 2035)***	This alternative would provide the necessary infrastructure for alternatives like commuter rail and light rail, which do not currently meet the needed ridership and/or suitability for longer trips. Future corridor needs beyond 2035 may result in situations where this option is viable.
Bus Lane (only if Managed Lanes in Level 2A)	Retained	This alternative does not individually meet Purpose and Need.
Transit Queue Jumps	Retained	This alternative does not individually meet Purpose and Need.
Transit Signal Priority	Retained	This alternative does not individually meet Purpose and Need.
Transit Stations/Stops/Amenities	Retained	This alternative does not individually meet Purpose and Need.
Bicycle / Pedestrian		
Bike Lanes	Retained	This alternative does not individually meet Purpose and Need.
Sidewalks	Retained	This alternative does not individually meet Purpose and Need.
Sidepath (Shared Use Path Proximate to US 85)	Retained	This alternative does not individually meet Purpose and Need.
South Platte River Trail Shared Use Path	Retained	This alternative does not individually meet Purpose and Need.
Parallel On-Street Bike Route (Local, County Roads)	Retained	This alternative does not individually meet Purpose and Need.
Enhanced Bike/Ped Crossings	Retained	This alternative does not individually meet Purpose and Need.
Intersection Modifications		
Close Access	Retained	None
Partial Closure	Retained	None
Intersection Reconfiguration	Retained	None
Turn Lane Additions/Extended Storage	Retained	None
Signalization	Retained	None
Grade Separated Crossing (No Access)	Retained	None

Alternative	Summary of Results	Additional Comments
Alternative Mode Intersection Improvements	Retained	None
Intersection Capacity Improvements	Retained	None
Interchange	Retained	None
Safety-Specific Improvements		
Shoulders	Retained	This alternative does not individually meet Purpose and Need.
Guard Rail/Cable Rail	Retained	This alternative does not individually meet Purpose and Need.
Signing	Retained	This alternative does not individually meet Purpose and Need.
Railroad Crossing Treatment Upgrade	Retained	This alternative does not individually meet Purpose and Need.
Intersection / Interchange Configuration		
Junior Interchanges	Retained	None
Diamond	Retained	None
Diverging Diamond Interchange (DDI)	Retained	None
Single Point Urban Interchange (SPUI)	Retained	None
Full Cloverleaf	Retained	None
Partial Cloverleaf	Retained	None
Fully Directional	Retained	None
Others (especially for US 85/ US 34 Interchange)	Retained	None
Intersection Configuration		
Continuous Flow Intersection (CFI)	Retained	None
Channelized Continuous Green T Intersection	Retained	None
ThrU-Turn Intersections	Retained	None
One-way Quad Signals	Retained	None

Alternative	Summary of Results	Additional Comments
Other		
Information Technology Service (ITS)	Retained	None
Transportation Demand Management (TDM)	Retained	None
Parallel Facilities	Retained	None
Local Street Grid Network	Retained	None

Notes:

ITS – includes elements such as signal timing, etc.

TDM – includes elements such as alternative modes, rideshare programs, etc.

2.4 Level 2 Refinement and Evaluation – Classification and Capacity

Operational classifications were developed to define the operational and environmental characteristics of each corridor section (see Figure **2.1**). The intent of defining and applying the operational classifications is to determine a classification that balances the future transportation demands and matches the context of each section. These operational classifications serve as the foundation for Level 2 evaluation criteria. Alternatives for each section were developed and compared against the evaluation criteria outlined below.

2.4.1 Level 2A – Classification

Level 2A refinement and evaluation identified the operational classification at which each section of US 85 currently operates. Level 2A evaluation also identified if an operational classification was appropriate or if another operational classification should be considered for each section. Three components of the project Purpose and Need were used to develop Level 2A evaluation criteria: Mobility, Safety, and Access. The other components of the Purpose and Need were not seen as being differentiators in Level 2A evaluation: Railroad Proximity and Alternative Modes because these Purpose and Need components can be accommodated/addressed regardless of the classification chosen for the sections.

Figure 2.3 shows the operational classifications and defines the operating speed range, minimum access spacing, intersection treatment options, and multimodal treatment options for each operational classification. By determining the existing operational classification and the operational classification in which each section of US 85 should be in the future, appropriate improvement options can be considered. For example, an at-grade intersection would not be a suitable option to consider if the operational classification is a freeway due to the requirement that all access on freeways be grade-separated.

Figure 2.3 Operational Classification

COLORADO Department of Transportation

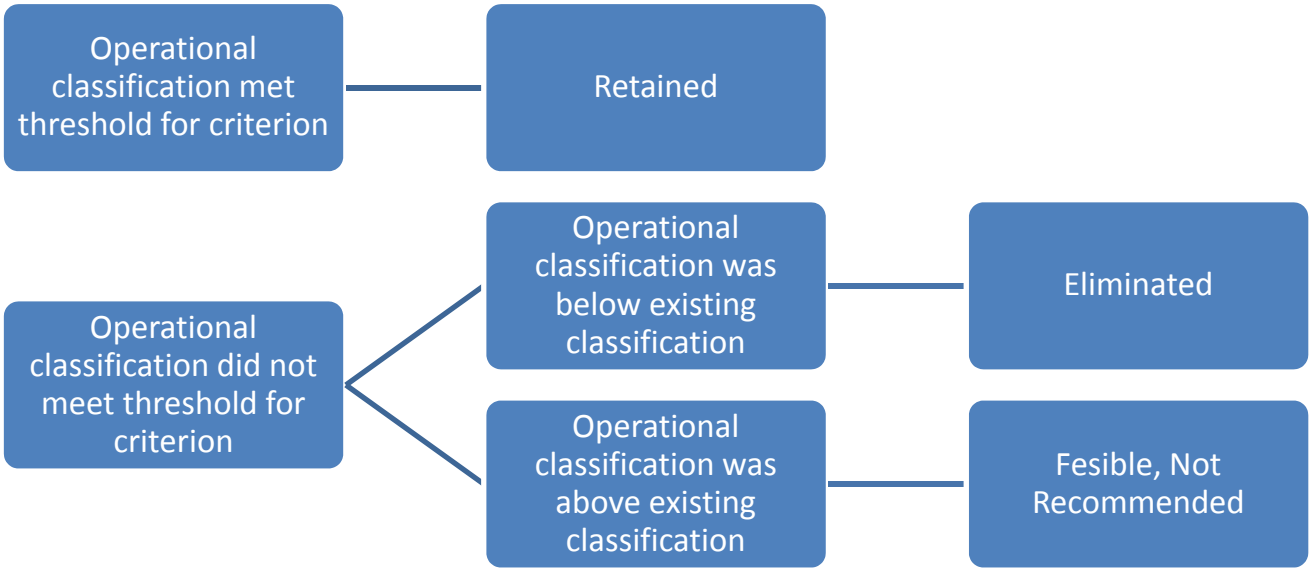
US 85 Planning and Environmental Linkages Study

	Description	Access Spacing	Treatment Options	Multi-modal treatments
Freeway 3 mile (rural) 1 mile (urban) *Example:* **I-76** SPEED LIMIT 65 – SPEED LIMIT 75	High speed and high traffic volumes with no direct access	3 mile + desirable, 1 mile + allowable	Grade Separation, directional access	Grade separated pedestrian/bike crossings, transit stops tied into on- and off- ramps, managed lanes
Enhanced Expressway 1 mile 3 mile 1 mile *Example:* **US 34 (west of Greeley)** SPEED LIMIT 55 – SPEED LIMIT 65	High speed and moderately high traffic volumes with limited and possible direct access, multiple lanes in each direction and separated directional travel	1 mile + for interchanges, 3 mile + for controlled intersections, with possible RIRO at half mile	Grade separation, junior interchange, signalization, partial closure (turn restrictions), Continuous Green-T, ThrU Turn intersections, CFI, one-way quad	Grade separated pedestrian/bike crossings, transit stops tied into on- and off- ramps, managed lanes, pedestrian/bike crossings at signalized intersections, transit pull outs
Standard Expressway 1 mile *Example:* **US 85 (Brighton)** SPEED LIMIT 45 – SPEED LIMIT 55	Moderately high speeds and traffic volumes with limited access, multiple lanes in each direction and separated directional travel	1 mile + for full movement, with possible RIRO at half mile	Grade separation, junior interchange, signalization, partial closure (turn restrictions), Continuous Green-T, ThrU Turn intersections, CFI, one-way quad	Grade separated pedestrian/bike crossings, transit stops tied into on- and off- ramps, managed lanes, pedestrian/bike crossings at signalized intersections, transit pull outs
Rural Highway 1 mile *Example:* **SH 392 (east of US 85)** SPEED LIMIT 45 – SPEED LIMIT 65	Moderate to high speeds with moderate to low traffic volumes	1/2 mile + for full movement intersections with public roadways, maximum of one access per parcel (depending on other roadways that could preclude access)with shared access preferable	Signalization, two-way stop control	Pedestrian/bike crossings at signals, pedestrian/bike crossings at signalized intersections, transit pull outs
Arterial Roadway 1 mile *Example:* **W 10th St/US 34 Business Route (west end of Greeley)** SPEED LIMIT 35 – SPEED LIMIT 45	Moderate to low travel speeds and traffic volumes with moderate access	1/2 mile for full movement intersections, with possible 3/4 movement at quarter miles, and RIRO access for each parcel (should share access if possible)	Signalization, partial closure (turn restrictions), Continuous Green-T, ThrU Turn intersections, CFI, two-way stop control	Pedestrian/bike crossing signals, pedestrian/bike crossings at signalized intersections, transit pull outs
Main Street 1 mile *Example:* **US 85 Business Route (Greeley)** SPEED LIMIT 25 – SPEED LIMIT 35	Low travel speeds and traffic volumes with significant roadside development and access needs	One access per parcel (should share access if possible)	Signalization, partial closure (turn restrictions), two-way stop control	Pedestrian/bike crossing signals, marked pedestrian/bike crossing, HAWK, pedestrian/bike crossings at signalized intersections, transit pull outs

The existing operational classifications of US 85 sections were determined by comparing the existing land use, highway character, geometry, and operating speed to the guidance in **Figure 2.3**. Each existing classification was evaluated to determine if it was appropriate or if it should be changed to meet the needs of the road users and surrounding environment. For each criterion, the operational classification was determined to be "Not Applicable," "Retained," or "Eliminated" based on the criterion's threshold, defined below. **Figure 2.4** shows how each determination was made.

If an operational classification met the threshold for that criterion, it was considered "Retained." If an operational classification was not retained and was below the existing operational classification, it was "Eliminated" because it did not achieve the standards to meet the Purpose and Need objectives. If the operational classification was not retained and was above the existing operational classification, it was considered "Not Applicable." This means that the operational classification likely exceeds the Purpose and Need objectives; however, it is not necessary for the success of the alternative. If the operational classifications retained in Level 2A are unable to achieve the goals of the Purpose and Need further into the evaluation process, the operational classifications considered Feasible, Not Recommended could be revisited.

Figure 2.4 Level 2A Development and Evaluation Determination



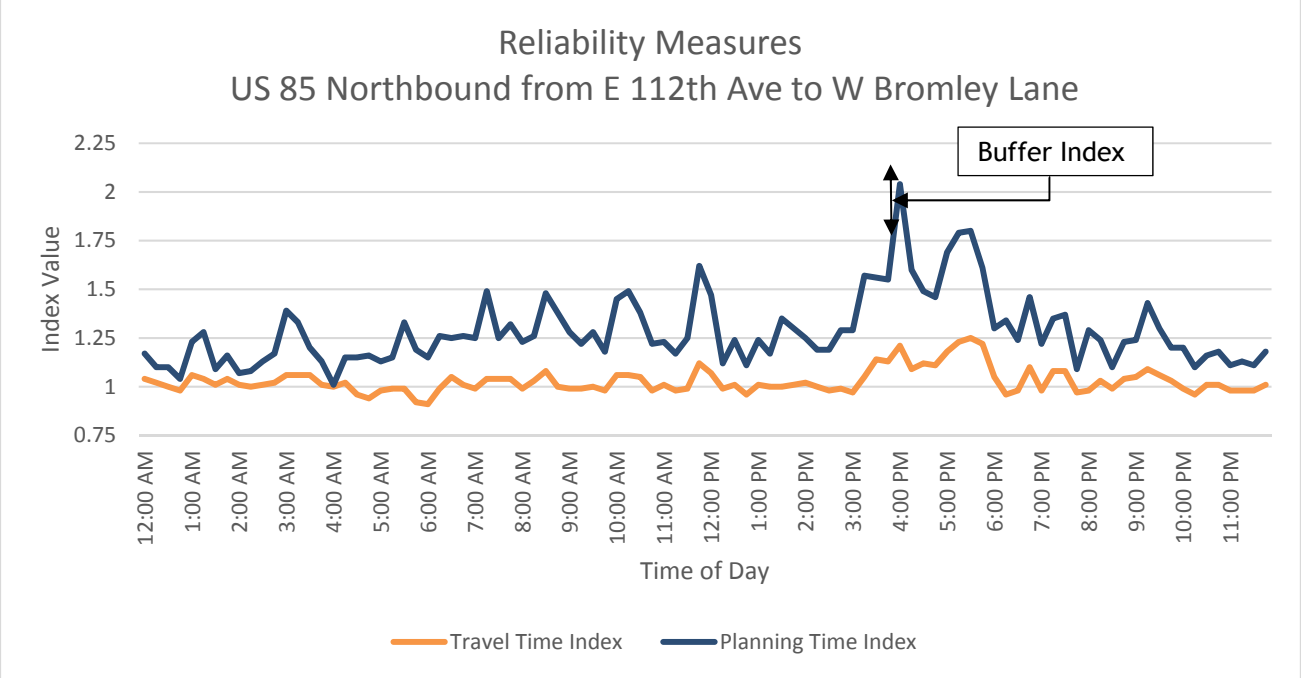
Mobility Criteria

One of the Strategic Policy Initiatives in CDOT's FY 14-15 Performance Plan is to maintain system reliability for Colorado highways. Travel time index (TTI) was identified as a way to measure the efficiency of the transportation system that is consistent with CDOT policy objectives. The TTI is the ratio of the time spent in traffic during peak traffic times as compared to travel times in free-flow traffic. It normalizes travel time to account for the distance of a particular section. For example, if only travel times were compared, a travel time of five minutes leads to a different conclusion for congestion levels if the total distance in that time is 1 mile versus 5 miles. A TTI of 1.0 means travel times are equal to free-flow speed and there is no congestion.

The planning time index (PTI) also measures travel times of vehicles along a corridor, but it calculates the amount of time a driver should prepare to travel to ensure that they arrive on time for 95 percent of all trips. For example, a commute typically takes 10.2 minutes (with a TTI of 1.18). However, to arrive on time 95 percent of the time, a driver needs to plan on 14.6 minutes (with a PTI of 1.69). The ratio of the total time a traveler estimates for their commute compared to the free-flow travel time is the PTI. The buffer index compares the amount of extra travel time that is added to a commute due to congestion.

Figure 2.5 illustrates these concepts using actual data gathered on US 85 using an online service called INRIX. INRIX collects real-time speed data using vehicle probe data and performs calculations to determine statistics along a corridor for stakeholders to use to make decisions. The TTI shows the average time to travel northbound on US 85 from 112th Avenue to Bromley Road. During peak periods, the TTI is greater than 1.0. During the period that data were collected for this section, there was more than average congestion throughout the day and most notably during the PM peak hour. The amount of time required to travel the corridor during the PM peak hour was 40 percent longer than average (TTI is approximately 1.2 and PTI is approximately 1.7). The difference between the TTI and the PTI is the buffer index, which shows the amount of additional time the traveler needs to account for to arrive at the end of the trip on time.

Figure 2.5 Reliability Measures Along US 85



Source: INRIX 2015.

The TTI was calculated for each alternative for the US 85 sections to determine whether changing the operational classification would improve mobility. The calibrated peak period travel times were taken from Synchro/SimTraffic and compared to the travel times for free-flow conditions. The worst case scenario (highest travel time from any peak time or direction) was used for comparison purposes for both the existing and 2035 No Action conditions.

CDOT has a performance objective to maintain a PTI of 1.25 or better for Colorado highways. The operational classification alternatives were tested to determine if the change in classification is likely to achieve CDOT's performance objectives.

The following represent the evaluation thresholds established to identify solutions in the US 85 PEL that achieve system reliability in terms of CDOT's Strategic Policy Initiatives:

- **Existing TTI of a section is greater than or equal to 1.25** — Existing operational classification and the next classification up retained. A TTI greater than 1.25 shows that there is congestion, that a higher operational classification will increase capacity, and that the TTI should improve.
- **Existing TTI of a section is less than 1.25** — Existing operational classification and the next classification down retained. If the TTI is between 1.0 and 1.25 during the peak periods, it is expected that, because there is little to no congestion, the existing classification is sufficient. The next classification down is also retained in this scenario because the corridor's No Action capacity is adequate and the local community may prefer additional access points or slower speed limits associated with a decreased operational classification.

Safety Criteria

In 2010, the American Association of State Highway and Transportation Officials (AASHTO) published the *Highway Safety Manual* (HSM) (AASHTO 2010). Relying on research largely conducted by CDOT, the HSM provided, for the first time, a structured methodology to determine the expected average crash frequency (by total crashes, crash severity, or collision type) for different types of roadways and average daily traffic volumes. This methodology relies on Safety Performance Functions (SPFs), which are regression equations that determine the expected average crash frequency. These SPF equations are developed from crash data compiled from several similar sites.

Level of Service of Safety (LOSS) is a method of ranking roadway sections (or sites) according to their observed and expected crash frequency. The SPF for a particular type of road helps determine the expected (or average) number of crashes. LOSS is divided into four classes, depending on the deviation from the average. LOSS I and II reflect better than average conditions (plotting below the average curve) and represent sections (or sites) that have low potential for crash reduction (LOSS I) or have better than expected safety performance (LOSS II). LOSS III and IV reflect conditions that are worse than average (plotting above the average curve) and represent sections that have less than expected safety performance (LOSS III) or have high potential for crash reduction (LOSS IV).

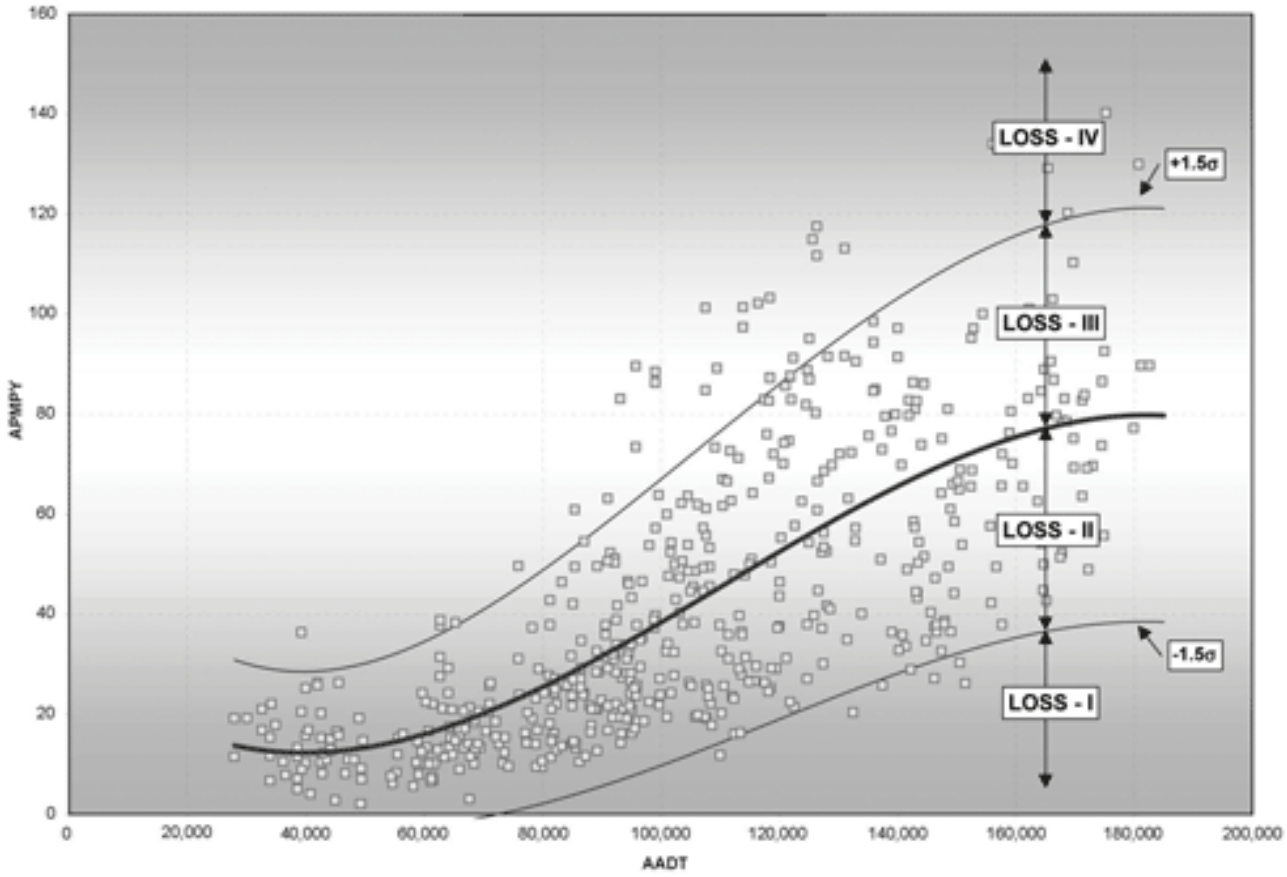
The LOSS for each corridor section indicates whether the existing operational classification is performing better or worse than expected in terms of safety. The thresholds that determined the recommended operational class are as follows:

- LOSS I = Retain the existing operational classification and the next classification down
- LOSS II = Retain the existing operational classification
- LOSS III = Retain the existing operational classification and the next classification up
- LOSS IV = Retain the next classification up

The above served as general guidelines with respect to the appropriate classification determination regarding safety.

Figure 2.6 shows an example SPF curve.

Figure 2.6 Sample SPF Curves for 6-Lane Urban Freeway



Source: Allery & Kononov 2011.

Access Criteria

The US 85 ACP is the guiding plan for future access along the corridor that stakeholders developed to identify their vision for the future of their community. If an entity wants access to US 85, it must be formally requested and approved by the US 85 Coalition, a group of local stakeholders that meet regularly to make decisions on corridor improvements. With the US 85 Coalition in place, the integrity and goals for mobility, land use, and appeal of the corridor are maintained.

Alternatives were compared to the US 85 ACP to determine whether each operational classification was consistent with the intent of the ACP. To make this decision, potential intersection treatments, restrictions on access spacing, and multimodal treatments of the operational classifications were compared them to the ACP. If the corridor characteristics of the operational classification aligned with those of the ACP, it was considered consistent.

Because the US 85 ACP does not address US 85 north of WCR 80, the State Highway Access Code was used to determine if the operational classification was consistent with existing access categories north of WCR 80.

The following guidelines were used to determine the recommended operational classification:

- If the operational classification is consistent with the intent of the ACP, the alternative is retained.
- If the operational classification is not consistent with the intent of the ACP, the alternative is eliminated.

Level 2A – Results

Once the evaluation for each criterion was complete, a cumulative summary was developed to provide a complete picture of each alternative. If an alternative received any determinations of "Eliminated," the alternative was eliminated as an alternative. If the operational classification received a combination of "Retained" and "Feasible, Not Recommended," the alternative was retained and carried forward to Level 2B evaluation. **Table 2.3** provides details on which operational classifications were retained for each section. **Appendix C** contains the full matrix, including results from each criterion.

Table 2.3 Level 2A Evaluation Matrix Results

Section	1	2					3			4							
Description	I-76 to WCR 22	WCR 22 to SH 66 (Fort Lupton to Platteville)	SH 66 to WCR 32 (Platteville)	WCR 32 to WCR 38 (Platteville to Gilcrest)	WCR 38 to WCR 42 (Gilcrest)	WCR 42 to 1st Street (Gilcrest to LaSalle)	1st Street to WCR 52 (LaSalle)	WCR 52 to 5th Street (Evans/ Greeley)	5th Street to SH 392	SH 392 to Colorado Parkway (Greeley to Eaton)	Colorado Parkway to WCR 76 (Eaton)	WCR 76 to WCR 82 (Eaton to Ault)	WCR 82 to WCR 84 (Ault)	WCR 84 to WCR 88 (Ault to Pierce)	WCR 88 to WCR 90 (Pierce)	WCR 90 to WCR 98 (Pierce to Nunn)	WCR 98 to WCR 100 (Nunn)
Interstate System, Freeway Facilities	**Retained**	**Retained**	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended
Enhanced Expressway	**Retained**	**Retained**	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended	Feasible, Not Recommended	**Retained**	**Retained**	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended	Feasible, Not Recommended
Standard Expressway	Eliminated	Eliminated	**Retained**	Eliminated	**Retained**	**Retained**	**Retained**	**Retained**	Eliminated	**Retained**	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended	**Retained**	Feasible, Not Recommended
Rural Highway	Eliminated	Eliminated	Feasible, Not Recommended	Eliminated	Feasible, Not Recommended	Eliminated	Feasible, Not Recommended	Feasible, Not Recommended	Eliminated	Eliminated	Feasible, Not Recommended	Eliminated	Feasible, Not Recommended	**Retained**	**Retained**	**Retained**	Feasible, Not Recommended
Arterial Roadway	Eliminated	Eliminated	**Retained**	Eliminated	**Retained**	Eliminated	**Retained**	**Retained**	Eliminated	Eliminated	**Retained**	Eliminated	**Retained**	Eliminated	**Retained**	Eliminated	**Retained**
Main Street	Eliminated	Eliminated	Eliminated	Eliminated	Eliminated	Eliminated	Eliminated	Eliminated	Eliminated	Eliminated	**Retained**	Eliminated	**Retained**	Eliminated	Eliminated	Eliminated	**Retained**

Notes:
I-76 = Interstate 76
SH = State Highway
WCR = Weld County Road

2.4.2 Level 2B – Capacity Evaluation

Each category from the Purpose and Need was used to develop criteria for Level 2B evaluation: Mobility, Safety, Access, Railroad Proximity, and Alternative Modes. Criteria for measuring the natural/cultural environment and community impacts was also used in this evaluation. One or two questions were developed for each criterion to evaluate each alternative. Questions were answered with "Yes," "No," or "Somewhat" to determine if the alternative met the objective.

Along most of US 85, with the existing number of lanes, high user demand resulted in congestion and a TTI exceeding 1.25. To achieve the desired TTI threshold, Level 2B evaluation determined the number of lanes along the mainline US 85 for future conditions under the relevant operational classification for each section.

Mobility Criteria

Level 2 alternative refinement and evaluation used TTI as the performance measure for mobility. 2035 traffic volumes were used to calculate the TTI to determine future mobility. After creating a calibrated model of the corridor using Synchro, cases were identified where the capacity was acceptable, as evidenced by TTI being less than 1.25, and cases where there was a sufficient number of existing lanes. For sections where the TTI was greater than 1.25, additional lanes were considered for the existing operational classification. Also considered was a higher level of operational classification for the alternative so that the access spacing, speed, and intersection types could improve capacity along US 85 for future conditions, eliminating the need for additional lanes. Using the TTI calculated from the Synchro/SimTraffic model of each alternative, the following questions regarding mobility were asked:

- Does the alternative provide sufficient capacity to handle travel demand in 2035?
- Does the alternative achieve future travel time objectives?

If the TTI was less than or equal to the future travel time objective of 1.25, the capacity for that alternative was sufficient to handle future travel demand and met the needs of both evaluation criteria. If the TTI was greater than 1.25, the alternative was considered over capacity and did not meet the mobility criteria. In some instances, the TTI was above the 1.25 threshold; however, within the designated operational classification, because improvements to specific intersections could be completed to reduce delay and travel time, those alternatives were determined to provide sufficient mobility.

Safety Criteria

Beyond the LOSS consideration explained in Level 2A evaluation, a more detailed safety analysis was performed for the sections in which estimates were made where past crashes could have potentially been prevented if a different operational classification had been in place. This analysis focused on the busier (and historically more crash-prone) intersections within a section and provided crash reduction estimates based on the intersection crash patterns. The safety analysis then estimated a section accident rate that could be indicative of proposed classifications. Results were compared to overall state averages for rural and urban settings. Using this information, the following two questions were answered:

- How many crashes could potentially be prevented with this classification?
- Does the classification result in a lower than average accident rate for like facilities (1.15 accidents per million miles of travel on rural roads and 1.5 for urban)?

These measures (potential number of crashes that could be reduced and the resulting accident rate in comparison to state averages) were collectively considered in the safety aspect of Level 2B evaluation.

Access Criteria

Consideration of the access portion of the Purpose and Need required similar comparisons to the US 85 ACP, as was completed in Level 2A. To determine if the operational classification and specified number of lanes address the access portion of the Purpose and Need, the following questions were asked:

- Does the alternative support the intent of the ACP?
- Does the alternative provide appropriate access to support local land use planning?

The same logic was used from Level 2A evaluation to determine if the alternative supported the intent of the ACP; however, alternative refinements (number of lanes) were evaluated at this level of evaluation. Transportation and land use plans from local jurisdictions were used to determine if the alternative provided appropriate access to support local land use planning. In addition, interviews conducted with local agency stakeholders were used to make these determinations. **Section 5.0** presents information on the local agency stakeholder interview process and results. If the operational classification alternative aligned with the access goals identified in the land use plans and local agency stakeholder interviews, it was considered appropriate.

Railroad Proximity Criteria

To determine the effect that the proximity of the railroad has on the operations of US 85, an assessment was conducted that relates US 85 cross-street railroad crossings and highway operations. This was assessed through the development of a Volume-to-Distance ratio; that is, the daily cross-street traffic volume (existing and long-term projected) divided by the distance (in feet) between US 85 and the railroad (east side of highway to just west of the railroad). The ratio provides a general sense of interaction between rail and highway operations; the higher the cross-street volume and/or the shorter the distance, the greater the ratio becomes. Applying a typical peak hour percentage and a peak hour direction split, a Volume-to-Distance ratio of 10 was determined to run the risk of being problematic for this criterion. Additionally, any cross-street location in which 50-feet or less was provided was automatically considered an issue regardless of traffic level.

The key questions asked as part of this level of evaluation process were:

- What is the extent of the railroad/highway operational problem?
- Does the alternative minimize railroad proximity impacts on US 85 operations?

The rail-highway interaction was assessed for each section using the Volume-to-Distance ratio and assessing how it might change with the various classification options. The Level 2B summary matrix (**Appendix C**) includes entries as part of the evaluation.

Alternative Modes Criteria

The consideration of infrastructure that supports alternatives modes throughout the corridor was identified as a need for the corridor and was evaluated during Level 2B evaluation. The evaluation of infrastructure supporting alternative travel modes focused on the ability of the corridor improvements to accommodate transit service, biking, and pedestrians in the future. The *North I-25 EIS* (CDOT 2011) had previously identified the development of commuter bus service along the US 85 corridor between Denver and Greeley. The evaluation of transit was based on the compatibility of the PEL alternatives with the recommended commuter bus. Local communities' planning documents for bicycle and pedestrian improvements were also evaluated and determined the compatibility of the PEL improvements with the local plans.

The following questions were used to compare alternatives against other options:

- Does the alternative complement planned transit service in the future?
- Does the alternative support the adjacent community's vision for biking and walking (both local and regional)?

The evaluation matrices in **Appendix C** document the results of this assessment.

Natural/Cultural Environment Criteria

The natural and cultural environment was considered part of Level 2B evaluation and focused on the ability of an alternative to avoid or substantially minimize impacts to the natural environment and cultural resources. For each alternative at each location, the following question was asked:

- Does the alternative avoid impacts to the natural environmental and cultural resources?

The Project Team evaluated the presence of natural environment and cultural resources in the area of improvement as identified in the *Corridor Conditions Report* (CDOT 2015). Impacts were not quantitatively measured, but consideration was given to the ability to avoid resources. The documentation for substantially avoiding the natural and cultural environment is an important step in the PEL process because it helps to identify that alternatives that would avoid resources have been considered.

Community Criteria

Level 2B evaluation also considered the potential effects that an alternative might have on the surrounding community. This criterion was used to determine the community context surrounding an alternative. The effects that an alternative might have can be either positive or negative, or even both. To determine the effects an alternative might have by asking the following questions were answered:

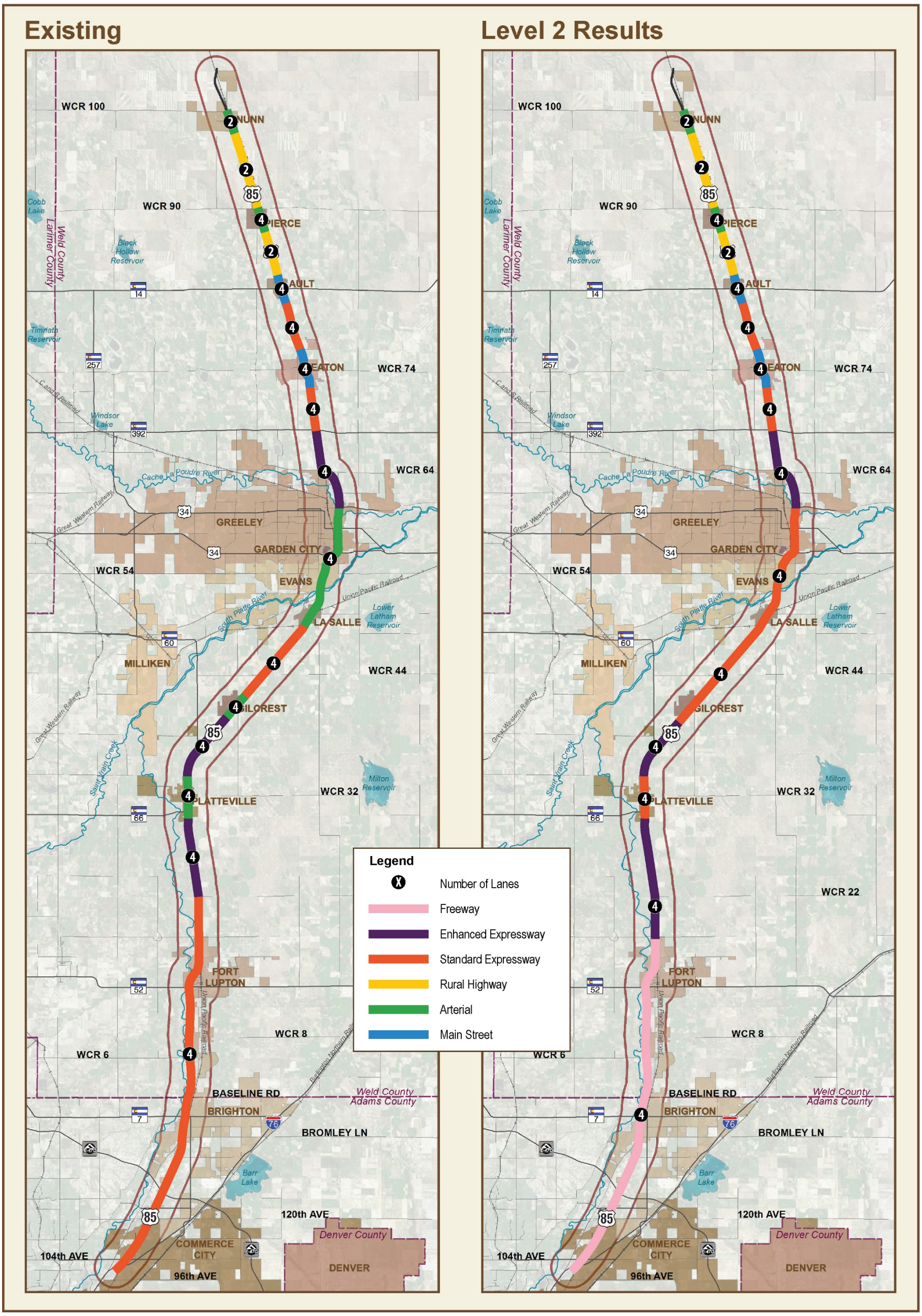
- Does the alternative minimize community impacts?
- Does the alternative minimize ROW acquisition needs and resident/business displacements?

The potential impacts were determined by considering the areas surrounding the alternative and the proximity of residential and business to the alternative area. An alternative impacting these existing areas was given a Low, Moderate, or High categorization. The Project Team also incorporated feedback from local agencies and the public regarding perceived impacts from improvements at various locations. An example of a potential impact to the community could be that improvements would create a barrier for pedestrian and/or bicycles to cross.

Level 2B – Results

Once each alternative was evaluated, the evaluation results were determined. In Level 2B evaluation, alternatives were not eliminated; however, alternatives were prioritized by identifying if they were recommended or feasible, not recommended. The rationale for this is to not fully remove an option from future consideration if circumstances change. A single alternative that had the most "Yes" answers for each criterion was recommended for each section. The other alternatives were considered feasible, not recommended. The No Action Alternative was retained for comparison purposes. **Figure 2.7** summarizes the Recommended Alternatives. **Appendix C** contains the complete matrix with responses for each criterion.

Figure 2.7 Level 2B Evaluation Results



2.5 Level 3 Alternative Refinement – Intersection Evaluation

The third level of alternative refinement took place after the determination of the classification and capacity analysis in Level 2. The overall goal for Level 3 refinement was to determine the category of improvement for each existing intersection. Categories included:

- **Intersection Improvement** — This category included keeping the intersection at-grade and allowing several improvement types (new turn lanes, acceleration/deceleration lanes, new intersection configuration, changes in access, etc.).
- **Interchange or Grade-separation** — This category included a grade-separated interchange that allows access to and from US 85 or a grade-separation without access to and from US 85.
- **Closure** — This category included full or partial closure of an existing intersection.

The information developed in Level 2 was used for this level of refinement. The operational classification identified in Level 2 helped to determine the context of the types of improvements identified in Level 3. For instance, for the corridor sections identified as a Freeway, all accesses were either interchanges or closures. For the Standard and Enhanced Expressway section, there could be a mixture of interchanges, at-grade intersection improvements, and closures.

The spacing guidelines identified in **Figure 2.3** were used to assist in determining appropriate improvements. These guidelines assisted the Project Team in ensuring that the improvements that are advanced into the next round of evaluation appropriately matched the context of the surrounding community and corridor sections.

Multiple scenarios and combinations based on the identified needs, feedback from stakeholders, and feedback from the public were analyzed. The resulting combination represents the set of improvements that best balances these needs. **Figure 2.8** graphically presents the results of this evaluation step. These improvement types were then carried forward to Level 4 evaluation, where detailed configurations of improvements at each location were evaluated in more detail. **Table 2.4** presents the recommendations from Level 3 evaluation.

Figure 2.8 Level 3 Alternative Refinement Results

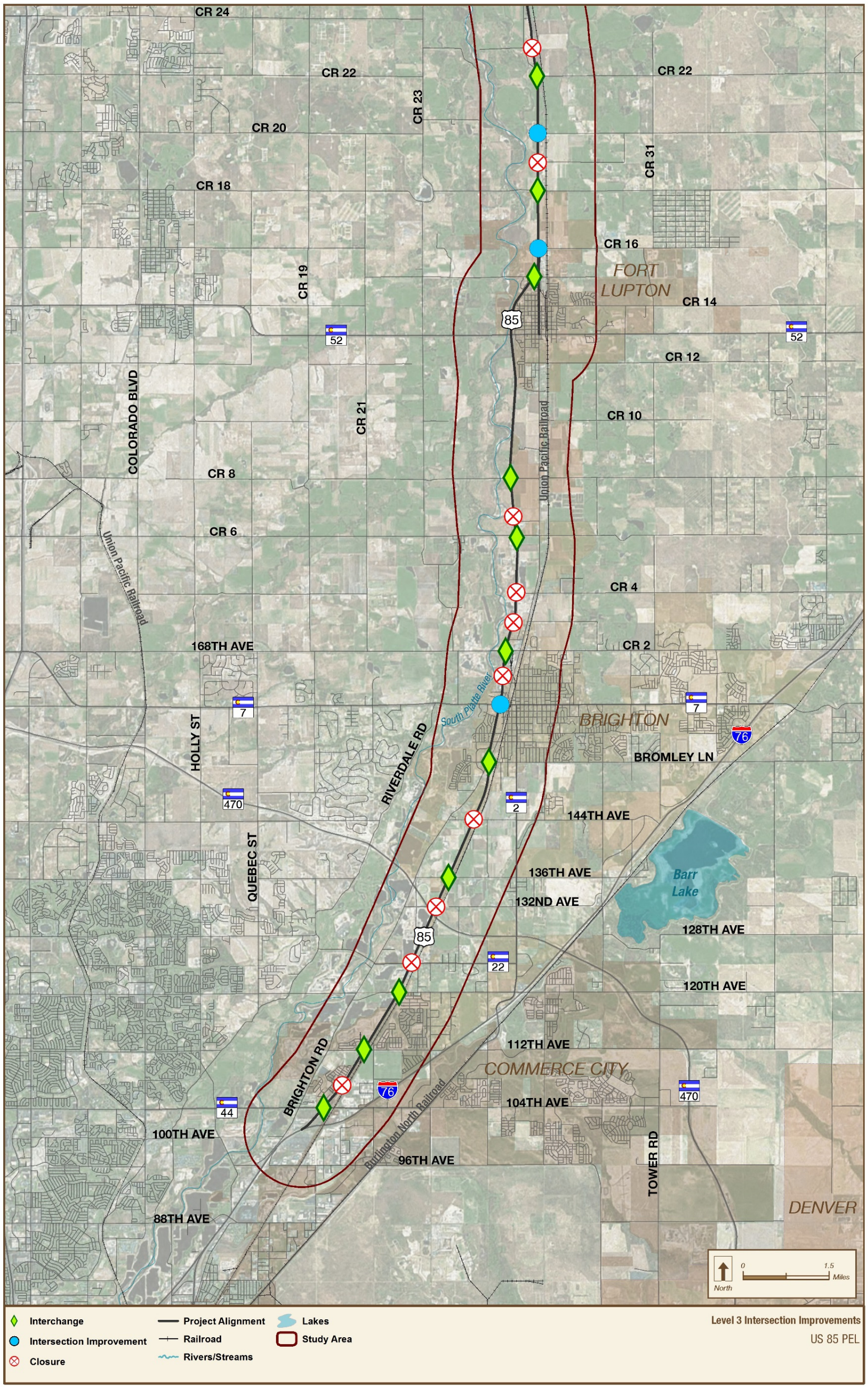


Figure 2.8 Level 3 Alternative Refinement Results (Continued)

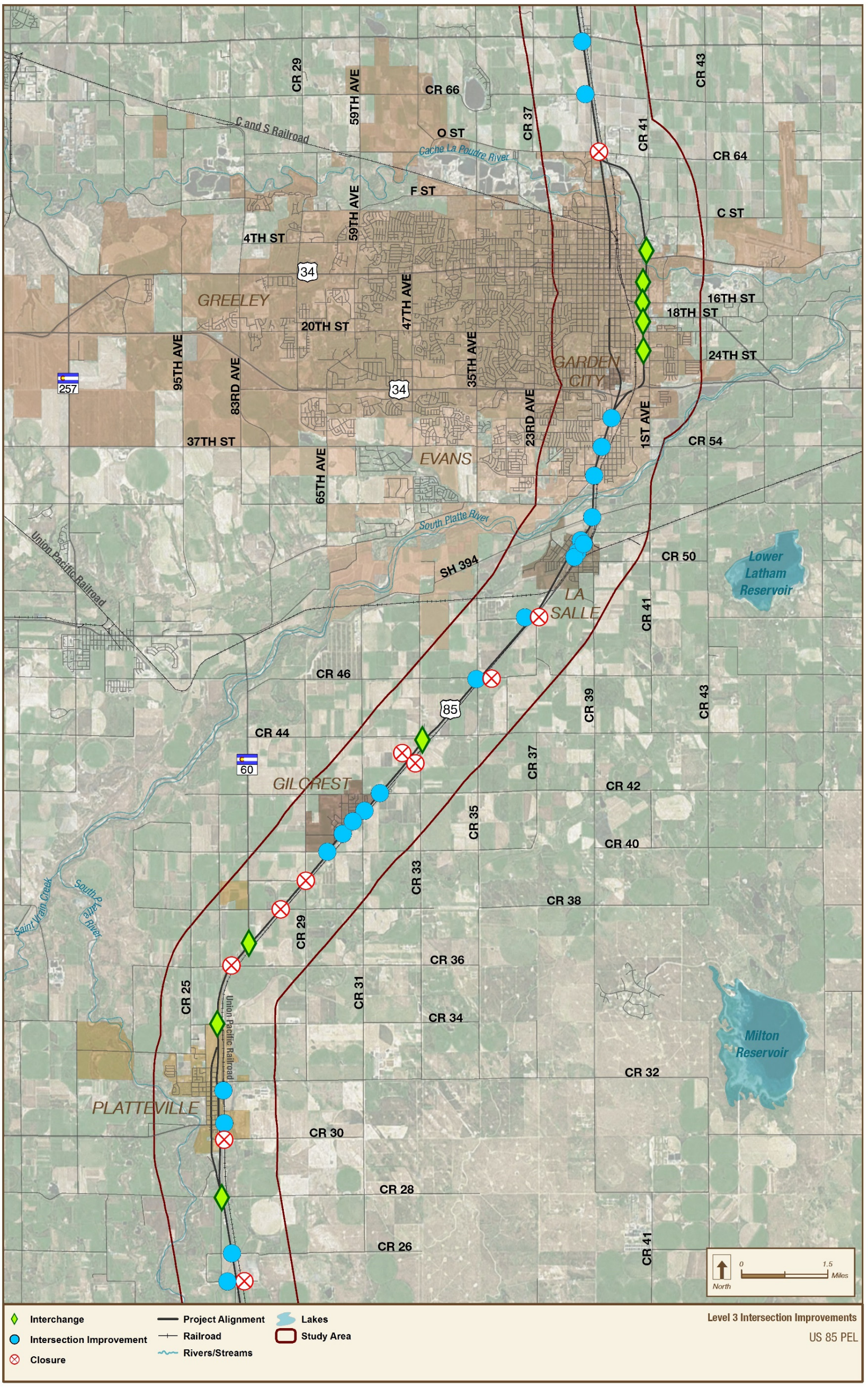


Figure 2.8 Level 3 Alternative Refinement Results (Continued)

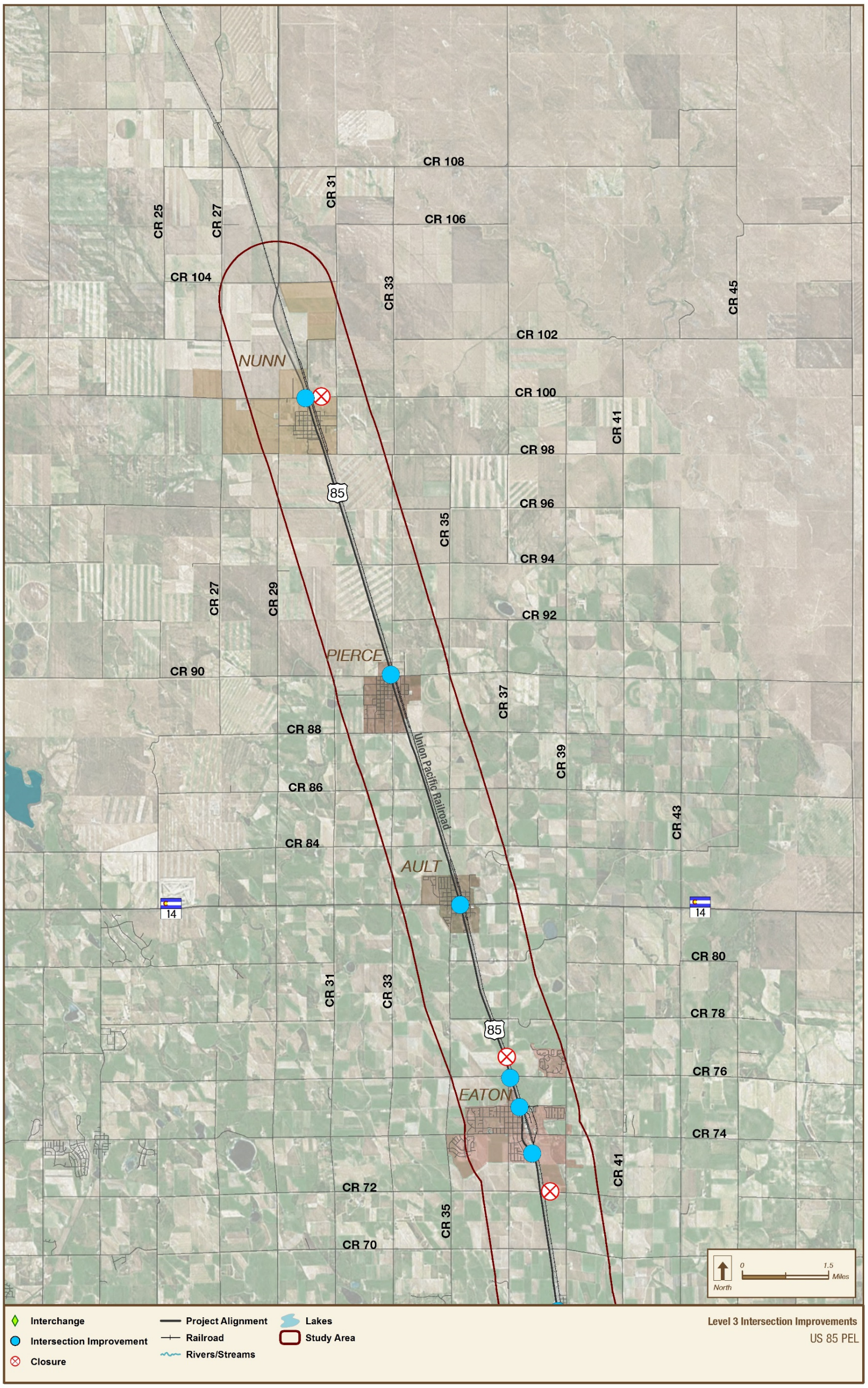


Table 2.4 Level 3 Evaluation Recommendations

Section 1 (Commerce City through Brighton)	
Operational Classification	*Freeway*
104th Avenue	Interchange / Grade Separation
Longs Peak Drive	Closure
112th Avenue	Interchange / Grade Separation
120th Avenue	Interchange / Grade Separation
124th Avenue	Closure
E-470 Interchange	No Change
132nd Avenue	Closure
136th Avenue	Interchange / Grade Separation
144th Avenue	Closure
Bromley Lane	Interchange / Grade Separation
Bridge Street	Intersection Improvements
Denver Street	Closure
CR 2	Interchange / Grade Separation
CR 2.5	Closure
CR 4	Closure
CR 6	Interchange / Grade Separation

Section 1 (Fort Lupton)	
Operational Classification	*Freeway WCR 6—WCR 18/ Enhanced Expressway WCR 18 — WCR 22*
CR 6.5	Closure
CR 8	Interchange / Grade Separation
CR 10	No Change
SH 52	No Change
CR 14.5	Interchange / Grade Separation
CR 16	Intersection Improvements
CR 16.5	Intersection Improvements
CR 18	Interchange / Grade Separation
CR 18.5	Closure
CR 20	Intersection Improvements
CR 22	Interchange / Grade Separation
Section 2 (Fort Lupton to Platteville)	
Operational Classification	*Enhanced Expressway*
CR 22.5	Closure
CR 24	Closure
CR 24.5	Intersection Improvements and Closure
CR 26	Intersection Improvements
CR 28	Interchange / Grade Separation
Section 2 (Fort Lupton to Platteville) (cont.)	
SH 66	Interchange / Grade Separation
CR 30	Closure (Combine with SH 66 Interchange)

Section 2 (Platteville)	
Operational Classification	*Standard Expressway*
Marion Avenue	Intersection Improvements and Closure
CR 32	Intersection Improvements
CR 34	Interchange / Grade Separation
Section 2 (Platteville to Gilcrest)	
Operational Classification	*Enhanced Expressway*
CR 36	Closure
SH 60	Interchange / Grade Separation
CR 38	Closure
Section 2 (Gilcrest)	
Operational Classification	*Standard Expressway*
CR 29/38.5	Closure
CR 40	Intersection Improvements
Elm Street	Intersection Improvements
Main Street	Intersection Improvements
CR 31 / Ash Street	Intersection Improvements
CR 42	Intersection Improvements
Section 2 (Gilcrest to LaSalle)	
Operational Classification	*Standard Expressway*
CR 33	Interchange / Grade Separation (Combine with WCR 44)
CR 44	Interchange / Grade Separation (Combine with WCR 33)
CR 46 / CR 35	Intersection Improvements AND Closure
CR 48 / CR 37	Intersection Improvements AND Closure

Section 3 (LaSalle)	
Operational Classification	*Standard Expressway*
1st Avenue	Intersection Improvements
2nd Avenue	Intersection Improvements
3rd Avenue	No Change
4th Avenue	Intersection Improvements
5th Avenue	No Change
1st Street	Intersection Improvements
SH 394	Intersection Improvements
Section 3 (Evans/Greeley)	
Operational Classification	*Standard Expressway*
42nd Street	Intersection Improvements
37th Street	Intersection Improvements
31st Street	Intersection Improvements
US 34 Interchange	Interchange / Grade Separation
22nd Street	Interchange / Grade Separation
18th Street	Interchange / Grade Separation
16th Street	Interchange / Grade Separation
Section 3 (Evans/Greeley) (cont.)	
Operational Classification	*Standard Expressway*
13th Street	Interchange / Grade Separation
8th Street	Interchange / Grade Separation
5th Street	Interchange / Grade Separation

Section 3 (Greeley to Lucerne)	
Operational Classification	*Enhanced Expressway*
O Street	Closure
CR 66	Intersection Improvements
SH 392	Intersection Improvements
Section 4 (Lucerne to Eaton)	
Operational Classification	*Standard Expressway*
CR 70	No Change
CR 72	Closure
Section 4 (Eaton)	
Operational Classification	*Main Street*
Colorado Parkway	Intersection Improvements
Orchard Street	No Change
Collins Street	No Change
1st Street	No Change
2nd Street	No Change
3rd Street	No Change
Section 4 (Eaton) (cont.)	
Operational Classification	*Main Street*
4th Street	No Change
5th Street	Intersection Improvements
CR 76	Intersection Improvements
Section 4 (Eaton to Ault)	
Operational Classification	*Standard Expressway*
CR 37	Closure
CR 78	No Change
CR 80	No Change
SH 14	Intersection Improvements

Section 4 (Ault)	
Operational Classification	*Main Street*
2nd Street	No Change
3rd Street	No Change
CR 84	No Change
Section 4 (Ault to Pierce)	
Operational Classification	*Rural Highway*
CR 86	No Change
CR 88	No Change
Section f (Pierce)	
Operational Classification	*Arterial Roadway*
Main Street	No Change
CR 90	Intersection Improvements
Section 4g (Pierce to Nunn)	
Operational Classification	*Rural Highway*
CR 92	No Change
CR 94	No Change
CR 96	No Change
CR 98	No Change
Section 4h (Nunn)	
Operational Classification	*Arterial Roadway*
4th Street	No Change
CR 100	Intersection Improvements AND Closure

2.6 Level 4 Alternative Refinement and Evaluation – Intersection/Interchange Configuration

The final level of alternative refinement and evaluation evaluated the detailed configuration of each intersection location throughout the corridor. Level 4 refinement and evaluation took the results from Level 3 and considered multiple interchange types, intersections configurations, and access closures and evaluated them against the Purpose and Need criteria for Mobility, Safety, Access, Railroad Proximity, and Alternative Modes. Impacts to the natural/cultural environment and the communities' feedback were also considered.

Level 4 refinement and evaluation resulted in recommendations at each intersection location throughout the corridor. For each recommendation, **Appendix E** contains a one-page summary sheet with a conceptual design. **Appendix C** contains detailed results of Level 4 refinement and evaluation.

2.6.1 Mobility Criteria

For Level 4 refinement and evaluation, the Capacity Analysis for Planning of Junctions (CAP-X), a planning tool developed by FHWA, was used to evaluate localized mobility for each alternative. CAP-X uses turning movement counts, truck percentages, and the number of lanes to determine the approximate v/c ratios for intersection alternatives. The v/c ratio is a measure of the number of vehicles using a facility compared to the expected capacity of the facility. A v/c ratio of 1.0 indicates severe congestion and is considered unacceptable. The 2010 *Highway Capacity Manual* does not provide a range of acceptable v/c ratios; however, industry standards commonly consider a v/c ratio of 0.8 as acceptable. For study purposes, a v/c ratio of 0.8 or below was used to indicate acceptable operations.

To determine which intersection or interchange configuration would provide the best operations on the corridor, the following two questions were asked of each alternative:

- Does the alternative have an acceptable volume to capacity (v/c) ratio to address travel demand?
- Does the alternative have a positive or negative effect on regional mobility?

Engineering judgment was used to determine what effect each alternative had on regional mobility. If the improvement type typically leads to reduced delays along mainline US 85, it was considered an improvement to regional mobility. Similarly, if the improvement type typically increases delays along the mainline, it was indicated to have a negative effect on regional mobility. Some improvement types were given a "0" designation in the matrix because they had neither a positive nor a negative impact on regional mobility. The No Action configurations were also compared against the mobility evaluation criteria; however, they were given a "Not Applicable" indication and retained for comparison as the baseline in future evaluations.

2.6.2 Safety Criteria

For the Level 4 refinement and evaluation, a more detailed safety analysis was performed on an intersection-by-intersection basis than was completed for previous refinement and evaluation levels. Estimates were made with respect to the number of past crashes that could have potentially been prevented if the particular intersection improvement had been in place. The analysis used crash patterns that have taken place at the intersection when assessing reductions (different improvements will affect various crash patterns differently). Also, consideration was given to improvements, such as interchanges, in which ramp intersection signalization may still be needed and would likely see some crashes (just much fewer than if the intersection was left at-grade).

To document the safety criteria in Level 4, the following two questions were answered:

- Does the improvement reduce the predominant crash pattern?
- If yes, what is the anticipated annual crash reduction?

Appendix C presents the detailed results of the Level 4 safety analysis.

2.6.3 Access Criteria

Access considerations within the context of Level 4 refinement and evaluation included the following two fundamental questions:

- Is the intersection improvement consistent with the Access Control Plan?
- Does the option provide appropriate access that supports local land use planning?

The first question gauges whether an intersection alternative meets the ACP or the intent of the ACP. A "No" response was not considered to be a negative aspect of the alternative, but if other factors demonstrated improvements, then this factor was not weighted as heavily. This is because the amendments to the ACP are an outcome of this PEL.

The second question pertains to the context of an area where the intersection improvement is located. The context is related to the ease of access to/from US 85 that aligns with existing and/or proposed land uses in the area, especially those of adjacent properties. A "No" response indicates that the improvement alternative is significantly out of context with the surrounding area relative to access needs and potential property impacts and/or out of context with the section's classification determined in a previous refinement/evaluation level. The second question is also answered, in some cases, with respect to the access opportunities that a proposed improvement may afford the surrounding area that is not provided today.

2.6.4 Railroad Criteria

Each intersection improvement alternative was assessed with respect to potential benefit to US 85 operations, as well as the UPRR if a crossroad at-grade crossing was eliminated. Previous refinement/evaluation levels addressed the interaction and location of US 85 and the UPRR. The UPRR had identified several preferred at-grade crossing removals along the US 85 corridor that they felt could collectively improve rail transport. This desire was captured in the Level 4 refinement and evaluation matrix (**Appendix C**).

Further, the rail crossing Volume-to-Distance ratio previously discussed and considered in Level 2B evaluation was more specifically assessed in Level 4 refinement/evaluation. Intersections in which the ratio is greater than 10 or where the distance apart is 50 feet or less are at risk of being problematic with respect to rail operations impacting highway operations. Where either of these exists, an assessment was made as to whether the improvement alleviates the situation.

The key questions asked as part of the refinement/evaluation process were:

- Is the intersection identified as a priority for closure by the railroad?
- Does the alternative reduce railroad/road operational issues?

The railroad interaction for each location was assessed, and "Yes" or "No" entries were included in the Level 4 evaluation matrix (see **Appendix C**).

2.6.5 Alternative Modes Criteria

The consideration of alternative modes in Level 4 refinement/evaluation built on the evaluation completed in Level 2B evaluation and focused on the future planned transit, bicycle, and pedestrian improvements and the compatibility and enhancement of these modes. The *North I-25 EIS* (CDOT 2011) had previously identified the development of commuter bus service along the US 85 corridor between Denver and Greeley. The evaluation of transit was based on the compatibility of the PEL alternatives with the commuter bus and how an alternative improves bicycle and pedestrian mobility. The following questions were used to evaluate each alternative:

- Does the improvement enhance biking and walking?
- What is the potential for enhancing existing and planned regional transit service?

Each alternative was evaluated and ranked based on its ability to meet these modes. The evaluation matrices in **Appendix C** document the results of this assessment.

2.6.6 Natural/Cultural Environment Criteria

Similar to the previous refinement/evaluation levels, each alternative at each intersection location was evaluated based on potential impacts to the natural and cultural environment. This consideration focused on the ability of an alternative to avoid or minimize impacts to the natural environment and cultural resources. For each alternative at each location, the following question was asked:

- Does the option avoid or minimize impacts to the natural environmental and cultural resources?

Each alternative was determined if it avoided or impacted various natural and cultural environmental resources. These potential impacts were compared to other options at each intersection location. The resources that were evaluated were presented in the *Corridor Conditions Report* and are shown on the final summary sheets for each location. More detailed analysis of avoidance, impacts, and mitigation is required as part of the subsequent NEPA evaluations.

2.6.7 Community Criteria

Analyzing the effect that an alternative may have on the adjacent community was an important step in the final alternative refinement/evaluation process. Feedback from the TAC, the public, and information on the surrounding area was used to help define the context of the surrounding area. The following criteria were used to evaluate each alternative's effect on the adjacent community:

- Does the option fit within the context of the adjacent community?
- Does the option minimize right-of-way acquisition needs?
- What was the community's response to the option?

These criteria were used to balance the ability of the alternative to meet the corridor Purpose and Need and to meet the context of the surrounding community in terms of how they envision their community. These criteria were key to ensuring that local communities support the proposed improvements and will partner with CDOT on implementation.

2.6.8 Level 4 Refinement and Evaluation – Results

Level 4 refinement and evaluation resulted in a recommendation or multiple recommendations for each of the 93 intersections in the 62-mile corridor. In every instance, the No Action Alternative was carried forward for consideration in subsequent NEPA evaluations. Every option for each intersection was given one of the following designations:

- **Recommended** — This alternative would sufficiently meet the corridor's Purpose and Need and provide the needed improvement to the local transportation system to meet future demands. This alternative is recommended for further consideration and evaluation in subsequent NEPA steps.
- **Feasible, Not Recommended** — This alternative would meet the Purpose and Need to a certain degree, but other factors, such as community impacts or environmental impacts, were considered to be too much to recommend this alternative for further consideration. However, during subsequent NEPA evaluations, situations could change, and as a result, this alternative could become more advantageous and, thus, be revisited.
- **Eliminated** — This alternative would not meet the Purpose and Need or provide adequate improvements to Access, Mobility, Safety, or Railroad Proximity to justify the improvement.

In some cases, more than one alternative may be recommended for a given intersection because differentiation between alternatives may not be great enough to make one recommendation over another. In these cases, multiple alternatives are proposed be advanced and evaluated in NEPA to determine which alternative would be the most reasonable for the location and context at that time.

Table 2.5 presents the results of Level 4 refinement and evaluation. **Appendix C** provides detailed information for each alternative that met or did not meet each criterion discussed in the section. **Section 3.0** presents a depiction of the Recommended Alternatives throughout the corridor. **Appendix E** presents the location recommendations and alternative concepts for each of the Recommended Alternatives. These summary sheets are intended to serve as a guide and summary for local agencies to advance the identified improvements.

Table 2.5 Level 4 Evaluation Recommendations

Community	Location	Improvement Type	Recommendation
Commerce City	104th Avenue	No Action	Feasible
		Diamond	Feasible, Not Recommended
		Split Diamond (with I-76)	***Recommended***
		SPUI with Flyover	***Recommended***
		DDI	***Recommended***
		Partial Cloverleaf	***Recommended***
	Longs Peak Drive	No Action	Feasible
		Closed	***Recommended***
	112th Avenue	No Action	Feasible
		SPUI	***Recommended***
		Skewed SPUI	***Recommended***
		Grade Separated, No Access	Feasible, Not Recommended
		Single Loop Partial Cloverleaf	Feasible, Not Recommended
		Closed	Feasible, Not Recommended
	120th Avenue	No Action	Feasible
		Partial Cloverleaf	Feasible, Not Recommended
		Diamond	Feasible, Not Recommended
		Tight Diamond	***Recommended***
		DDI	***Recommended***
Brighton	124th Avenue	No Action	Feasible
		Grade Separated, No Access	Feasible, Not Recommended
		Closure	***Recommended*** (Closure will not happen until access to the interchange at 120th Avenue is provided)
	E-470	No Action	N/A
	132nd Avenue	No Action	Feasible
		Closed	***Recommended*** (Closure would happen in conjunction with new interchange at 136th Avenue)
	136th Avenue	No Action	Feasible
		Diamond	Feasible, Not Recommended
		Partial Cloverleaf	Feasible, Not Recommended
		Junior, RI/RO Interchange	Feasible, Not Recommended
		SPUI	***Recommended***

Community	Location	Improvement Type	Recommendation
Brighton	144th Avenue	No Action	Feasible
		Diamond	Feasible, Not Recommended
		Grade Separated, No Access	Feasible, Not Recommended
		SPUI	Feasible, Not Recommended
		Closed	***Recommended*** (Closure would happen in conjunction with interchange at Bromley Lane)
	Bromley Lane	No Action	Feasible
		Diamond	Feasible, Not Recommended
		SPUI	***Recommended***
	Bridge Street/SH 7	No Action	Feasible
		Bus Slip Ramps to Station	***Recommended***
	Denver Street	No Action	Feasible
		Closed	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 2)
	168th Avenue/ WCR 2	No Action	Feasible
		Diamond	Feasible, Not Recommended
		SPUI	***Recommended***
	WCR 2.5	No Action	Feasible
		Closed	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 2)
Weld County	WCR 4	No Action	Feasible
		Closed	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 2 and WCR 6)
		Grade Separated, No Access	Feasible
Fort Lupton	WCR 6	No Action	Feasible
		Partial Cloverleaf	***Recommended***
		Diamond	Feasible, Not Recommended
	WCR 6.25	No Action	Feasible
		Closed	***Recommended*** (Closure would happen in conjunction with interchange at WCR 6)
	WCR 8	No Action	Feasible
		Hook Ramps	***Recommended***
		Diamond	Feasible, Not Recommended

Community	Location	Improvement Type	Recommendation
Fort Lupton	WCR 10	***No Action, No Access***	***Recommended***
		Diamond	Feasible, Not Recommended
	SH 52	No Action	Feasible
		Pedestrian Improvement	***Recommended***
	WCR 14.5/ 14th Street	No Action	Feasible
		Diamond	Feasible, Not Recommended
		SPUI	Feasible, Not Recommended
		Junior Interchange	***Recommended***
		Channelized-T	Feasible, Not Recommended
	WCR 16	No Action	Feasible
		RI/RO	***Recommended*** (Completed in coordination with improvements at WCR 14.5. Outcome at WCR 16 could be different depending on action taken at WCR 14.5/14th Street.)
		Closed	Feasible, Not Recommended
Weld County	WCR 18	No Action	Feasible
		Traffic Signal	Feasible, Not Recommended
		Continuous Flow / Super Signal	Feasible, Not Recommended
		SPUI	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)
		Hook Ramps	Feasible, Not Recommended
		Diamond	Feasible, Not Recommended
	WCR 18.5	No Action	Feasible
		RI/RO	Feasible, Not Recommended
		Closed	***Recommended*** (Closure would happen in conjunction with the interchange at WCR 18)
	WCR 20	No Action	Feasible
		RI/RO	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)
		Close	Feasible, Not Recommended
	WCR 22	No Action	Feasible
		Diamond	***Recommended***

Community	Location	Improvement Type	Recommendation
Weld County	WCR 22.5	No Action	Feasible
		Closed	***Recommended*** (Closure would happen in conjunction with interchange at WCR 22. Would happen in conjunction with parallel road system between WCR 18 and WCR 28)
	WCR 24.5	No Action	Feasible
		RI/RO (West); Closure (East)	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)
	WCR 26	No Action	Feasible
		RI/RO	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)
	WCR 28	No Action	Feasible
		Traffic Signal	Feasible, Not Recommended
		SPUI	***Recommended*** (Would happen in conjunction with parallel road system between WCR 18 and WCR 28)
		Partial Closure	Feasible, Not Recommended
		Closed	Feasible, Not Recommended
Platteville	WCR 30	No Action	Feasible
		Closed	***Recommended*** (Requires new parallel connection to WCR 32)
	SH 66	No Action	Feasible
		Diamond (W) and Offset SPUI (E)	Feasible, Not Recommended
		Continuous Flow/Super Signal	Feasible, Not Recommended
		Channelized-T	Feasible, Not Recommended (potential interim improvements)
		Channelized-T with SB Grade Separation	***Recommended*** (SB grade separation; consider groundwater and shifting alignment to the east)
	Marion Avenue	No Action	Feasible
		Partial Closure	***Recommended*** (¾ movement)
	WCR 32, Grand Avenue	No Action	Feasible
		Signalization	***Recommended*** (Frontage road relocation to eliminate phasing. Improvements work in conjunction with parallel road to WCR 30 in Platteville.)
		SPUI	Feasible, Not Recommended

Community	Location	Improvement Type	Recommendation
Platteville	WCR 34	No Action	Feasible
		Diamond	***Recommended***
	WCR 36	No Action	Feasible
		Closed	***Recommended*** (With connections to next intersections north and south. Closure will happen in conjunction with interchange at WCR 34 and SH 60)
	SH 60	No Action	Feasible
		Diamond	***Recommended*** (interim storage lengths)
	WCR 38	No Action	Feasible
		Closed	***Recommended*** (When signal improved connection to WCR 40 and WCR 60. Closure happens in conjunction with improvements at SH 60)
	WCR 29/38.5	No Action	Feasible
		Closed	***Recommended*** (when signal improved connection to WCR 40 and WCR 60)
Gilcrest	WCR 40	No Action	Feasible
		Traffic Signal	***Recommended*** (realign west frontage road at the intersection)
	Elm Street	No Action	Feasible
		¾ Access	***Recommended*** (east side closure only when signal at WCR 40)
	Main Street	No Action	Feasible
		RI/RO	Feasible, Not Recommended
		Closure	Feasible, Not Recommended
		Channelized-T	***Recommended*** (must cul-de-sac western frontage roads)
	WCR 31/Ash Street	***No Action***	***Recommended*** (Maintain current ¾)
	WCR 42	No Action	Feasible
		Add EB Right Turn Lane	***Recommended*** (create EB turn lanes; consider signal phasing during pre-emption)
	WCR 33	No Action	Feasible
		Closed	Feasible, Not Recommended (Interim improvements work in conjunction with WCR 44 improvements. With new signal at WCR 44 and frontage road east of the railroad)

Community	Location	Improvement Type	Recommendation
Gilcrest		Channelized-T	Feasible, Not Recommended
		Grade Separation; Junior Interchange with WCR 44	Eliminated—Completely impacts all residents of Peckham
		Diamond	Eliminated—Completely impacts all residents of Peckham
		Shifted Tight Urban Diamond Interchange	***Recommended*** (Would happen in conjunction with improvements at WCR 44. Interim improvements include addition of a signal and closure of WCR 33)
		RI/RO	Feasible, Not Recommended
	WCR 44	No Action	Feasible
		Grade Separation 85 over; with Channelized-T at WCR 33	Eliminated—Completely impacts all residents of Peckham
		Signalization	Feasible, Not Recommended (Improvements work in conjunction with WCR 33 improvements. With new frontage road alignment on east side of railroad)
		Grade Separation; Junior Interchange with WCR 33	Feasible, Not Recommended
		Diamond	Feasible, Not Recommended
		Shifted Tight Urban Diamond Interchange	***Recommended*** (Would happen in conjunction with improvements at WCR 33. Interim improvements include addition of a signal and closure of WCR 33)
	WCR 46/WCR 35	No Action	Feasible
		Channelized-T with Closure on the East Side	***Recommended***
	WCR 48/ WCR 37	No Action	Feasible
		Full Movement	Feasible, Not Recommended
		¾ Movement	Feasible, Not Recommended
		Channelized-T with East Side Closure	***Recommended***
La Salle	1st Avenue	No Action	Feasible
		Junior Interchange	Feasible, Not Recommended (does not reflect community's desires)
		Traffic Signal	***Recommended*** (turn lane extensions, to address railroad operations)
	2nd Avenue	No Action	Feasible
		RI/RO	***Recommended***

Community	Location	Improvement Type	Recommendation
La Salle	3rd Avenue	***No Action***	***Recommended***
		Closed	Feasible, Not Recommended
	4th Avenue	No Action	Feasible
		RI/RO	***Recommended***
	5th Avenue	***No Action***	***Recommended***
		Closed	Feasible, Not Recommended
		Channelized-T, with RI/RO (West Side)	Feasible, Not Recommended
	1st Street	No Action	Feasible
		¾ Access	***Recommended*** (median channelization for left turn lane)
	SH 394	No Action	Feasible
		Couplet Intersection	***Recommended***
Evans	42nd Street	No Action	Feasible
		Auxiliary Lane Additions	***Recommended*** (can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)
		Turn Restrictions	Feasible, Not Recommended
		Texas Turnaround	Feasible, Not Recommended (includes all Texas U's in Evans; with slip ramps [off, off, on, on])
	37th Street	No Action	Feasible
		Auxiliary Lane Additions	***Recommended*** (can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)
		Texas Turnaround	Feasible, Not Recommended (includes all Texas U's in Evans; with slip ramps [off, off, on, on])
	31st Street	No Action	Feasible
		Auxiliary Lane Additions	***Recommended*** (can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)
		Texas Turnaround	Feasible, Not Recommended (includes all Texas U's in Evans; with slip ramps [off, off, on, on])
	US 34 Interchange	TBD	Feasible

Community	Location	Improvement Type	Recommendation
Greeley	22nd Street	No Action	Feasible
		Traffic Signal	Feasible, Not Recommended
		Texas Turnaround	***Recommended*** (Requires parallel road connection to allow business access on the east side of the railroad. Context of Texas U fits better because of more space and access exists off existing frontage roads)
	18th Street	No Action	Feasible
		Additional Turn Lanes	Feasible, Not Recommended
		Texas Turnaround	***Recommended*** (context of Texas U fits better because of more space and access exists off existing frontage roads)
	16th Street	No Action	Feasible
		Closed	Feasible, Not Recommended
		Texas Turnaround	***Recommended*** (context of Texas U fits better because of more space and access exists off existing frontage roads)
	13th Street	No Action	Feasible
		Traffic Signal	Feasible, Not Recommended
		Texas Turnaround	***Recommended*** (context of Texas U fits better because of more space and access exists off existing frontage roads)
	8th Street	No Action	Feasible
		Texas Turnaround	***Recommended*** (fits context of surrounding land uses and parcels than split diamond)
		Split Diamond	Feasible, Not Recommended
	5th Street	No Action	Feasible
		Texas Turnaround	***Recommended*** (fits context of surrounding land uses and parcels than split diamond)
		Split Diamond	Feasible, Not Recommended
	O Street	No Action	Feasible
		Overpass	Feasible, Not Recommended (structure over RR and US 85 so big that severely impacts surrounding land uses)
		Combined Overpass with WCR 66	Feasible, Not Recommended
		Closure and Combine with Signal at WCR 66	***Recommended*** (Constructed in conjunction with a traffic signal at WCR 66. Has some out of direction travel but fits context of surrounding land use)

Community	Location	Improvement Type	Recommendation
Greeley	WCR 66	No Action	Feasible
		Traffic Signal	***Recommended*** (Constructed in conjunction with closures at O Street. Lane additions to be studied)
Lucerne	SH 392	No Action	Feasible
		Auxiliary Lane Improvements	***Recommended***
		Diamond	Feasible, Not Recommended (too much impact; signal works fine)
	WCR 70	***No Action***	***Recommended***
Eaton	WCR 72	No Action	Feasible
		Closed; on East Side Only	***Recommended*** (Closure at WCR 72 in conjunction with new improvements in Eaton and full access maintained at WCR 70. East side only; enhance CR 39)
	Colorado Pkwy	***¾ Movement***	***Recommended***
	Orchard Street	***RI/RO***	***Recommended***
	Collins Street	***No Action***	***Recommended***
	1st Street	***No Action***	***Recommended***
	2nd Street	***No Action***	***Recommended***
	3rd St	No Action	Feasible
		RI/RO	Feasible, Not Recommended
	4th Street	***No Action***	***Recommended***
	5th Street	No Action	Feasible
		Traffic Signal	***Recommended*** (HAWK)
	7th Street	No Action	***Recommended***
		¾ Configuration	Feasible, Not Recommended
	WCR 76	No Action	Feasible
		Signal	***Recommended***
	WCR 37	***Close on East Side and Parallel South to CR 76***	***Recommended*** (Would happen in conjunction with signal at WCR 76.)
	CR 78	***No Action***	***Recommended***
	CR 80	***No Action***	***Recommended***
		Closed on East Side Only	Feasible, Not Recommended

Community	Location	Improvement Type	Recommendation
Ault	SH 14	***No Action***	***Recommended***
	2nd Street	***No Action***	***Recommended***
	3rd Street	***No Action***	***Recommended***
	CR 84	***No Action***	***Recommended***
	CR 86	***No Action***	***Recommended***
Pierce	CR 88	***No Action***	***Recommended***
	Main Street	***No Action***	***Recommended***
	CR 90	No Action	Feasible, Not Recommended
		Traffic Signal	***Recommended*** (HAWK interim)
	CR 92	***No Action***	***Recommended***
	CR 94	***No Action***	***Recommended***
	CR 96	***No Action***	***Recommended***
Nunn	CR 98	***No Action***	***Recommended***
		Close	Feasible, Not Recommended
	4th Street	***No Action***	***Recommended***
	CR 100	No Action	Feasible, Not Recommended
		Signal	***Recommended*** *(Closure East Side)*

1 Notes:

CR = County Road
DDI = Diverging Diamond Interchange
EB = eastbound
I-76 = Interstate 76
RI/RO = right-in/right-out
RR = railroad
SB = southbound
SH = State Highway
SPUI = Single Point Urban Interchange
TBD = to be determined
v/c = volume to capacity ratio
WCR = Weld County Road

2

3.0 RECOMMENDED ALTERNATIVES CONCEPT

Section 3.0 describes the Recommended Alternatives resulting from the extensive Alternative Development, Refinement, and Screening Process conducted for this PEL study. **Appendix E** includes the conceptual engineering plans and the cost estimates for each element of the Recommended Alternatives. **Appendix E** also includes a one-page summary showing the individual improvements and summarizing the necessary information for a community to obtain money to advance the improvements. This section of the PEL shows the connection among all the elements. It should be clearly noted that there are many cases where a road closure is recommended, but the actual closure should not occur until an adjacent improvement is implemented. Special care should be taken to the Summary Sheets in **Appendix E** to determine what other improvements are required prior to access closures.

Some of the recommended improvements identified in this document will require an amendment to the US 85 ACP. The US 85 ACP will continue to serve as the legally-binding, governing document for the US 85 Corridor. A formal amendment request for changing the current ACP recommendations to match the US 85 PEL recommendations is required, as identified in **Section 6**. As set forth in the US 85 IGA, when an amendment to the ACP is requested, all parties to the IGA must approve the change in writing. Amendments to the US 85 ACP will take place only when funding is available for the identified improvement. This allows for only amendments that are imminent to be brought for discussion, recommended, and approved.

The corridor is broken into four sections to better describe the corridor improvements.

3.1 Section 1—I-76 to WCR 22

Section 1 of the US 85 corridor comprises three communities (Commerce City, Brighton, and Fort Lupton) and two counties (Adams and Weld). Section 1 was designated as a Freeway for most of the corridor and then as an Enhanced Expressway in the northern portion. This results in the vast majority of the intersection recommendations as interchanges or closures. Section 1 contains 11 interchanges or grade separations.

Figure 3.1 and **Figure 3.2** present the two conceptual layouts of grade-separated interchanges in the Corridor. These are generic layouts with site-specific recommendations presented in **Figure 3.3**. Commerce City provided CDOT with two letters (**Appendix F)** requesting the inclusion of an alternative for 104th Avenue that was not evaluated in the PEL, an evaluation of the intersections from 104th Avenue to 124th Avenue as one complete system, and the desire to fully evaluation all community and environmental effects of the improvements in Commerce City. CDOT has initiated a separate NEPA and Preliminary Design Project addressing the US 85 Corridor between 104th Avenue and 124th Avenue. That project will accommodate Commerce City's requests.

Figure 3.4 presents the conceptual recommendations for alternative mode facilities. All future interchanges identified in the PEL shall evaluated bus slip ramps and other transit-related infrastructure on all interchanges to minimize off-line queueing and enhance operational efficiency. The RTD provides existing established route transit service in Section 1. No changes are recommended to the existing service. However, coordination is required during the design phase at proposed interchanges to ensure that bus service can be efficiently accommodated. This would include the following locations: 104th Avenue, 112th Avenue, 120th Avenue, and Bromley Lane.

Interregional commuter bus service consistent with the North I-25 EIS ROD 1 is recommended. This includes commuter bus connections in Section 1 at SH 7 in Brighton and at 14th Street/WCR 14.5 in Fort Lupton. The interregional commuter bus service would use the existing RTD park-n-Ride in Brighton. The addition of bus slip ramps is recommended for direct access at SH 7. The North I-25 EIS ROD 1 identified the Fort Lupton bus station to be in the southeast quadrant of US 85 and 14th Street/ WCR 14.5 and to include 20 parking spaces. A change in location would require a revision to the North I-25 EIS ROD 1.

Figure 3.1 and **Figure 3.2** present conceptual layouts of the ways in which transit can be efficiently accommodated at diamond interchanges and single point urban interchanges (SPUIs). Both interchange templates assume that bus stops will be located on the highway on-ramps and the far side of the interchange along the cross streets, as needed. Buses would exit the highway, proceed through the cross street intersection, and stop on the on-ramp before continuing onto the highway. Bus-only queue jump lanes with transit signal priority treatments would be required at a SPUI to provide more efficient through-service. Pedestrian connections should be provided between the bus stops. This may include crosswalks at the cross streets and the highway ramps, as well as adjacent sidewalks.

Design elements included in these conceptual layouts should be reviewed case by case during future phases to ensure the best connectivity between routes and the best accessibility to adjacent land uses.

The Recommended Alternatives also include opportunities to maximize local and regional trail connections. DRCOG has identified the South Platte River Trail as a key multiuse trail. The PEL recommendations include the following:

- At-grade pedestrian crossing improvements at Bromley Lane as a part of the SPUI
- Grade-separated pedestrian/bike crossing replacement at SH 7 to better connect to the RTD park-n-Ride facility

At-grade pedestrian crossing improvements at SH 52 to connect downtown Fort Lupton to the existing bridge across the South Platte River and to Pearson Park.

Figure 3.1 Diamond Interchange Transit Accommodation

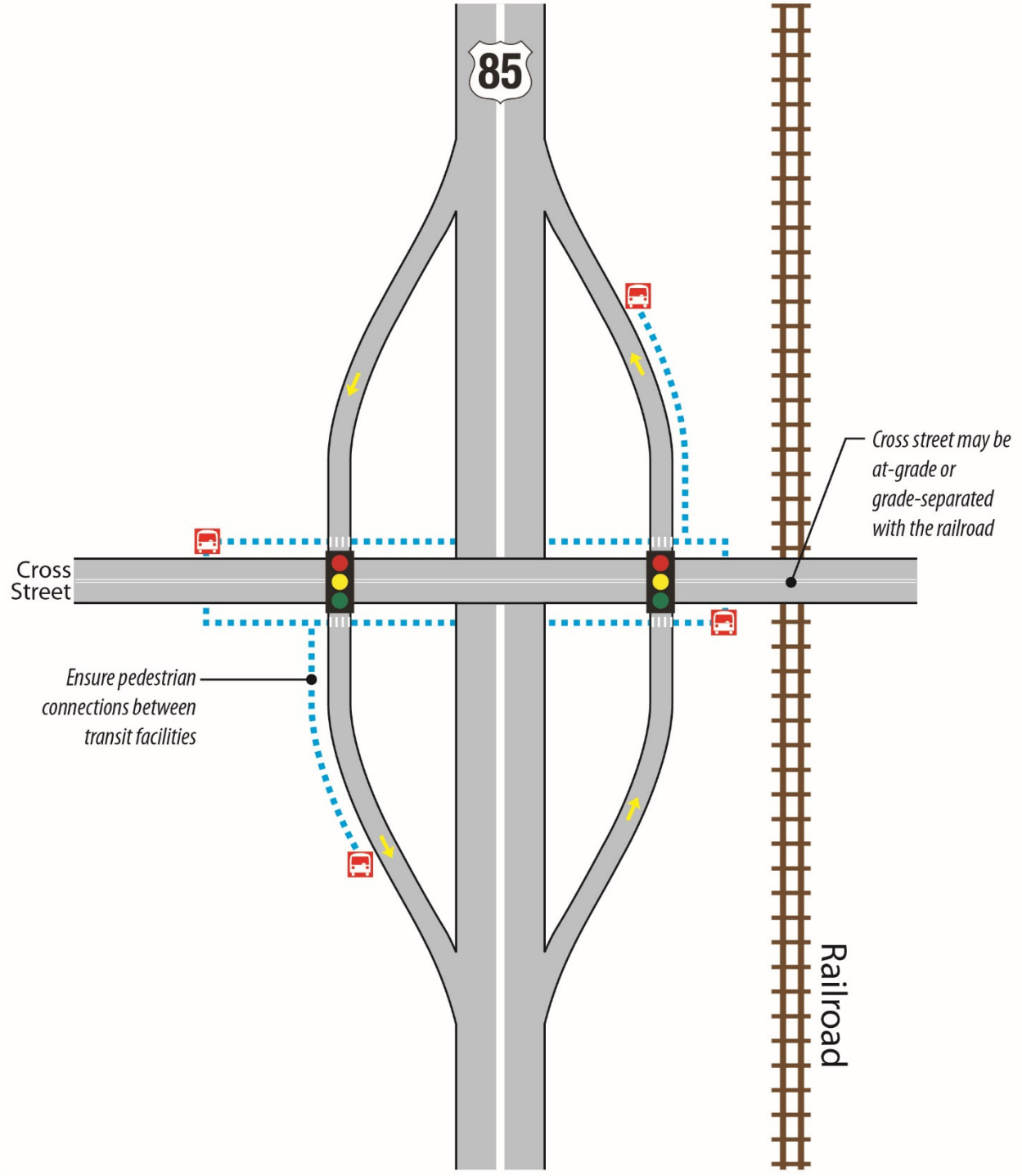


Figure 3.2 Single Point Urban Interchange (SPUI) Transit Accommodation

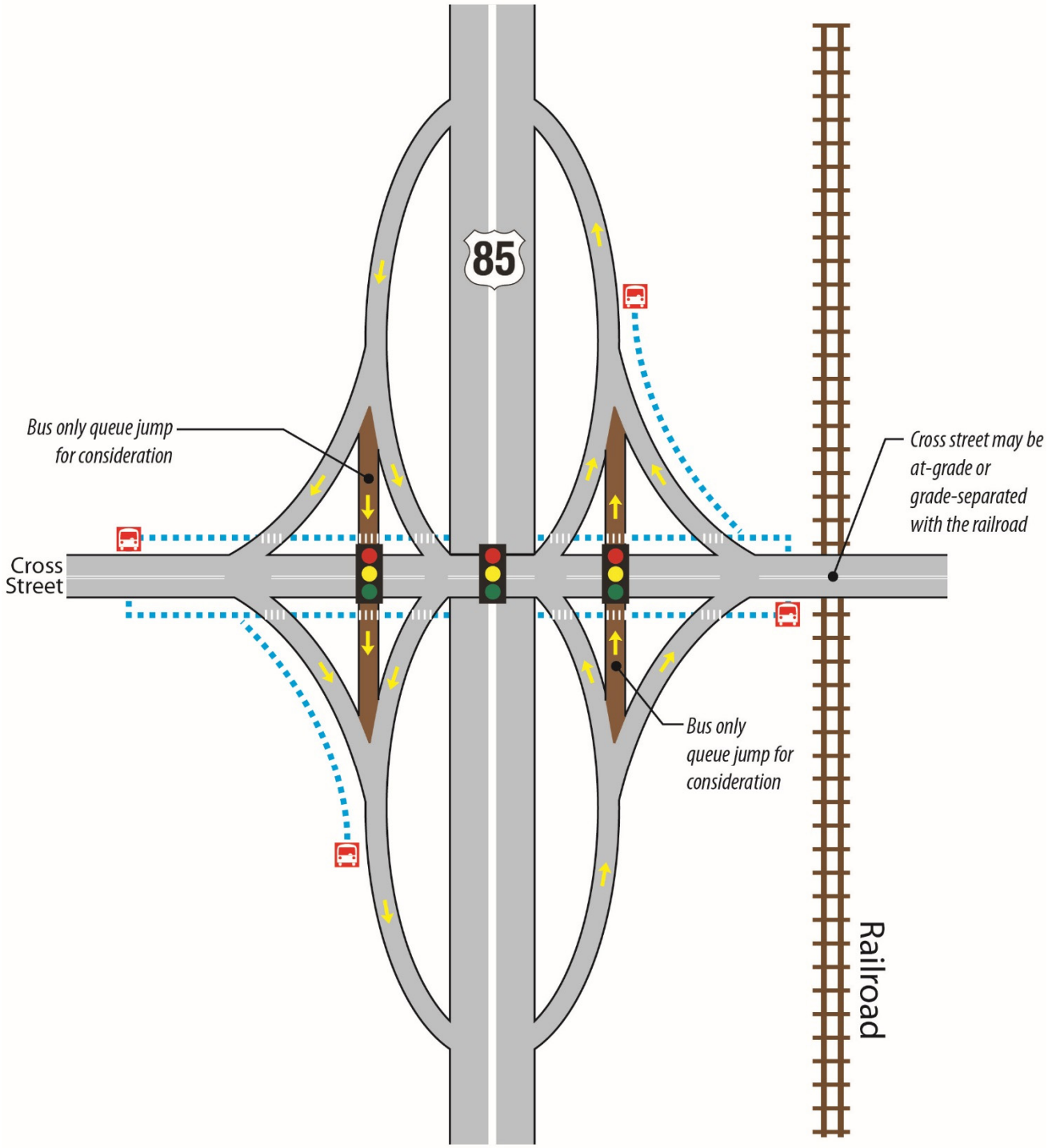


Figure 3.3 Section 1 Conceptual Improvements

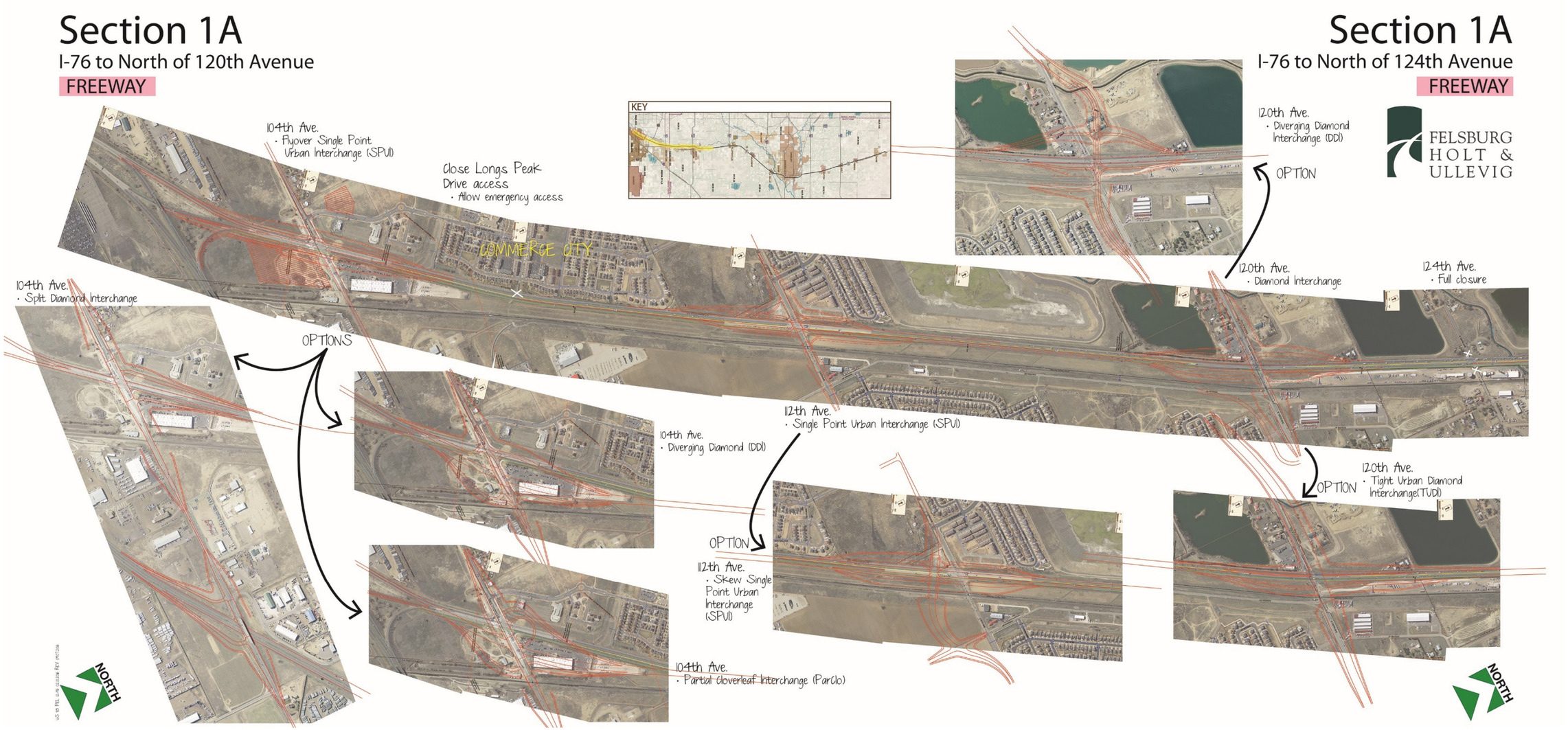


Figure 3.3 Section 1 Conceptual Improvements (Continued)

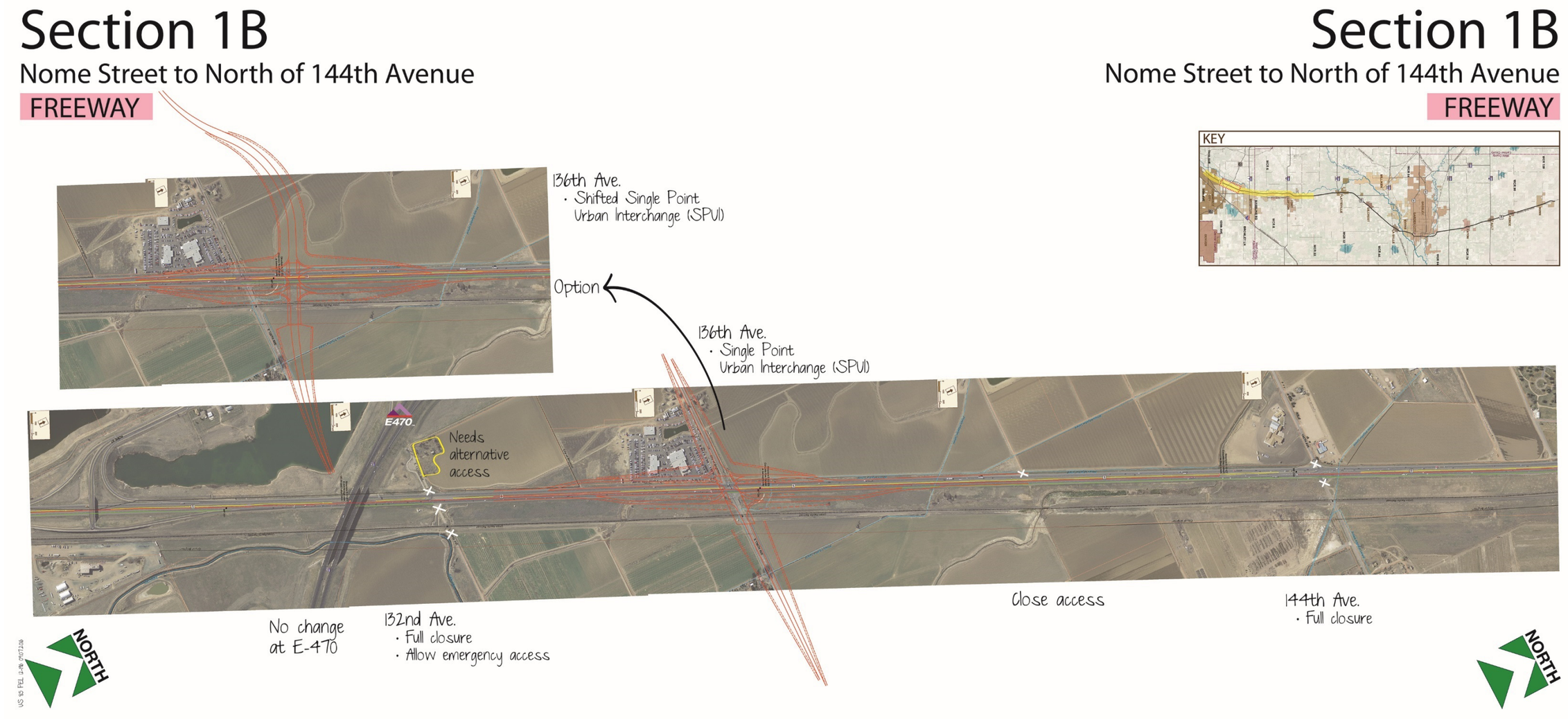


Figure 3.3 Section 1 Conceptual Improvements (Continued)

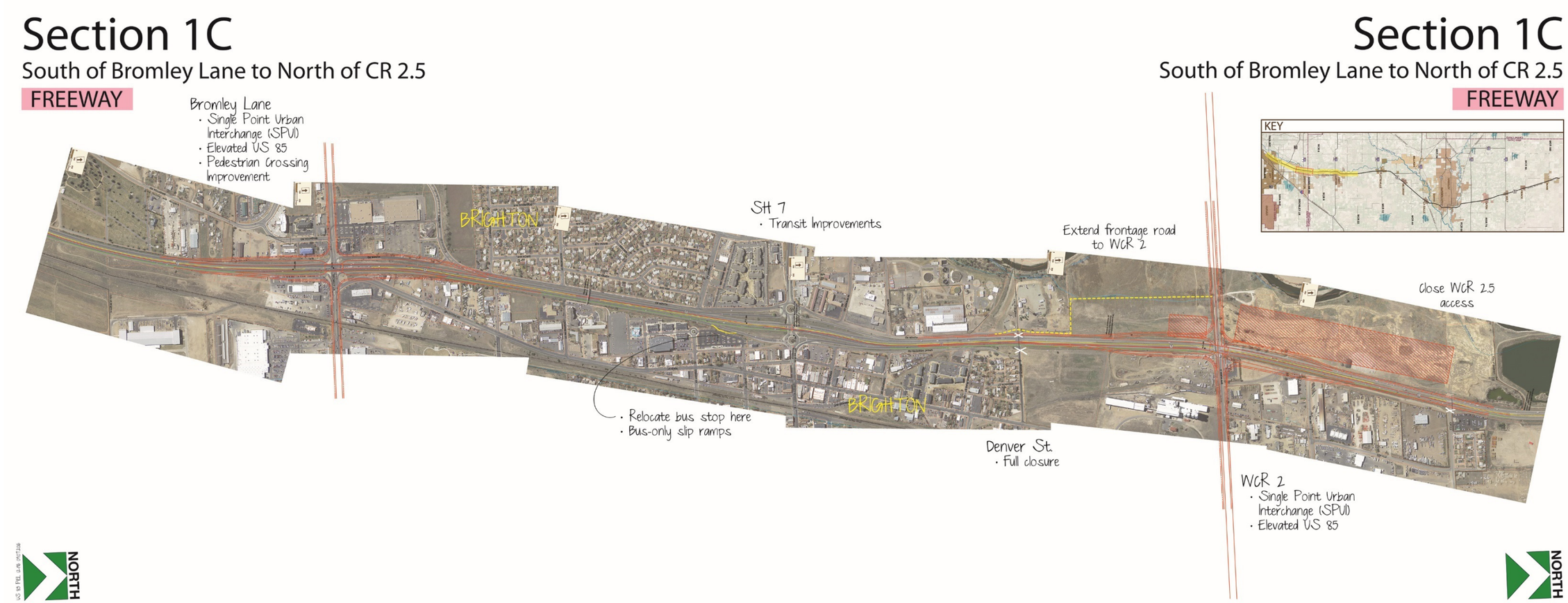


Figure 3.3 Section 1 Conceptual Improvements (Continued)

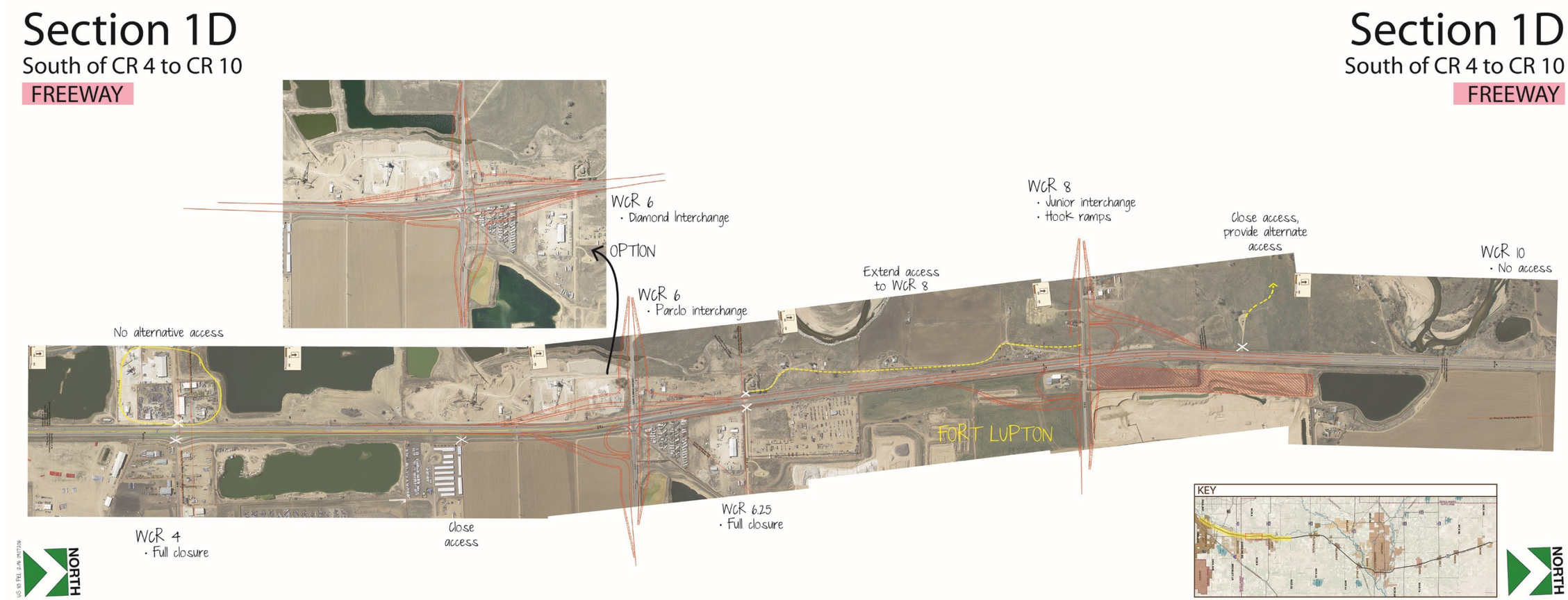


Figure 3.3 Section 1 Conceptual Improvements (Continued)

Figure 3.3 Section 1 Conceptual Improvements (Continued)

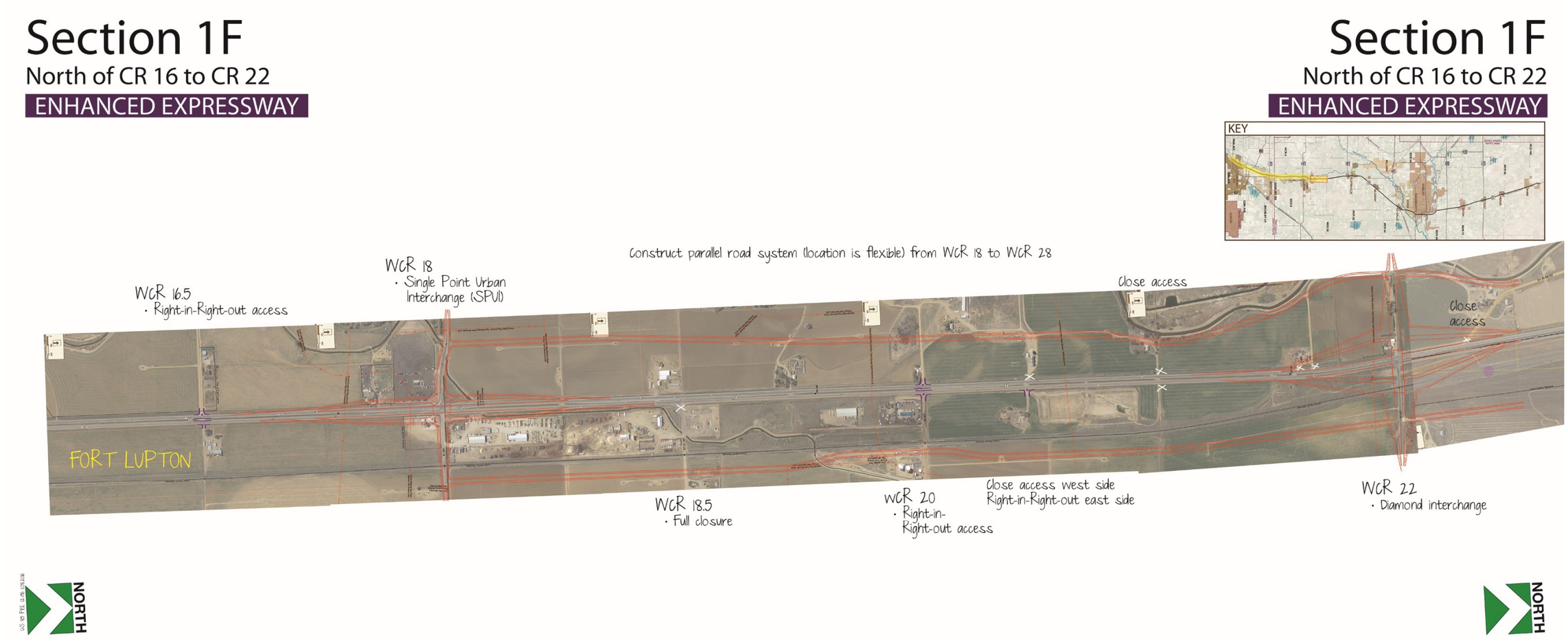
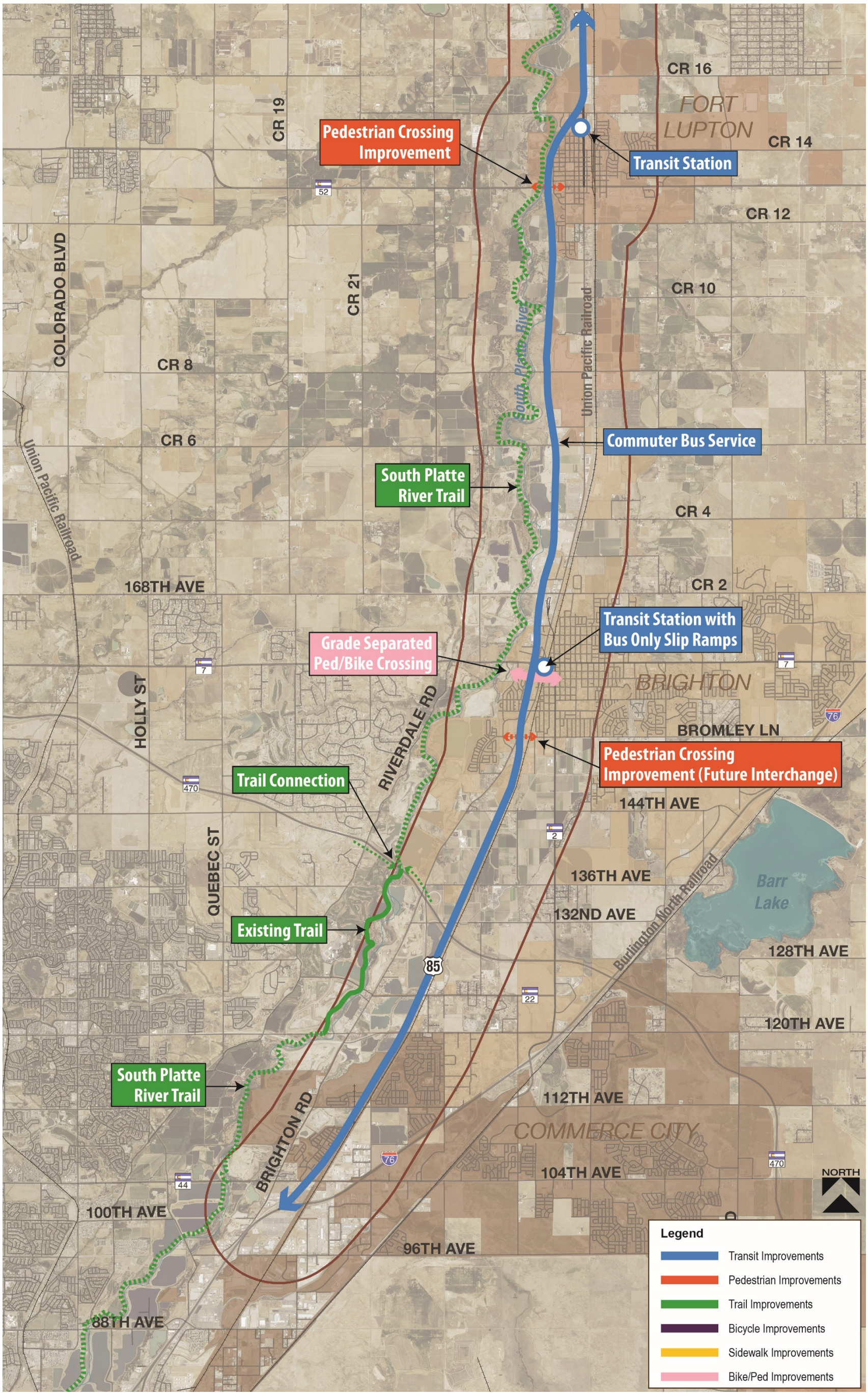


Figure 3.4 Section 1 Alternative Mode Conceptual Improvements



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3.2 Section 2—WCR 22 to WCR 48

Section 2 of the US 85 corridor extends through unincorporated Weld County and the towns of Platteville and Gilcrest. Section 2 has both types of Expressway designations (Enhanced Expressway and Standard Expressway). The dominant improvement in Section 2 includes a section of parallel roads that extends between two interchanges at WCR 22 and WCR 28. This improvement is intended to work as a system improvement. It was the intent of the recommendation for the parallel road system to be built by in whole or in part by CDOT, Weld County, or Developers. It should be clearly noted that there are many cases where a road closure is recommended, but the actual closure should not occur until an adjacent improvement is implemented. Special care should be taken to the Summary Sheets in Appendix E to determine what other improvements are required prior to access closures. Section 2 also has a type of intersection that has been applied throughout the corridor—a Channelized-T intersection. This type of intersection allows one direction of travel to move free-flow, while turning vehicles are provided a refuge and an acceleration and a deceleration lane. **Figure 3.5** presents an example of a Channelized-T Intersection. As the improvements move north, the recommendations transition from grade separation to at-grade intersections. **Figure 3.6** presents the recommended improvements for Section 2.

Figure 3.7 presents the conceptual recommendations for alternative mode facilities for Section 2. Section 2 does not provide existing fixed-route transit service. Interregional commuter bus service consistent with the North I-25 EIS ROD 1 is recommended, including a commuter bus connection at SH 66 in Platteville. The North I-25 EIS ROD 1 identifies the Platteville bus station to be located in the northwest quadrant of SH 66 and US 85 (south of Salisbury Avenue and east of Main Street). The bus station would include 20 parking spaces. The location of this commuter bus station can be moved, should conditions change; however, a change in location would require a revision to the North I-25 EIS ROD 1.

A parallel bike route begins in Platteville along SH 66 between the proposed South Platte River Trail and Division Street. These facilities are recommended to be 8-foot shoulders. These improvements could happen over time as paving occurs, resulting in a safer environment for automobiles, emergency management services, and cyclists.

The parallel facility is recommended to follow Division Street through Platteville north to WCR 34. The parallel facility ultimately connects to the South Platte River Trail near WCR 46. A second parallel bike route connects Gilcrest to the South Platte River Trail along WCR 42. This trail continues north on WCR 31 to WCR 46 before heading east on WCR 46 to WCR 35. It is recommended that collaboration occur with the Weld County Trails Coordination Committee (WTCC) on the feasibility and implementation of these routes. WTCC is an ad hoc committee focused on advancing and coordinating the connectivity of non-motorized facilities between jurisdictions.

Figure 3.5 Example Channelized-T Intersection

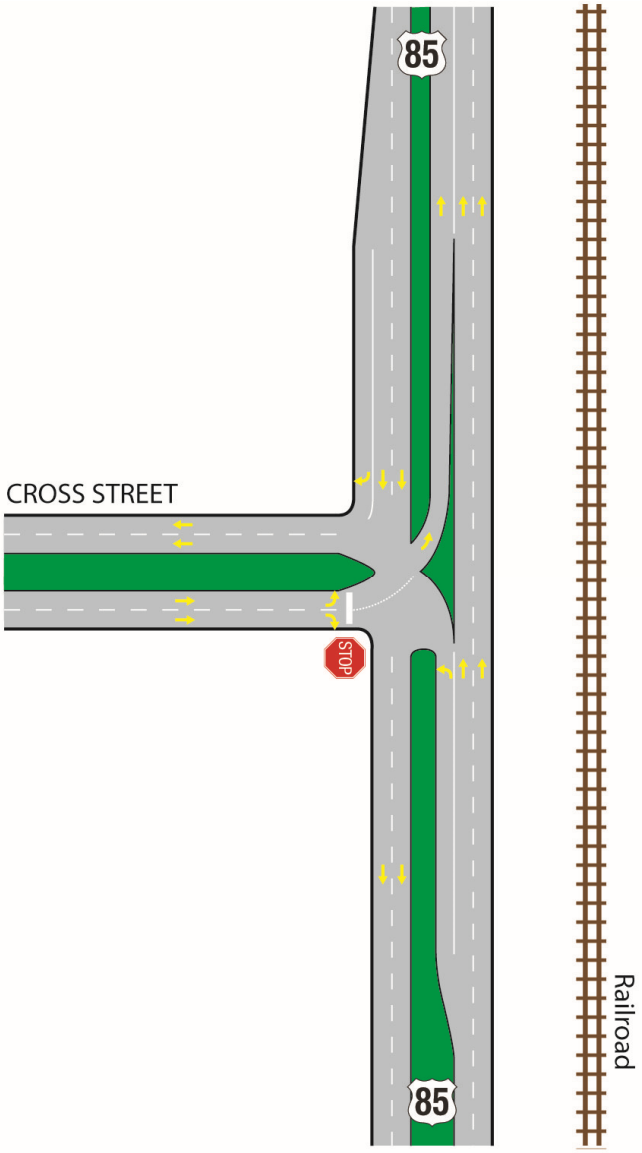

Figure 3.6 Section 2 Conceptual Improvements

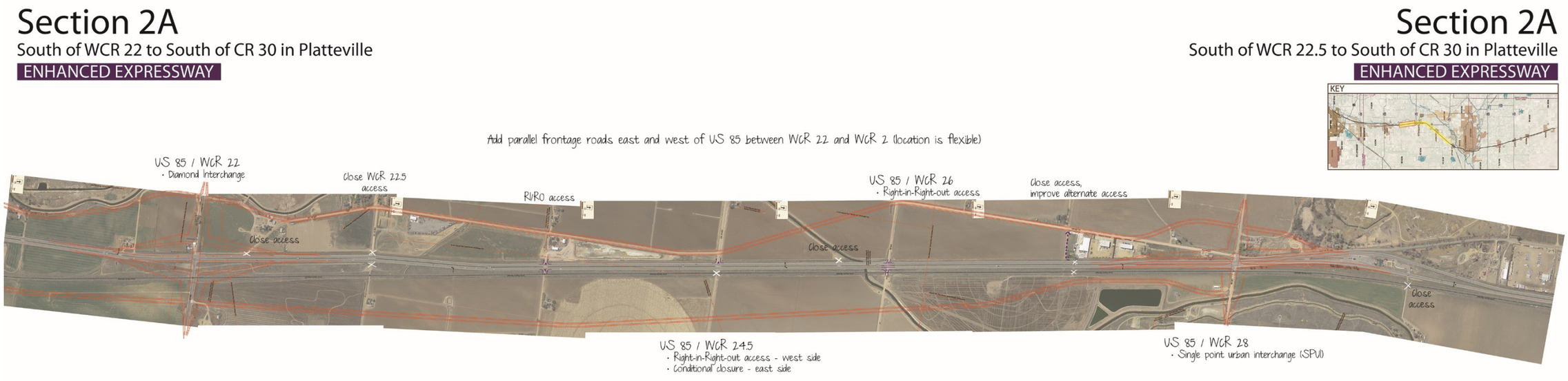

Figure 3.6 Section 2 Conceptual Improvements (Continued)

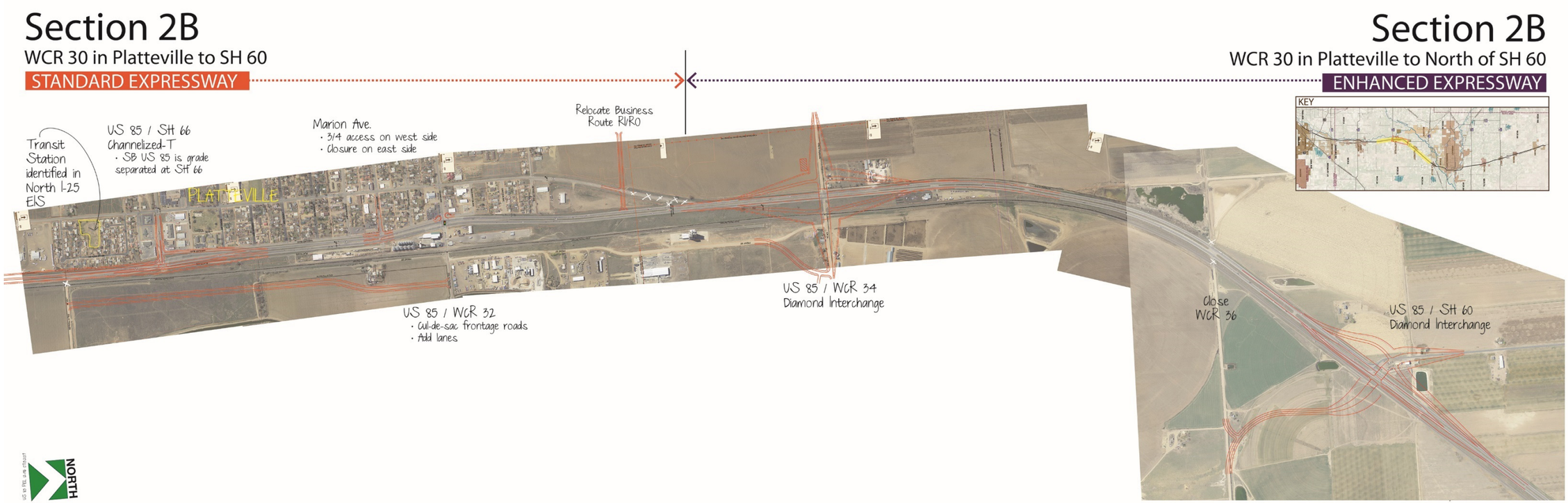

Figure 3.6 Section 2 Conceptual Improvements (Continued)

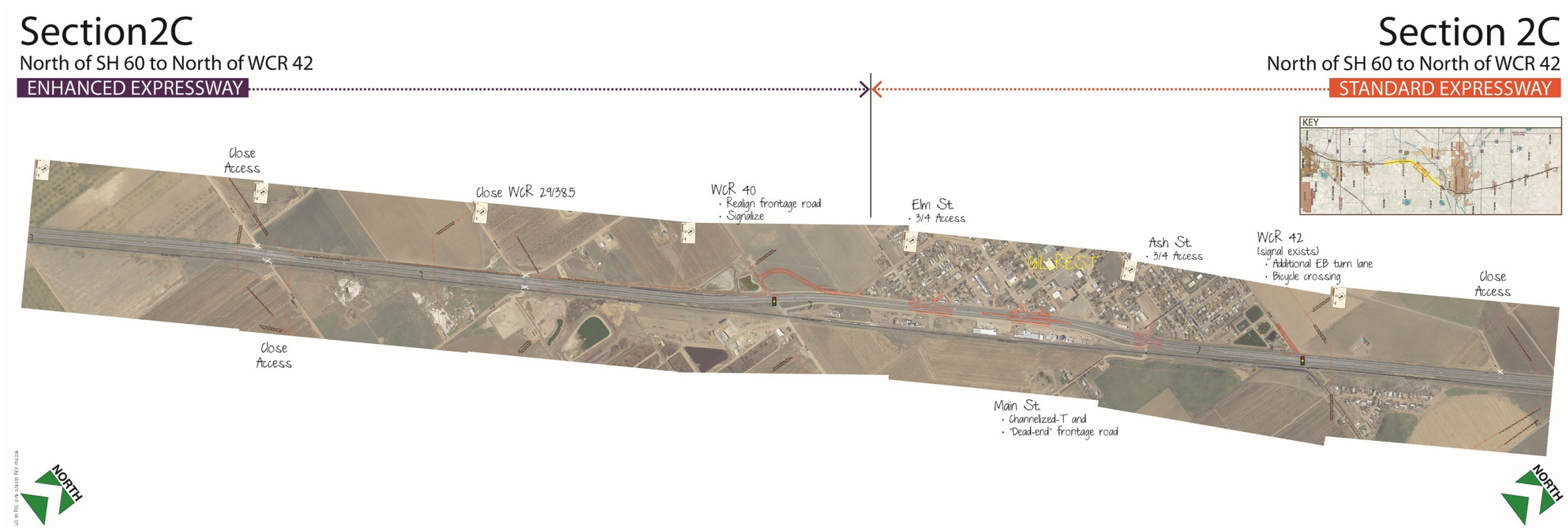

Figure 3.6 Section 2 Conceptual Improvements (Continued)

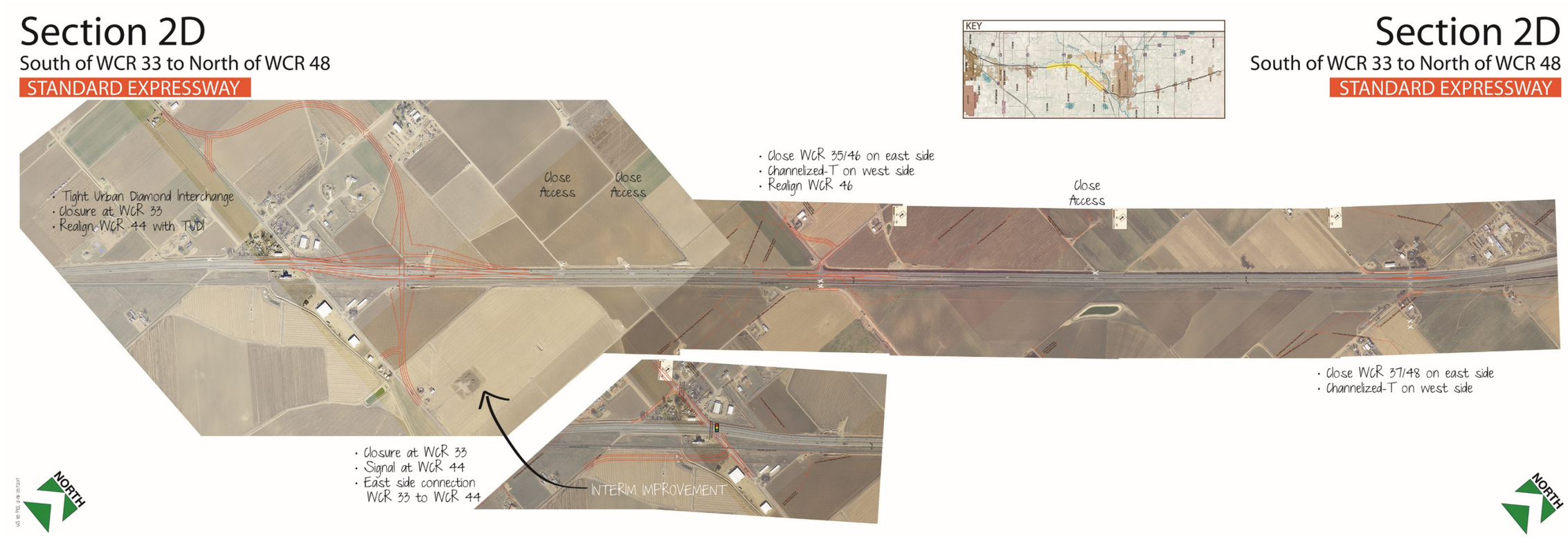

Figure 3.7 Section 2 Alternative Mode Conceptual Improvements