

US 85

Planning and Environmental Linkage Study

submitted to:



Region 4 & Region 1

September 12, 2016



submitted by:



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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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 this plan, as defined in this report, dated August 2016.

- ▶ 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 local agencies, will work to complete the NEPA requirements for specific improvements for individual projects along the US 85 corridor. Subsequent to future NEPA approval, the local agencies will work cooperatively with CDOT to support receipt of funding for and implementation of the interchange area improvements.
- ▶ The local agencies will develop collaborative transportation partnerships to support the interchange recommendations through the Denver Regional Council of Governments (DRCOG) and North Front Range Metropolitan Planning Agency (NFRMPO) planning process to facilitate improvements to this area.

Written letters of support from the local agencies represented on the US 85 PEL from I-76 to Weld County Road 100 Technical Advisory Committee have been requested and will be compiled by CDOT as they are received. The Technical Advisory Committee supports the recommendations of this study as indicated by those letters.

City of Commerce City

Date

City of Brighton

Date

City of Fort Lupton

Date

Town of Platteville

Date

Town of Gilcrest

Date

Town of LaSalle

Date



City of Evans

Date

Town of Garden City

Date

City of Greeley

Date

Town of Eaton

Date

Town of Ault

Date

Town of Pierce

Date

Town of Nunn

Date

Adams County

Date

Weld County

Date

DRCOG

Date

NFRMPO

Date

UFRTPR

Date

Union Pacific Railroad

Date



Colorado Department of Transportation (CDOT) Region 1

Date

Colorado Department of Transportation (CDOT) Region 4

Date

CDOT Environmental Programs Branch

Date

Federal Highway Administration (FHWA)

Date



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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.

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.

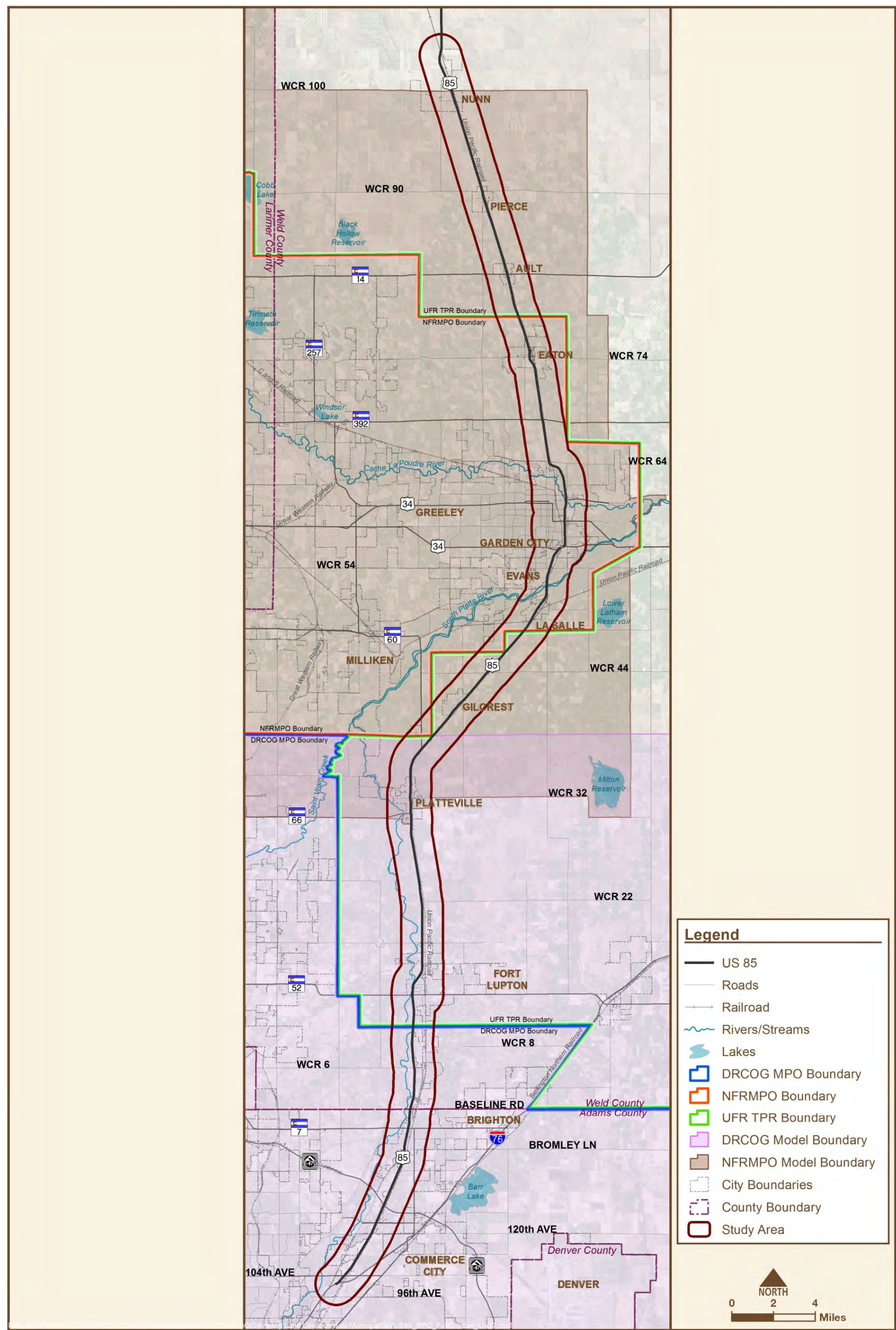
What is a PEL?

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>

Figure ES.1 Study Corridor and Vicinity Map





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.

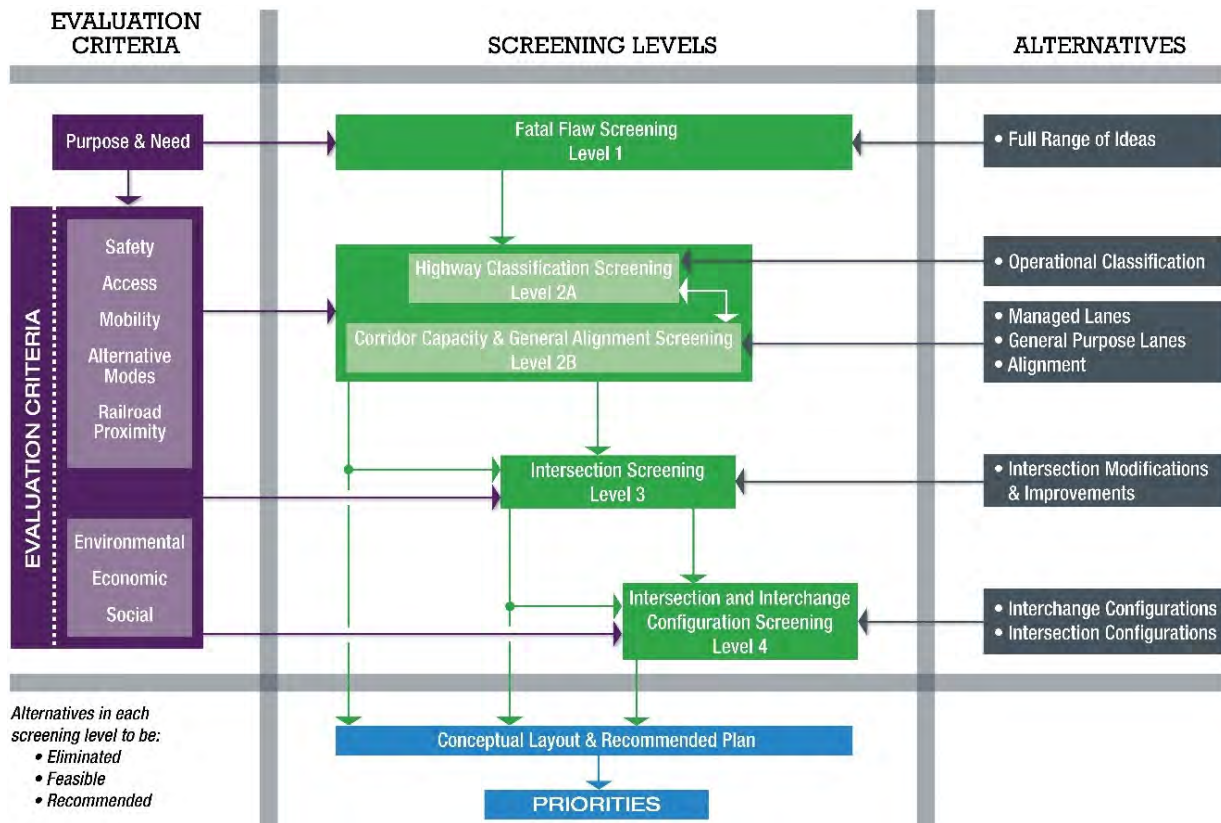
Broad, overarching alternative development occurred at the initial level of the process. These alternatives set the stage for subsequent levels where alternative refinement and evaluation occurred with increasing amount of detail. At each level, the alternatives were refined to match the overall goal 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 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, 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 that governs the amount and types of accesses on US 85 from I-76 to Weld County Road 80 will be updated to incorporate the Recommended Alternatives from this PEL. 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
Commerce City	104 th Avenue	<i>Split Diamond (with I-76)</i>	<i>Recommended</i>
		<i>SPUI with Flyover</i>	<i>Recommended</i>
		<i>DDI</i>	<i>Recommended</i>
		<i>Partial Cloverleaf</i>	<i>Recommended</i>
	Longs Peak Drive	<i>Closed</i>	<i>Recommended</i>
	112 th Avenue	<i>SPUI</i>	<i>Recommended</i>
		<i>Skewed SPUI</i>	<i>Recommended</i>
	120 th Avenue	<i>Tight Diamond</i>	<i>Recommended</i>
		<i>DDI</i>	<i>Recommended</i>
Brighton	124 th Avenue	<i>Closure</i>	<i>Recommended</i>
	E-470	No Action	N/A
	132 nd Avenue	<i>Closed</i>	<i>Recommended</i>
	136 th Avenue	<i>SPUI</i>	<i>Recommended</i>
Brighton	144 th Avenue	<i>Closed</i>	<i>Recommended</i>
	Bromley Lane	<i>SPUI</i>	<i>Recommended</i>
	Bridge Street/SH 7	<i>Bus Slip Ramps to Station</i>	<i>Recommended</i>
	Denver Street	<i>Closed</i>	<i>Recommended</i>
	168 th Avenue/ WCR 2	<i>SPUI</i>	<i>Recommended</i>
	WCR 2.5	<i>Closed</i>	<i>Recommended</i>
Weld County	WCR 4	<i>Closed</i>	<i>Recommended</i>
Fort Lupton	WCR 6	<i>Partial Cloverleaf</i>	<i>Recommended</i>
	WCR 6.25	<i>Closed</i>	<i>Recommended</i>
	WCR 8	<i>Hook Ramps</i>	<i>Recommended</i>
	WCR 10	<i>No Action, No Access</i>	<i>Recommended</i>
	SH 52	<i>Pedestrian Improvement</i>	<i>Recommended</i>
	WCR 14.5/ 14 th Street	<i>Junior Interchange</i>	<i>Recommended</i>
	WCR 16	<i>RI/RO</i>	<i>Recommended</i>
Weld County	WCR 16.5	<i>RI/RO</i>	<i>Recommended</i>
	WCR 18	<i>SPUI</i>	<i>Recommended</i>
	WCR 18.5	<i>Closed</i>	<i>Recommended</i>
	WCR 20	<i>RI/RO</i>	<i>Recommended</i>



Community	Location	Improvement Type	Recommendation
Weld County	WCR 22	Diamond	Recommended
	WCR 22.5	Closed	Recommended
	WCR 24	RI/RO	Recommended
	WCR 24.5	RI/RO (West); Closure (East)	Recommended
	WCR 26	RI/RO	Recommended
	WCR 28	SPUI	Recommended
Platteville	WCR 30	Closed	Recommended (with parallel connection to WCR 32)
	SH 66	Channelized-T with SB Grade Separation	Recommended (SB grade separation; consider groundwater and shifting alignment to the east)
	Marion Avenue	Partial Closure	Recommended (¾ movement)
	WCR 32, Grand Avenue	Signalization	Recommended (frontage road relocation to eliminate phasing)
	WCR 34	Diamond	Recommended
	WCR 36	Closed	Recommended (with connections to next intersections north and south)
	SH 60	Diamond	Recommended (interim storage lengths)
	WCR 38	Closed	Recommended (when signal improved connection to WCR 40 and WCR 60)
	WCR 29/38.5	Closed	Recommended (when signal improved connection to WCR 40 and WCR 60)
Gilcrest	WCR 40	Traffic Signal	Recommended (realign west frontage road at the intersection)
	Elm Street	¾ Access	Recommended (east side closure only when signal at WCR 40)
	Main Street	Channelized-T	Recommended (must cul-de-sac western frontage roads)
	WCR 31/Ash Street	No Action	Recommended (Maintain current ¾)
	WCR 42	Add EB Right Turn Lane	Recommended (create EB turn lanes; consider signal phasing during pre-emption)
	WCR 33	Closed	Recommended (with new signal at WCR 44 and frontage road east of the railroad)
	WCR 44	Signalization	Recommended (with new frontage road alignment on east side of railroad)



Community	Location	Improvement Type	Recommendation
Gilcrest	WCR 46/WCR 35	Channelized-T with Closure on the East Side	Recommended
	WCR 48/ WCR 37	Channelized-T with East Side Closure	Recommended
La Salle	1 st Avenue	Traffic Signal	Recommended (turn lane extensions, to address railroad operations)
	2 nd Avenue	RI/RO	Recommended
	3 rd Avenue	No Action	Recommended
	4 th Avenue	RI/RO	Recommended
	5 th Avenue	Channelized-T, with RI/RO (West Side)	Recommended
	1 st Street	¾ Access	Recommended (median channelization for left turn lane)
	SH 394	Couplet Intersection	Recommended
Evans	42 nd Street	Traffic Signal	Recommended (can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)
	37 th Street	Traffic Signal	Recommended (can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)
	31 st Street	Traffic Signal	Recommended (can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)
	US 34 Interchange	TBD	Feasible
Greeley	22 nd Street	Texas Turnaround	Recommended (context of Texas U fits better because of more space and access exists off existing frontage roads)
	18 th Street	Texas Turnaround	Recommended (context of Texas U fits better because of more space and access exists off existing frontage roads)
	16 th Street	Texas Turnaround	Recommended (context of Texas U fits better because of more space and access exists off existing frontage roads)
	13 th Street	Texas Turnaround	Recommended (context of Texas U fits better because of more space and access exists off existing frontage roads)



Community	Location	Improvement Type	Recommendation
Greeley	8 th Street	Texas Turnaround	Recommended (fits context of surrounding land uses and parcels than split diamond)
	5 th Street	Texas Turnaround	Recommended (fits context of surrounding land uses and parcels than split diamond)
	O Street	Closure and Combine with Signal at WCR 66	Recommended (has some out of direction travel but fits context of surrounding land use)
	WCR 66	Traffic Signal	Recommended (lane additions to be studied)
Lucerne	SH 392	Traffic Signal	Recommended
	WCR 70	Closure on East Side	Recommended (east side only; enhance CR 39)
Eaton	WCR 72	Closed; on East Side Only	Recommended (east side only; enhance CR 39)
	Colorado Pkwy	¾ Movement	Recommended
	Orchard Street	RI/RO	Recommended
	Collins Street	No Action	Recommended
	1 st Street	No Action	Recommended
	2 nd Street	No Action	Recommended
	3 rd St	No Action	Recommended
	4 th Street	No Action	Recommended
	5 th Street	Traffic Signal	Recommended (HAWK)
	7 th Street	No Action	Recommended
	WCR 76	Signal	Recommended
	WCR 37	Close on East Side and Parallel South to CR 76	Recommended
	CR 78	No Action	Recommended
	CR 80	Closed on East Side Only	Recommended (CR 37 for access)
Ault	SH 14	No Action	Recommended
	2 nd Street	No Action	Recommended
	3 rd Street	No Action	Recommended
	CR 84	No Action	Recommended
	CR 86	No Action	Recommended



Community	Location	Improvement Type	Recommendation
Pierce	CR 88	<i>No Action</i>	<i>Recommended</i>
	Main Street	<i>No Action</i>	<i>Recommended</i>
	CR 90	<i>Traffic Signal</i>	<i>Recommended</i> (HAWK interim)
	CR 92	<i>No Action</i>	<i>Recommended</i>
	CR 94	<i>No Action</i>	<i>Recommended</i>
	CR 96	<i>No Action</i>	<i>Recommended</i>
Nunn	CR 98	<i>Close</i>	<i>Recommended</i> (east side only)
	4 th Street	<i>No Action</i>	<i>Recommended</i>
	CR 100	<i>Signal</i>	<i>Recommended</i>

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

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**.

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.

What is a PEL?

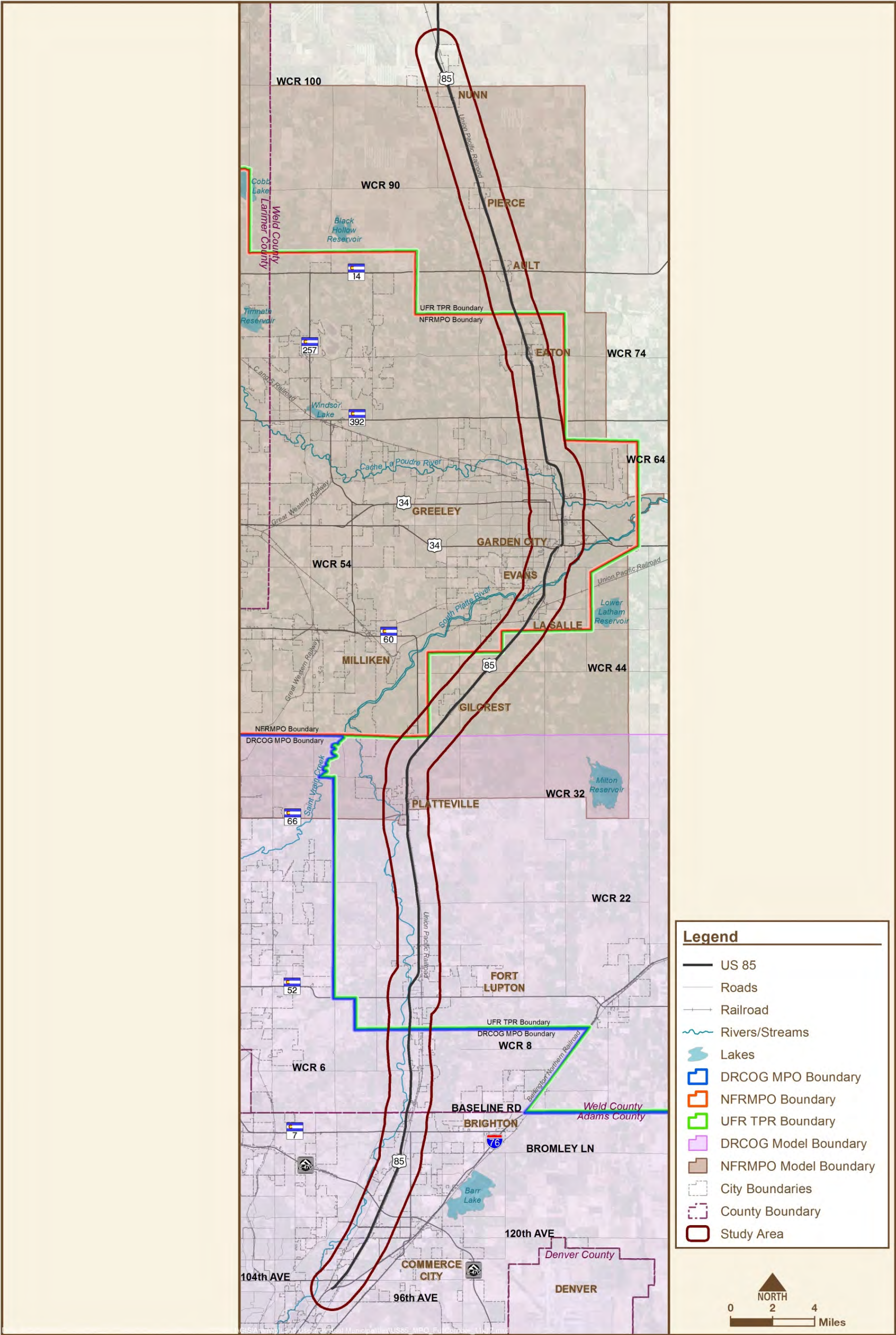
PEL is a study process used to identify transportation issues, priorities, and environmental concerns. A PEL study can lead to a seamless decision-making process that minimizes duplication of effort, promotes efficient and cost-effective solutions, promotes environmental stewardship, and reduces delays 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>



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

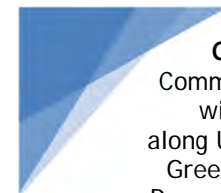
US 85 Access Control Plan (1999)

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.
- ▶ **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.



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



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

DRCOG's current long-range regional plan, the *2035 Metro Vision Regional Transportation Plan* (MVRTP), addresses 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. 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)

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

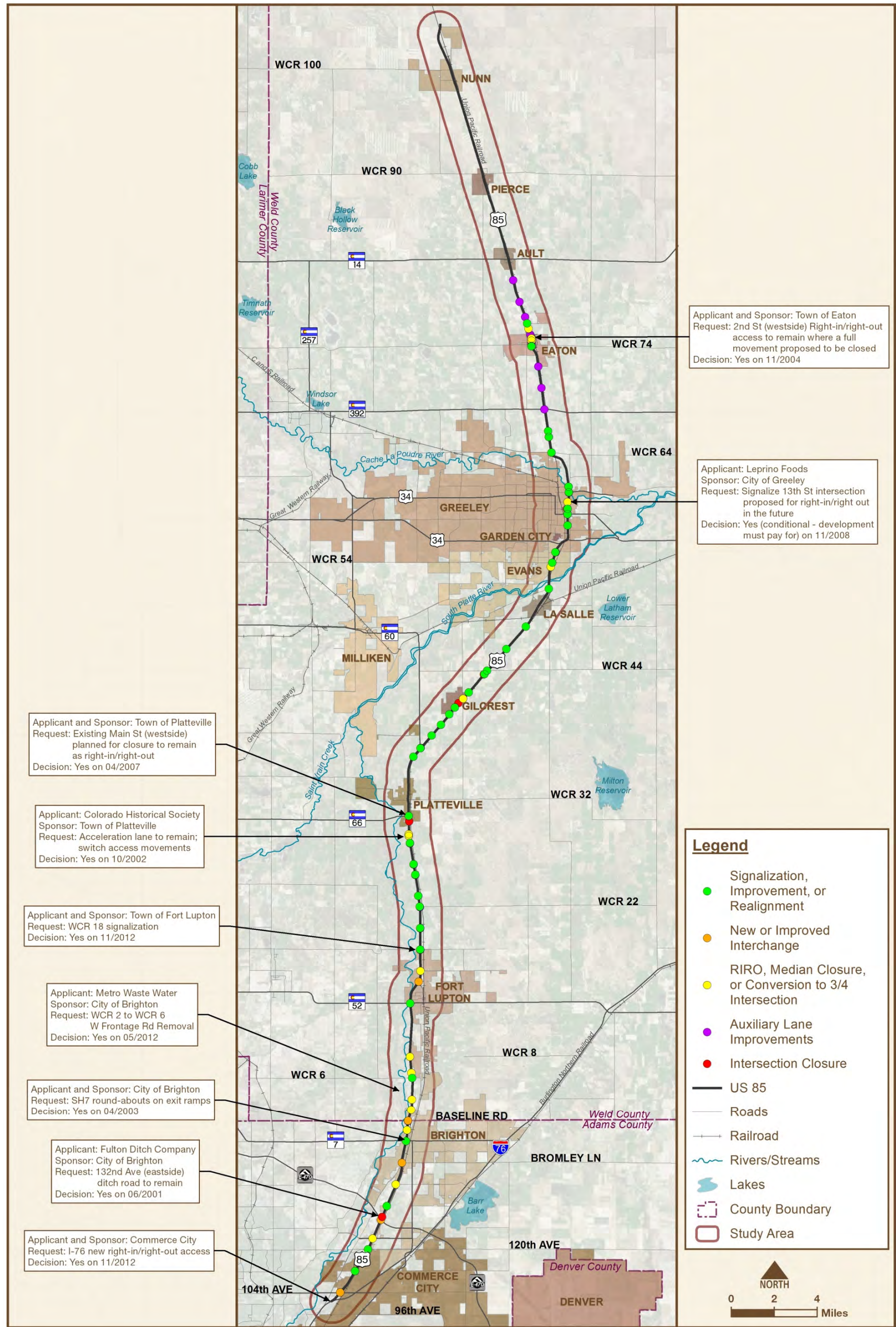
Boulder County initiated a feasibility study to evaluate BRT along SH 7 in April 2016. The feasibility study will evaluate BRT capital improvement and operational options, as well as BRT build-out scenarios including travelway features, service plans, stations, associated land use, and total capital 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 $\frac{3}{4}$ 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. As a way 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

US 85 crosses the City of Greeley through two distinct neighborhoods:

- ▶ Sunrise
- ▶ University of Northern Colorado (UNC)

Each neighborhood has its own 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.



For the *UNC Neighborhood Plan* (2004), the neighborhood is located northwest of the intersection of US 34 and US 85. It is noted as being a neighborhood in transition with improvements sited for streetscapes, infrastructure, code enforcement, and street maintenance.

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 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.

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 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

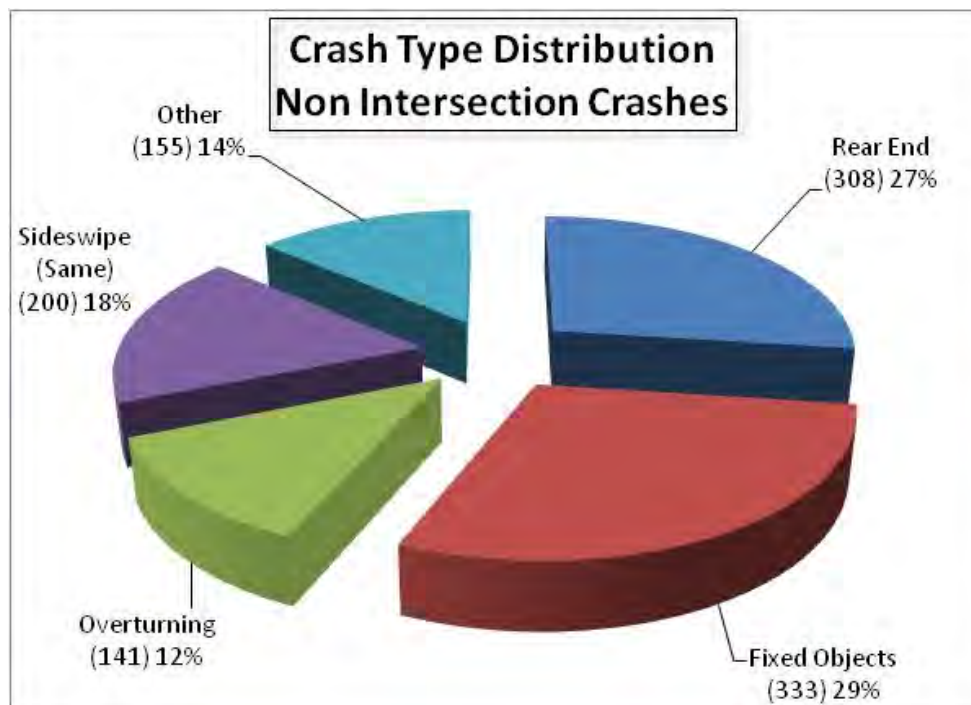
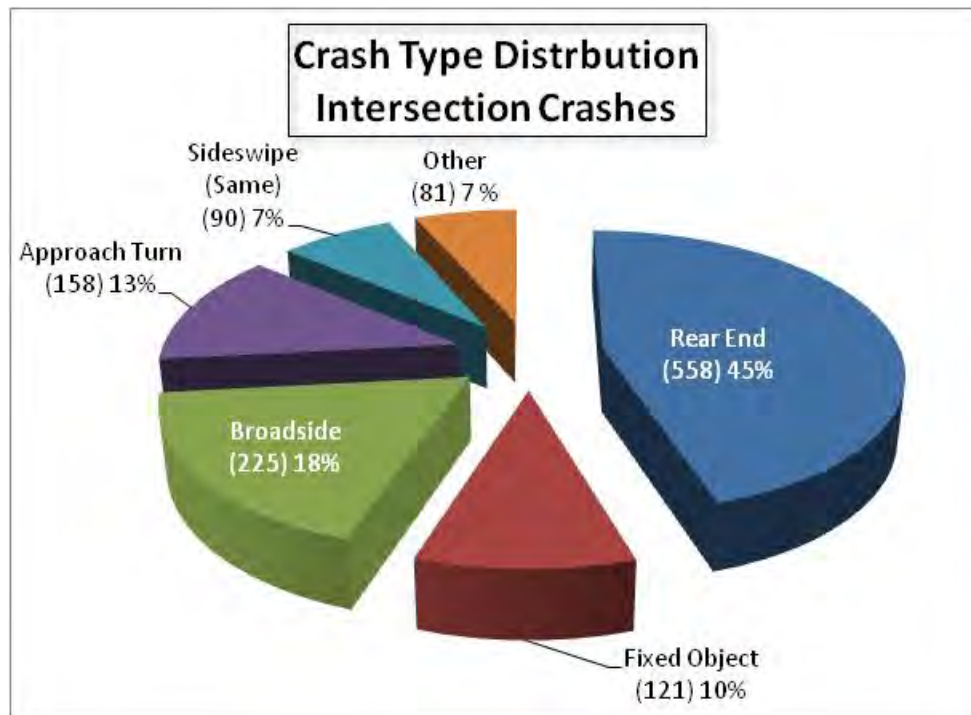
These transportation improvements are needed to address the following problems:

- ▶ **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.

1 **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. As a result 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.

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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. As a result 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

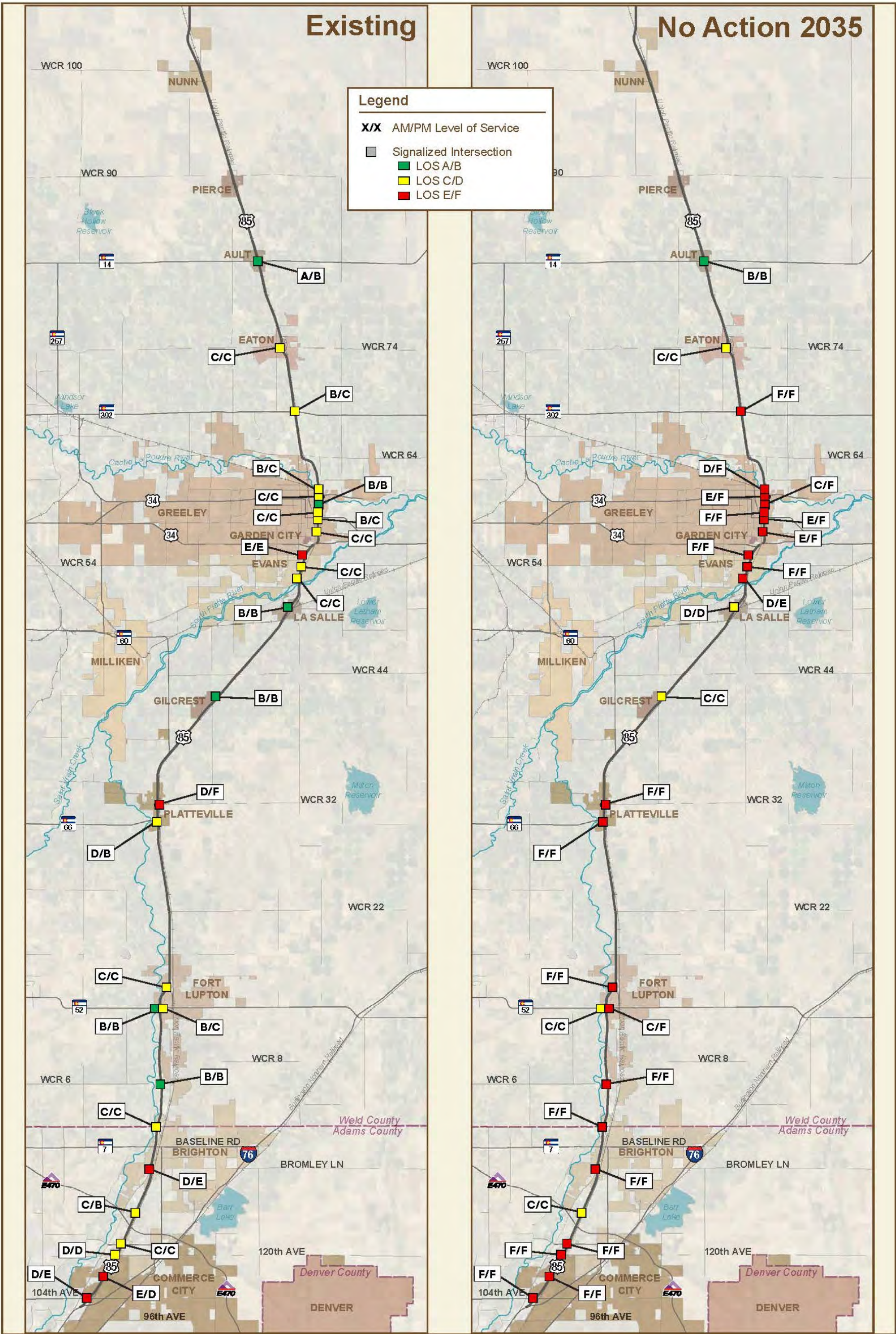
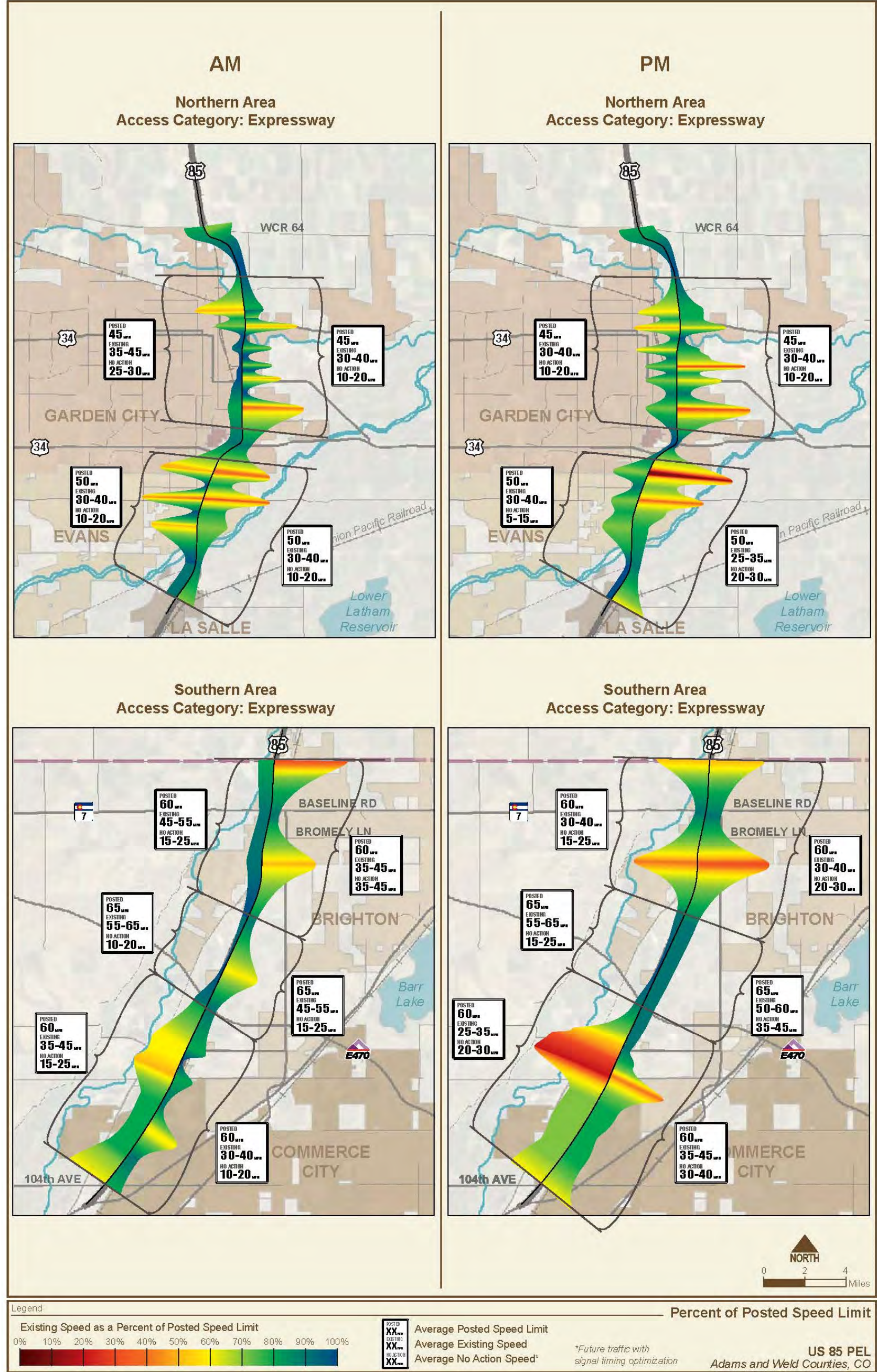


Figure 1.6 Existing Speeds, Speed Limits, and Future Speeds



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

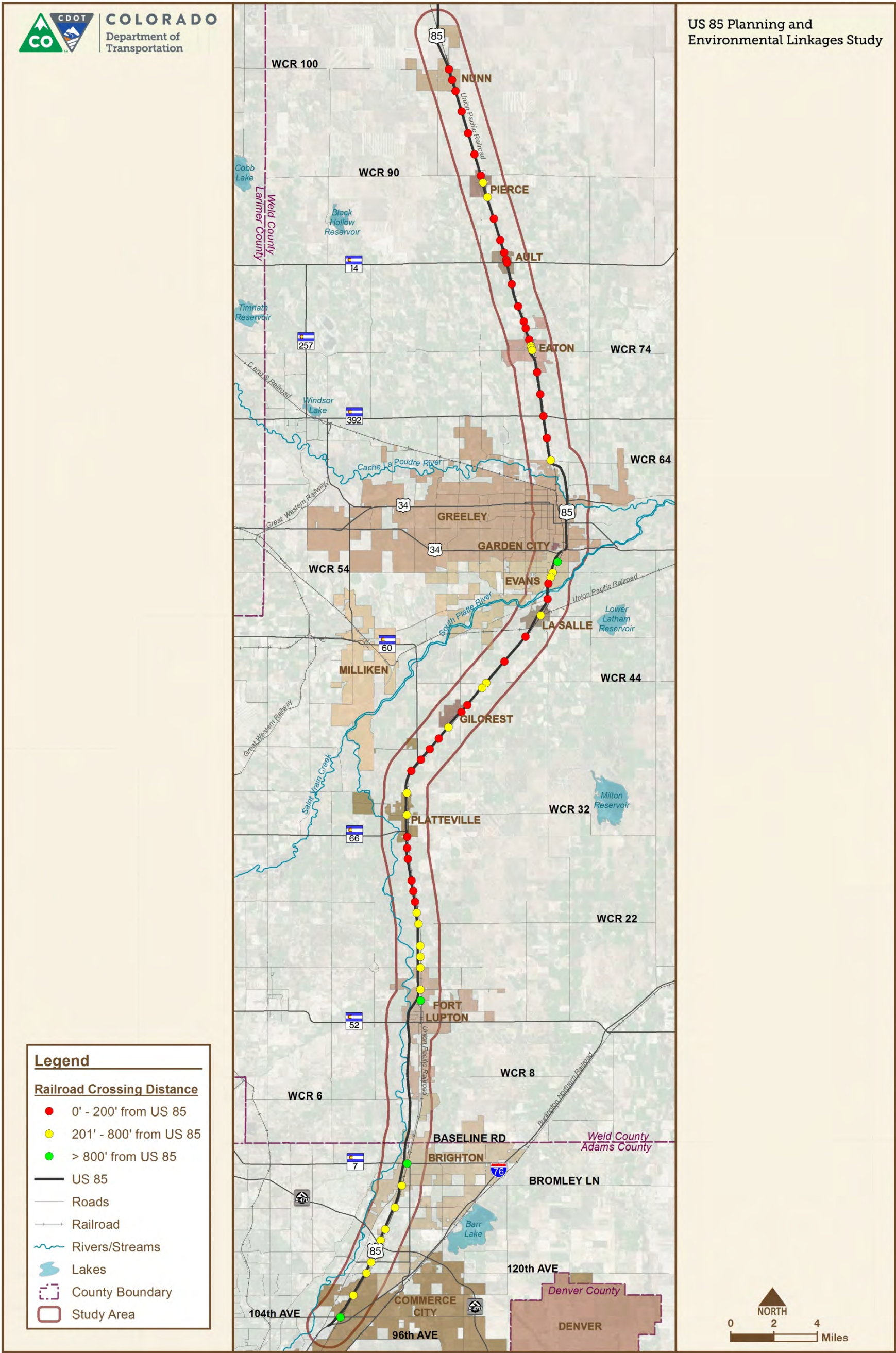
The UPRR parallels US 85 for the entire length of the corridor and can be very close to one another, as shown on **Figure 1.7**. The proximity of US 85 and the UPRR impacts traffic operations along US 85. The impact tends to be the greatest where the two facilities are closest, depending on other factors. 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 configuration of 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 of 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.

1 **Figure 2.1 US 85 Sections**

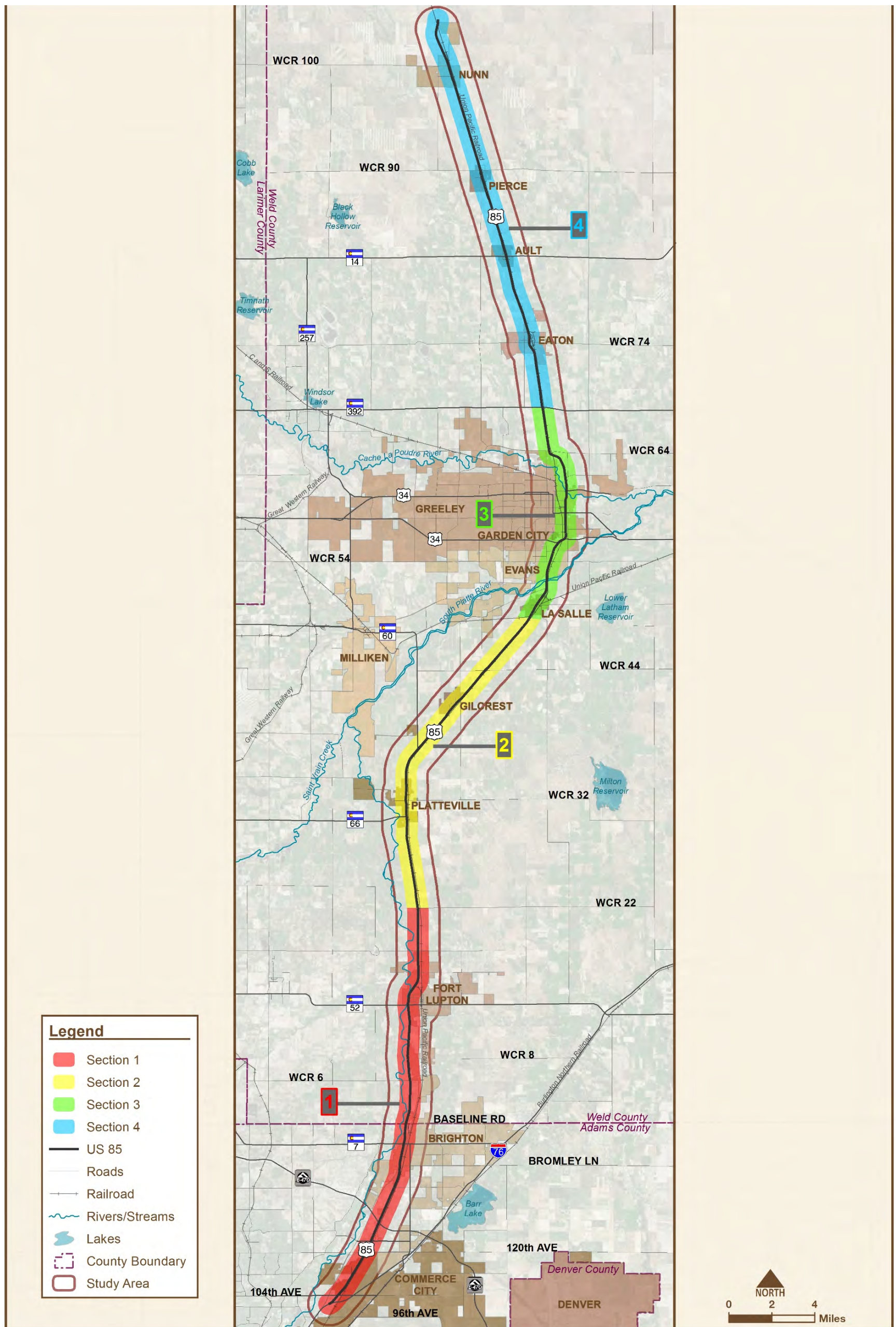
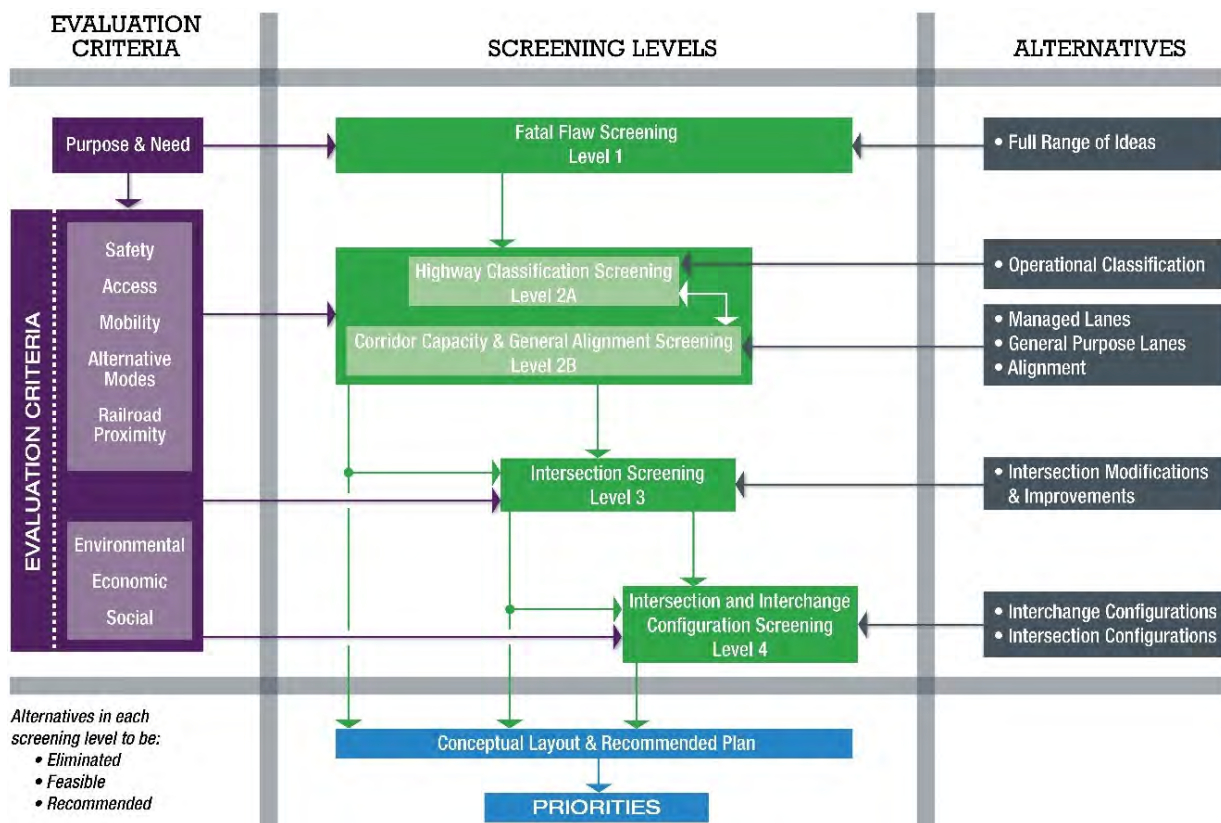


Figure 2.2 presents the Alternatives Development, Refinement, and Evaluation Process:

- ▶ **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 37 th St (Evans)	Implementation of Access Control at the Intersection of US 85/37 th Street	NFRMPO
SNF5788.031	US 85 Access Control at 31 st St (Evans)	Implementation of Access Control at the Intersection of US 85/31 st 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 22 nd St – 5 th 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/ 42 nd 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 was able to meet just 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


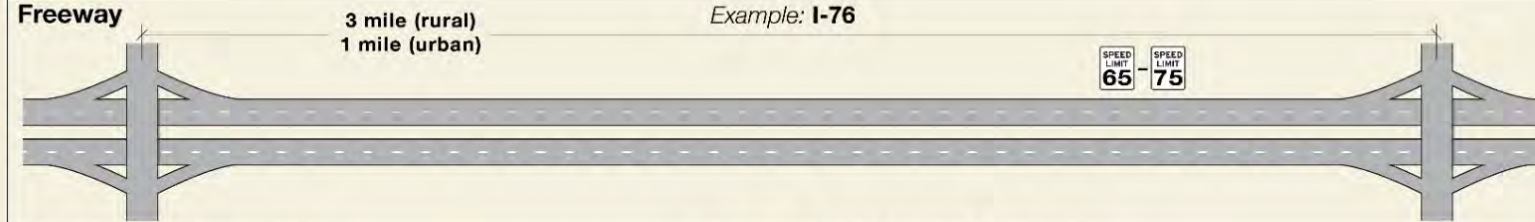
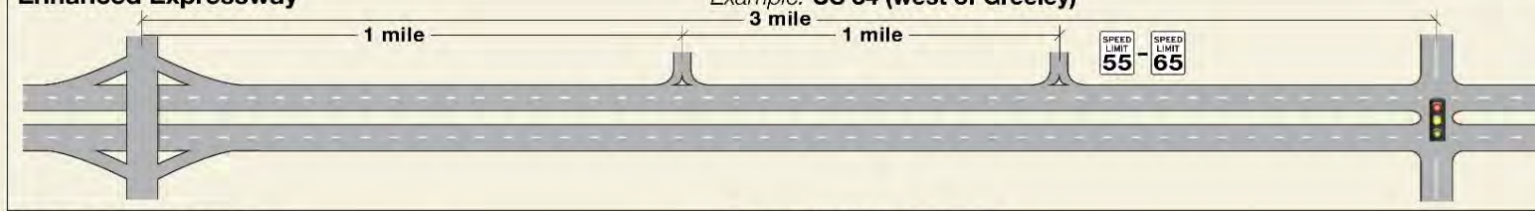
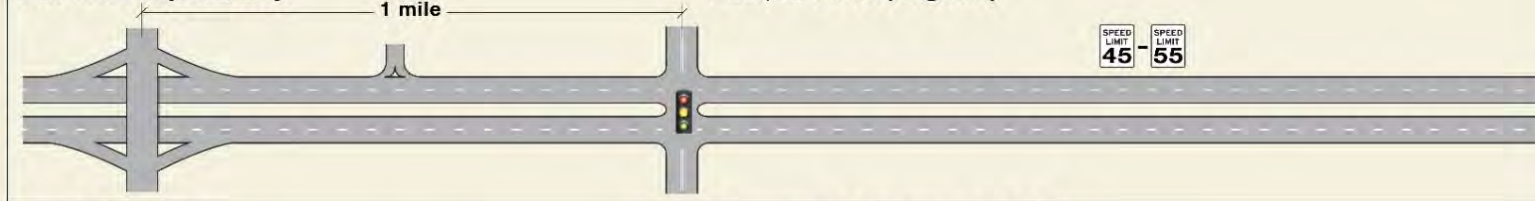



Operational classifications were developed to define the operational and environmental characteristics of each corridor section (see Figure 2.1). The intent of defining and applying the operational classifications is to determine a classification that balances the future transportation demands and matches 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.

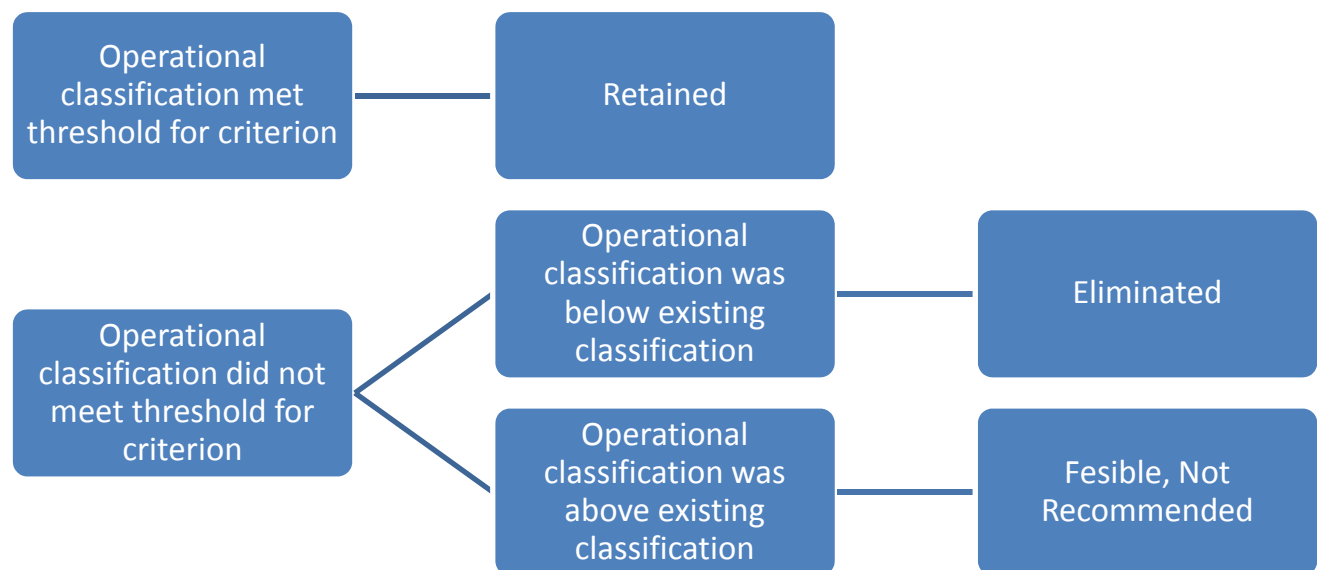
Figure 2.3 Operational Classification

 COLORADO Department of Transportation		US 85 Planning and Environmental Linkages Study			
		Description	Access Spacing	Treatment Options	Multi-modal treatments
Freeway 	Freeway 3 mile (rural) 1 mile (urban) <i>Example: I-76</i> SPEED LIMIT 65 - 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 	Enhanced Expressway 1 mile 3 mile 1 mile <i>Example: US 34 (west of Greeley)</i> SPEED LIMIT 55 - 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 	Standard Expressway 1 mile 1 mile <i>Example: US 85 (Brighton)</i> SPEED LIMIT 45 - 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 	Rural Highway 1 mile 1 mile <i>Example: SH 392 (east of US 85)</i> SPEED LIMIT 45 - 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 	Arterial Roadway 1 mile 1 mile <i>Example: W 10th St/US 34 Business Route (west end of Greeley)</i> SPEED LIMIT 35 - 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 	Main Street 1 mile 1 mile <i>Example: US 85 Business Route (Greeley)</i> SPEED LIMIT 25 - 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



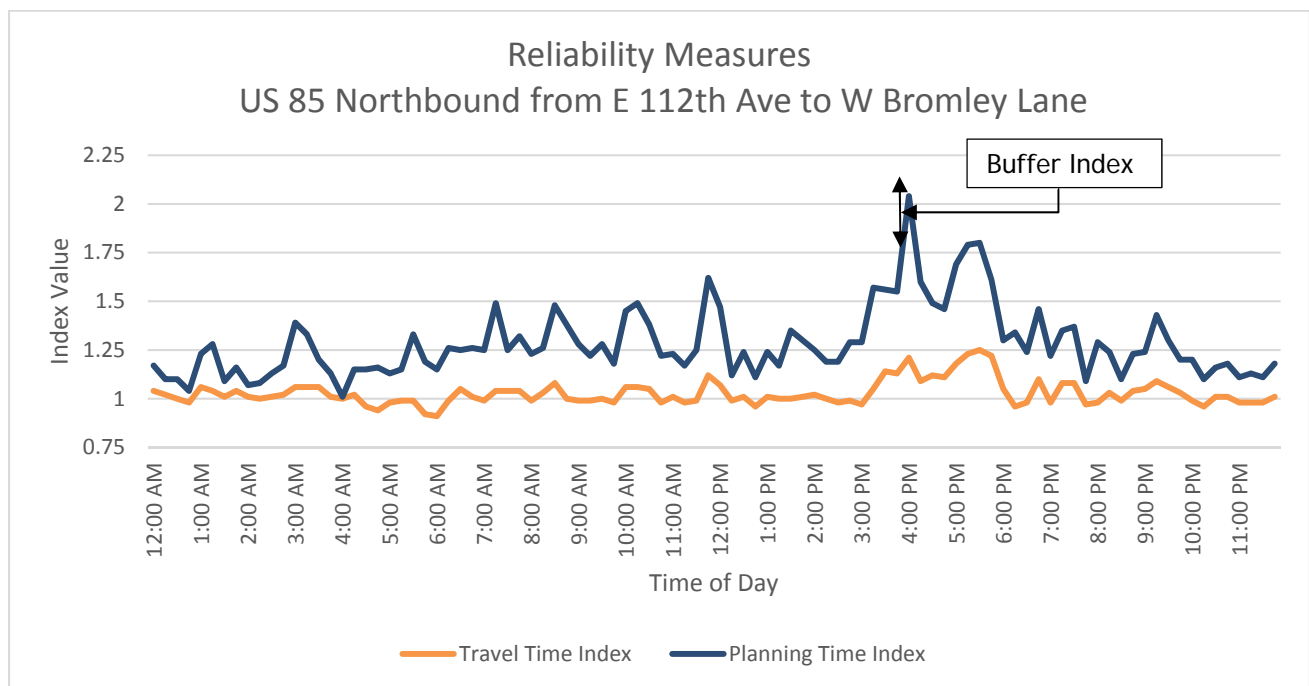
Mobility Criteria

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).

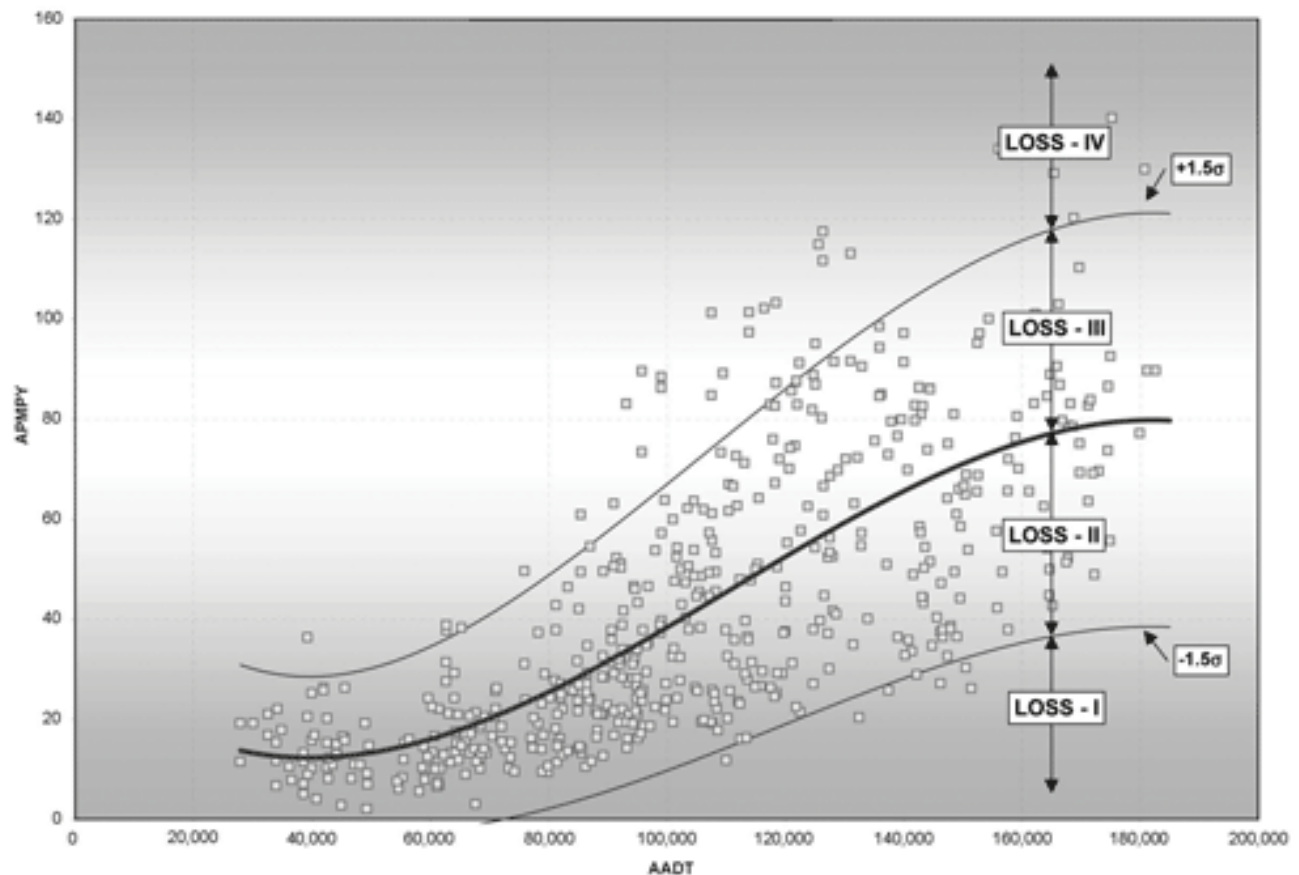
The LOSS for each corridor section indicates whether the existing operational classification is performing better or worse than expected in terms of safety. The thresholds that determined the recommended operational class are as follows:

- ▶ 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 1 st Street (Gilcrest to LaSalle)	1 st Street to WCR 52 (LaSalle)	WCR 52 to 5 th Street (Evans/ Greeley)	5 th 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 alternative 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.

Existing

This map displays the existing transportation network in Weld County, Colorado. The primary focus is on the corridor along Interstate 85 (I-85), which runs north-south through the center of the county. The map shows various road types and their lane configurations, indicated by colored lines and numbers in circles. Key locations include Nunn, Pierce, Ault, Eaton, Greeley, Garden City, Evans, LaSalle, Milliken, Gilcrest, Platteville, Fort Lupton, Brighton, and Commerce City. The map also shows major highways (I-85, I-76, I-25, I-225, I-275, I-325, I-375, I-425, I-475, I-525, I-575, I-625, I-675, I-725, I-775, I-825, I-875, I-925, I-975, I-1025, I-1075, I-1125, I-1175, I-1225, I-1275, I-1325, I-1375, I-1425, I-1475, I-1525, I-1575, I-1625, I-1675, I-1725, I-1775, I-1825, I-1875, I-1925, I-1975, I-2025, I-2075, I-2125, I-2175, I-2225, I-2275, I-2325, I-2375, I-2425, I-2475, I-2525, I-2575, I-2625, I-2675, I-2725, I-2775, I-2825, I-2875, I-2925, I-2975, I-3025, I-3075, I-3125, I-3175, I-3225, I-3275, I-3325, I-3375, I-3425, I-3475, I-3525, I-3575, I-3625, I-3675, I-3725, I-3775, I-3825, I-3875, I-3925, I-3975, I-4025, I-4075, I-4125, I-4175, I-4225, I-4275, I-4325, I-4375, I-4425, I-4475, I-4525, I-4575, I-4625, I-4675, I-4725, I-4775, I-4825, I-4875, I-4925, I-4975, I-5025, I-5075, I-5125, I-5175, I-5225, I-5275, I-5325, I-5375, I-5425, I-5475, I-5525, I-5575, I-5625, I-5675, I-5725, I-5775, I-5825, I-5875, I-5925, I-5975, I-6025, I-6075, I-6125, I-6175, I-6225, I-6275, I-6325, I-6375, I-6425, I-6475, I-6525, I-6575, I-6625, I-6675, I-6725, I-6775, I-6825, I-6875, I-6925, I-6975, I-7025, I-7075, I-7125, I-7175, I-7225, I-7275, I-7325, I-7375, I-7425, I-7475, I-7525, I-7575, I-7625, I-7675, I-7725, I-7775, I-7825, I-7875, I-7925, I-7975, I-8025, I-8075, I-8125, I-8175, I-8225, I-8275, I-8325, I-8375, I-8425, I-8475, I-8525, I-8575, I-8625, I-8675, I-8725, I-8775, I-8825, I-8875, I-8925, I-8975, I-9025, I-9075, I-9125, I-9175, I-9225, I-9275, I-9325, I-9375, I-9425, I-9475, I-9525, I-9575, I-9625, I-9675, I-9725, I-9775, I-9825, I-9875, I-9925, I-9975, I-10025, I-10075, I-10125, I-10175, I-10225, I-10275, I-10325, I-10375, I-10425, I-10475, I-10525, I-10575, I-10625, I-10675, I-10725, I-10775, I-10825, I-10875, I-10925, I-10975, I-11025, I-11075, I-11125, I-11175, I-11225, I-11275, I-11325, I-11375, I-11425, I-11475, I-11525, I-11575, I-11625, I-11675, I-11725, I-11775, I-11825, I-11875, I-11925, I-11975, I-12025, I-12075, I-12125, I-12175, I-12225, I-12275, I-12325, I-12375, I-12425, I-12475, I-12525, I-12575, I-12625, I-12675, I-12725, I-12775, I-12825, I-12875, I-12925, I-12975, I-13025, I-13075, I-13125, I-13175, I-13225, I-13275, I-13325, I-13375, I-13425, I-13475, I-13525, I-13575, I-13625, I-13675, I-13725, I-13775, I-13825, I-13875, I-13925, I-13975, I-14025, I-14075, I-14125, I-14175, I-14225, I-14275, I-14325, I-14375, I-14425, I-14475, I-14525, I-14575, I-14625, I-14675, I-14725, I-14775, I-14825, I-14875, I-14925, I-14975, I-15025, I-15075, I-15125, I-15175, I-15225, I-15275, I-15325, I-15375, I-15425, I-15475, I-15525, I-15575, I-15625, I-15675, I-15725, I-15775, I-15825, I-15875, I-15925, I-15975, I-16025, I-16075, I-16125, I-16175, I-16225, I-16275, I-16325, I-16375, I-16425, I-16475, I-16525, I-16575, I-16625, I-16675, I-16725, I-16775, I-16825, I-16875, I-16925, I-16975, I-17025, I-17075, I-17125, I-17175, I-17225, I-17275, I-17325, I-17375, I-17425, I-17475, I-17525, I-17575, I-17625, I-17675, I-17725, I-17775, I-17825, I-17875, I-17925, I-17975, I-18025, I-18075, I-18125, I-18175, I-18225, I-18275, I-18325, I-18375, I-18425, I-18475, I-18525, I-18575, I-18625, I-18675, I-18725, I-18775, I-18825, I-18875, I-18925, I-18975, I-19025, I-19075, I-19125, I-19175, I-19225, I-19275, I-19325, I-19375, I-19425, I-19475, I-19525, I-19575, I-19625, I-19675, I-19725, I-19775, I-19825, I-19875, I-19925, I-19975, I-20025, I-20075, I-20125, I-20175, I-20225, I-20275, I-20325, I-20375, I-20425, I-20475, I-20525, I-20575, I-20625, I-20675, I-20725, I-20775, I-20825, I-20875, I-20925, I-20975, I-21025, I-21075, I-21125, I-21175, I-21225, I-21275, I-21325, I-21375, I-21425, I-21475, I-21525, I-21575, I-21625, I-21675, I-21725, I-21775, I-21825, I-21875, I-21925, I-21975, I-22025, I-22075, I-22125, I-22175, I-22225, I-22275, I-22325, I-22375, I-22425, I-22475, I-22525, I-22575, I-22625, I-22675, I-22725, I-22775, I-22825, I-22875, I-22925, I-22975, I-23025, I-23075, I-23125, I-23175, I-23225, I-23275, I-23325, I-23375, I-23425, I-23475, I-23525, I-23575, I-23625, I-23675, I-23725, I-23775, I-23825, I-23875, I-23925, I-23975, I-24025, I-24075, I-24125, I-24175, I-24225, I-24275, I-24325, I-24375, I-24425, I-24475, I-24525, I-24575, I-24625, I-24675, I-24725, I-24775, I-24825, I-24875, I-24925, I-24975, I-25025, I-25075, I-25125, I-25175, I-25225, I-25275, I-25325, I-25375, I-25425, I-25475, I-25525, I-25575, I-25625, I-25675, I-257

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

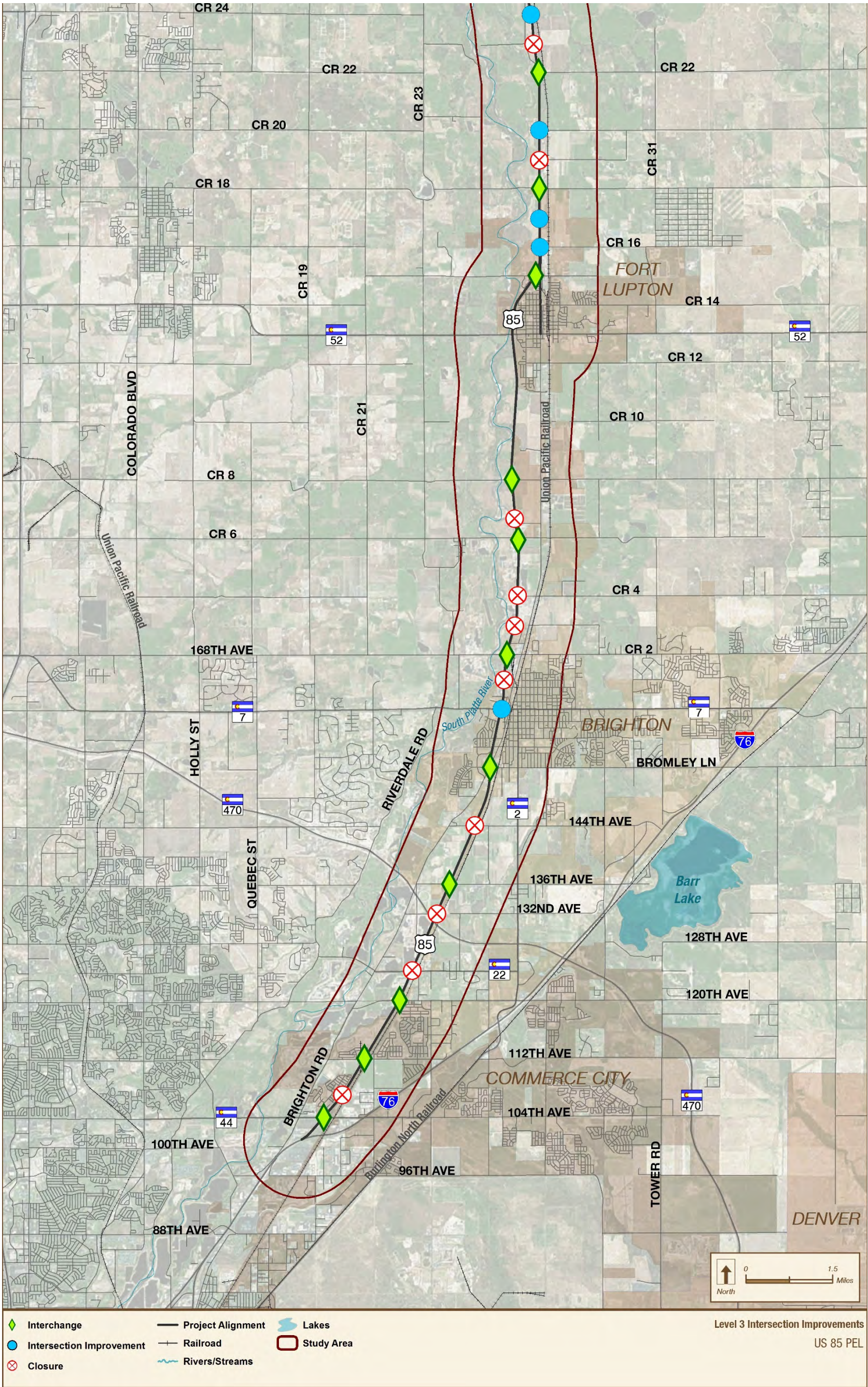




Figure 2:8 Level 3 Alternative Refinement Results (Continued)

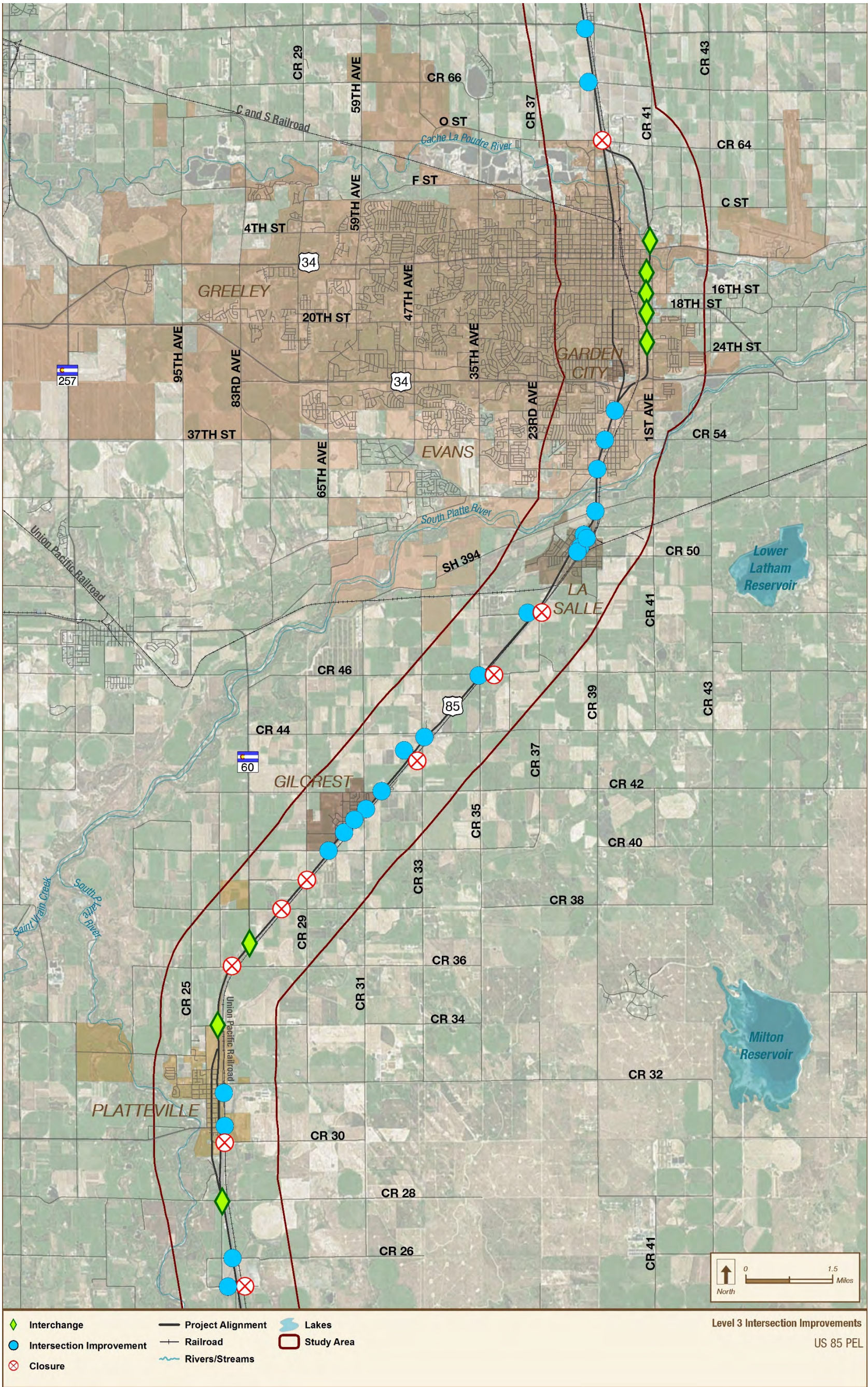




Figure 2:8 Level 3 Alternative Refinement Results (Continued)

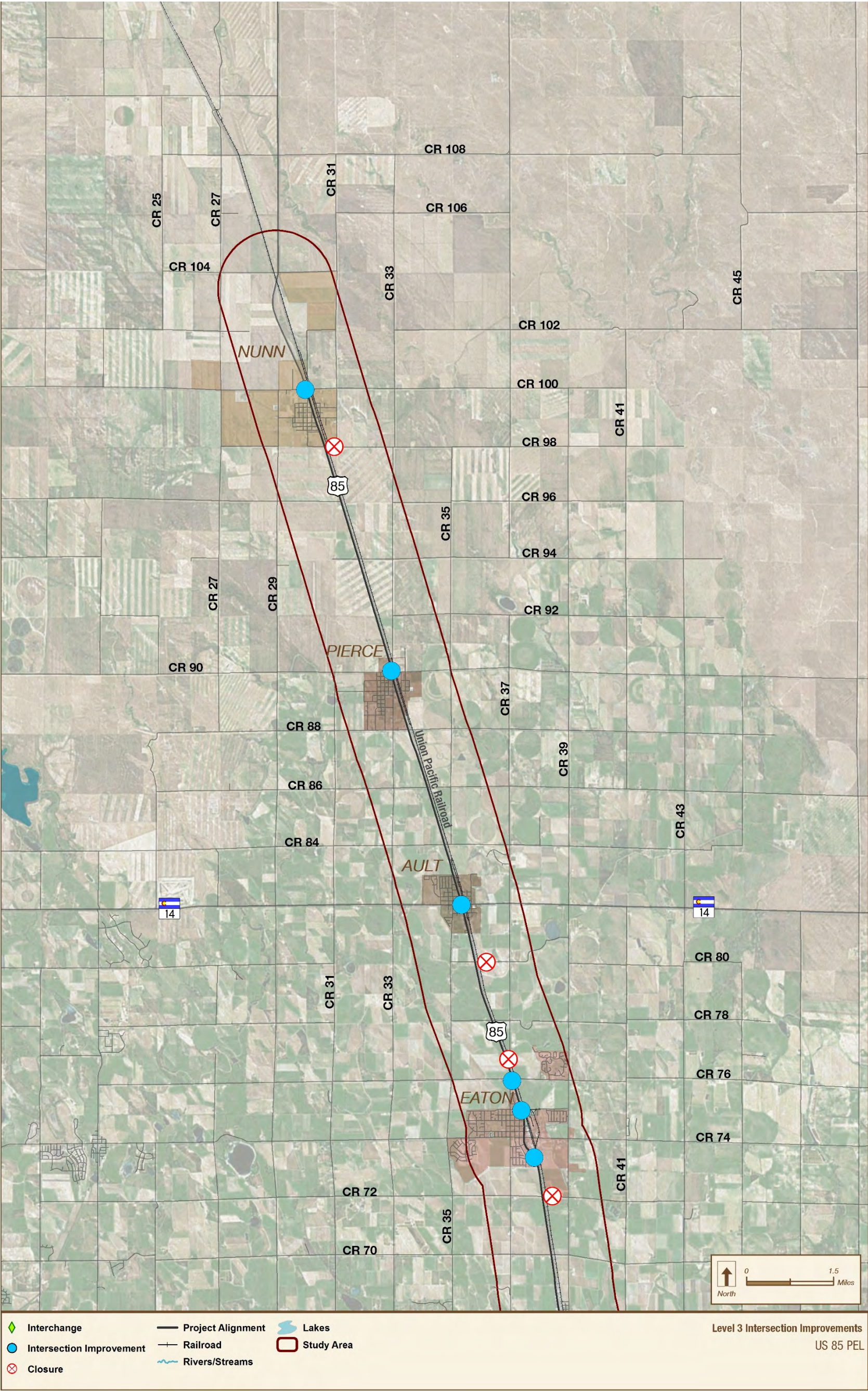


Table 2.4 Level 3 Evaluation Recommendations

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

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



Section 2 (Fort Lupton to Platteville) (cont.)	
SH 66	Interchange / Grade Separation
CR 30	Closure (Combine with SH 66 Interchange)
Section 2 (Platteville)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
Marion Avenue	Intersection Improvements and Closure
CR 32	Intersection Improvements
CR 34	Interchange / Grade Separation
Section 2 (Platteville to Gilcrest)	
<i>Operational Classification</i>	<i>Enhanced Expressway</i>
CR 36	Closure
SH 60	Interchange / Grade Separation
CR 38	Closure
Section 2 (Gilcrest)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
CR 29/38.5	Closure
CR 40	Intersection Improvements
Elm Street	Intersection Improvements
Main Street	Closure
CR 31 / Ash Street	Intersection Improvements
CR 42	Intersection Improvements

Section 2 (Gilcrest to LaSalle)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
CR 33	Interchange / Grade Separation (Combine with WCR 44)
CR 44	Interchange / Grade Separation (Combine with WCR 33)
CR 46 / CR 35	Intersection Improvements
CR 48 / CR 37	Interchange / Grade Separation
Section 3 (LaSalle)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
1 st Avenue	Interchange / Grade Separation
2 nd Avenue	Closure
3 rd Avenue	Closure
4 th Avenue	Intersection Improvements
5 th Avenue	Closure
SH 394	Intersection Improvements
Section 3 (Evans/Greeley)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
42 nd Street	Intersection Improvements
37 th Street	Intersection Improvements
31 st Street	Intersection Improvements
US 34 Interchange	Interchange / Grade Separation
22 nd Street	Intersection Improvements
18 th Street	Interchange / Grade Separation
16 th Street	Closure



Section 3 (Evans/Greeley) (cont.)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
13 th Street	Intersection Improvements
8 th Street	Interchange / Grade Separation (Combine with 5 th St.)
5 th Street	Interchange / Grade Separation (Combine with 8 th St.)
Section 3 (Greeley to Lucerne)	
<i>Operational Classification</i>	<i>Enhanced Expressway</i>
O Street	Interchange / Grade Separation
CR 66	Intersection Improvements OR Closure
SH 392	Intersection Improvements OR Interchange / Grade Separation
Section 4 (Lucerne to Eaton)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
CR 70	Closure
CR 72	Closure
Section 4 (Eaton)	
<i>Operational Classification</i>	<i>Main Street</i>
Colorado Parkway	Intersection Improvements
Orchard Street	Intersection Improvements
Collins Street	No Change
1 st Street	No Change
2 nd Street	No Change
3 rd Street	No Change

Section 4 (Eaton) (cont.)	
<i>Operational Classification</i>	<i>Main Street</i>
4 th Street	No Change
5 th Street	No Change
CR 76	No Change or Closure
Section 4 (Eaton to Ault)	
<i>Operational Classification</i>	<i>Standard Expressway</i>
CR 37	Closure
CR 78	No Change
CR 80	Closure
SH 14	No Change OR Intersection Improvements
Section 4 (Ault)	
<i>Operational Classification</i>	<i>Main Street</i>
2 nd Street	No Change
3 rd Street	No Change
CR 84	No Change
Section 4 (Ault to Pierce)	
<i>Operational Classification</i>	<i>Rural Highway</i>
CR 86	No Change and Closure
CR 88	No Change
Section f (Pierce)	
<i>Operational Classification</i>	<i>Arterial Roadway</i>
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
4 th Street	No Change
CR 100	No Change

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.

1 **Table 2.5 Level 4 Evaluation Recommendations**

Community	Location	Improvement Type	Recommendation
Commerce City	104 th Avenue	No Action	Feasible
		Diamond	Feasible, Not Recommended
		<i>Split Diamond (with I-76)</i>	<i>Recommended</i>
		<i>SPUI with Flyover</i>	<i>Recommended</i>
		<i>DDI</i>	<i>Recommended</i>
		<i>Partial Cloverleaf</i>	<i>Recommended</i>
	Longs Peak Drive	No Action	Feasible
		<i>Closed</i>	<i>Recommended</i>
	112 th Avenue	No Action	Feasible
		<i>SPUI</i>	<i>Recommended</i>
		<i>Skewed SPUI</i>	<i>Recommended</i>
		Grade Separated, No Access	Feasible, Not Recommended
		Single Loop Partial Cloverleaf	Feasible, Not Recommended
		Closed	Feasible, Not Recommended
	120 th Avenue	No Action	Feasible
		Partial Cloverleaf	Feasible, Not Recommended
		Diamond	Feasible, Not Recommended
		<i>Tight Diamond</i>	<i>Recommended</i>
		<i>DDI</i>	<i>Recommended</i>
Brighton	124 th Avenue	No Action	Feasible
		Grade Separated, No Access	Feasible, Not Recommended
		<i>Closure</i>	<i>Recommended</i>
	E-470	No Action	N/A
	132 nd Avenue	No Action	Feasible
		<i>Closed</i>	<i>Recommended</i>
	136 th Avenue	No Action	Feasible
		Diamond	Feasible, Not Recommended
		Partial Cloverleaf	Feasible, Not Recommended
		Junior, RI/RO Interchange	Feasible, Not Recommended
		<i>SPUI</i>	<i>Recommended</i>



Community	Location	Improvement Type	Recommendation
Brighton	144 th Avenue	No Action	Feasible
		Diamond	Feasible, Not Recommended
		Grade Separated, No Access	Feasible, Not Recommended
		SPUI	Feasible, Not Recommended
		Closed	Recommended
	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
	168 th Avenue/ WCR 2	No Action	Feasible
		Diamond	Feasible, Not Recommended
		SPUI	Recommended
	WCR 2.5	No Action	Feasible
		Closed	Recommended
Weld County	WCR 4	No Action	Feasible
		Closed	Recommended
		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
	WCR 8	No Action	Feasible
		Hook Ramps	Recommended
		Diamond	Feasible, Not Recommended
	WCR 10	No Action, No Access	Recommended
		Diamond	Feasible, Not Recommended
	SH 52	No Action	Feasible
		Pedestrian Improvement	Recommended



Community	Location	Improvement Type	Recommendation
Fort Lupton	WCR 14.5/ 14 th 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
		Closed	Feasible, Not Recommended
Weld County	WCR 16.5	No Action	Feasible
		RI/RO	Recommended
	WCR 18	No Action	Feasible
		Traffic Signal	Feasible, Not Recommended
		Continuous Flow / Super Signal	Feasible, Not Recommended
		SPUI	Recommended
		Hook Ramps	Feasible, Not Recommended
		Diamond	Feasible, Not Recommended
	WCR 18.5	No Action	Feasible
		RI/RO	Feasible, Not Recommended
		Closed	Recommended
	WCR 20	No Action	Feasible
		RI/RO	Recommended
		Close	Feasible, Not Recommended
	WCR 22	No Action	Feasible
		Diamond	Recommended
	WCR 22.5	No Action	Feasible
		Closed	Recommended
	WCR 24	No Action	Feasible
		Closed	Feasible, Not Recommended
		RI/RO	Recommended
	WCR 24.5	No Action	Feasible
		RI/RO (West); Closure (East)	Recommended
	WCR 26	No Action	Feasible
		RI/RO	Recommended



Community	Location	Improvement Type	Recommendation
Weld County	WCR 28	No Action	Feasible
		Traffic Signal	Feasible, Not Recommended
		SPUI	Recommended
		Partial Closure	Feasible, Not Recommended
		Closed	Feasible, Not Recommended
Platteville	WCR 30	No Action	Feasible
		Closed	Recommended (with 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)
		SPUI	Feasible, Not Recommended
	WCR 34	No Action	Feasible
		Diamond	Recommended
	WCR 36	No Action	Feasible
		Closed	Recommended (with connections to next intersections north and south)
	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)
	WCR 29/38.5	No Action	Feasible
		Closed	Recommended (when signal improved connection to WCR 40 and WCR 60)



Community	Location	Improvement Type	Recommendation
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	Recommended (with new signal at WCR 44 and frontage road east of the railroad)
		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
		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	Recommended (with new frontage road alignment on east side of railroad)
		Grade Separation; Junior Interchange with WCR 33	Feasible, Not Recommended
		Diamond	Feasible, Not Recommended
	WCR 46/WCR 35	No Action	Feasible
		Channelized-T with Closure on the East Side	Recommended

Community	Location	Improvement Type	Recommendation
Gilcrest	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	1 st 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)
	2 nd Avenue	No Action	Feasible
		RI/RO	Recommended
	3 rd Avenue	No Action	Recommended
		Closed	Feasible, Not Recommended
	4 th Avenue	No Action	Feasible
		RI/RO	Recommended
	5 th Avenue	No Action	Feasible
		Closed	Feasible, Not Recommended
		Channelized-T, with RI/RO (West Side)	Recommended
	1 st Street	No Action	Feasible
		¾ Access	Recommended (median channelization for left turn lane)
Evans	42 nd Street	No Action	Feasible
		Traffic Signal	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])
	37 th Street	No Action	Feasible
		Traffic Signal	Recommended (can get close to v/c goal without big infrastructure improvements; must include realignment of frontage roads)



Community	Location	Improvement Type	Recommendation
Evans		Texas Turnaround	Feasible, Not Recommended (includes all Texas U's in Evans; with slip ramps [off, off, on, on])
	31 st Street	No Action	Feasible
		Traffic Signal	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
Greeley	22 nd 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)
	18 th 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)
	16 th 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)
	13 th 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)
	8 th Street	No Action	Feasible
		Texas Turnaround	Recommended (fits context of surrounding land uses and parcels than split diamond)
		Split Diamond	Feasible, Not Recommended

Community	Location	Improvement Type	Recommendation
Greeley	5 th 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 (has some out of direction travel but fits context of surrounding land use)
	WCR 66	No Action	Feasible
		Traffic Signal	Recommended (lane additions to be studied)
Lucerne	SH 392	No Action	Feasible
		Traffic Signal	Recommended
		Diamond	Feasible, Not Recommended (too much impact; signal works fine)
	WCR 70	No Action	Feasible
		Closure on East Side	Recommended (east side only; enhance CR 39)
Eaton	WCR 72	No Action	Feasible
		Closed; on East Side Only	Recommended (east side only; enhance CR 39)
	Colorado Pkwy	¾ Movement	Recommended
	Orchard Street	RI/RO	Recommended
	Collins Street	No Action	Recommended
	1 st Street	No Action	Recommended
	2 nd Street	No Action	Recommended
	3 rd St	No Action	Feasible
		RI/RO	Feasible, Not Recommended
	4 th Street	No Action	Recommended
	5 th Street	No Action	Feasible
		Traffic Signal	Recommended (HAWK)



Community	Location	Improvement Type	Recommendation
Eaton	7 th 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
	CR 78	No Action	Recommended
	CR 80	No Action	Feasible
		Closed on East Side Only	Recommended (CR 37 for access)
Ault	SH 14	No Action	Recommended
	2 nd Street	No Action	Recommended
	3 rd 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
		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	Feasible
		Close	Recommended (east side only)
	4 th Street	No Action	Recommended
	CR 100	No Action	Feasible
		Signal	Recommended

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

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 of the elements.

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.

Figure 3.4 presents the conceptual recommendations for alternative mode facilities. 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.

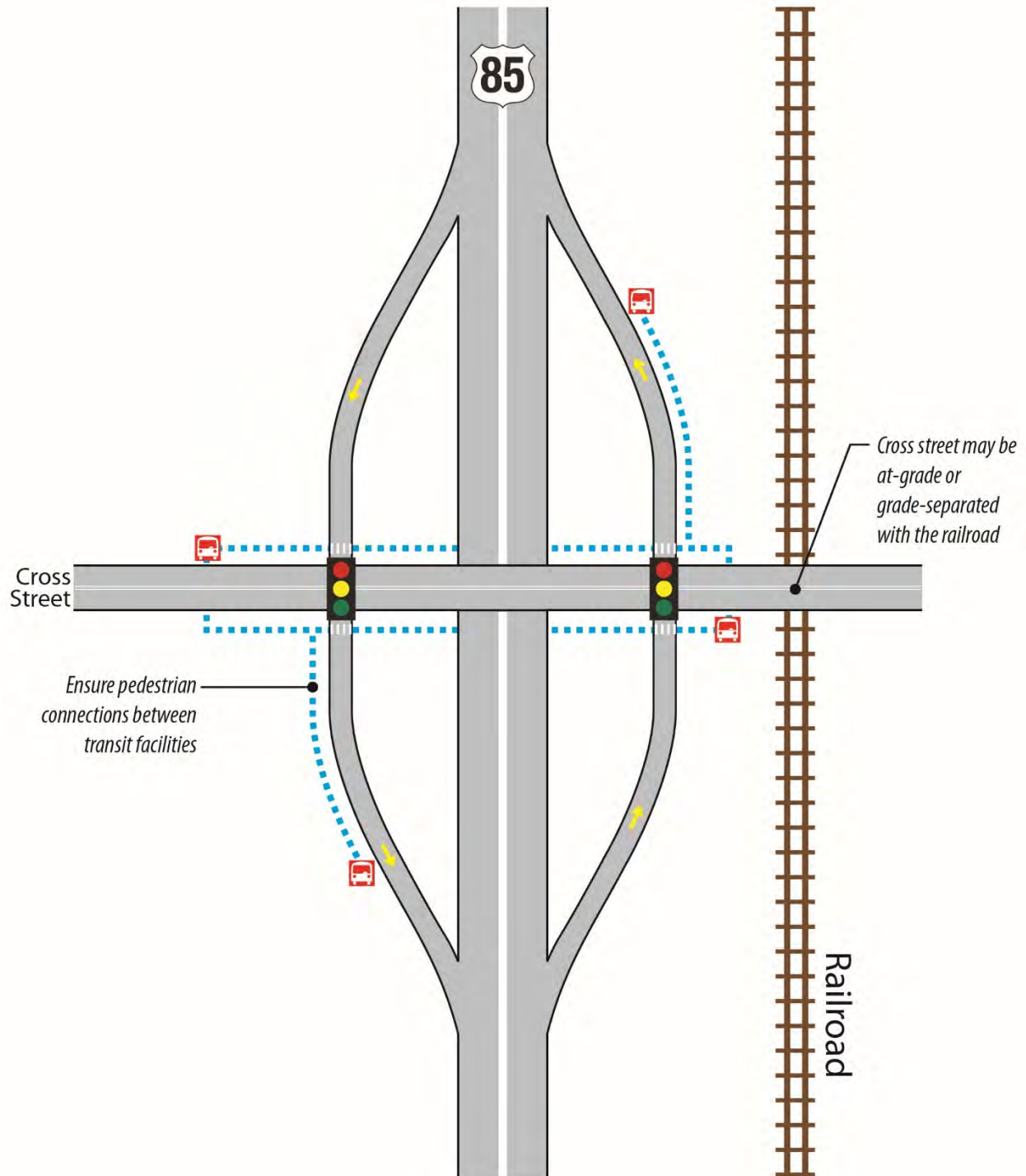
Design elements included in these conceptual layouts should be reviewed case by case during future phases to ensure the best connectivity between routes and the best accessibility to adjacent land uses.

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

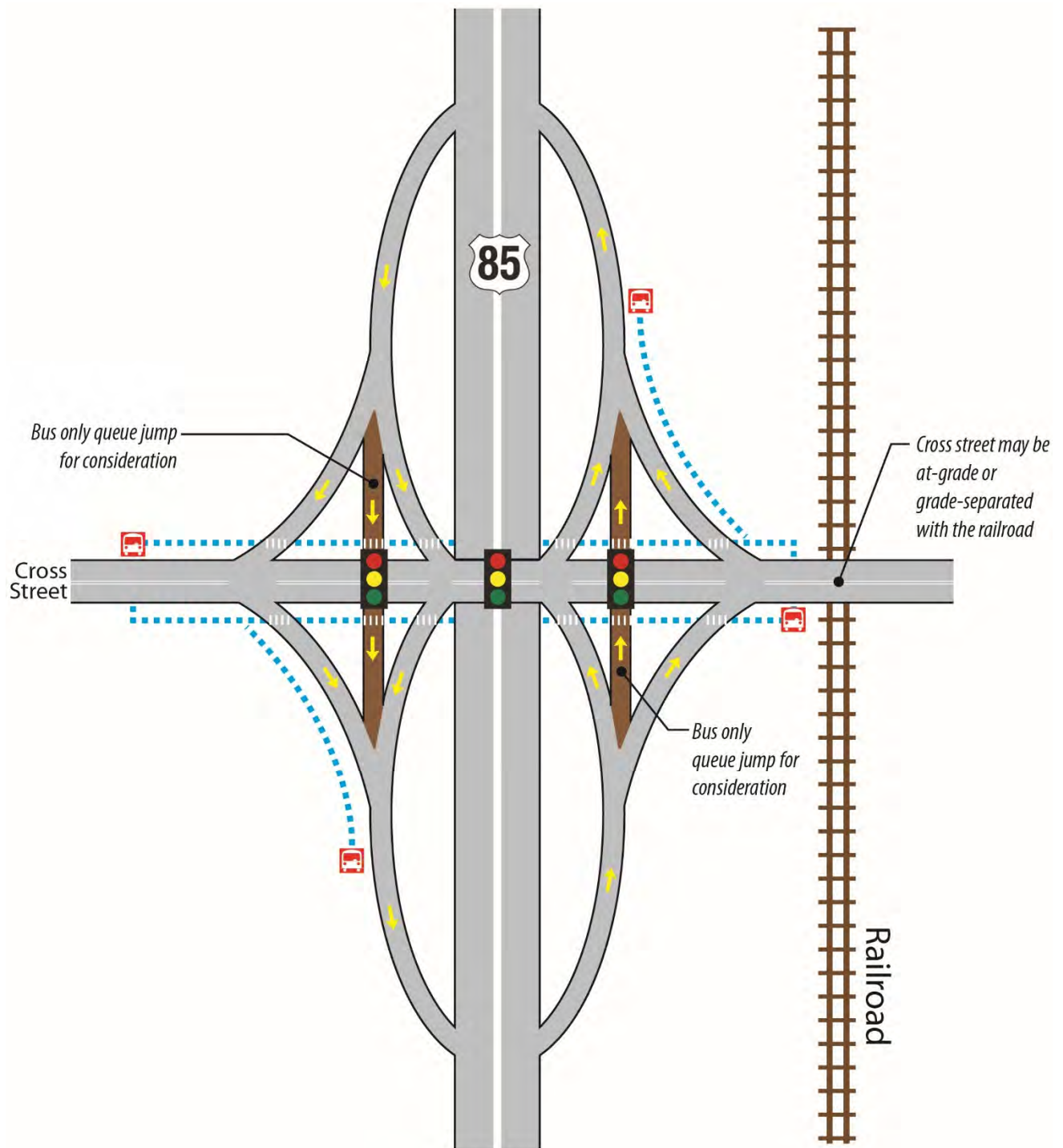
At-grade pedestrian crossing improvements at SH 52 to connect downtown Fort Lupton to the existing bridge across the South Platte River and to Pearson Park.

1 **Figure 3.1 Diamond Interchange Transit Accommodation**



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Figure 3.2 Single Point Urban Interchange (SPUI) Transit Accommodation





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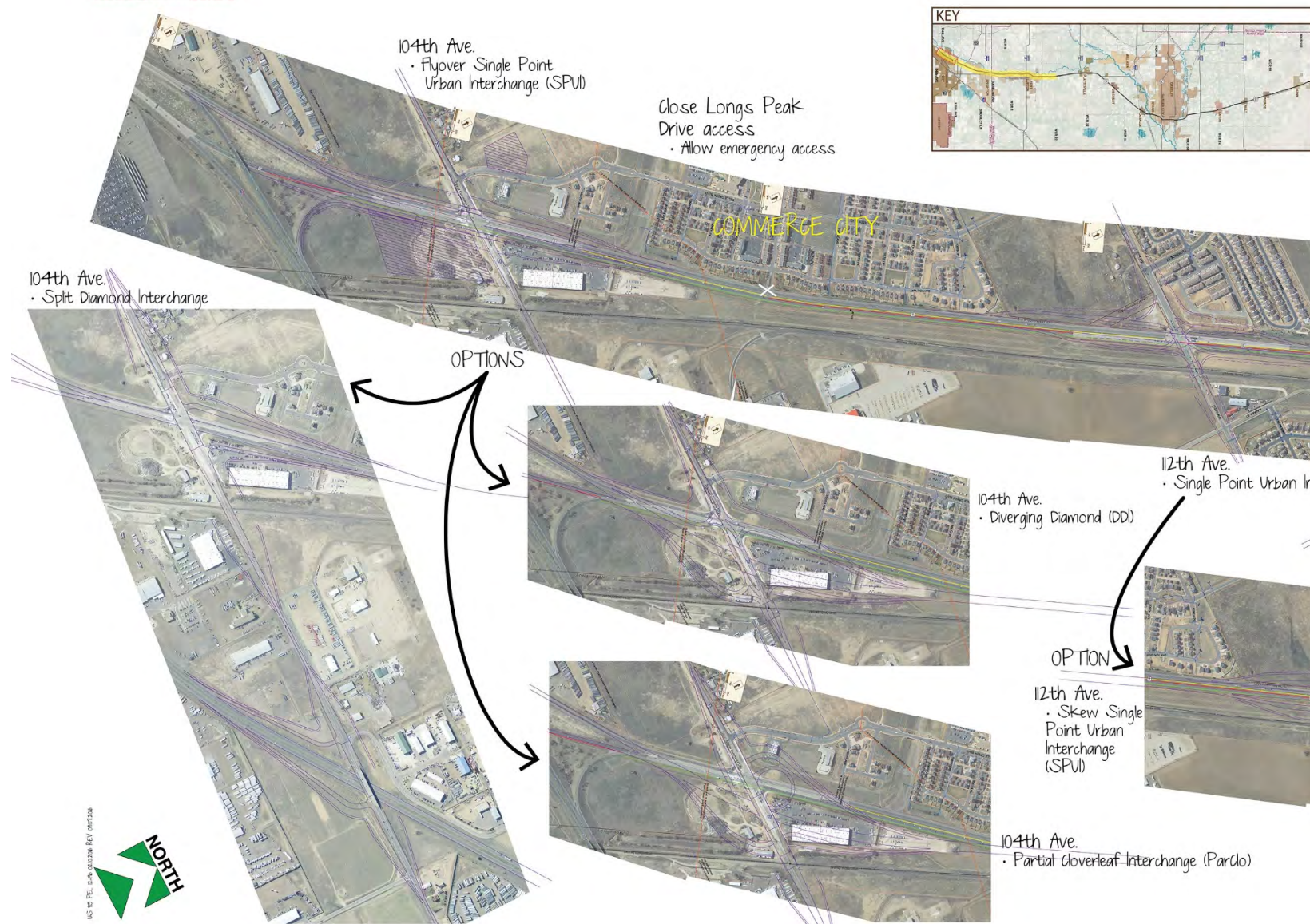
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Figure 3.3 Section 1 Conceptual Improvements

Section 1A

I-76 to North of 120th Avenue

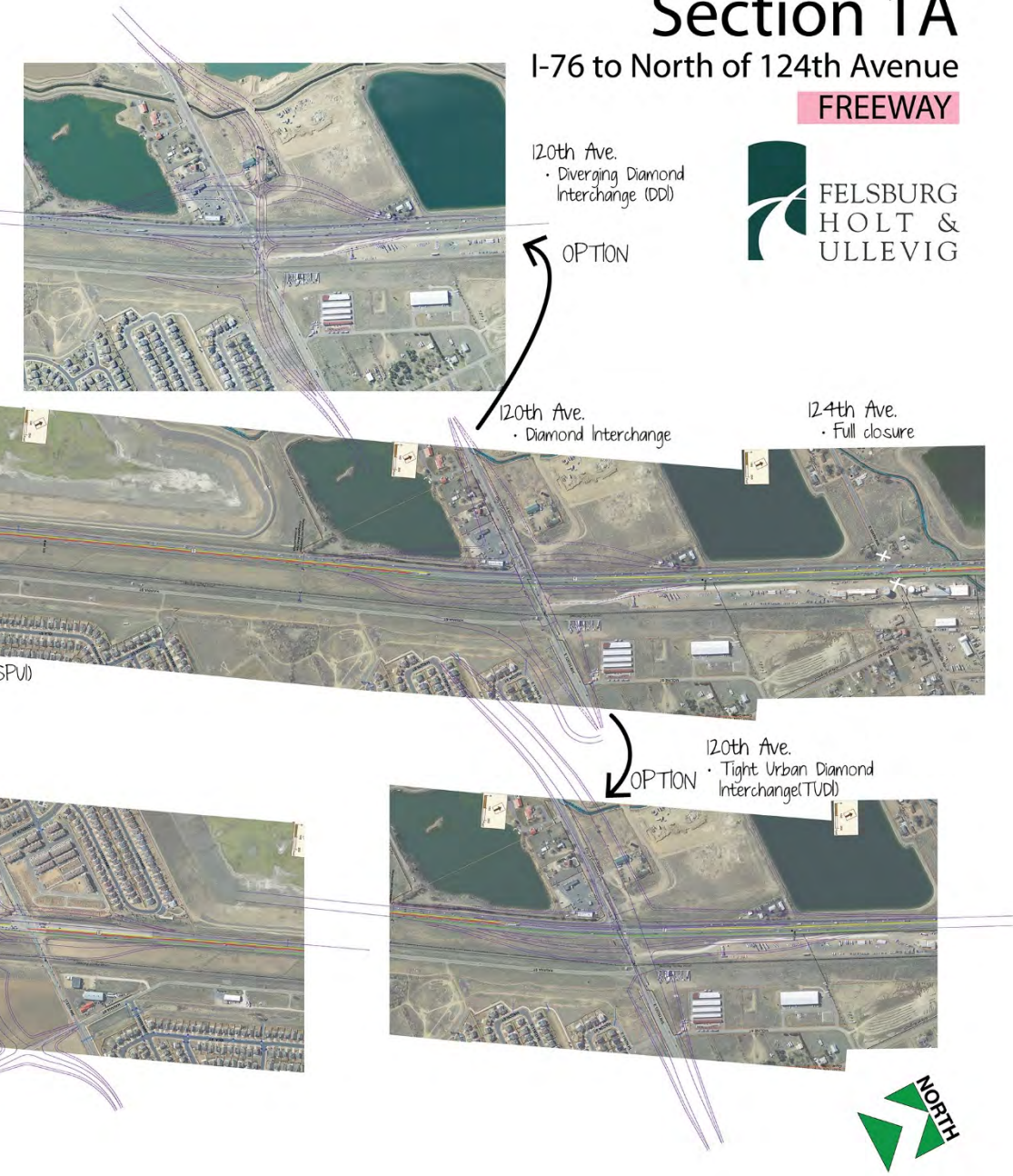
FREEWAY



Section 1A

I-76 to North of 124th Avenue

FREEWAY



FELSBURG
HOLT &
ULLEVIG

Figure 3.3 Section 1 Conceptual Improvements (Continued)

Section 1B

Nome Street to North of 144th Avenue

FREEWAY

Section 1B

Nome Street to North of 144th Avenue

FREEWAY



Figure 3.3 Section 1 Conceptual Improvements (Continued)

Section 1C

South of Bromley Lane to North of CR 2.5

FREEWAY

- Bromley Lane
- Single Point Urban Interchange (SPUI)
 - Elevated US 85
 - Pedestrian Crossing Improvement

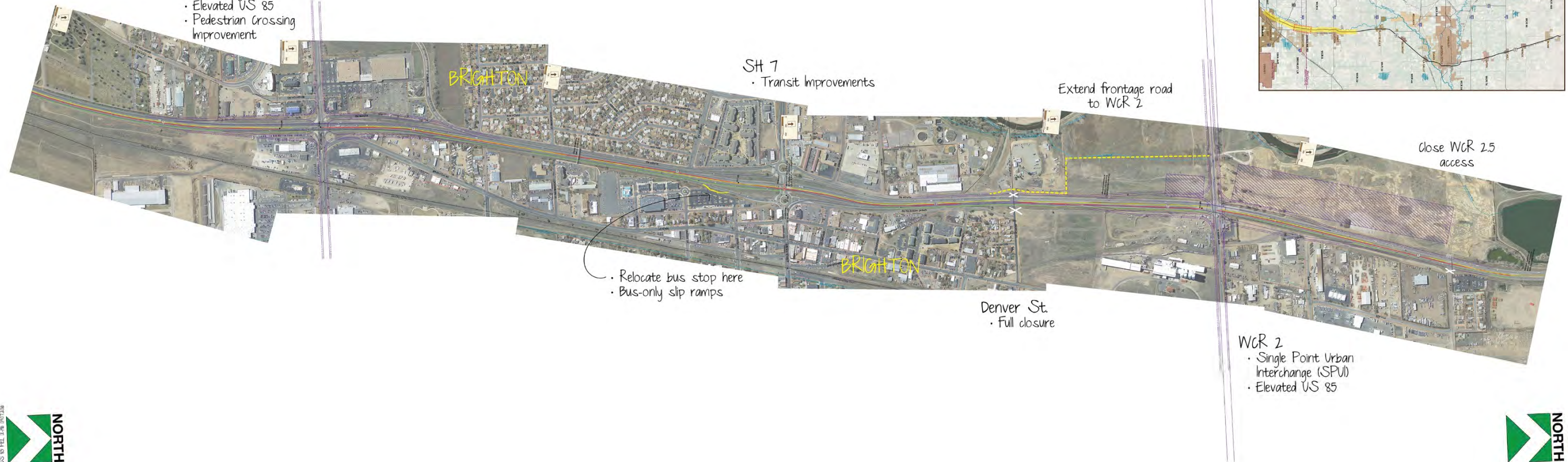


Figure 3.3 Section 1 Conceptual Improvements (Continued)

Section 1D

South of CR 4 to CR 10
FREEWAY

Section 1D

South of CR 4 to CR 10
FREEWAY

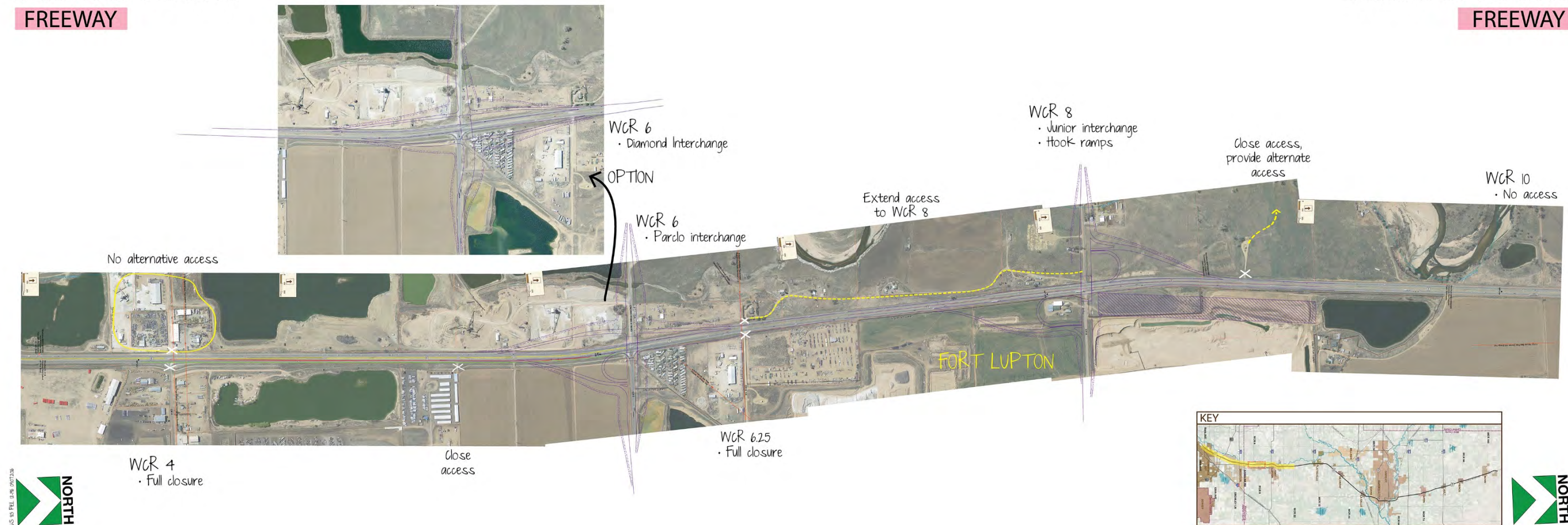


Figure 3.3 Section 1 Conceptual Improvements (Continued)

Section 1E

North of CR 10 to CR 16
FREEWAY



Figure 3.3 Section 1 Conceptual Improvements (Continued)

Section 1F

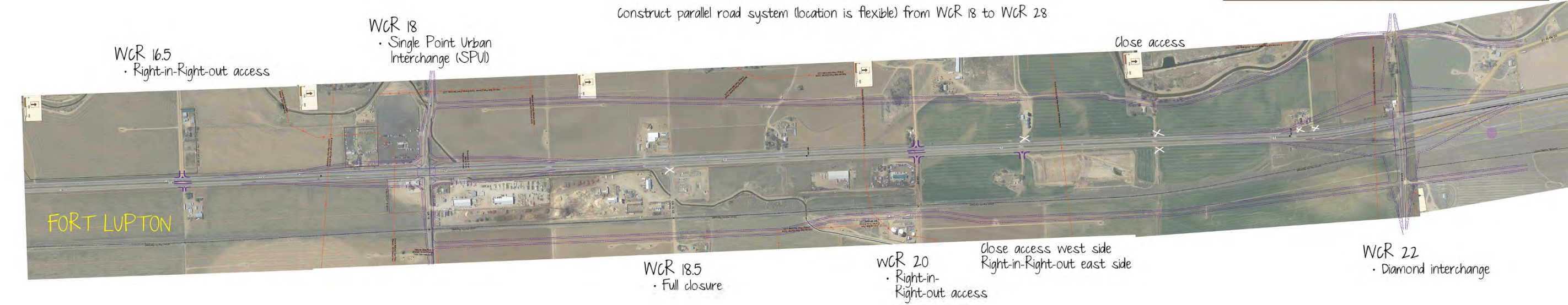
North of CR 16 to CR 22

ENHANCED EXPRESSWAY

Section 1F

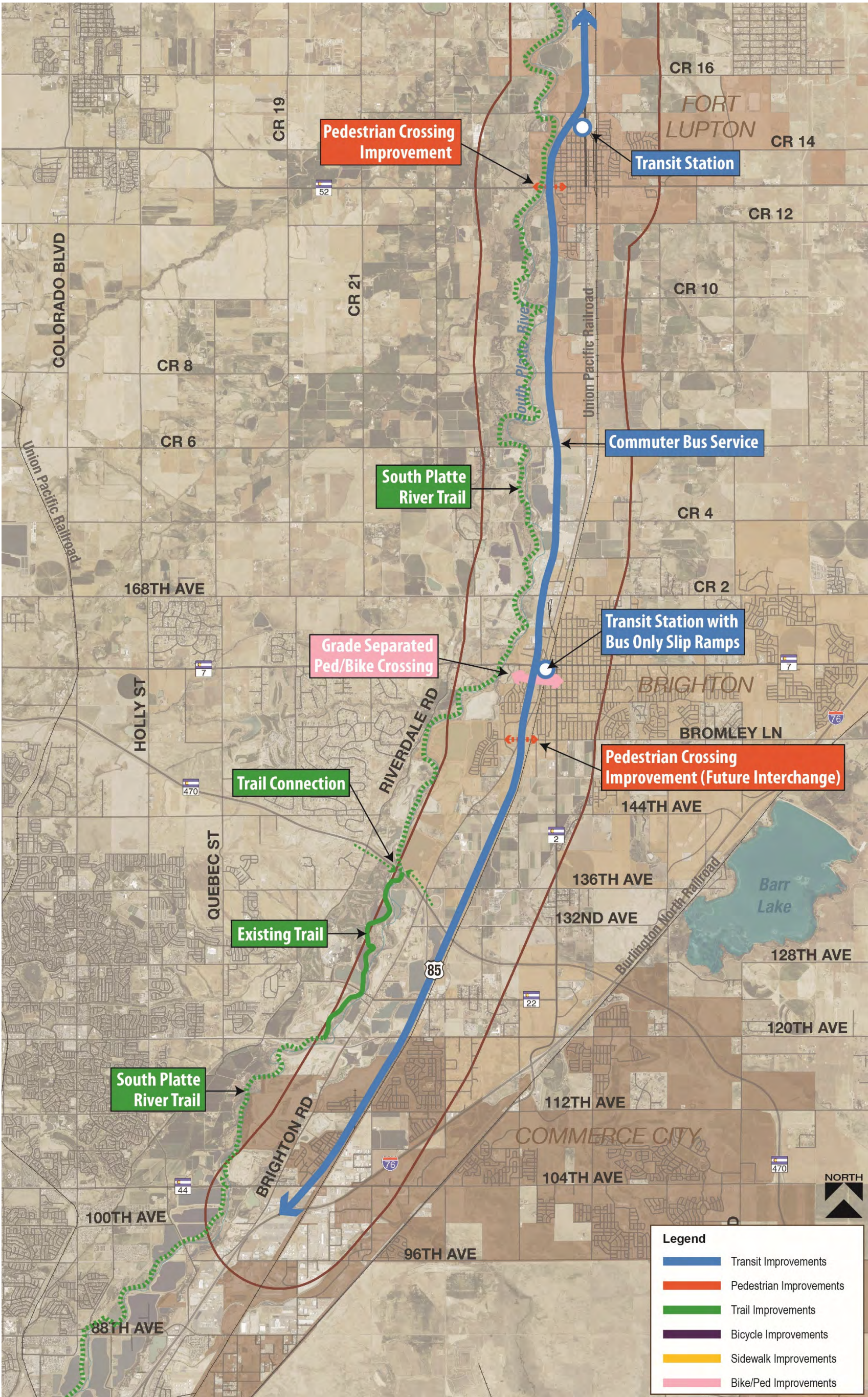
North of CR 16 to CR 22

ENHANCED EXPRESSWAY





1 **Figure 3.4 Section 1 Alternative Mode Conceptual Improvements**





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3.2 Section 2—WCR 22 to WCR 48

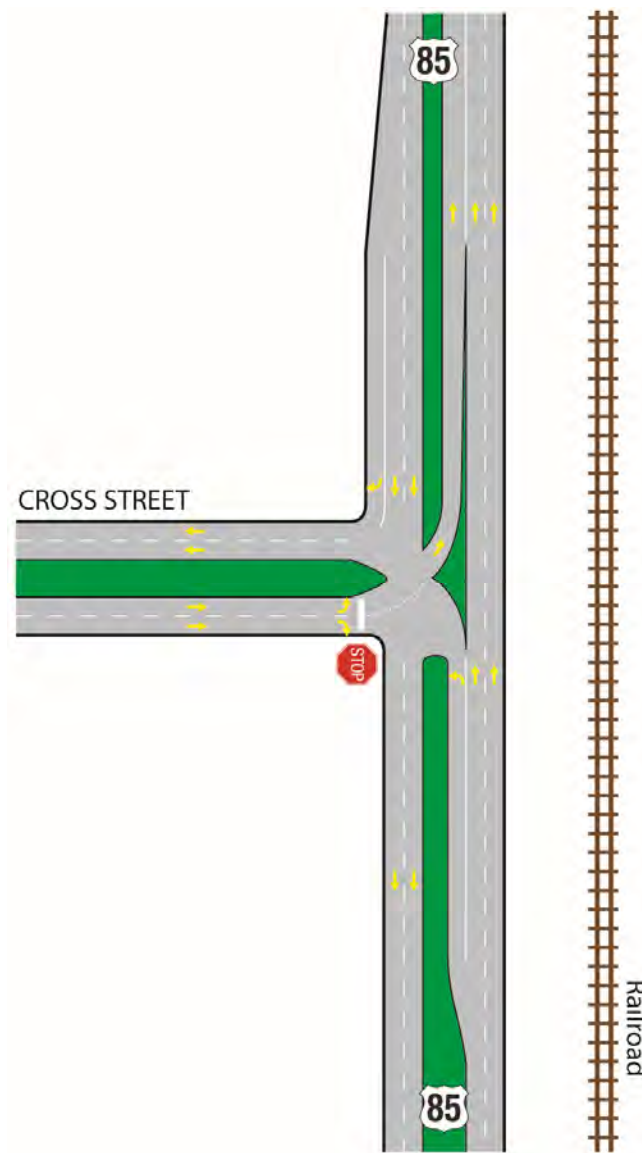
Section 2 of the US 85 corridor extends through unincorporated Weld County and the towns of Platteville and Gilcrest. Section 2 has both types of Expressway designations (Enhanced Expressway and Standard Expressway). The dominant improvement in Section 2 includes a section of parallel roads that extends between two interchanges at WCR 22 and WCR 28. This improvement is intended to work as a system improvement. 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.

1 **Figure 3.5 Example Channelized-T Intersection**



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Figure 3.6 Section 2 Conceptual Improvements

Section 2A
South of WCR 22 to South of CR 30 in Platteville
ENHANCED EXPRESSWAY

Section 2A
South of WCR 22.5 to South of CR 30 in Platteville
ENHANCED EXPRESSWAY

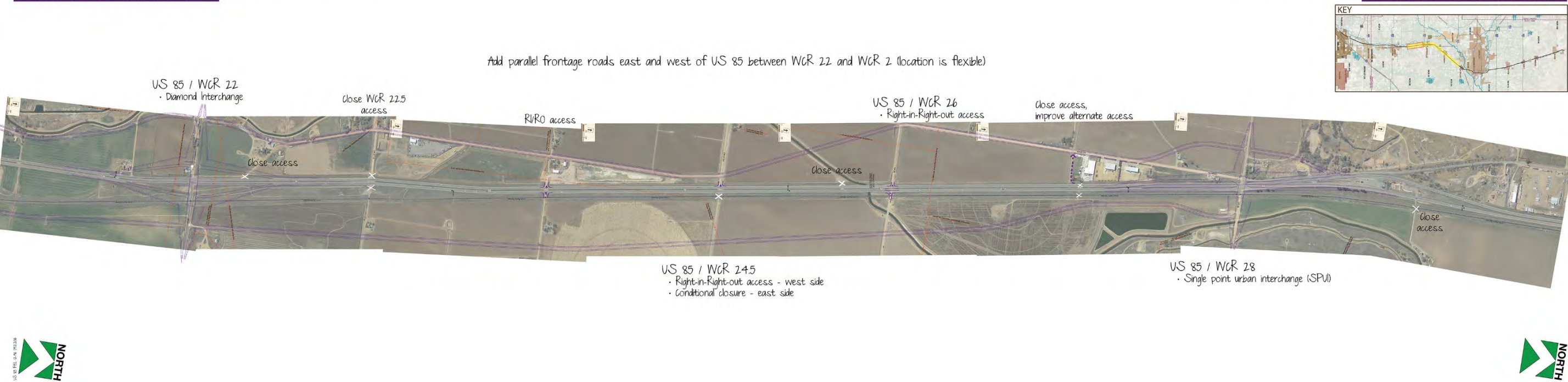


Figure 3.6 Section 2 Conceptual Improvements (Continued)



Figure 3.6 Section 2 Conceptual Improvements (Continued)

Section 2C

North of SH 60 to North of WCR 42

ENHANCED EXPRESSWAY

Section 2C

North of SH 60 to North of WCR 42

STANDARD EXPRESSWAY

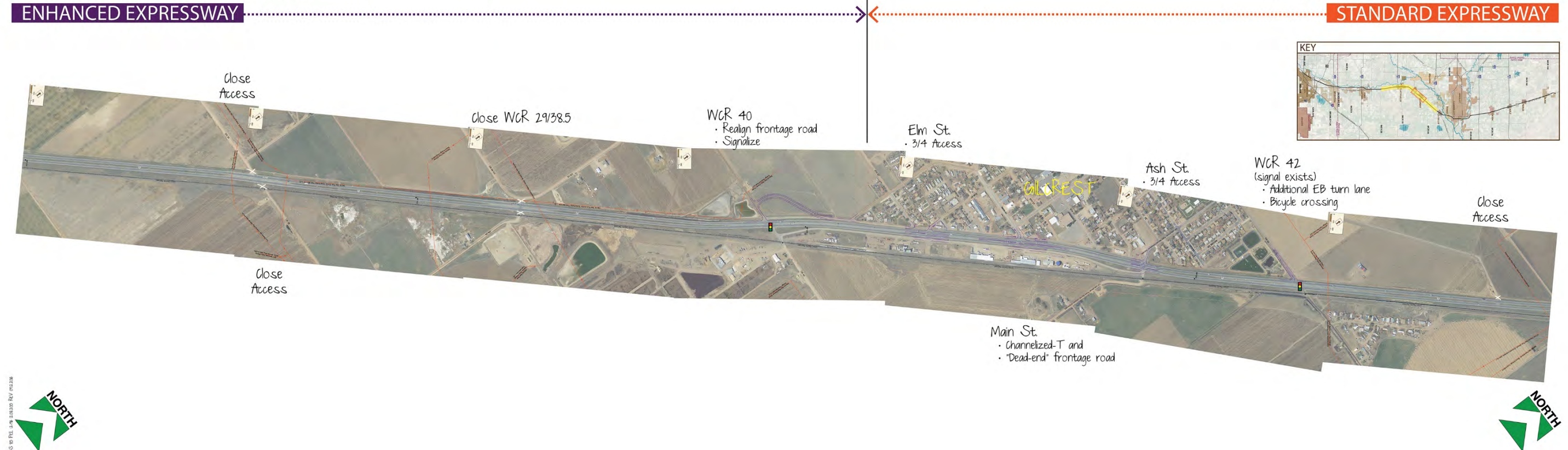


Figure 3.6 Section 2 Conceptual Improvements (Continued)

Section 2D

South of WCR 33 to North of WCR 48

STANDARD EXPRESSWAY

Section 2D

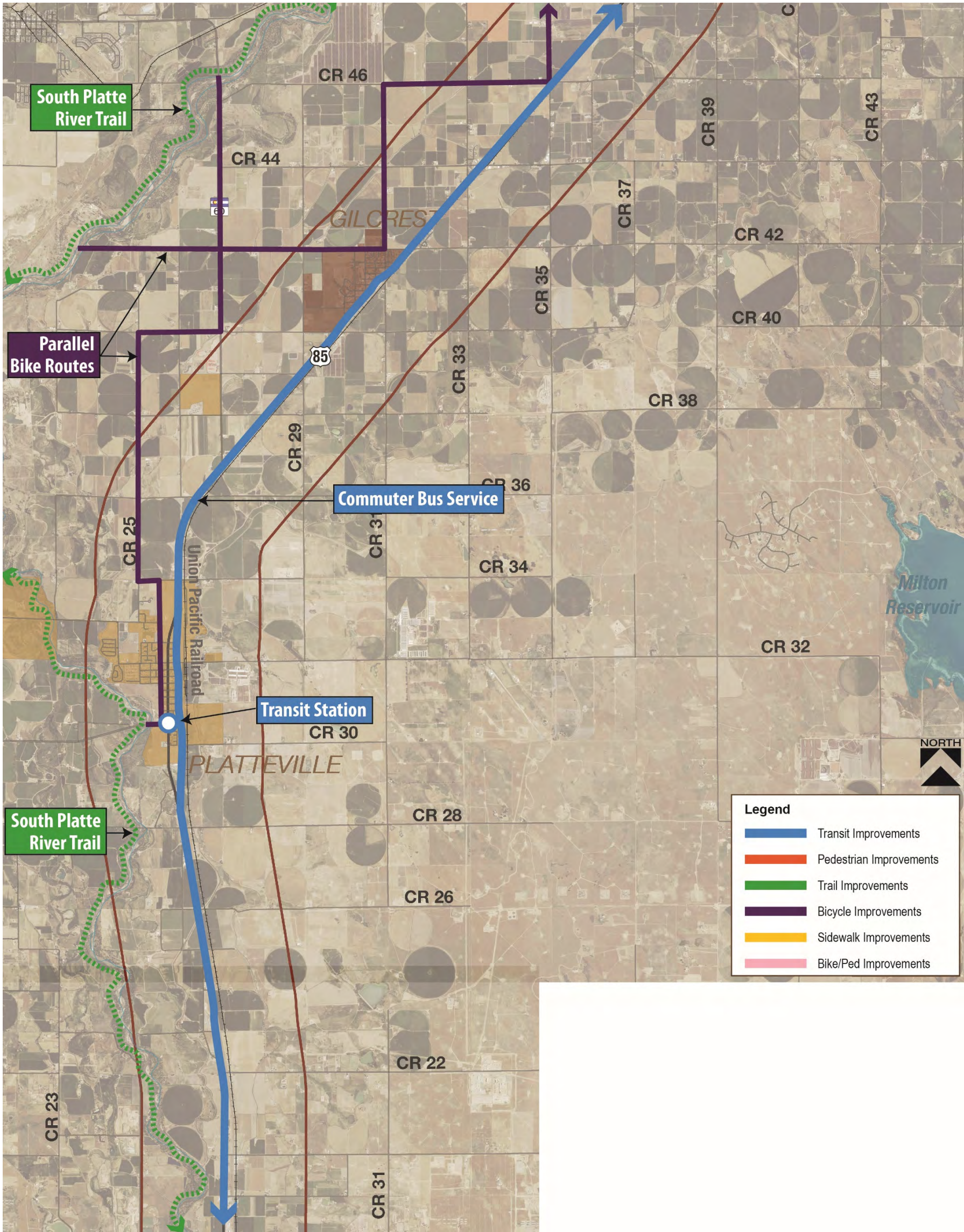
South of WCR 33 to North of WCR 48

STANDARD EXPRESSWAY





Figure 3.7 Section 2 Alternative Mode Conceptual Improvements





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3.3 Section 3—WCR 48 to SH 392

Section 3 of the US 85 corridor extends from the Town of LaSalle, to the City of Evans, and through the City of Greeley. The most populated and densely developed section in the corridor, Section 3 includes at-grade intersection improvements in the Town of LaSalle and City of Evans, while the improvements through the City of Greeley are primarily grade-separated interchanges. This section also includes the system-to-system interchange of US 85 and US 34. The US 85 PEL is recommending multiple conceptual layouts of the US 85/US 34 interchange. CDOT is currently undertaking a separate feasibility study to address improvements at the US 85/US 34 interchange, which will advance the PEL concepts and potentially add additional improvement options.

The portion of US 85 through Greeley has a series of interchanges, commonly referred to as Texas Turnarounds. This grade-separated interchange requires a set of one-way frontage roads to fully function. **Figure 3.8** presents an example of a Texas Turnaround. This unique improvement is new to Colorado and will provide dramatic improvements to the US 85 bypass in Greeley. **Figure 3.9** presents the recommended improvements for Section 3.

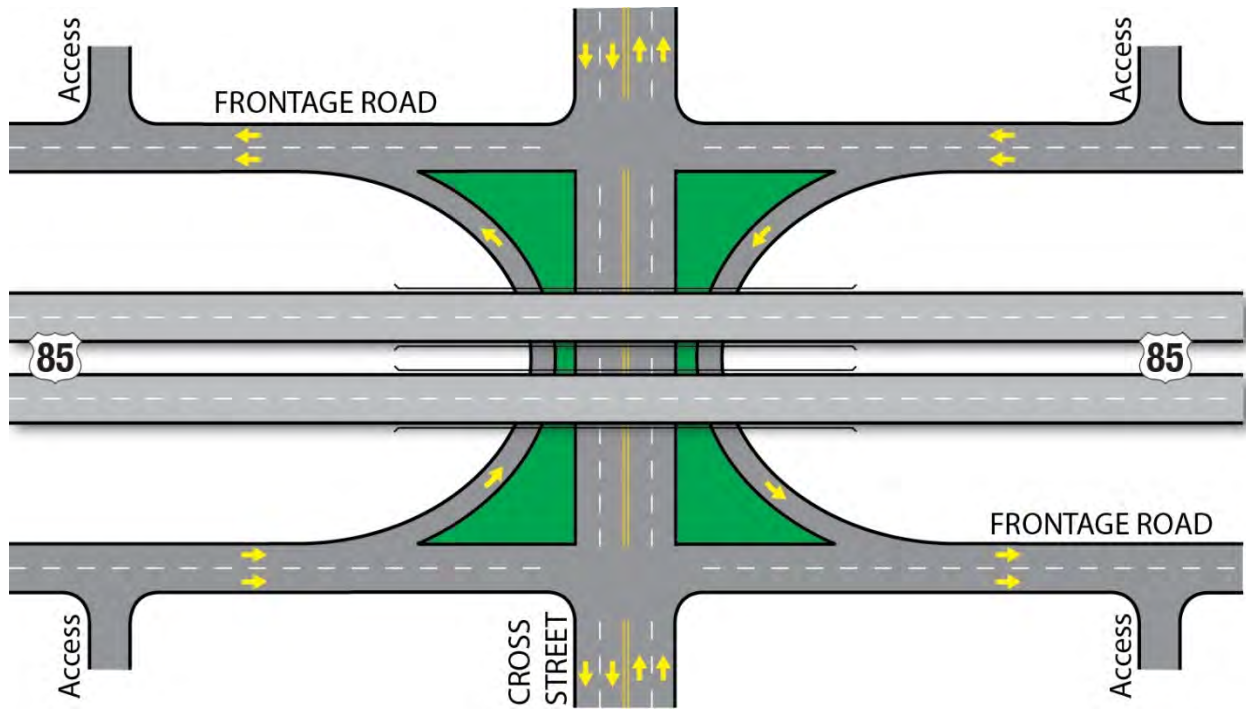
Figure 3.10 presents the conceptual recommendations for alternative mode facilities in Section 3. Greeley Evans Transit (GET) provides existing fixed-route transit service; however, no GET routes use US 85.

Interregional commuter bus service consistent with the North I-25 EIS ROD is recommended. This includes commuter bus connections in Section 3 at three locations: US 85 and 42nd Street (Evans), 8th Avenue and 24th Street (South Greeley), and US 85 (Bypass) and D Street (Greeley). The North I-25 EIS ROD identifies the Evans Station to be located in the southeast corner US 85 and 42nd Street and to include 30 parking spaces. The South Greeley Station is identified to be in the southwest corner of 8th Avenue and 24th Street and include 30 parking spaces. The Greeley Station is identified to be located in the northwest quadrant of D Street and North 9th Avenue and to include 20 parking spaces. Should the location of these commuter bus stations change, a change in location would also require a revision to the North I-25 EIS ROD.

The PEL recommended alternatives also include opportunities to maximize bicycle and pedestrian facilities. This includes the following:

- ▶ Sidewalk, pedestrian crossings, and streetscape improvements in LaSalle
- ▶ Maintaining the grade-separated trail crossing under US 85 as a part of the South Platte River Trail
- ▶ A parallel bicycle route on 1st Avenue from the South Platte River Trail (near 37th Street in Evans) to the Cache La Poudre River Trail (near 8th Street in Greeley)
- ▶ Bicycle and pedestrian crossing enhancements at 22nd Street and 13th Street
- ▶ A parallel bike route on WCR 35/35th Avenue from WCR 46 to SH 14, requiring a crossing of the South Platte River

1 **Figure 3.8 Example Texas Turnaround Interchange**



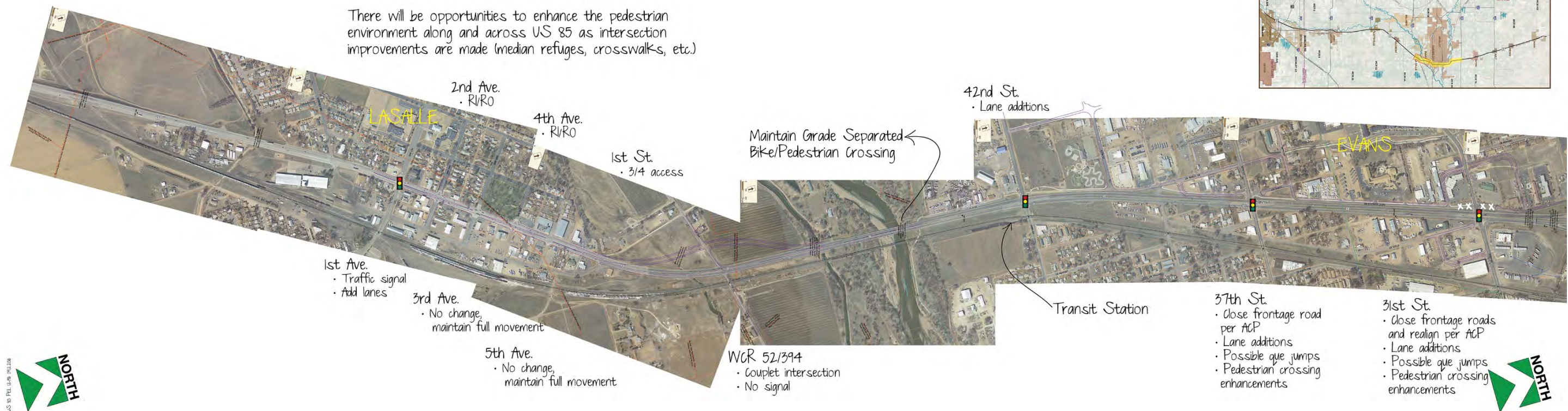
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Figure 3.9 Section 3 Conceptual Improvement Recommendations

Section 3A

UPRR Bridge South of LaSalle to
North of 31st Street in Evans

STANDARD EXPRESSWAY



Section 3A

UPRR Bridge South of LaSalle to
North of 31st Street in Evans

STANDARD EXPRESSWAY

Figure 3.9 Section 3 Conceptual Improvement Recommendations (Continued)

Section 3B

31st Street to North of 5th Street in Greeley

STANDARD EXPRESSWAY

- 31st St.
- Close frontage roads and realign per ACP
 - Lane additions

See US 85/US 34
Design Section

South of 22nd St.,
alternative access plan

GREELEY

Realign WCR 41 to 5th St.

- 22nd St. to 5th St.
- Texas U-turn interchanges
 - Convert frontage road to one-way
 - Construct frontage road on east side
 - Bike/Pedestrian crossing enhancements



Figure 3.9 Section 3 Conceptual Improvement Recommendations (Continued)

Section 3C

North of 5th Street to North of SH 392

ENHANCED EXPRESSWAY

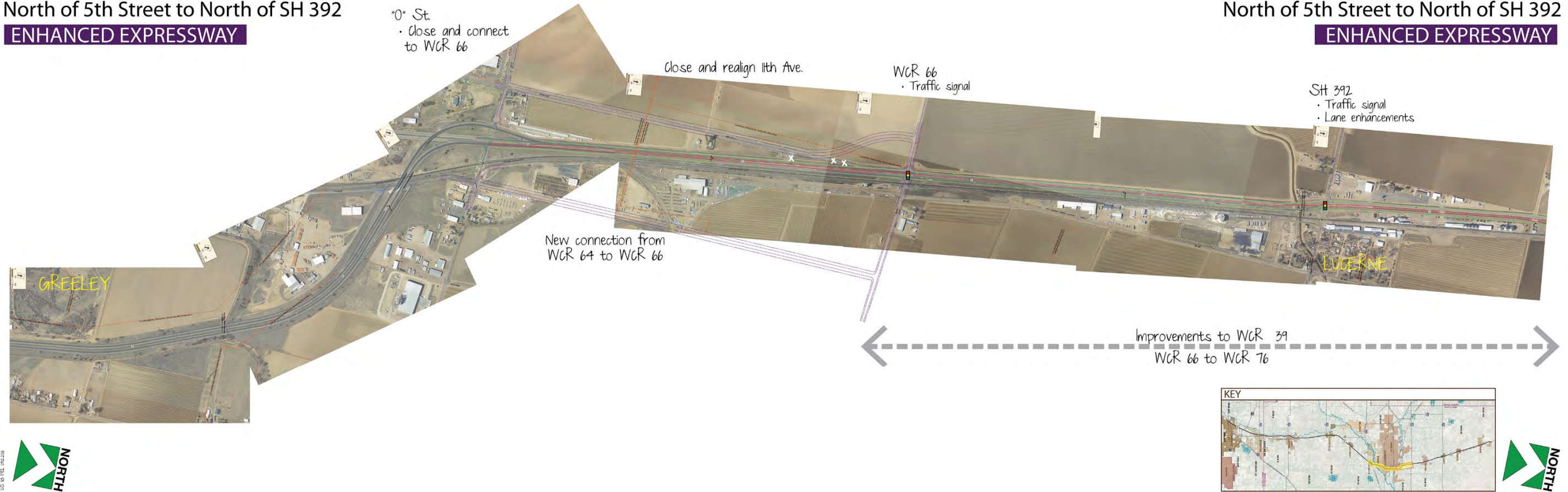
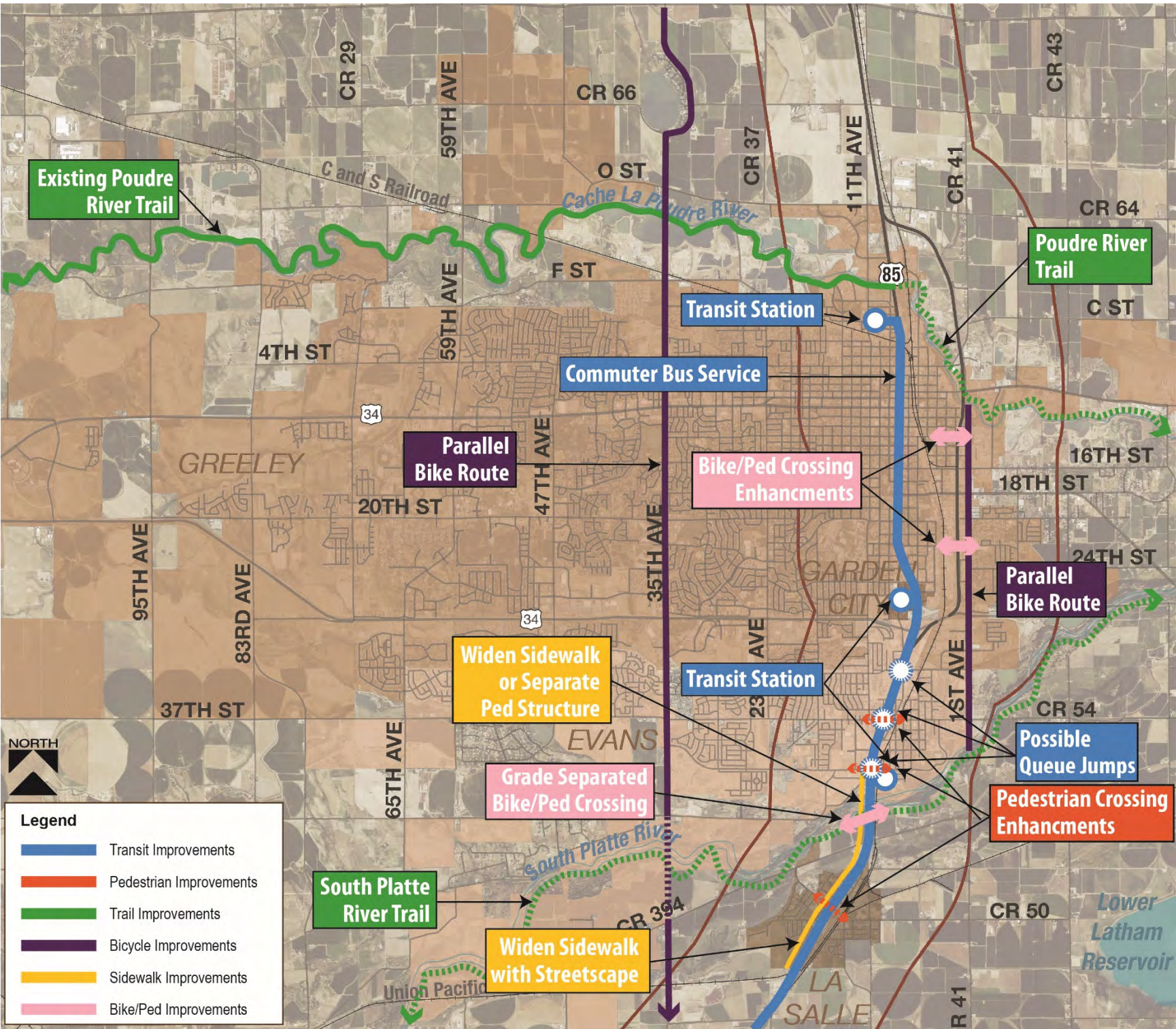




Figure 3.10 Section 3 Alternative Mode Conceptual Improvements



3.3.1 US 85 / US 34 Interchange

The US 85/US 34 system-to-system interchange has an atypical configuration and has garnered interest in its reconstruction for some time. As the region grows and traffic increases, the need to improve the complex will be more pressing given its transportation challenges.

The US 85/US 34 interchange is located in the cities of Greeley and Evans and in the town of Garden City. The interchange incorporates US 34, US 85 Business, US 85 Bypass, and 8th Avenue (which connects Evans and Garden City). The interchange area that was analyzed is bounded by 11th Avenue on the west (signalized intersection), 31st Street on the south (signalized intersection), 26th Street on the northwest (signalized intersection), 22nd Street on northeast (signalized intersection), and 1st Avenue on the east (overpasses). US 85 carries north-south traffic between the greater Denver area and the North Front Range, and US 34 carries east-west traffic between Loveland and the eastern plains.

Figure 3.11 shows the project location, and **Figure 3.12** depicts its many deficiencies.

CDOT sponsored a design charrette as part of the US 85 PEL study. The charrette was intended to “set the stage” for subsequent efforts in feasibility study and in designing the interchange complex by identifying concerns and interests of affected stakeholders. The charrette was not necessarily intended to develop a final solution as much as to identify important issues contributing to a preferred solution, which will be completed in the subsequent steps; namely, a feasibility study that CDOT will initiate soon.

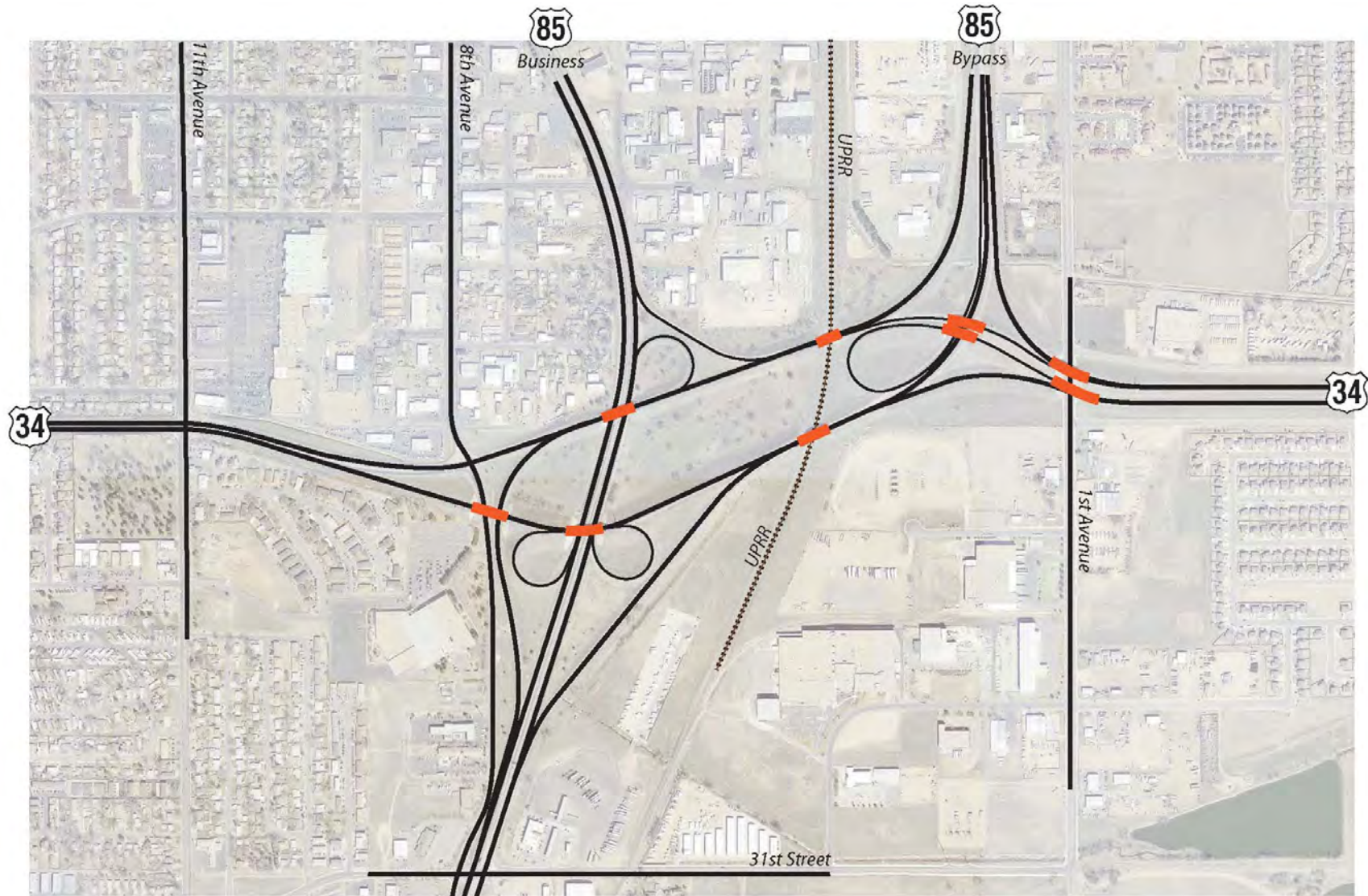
On January 14, 2016, the charrette was held in the City of Evans at the Riverside Library and Culture Center. A total of 28 representatives from several agencies signed-in, but many also attended and participated without having signed-in; between 35 and 40 representatives participated in the session. Agencies that were represented included:

- | | |
|---------------|---------------|
| ▶ CDOT | ▶ LaSalle |
| ▶ Weld County | ▶ Eaton |
| ▶ Greeley | ▶ Gilcrest |
| ▶ Evans | ▶ Platteville |
| ▶ Garden City | ▶ NFRMPO |

Information about the current interchange configuration and technical information was presented on the deficiencies. This included information on structural deficiencies, crashes, traffic projections, traffic patterns, and non-standard signing. After the presentation on technical information about the interchange’s operational issues, participants were asked to offer their concerns as users or comments heard from constituents in their jurisdiction. The following additional considerations were offered:

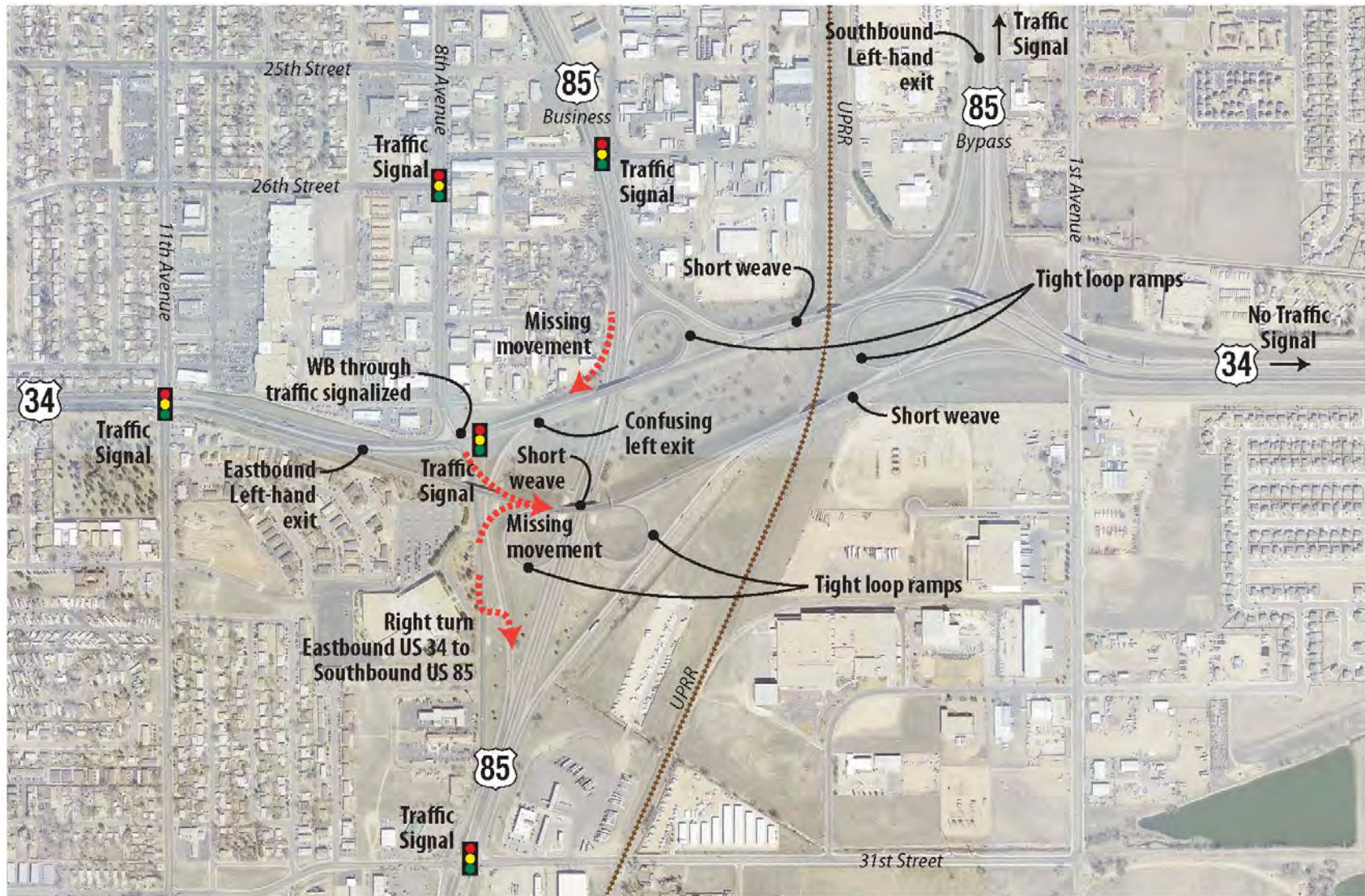
- ▶ There is a lack of consistency in speed limits through the interchange.
- ▶ The interchange contains too many short confusing weaves that contain abrupt lane drops, especially associated with the loop ramps.
- ▶ The inconsistent pavement surface (concrete and asphalt) can add to driver confusion in certain areas.
- ▶ The signal at 8th Avenue sometimes causes significant backups.
- ▶ There is a strong desire to maintain 8th Avenue access into the interchange complex.
- ▶ Pavement striping/markings is not clear at certain locations.

1 **Figure 3.11 US 85 and US 34 Interchange Setting**



2

1 **Figure 3.12 US 85 and US 34 Interchange Deficiencies**

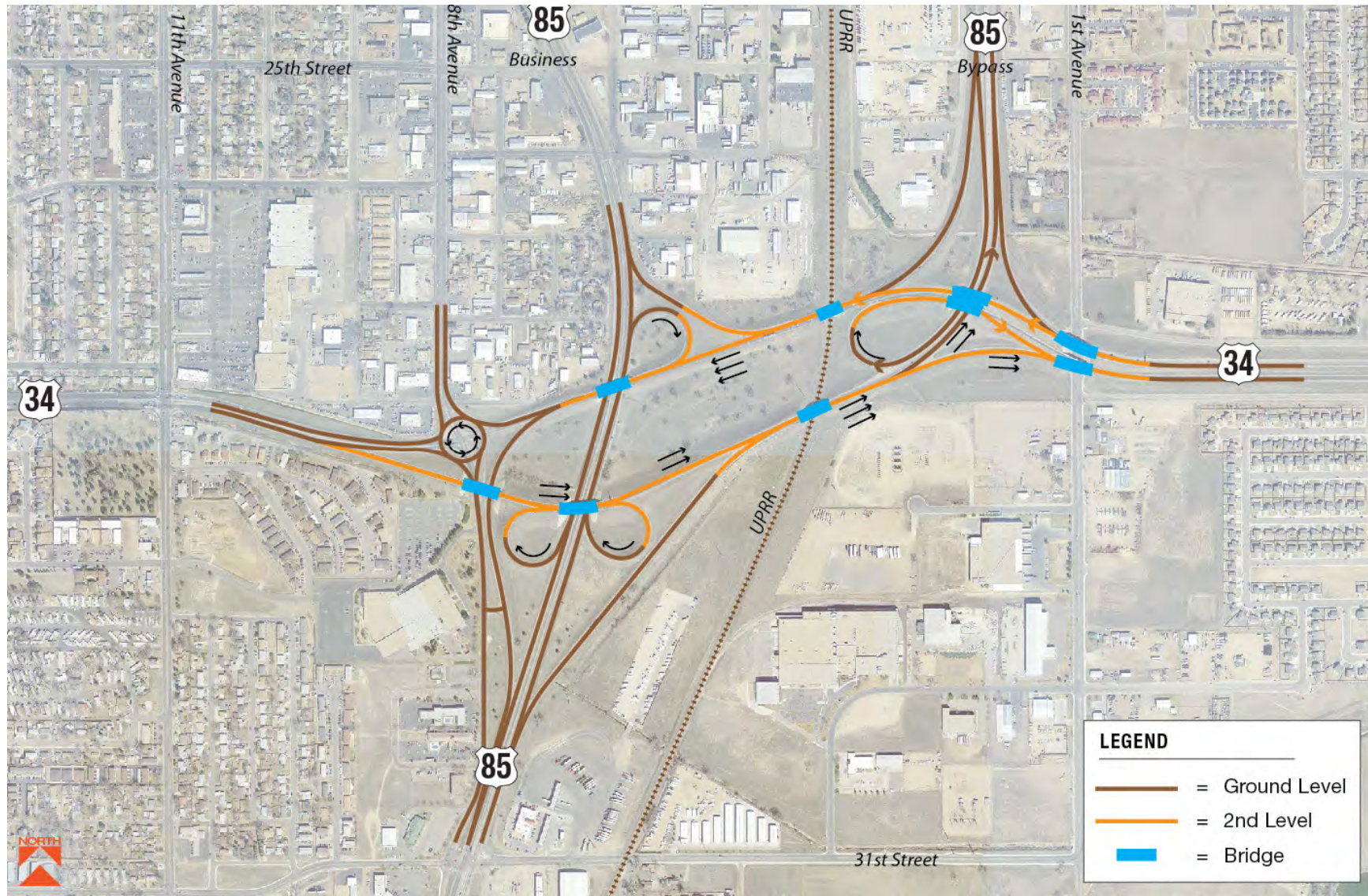


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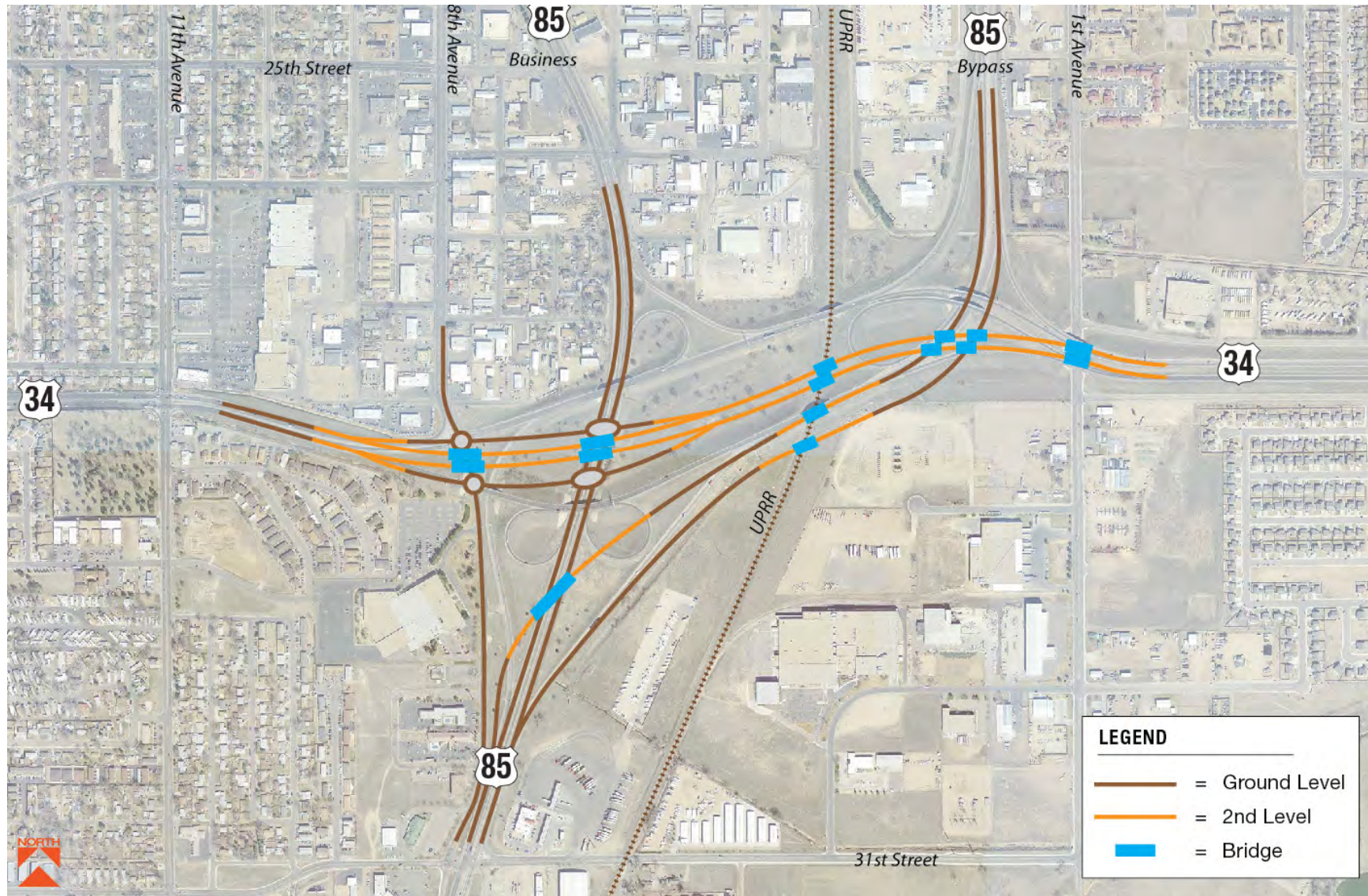
- 1 Given the criteria most important to the participants in updating the US 85/US 34 interchange,
- 2 participants were divided into five smaller work groups to brainstorm interchange configurations. Each
- 3 group, made up of elected officials, agency staff, and Project Team members, discussed and sketched
- 4 interchange layout ideas in response to the top ranked criteria. The groups presented their concepts to
- 5 the larger group. **Figure 3.13** through **Figure 3.17** present the concepts developed by each group.
- 6 CDOT will use these concepts as part of a separate feasibility study that will examine in more
- 7 engineering detail these concepts and others developed as part of that study. That study will set the
- 8 stage for advancing the design of the interchange.

1 **Figure 3.13 US 85 and US 34 Interchange Concept—Group 1**

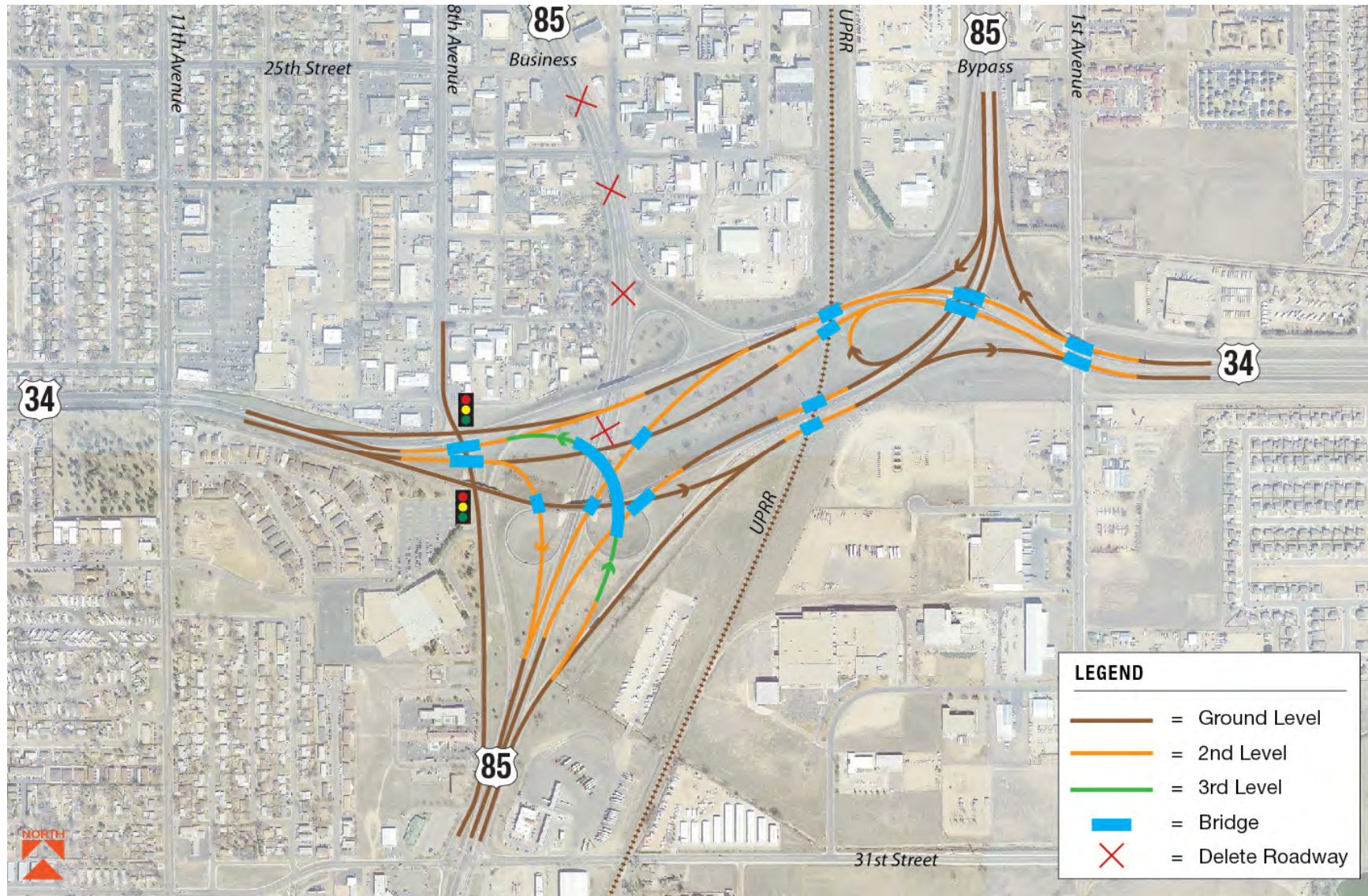


2

1 **Figure 3.14 US 85 and US 34 Interchange Concept—Group 2**

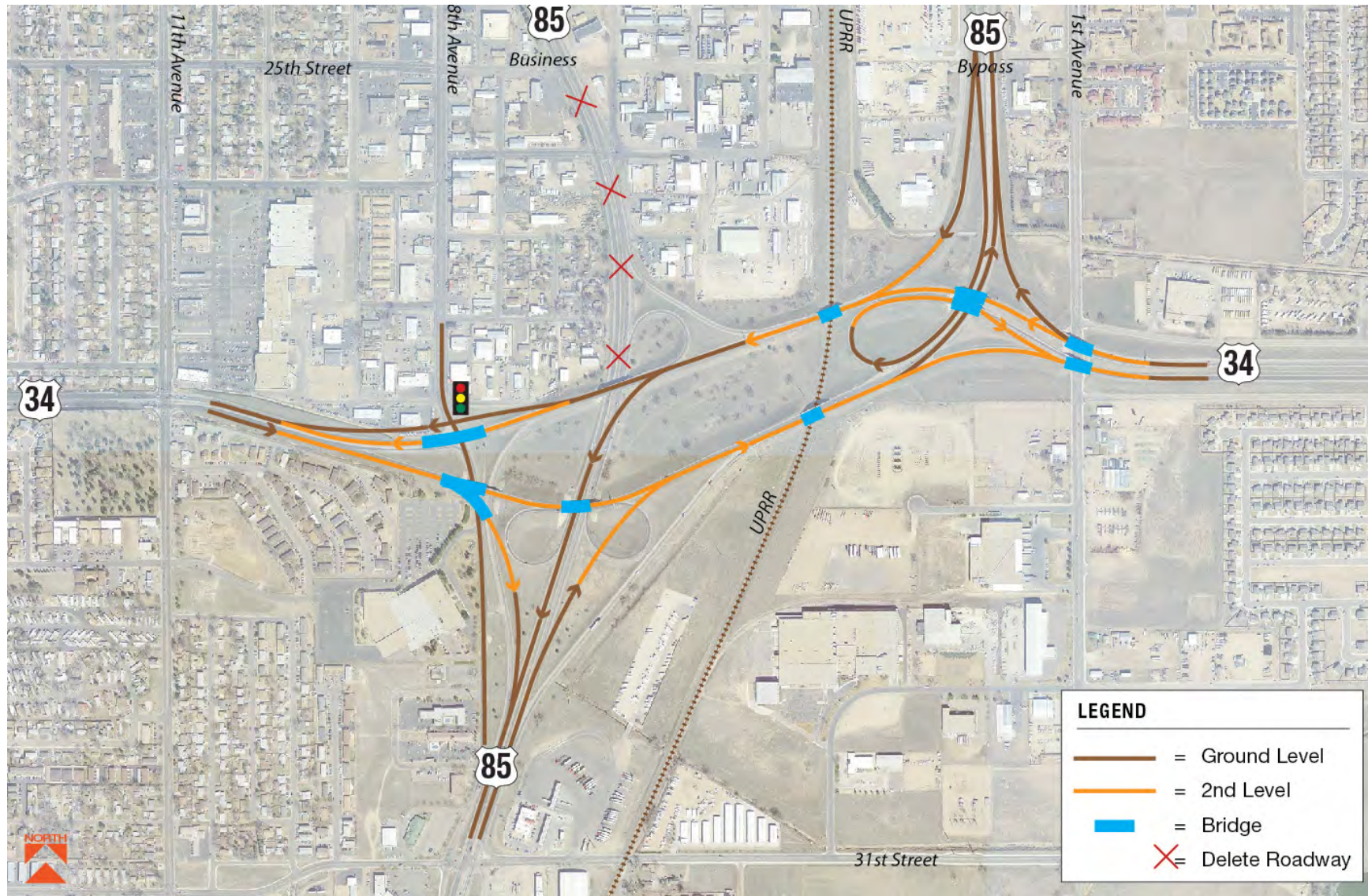


1 **Figure 3.15 US 85 and US 34 Interchange Concept—Group 3**



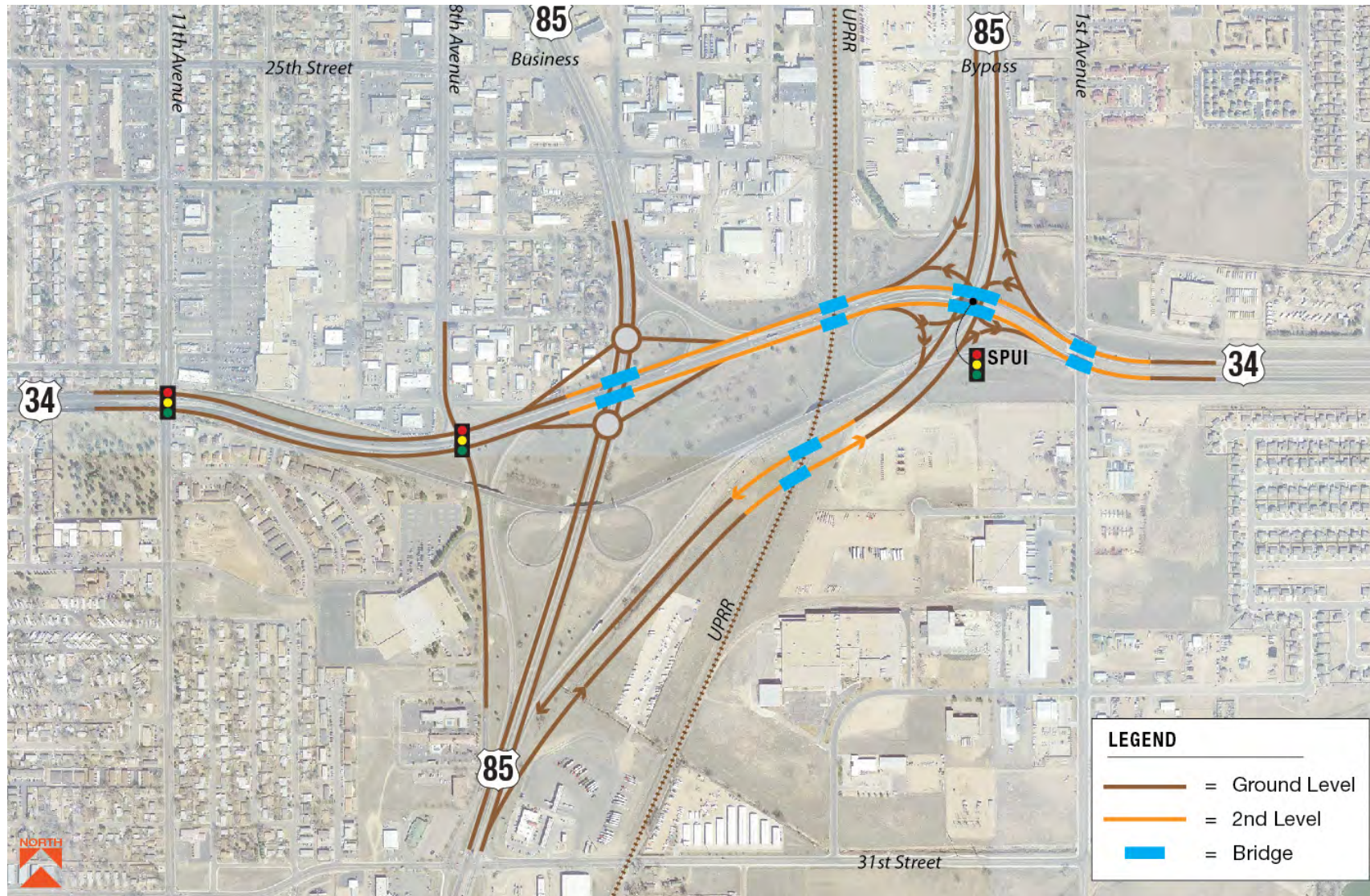
2

1 **Figure 3.16 US 85 and US 34 Interchange Concept—Group 4**



2

1 **Figure 3.17 US 85 and US 34 Interchange Concept—Group 5**



2



3.4 Section 4—SH 392 to WCR 100

Section 4, the most northern section of the US 85 corridor, is primarily rural in nature and passes through the towns of Eaton, Ault, Pierce, and Nunn. The roadway through these towns have either a Main Street or an Arterial designation. The recommended improvements through this section all occur as at-grade improvements, including signalization and closures. **Figure 3.18** presents the conceptual improvement recommendations.

Figure 3.19 presents the conceptual recommendations for alternative mode facilities for Section 4. Existing fixed-route transit service is not provided in Section 4 and interregional commuter bus service is not recommended in Section 4. The alternative mode improvement recommendations in Section 4 focus on improving the downtown sidewalks adjacent and crossing facilities in Eaton, Ault, Pierce, and Nunn, as well as connecting these communities with a parallel bike route that meanders on the west side of US 85. In Eaton, these alternative mode improvement recommendations support connections to the existing Great Western Trail.

Figure 3.18 Section 4 Conceptual Improvement Recommendations

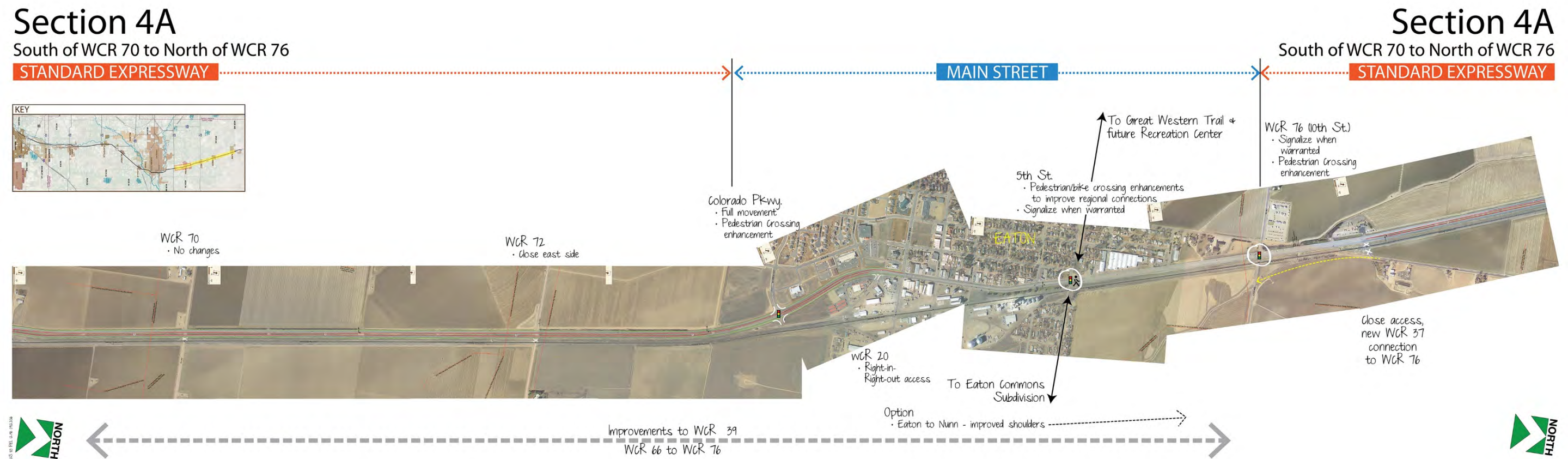


Figure 3.18 Section 4 Conceptual Improvement Recommendations (Continued)

Section 4B

WCR 78 to North of WCR 84
STANDARD EXPRESSWAY

Section 4B

WCR 78 to North of WCR 84
RURAL HIGHWAY

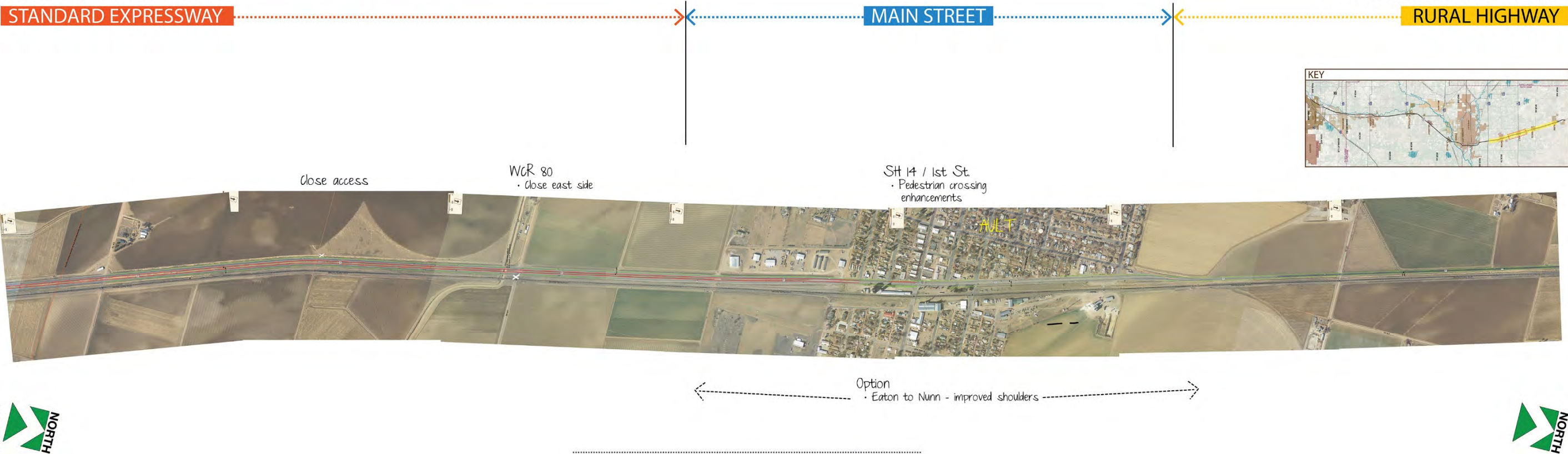


Figure 3.18 Section 4 Conceptual Improvement Recommendations (Continued)

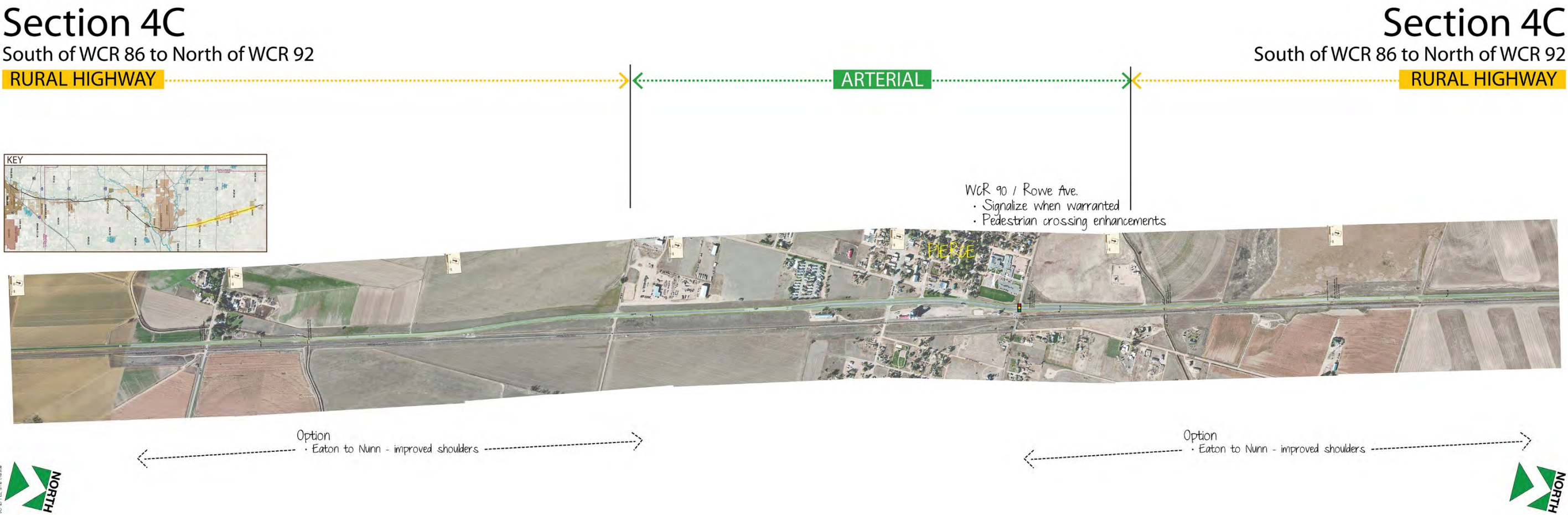


Figure 3.18 Section 4 Conceptual Improvement Recommendations (Continued)

Section 4D

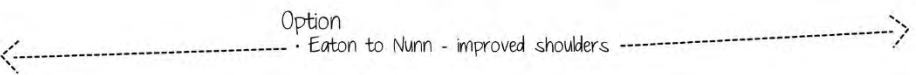
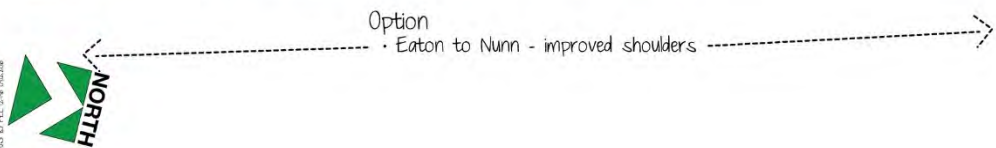
South of CR 94 to CR 100

RURAL HIGHWAY

Section 4D

South of CR 94 to CR 100

ARTERIAL



4.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION STRATEGIES

Section 4 summarizes the environmental resources present in the study area, along with the types of anticipated direct, indirect, and cumulative impacts associated with the Recommended Alternatives. A more thorough discussion of the affected environment can be found in the *Corridor Conditions Report* (CDOT 2015). Data for environmental resources were derived from readily available data sources and sites visits; field verification was not completed and quantification of impacts is not possible due to the accuracy of the environmental data and the level of conceptual design.

As funding becomes available for implementation of the Recommended Alternatives, CDOT will determine the appropriate level of NEPA study ranging from a categorical exclusion (CatEx), for actions that do not individually or cumulatively result in significant impacts, to environmental impact statements (EISs) for projects that are anticipated to have significant impacts and/or a high level of controversy. Environmental assessments (EAs) will need to be prepared when there is insufficient information to determine if a project's impacts warrant an EIS. Based on the level of NEPA study and environmental context of each project, some or all of the resources may need to be addressed. CatExs, the most common level of study, do not require analysis of every resource discussed in this section; there is a defined list of resources, which CDOT may augment if there is concern related to additional resources that need to be documented. Cumulative impacts are not typically assessed for CatExs but are included in both EAs and EISs.

4.1 Parks and Recreation Resources

Parks and recreation resources within the study area include open space, greenbelts, conservation areas, trails, and bike paths. Publicly owned recreational facilities open to the public are also protected by Section 4(f) of the Department of Transportation Act of 1966. Section 4(f) mandates that United States Department of Transportation (US DOT) agencies can only approve the use of land from publicly owned parks, recreational facilities, wildlife and waterfowl refuges, or public and private historic sites if there is no feasible and prudent alternative to the use of the land and when the action includes all possible planning to minimize harm to the project resulting from the use. **Section 4.3** discusses Section 4(f) further. Some park and recreation resources are regulated under the Land and Water Conservation Fund (LWCF) Act of 1965. The LWCF established a federal funding program to assist states in developing outdoor recreation sites. Section 6(f) of the act prohibits converting property acquired or developed with these funds to a non-recreational purpose without the approval of the National Park Service (NPS).

Fifty-one existing and proposed parks and recreational facilities were identified in the study area. Most parks and recreational facilities are located within cities and towns, as opposed to unincorporated areas. Properties that are in an approved planning document as future public parks or recreational facilities are afforded the same protection as those that are already in use.

4.1.1 Direct/Indirect Impacts

Of the 51 parks and recreational facilities identified within the study area, approximately 16 existing or proposed parks and recreational facilities are located immediately adjacent to or cross US 85. Because of this, they could potentially be impacted by future projects within the study area. There may be the opportunity to provide enhanced connectivity or access during site-specific projects, which could be considered a net benefit.

Table 4.1 identifies the locations of park and recreation resources that have the highest probability of impact based on the alternative(s) recommended for further evaluation.

Table 4.1 Parks and Recreation Resources Direct/Indirect Impacts

Intersection	Recommended Alternatives	Impacts
Commerce City		
104 th Avenue	Split Diamond (with I-76)	Alternative would impact a designated parks/open space, both located east of US 85 (First Creek Floodplain Park), and a trail located at the northwest quadrant of the US 85/104 th Avenue intersection (First Creek Trail).
	SPUI with Flyover	Alternative would impact a designated parks/open space, both located east of US 85 (First Creek Floodplain Park), and a trail located at the northwest quadrant of the US 85/104 th Avenue intersection (First Creek Trail).
Brighton		
Bromley Lane	SPUI	Alternative would impact the Bromley Lane Bike Path, which extends along South Main Street at the northeast quadrant and east to west along Bromley Lane east of US 85.
168 th Avenue/WCR 2	SPUI	Alternative would impact County Line Trail bike lane, which extends east to west along 168 th Avenue.
Platteville		
WCR 34	Diamond	Alternative would impact a small portion of a proposed greenbelt located at the southeast quadrant of the US 85/WCR 34 intersection along Front Street.
LaSalle		
4 th Avenue	RI/RO	Alternative is adjacent to LaSalle Park located west of US 85 between 3 rd Avenue and 4 th Avenue.
Greeley		
8 th Street	Texas Turnaround	Alternative would impact the proposed Poudre River Trail, which extends east to west below US 85.

Notes:

I-76 = Interstate 76

RI/RO = Right-in/Right-out

SPUI = Single Point Urban Interchange

WCR = Weld County Road

4.1.2 Cumulative Impacts

Direct impacts to parks and recreational facilities resulting from the implementation of the Recommended Alternatives can contribute to cumulative impacts to a resource when combined with other past, present, or future actions. The overall number of parks and recreational facilities has increased over time with new residential and community development throughout the corridor. Because there may be direct effects to these resources, cumulative effects will need to be addressed in future studies.

4.1.3 Next Steps and Proposed Mitigation Strategies

Because there may be a delay between the completion of this study and implementation of the Recommended Alternatives, the most current land use and park/recreational plans should be reviewed

as discrete projects are implemented because new facilities or undeveloped parcels may have been designated for future development of park and recreational facilities. During alternatives refinement/design, the design team will need to use the most current information about parks and recreational facilities to avoid and minimize impacts to these resources wherever possible. Should direct impacts to a park or recreational facility result in a change of functionality of that property, it will need to be taken into account when determining the appropriate level of NEPA study. Projects with adverse effects to Section 4(f) and/or Section 6(f) properties can elevate the level of study.

4.2 Historic Resources

The term “historic” is generally used to refer to buildings, structures, sites, or objects that have been determined eligible for listing in the National Register of Historic Places (NRHP). Passed in 1966, the National Historic Preservation Act (Act) established the framework for historic preservation in the United States, creating the NRHP, National Historic Landmarks determination process, and State Historic Preservation Officer (SHPO). Section 106 of the Act produced a regulatory framework, mandating review of federally funded and permitted projects to determine any potentially adverse impacts to historic resources. The Act requires projects to try to avoid impacts to National Register eligible properties, and, if impacts cannot be avoided, to minimize and mitigate impacts.

Section 4(f) of the Department of Transportation Act of 1966 provides additional oversight for historic resources. It stated that the FHWA and other DOT agencies cannot approve the use of land from public or private historical sites unless there is no feasible and prudent alternative to the use of land and unless the project includes planning to minimize negative impacts to the property whenever possible.

The US 85 corridor passes through the High Plains of northern Colorado, a region of rolling prairies. Weld County is one of Colorado’s most agriculturally productive counties. Its agricultural history dates back to the 1860s when cattle ranchers used the area for grazing. In the late 19th and early 20th centuries, a series of towns were established along the transportation corridor to serve the surrounding agricultural lands. The region experienced a second settlement boom in the early 20th century with the development and popularization of dry land farming techniques.

Transportation-related resources within the study area include a historic highway corridor, a historic railroad corridor, and roadside facilities such as motels, garages, and gas stations. Community-related historic resources within the study area include residences, commercial buildings, municipal buildings, schools, and churches in the incorporated and unincorporated communities. Although not currently identified, there is a high potential for the presence of agricultural Rural Historic Landscape Districts, which would be identified through a comprehensive survey. Additionally, several features (farms, ditches, buildings, etc.) have not been evaluated for eligibility and could potentially be historic.

There is a high concentration of historic commercial and residential properties in close proximity to the highway in most of the communities that it traverses that could be directly or indirectly affected. Greeley has the highest concentration of resources listed on the National and State Registers or determined eligible for listing. In Eaton, there is a collection of early 20th century commercial buildings that border US 85. Several grain elevator complexes are also in close proximity to the highway.

Outside the communities, historic farms and ranches line the highway corridor. Road improvements are likely to have an impact on the farms and ranches immediately adjacent to the highway but are not likely to have an impact on farms and ranches that do not abut the highway.

Ten known designated or eligible historic resources located in close proximity to US 85 could potentially be impacted. Linear features, including the UPRR and ditches or canals that cross or parallel US 85, have a higher potential to be directly impacted as do resources immediately adjacent to the road. Many resources have potential to be eligible for inclusion on the National Register of Historic Places and could be affected by the recommended improvements and are presented in the next section.

4.2.1 Direct/Indirect Impacts

Table 4.2 identifies the locations and historic resources that have a higher probability of impact based on the alternative(s) recommended for further evaluation. Indirect effects, including changes in visual character, noise, or changes in traffic patterns or land use, will also need to be considered in the determination of effects.

Table 4.2 Historic Resources Impacts

Intersection	Recommended Alternatives	Impacts
Commerce City		
104 th Avenue	Split Diamond (with I-76)	Alternative would impact: <ul style="list-style-type: none"> A potential historic ditch that extends underneath US 85 north of the US 85/104th Avenue intersection A potentially historic railroad segment located east of the intersection
	SPUI with Flyover	Alternative would impact <ul style="list-style-type: none"> A potential historic ditch that extends underneath US 85 north of the US 85/104th Avenue intersection A potentially historic railroad segment located east of the intersection
112 th Avenue	SPUI	Alternative would impact a potentially historic railroad segment located east of the US 85/112 th Avenue intersection.
	Skewed SPUI	Alternative would impact a potentially historic railroad segment located east of the US 85/112 th Avenue intersection.
120 th Avenue	Tight Diamond	Alternative would impact: <ul style="list-style-type: none"> NRHP-eligible Fulton Lateral Ditch, which extends underneath 120th Avenue west of the US 85/120th Avenue intersection A NRHP-eligible segment of the railroad located east of the US 85/120th Avenue intersection
	DDI	Alternative would impact: <ul style="list-style-type: none"> A NRHP-eligible ditch that extends underneath 120th Avenue west of the US 85/120th Avenue intersection A NRHP-eligible segment of the railroad located east of the US 85/120th Avenue intersection.
Brighton		
136 th Avenue	SPUI	Alternative would impact: <ul style="list-style-type: none"> Potentially historic private irrigation laterals that extend through the northwest, northeast, and southeast quadrants of the US 85/136th Avenue intersection and underneath both US 85 and 136th Avenue A potentially historic railroad segment located east of US 85



Intersection	Recommended Alternatives	Impacts
Bromley Lane	SPUI	Alternative would impact: <ul style="list-style-type: none"> A potentially historic railroad segment located east of the US 85/Bromley Lane intersection The potentially historic Fulton Lateral Ditch located east of the intersection
168 th Avenue/WCR 2	SPUI	Alternative would impact: <ul style="list-style-type: none"> The potentially historic Fulton Lateral Ditch located east of the US 85/168th Avenue intersection A potentially historic unnamed ditch west of the intersection A potentially historic railroad segment located east of the intersection Potentially historic parcels 50 years old or older located north of 168th Avenue
Fort Lupton		
WCR 6	Partial Cloverleaf	Alternative would impact: <ul style="list-style-type: none"> The potentially historic Fulton Lateral Ditch located east of US 85, which extends underneath WCR 6 Several potentially historic parcels 50 years old or older located at the northeast, southwest, and northwest quadrants of the intersection
WCR 8	Interchange/Grade Separation/Hook Ramps	Alternative would impact several potentially historic parcels 50 years old or older located at all four quadrants of the intersection.
WCR 14.5/14 th Street	Junior Interchange	Alternative would impact the Fort Lupton Historical Marker, a potential historic resource.
Weld County		
WCR 18	SPUI	Alternative would impact: <ul style="list-style-type: none"> The potentially historic Platteville Ditch located at the northeast, southwest, and northwest quadrants, which extends underneath both US 85 and WCR 18 A potentially historic unnamed ditch that extends east to west along WCR 18 A potentially historic railroad segment located east of US 85 Potential historic parcels 50 years old or older located at the northeast, southeast, and southwest quadrants of the intersection
WCR 22	Diamond	Alternative would impact: <ul style="list-style-type: none"> Potential historic parcels 50 years old or older located at all four quadrants of the US 85/WCR 22 intersection A potentially historic railroad segment located east of the US 85/WCR 22 intersection

Intersection	Recommended Alternatives	Impacts
WCR 28	SPUI	Alternative would impact: <ul style="list-style-type: none"> Potentially historic Platteville and Platte Valley ditches located east of US 85 Potentially historic Roland Miller Farm (Centennial Farm) located at the northwest quadrant of the US 85/WCR 28 intersection A potentially historic railroad segment located east of the intersection
Platteville		
WCR 34	Diamond	Alternative would impact a potentially historic railroad segment located east of the US 85/WCR 34 intersection.
SH 60	Diamond	Alternative would impact potentially historic parcels 50 years old or older located at all four quadrants of the US 85/SH 60 intersection.
Gilcrest		
WCR 44	Traffic Signal	Alternative would impact potentially historic Western Mutual Ditch, which extends underneath WCR 44.
WCR 46/WCR 35	Channelized-T with Closure on the East Side	Alternatives would impact a potentially historic segment of US 85.
LaSalle		
SH 394	Couplet Intersection	Alternative would impact: <ul style="list-style-type: none"> The potentially historic Latham Ditch segment located north of SH 394 A NRHP-eligible ditch segment (historic resource) that extends underneath US 85 south of the US 85/ SH 394 intersection
Evans		
42 nd Street	Traffic Signal	Alternative would impact the Evans Historical Marker located at the northeast quadrant of the US 85/42 nd Street intersection and potentially impact NRHP-eligible Goetzel Residence (historic resource) at Idaho Street.
Greeley		
18 th Street	Texas Turnaround	Alternative would impact potentially historic parcels 50 years old or older located at all four quadrants of the intersection.
16 th Street	Texas Turnaround	Alternative would impact a potentially historic railroad segment located north of 16 th Street.
O Street	Closure and Combine with Signal at WCR 66	Alternative would impact a potentially historic railroad segment located east of US 85.
WCR 66	Traffic Signal	Alternative would impact a potentially historic railroad segment located east of US 85.

Intersection	Recommended Alternatives	Impacts
Eaton		
5 th Street	Traffic Signal	Alternative would impact the NRHP-eligible Great Western Railroad segment (historic resource), which extends east to west along US 85.
WCR 76	Traffic Signal	Alternative would impact a potentially historic railroad segment located east of US 85.
Pierce		
CR 90	Traffic Signal	Alternative would impact a potentially historic railroad segment located east of US 85.

Notes:

I-76 = Interstate 76

NRHP = National Register of Historic Places

SH = State Highway

SPUI = Single Point Urban Interchange

WCR = Weld County Road

4.2.2 Cumulative Impacts

Cumulative impacts on historic properties and districts have occurred and will continue to occur in the US 85 PEL study area due to the conversion of agricultural lands and farmsteads to urban/semi-urban land uses and limited local historic preservation regulations. Over time, planned transportation and development actions will likely result in the additional loss of historic properties that will alter the historic character of small farming communities. These impacts will occur regardless of whether or not the Recommended Alternatives are implemented.

Based on information identified during the US 85 PEL process for historic resources, it is not anticipated that the Recommended Alternatives will substantially contribute to cumulative impacts when combined with other past, present, and reasonably foreseeable projects.

4.2.3 Next Steps and Proposed Mitigation Strategies

A large number of potentially eligible resources not previously assessed will need to be surveyed to determine their eligibility during site-specific projects. The Historic Farms and Ranches of Weld County National Register Multiple Property Submission will provide guidance in identifying and evaluating historic farm and ranch properties. Multiple property documents may also be helpful in identifying and evaluating resources in the study area, including "Railroads in Colorado," "Highway Bridges in Colorado," and "Colorado State Roads and Highways" (<http://www.historycolorado.org/archaeologists/multiple-property-submissions>). Once alternatives are developed, assessor data should be checked with a field survey and other supplementary research. Eligibility determinations should be made for the resources within the Area of Potential Effect that will need to be established based on the site-specific improvements.

The Recommended Alternatives should be refined, to the extent possible, to avoid direct and indirect impacts to eligible or listed historic resources. Should impacts be unavoidable, Section 106 consultation will be required. Unavoidable effects may be identified as not adverse or adverse. If effects are not adverse, Section 106 consultation is completed. Adverse impacts must be assessed to determine if there are strategies to minimize or mitigate impacts because avoidance alternatives would need to have already been deemed not to be prudent or feasible. Adverse effects are resolved on a project-by-project basis, which usually includes project-specific memorandums of agreement. An adverse effect will also trigger a Section 4(f) evaluation, as discussed in **Section 4.3**.

The approach to merging the Section 106 consultation process with the NEPA process should occur at the beginning of each site-specific project. Section 106 consultation and completion of the Section 4(f) evaluation process can require more than a year if adverse effects are anticipated.

4.3 Section 4(f)

Section 4(f) of the Department of Transportation Act of 1966 is a regulation applicable only to projects that receive funds from US DOT agencies. FHWA and the Federal Transit Administration (FTA) implement Section 4(f) through 23 Code of Federal Regulations (CFR) 774. Under this regulation, the following resources are protected:

- ▶ Parks and recreational areas of national, state, or local significance that are both publicly owned and open to the public;
- ▶ Historic sites of national, state, or local significance in public or private ownership; and
- ▶ Publicly owned wildlife and waterfowl refuges of national, state, or local significance that are open to the public to the extent that public access does not interfere with the primary purpose of the refuge.

The study area includes dozens of park and recreational facilities. Several historic resources are present in the study area but no publicly owned wildlife or waterfowl refuges. **Section 4.1** and **Section 4.2** discussed potential impacts to these resources due to implementation of the Recommended Alternatives.

4.3.1 Next Steps and Proposed Mitigation Strategies

Properties potentially protected by Section 4(f) that could be impacted by the Recommended Alternatives should be evaluated for Section 4(f) applicability. During alternatives refinement, the avoidance and minimization of impacts to Section 4(f) resources will be required. Should impacts be unavoidable, the appropriate level of Section 4(f) evaluation will need to be determined. Construction impacts or other non-permanent impacts could be addressed through a *temporary occupancy finding* in some instances. If the project were to result in a net benefit, use of an enhancement exception could be applicable. If impacts are permanent and negative, either a *de minimis* finding or a full Section 4(f) evaluation could be required. Full Section 4(f) evaluations require stakeholder comment and can take more than a year to process because they require review and approval from not only CDOT and FHWA but also the Department of Interior.

4.4 Section 6(f)

As noted in **Section 4.1**, recreation resources that have received funds from the LWCF prohibit the conversion of the property acquired or developed with these funds to a non-recreational purpose without the approval of the NPS and provision of replacement property of equivalent or higher value. As the administrator of the program for the state, Colorado Parks and Wildlife must also be involved, as well as the local jurisdiction.

Based on the most recent list of LWCF grants, the following Section 6(f) properties were identified within the study area:

- ▶ Veterans Park (Brighton)
- ▶ Colorado Park (Brighton)
- ▶ Pearson Park (Fort Lupton)
- ▶ Fort Lupton School Community Park

The Recommended Alternatives would not have an impact on Section 6(f) parks identified within the study area; therefore, impacts to Section 6(f) resources are not anticipated.

4.4.1 Next Steps and Proposed Mitigation Strategies

Section 6(f) resources should be reevaluated during the NEPA process to identify any new resources or changes in impacts. For Section 6(f) properties located in the areas of the improvements, alternatives should be designed to avoid a conversion of these properties. If a conversion of land cannot be avoided, efforts will be made to mitigate effects to these properties. CDOT, in cooperation with the local government landowner, must identify replacement land of equal value, location, and usefulness before a transfer of property under Section 6(f) can occur. This transfer must then be accepted by the NPS.

4.5 Traffic Noise

The study area contains many residential neighborhoods, parks, schools, and agricultural and commercial properties. CDOT categorizes the sensitivity of noise receptors based on type of use. Land uses that require serenity are the most sensitive, while commercial and industrial land uses are the least sensitive. The sensitivity of residential receptors falls in between these categories. The commercial and industrial development in the southern and central portions from Commerce City to Greeley is denser than that in the northern portion between Eaton and Nunn. The central and northern portions are more agriculturally oriented than the southern portion. The northern portion is the least developed in relation to the southern and central portions. CDOT's process for assessing noise impacts addresses sensitive resources within 500 feet.

4.5.1 Direct/Indirect Impacts

Table 4.3 lists the locations and noise sensitive receptors that have a higher probability of impact based on the Recommended Alternatives.

Table 4.3 Noise Direct/Indirect Impacts

Intersection	Recommended Alternatives	Impacts
Commerce City		
104 th Avenue	Split Diamond (with I-76)	Alternative could potentially impact commercial and residential noise receptors at the northeast, southwest, and northwest quadrants of the US 85/104 th Avenue intersection.
	SPUI with Flyover	Alternative could potentially impact commercial and residential noise receptors at the northeast, southwest, and northwest quadrants of the US 85/104 th Avenue intersection.
Longs Peak	Closure	Alternative could potentially impact residential noise receptors east of US 85.
112 th Avenue	SPUI	Alternative could potentially impact commercial and residential noise receptors at the northeast, southwest, and northwest quadrants of the US 85/112 th Avenue intersection.
	Skewed SPUI	Alternative could potentially impact commercial and residential noise receptors at the northeast, southwest, and northwest quadrants of the US 85/112 th Avenue intersection.



Intersection	Recommended Alternatives	Impacts
120 th Avenue	Tight Diamond	Alternative could potentially impact commercial and residential noise receptors at all four quadrants of the US 85/120 th Avenue intersection.
	DDI	Alternative could potentially impact commercial and residential noise receptors at all four quadrants of the US 85/120 th Avenue intersection.
Brighton		
136 th Avenue	SPUI	Alternative could potentially impact commercial and residential noise receptors at all four quadrants of the US 85/136 th Avenue intersection.
Bromley Lane	SPUI	Alternative could potentially impact commercial noise receptors at all four quadrants of the US 85/Bromley Lane intersection.
168 th Avenue/WCR 2	SPUI	Alternative could potentially impact commercial noise receptors at all four quadrants of the US 85/168 th Avenue intersection.
Fort Lupton		
WCR 6	Partial Cloverleaf	Alternative could potentially impact commercial and residential noise receptors at the northeast, southwest, and northwest quadrants of the US 85/WCR 6 intersection.
WCR 8	Interchange/Grade Separation/Hook Ramps	Alternative could potentially impact residential noise receptors at the southeast, southwest, and northwest quadrants of the US 85/WCR 8 intersection.
WCR 14.5/14 th Street	Junior Interchange	Alternative could potentially impact residential, commercial, and public facility noise receptors at the northeast, southeast, and southwest quadrants of the US 85/WCR 14.5 intersection.
Weld County		
WCR 18	SPUI	Alternative could potentially impact commercial noise receptors at the northeast, southeast, and southwest quadrants of the US 85/WCR 18 intersection.
WCR 22	Diamond	Alternative could potentially impact residential noise receptors west of the US 85/WCR 22 intersection.
WCR 28	SPUI	Alternative could potentially impact residential and commercial noise receptors at the southeast, southwest, and northwest quadrants of the US 85/WCR 28 intersection.



Intersection	Recommended Alternatives	Impacts
Platteville		
SH 66	Channelized-T with SB Grade Separation	Alternative could potentially impact commercial noise receptors west of US 85.
WCR 34	Diamond	Alternative could potentially impact residential and commercial noise receptors at all four quadrants of the US 85/WCR 34 intersection.
SH 60	Diamond	Alternative could potentially impact residential and commercial noise receptors west of US 85.
LaSalle		
SH 394	Couplet Intersection	Alternative could potentially impact residential and commercial noise receptors at the southeast, southwest, and northwest quadrants of the US 85/SH 394 intersection.
Greeley		
22 nd Street	Texas Turnaround	Alternative could potentially impact commercial noise receptors at all four quadrants of the US 85/22 nd Street intersection.
18 th Street	Texas Turnaround	Alternative could potentially impact residential and commercial noise receptors at all four quadrants of the US 85/18 th Street intersection.
16 th Street	Texas Turnaround	Alternative could potentially impact residential and commercial noise receptors at all four quadrants of the US 85/16 th Street intersection.
13 th Street	Texas Turnaround	Alternative could potentially impact residential and commercial noise receptors at all four quadrants of the US 85/13 th Street intersection.
8 th Street	Texas Turnaround	Alternative could potentially impact residential, commercial, and community noise receptors at all four quadrants of the US 85/8 th Street intersection.
5 th Street	Texas Turnaround	Alternative could potentially impact commercial noise receptors at all four quadrants of the US 85/5 th Street intersection.

Notes:

DDI = Diverging Diamond Interchange
SPUI = Single Point Urban Interchange

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

SB = Southbound

4.5.2 Cumulative Impacts

Noise levels in the study area have increased over time as development has occurred. Noise comes from many sources, including stationary sources, such as commercial industries, and mobile sources, such as vehicular and freight traffic in the area. Noise levels are likely to continue to increase over time as development increases and traffic volumes rise as a result.

4.5.3 Next Steps and Proposed Mitigation Strategies

For Type I site-specific projects, a noise assessment will be required to determine if the Recommended Alternatives would have an impact on sensitive noise receptors. Type I projects are those that result in the construction of a highway in a new location or projects that result in a significant change in the vertical or horizontal alignment or increase the number of through lanes. CDOT includes any receivers within 500 feet of the roadway in the analysis when determining if the noise analysis and abatement criteria threshold will be exceeded. The noise assessment will need to model existing and future conditions to determine if mitigation may be required. Noise assessments are not required for Type II or Type III projects.

Mitigation measures for the impacted receptors, if applicable, will be considered based on CDOT noise abatement criteria. For mitigation to be implemented, it must meet feasibility and reasonableness criteria that include the assessment of mitigation benefits and costs, and the reduction in noise levels that would be achieved.

4.6 Floodways and 100-year Floodplains

Floodplains in the study area are located in the jurisdictional boundaries of Brighton in Adams County and Fort Lupton, Greeley, Eaton, Pierce, and Nunn in Weld County. Specifically, the US 85 corridor crosses eleven 100-year floodplains associated with the South Platte River, First Creek, Second Creek, Third Creek, Cache la Poudre River, Eaton Draw, the Mead Lateral, and Spring Creek and its tributary. The study area contains two floodways: the South Platte River Floodway and the Cache la Poudre River Floodway.

4.6.1 Direct/Indirect Impacts

Table 4.4 identifies the locations of floodplains that have a higher probability of impact based on the Recommended Alternatives.

Table 4.4 Floodways and 100-year Floodplain Direct/Indirect Impacts

Intersection	Recommended Alternatives	Impacts
Commerce City		
104 th Avenue	Split Diamond (with I-76)	Alternatives would impact the First Creek floodplain at all four quadrants of the US 85/104 th Avenue intersection.
	SPUI with Flyover	
	Diverging Diamond	
	Partial Cloverleaf	
Brighton		
136 th Avenue	SPUI	Alternative would impact the Second Creek floodplain at the northwest, northeast, and southeast quadrants of the US 85/136 th Avenue intersection.
	Northern SPUI	Alternative would impact Second Creek floodplain at all four quadrants of the US 85/136 th Avenue intersection.
168 th Avenue/ WCR 2	SPUI	Alternative would minimize impacts to Third Creek and South Platte River floodplain west of US 85.
Fort Lupton		
WCR 6	Partial Cloverleaf	Alternative would impact the South Platte River floodplain west of US 85.
WCR 8	Interchange/Grade Separation/Hook Ramps	Alternative would impact the South Platte floodplain at the northeast, southwest, and northwest quadrants of the US 85/WCR 8 intersection.
SH 52	Pedestrian Improvements	Alternative has potential to affect the South Platte River floodplain west of US 85, depending on the extent of improvements.
LaSalle		
SH 394	Couplet Intersection	Alternative would impact the South Platte River floodplain located north of SH 394.
Greeley		
8 th Street	Texas Turnaround	Alternative would impact the Cache la Poudre River floodplain at all quadrants of the US 85/8 th Street intersection.
5 th Street	Texas Turnaround	Alternative would impact the Cache la Poudre River floodplain at all quadrants of the US 85/5 th Street intersection.

Intersection	Recommended Alternatives	Impacts
Eaton		
WCR 76	Traffic Signal	Alternative would avoid impacts to the floodplain at all four quadrants of the US 85/WCR 76 intersection.
Pierce		
CR 90	Traffic Signal	Alternative would avoid impacts to the floodplain at all four quadrants of the US 85/CR 90 intersection.

Notes:

CR = County Road

I-76 = Interstate 76

SH = State Highway

SPUI = Single Point Urban Interchange

WCR = Weld County Road

4.6.2 Cumulative Impacts

Over time, agricultural development and urbanization have impacted the South Platte River and the Cache la Poudre River floodplains. Cumulative impacts to the floodplain would primarily result from alterations to the floodplain caused by development already planned in the study area. The Recommended Alternatives are not anticipated to contribute substantially to cumulative impacts when combined with other past, present, and reasonably foreseeable projects.

4.6.3 Next Steps and Proposed Mitigation Strategies

Changes in the floodways of either the First Creek, Second Creek, Third Creek, South Platte River or the Cache la Poudre River could require consultation with the local agencies and a Conditional Letter of Map Revision (CLOMR) and Letter of Map Revision (LOMR) from the Federal Emergency Management Agency. Floodplain modeling will be required to assess larger changes. Small changes may be incorporated in the floodplain without triggering the CLOMR/LOMR process.

4.7 Wetlands and Waters of the US/Surface Water Resources

Water-related resources include lakes, ponds, rivers, draws, ditches, irrigation canals, and waters of the US (WUS), such as navigable waterways and wetlands. These resources provide many important functions, including irrigation to support agriculture, recreational opportunities such as fishing and rafting, quality habitat for resident and migrating wildlife, filtration of pollutants and sediments, and groundwater recharge. The 62-mile US 85 corridor crosses 46 waterways including 2 rivers, 3 creeks, several draws, and many irrigation ditches. Several waterbodies, such as lakes and ponds, are also located in close proximity to US 85. These waterbodies are generally located within the southern half of the study area (adjacent to the South Platte River) and are likely associated with past or current gravel mining operations. The few waterbodies located in the central and northern portions of the study area appear to be water retention ponds associated with agricultural activities.

Table 4.5 Wetlands/Waters of the US Direct/Indirect Impacts

Intersection	Recommended Alternatives	Impacts
Commerce City		
104 th Avenue	Split Diamond (with I-76)	Alternative would impact: <ul style="list-style-type: none"> Wetlands at the northwest quadrant of the US 85/104th Avenue intersection A ditch that extends underneath US 85 north of the US 85/104th Avenue intersection.
	SPUI with Flyover	Alternative would impact: <ul style="list-style-type: none"> Wetlands at the northwest quadrant of the US 85/104th Avenue intersection A ditch that extends underneath US 85 north of the US 85/104th Avenue intersection
	DDI	Alternative would impact: <ul style="list-style-type: none"> Wetlands at the northwest quadrant of the US 85/104th Avenue intersection A ditch that extends underneath US 85 north of the US 85/104th Avenue intersection
	Partial Cloverleaf	Alternative would impact: <ul style="list-style-type: none"> Wetlands at the northwest quadrant of the US 85/104th Avenue intersection A ditch that extends underneath US 85 north of the US 85/104th Avenue intersection
120 th Avenue	Tight Diamond	Alternative would impact: <ul style="list-style-type: none"> Fulton Ditch, which extends underneath 120th Avenue west of the US 85/120th Avenue intersection Wetlands at the southwest quadrant of the US 85/120th Avenue intersection
	DDI	Alternative would impact: <ul style="list-style-type: none"> Fulton Ditch, which extends underneath 120th Avenue west of the US 85/120th Avenue intersection Wetlands at the southwest quadrant of the US 85/120th Avenue intersection.
Brighton		
136 th Avenue	SPUI	Alternative would impact: <ul style="list-style-type: none"> Private irrigation laterals that extend through the northwest, northeast, and southeast quadrants of the US 85/136th Avenue intersection and underneath US 85 and 136th Avenue Second Creek (impaired stream)



Intersection	Recommended Alternatives	Impacts
Bromley Lane	SPUI	Alternative would impact the Fulton Lateral Ditch located east of the US 85/Bromley Lane intersection.
168 th Avenue/WCR 2	SPUI	Alternative would impact: <ul style="list-style-type: none"> Wetlands west of US 85 Fulton Lateral Ditch located east of the US 85/168th Avenue An unnamed ditch west of the intersection
Fort Lupton		
WCR 6	Partial Cloverleaf	Alternative would impact: <ul style="list-style-type: none"> Wetlands west of US 85 Fulton Lateral Ditch located east of US 85 that extends underneath WCR 6
WCR 8	Interchange/Grade Separation	Alternative would impact the South Platte River west of US 85.
Weld County		
WCR 18	SPUI	Alternative would impact: <ul style="list-style-type: none"> Wetlands at the northwest quadrant of the US 85/WCR 18 intersection The Platteville Ditch located at the northeast, southwest, and northwest quadrants that extends underneath US 85 and WCR 18 Unnamed ditch that extends east to west along WCR 18
WCR 28	SPUI	Alternative would impact: <ul style="list-style-type: none"> Wetlands east of US 85 and Platteville and Platte Valley ditches located east of US 85
Platteville		
SH 66	Channelized-T with SB Grade Separation	Alternative could impact wetlands west of US 85, depending on the western extents of the project.
Peckham		
WCR 44	Realigned Frontage Road Traffic Signal	Alternative would impact Western Mutual Ditch, which extends underneath WCR 44.
LaSalle		
SH 394	Couplet Intersection	Alternative would impact: <ul style="list-style-type: none"> Wetlands at the southeast, southwest, and northwest quadrants of the US 85/SH 394 intersection A ditch that extends underneath US 85 south of the US 85/SH 394 intersection

Intersection	Recommended Alternatives	Impacts
Greeley		
8 th Street	Texas Turnaround	Alternative would impact: <ul style="list-style-type: none"> Wetlands at the southeast, southwest, and northwest quadrants of the US 85/8th Street intersection Cache la Poudre River

Notes:

DDI = Diverging Diamond Interchange

I-76 = Interstate 76

SB = Southbound

SH = State Highway

SPUI = Single Point Urban Interchange

WCR = Weld County Road

4.7.1 Cumulative Impacts

Before land cultivation for agriculture, the natural ecosystem was largely unaffected by human activity. Agricultural development and urbanization have an impact on wetlands and surface waters. Cumulative impacts on wetlands and surface waters primarily result from development already planned in the regional study area. Development often results in the conversion of natural landscapes to impervious surfaces, such as parking lots, roads, and rooftops. Water runs off these impervious surfaces, often carrying pollutants directly into water bodies instead of allowing the natural filtering of pollutants through the soil. Impacts include species loss, oxygen depletion, lower groundwater levels, increased peak flows, and flooding. Impacts associated with additional impervious surface area are typically mitigated through the implementation of best management practices (BMPs), such as the installation of permanent water quality ponds.

Implementation of the Recommended Alternatives could occur with future development along US 85, consistent with future land use planning efforts, and would result in additional impervious surfaces as a result of highway widening and interchanges. Future impacts on surface waters could arise from maintenance activities, such as snow plowing, sanding, and deicing. The additional impervious surface area would contribute minimally to surface water impacts when compared to what is expected from planned development. These impacts on surface waters would be reduced by implementing maintenance programs and BMPs in both construction and design.

Based on information identified during the US 85 PEL process for wetlands and surface waters, it is not anticipated that the Recommended Alternatives would contribute substantially to cumulative impacts when combined with other past, present, and reasonably foreseeable projects.

4.7.2 Next Steps and Proposed Mitigation Strategies

For projects that could impact WUS, wetland delineations will need to be completed. Should impacts be expected to exceed 0.1 acre, a Wetland Finding Report will be required. Use of CDOT's Functional Assessment of Colorado Wetlands (FACWet) will also be required as a part of projects exceeding this threshold. Impacts to WUS, including wetlands, will be permitted under a United States Army Corps of Engineers (USACE) Section 404 Nationwide or Individual permit, depending on project size and scope. Regardless of jurisdiction, CDOT requires a one-to-one mitigation of WUS impacts, which may be accomplished on-site or by purchasing credits at a wetland mitigation bank.

Construction projects that disturb one acre or greater or are part of a larger common plan of development within the CDOT or municipal MS4 permit area require a Colorado Discharge Permit System (CDPS) Construction Stormwater Permit from the Colorado Department of Public Health and Environment (CDPHE) Water Quality Control Division (WQCD) and a Stormwater Management Plan (SWMP). The SWMP is prepared in the final design phase of a project submitting the CDPS construction permit application to the WQCD at least 30 days before construction.

4.8 *Wildlife/Threatened and Endangered Species*

In general, most of the study area is within a rural agricultural setting, with a mix of industrial, commercial, agricultural, and residential development within the towns and cities along the US 85 corridor. The highly developed and modified nature of the study area provides minimal natural habitats. As a result, much of the wildlife habitats within the study area are associated with the South Platte River and the Cache la Poudre River riparian corridors and their tributaries, located in the southern and central portions of the study area.

Special status species with the potential to occur in the study area are limited to Bald Eagles, black-tailed prairie dogs (BTPD), Western Burrowing Owls, and Preble's meadow jumping mouse. The South Platte River and the Cache la Poudre River riparian areas also provide suitable habitat for the Colorado butterfly plant and Ute ladies'-tresses orchid.

Applicable federal and state regulations or policies protecting special status species include:

- ▶ United States Endangered Species Act (ESA)
- ▶ The Colorado Non-game, Endangered, and Threatened Species Conservation Act
- ▶ CDOT 2009 Impacted Black-tailed Prairie Dog Policy
- ▶ Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act
- ▶ Colorado Senate Bill 40 (SB 40)
- ▶ Colorado Department of Agriculture Noxious Weed Act of 2003

The MBTA places seasonal restrictions on construction activities during nesting season for occupied nests. SB 40 resources include the waterways and riparian areas, as well as ditches and irrigation canals. Noxious weeds that modify habitats can be found throughout the study area and are more prevalent in previously disturbed areas.

4.8.1 **Direct/Indirect Impacts**

Table 4.6 identifies the locations of wildlife/threatened and endangered species that have a higher probability of impact based on the Recommended Alternatives.

**Table 4.6 Wildlife/Threatened and Endangered Species
Direct/Indirect Impacts**

Intersection	Recommended Alternatives	Impacts
Commerce City		
104 th Avenue	Split Diamond (with I-76)	Alternatives could impact BTPD habitat at the southwest quadrant of the US 85/104 th Avenue intersection and potentially impact Burrowing Owls that could use BTPD habitat for nesting.
	SPUI with Flyover	
	DDI	
	Partial Cloverleaf	
112 th Avenue	SPUI	Alternatives could impact BTPD habitat at the southwest quadrant of the US 85/104 th Avenue intersection and potentially impact Burrowing Owls that could use BTPD habitat for nesting.
	Skewed SPUI	
120 th Avenue	Tight Diamond	Alternatives could impact BTPD habitat at the northwest quadrant of the US 85/120 th Avenue intersection and at the southwest and northwest quadrants of the US 85/124 th Avenue intersection. Alternatives would potentially impact Burrowing Owls that could use BTPD habitat for nesting. Alternatives would impact a small narrow fringe of riparian habitat at the southwest quadrant of the US 85/120 th Avenue intersection, which could provide nesting opportunities for migratory birds.
	DDI	
Brighton		
124 th Avenue	Closure	Alternative would likely avoid or minimize impacts to BTPD habitat in the southwest and northwest quadrants of the US 85/124 th Avenue intersection, as well as to Burrowing Owls that could use BTPD habitat for nesting.
144 th Avenue	Closure	Alternative would likely avoid impacts to BTPD habitat in the southeast quadrant of the US 85/144 th Avenue intersection, as well as to Burrowing Owls that could use BTPD habitat for nesting.
Bromley Lane	SPUI	Alternative could impact BTPD habitat in the southeast quadrant between US 85 and the railroad, as well as potentially impact Burrowing Owls that could use BTPD habitat for nesting.
168 th Avenue/WCR 2	SPUI	Alternative would have the potential to avoid or minimize impacts to riparian habitat along the South Platte River to the west of US 85, which provides potential habitat for sensitive species, including nesting opportunities for migratory birds.



Intersection	Recommended Alternatives	Impacts
Fort Lupton		
WCR 6	Partial Cloverleaf	Alternative would impact riparian habitat with nesting opportunities for migratory birds at the South Platte River crossing, west of US 85, and potentially impact BTPD habitat in the northwest quadrant, as well as Burrowing Owls that could use BTPD habitat for nesting.
WCR 8	Interchange/ Grade Separation/Hook Ramps	Alternative would impact riparian habitat with nesting opportunities for migratory birds, including raptors, at the South Platte River crossing, west of US 85, and potentially impact BTPD habitat in the southwest quadrant, as well as Burrowing Owls that could use BTPD habitat for nesting.
SH 52	Intersection Improvements/Pedestrian Improvements	Alternative would avoid impacts to riparian habitat along the South Platte River to the west of US 85, as well as potential habitat for sensitive species, including migratory birds.
WCR 14.5/14 th Street	Junior Interchange	Alternative would avoid impacts to riparian habitat along the South Platte River west of US 85.
WCR 16	RI/RO	Alternative would avoid impacts to riparian habitat along the South Platte River to the west of US 85, as well as potential habitat for sensitive species, including migratory birds.
Weld County		
WCR 18	SPUI	Alternative would potentially avoid impacts to riparian areas and migratory bird habitat along the South Platte River west of US 85.
WCR 20	RI/RO	Alternative would avoid impacts to riparian habitat along the South Platte River and Platte Valley Ditch.
WCR 22	Diamond	Alternative would have the potential to avoid impacts to riparian areas and migratory bird habitat along the South Platte River and Platte Valley Ditch west of US 85.
WCR 28	SPUI	Alternative would impact riparian habitat at the northwest quadrant, along an old oxbow of the South Platte River that provides potential habitat for sensitive species, including nesting opportunities for migratory birds.
Platteville		
SH 66	Channelized-T with SB Grade Separation	Alternative would avoid impacts to riparian habitat along the South Platte River to the west of US 85, as well as potential habitat for sensitive species, including migratory birds, due to the predominantly developed setting.

Intersection	Recommended Alternatives	Impacts
LaSalle		
SH 394	Couplet Intersection	<p>Alternative would impact BTPD habitat in the southwest quadrant and potentially impact Burrowing Owls that could use BTPD habitat for nesting.</p> <p>Alternative would have the potential to minimize impacts to riparian habitat along the South Platte River, which provides potential habitat for sensitive species, including nesting opportunities for migratory birds, due to the mixed use setting.</p>
Greeley		
8 th Street	Texas Turnaround	Alternative would impact riparian habitat along the Cache la Poudre River, which provides potential habitat for sensitive species, including nesting opportunities for migratory birds.
5 th Street	Texas Turnaround	<p>Alternative would impact BTPD habitat in the southwest quadrant and potentially impact Burrowing Owls that could use BTPD habitat for nesting.</p> <p>Alternative would impact riparian habitat associated with the Cache la Poudre River to the west that provides potential habitat for sensitive species, including nesting opportunities for migratory birds.</p>
Nunn		
CR 98	Closure (East Side Only)	Alternative would have minor impacts on BTPD habitat in the northwest quadrant and potentially impact Burrowing Owls that could use BTPD habitat for nesting.
CR 100	Traffic Signal	Alternative would have the potential to avoid impacts to BTPD habitat in the southwest quadrant and to potentially impact Burrowing Owls that could use BTPD habitat for nesting, due to localized improvement within the existing infrastructure.

Notes:

BTPD = black tailed prairie dog

I-76 = Interstate 76

SB 40 = Senate Bill 40

WCR = Weld County Road

CR = County Road

RI/RO = Right-in/Right-out

SH = State Highway

DDI = Diverging Diamond Interchange

SB = Southbound

SPUI = Single Point Urban Interchange

4.8.2 Cumulative Impacts

Past actions affecting wildlife distribution and movement corridors in the US 85 PEL study area include commercial, industrial, residential, and agricultural development, as well as road construction. These activities have directly displaced wildlife habitat, increased habitat fragmentation, and altered wildlife movements.

Land uses that provide habitat for wildlife include agriculture, open space, parks, surface water areas, and vacant lands. Residential and commercial land uses are less likely to provide habitat for wildlife because they are more developed. Lands protected or enhanced for wildlife would help to offset some of the impacts of overall habitat loss.

General wildlife habitat in the US 85 PEL study area would be expected to decline with highway expansion, continued residential and commercial development, and the decrease of open lands used for agriculture. Residential and commercial development will also contribute to habitat fragmentation and further reduce open areas used as movement corridors by wildlife.

Planned transportation and development actions could contribute to further loss and degradation of wildlife habitat within the US 85 PEL study area. Losses would occur regardless of whether the Recommended Alternatives are implemented, resulting in cumulative impacts on wildlife, wildlife habitat, and other biological resources in the US 85 PEL study area.

Based on information identified during the US 85 PEL process for wildlife distribution and movement corridors, the Recommended Alternatives are not anticipated to substantially contribute to cumulative impacts when combined with other past, present, and reasonably foreseeable projects.

4.8.3 Next Steps and Proposed Mitigation Strategies

Habitat suitability assessments will be required for special-status species in proximity to Recommended Alternatives project sites. Mapping of SB 40 resources will be required within project footprints, and the appropriate level of certification will need to be determined. Mapping of noxious weeds will also be required. Impacts will need to be avoided, minimized, and mitigated. CDOT has proven approaches, outlined in their specifications, that will apply to construction timing for migratory birds and the management of noxious weeds, which may necessitate the development of an Integrated Noxious Weed Management Plan.

4.9 Hazardous Materials

Hazardous materials (hazmat) include substances or materials that Environmental Protection Agency (EPA) has determined to be capable of posing an unreasonable risk to health, safety, or property. Hazardous materials exist within the study area at facilities that generate, store, or dispose of these substances, or at locations of past releases of these substances. Hazardous materials include asbestos, lead-based paint, heavy metals, dry-cleaning solvents, and petroleum hydrocarbons (e.g., gasoline and diesel fuels), all of which could be harmful to human health and the environment.

The study area has a mix of industrial, commercial, agricultural, and residential development. The northern part of the study area has the least density of commercial and industrial development; however, hazmat facilities are dispersed throughout the entire study area and are generally centered on the urban centers. US 85 is also a designated hazmat route north of Brighton; there is the potential for past spills to have contaminated portions of the study area.

4.9.1 Direct/Indirect Impacts

Table 4.7 identifies the locations of hazardous materials that have a higher probability of impact based on the Recommended Alternatives.

Table 4.7 Hazardous Materials Direct/Indirect Impacts

Intersection	Recommended Alternatives	Impacts
Commerce City		
104 th Avenue	Split Diamond (with I-76)	Alternative would impact hazmat sites east of US 85.
	SPUI with Flyover	Alternative would impact hazmat sites east of US 85.
120 th Avenue	Tight Diamond	Alternative would impact hazmat facilities at the northeast quadrant of the US 85/120 th Avenue intersection.
Brighton		
124 th Avenue	Closure	Alternative would impact hazmat sites east of US 85.
136 th Avenue	SPUI	Alternative would impact hazmat sites west of US 85.
Bromley Lane	SPUI	Alternative would impact hazmat facilities at all four quadrants of the US 85/Bromley Lane interchange.
Bridge Street/SH 7	Intersection Improvements/ Bus Slip Ramps to Station	Alternative would impact hazmat facilities at all four quadrants of the US 85/Bridge Street interchange.
Denver Street	Closure	Alternative would impact a hazmat facility at the northeast quadrant of the US 85/Denver Street intersection.
168 th Avenue/WCR 2	SPUI	Alternative would impact hazmat facilities at all four quadrants of the US 85/168 th Avenue intersection.
Fort Lupton		
WCR 6	Partial Cloverleaf	Alternative would impact hazmat facilities south of WCR 6 and at the northeast quadrant.
SH 52	Intersection Improvements/ Pedestrian Improvements	Alternative would impact hazmat facilities east of the US 85/SH 52 intersection.
WCR 14.5/14 th Street	Junior Interchange	Alternative would impact hazmat facilities at the northeast, southeast, and southwest quadrants of the US 85/WCR 14.5 intersection.
WCR 16	RI/RO	Alternative would impact hazmat facilities at the southeast quadrant of the US 85/WCR 16 intersection.
Weld County		
WCR 18	SPUI	Alternative would impact hazmat facilities east of the US 85/WCR 18 intersection.
Platteville		
SH 66	Channelized-T with SB Grade Separation	Alternative would impact hazmat facilities west of US 85.
WCR 32/Grand Ave	Traffic Signal	Alternative would impact hazmat facilities north of WCR 32.
SH 60	Diamond	Alternative would impact hazmat facility at the northwest quadrant of the US 85/SH 60 intersection.



Intersection	Recommended Alternatives	Impacts
Gilcrest		
Elm Street	¾ Access	Alternative would impact a hazmat facility at the northwest quadrant of the intersection.
Main Street	Channelized-T	Alternative would impact hazmat facilities east of US 85.
WCR 44	Traffic Signal	Alternative would impact hazmat facilities at southeast, southwest, and northwest quadrants of the US 85/ WCR 44 intersection.
LaSalle		
1 st Avenue	Traffic Signal	Alternative would impact hazmat facilities at the northeast, southeast, and southwest quadrants of the US 85/ 1 st Avenue intersection.
2 nd Avenue	RI/RO	Alternative would impact hazmat facilities at the northwest quadrant of the US 85/2 nd Avenue intersection.
5 th Avenue	Channelized-T, with RI/RO (West Side)	Alternative would impact hazmat facilities at the northwest quadrant of the US 85/5 th Avenue intersection.
Evans		
42 nd Street	Traffic Signal	Alternative would impact a hazmat facility at the southwest quadrant of the US 85/42 nd Street intersection.
37 th Street	Traffic Signal	Alternative would impact a hazmat facility at the northwest quadrant of the US 85/37 th Street intersection.
31 st Street	Traffic Signal	Alternative would impact hazmat facilities east of US 85.
Greeley		
22 nd Street	Texas Turnaround	Alternative would impact hazmat facilities west of US 85.
18 th Street	Texas Turnaround	Alternative would impact hazmat facilities at all four quadrants of the US 85/18 th Street intersection.
16 th Street	Texas Turnaround	Alternative would impact hazmat facilities at all four quadrants of the US 85/16 th Street intersection.
13 th Street	Texas Turnaround	Alternative would impact hazmat facilities at the southwest and southeast quadrant of the intersection.
8 th Street	Texas Turnaround	Alternative would impact at hazmat facility at the northwest quadrant of the US 85/8 th Street intersection.
5 th Street	Texas Turnaround	Alternative would impact hazmat facilities at all four quadrants of the US 85/5 th Street intersection.
Eaton		
5 th Street	Traffic Signal	Alternative would impact hazmat facilities west of US 85.

Notes:

CR = County Road
SB = Southbound

I-76 = Interstate 76
SPUI = Single Point Urban Interchange

RI/RO = Right-in/Right-out
WCR = Weld County Road

4.9.2 Cumulative Impacts

Based on the near-term planned development, it is expected that the general pattern of urbanization will continue along the US 85 corridor and more agricultural land will be converted for commercial and residential uses, which will include hazmat facilities. This pattern of growth is expected to occur regardless of whether the improvements considered in the US 85 PEL study are implemented.

The construction of the Recommended Alternatives will not contribute noticeably to cumulative hazmat impacts in comparison to what is already anticipated through land development projects and other roadway improvements. CDOT has policies and mandates to remediate contaminated areas acquired for transportation purposes that could contribute to cleaning up certain areas. Providing safer facilities could also reduce future spills due to crashes or operational issues.

4.9.3 Next Steps and Proposed Mitigation Strategies

Hazardous materials could be encountered during ground-disturbing activities during implementation of the Recommended Alternatives. Avoidance of hazardous materials or contaminated sites is a primary goal but often not feasible. During project planning, a Modified Phase I Environmental Site Assessment or CDOT Initial Site Assessment should be conducted to determine the potential to encounter hazardous materials and develop an appropriate Materials Management Plan, if applicable.

4.10 Other Resources

Several resources were not addressed at this preliminary planning stage as this study focused on those that have regulatory requirements in addition to NEPA (for example, the Endangered Species Act, National Historic Preservation Act) and those that are known to be of interest to stakeholders, such as noise. The following subsections discuss resources not examined in this study that may need to be addressed during the NEPA process, which will be initiated once discrete projects and funding have been identified.

4.10.1 Air Quality

The Clean Air Act of 1970 (CAA) and its subsequent amendments regulate emissions through National Ambient Air Quality Standards (NAAQS) for criteria air pollutants and the Hazardous Air Pollutants (HAP) program, which includes Mobile Source Air Toxics (MSATs). Specific requirements are placed on the transportation planning process in air quality nonattainment areas that do not meet the NAAQS emissions limits and in areas that have been reclassified from nonattainment to attainment/maintenance areas. For transportation projects, the primary pollutants of concern are those associated with vehicle emissions, road dust, and secondary pollutants formed as a result of direct emissions. There are also issues related to road construction that are temporary impacts. Most of the study area is within the Denver Metropolitan nonattainment area for eight-hour ozone.

Projects deemed regionally significant need to be in conformity with the Regional Transportation Plan and Transportation Implementation Plan, which are fiscally constrained, before a NEPA decision document can be signed. Local conformity also needs to be assessed by determining whether projected, future traffic conditions could cause an exceedance of NAAQS.

Project-level conformity for specific projects may require a hot-spot analysis (for carbon monoxide) for intersection(s) with a LOS D or worse and are in a non-attainment or attainment/maintenance area.

4.10.2 Environmental Justice

In accordance with Council on Environmental Quality (CEQ) guidance, Environmental Justice (EJ) populations occur where either:

- ▶ *The minority or low-income population of the affected area exceeds 50%.*
- ▶ *The population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographical analysis.*

EJ populations are likely within the study area. During site-specific projects, CDOT procedures for identifying EJ populations should be followed. The potential for disproportionately high or adverse impacts to be borne by EJ populations when compared to the non-EJ populations will need to be determined. Additionally, the opportunity for EJ populations to participate fully in the decision-making process must be provided. The denial, reduction, or delay of receipt of benefits by minority and low-income populations cannot occur.

4.10.3 Archaeological Resources

Archaeological resources must be addressed during the planning and implementation of transportation projects with a federal nexus, such as funding, in accordance with the Prehistorical and Archaeological Resources Act of 1973 and National Historic Preservation Act of 1966. An archaeological survey in compliance with Section 106 should be conducted to determine if there are potential archaeological resources in the study area. Archaeological resources potentially impacted during construction will need to be evaluated and appropriate avoidance and mitigation measures put in place if impacts are anticipated.

4.10.4 Paleontological Resources

Paleontological resources must be addressed during the planning and implementation of transportation projects with a federal nexus, such as funding, in accordance with the Prehistorical and Archaeological Resources Act of 1973. A paleontological survey should be conducted to determine if there are potential sensitive geologic units in site-specific study areas. If geologic units are likely to contain paleontological resources, the potential for impact during construction will need to be evaluated and appropriate avoidance and mitigation measures put in place if impacts are anticipated.

4.10.5 Prime and Unique Farmland

Prime and unique farmlands are protected under the Farmland Protection Policy Act, administered by the US Department of Agriculture - Natural Resources Conservation Service. Impacts to prime and unique farmlands need to be evaluated when the impacted area is in use or designated as a farmland. Areas with prime and unique soils that are developed or slated for development do not need to be evaluated.

Most anticipated impacted areas are within transportation ROW or in developed areas. However, there are areas that may be impacted outside ROW that are in use as farmlands, particularly in the less developed parts of the study area in the north. For projects impacting farmlands, Form AD-1006 will need to be completed; this form results in a rating based on the severity of impact. Scores of 160 or more require submittal to the Natural Resources Conservation Service.

4.10.6 Social Resources

Social resources span a wide range of resources used by a community and often affect the quality of life for people. Issues such as community cohesion and values, as well as public services and facilities, should be considered in the refinement of the Recommended Alternatives. Evaluations are often qualitative and based on readily available data, such as community plans, but also stakeholder input. There may be opportunities to enhance or complement social resources with improved access, safety, or multimodal connectivity.

During substantial site-specific projects (EAs or EISs), social resources in the study area will need to be identified and assessed for potential impacts, both positive and negative. Smaller projects often do not require a social analysis unless there is a sensitive resource that could be affected.

4.10.7 Economic Resources

Economic studies are required when projects could have an impact on the economic profile of a community. Economic impacts specific to property or business owners may also be associated with the acquisition of ROW. Economic impacts may also be positive and could result from improved access, mobility, and safety. Transportation improvements may support the goals of local agencies in regard to economic vitality and growth.

During substantial site-specific projects (EAs or EISs), economic resources in the study area will need to be identified and assessed for potential impacts, both positive and negative. Smaller projects often do not require an economic analysis unless a sensitive resource could be affected.

4.10.8 Land Use

The compatibility of discrete projects with current and future land uses and zoning will need to be evaluated on a project-by-project basis. Local municipalities and counties have approved land use plans that will need to be obtained and reviewed for larger projects. Local land use plans have been reviewed as part of the US 85 PEL project. These plans have been utilized to determine consistency with the Recommended Alternatives CatExs usually do not examine land use unless there is a protected use (i.e., park land). Of particular interest is whether a transportation project could have the indirect effect of influencing land use by changes in density or use patterns. Agencies managing local land use can address potential impacts through zoning and their land use plans. The Recommended Alternatives have been thoroughly vetted with local agencies; coordination during site-specific projects should build on these efforts.

5.0 AGENCY COORDINATION AND PUBLIC INVOLVEMENT

FHWA and CDOT committed to involving federal, state, and local agencies and the public throughout the US 85 PEL process. This includes the involvement of federal, state, and local government representatives; regional transportation planning entities; railroad operators; community groups; businesses; property owners; and residents.

This project built on the agency coordination and public involvement previously conducted along the corridor and for other major transportation studies in the project area. The foundation for the US 85 PEL coordination and outreach was the US 85 Access Control Plan (1999), which resulted in an Inter-Governmental Agreement (IGA) among CDOT and 16 local agencies from I-76 to WCR 80. Many agencies continue to meet as a part of the Highway 85 Coalition. The Highway 85 Coalition recognizes the value of US 85 as a regional transportation corridor and as a backbone to northern Colorado. The Coalition, formed in 2009, meets monthly to discuss ongoing efforts related to the corridor.

Desired outcomes of the coordination and outreach effort included:

- ▶ Stakeholder input contributing to the PEL study's information base, findings, and recommendations;
- ▶ Stakeholders that are well-informed about the study;
- ▶ Meaningful input by the Technical Advisory Committee (TAC), Executive Committee (EC), and the public to help CDOT make sound and publicly supported decisions;
- ▶ An understanding and documentation about what decisions were made during the study and the rationale for them; and
- ▶ An understanding about how the PEL study will move forward and how stakeholders will be involved.

5.1 Agency Coordination

The Project Team prepared an Agency Coordination and Public Outreach Plan for the US 85 PEL study at the beginning of the study. This plan set forth the public involvement process for the US 85 PEL study and described the agency coordination and public outreach intent, initiatives, responsibilities, and tasks to be carried out as part of the study. The plan defined the various roles, responsibilities, issues, and guidelines for a successful outreach effort. The plan also described how CDOT would provide multiple opportunities for public involvement during the PEL study to inform its decision making. It identified specific public involvement activities and established time frames for them to be carried out. **Appendix F** contains the information presented and summaries of the various agency coordination meetings throughout the US 85 PEL.

5.1.1 Technical Advisory Committee

CDOT worked closely with the corridor's local communities and other agencies throughout the study process. Coordination largely occurred through the TAC, which was made up of technical staff from the following agencies:

- | | |
|-------------------------|-----------------------|
| ▶ Adams County | ▶ Town of Ault |
| ▶ City of Brighton | ▶ Town of Eaton |
| ▶ City of Commerce City | ▶ Town of Garden City |
| ▶ City of Evans | ▶ Town of Gilcrest |
| ▶ City of Fort Lupton | ▶ Town of LaSalle |



- ▶ City of Greeley
- ▶ DRCOG
- ▶ FHWA
- ▶ NFRMPO
- ▶ Town of Nunn
- ▶ Town of Pierce
- ▶ Town of Platteville
- ▶ Weld County

The TAC assisted in the PEL study process and served as a sounding board for the technical aspects of the project. All project analyses, evaluations, and recommendations were vetted through the TAC before being presented to the public, elected officials, or before being posted on the project website. TAC members also kept their respective organizations, community groups, and elected officials updated on the study's progress and findings.

Technical Advisory Committee Meetings

The Project Team met with the TAC frequently throughout the study. **Table 5.1** identifies the meeting dates and major topics.

Table 5.1 Technical Advisory Committee Meetings

Meeting Date	Topic Discussed
March 11, 2014	<ul style="list-style-type: none"> ▪ TAC Role ▪ Public Involvement Plan Input ▪ Data collection Update ▪ Visioning Workshop Effort ▪ Schedule
April 8, 2014	<ul style="list-style-type: none"> ▪ Inventory Update ▪ No Action Projects ▪ Travel Demand Forecasts ▪ Summary of Stakeholder Interviews ▪ Preliminary Discussion on Purpose and Need
May 20, 2014	<ul style="list-style-type: none"> ▪ Visioning Workshop Recap ▪ Inventory and Analysis ▪ Purpose and Need ▪ June Public Meetings
June 4, 2014	An update was emailed with materials for review, including the TAC #3 meeting notes, a draft Purpose and Need, and the June public meeting flyer
August 12, 2014	<ul style="list-style-type: none"> ▪ Public Meetings Summary ▪ Refined Purpose and Need ▪ Corridor Segmentation ▪ Alternatives Screening Process and List of Alternatives ▪ Preliminary Level 1 Screening Results ▪ Level 2A Screening Criteria
October 17, 2014	An update was emailed with materials for review, including revised Purpose and Need with the Railroad Proximity addition, revised Level 1 screening with Railroad Proximity, and revisions based on FHWA comments, Level 2 screening process graphic, Level 2A screening description and preliminary results

Meeting Date	Topic Discussed
November 18, 2014	<ul style="list-style-type: none"> Revised Purpose and Need Overall Screening Process Revised Level 1 Screening Results Level 2A Screening Review and Discussion Level 2B Screening Methodology and Results
April 2015 (Held as four sectional TAC meetings)	<ul style="list-style-type: none"> Level 3 Alternatives Development
December 2015 (Held as four sectional TAC meetings)	<ul style="list-style-type: none"> Level 4 Alternative Refinement and Recommendations Prioritization

5.1.2 Executive Committee

The Project Team worked closely with the corridor's elected officials throughout the study process. One or two elected officials from each community and county along the corridor made up this committee. The EC provided policy-level guidance on the study. This group met at key milestones and decision points in the project when the Project Team needed input and concurrence of the elected officials to proceed.

Executive Committee Meetings

The Project Team met with the EC four times during the study. The EC usually met during the existing time slot for the US 85 Coalition meetings, the second Thursday of the month at 6:30 p.m., with the inclusion of Adams County and Commerce City. **Table 5.2** identifies meeting dates and major topics.

Table 5.2 Executive Committee Meetings

Meeting Date	Topic Discussed
September 11, 2014	<ul style="list-style-type: none"> Visioning Workshop Recap Public Meetings Summary Existing and Projected Corridor Conditions Purpose and Need Alternatives and Screening
December 11, 2014	<ul style="list-style-type: none"> Revised Purpose and Need Alternative Screening Process Level 2 Screening Results
June 11, 2015	<ul style="list-style-type: none"> Review of Last Meeting (Level 2 Screening Results) Progress Update Initial Improvement Options Overview (Level 3, 4, and 5 Screening)
February 11, 2016	<ul style="list-style-type: none"> Progress Update Recommended Improvements Prioritization



TAC and EC Work Sessions

In addition to TAC and EC meetings, representatives from the Project Team met with local agencies on a one-on-one basis from May to September 2015 to discuss the proposed improvements and solutions. The work session format allowed the Project Team to focus on each community individually and to discuss the improvements in detail at every location along the corridor. These work sessions were key to establishing consensus and advancing the project.

5.1.3 Resource Agency Scoping

NEPA requires that there be an early and open process for determining the scope of the issues to be addressed by a study. Resource agencies have specific technical expertise and regulatory oversight on various environmental issues and potential impacts associated with the project. This PEL study followed a similar scoping process to the NEPA scoping process. The Project Team invited various resource agencies to participate in a review of the *Corridor Conditions Report*. **Table 5.3** identifies the contacted agencies and any comments received from the resource agencies.

5.1.4 Union Pacific Railroad

CDOT representatives met regularly with the UPRR starting in June 2015. These meetings compared CDOT's future planning efforts with UPRR's future planning and operational efforts. Because the UPRR parallels the US 85 corridor (in some cases, the two facilities are less than 50 feet apart), it was critical that CDOT and UPRR coordinate their future planning efforts. CDOT anticipates to remain in close coordination with UPRR as improvements are made to the corridor.


Table 5.3 Resource Agency Correspondence Record

Agency Name	1st Outreach: Letter Notification of PEL	Agency Comments	2nd Outreach Letter Requesting Comment on CCR	Agency Comments	3rd Outreach Email Reminder of CCR	Agency Comments
CDPHE – Air Pollution Control Division	05/19/2014	No Comments	07/22/2015	Look forward to reviewing air quality impacts during NEPA process.	11/11/2015	Any future requests related to transportation can go to Paul Lee (paul.lee@state.co.us).
CDPHE – Hazardous Materials and Waste Management Division	05/19/2014	No Comments	07/22/2015	No Comments	11/11/2015	No Comments
CDPHE – Water Quality Control Division	05/19/2014	No Comments	07/22/2015	No Comments	11/11/2015	No Comments
CPW – Northwest Region Denver	05/20/2014	No Comments	07/22/2015	CCR has been forwarded to District Wildlife and Area Managers	11/11/2015	No Comments
US EPA Region 8	05/19/2014	No Comments	07/22/2015	No Comments	11/11/2015	Pg 5-20, l 54: It should read Quantity not Quality. Pg 5-20, l 86: Suggest adding water quality to this list. <i>(Comments addressed in final CCR.)</i>
Colorado Historical Society – SHPO	05/19/2014	No Comments	*07/22/2015	No Comments	11/11/2015	No Comments



Agency Name	1st Outreach: Letter Notification of PEL	Agency Comments	2nd Outreach Letter Requesting Comment on CCR	Agency Comments	3rd Outreach Email Reminder of CCR	Agency Comments
USACE - Denver Regulatory Office	05/20/2014	No Comments	07/22/2015	No Comments	11/11/2015	Notify this office (Corps of Engineers, Omaha District) if the proposed project falls within Section 404 of The Clean Water Act regulated activities because the project may require a Department of Army Section 404 Permit.
USFWS – Colorado Ecological Services Office	05/19/2014	No Comments	*07/22/2015	No Comments	11/11/2015	No Comments

* = Date submitted to CDOT for review and submittal to agency.

CCR = Corridor Conditions Report

CDOT = Colorado Department of Transportation

CDPHE – Colorado Department of Public Health and Environment

CPW = Colorado Parks and Wildlife

EPA = Environmental Protection Agency

NEPA = National Environmental Policy Act

PEL = Planning and Environmental Linkages

SHPO = State Historic Preservation Officer

USACE = United States Army Corps of Engineers

USFWS = United States Fish and Wildlife Service

5.2 Public Participation

The Project Team conducted varying public outreach activities based on the type of feedback desired and decisions that needed to be made. **Appendix G** includes all of the outreach meeting materials and summaries to document each activity. The following subsections describe the primary outreach activities and engagement platforms.

5.2.1 Stakeholder Interviews

At the start of the project, the Project Team conducted individual interviews with key stakeholders in February, March, and April 2014. All participating agencies were asked to describe US 85 and its role through their community and to identify their top concerns regarding travel along the corridor. All of the feedback received by the Project Team helped inform the development of the project's Purpose and Need, as well as the alternatives development and evaluation process.

5.2.2 Visioning Workshop

The Project Team conducted a Visioning Workshop with key stakeholders in May 2014. The purpose of the workshop was to understand the vision for the future US 85 corridor. Attendees participated in a series of activities to identify the corridor's role today, current problems, and potential solutions. Results from this visioning workshop informed the development of the project's Purpose and Need.

5.2.3 Website

CDOT hosted a dedicated website for the project to provide information about the study and to enable ongoing communication. The web page, <https://www.codot.gov/projects/us85pel>, explained what a PEL study is, how the PEL process works, and what happens after a PEL is complete. The web page also included information about the corridor, meeting announcements, and meeting materials. The web page provided contact information for project team members, which enabled the public to contact the Project Team with comments at any time.

5.2.4 Public Meetings

Public meetings were held in June 2014 and in March/April 2016. Both rounds of public meetings included three meetings at three separate locations. Approximately 100 people attended the public meetings.

The public meetings were advertised through CDOT's (and local agencies') website and newsletters, CDOT's social media accounts, a press release, posting of flyers in local communities (at the local agencies' discretion), email distribution, and automated calls to all land lines within 2 miles of the corridor.



The June 2014 meeting introduced the public to the study and existing corridor conditions. The Project Team distributed questionnaires asking the public to characterize the role of US 85 through their community, to identify their top concerns regarding travel on US 85, and to identify their expectations of the study. **Appendix G** includes meeting materials, a meeting summary, and the questionnaire summary.



At the 2016 meetings, the Project Team received input on the interim and ultimate proposed improvements, the prioritization process, and the project's next steps. The Project Team received feedback from attendees through one-on-one discussions, sticky notes on the community maps, and comment sheets. **Appendix G** includes meeting materials and a meeting summary.

5.2.5 Design Charrette

CDOT sponsored a design charrette as part of the study to specifically look at the US 34 and US 85 interchange complex, located between Greeley and Evans, adjacent to Garden City. The interchange currently has an atypical configuration and required special consideration by the large number of stakeholders given its importance to the US 85 corridor. Held January 14, 2016, the charrette was to set the stage for subsequent efforts in planning and designing the interchange complex by identifying the concerns and interests of affected stakeholders. The charrette was not necessarily intended to develop a final solution as much as to identify important issues contributing to a preferred solution. Results of the design charrette are included in **Section 3.3.1**.

6.0 NEXT STEPS

Section 6.0 presents the overall next steps required to fully implement the Recommended Alternatives Concept. In general, the Recommended Alternatives Concept, as presented in **Section 3.0**, cannot be constructed as one project; it will be required to be completed in individual smaller projects or phases. Regardless of the element that will be implemented, CDOT is required to follow specific steps and processes. This section outlines these requirements. The prioritization found in **Section 6.7** describes the various individual intersection locations based on the identified needs. Once these elements are identified for advancement, the following items will need to be followed.

6.1 Update to the US 85 Access Control Plan (ACP)

At the conclusion of the US 85 PEL study, all of the recommended improvements will be incorporated into the US 85 ACP. The US 85 ACP will continue to serve as the 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 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.

The inclusion of the entire US 85 PEL recommendations into the US 85 ACP can be accomplished via one amendment request. The entities that are a party to the US 85 ACP have been consistently included in the development of the US 85 PEL and are anticipated to provide support for the amendment to the US 85 ACP.

6.2 General NEPA Requirements

This PEL study provides a framework for the long-term implementation of the transportation improvements as funding becomes available and is to be used as a resource for future NEPA documentation. This PEL study has identified issues, as presented in **Section 4.0**, that will require additional evaluation in any future NEPA documentation.

Funding for the entire Recommended Alternatives Concept has not been identified at this time. However, the identification of a Recommended Alternatives Concept for the entire corridor in this PEL study is consistent with FHWA's objective of analyzing and selecting transportation solutions on a broad enough scale to provide meaningful analysis and avoid segmentation. During the PEL process, phasing the Recommended Alternatives Concept served as the basis for alternative development and allowed maximum flexibility for individual project implementation. It is anticipated that most improvements can be implemented at various locations as funding becomes available. Fiscal constraint requirements must be satisfied for FHWA and CDOT to approve further NEPA documentation. Before FHWA and CDOT can sign a final NEPA decision document (Record of Decision, Finding of No Significant Impact, or programmatic or non-programmatic CatEx), the proposed project, as defined in the NEPA document, must meet the following specific fiscal-constraint criteria (FHWA 2011):

- ▶ The proposed project or phases of the proposed project within the time horizon of the Regional Transportation Plan (RTP) must be included in the fiscally-constrained RTP, and other phase(s) of the project and associated costs beyond the RTP horizon must be referenced in the fiscally-unconstrained vision component of the RTP.
- ▶ The project or phase of the project must be in the fiscally-constrained Transportation Improvement Program (TIP), which includes:
 - At least one subsequent project phase, or the description of the next project phase (For project phases that are beyond the TIP years, the project must be in the fiscally-constrained RTP and the estimated total project cost must be described within the financial element of the RTP and/or applicable TIP).



- Federal-aid projects or project phases and state/locally funded, regionally significant projects that require a federal action.
- Full funding is reasonably available for the completion of all project phase(s) within the time period anticipated for completion of the project.

In cases where the entire corridor improvements are implemented in more than one phase/project, care must be taken to ensure that the transportation system operates acceptably at the conclusion of each phase/project. This is referred to as “independent utility”—the ability of each phase/project to operate on its own. It must also be demonstrated that air quality conformity will not be jeopardized. Any mitigation measures needed in response to project impacts must be implemented with the phase/project in which the impacts occur, rather than deferred to a later phase/project.

The establishment of smaller individual projects during NEPA for the Recommended Alternatives Concept is required to meet the following criteria:

- ▶ **Independent Utility/Logical Termini** – Each smaller individual project should have independent utility and logical termini to the extent that the smaller individual project provides a functional transportation system even in the absence of other phases or projects.
- ▶ **Elements of Purpose and Need** – Each smaller individual project should contribute to meeting the Purpose and Need for the entire corridor.
- ▶ **Environmental Impacts** – Individual smaller projects should avoid the introduction of substantial additional environmental impacts that cannot be mitigated.

Once funding is secured, the environmental planning process can be initiated. The environmental process will build on the environmental work, public outreach, and agency outreach conducted by this PEL study.

To carry out any or all of the recommendations from this PEL, CDOT has committed to applying NEPA. Resources likely impacted include property to be acquired for ROW, parks and recreation resources, historic resources, Section 4(f) resources, wetlands/WUS, floodplains, wildlife/threatened & endangered species, etc. (see **Section 4.0**). The NEPA processes that would be anticipated for any individual project would likely be either a CatEx or an EA.

CatExs are the most common NEPA document and are for actions that do not individually or cumulatively have a significant environmental impact, are excluded from the requirement to prepare an EA or an EIS, and do not have substantial public controversy. CatExs are defined in 23 CFR 771.117, meet the definition from the CEQ in 40 CFR 1508.4, and are based on the past experience with similar actions of FHWA.

An EA would be prepared and submitted through the successive review processes of CDOT Region 1 or Region 4, CDOT Environmental Programs Branch, and FHWA. The public would have 30 days to review and comment before FHWA makes its final decision. CDOT will consider use of a streamlined EA template for this project to accelerate the timeline for the environmental process, while still allowing appropriate agency coordination and public involvement.

If, at any point in the EA process, FHWA determines that the action would likely have a significant impact on the environment, that EA process would stop and the preparation of an EIS would be required.

If FHWA agrees the action would have no significant impacts on the environment, FHWA would prepare a Finding of No Significant Impact to serve as the decision document for the proposed action.

6.3 *Preservation/Acquisition of Property for Right-of-Way*

The limits of the existing ROW for the planned improvements will be determined from record information and field surveys. The preferred or final design alternatives will then be overlaid on the ROW base to determine impacts that will require additional ROW fee or easement acquisitions. When acquisitions are necessary, a title report is ordered and used to prepare property descriptions, exhibits, and ROW plans to support the acquisition process. Once these documents clearly define the impact, property appraisal is then ordered to determine the value of the property to be acquired. The acquisition process will commence after all of this information has been compiled. Typically, the timeframe between identification and transfer of ownership takes about 18 months to meet all of the requirements of the Uniform Relocation Act. However, it may be possible to obtain possession earlier based on project needs. In worst cases, if the property is rendered unusable or if it is a total take, relocation services may be necessary.

6.4 *RoadX*

CDOT has recently adopted a new technological program called RoadX. RoadX is Colorado's bold commitment to customers to be a national leader in using innovative technology to improve Colorado's transportation system. The RoadX Vision is to transform Colorado's transportation system into one of the safest and most reliable in the nation by harnessing emerging technology. The RoadX Mission is to partner with public and industry partners to make Colorado one of the most technologically advanced transportation systems in the nation and a leader in safety and reliability. The RoadX program will use a multi-pronged DO-IT (deployment, operations, innovation, technology) approach with the objective of being the most efficient, agile, and flexible system for bringing transportation technology to market. The RoadX program will implement several efforts along the DO-IT spectrum in 2016-18. CDOT plans to partner with private industry and others to deploy advanced technology to reduce the cost of transporting goods by 25 percent; to turn a rural state highway into a zero death road; and to improve congestion on Colorado's critical corridors.

As individual Recommended Alternatives Concept elements are advanced, RoadX elements should be considered for implementation.

6.5 *Scoping, Preliminary, and Final Engineering Design*

After project funding has been identified and the project is included in the TIP, a planning level estimate is prepared to determine how much funding is needed for each project phase: ROW, Utilities, Environmental, Design and Construction.

A project scoping meeting can be held before or after the selection of a project delivery method to establish the project objectives; to identify the design standards, funding sources and amounts, resources required to complete the project, and schedule; and to complete the preliminary survey request.

Once the project goals and constraints are defined, the delivery schedule, complexity, and innovation opportunities can be used to determine the appropriate project delivery method. These methods may include Design-Bid-Build (DBB), Design-Build (DB), and Construction Management/General Contractor (CM/GC). A risk assessment will be conducted given each delivery method's opportunities and obstacles. Once the delivery method is selected, the level of design, contractor selection process, and participation can be initiated.

If the project delivery method is DBB, after the design level survey is received, the preliminary design phase of the project begins. A conceptual level of engineering design (approximately 15 percent) was prepared for the Recommended Alternatives Concept elements (**Appendix C**) for the purposes of this PEL study. A Field Inspection Review (FIR) meeting is held to review the site conditions with 30 percent plans complete. The plans are reviewed with all of the specialty units, the local governments if

applicable, and representatives from the utility companies to identify the tasks needed to complete the project. The preliminary cost estimate is developed and compared to the available budget. Once the design is at the stage that the ROW limits can be identified, plans can be prepared and acquisition initiated. Final Design proceeds until the Plans, Specification and Estimate package is 95 percent complete. A Final Office Review (FOR) meeting is then conducted to complete the review process. Project funding is then obligated and authorized once all clearances are obtained and then the project is advertised for construction.

If the project delivery method is DB and if the owners can perform the design effort, the plans are developed to approximately the 30 percent level to be used to select a DB team of designers and contractors to complete the project. An engineering firm may be contracted to develop the 30 percent design plans. Factors used in the selection of the DB team include qualifications, duration, price, and innovation.

Finally, if the project delivery method is CM/GC, the agency contracts separately with a designer and a construction manager. The agency can perform design or contract with an engineering firm to provide a facility design. A contractor is selected to provide construction management input during the design process and to perform construction management services and construction work. The CM/GC contractor will negotiate with the agency for a mutually agreeable contract amount. If the CM/GC contractor and agency cannot reach a mutually agreeable negotiated contract amount or they choose not to negotiate, the project will be advertised for competitive bid.

6.6 Construction

Construction delivery options include DBB, DB, and CM/GC. CM/GC and DB typically provide shortened delivery times. These two delivery methods usually start the procurement process during the end stages of the environmental planning processes. The three delivery methods have different allocations of risk between the owner and contractor.

In the CM/GC process, CDOT contracts directly with the engineering consultant and, therefore, has more control over the design of the project, but also requires more robust coordination among CDOT, stakeholders, the engineer, and the contractor.

In the typical DB process, CDOT releases most of the risk to the contractor in designing the project but also establishes a stricter contracting process, leading to a longer procurement time. In DB, the engineering consultant is a member of the contractor's team.

6.7 Prioritization

Potential improvements were prioritized with respect to identifying areas of greatest need. The process involved rating needs in three distinct Purpose and Need categories: Mobility, Safety, and Railroad Proximity. Measures were developed for each intersection or area along the corridor within these three categories and used a rating scale of 1 to 5 to assess the need for improvement by category (with 5 representing the greatest need to 1 representing the least need).

6.7.1 Mobility Prioritization

For Mobility, scores were based on LOS calculations developed for current and future No Action AM and PM peak hour conditions. The measure reflects an average of these four peak hour LOSs. The various LOSs were given the following scores: LOS F = 5, LOS E = 4, LOS D = 3, LOS C = 2, and LOS A and LOS B = 1. This allowed the immediate need and future mobility needs to be combined into a single score to gauge the overall mobility need.

6.7.2 Safety Prioritization

To prioritize with respect to Safety, a rating score was developed from the accident frequency and the intersection accident rate. Both a frequency and rate were determined, converted into a score of 1 through 5, and then averaged. Crash severity was included in the scoring by converting all crashes to a property-damage-only (PDO) equivalent based on typical costs incurred to society. An injury crash was found to be equivalent to 8.7 PDO crashes in terms of overall costs, while a fatality accident is considered to be equivalent to 161.3 PDO crashes. This PDO-equivalent value was used to calculate frequency and rate, each then being given a score based on the following:

- ▶ Equivalent PDO Frequency:

- More than 15 crashes per year: **5**
- 10 to 15 crashes per year: **4**
- 5 to 10 crashes per year: **3**
- 2 to 5 crashes per year: **2**
- Less than or equal to 1 crash per year: **1**

- ▶ Equivalent PDO Crash Rate (crashes per million vehicles entering the intersection)

- 4 or more: **5**
- 3 to 4: **4**
- 2 to 3: **3**
- 1 to 2: **2**
- Less than or equal to 1: **1**

The final scores in the Safety category simply average the frequency and crash rate equivalent PDO scores.

6.7.3 Railroad Proximity Prioritization

Separating highway operations from railroad operations is the third Purpose and Need category in which an intersection location was scored. The Volume-to-Distance ratio previously described was used to prioritize locations with railroad and highway interaction. The Volume-to-Distance ratio provides a general sense of the interaction between railroad and highway operations; the higher the volume and the shorter the distance, the greater this ratio becomes.

The scale used in developing the measure includes:

- ▶ Greater than 30: **5**
- ▶ Between 20 and 30: **4**
- ▶ Between 10 and 20: **3**
- ▶ Between 5 and 10: **2**
- ▶ Less than 5: **1**

Generally, a location ratio of 10 or more is at risk for at least some interaction between highway and railroad operations. Any location in which the rail line is within 50 feet of the highway was automatically increased one point because this distance is not adequate to accommodate an oversized vehicle, regardless of volume. A score using existing daily traffic was averaged with that using a 2035 No Action daily traffic projection.

6.7.4 Prioritization Results

The following summarizes the prioritization results by Purpose and Need category and then by combination of all three categories. **Table 6.1** through **Table 6.4** summarize the results of the prioritization analysis.

Mobility

Table 6.1 shows the prioritization analysis results associated with Mobility criteria for the entire 62-mile corridor. The results show the top intersection mobility needs.

Table 6.1 Mobility Prioritization Analysis Results

Intersection	Mobility Prioritization Result
WCR 32 (Platteville)	4.5
31 st Street (Evans)	4.5
104 th Avenue (Commerce City)	4.25
112 th Avenue (Commerce City)	4.25
Bromley Lane (intersection recently improved) (Brighton)	4.25
120 th Avenue (Commerce City)	4.25
12 th Avenue (Brighton)	3.75
WCR 2 (Brighton)	3.5
SH 66 (Platteville)	3.5
WCR 14.5/14 th Street (Fort Lupton)	3.5
16 th Street (Greeley)	3.5

Safety

Table 6.2 shows the top intersection needs with respect to Safety.

Table 6.2 Safety Prioritization Analysis Results

Intersection	Safety Prioritization Result
104 th Avenue (Commerce City)	5
WCR 14.5/14 th Street (Fort Lupton)	5
37 th Street (Evans)	5
144 th Avenue (turn restrictions have since been implemented) (Brighton)	5
WCR 100 (turn lanes have recently been added) (Nunn)	5
Bromley Lane (intersection recently improved) (Brighton)	4.5
120 th Avenue (Commerce City)	4.5
WCR 18 (Weld County)	4.5
WCR 44 (Weld County)	4.5

Railroad Proximity

Table 6.3 presents the top intersection needs with respect to railroad interaction.

Table 6.3 Railroad Proximity Prioritization Analysis Results

Intersection	Railroad Proximity Prioritization Result
Bromley Lane (Brighton)	5
120 th Avenue (Commerce City)	5
SH 392 (Lucerne)	5
WCR 42 (Gilcrest)	4.5
SH 14 (Ault)	5
112 th Avenue (Commerce City)	5
WCR 66 (Greeley)	5
124 th Avenue (Brighton)	4.5
104 th Avenue (Commerce City)	4

Combined Factors

Several intersections are listed as top needs in each of the three categories, as shown in **Table 6.4**.

Table 6.4 Combined Factors Prioritization Results

Intersection	Combined Prioritization Result
Bromley Lane (Brighton)	13.75
104 th Avenue (Commerce City)	13.25
120 th Avenue (Commerce City)	13.25
124 th Avenue (Brighton)	12.25
WCR 32 (Platteville)	11.5
WCR 14.5/14 th Street (Fort Lupton)	11
37 th Street (Evans)	11
31 st Street (Evans)	11

Table 6.5 shows the final intersection prioritization scoring for each category. Also included in the table are the CDOT region, MPO, county, and municipality, which allows users to sort intersections or locations. Specifically, sorting could be conducted by one of the category scores by CDOT region, County, MPO, or municipality. This allows flexibility in sorting needs depending on the nature of available funding.


1 Table 6.5 US 85 Recommended Prioritization

Community	CDOT Region	MPO	County	Intersection	Signalized or Unsignalized	Overall LOS Rating	Overall Safety Rating	Overall RR Interaction Rating	Sum of Ratings
Commerce City	1	DRCOG	Adams	104 th Avenue	Signalized	4.25	5	4	13.25
	1	DRCOG	Adams	Longs Peak Drive	Unsignalized	1	2	0	3
	1	DRCOG	Adams	112 th Avenue	Signalized	4.25	1.5	5	10.75
	1	DRCOG	Adams	120 th Avenue	Signalized	3.75	4.5	5	13.25
Brighton	1	DRCOG	Adams	124 th Avenue	Signalized	3.75	4	4.5	12.25
	1	DRCOG	Adams	E-470	Interchange	0	0	0	0
	1	DRCOG	Adams	132 nd Avenue	Unsignalized	3	1	0	4
	1	DRCOG	Adams	136 th Avenue	Signalized	1.5	3.5	3.5	8.5
	1	DRCOG	Adams	144 th Avenue	Unsignalized	1.25	5	2	8.25
	1	DRCOG	Adams	Bromley Lane	Signalized	4.25	4.5	5	13.75
	1	DRCOG	Adams	Bridge Street NB	Roundabout	3	0	0	3
	1	DRCOG	Adams	Bridge Street SB	Roundabout	4.25	0	0	4.25
	1	DRCOG	Adams	Denver Street	Unsignalized	1.75	1.5	0	3.25
	4	DRCOG	Weld	WCR 2	Signalized	3.5	4	2	9.5
Weld County	4	DRCOG	Weld	WCR 4	Unsignalized	2	1.5	1	4.5
	4	DRCOG	Weld	WCR 6	Signalized	3	1.5	1	5.5
	4	DRCOG	Weld	WCR 6.5	Unsignalized	1	1	0	2



Community	CDOT Region	MPO	County	Intersection	Signalized or Unsignalized	Overall LOS Rating	Overall Safety Rating	Overall RR Interaction Rating	Sum of Ratings
Fort Lupton	4	DRCOG	Weld	WCR 8	Unsignalized	3.25	3	0	6.25
	4	UFR	Weld	WCR 10	Unsignalized	1.25	0	0	1.25
	4	UFR	Weld	SH 52 NB	Signalized	2	0	0	2
	4	UFR	Weld	SH 52 SB	Signalized	2.25	0	0	2.25
	4	UFR	Weld	WCR 14.5/14 th Street	Signalized	3.5	5	2.5	11
	4	UFR	Weld	WCR 16	Unsignalized	1.25	2.5	1.5	5.25
Weld County	4	UFR	Weld	WCR 16.5	Unsignalized	1.25	0	0	1.25
	4	UFR	Weld	WCR 18	Unsignalized	2.75	4.5	1.5	8.75
	4	UFR	Weld	WCR 18.5	Unsignalized	1.25	1.5	1	3.75
	4	UFR	Weld	WCR 20	Unsignalized	1.25	1	1	3.25
	4	UFR	Weld	WCR 22	Unsignalized	2	3	3.5	8.5
	4	UFR	Weld	WCR 22.5	Unsignalized	1.25	1	2	4.25
	4	UFR	Weld	WCR 24	Unsignalized	1.25	1	2	4.25
	4	UFR	Weld	WCR 24.5	Unsignalized	1.25	1	2	4.25
	4	UFR	Weld	WCR 26	Unsignalized	1.25	1	2.5	4.75
	4	UFR	Weld	WCR 28	Unsignalized	1.25	3	4.5	8.75
Platteville	4	UFR	Weld	WCR 30	Unsignalized	1.25	1	2.5	4.75
	4	UFR	Weld	SH 66	Signalized	3.5	3	0	6.5
	4	UFR	Weld	Marion Avenue	Unsignalized	1.5	1	0	2.5
	4	UFR	Weld	WCR 32	Signalized	4.5	4	3	11.5
	4	UFR	Weld	WCR 34	Unsignalized	1.25	1	1	3.25
	4	UFR	Weld	WCR 36	Unsignalized	1	1.5	2	4.5



Community	CDOT Region	MPO	County	Intersection	Signalized or Unsignalized	Overall LOS Rating	Overall Safety Rating	Overall RR Interaction Rating	Sum of Ratings
Weld County	4	UFR	Weld	SH 60	Unsignalized	3	1.5	0	4.5
	4	UFR	Weld	WCR 38	Unsignalized	1	1.5	2.5	5
	4	UFR	Weld	WCR 29/38.5	Unsignalized	1	1	2.5	4.5
Gilcrest	4	UFR	Weld	WCR 40	Unsignalized	1.25	1	1	3.25
	4	UFR	Weld	Elm Street	Unsignalized	1.25	0	0	1.25
	4	UFR	Weld	Main Street	Unsignalized	1.25	1.5	0	2.75
	4	UFR	Weld	WCR 31/Ash Street	Unsignalized	1.75	1.5	1	4.25
	4	UFR	Weld	WCR 42	Signalized	1.5	1.5	4.5	7.5
Weld County	4	UFR	Weld	WCR 33	Unsignalized	1	1	1	3
	4	UFR	Weld	WCR 44	Unsignalized	1	4.5	3.5	9
	4	UFR	Weld	WCR 46/WCR 35	Unsignalized	1	1.5	4	6.5
	4	NFR	Weld	WCR 48/WCR 37	Unsignalized	1	1	2.5	4.5
La Salle	4	NFR	Weld	1 st Avenue	Signalized	2	1.5	2.5	6
	4	NFR	Weld	2 nd Avenue	Unsignalized	1	1	0	2
	4	NFR	Weld	3 rd Avenue	Unsignalized	1	0.5	0	1.5
	4	NFR	Weld	4 th Avenue	Unsignalized	1	1	0	2
	4	NFR	Weld	5 th Avenue	Unsignalized	1	2	0	3
	4	NFR	Weld	SH 394	Unsignalized	1	2	2.5	5.5
Evans	4	NFR	Weld	42 nd Street	Signalized	2.75	3.5	3.5	9.75
	4	NFR	Weld	37 th Street	Signalized	3	5	3	11
	4	NFR	Weld	31 st Street	Signalized	4.5	4	2.5	11
	4	NFR	Weld	US 34 Interchange	Interchange	n/a	0	0	n/a



Community	CDOT Region	MPO	County	Intersection	Signalized or Unsignalized	Overall LOS Rating	Overall Safety Rating	Overall RR Interaction Rating	Sum of Ratings
Greeley	4	NFR	Weld	22 nd Street	Signalized	3.25	4	2.5	9.75
	4	NFR	Weld	18 th Street	Signalized	2.5	3.5	2	8
	4	NFR	Weld	16 th Street	Signalized	3.5	3.5	2	9
	4	NFR	Weld	13 th Street	Signalized	2	2	1.5	5.5
	4	NFR	Weld	8 th Street	Signalized	2.75	3	1	6.75
	4	NFR	Weld	5 th Street	Signalized	2.5	2.5	1	6
	4	NFR	Weld	O Street NB	Unsignalized	1	1.5	2.5	5
	4	NFR	Weld	O Street SB	Unsignalized	1	2.5	0	3.5
	4	NFR	Weld	WCR 66	Unsignalized	1	1.5	5	7.5
Lucerne	4	NFR	Weld	SH 392	Signalized	3	5	5	13
	4	NFR	Weld	WCR 70	Unsignalized	1.5	1.5	2.5	5.5
Eaton	4	NFR	Weld	WCR 72	Unsignalized	1.25	2.5	2.5	6.25
	4	NFR	Weld	Colorado Parkway	Unsignalized	1	0.5	0	1.5
	4	NFR	Weld	Orchard Street	Unsignalized	1	1	0	2
	4	NFR	Weld	Collins Street	Signalized	2	1.5	2.5	6
	4	NFR	Weld	1 st Street	Unsignalized	1	1	1	3
	4	NFR	Weld	2 nd Street	Unsignalized	1	1	2.5	4.5
	4	NFR	Weld	3 rd Street	Unsignalized	1	0.5	0	1.5
	4	NFR	Weld	4 th Street	Unsignalized	1	0.5	0	1.5
	4	NFR	Weld	5 th Street	Unsignalized	1	1	2.5	4.5
	4	NFR	Weld	WCR 76	Unsignalized	1.5	3.5	4	9



Community	CDOT Region	MPO	County	Intersection	Signalized or Unsignalized	Overall LOS Rating	Overall Safety Rating	Overall RR Interaction Rating	Sum of Ratings
Weld County	4	NFR	Weld	CR 78	Unsignalized	1	1	1.5	3.5
	4	UFR	Weld	CR 80	Unsignalized	1	2	1	4
Ault	4	UFR	Weld	SH 14	Signalized	1	1.5	5	7.5
	4	UFR	Weld	2 nd Street	Unsignalized	1	1	0	2
	4	UFR	Weld	3 rd Street	Unsignalized	1	1	2	4
Weld County	4	UFR	Weld	CR 84	Unsignalized	1	2	2.5	5.5
	4	UFR	Weld	CR 86	Unsignalized	1	2	1	4
Pierce	4	UFR	Weld	CR 88	Unsignalized	1	2.5	1	4.5
	4	UFR	Weld	Main Street	Unsignalized	1	1	1	3
	4	UFR	Weld	CR 90	Unsignalized	1	1.5	4.5	7
Weld County	4	UFR	Weld	CR 92	Unsignalized	1	1	2	4
	4	UFR	Weld	CR 94	Unsignalized	1	1	2	4
	4	UFR	Weld	CR 96	Unsignalized	1	2	2	5
Nunn	4	UFR	Weld	CR 98	Unsignalized	1	1.5	2	4.5
	4	UFR	Weld	4 th Street	Unsignalized	1	1	1	3
	4	UFR	Weld	CR 100	Unsignalized	1	5	1	7

CDOT = Colorado Department of Transportation
CR = County Road
DRCOG = Denver Regional Council of Governments
MPO = Metropolitan Planning Organization
NB = Northbound
NFR = North Front Range

RR = Railroad
SB = Southbound
SH = State Highway
UFR = Upper Front Range
WCR = Weld County Road



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