CHAPTER 2 ALTERNATIVES

This chapter provides information about the alternatives development and evaluation process. The identification, consideration, and analysis of alternatives are essential to the NEPA process and the goal of objective decision making. Regulations for implementing NEPA require the following in an alternatives chapter:

- Rigorous exploration and objective evaluation of all reasonable alternatives and brief discussion of the reasons for elimination of any alternatives from detailed study
- Devotion of substantial treatment to each alternative considered in detail
- Inclusion of reasonable alternatives not within the jurisdiction of the lead agencies (FHWA and FTA)
- Inclusion of the No-Action Alternative

What's in Chapter 2?

This Draft EIS presents the environmental impacts of the alternatives in comparative form, thus sharply defining the issues and providing a clear basis for choice among options by the decision makers and the public.

This chapter is organized into the following five sections:

- **Section 2.1** *Description of Process* presents the process of developing and screening alternatives.
- **Section 2.2** *Alternatives Advanced for Detailed Evaluation* provides a textual and graphical description of the reasonable alternatives advanced for full evaluation in this Draft EIS.
- **Section 2.3** *Screening of Primary Elements* is a series of four questions used to develop the main elements of each package.
- **Section 2.4** *Screening of Secondary Elements* summarizes the development and evaluation of elements that are used in conjunction with the primary elements identified in **Section 2.3**. These include interchanges, transit stations, and maintenance facilities.
- **Section 2.5** *Alternatives Screening Summary* summarizes all alternatives considered and why they were either screened out from further consideration or advanced.

The report *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a) is incorporated by reference per CEQ 40 CFR 1502.21. This report includes additional detailed information about the alternatives development and evaluation process. This report compiles the three levels of alternatives development and screening that took place as part of the North I-25 EIS study process. It describes how alternatives were developed, how they were evaluated on their ability to meet the project's Purpose and Need, environmental impact and practicability. It also describes how the alternatives were combined to create the two build packages that are included in this Draft EIS. The *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a) will be available for review along with this Draft EIS.

2.1 DESCRIPTION OF PROCESS

A wide range of alternatives was initially developed that included multiple transit technologies on various feasible alignments and highway improvements on both existing and new alignments. The process of developing and screening alternatives took into account the following:

- State and federal requirements
- The purpose and need for the project
- The reasonableness of an alternative
- Ability to avoid or minimize environmental impacts
- The regional planning context
- Public input

2.1.1 State and Federal Requirements

Federal agencies are required by NEPA to prepare an EIS for major federal actions that significantly affect the quality of the human and natural environment. The intent of the North I-25 EIS is to identify a multi-modal transportation solution along the corridor through a process that complies with NEPA policies and procedures.

The lead federal agencies, FHWA and FTA, have signature authority on the Record of Decision (ROD). CDOT is preparing this EIS under the guidance of the lead agencies.

Requirements of other applicable laws were incorporated throughout the process. State and federal agency representatives were involved as this was occurring. Other laws that influenced the location and configuration of the alternatives include:

- **Section 404 of the Clean Water Act.** The North I-25 EIS was conducted using a NEPA/Section 404 merger process as documented in a letter dated February 5, 2004 from FHWA and FTA to USACE. This included coordination with the USACE, U.S. Environmental Protection Agency (EPA), and U.S. Fish and Wildlife Service (USFWS). Written concurrence from USACE was received at two points in the process: at acceptance of **Chapter 1** *Purpose and Need* and at acceptance of the reasonable alternatives to be fully evaluated in this Draft EIS. This correspondence is provided in **Appendix B.** Reasonable alternatives in this document, including the Least Environmentally Damaging Practicable Alternative, were located to avoid and minimize impacts to waters of the U.S., including wetlands.
- **Section 106 of the National Historic Preservation Act.** The Section 106 process included consultation with the State Historic Preservation Officer (SHPO) and other consulting parties (mainly interested local governments) to identify historic properties potentially subject to project impacts. The SHPO has formally concurred that this project will use a document substitution process, whereby this Draft EIS is used for consultation of effects of the undertaking upon historic properties.
- **Clean Air Act as Amended 1990.** Coordination occurred with CDPHE and EPA to obtain concurrence on the methodology used for the air quality analysis for this project.
- **Section 4(f) of the 1966 U.S. Department of Transportation (DOT) Act.** A number of historic, park, and wildlife refuge properties protected by this legislation are located along the alternatives. These properties were avoided where feasible and prudent.

2.1.2 Purpose and Need, Reasonableness, and Potential to Impact Environmental Resources

Alternatives were developed to address the project's purpose and need, which included addressing safety concerns along I-25, increasing mobility, improving accessibility, providing multi-modal transportation alternatives, and replacing aging infrastructure along I-25. These are described in detail in **Chapter 1** *Purpose and Need*. Alternatives were evaluated based on their reasonableness, as defined by whether or not it is practical or feasible from a technical and economic standpoint, whether or not it meets purpose and need, and whether or not it has environmental impacts that are acceptable.

Concerted efforts were taken as all alternatives were developed to avoid or minimize the effect of the alternatives on wetlands and other waters of the U.S., on sensitive wildlife species, on historic properties, and on park properties. This effort influenced highway and transit corridor alignment selection, highway and transit corridor design recommendations, highway interchange configurations, transit station locations, and maintenance facility locations.

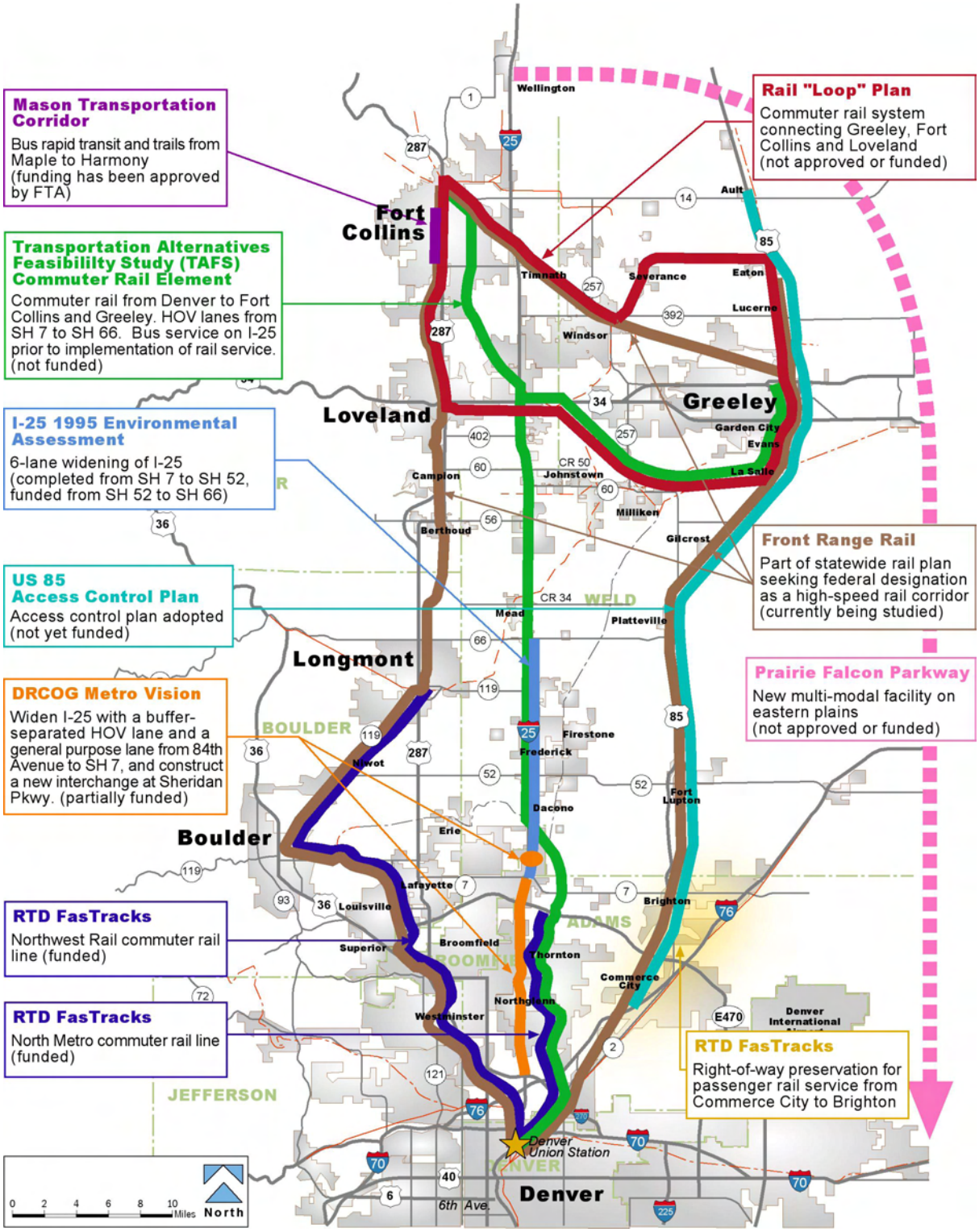
Additional avoidance and minimization efforts will be undertaken as the NEPA process proceeds through the Final EIS and the ROD, and during final design.

2.1.3 Regional Planning Context

Consideration of regional plans throughout the regional study area also helped to shape the development of alternatives. Plans considered in the development process are depicted in **Figure 2-1.** Understanding the regional planning context helped the alternatives development process to avoid precluding other public transportation investments. It also improved the cost effectiveness of alternatives by connecting them with planned and funded projects, such as FasTracks and the Mason Transportation Corridor. Regional plans considered include:

- **Mason Transportation Corridor.** This plan involves a bus rapid transit system running from Mason and Maple Streets to Mason Street and Harmony Road in Fort Collins.
- **North Front Range Transportation Alternatives Feasibility Study (commonly referred to as TAFS).** TAFS examined how to increase mobility from the North Front Range to Denver; it was completed in 2001. TAFS recommended that commuter rail be built from Denver to a point just south of US 34, where it would branch, with one line extending to Fort Collins, and one line extending to Greeley. It also recommended that HOV lanes be added to I-25 and bus service be offered along I-25 until rail service was available.
- **Interstate 25 (SH 7 to SH 66) Environmental Assessment.** I-25 is being expanded from two lanes in each direction to three lanes in each direction from SH 52 to SH 66. Improvements between SH 7 and SH 52 were recently constructed. This improvement will be completed regardless of the alternative selected for the North I-25 project.
- **US 85 Access Control Plan.** This adopted plan extends from SH 14 south to I-76 and provides guidance about location and configuration of future access points along US 85. While 12 entities have adopted the access control plan, it is not fully funded at this time.
- **DRCOG Metro Vision.** DRCOG's 2030 RTP includes new general purpose lanes and HOV lanes on I-25 from US 36 to SH 7 and a new interchange at Sheridan Parkway (north of SH 7). The fiscally constrained plan includes general purpose lanes from US 36 to Thornton Parkway.
- **RTD FasTracks.** This Denver Metro Area transit expansion project will include two commuter rail lines extending north toward the regional study area, terminating in Longmont and in Thornton. It also includes right-of-way preservation for additional transit service between Commerce City and Brighton.

1 **Figure 2-1 Regional Planning Context**



In addition, there are several private initiatives under discussion within the regional study area that influence public and agency opinion toward new transportation investments. These discussions have been presented to various groups, communities, and agencies, but are not included on a publicly adopted transportation plan, nor have they begun a NEPA process. They include:

- **Rail "Loop" Plan.** There is private and community interest in building a rail transit system in the North Front Range that would allow residents in Fort Collins, Greeley, and Loveland to connect by rail to the FasTracks system, DIA, and each of the three cities.
- **Front Range Rail.** There is continuing private and citizen interest in rail service that could extend from Wyoming to New Mexico, primarily utilizing the BNSF railroad line for the northern part of the service.
- **Prairie Falcon Parkway.** There is a private interest pursuing the feasibility of building a new multi-modal facility that would relocate long-distance travelers and freight traffic, including trucks and rail, to the eastern plains of Colorado.

The effect of the planning context on the North I-25 project was substantial. It resulted in:

- Consideration of opportunities for connecting with and potentially interlining with the FasTracks system and Mason Transportation Corridor.
- The need to plan to either connect with additional lanes being built from SH 52 to SH 66 (making a six-lane cross section) or to further expand North I-25 south of SH 66 (making an eight-lane cross section or greater).
- The need to avoid precluding future freight or passenger rail service on active and abandoned rail corridors in the regional study area.
- The need to provide a flexible solution south of SH 7 to accommodate improvements planned and included in DRCOG's adopted Metro Vision.

2.1.4 Public Input

A substantial proactive public and local agency involvement program was conducted to provide input to the alternatives development and evaluation process. This program included:

- **Executive Oversight Committee (EOC).** An EOC was established, consisting of representatives from the lead agencies (FHWA and FTA) and CDOT, which met to determine policy decisions relating to the project. The EOC met at key project milestones.
- **Regional Coordination Committee (RCC).** The RCC was established at the beginning of the project. It consisted of elected officials from the 45 municipalities and counties that chose to participate as well as RTD and the metropolitan planning organizations in the North I-25 regional study area. The RCC met about every other month throughout the study.
- **Technical Advisory Committee (TAC).** The TAC was established at the beginning of the project. It included staff representatives from the 45 municipalities and counties in the regional study area that chose to participate, as well as representatives from RTD, EPA, and metropolitan planning organizations. The TAC met approximately monthly throughout the early part of the study and every other month beginning in 2007.
- **Project Website.** A project website was established in 2004.
- **Newsletters.** Seven issues of the NorthLink newsletters were prepared and distributed to a mailing list of 5,007 people. In addition, six issues of an electronic newsletter, E-Link, were e-mailed to an electronic mailing list of 1,632 people.

- **Public Meetings and Working Groups.** To date, 27 public meetings or working group meetings have been held; 11 in 2004, 4 in 2005, and 12 in 2006. A total of 853 people have attended one or more of these meetings. In addition, 45 interchange working group meetings were held with adjacent property owners between spring and fall 2006 to solicit input regarding interchange layout options. Eight transit station working group meetings were held to solicit input regarding locations for bus and rail transit stations.
- **Other Community Meetings.** A total of 47 small group meetings were held to provide presentations to civic organizations, such as Kiwanis, Rotary, and Lions clubs, and other community groups. A total of 11 meetings were held specifically to solicit input about the EIS process from low income and minority groups.
- **Community Events.** Project representatives had booths or participated in a total of 17 community events, such as the Taste of Fort Collins and the Milliken Beef and Bean Festival.

This public outreach effort helped the team to understand the various transportation needs in northern Colorado and the public's strong desire to see a multi-modal solution included in this Draft EIS, specifically a rail alternative.

2.1.5 Alternatives Screening Process

The alternatives screening process was based on three primary project objectives: (1) address the project's purpose and need, (2) provide a solution that is practical (defined by cost and ability to implement), and (3) avoid or minimize environmental impacts. Evaluation criteria were used to determine how well each alternative could address the project's three objectives.

The criteria were applied to the alternatives three successive times, using increasingly detailed measures, in order to screen and develop the alternatives that were ultimately selected for inclusion in this Draft EIS. Applying the criteria narrowed the range of alternatives considered and provided a means of comparison between them as the project progressed. The three phases of screening were as follows:

- The first phase of screening used select evaluation criteria to eliminate alternatives considered to have a fatal flaw, such as compromised safety or excessive cost.
- The second phase of screening compared alternatives against each other to identify which met the project's purpose and need and which had the least potential to impact environmental resources.
- The third phase of screening used evaluation criteria such as miles of congestion, accessibility to population and employment centers, cost, and impacts to built and natural resources to identify which combinations or "packages" of alternatives would work best together (that is, create the most mobility benefits with the least redundancy and the least environmental impact).

2.2 ALTERNATIVES ADVANCED FOR DETAILED EVALUATION

The following section describes the three packages (No-Action, Package A, and Package B) that were developed through the screening process. These packages are being fully evaluated in this Draft EIS. A detailed description of the screening and evaluation process used to identify these three packages is described in sections 2.3 and 2.4 of this chapter.

Improvements identified in the three packages assume that currently funded, programmed projects will be added to the existing transportation system. Some of the key programmed projects include:

- Widening of I-25 to six lanes from SH 52 to SH 66
- Replacement of the SH 66/I-25 interchange
- Modification of the US 34/I-25 interchange to a partial cloverleaf configuration
- Signalization of the SH 402/I-25 and Prospect Road/I-25 interchange ramp terminals
- Widening and extension of SH 392/I-25 interchange off-ramps to increase storage
- Construction of RTD FasTracks commuter rail lines

Construction of the South Transit Center near Mason Street and Harmony Road has received funding. The South Transit Center is part of the Mason Express BRT Project. The Environmental Assessment for this project has been completed, with a Finding of No Significant Impact issued in September, 2008. In addition, the Mason Corridor project was recommended for 2009 funding in the FTA New Starts report. The Final EIS will likely assume these are in place.

2.2.1 No-Action Alternative

The No-Action Alternative is a conservative estimate of safety improvements and maintenance requirements that would be necessary if a build alternative were not constructed. It is presented for comparison with the build alternatives in accordance with NEPA requirements. This alternative could have environmental impacts and costs associated with it. It will be evaluated on the same set of criteria as, and compared against, the build alternatives. No-Action Alternative improvements are described below and graphically summarized in **Figure 2-2**. Typical cross sections for the No-Action Alternative are illustrated in **Figure 2-3** through **Figure 2-5**.

2.2.1.1 MAINTENANCE OF STRUCTURES

From US 36 to SH 1, two structures (at 84th Avenue and 104th Avenue) would require major rehabilitation and 24 structures would require minor rehabilitation by 2030. These are evaluated as part of the No-Action Alternative.

2.2.1.2 MAINTENANCE OF PAVEMENT

Pavement north of SH 66 would need to be replaced by 2030. Replacement of the pavement is assumed to include milling and replacing the top 6 inches of pavement. Pavement between SH 52 and SH 66 will be upgraded as part of a separate action. This pavement maintenance is included and evaluated as part of the No-Action Alternative.

Figure 2-2 No-Action Alternative

Figure 2-3 No-Action Alternative Typical I-25 Cross Section – SH 1 to SH 66

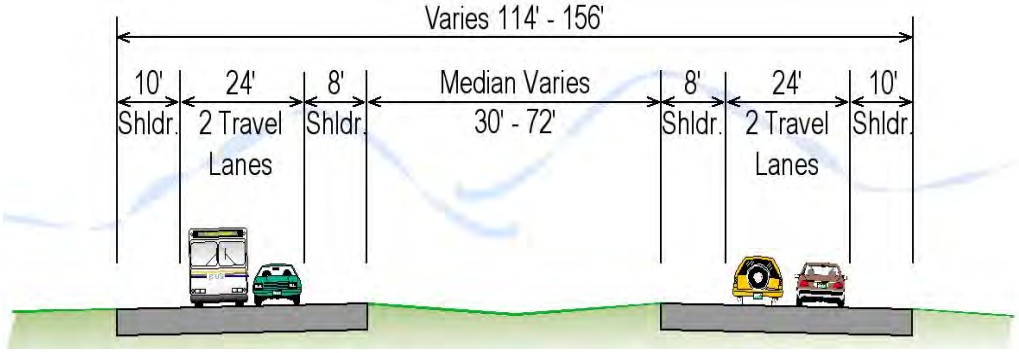


Figure 2-4 No-Action Alternative Typical I-25 Cross Section – SH 66 to SH 7

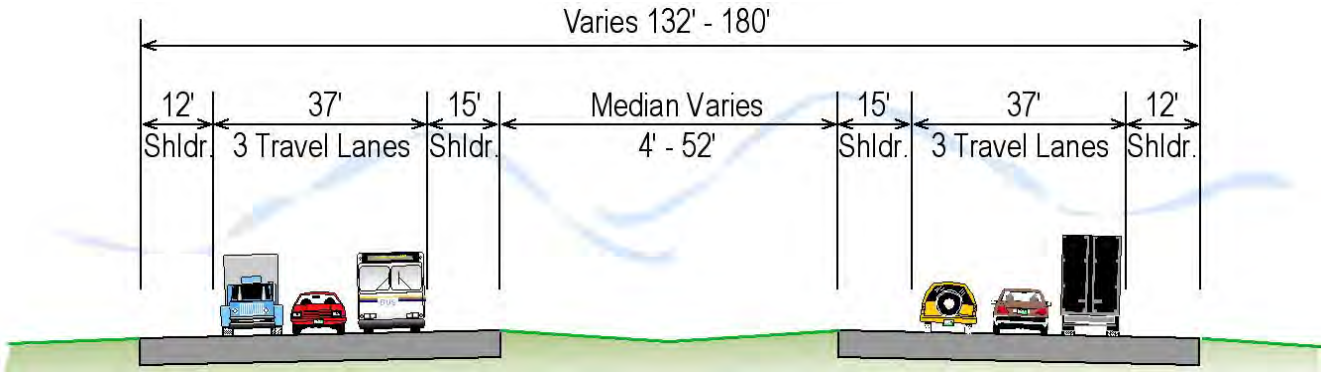
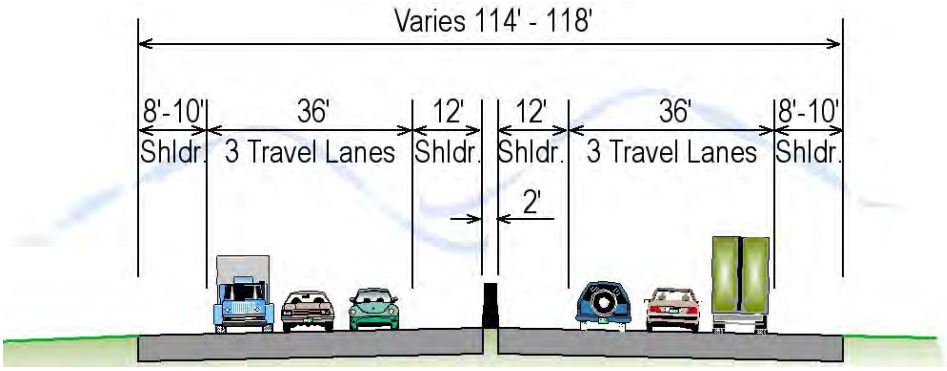


Figure 2-5 No-Action Alternative Typical I-25 Cross Section – South of SH 7



2.2.1.3 SAFETY CONSIDERATIONS

Minor improvements would be necessary to address safety concerns along I-25. A small amount of improvement can be realized through the installation of traffic signals at ramp terminals that are currently unsignalized. This improvement is included in the No-Action Alternative at SH 1, Mountain Vista, SH 56, SH 60, and WCR 34. At Prospect Road, widening the I-25 off-ramps is included to minimize queuing into the I-25 mainline.

2.2.1.4 NO-ACTION PRELIMINARY COST ESTIMATES

Capital cost for the No-Action Alternative is estimated to be approximately $57 million. Additionally, as they do today, the road and structures would require ongoing maintenance. The annual maintenance cost is estimated to be approximately $4 million. These estimates and a 30-year annualized capital cost estimate are shown in **Table 2-1.**

Table 2-1 No-Action Cost Estimate

	Cost Element	Cost (2005 dollars)
Capital Cost		
	General Purpose Lanes	$57M
Annualized Capital		
	General Purpose Lanes	$4M
Annual Operations and Maintenance (O&M)		
	General Purpose Lanes	$4M

M=million

2.2.2 Package A

Figure 2-6 illustrates Package A. It includes new general purpose lanes, interchange reconstruction/upgrades, a commuter rail line, commuter bus service, feeder bus service, and congestion management measures. These are described in detail in the following sections. The *Package Concept Plans* (FHU and Jacobs, 2008b) illustrate the layout of Package A in more detail.

2.2.2.1 Package A New General Purpose Lanes

This package would add one additional general purpose lane from SH 14 to SH 66 for a six-lane cross section and from SH 52 to E-470 for an eight–lane cross section. North of SH 66, widening I-25 would include reconstructing the entire interstate cross section and rebuilding it to today's standards. This includes improving horizontal and vertical alignment, widening both the inside and outside shoulders, and reconstructing aging interchanges and structures. Design criteria were established by CDOT for the highway improvements. Design guidelines recommend avoiding use of median barrier where practical. Consistent with the existing wide median and rural setting, the design criteria for the proposed highway improvements includes a grass median for I-25 north of SH 66. South of SH 52, the interstate cross section has recently been rebuilt; additional widening would generally occur within the median in those locations. **Table 2-2** lists the interchange improvements included in Package A compared to No-Action.

Frontage roads along I-25 would be rebuilt approximately where they exist today. At the interchanges, frontage roads would be relocated east or west away from the ramp terminals to address storage and safety concerns at the intersections. Along the I-25 mainline, the frontage roads would be offset 40 feet, based on current design standards.

Typical I-25 cross sections are depicted in **Figures 2-7** through **2-13**. To maintain the ability to accommodate future (post 2030) transportation needs, the grass median would be maintained from SH 52 north. South of SH 52, where the densely urbanized areas abut I-25, Package A highway widening would occur toward the center using portions of the median. As a safety measure, a tension cable barrier would be included in all locations with an open median.

Avoidance and Minimization

Minor shifts in I-25 interchange ramp and frontage road horizontal alignments were used in conceptual design to minimize impacts to wetlands at the following locations:

- WCR 34
- SH 56
- LCR 16
- SH 392
- Prospect Road
- Harmony Road
- SH 14

I-25 horizontal alignment modifications were also made at SH 402 and SH 56 to improve safety. Minor modifications to the I-25 vertical alignment were implemented to improve safety at SH 56, SH 402 and LCR 16, and to avoid impacts to a historic ditch north of US 34.

1 **Figure 2-6 Package A**

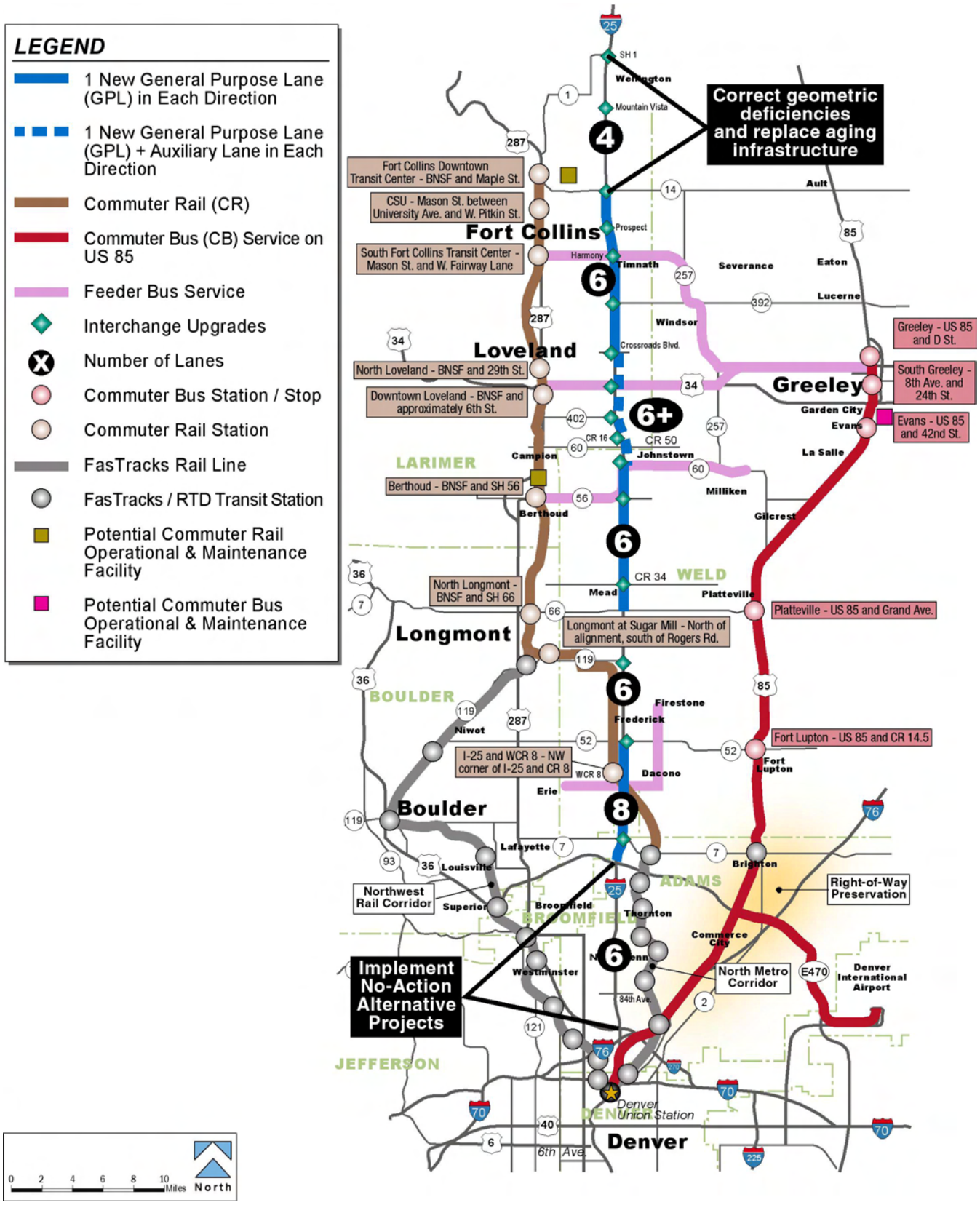


Figure 2-7 Package A Typical I-25 Cross Section – SH 1 to SH 14

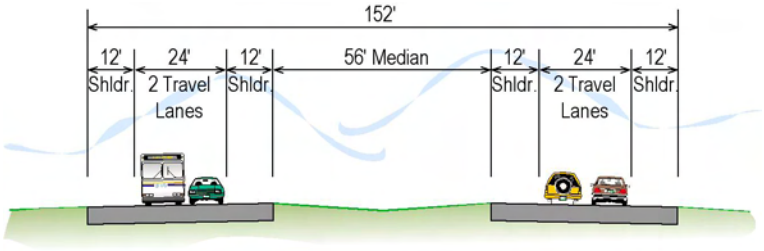


Figure 2-8 Package A Typical I-25 Cross Section – SH 14 to Crossroads Boulevard

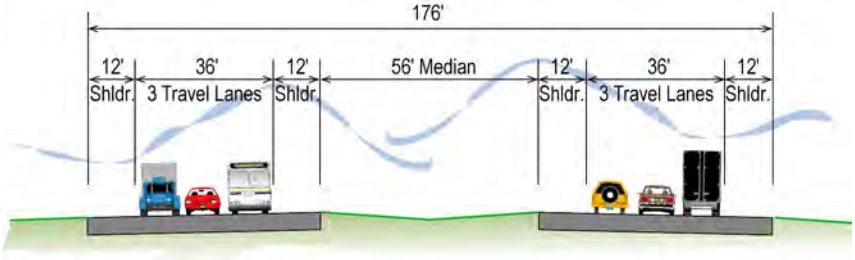


Figure 2-9 Package A Typical I-25 Cross Section – Crossroads Boulevard to SH 60

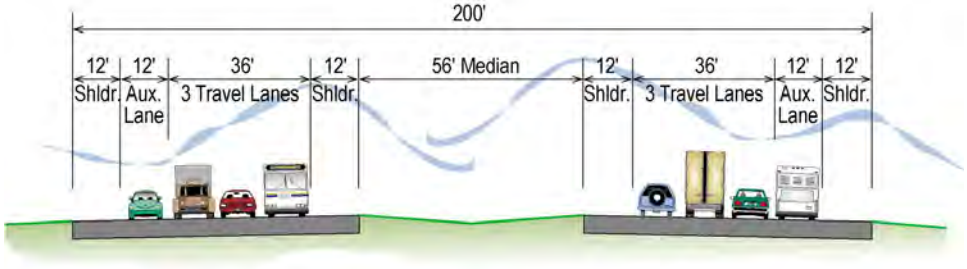


Figure 2-10 Package A Typical I-25 Cross Section – SH 60 to SH 66

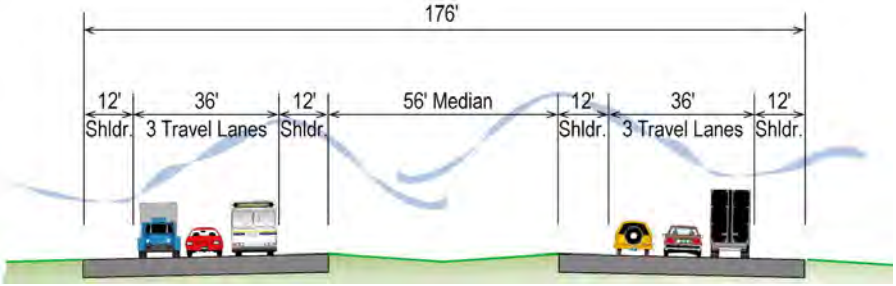


Figure 2-11 Package A Typical I-25 Cross Section (same as No-Action) – SH 66 to SH 52

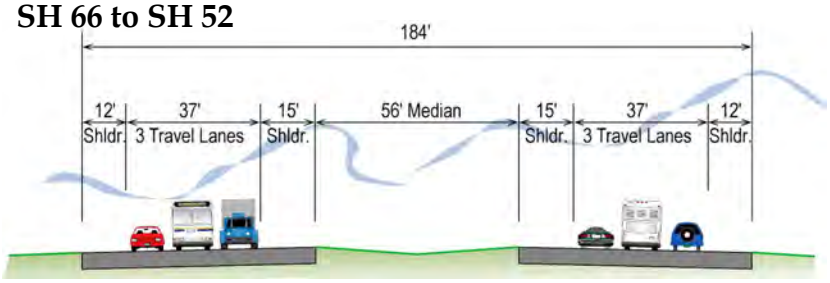


Figure 2-12 Package A Typical I-25 Cross Section – SH 52 to SH 7

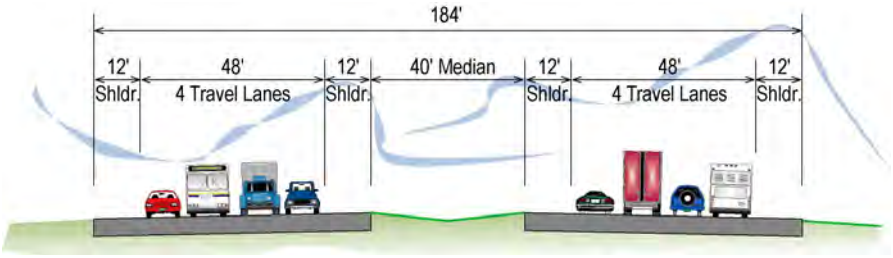
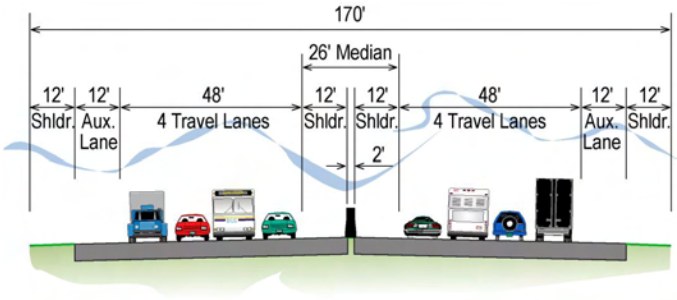


Figure 2-13 Package A Typical I-25 Cross Section – SH 7 to E-470



2.2.2.2 PACKAGE A INTERCHANGES

A reconstructed diamond interchange that increases capacity and meets current design standards could accommodate projected 2030 traffic volumes at most existing interchange locations for the lowest cost. At locations where environmental considerations, traffic volumes, or property impacts were unfavorable for a typical diamond configuration, other configurations were selected. These are described below. **Table 2-2** summarizes the interchange improvements associated with Package A. A more detailed description of the interchange configurations considered and the screening process is included in **Section 2.4.1** of this document. For detailed information about each interchange refer to the *Transportation Analysis Technical Report* (FHU and Jacobs, 2008c).

Table 2-2 Package A Interchange Improvements Compared to No-Action

Existing Interchange Location	No-Action Configuration	Package A Improvement
SH 1	substandard diamond	reconstructed diamond
Mountain Vista	substandard diamond	reconstructed diamond
SH 14	substandard partial cloverleaf	reconstructed diamond
Prospect Road	substandard diamond	reconstructed diamond
Harmony Road	standard diamond	reconstructed diamond
SH 392	substandard diamond	reconstructed tight diamond
Crossroads Boulevard	substandard cloverleaf	reconstructed diamond
US 34	substandard diamond	dual directional/diamond
SH 402	substandard diamond	reconstructed diamond
LCR 16	substandard off ramps	reconstructed diamond
SH 60	substandard diamond	reconstructed diamond
SH 56	substandard diamond	reconstructed diamond
WCR 34	substandard diamond	reconstructed diamond
SH 66	standard diamond	no improvement
SH 119	standard diamond	bridge widening
SH 52	standard diamond	bridge widening
WCR 8	standard diamond	reconstructed diamond
SH 7	standard diamond	reconstructed diamond
E-470	fully directional	no improvement
144th Avenue	standard diamond	no improvement
136th Avenue	standard diamond	no improvement
120th Avenue	standard diamond	no improvement
104th Avenue	substandard diamond	structure rehabilitation
Thornton Parkway	substandard diamond	structure rehabilitation
84th Avenue	substandard diamond	structure rehabilitation

Figure 2-14 SH 14 Interchange

SH 14

An enhanced new diamond interchange with northbound to westbound triple left-turns would accommodate the projected 2030 traffic volumes. However, to minimize impacts to the properties in the southwest quadrant, special consideration for placement of the frontage roads along I-25 and along SH 14 was required. As shown in **Figure 2-14,** the southwest frontage road would be pulled in close to I-25 and restricted to one-way southbound movement. The SH 14 frontage road/I-25 west frontage road intersection just west of the southbound ramps would be grade-separated at SH 14. Though Stockton Avenue at SH 14 would be signalized, it would be restricted to right-in/right-out movement.

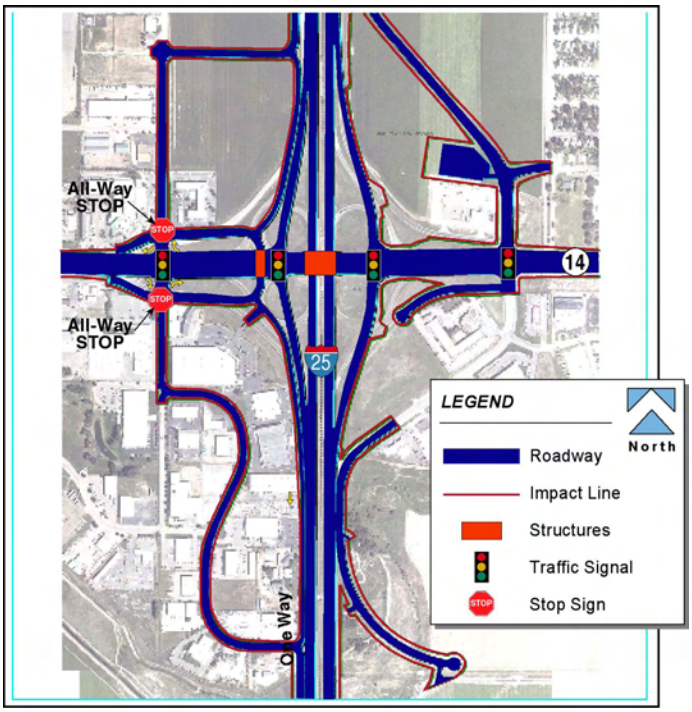


Figure 2-15 SH 392 Interchange

SH 392

Because of wetlands and bald eagle roosting sites in the northwest quadrant of this interchange a tight diamond is proposed. This configuration avoids impacting the roosting sites and minimizes impacts to the wetlands. The proposed interchange configuration is in **Figure 2-15**. This configuration would reduce the spacing from the standard 660 feet to 450 feet between ramp terminals. This was determined to be an acceptable mitigation measure because overall interchange operation would continue to be LOS D or better during both peak hours in 2030. Both ramp termini would be signalized as well as the two frontage road intersections with SH 392/Carpenter Road.

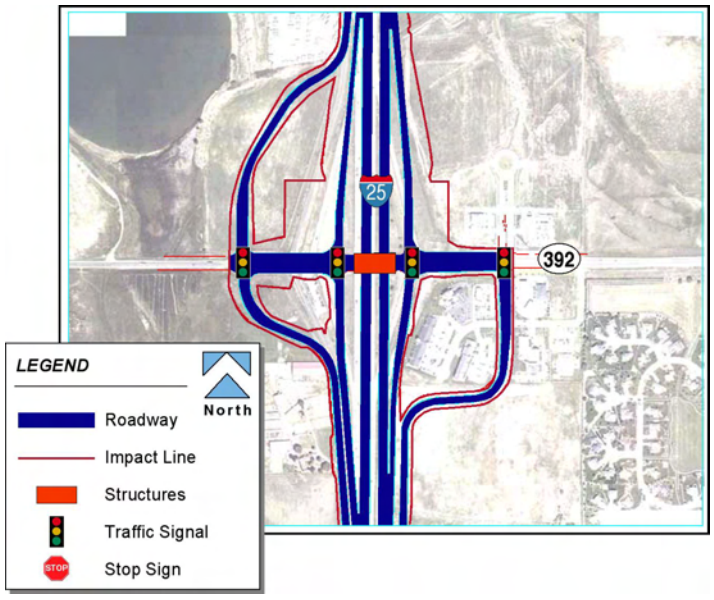
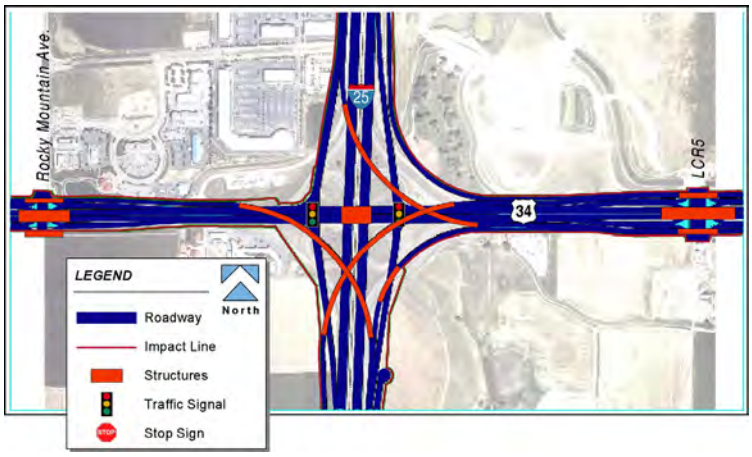


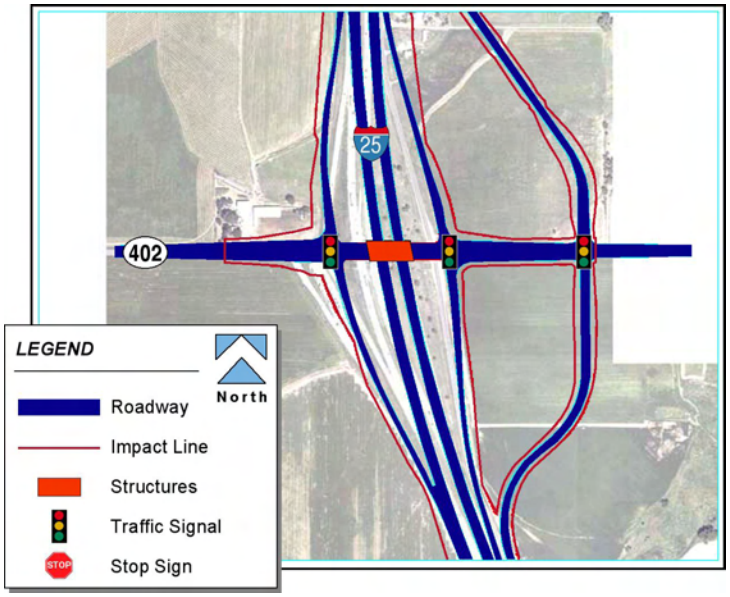
Figure 2-16 US 34 Interchange



US 34

As the primary interchange access/egress point for Loveland and Greeley, projected volumes at this interchange exceed the volumes that can be handled by a typical diamond interchange. In order to achieve an acceptable level-of-service (LOS) and maintain access to the existing and rapidly growing commercial development centers at this interchange, a new dual directional/diamond interchange with single-point urban interchanges at adjacent intersections is proposed. Direct-connect ramps are planned for southbound-to-eastbound movement, northbound-to-westbound movement, and westbound-to-southbound movement. As shown in **Figure 2-16** these would provide access to trips destined to Loveland and Greeley. The eastbound-to-northbound ramp was eliminated to avoid impacts to a historic property located south of US 34 and west of I-25. This was determined to be an acceptable mitigation measure because overall interchange operation would continue to be LOS D or better during both peak hours in 2030. The diamond interchange would include dual left-turn lanes and exclusive right-turn lanes and would provide local access to the developments adjacent to the interchange.

Figure 2-17 SH 402 Interchange



SH 402

A new diamond interchange with additional lanes on the ramps at SH 402 would accommodate anticipated 2030 demand. This is shown in **Figure 2-17**. The interchange upgrade would also include reversing the grade separation between SH 402 and I-25. Today, I-25 is on a structure and passes over the top of SH 402. The proposed configuration reverses this so that SH 402 would pass over I-25. This reconfiguration would improve the vertical alignment and safety of I-25 at this location.

Figure 2-18 LCR 16 Interchange

LCR 16

Similar to SH 402, the profile of LCR 16 would be modified to go over I-25, thereby improving the vertical alignment of I-25. In addition, on-ramps that are not included in today's configuration would be added to improve accessibility and operation at this interchange. This is shown in **Figure 2-18**.

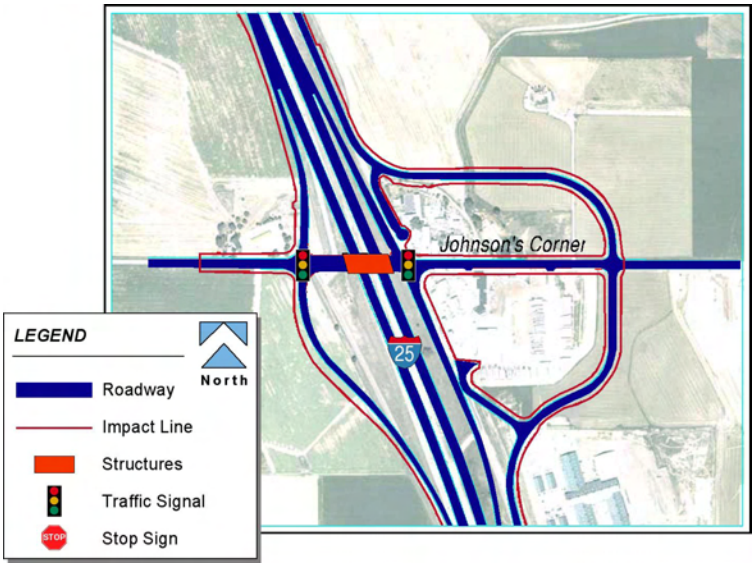


Figure 2-19 SH 56 Interchange

SH 56

A new diamond interchange with additional lanes on the ramps at SH 56 would accommodate anticipated 2030 demand. While the design itself is fairly straightforward, this interchange upgrade also would include reversing the grade separation between SH 56 and I-25. Today, I-25 passes under SH 56. The proposed configuration would reverse this so that I-25 would pass over SH 56, as shown in **Figure 2-19**. This reconfiguration would improve the vertical alignment and safety of I-25 at this location.

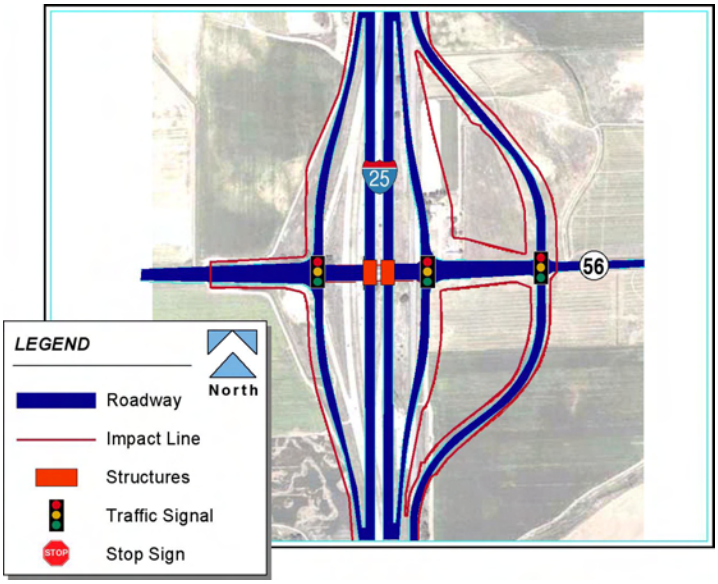
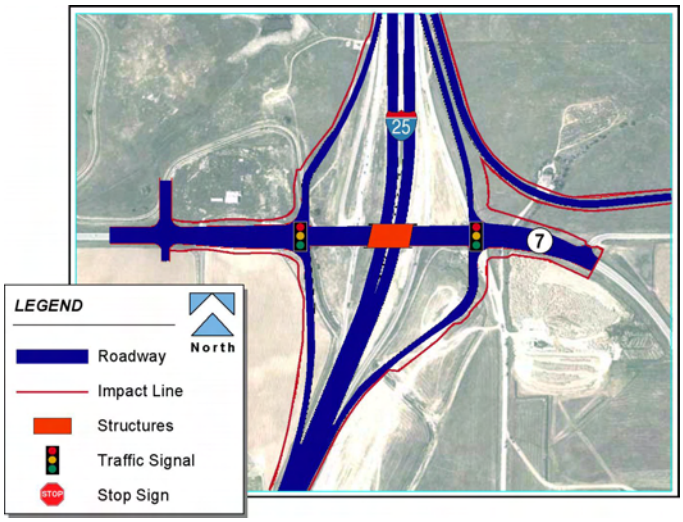


Figure 2-20 SH 7 Interchange



SH 7

The SH 7 interchange is depicted in **Figure 2-20.** A new diamond interchange with free right-turn movements from the off ramps to SH 7 can accommodate 2030 projected traffic demand. However, the City and County of Broomfield and the City of Thornton have expressed a desire for a partial cloverleaf configuration (loop ramps for the westbound-to-southbound and eastbound-to-northbound movements) provided at this location. To accommodate this request, without substantially increasing the impacts or expenditure for this project, ramp terminal spacing has been increased to 1,150 feet. This spacing would allow local governments to modify this interchange to a partial cloverleaf design in the future without major reconstruction of the interchange.

2.2.2.3 Package A Commuter Rail

Package A track design would be built to locomotive hauled coach specifications to be the most flexible in accommodating different rail vehicles. The service is assumed to operate with diesel multiple unit vehicles, similar to those assumed in the FasTracks plan to maintain interoperability.

A regional transit operator has not yet been identified to operate the commuter rail service.

The commuter rail service would run every 30 minutes during the AM and PM peak periods when demand is highest and every hour in the off-peak periods. Hours of operation are assumed to be 4:00 AM to 1:30 AM. Service to Denver would travel through Longmont and along the FasTracks North Metro Corridor; a transfer would not be necessary. To reach Boulder, northern Colorado riders would transfer to the Northwest (NW) Rail Corridor at the Sugar Mill station in Longmont.

WHAT IS COMMUTER RAIL?

A passenger rail service that often operates within freight rail right-of-way and serves regional trips. It may use locomotives with passenger cars or self-propelled passenger cars, known as diesel multiple units. Commuter rail trains could be diesel-powered (most common) or electrically-powered.

While specific fares have not yet been identified, the typical national average commuter rail peak period fare is $0.22 per mile. Based on this rate, it would cost a rider about $14.00 one way to travel from the Fort Collins South Transit Center to Denver Union Station.

Fort Collins to Longmont

As part of Package A, a double-tracked commuter rail system would be developed from downtown Fort Collins at University Avenue and Maple Street along the BNSF right-of-way to 3rd Street in downtown Longmont, using the existing BNSF railroad track plus one new track. New commuter rail track would be added to the east of the existing freight track and both sets of tracks would be used by commuter rail and freight rail. On the alignment's northern end in Fort Collins from Mason Street and University Avenue to Mason Street and Maple Street, commuter rail service would be added to the existing single-track BNSF line.

An additional double-track segment would be constructed in Longmont between the Sugar Mill station and the proposed Northwest Rail Corridor end-of-line at 1st and Terry to allow FasTracks proposed Northwest Rail Corridor service to be extended to the North I-25 rail corridor.

Avoidance and Minimization

Retaining walls were added along the east side of the commuter rail alignment to minimize impacts to wetlands along the corridor and avoid impacts to a historic structure north of Prospect Road in Fort Collins. The new second track was eliminated for a 500-foot segment of the corridor in Loveland to avoid the historic Loveland Depot and in a second location – adjacent to a historic residential property at 122 8th Avenue in Longmont. This results in bi-directional service along the existing single-track BNSF line near the proposed Loveland station and adjacent to the residential property in Longmont.

Longmont to Thornton

In addition, a new double track commuter rail line would be built from 3rd Street south and east to FasTracks North Metro Corridor end-of-line in Thornton. Nineteen alternatives were analyzed for this alignment in order to identify the best rail connection from Longmont to the proposed FasTracks North Metro Corridor end-of-line at 162nd Avenue. The selected alignment follows the BNSF and GWRR tracks from 3rd Street southeast to the Sugar Mill site, then east along the south side of SH 119 to CR 7, where it would turn south along CR 7 to the Union Pacific Railroad (UPRR). Once the alignment meets the railroad, it follows the UPRR corridor east across I-25 and then southeast to the North Metro Corridor end-of-line at 162nd Avenue. This alignment was chosen because relative to other options it:

- Avoided sensitive wildlife and water resources associated with St. Vrain and Left Hand creeks, including two active bald eagle nests.
- Avoided two resources on the north side of SH 119, including a community facility which serves as a home for at-risk youth and an eligible historic property, the Dickens House.
- Minimized out-of-direction travel, utilized more existing rail corridors and avoided more utilities.
- Had 22 fewer residential right-of-way acquisitions and fewer impacts to one existing park, and 2 open space properties and wetlands associated with 5 additional creek crossings.

Appendix F of the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a) provides a detailed, quantitative comparison of the 19 alignments considered between Longmont and Thornton.

Single Tracking

A phasing or reduced cost option was considered for the entire commuter rail corridor. This option of single tracking, or jointly using the existing freight rail corridor for passenger service as well, is consistent with some commuter rail projects that have been implemented across the country, such as in Seattle, Albuquerque, San Jose and San Diego. It is also consistent with portions of the approved Denver FasTracks projects, which have very recently been subject to cost-cutting measures such as single tracking. RTD has developed this option for cost-cutting (along with other options such as cutting certain corridors back in overall length) to provide more limited rail service in a corridor while saving capital costs of building an entire second track and operating costs of scaling back train operations to focus on the peak periods of travel only. The single tracking option is being considered, along with other cost-cutting options and options to increase available funding, by RTD on the Northwest Rail commuter rail corridor, the North

Metro commuter rail corridor, the I-225 light rail corridor and portions of the Gold Line commuter rail Corridor. RTD is already implementing this cost cutting measure on the West Corridor (light rail) for a short section, from the Denver Federal Center to the Jefferson County Government Center end of line.

The single tracking options that were considered for the North I-25 project are fully documented in the *Alternatives Development and Screening Report* – Appendix I (FHU and Jacobs, 2008a). Two options were developed. Both included use of single tracking from the 1st and Terry Station in Longmont to the South Transit Center in Fort Collins. Both assumed fairly limited rail service of three trips per direction in each peak period and no service during the rest of the day. Both assumed a reduced number of stations (four instead of eight.) Both assumed limited passing tracks that would be provided. Both applied only to the Longmont to Fort Collins component of the commuter rail (Component A-T1) because that is the only component that had operating freight rail service. The difference between the two options was that one option would require a transfer at 1st and Terry to continue into downtown Denver. The second assumed that passengers could get on a train from Fort Collins and continue into Denver via Boulder without needing to transfer to a second train in Longmont.

These options were not advanced to full analysis in this Draft EIS because of the very noticeable reductions in ridership that would result. The reductions in ridership would occur due to:

- The substantial reduction in service provided (a reduction from trains running every thirty minutes during peak periods and every hour during off-peak periods to only three trips every peak period and no trains during off-peak periods. This reduction means rather than a train every thirty minutes during a peak period there would be a train every sixty minutes); and
- The reduction in travel time because the current freight rail only allows for a maximum speed of 49 mph; and
- The reduction in number of stations.

These reductions in ridership (from approximately 5850 with Package A to around 1000 with one of the single tracking options and around 250 with another single tracking option) made single tracking uncompetitive with the other transit options in this Draft EIS and thus this option was not advanced in this Draft EIS.

Because these options would not include constructing a new track adjacent to the existing freight rail track, they would result in substantially less construction and thus result in substantially less impact to environmental impacts. Less right of way would be needed from parks and historic properties, which would reduce impacts to resources protected by the National Historic Preservation Act and Section 4(f) of the DOT Act. At river crossings, since there would be no new track, no new bridges or culverts would be needed, so there would be fewer temporary and permanent impacts to wetlands and waters of the US. Noise and vibration impacts would be lessened for residences adjacent to the new track, but about the same as Package A impacts for residences adjacent to the freight rail track. Water quality impacts would not be much different except at station areas, because there would be fewer stations. Wildlife habitat impacts would be lessened with the single track options because substantially less habitat would be permanently removed due to fill for the new track. From a social standpoint, however, these options would not provide as much service to low income and minority populations and to the general population. It would be more difficult for new riders or transit dependent riders to use the system since stations would be farther apart. The system would also be operating so infrequently that its usefulness as a mode of transportation would be compromised.

The estimate of capital costs is that costs for commuter rail could be reduced approximately in half – from around $625 million (just for component A-T1, which is commuter rail from Fort Collins to Longmont) to around $250 to $300 million. These estimates are very general. The annual operating costs would also be expected to be substantially lower.

While the single tracking options that were evaluated were not considered competitive with the other transit alternatives evaluated in this Draft EIS, these or other similar options may have merit as phasing options (see phasing discussion on page 2-52). If commuter rail is selected as part of the preferred alternative, these cost cutting options will be evaluated further in the Final EIS. All of the cost cutting options would have reduced impacts when compared to commuter rail defined as part of Package A. All of them would also have reduced levels of service for transit patrons. Other possible options that can be considered include:

- A single tracking option with more frequent train service, including passing track to allow directional service
- Track upgrades to improve travel time
- Double tracking for portions of the corridor with single tracking for other portions of the corridor
- An increase in number of stations assumed in the single tracking options that were considered but not as many as were evaluated in Package A
- Assuming a double tracked configuration but stopping short of the current end of line in Fort Collins. This is similar to one of the options currently being considered as a cost-cutting measure for the FasTracks system.

Grade Crossings

The track design includes grade crossing treatments, as described below.

Table 2-3 summarizes the grade crossing improvements included in Package A. The table uses the following terms:

- **Passive:** A crossing with signs and pavement markings as traffic control devices that are not activated by trains.
- **Gates:** A crossing that consists of lights, bells, and moveable barriers on the highway approaches that are activated by trains.
- **Four quadrant gates with medians:** A crossing that includes all elements of the gated crossing plus a raised center divider to further discourage vehicles from entering the crossing.
- **Grade separation:** A crossing that includes constructing a rail overpass or overpass for cars, trucks, bicyclists, and pedestrians, eliminating the need to cross at-grade.

Special consideration has been given to downtown Longmont, where the existing BNSF alignment runs in the median of Atwood Street between 3rd Avenue and 8th Avenue. In this area, minor roadway improvements would be made to enable the installation of the second track, and the grade crossings would be upgraded as shown in the grade crossing table. The existing BNSF tracks run in a dense urban / campus area between Harmony Road and University Avenue in Fort Collins. Similar minor roadway and grade crossing improvements would be made in this area. Between Maple Street and University Avenue, the single BNSF track would be in Mason Street. This area would be maintained as a single track with grade crossing improvements as part of the project.

Table 2-3 Package A Train/Roadway Grade Crossing Treatments

LOCATION	EXISTING	PACKAGE A
BNSF – Maple Street - Fort Collins	Lights	Gates
BNSF – Laporte Avenue - Fort Collins	Lights	Gates
BNSF – Mountain Avenue - Fort Collins	Lights	Gates
BNSF – Oak Street - Fort Collins	Passive	Gates
BNSF – Olive Street - Fort Collins	Lights	Gates
BNSF – Magnolia Street - Fort Collins	Passive	Gates
BNSF – Mulberry Street - Fort Collins	Lights	Gates
BNSF – Myrtle Street - Fort Collins	Passive	Gates
BNSF – Laurel Street - Fort Collins	Lights	Gates
BNSF – Old Main/Plum Street - Fort Collins	Passive	Gates
BNSF – University Avenue - Fort Collins	Passive	Gates
BNSF – Pitkin Street - Fort Collins	Gates	Gates
BNSF – Lake Street - Fort Collins	Passive	Gates
BNSF – Prospect Road - Fort Collins	Gates	4-quadrant gates with medians
BNSF – Drake Road - Fort Collins	Gates	4-quadrant gates with medians
BNSF – Swallow Road - Fort Collins	Gates	Gates
BNSF – Horsetooth Road - Fort Collins	Gates	4-quadrant gates with medians
BNSF – Harmony Road - Fort Collins	Gates	4-quadrant gates with medians
BNSF – Trilby Road – SE Larimer Co.	Gates	Gates
BNSF – West 57th St. - SE Larimer Co.	Gates	4-quadrant gates with medians
BNSF – West 37th Street - Loveland	Gates	Gates
BNSF – West 29th Street - Loveland	Gates	4-quadrant gates with medians
BNSF – Garfield Street - Loveland	Gates	Gates
BNSF – US 34 - Loveland	Grade separation	Grade Separation
BNSF - 10th Street - Loveland	Gates	Gates
BNSF – 7th Street - Loveland	Gates	Gates
BNSF – 6th Street - Loveland	Gates	Gates
BNSF – 4th Street - Loveland	Gates	Gates
BNSF – 1st Street - Loveland	Gates	Gates
BNSF – South Railroad Avenue – SE Larimer Co.	Gates	Gates

Table 2-3 Package A Train/Roadway Grade Crossing Treatments (cont'd)

LOCATION	EXISTING	PACKAGE A
BNSF – 14th Street SW – SE Larimer Co.	Gates with barrier curbs	4-quadrant gates with medians
BNSF – 28th Street SW / LCR 16–SE Larimer Co.	Gates	Gates
BNSF – 42nd Street SW – SE Larimer Co.	Gates	Gates
BNSF – US 287 – SE Larimer Co.	Grade separation	Grade separation
BNSF – Berthoud Road / LCR 10E - Berthoud	Gates	Gates
BNSF – Water Ave / LCR 10 - Berthoud	Gates	Gates
BNSF – Bunyan Avenue - Berthoud	Gates	Gates
BNSF – Mountain Avenue/SH 56 - Berthoud	Gates	Gates
BNSF – Welch Avenue – Berthoud	Gates	Gates
BNSF – LCR 15a – NE Boulder Co.	Passive	Gates
BNSF – LCR 15a – NE Boulder Co.	Gates	Gates
BNSF – LCR 2E – NE Boulder Co.	Gates	Gates
BNSF – North County Line Rd. – NE Boulder Co.	Passive	Gates
BNSF – North 115th St. – NE Boulder Co.	Passive	Gates
BNSF – Vermillion Road – NE Boulder Co.	Passive	Gates
BNSF – Ute Highway / SH 66 - Longmont	Gates	Gates
BNSF – 21st Avenue - Longmont	Gates	Gates
BNSF – 17th Avenue - Longmont	Gates with barrier curbs	4-quadrant gates with medians
BNSF – Mountain View Ave. - Longmont	Passive	Gates
BNSF – 9th Avenue - Longmont	Passive	Gates
BNSF – Longs Peak Avenue - Longmont	Passive	Gates
BNSF – 6th Avenue - Longmont	Passive	Gates
BNSF – 5th Avenue - Longmont	Passive	Gates
BNSF – 4th Avenue - Longmont	Passive	Gates
BNSF – 3rd Avenue - Longmont	Gates	4-quadrant gates with medians
BNSF – Emery Street - Longmont	Passive	Gates
BNSF – Main Street - Longmont	Gates	4-quadrant gates with medians
BNSF – Coffman Street - Longmont	Passive	Gates
BNSF – Terry Street - Longmont	Passive	Gates
BNSF - Martin Street - Longmont	Passive	Gates
GWR – Sugar Mill Road - Longmont	Passive	Gates
GWR – Sugar Mill Road - Longmont	Passive	Gates
SH 119 - Longmont	N/A	Grade separation
East County Line Road – SW Weld Co.	N/A	4-quadrant gates with medians
WCR 119 – SW Weld Co.	N/A	Gates
Fairview Street/Sandstone Dr. – SW Weld Co.	N/A	Gates
WCR 3 – SW Weld Co.	N/A	Gates
WCR 5 – SW Weld Co.	N/A	Gates
Harbor Drive – SW Weld Co.	N/A	Gates
Shoreline Drive – SW Weld Co.	N/A	Gates
WCR 20.5 – SW Weld Co.	N/A	Gates
WCR 20 – SW Weld Co.	N/A	Gates

Table 2-3 Package A Train/Roadway Grade Crossing Treatments (cont'd)

LOCATION	EXISTING	PACKAGE A
Private Drive – SW Weld Co.	N/A	Gates
Private Drive – SW Weld Co.	N/A	Gates
Private Drive – SW Weld Co.	N/A	Gates
WCR 18 – SW Weld Co.	N/A	Gates
Private Drive – SW Weld Co.	N/A	Gates
Lower Boulder Ditch Road – SW Weld Co.	N/A	Gates
WCR 16 – SW Weld Co.	N/A	Gates
Wyndham Hill Parkway – SW Weld Co.	N/A	Grade separation
SH 52 – SW Weld Co.	N/A	Grade separation
WCR 12 – SW Weld Co.	N/A	Gates
WCR 7 – SW Weld Co.	N/A	Gates
UPRR - WCR 10 – SW Weld Co.	Passive	Gates
UPRR - I-25 – SW Weld Co.	Grade separation	Grade separation
UPRR - I-25 East Frontage Rd – SW Weld Co.	Grade separation	Grade separation
UPRR - Summit Blvd. / WCR 8 – SW Weld Co.	Passive	Gates
UPRR - York Street / WCR 11 – SW Weld Co.	Passive	Gates
UPRR - WCR 6 – SW Weld Co.	Passive	Gates
UPRR - East 168th Avenue – SW Weld Co.	Passive	Gates

2.2.2.4 PACKAGE A COMMUTER RAIL STATIONS

Once the commuter rail alignment was determined, a station site selection process was set in motion. Seventeen potential station locations were identified and evaluated using a set of screening criteria that screened if the potential station location met the following criteria:

- Serves a population center
- Provides east/west access across the regional study area
- Supported by existing transit infrastructure
- Has committee and stakeholder support

A transit working group that consisted of the general public and municipality representatives met 3 times throughout the station design process. At the first transit working group meeting the potential station locations were presented to this group. As a result additional stations were added and screened out per their input. As a result of the station site selection process seventeen potential station locations were screened down to nine new stations and a connection to two existing RTD stations.

After determining the general vicinity of station locations, a more detailed evaluation was conducted for each station location. The primary criteria were: minimal neighborhood and environmental impacts, connectivity, opportunity for joint development, and compatibility with adjacent land use. A more detailed description of the station sites considered and the screening process is included in **Section 2.4.2** of this document and a full description of the station screening process is found in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a). As a result, a preferred site(s) was identified at each station to house the platform, park-and-ride and bus activity. **Table 2-4** lists the stations included in Package A along the commuter rail alignment. The connection at the Sugar Mill station in Longmont would allow patrons to transfer to FasTracks proposed Northwest

Rail Corridor. Patrons remaining on the train would continue southeast, eventually traveling along the FasTracks North Metro Corridor into downtown Denver. While the Package A commuter rail would serve all of the planned North Metro Corridor stations, it does not include any additional improvements at these stations.

The station design at the South Transit Center in Fort Collins was developed before funding was committed for that project. Therefore, the North I-25 station design does not incorporate the Mason Corridor South Transit Center. As detailed engineering occurs for the South Transit Center, the North I-25 EIS process will coordinate with the Mason Corridor to appropriately accommodate both projects.

Table 2-4 Package A Commuter Rail Stations

Station Name	Location	Parking Spaces
Fort Collins Downtown Transit Center	BNSF and Maple Street	100
Colorado State University (CSU)	On Mason Street between University Avenue and West Pitkin Street	none
South Fort Collins Transit Center	Mason Street and West Fairway Lane	110
North Loveland	BNSF and 29th Street	140
Downtown Loveland	BNSF and approximately 6th Street	40
Berthoud	BNSF and SH 56	70
North Longmont	BNSF and SH 66	30
Longmont at Sugar Mill	North of alignment, south of Rogers Road	150
I-25 and WCR 8	NW corner of I-25 and CR 8	210
FasTracks North Metro Corridor	All planned FasTracks North Metro Corridor stations	No new spaces proposed as part of this project

The station layout proposed two side loaded platforms within the double-tracked alignment, with vertical circulation for pedestrian access across the tracks connecting the platform to the park-and-ride and surrounding community as shown in **Figure 2-21** and **Figure 2-22**. For additional information on the commuter rail station process, refer to the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a).

Figure 2-21 Package A Typical Commuter Rail Station Design

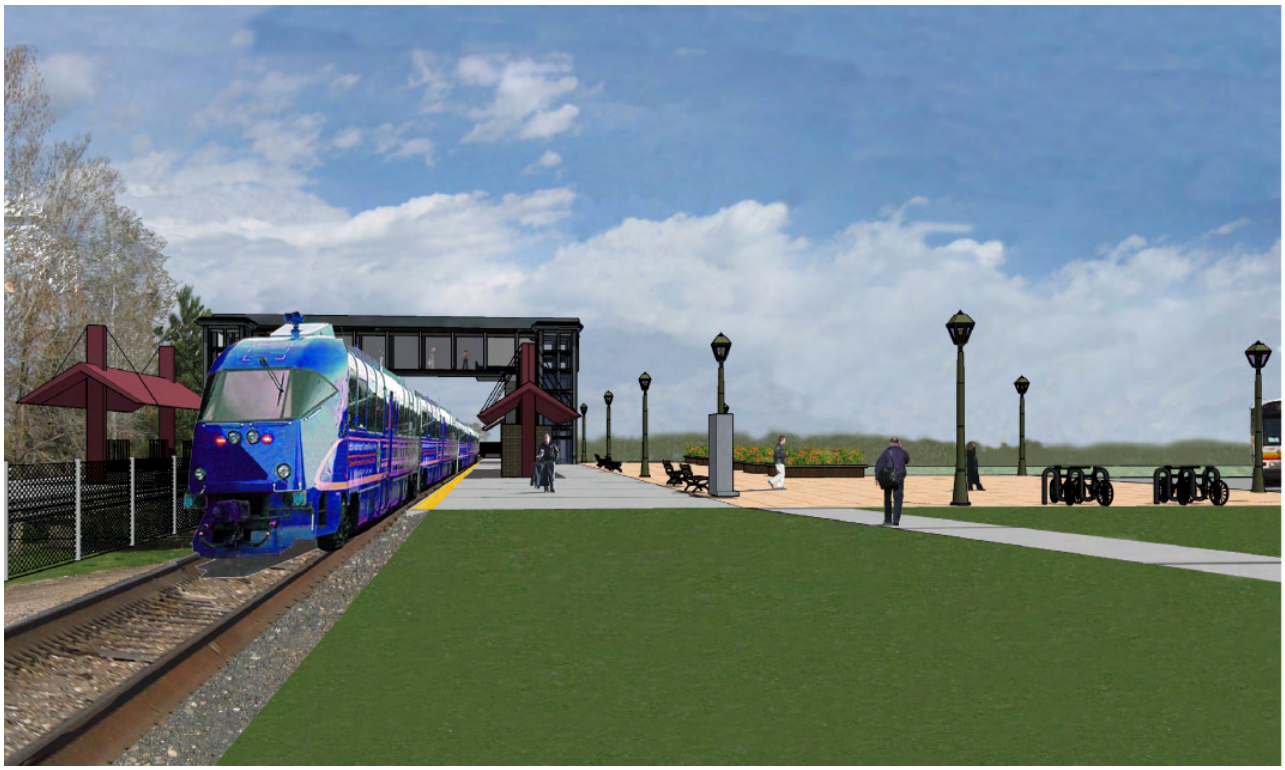
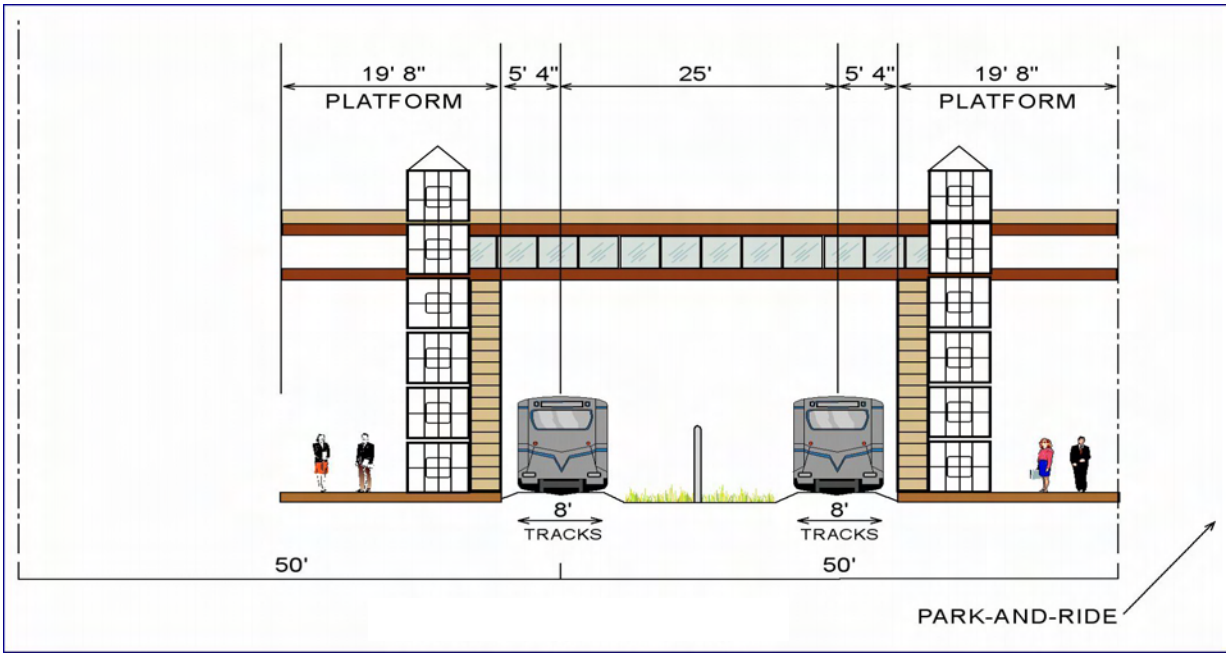


Figure 2-22 Package A Typical Commuter Rail Station Cross Section



2.2.2.5 PACKAGE A COMMUTER RAIL MAINTENANCE FACILITY

The layout of the commuter rail maintenance facility would require a minimum of 30 acres, including facilities for vehicle maintenance, cleaning, fueling and storage; track maintenance; parts storage; and vehicle operator facilities. The commuter rail maintenance facility would accommodate an estimated 90 employees. The potential locations are:

- Vine Drive and Timberline Road in Fort Collins
- CR 46 and US 287 in Berthoud

The site identified in Fort Collins is 76.1 acres, while the site identified in Berthoud is 61.6 acres. Either could accommodate the necessary uses. They are being evaluated as part of Package A to determine the most favorable location based on impacts to environmental resources, community impacts, and costs.

The commuter rail service defined in Package A will serve as an extension of planned RTD services. The RTD commuter rail maintenance facility planning process has not proceeded far enough to evaluate the feasibility of using that facility to maintain the additional vehicles required for Package A commuter rail service. In addition, it is probable that an overnight layover facility within the North I-25 study area will be required even if trains are maintained within the RTD area. Hence, it has been assumed that a maintenance facility will be required as part of the North I-25 process to ensure the independent utility of Package A.

2.2.2.6 PACKAGE A COMMUTER BUS

Package A includes a commuter bus service along US 85 connecting Greeley to downtown Denver and DIA. This service would operate every 30 minutes in AM and PM peak hours and every hour during off-peak periods. Queue jumps, allowing buses to bypass queued traffic at some signalized intersections, would be included to help achieve reliable speeds for bus services.

WHAT IS COMMUTER BUS?

Commuter bus service is regional transit service with limited stops in order to operate faster than other bus services. This type of transit service usually operates on roads designated as arterials or higher and has park-and-ride facilities located at its stops.

Queue jumps typically require modifying an intersection to provide a short lane for the bus between the right-turn lane and the through lanes. Signal equipment also would be upgraded to sense the presence of a bus and provide a short signal phase where the bus is able to travel through the intersection first, bypassing the queued traffic. Intersection control, traffic volumes, speed limits, road configuration, and community plans were taken into consideration when recommending locations for queue jumps. Additional information on queue jump location screening is available in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a).

The following queue jump or transit signal enhancement locations are included in Package A along the US 85 corridor:

- 31st Street – Evans
- 37th Street – Evans
- 42nd Street – Evans
- 1st Avenue – LaSalle
- CR 42 – Gilcrest / Weld County
- Elm Street – Gilcrest
- CR 34 – Platteville
- Grand Avenue (CR 32) – Platteville
- SH 66 – Platteville
- 168th Avenue – Brighton
- Bromley Lane – Brighton
- 144th Avenue – Brighton
- 136th Avenue – Brighton
- 124th Avenue – Brighton
- 120th Avenue – Commerce City
- 112th Avenue – Commerce City
- 104th Avenue – Commerce City

While specific fares have not been identified, a review of commuter bus systems nationwide indicates that a typical fare would be about $0.12 per mile. Based on this rate, it would cost a rider traveling from downtown Greeley to downtown Denver approximately $6.60 one-way.

A transit operator has not yet been identified to operate the commuter bus service. However, in the southern front range a similar commuter style service is operated by the City of Colorado Springs in partnership with the other communities served. This would indicate that one of the local transit providers in the area (Greeley, Loveland and Fort Collins) could operate this service.

2.2.2.7 Package A Commuter Bus Stations and Stops

Station design for commuter bus assumed that the passenger would access the bus from the proposed park-and-ride or an on-street bus stop with no formal platform. The station site selection process was similar to those applied to the commuter rail stations. Thirteen potential station locations were screened down to five new stations and connections to four existing RTD stations – Brighton, Commerce City, downtown Denver and DIA. No improvements are proposed at these stations as part of this EIS.

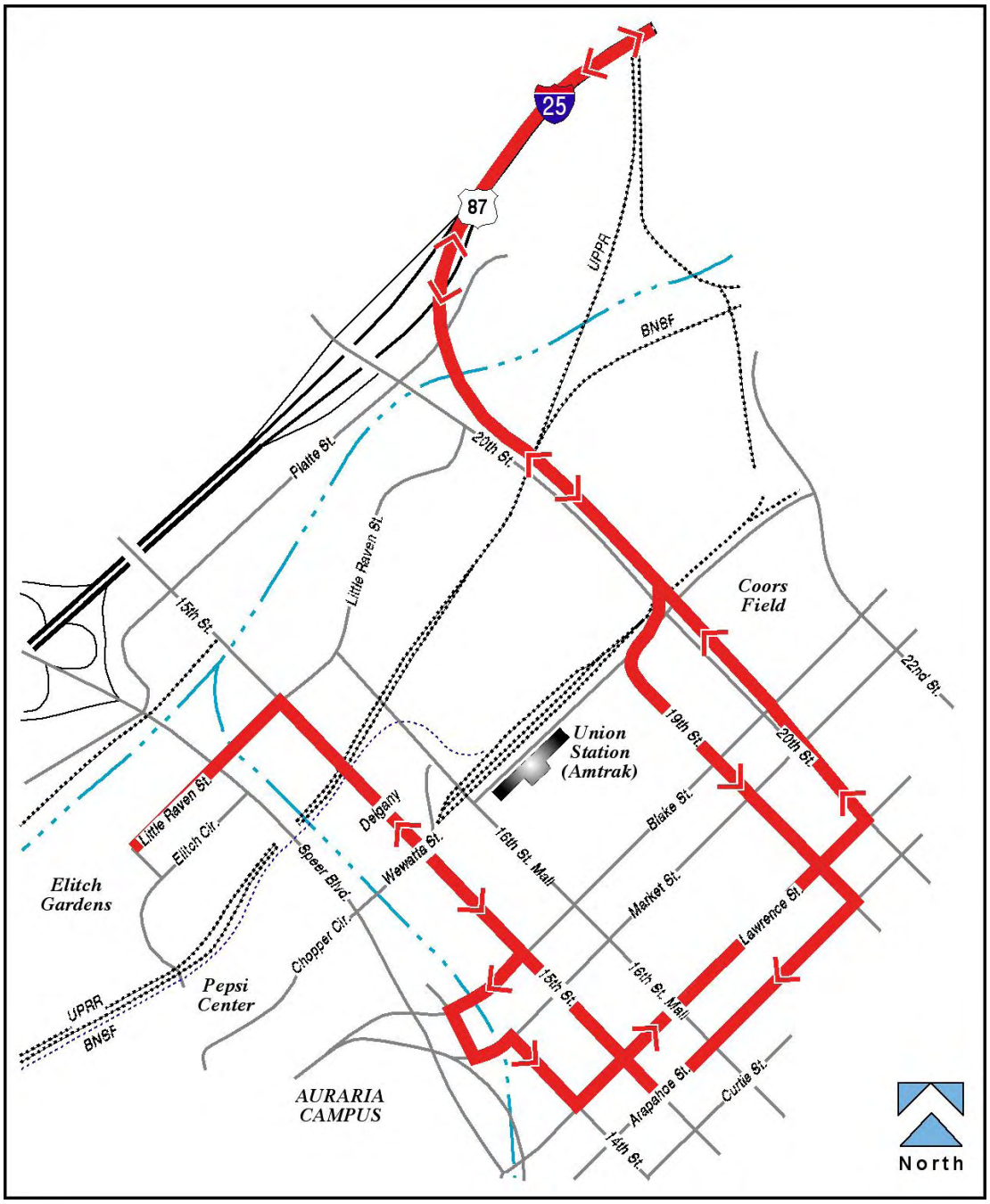
A range of two to thirteen sites were evaluated for each station location. As a result of the station site evaluation one preferred site was identified at each station to house the park-and-ride and bus activity. A more detailed description of the station sites considered and the screening process is included in **Section 2.4.2** of this document and a full description of the station screening process is found in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a). **Table 2-5** lists the station sites and stops for the commuter bus service.

Table 2-5 Package A Commuter Bus Stations and Stops

Station/Stop Name	Description	Parking Spaces
Greeley	US 85 and D Street	40
South Greeley	8th Avenue and 24th Street	80
Evans	US 85 and 42nd Street	70
Platteville	US 85 and Grand Avenue	60
Fort Lupton	US 85 and CR 14.5	110
Brighton	US 85 and SH 7	Existing RTD park-n-Ride
Commerce City	Colorado Blvd and 72nd Ave.	Proposed RTD park-n-Ride
Denver	Downtown Denver	0
DIA	Denver International Airport	0

During the AM peak hours, southbound buses would enter downtown Denver via the North I-25 express lanes and go into downtown using 19th Street, turning southwest on Arapahoe and providing stops at 17th and 15th Streets. From there, buses would turn right on 15th Street, left at Little Raven Street, and proceed to Elitch Gardens to layover before making the return trip. Downtown circulation is shown in **Figure 2-23**. This downtown route is similar to the route of the current Front Range Express (FREX) bus from Colorado Springs to Denver. During hours when the reversible express lane flow is headed northbound, southbound buses would enter downtown Denver via the 20th Street interchange, take 20th to Arapahoe, and follow the remainder of the route described above.

Figure 2-23 Commuter Bus Downtown Denver Circulation



During the PM peak hours, northbound buses would exit downtown Denver by turning right out of Elitch Gardens onto 15th Street, turning right again to access 14th Street and eventually turning left on Lawrence Street, picking up passengers at 15th and 17th Streets, and proceed to the I-25 HOV entrance ramp on 20th Street. During hours when the reversible express lane flow is headed southbound, northbound buses would access I-25 via the 20th Street interchange.

Planned improvements at Denver Union Station may allow these buses to access and egress the HOV lanes from 18th and 19th Streets and serve Denver Union Station via Wewatta Street. In addition, provided there is enough space, the commuter bus service may also be able to layover at Denver Union Station before making the return trip instead of traveling the extra distance to Elitch Gardens. These possible connections could be further evaluated as planning for Denver Union Station moves forward.

2.2.2.8 Package A Feeder Bus

Four feeder bus routes are proposed to enable riders to access the commuter rail and commuter bus services in Package A. These services would travel:

- Along SH 257, connecting Windsor and Timnath to the commuter rail and the commuter bus.
- Along US 34, connecting Greeley and Loveland to both services.
- Along SH 60 / SH 56, connecting Milliken, Johnstown, and Berthoud to the commuter rail.
- Along WCR 13 / WCR 8, connecting the tri-towns (Frederick, Firestone, and Dacono) and Erie to the commuter rail.

WHAT IS FEEDER BUS?

Feeder bus service connects communities throughout the region to a major transit investment such as passenger rail or bus rapid transit. It provides an alternative to driving alone and improves accessibility to transit-dependent passengers.

These feeder bus services would operate every 30 minutes during AM and PM peak periods and every 60 minutes during off-peak periods. They have been designed to coincide with commuter rail and commuter bus schedules. A transit operator has not yet been identified to operate the feeder bus service.

2.2.2.9 Package A Bus Maintenance Facility

In Package A, two sites are being evaluated for the bus maintenance facility: Portner Road and Trilby Road in Fort Collins, and 31st Street and 1st Avenue in Greeley. The layout requires a minimum of approximately five to six acres. The site in Fort Collins is 7.8 acres, while the site in Greeley is 4.6 acres. The two sites are being evaluated to determine the more favorable site based on impacts to environmental resources, community impacts, and costs. The commuter bus maintenance facility would accommodate an estimated 85 employees, including staff for the maintenance and operation of buses for both the commuter bus and the feeder bus routes.

2.2.2.10 PACKAGE A CONGESTION MANAGEMENT

Many potential congestion management measures were considered as enhancements to the packages. Detailed documentation of the Congestion Management Alternative development and screening process is provided in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a).

Table 2-6 summarizes congestion management measures that were selected for Package A.

Table 2-6 Package A - Congestion Management Measures

Congestion Management Strategy	Description of Application
Local Transit Service	Existing local routes would connect to rail service at the Downtown and South Transit centers in Fort Collins; at US 34 in Loveland; and at Sugar Mill in Longmont. Package A local routes would connect to commuter bus service at 8th Street and D, Greeley South, the Brighton park-n-Ride, and the FasTracks North Metro Corridor rail stations.
Carpool and Vanpool	Carpool/Vanpool lots would be provided along I-25 at: **Location** **Spaces** **Location** **Spaces** o SH 1 80 o SH 60 80 o SH 14 150 o SH 56 30 o Prospect Rd. 130 o SH 66 70 o Harmony Rd. 300 o SH 119 90 o SH 392 90 o SH 52 80 o SH 402 340 o SH 7 180 These lots would replace and be in addition to the existing carpool/vanpool lots. They would be paved, have lighting, and have security cameras.
Incident Management Program	Courtesy patrols - Tow trucks with fuel, coolant, air, etc. would drive up and down I-25 from SH 14 to SH 7 during peak period travel times (6:15 AM to 8:45 AM and 3:15 PM to 6:45 PM). These vehicles would pick up debris, help stalled motorists, and assist with other incidents as needed.
Signal Coordination and Prioritization	Timing at signals at interchanges along I-25 would be optimized as part of the interchange design process. Queue jumps, including signal treatments, would be incorporated into the commuter bus design along US 85.
Ramp Metering	Based on a CDOT Region 6 precedent and policy along the Transportation Expansion (T-REX) corridor, ramp meters would be installed along the freeway in order to prevent trip detouring. At such time when volumes dictate ramp metering along I-25, ramp meters would be recommended at the following interchanges: o SH 14 o SH 402 o Prospect Rd. o SH 119 o Harmony Rd. o SH 52 o SH 392 o WCR 8 o Crossroads Blvd. o SH 7 o US 34
Real-Time Transportation Information	The CDOT Region 4 intelligent transportation plan would be implemented in its entirety with additional variable message signs northbound and southbound north of SH 14.
Bicycle / Pedestrian Facilities	Station areas would be designed to provide pedestrian links to the nearest local road. A 12-ft wide multi-use path and 6-ft tree lawn would provide connectivity between the bus drop-off, park-and-ride and connectivity to the closest road. All stations would be designed in accordance with the accessibility standards set forth in the Americans with Disabilities Act (ADA).
Travel Demand Measures	During construction, proactive measures could be taken by the contractor to encourage use of alternative modes.

2.2.2.11 Other Package A Features

Package A also includes retaining walls, water quality ponds, and drainage features.

Retaining Walls

Retaining walls would be used along highway general purpose lanes and commuter rail lines to minimize impacts to environmentally sensitive areas and existing commercial buildings or other developments.

Water Quality

To conform to CDOT's MS4 permit, roadway runoff would need to be treated within urbanized areas. Using land use projections from the NFRMPO, urban areas were determined and potential treatment locations have been identified in Package A. These would be located along highways and at transit stations, maintenance facilities, and parking lots. Suggested locations for the water quality features are included in the Package A concept plans. Various methods for treating stormwater runoff, such as ponds, vaults, and infiltration basins would be considered during final design.

Floodplains and Drainage Features

Almost all of the existing drainage structures are undersized; they cannot pass the 100-year storm flows under the rail routes, I-25, or US 85. If Package A were selected, final design would include a detailed hydraulic analysis for each crossing. This would include addressing allowable backwater and methods for mitigating impacts to the environment. Additional items that would be considered include costs for construction, maintenance, and operations. Federal Emergency Management Agency floodplain regulations and CDOT drainage criteria would be followed.

2.2.2.12 Package A Preliminary Cost Estimates

The capital cost for Package A is estimated to be approximately $2.433 billion. Additionally, the roadway would continue to require ongoing maintenance and the new rail and bus service would have annual operating and maintenance cost associated with it. The total operating and maintenance cost is estimated to be $43 million annually. These estimates and a 30-year annualized capital cost estimate at 7 percent are shown in **Table 2-7**.

Table 2-7 Package A Cost Estimate

	Cost Element	Cost (2005 dollars*)
Capital Cost		
	Commuter Rail	$1.098B
	Commuter Bus – Downtown Denver and DIA	$28M
	Feeder/Local Bus	$18M
	General Purpose Lanes	$1.289B
	Total	**$2.433B**
Annualized Capital		
	Commuter Rail	$88M
	Commuter Bus – Downtown Denver and DIA	$2M
	Feeder/Local Bus	$2M
	General Purpose Lanes	$103M
	Total	**$195M**
Annual O&M		
	Commuter Rail	$28M
	Commuter Bus – Denver Union Station and DIA	$5M
	Feeder/Local Bus	$5M
	General Purpose Lanes	$5M
	Total	**$43M**

*B=billion; M=million

2.2.3 Package B

Figure 2-24 illustrates Package B. As shown, Package B includes tolled express lanes (TEL), interchange upgrades, bus rapid transit (BRT), feeder bus service, and congestion management measures. Each of these features is described in more detail below. The Package Concept Plans (FHU and Jacobs, 2008b) illustrate the layout of Package B in more detail.

2.2.3.1 Package B New Tolled Express Lanes

Package B consists of adding one buffer-separated tolled express lane in each direction along the entire corridor except between Harmony Road and SH 60 where two barrier-separated lanes would be added in each direction. Lane configuration is depicted in **Figure 2-25** through **Figure 2-30**. Design criteria were established by CDOT for the highway improvements. Design guidelines recommend avoiding use of median barrier where practical. Consistent with the existing wide median and rural setting, the design criteria for the proposed highway improvements includes a grass median for I-25 north of SH 66. The buffer-separated section would consist of a painted 4-foot strip separating the tolled express lanes from the general purpose lanes. The barrier-separated section would consist of a raised concrete barrier separating the tolled express lanes from the general purpose lanes, which would be approximately 4 feet high and 2 feet wide. Where possible, the grass median would be maintained north of SH 66 with the exception of the BRT median stations. The median would be used to accommodate median BRT stations from SH 7 north. South of SH 66, where the more densely urbanized areas abut I-25, highway widening would occur toward the center using portions of the median. As a safety measure, a tension cable barrier would be included in all locations with an open median.

WHAT ARE TOLLED EXPRESS LANES?

Lanes separated from general purpose lanes by a striped buffer or a raised median barrier. Lanes whose demand is managed to maintain reliable, fast operation even during peak periods. The lanes are managed by allowing use only by single-occupant vehicle drivers willing to pay a toll or by high-occupant vehicles. These would be similar to the existing HOT lanes between 84th Avenue and 20th Street in Denver.

Frontage roads along I-25 would be rebuilt approximately where they exist today. At the interchanges, frontage roads would be relocated east or west away from the ramp terminals to address storage and safety concerns at the intersections. Along the I-25 mainline, the frontage roads would be offset 40 feet, based on current design standards.

1 **Figure 2-24 Package B**

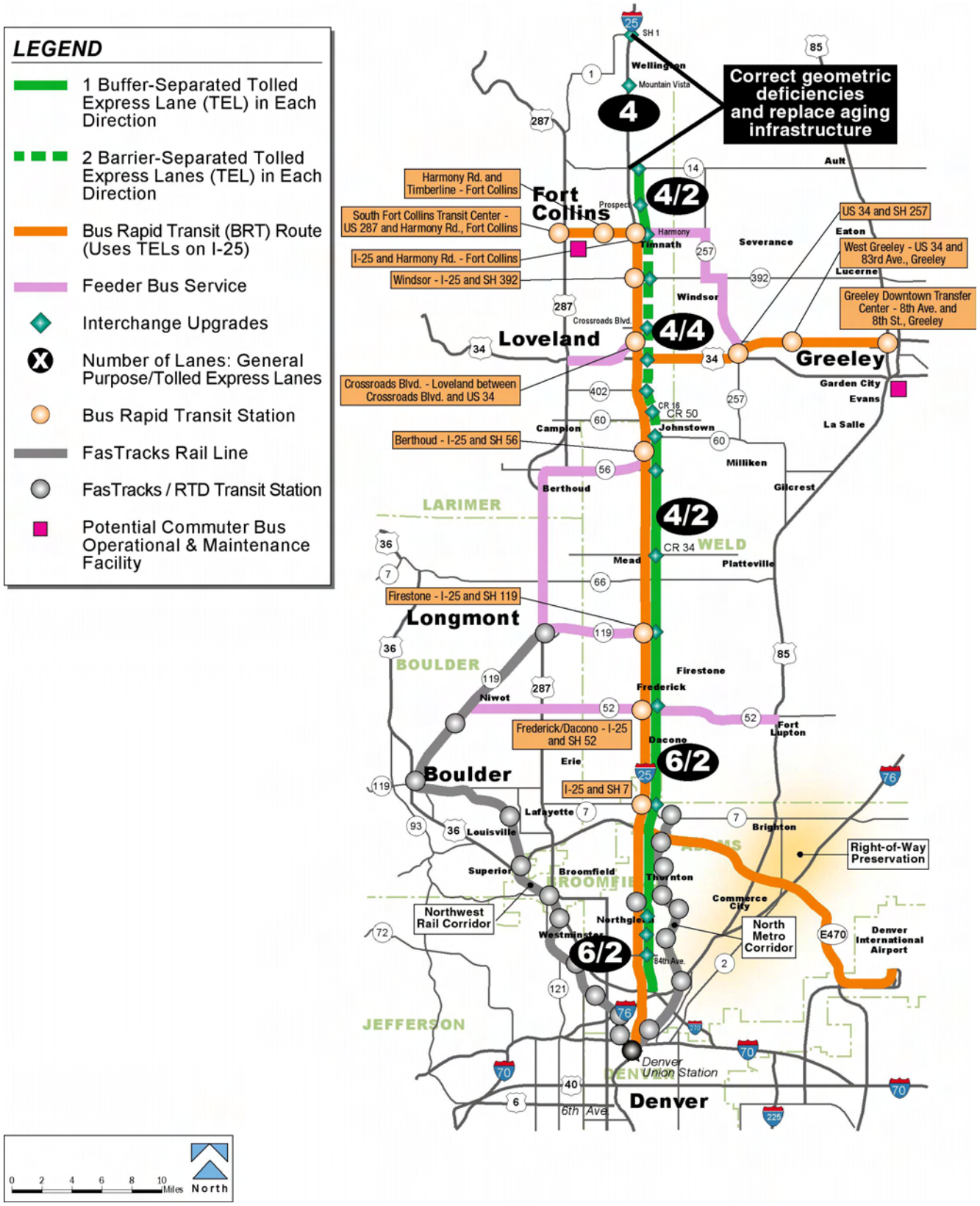


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Figure 2-25 Package B Typical I-25 Cross Section – SH 1 to SH 14

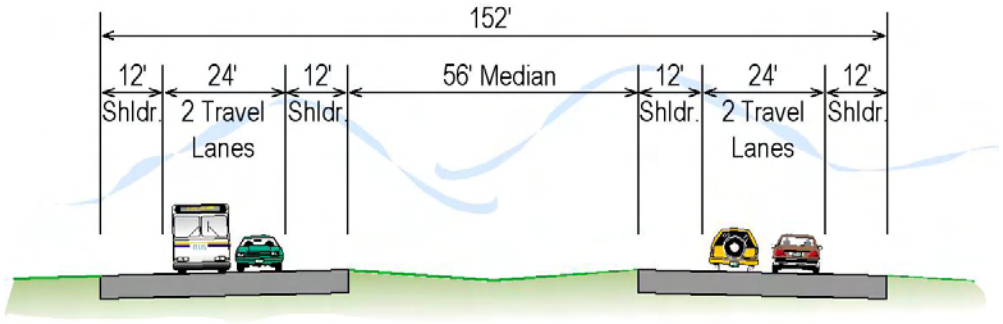


Figure 2-26 Package B Typical I-25 Cross Section – SH 14 to Harmony Rd.

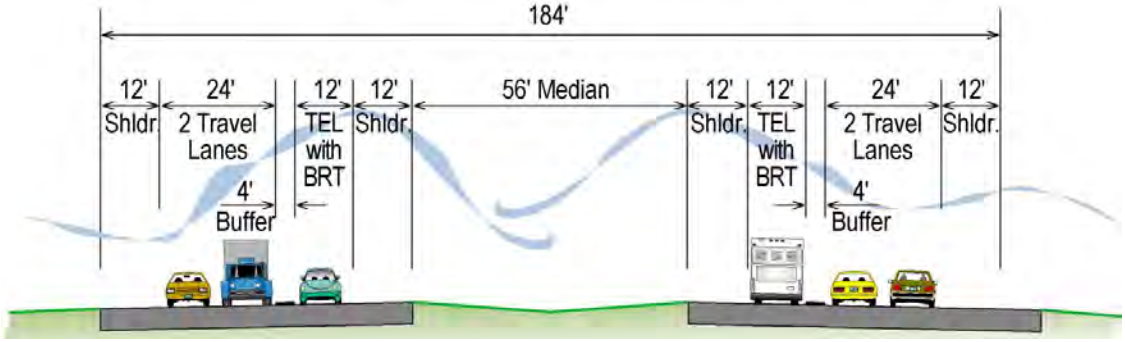


Figure 2-27 Package B Typical I-25 Cross Section – Harmony Rd. to SH 60

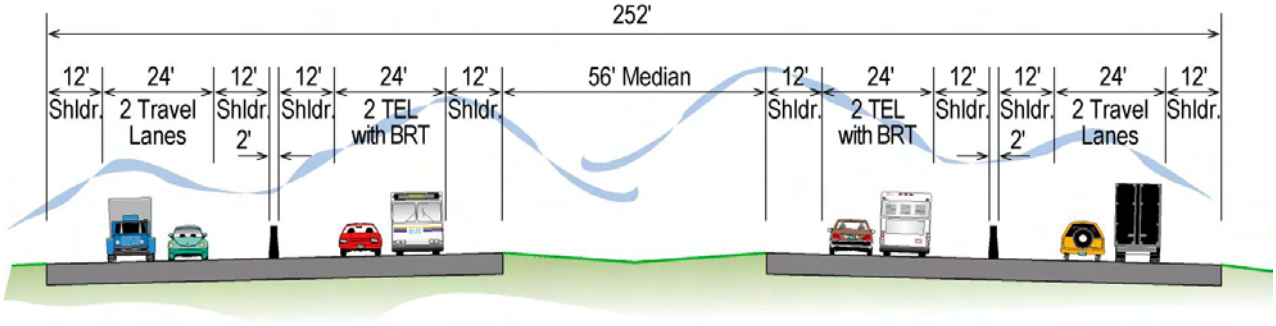


Figure 2-28 Package B Typical I-25 Cross Section – SH 60 to SH 66

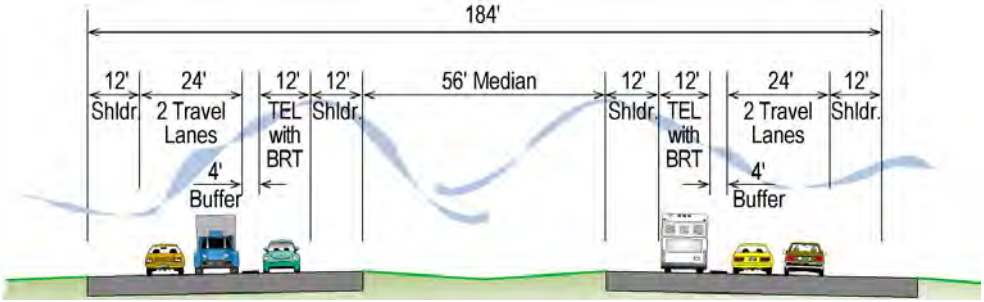


Figure 2-29 Package B Typical I-25 Cross Section – SH 66 to SH 7

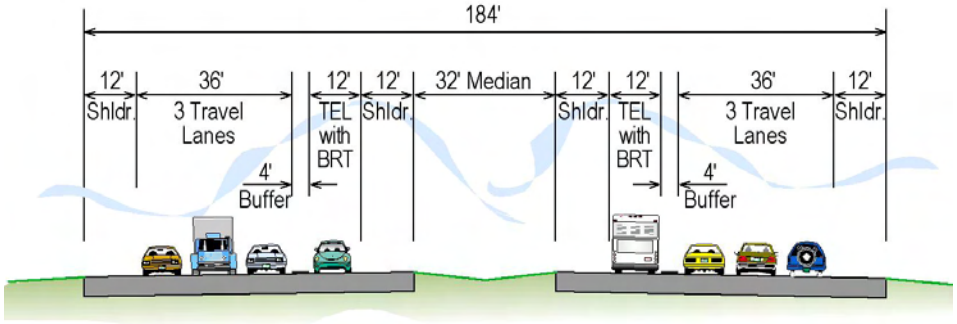
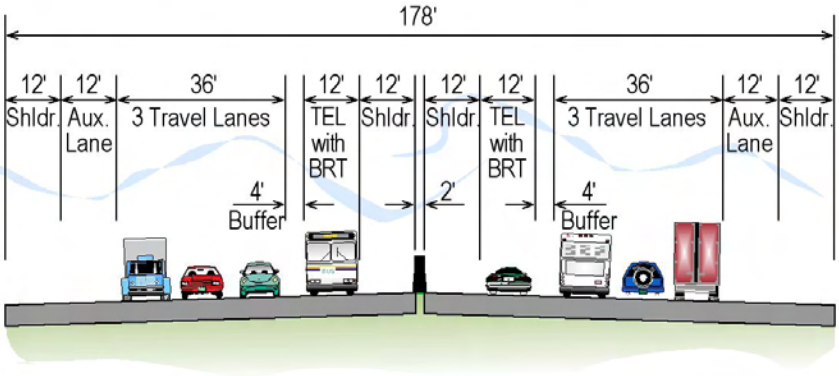


Figure 2-30 Package B Typical I-25 Cross Section – SH 7 to US 36



The tolled express lanes would require a transponder for all vehicles. The transponder would be automatically scanned as the vehicle travels in the lane; for single-occupant vehicles the transponders would collect a toll via the credit card on file for that transponder. Transponders registered to HOVs would not be assessed a toll. There would be no toll booths and no cash would be accepted with this transponder-required system. The initial pricing used for evaluation of the system is shown in **Table 2-8.** Tolls would vary by time of day, and congestion in tolled express lanes would be managed by pricing so that these lanes would be less congested than the general purpose lanes.

Table 2-8 Initial Tolled Express Lane Peak Direction Single-Occupant Vehicle Toll Rates

Location on I-25	AM Peak Hour Southbound	PM Peak Hour Northbound
North of E-470	$0.13/mi	$0.10/mi
South of E-470	$0.75/mi	$0.75/mi

Source: Wilbur Smith Associates, January 2007.

Based on this pricing, it would cost an AM peak-hour traveler $5.33 to use the tolled express lanes from SH 14 to E-470.

Access to the tolled express lanes would be provided via slip ramps connecting the general purpose lanes to the tolled express lanes. **Figure 2-31** illustrates the slip-ramp access and egress locations included in Package B. **Figure 2-32** illustrates the design of the slip ramps in more detail. A 12-foot inside shoulder is included in the design of the tolled express lanes to enable safe and efficient enforcement along the entire corridor.

Evaluation of tolled express lane traffic indicated that operation might benefit from a reversible two-lane section in the Denver Metro Area. Projected volumes show that it would be particularly beneficial south of 120th Avenue where demand could exceed the ideal capacity under the HOT management scenario. In addition, CDOT expressed an interest in providing a two-lane, barrier-separated system in the metro area to provide more capacity and separate the two lane types. This operational variation is referred to as Option B2; it would extend the current two barrier-separated reversible lanes north to 120th Avenue and then would tie in to a single buffer-separated managed lane in each direction from 120th to E-470. A typical cross section for this operational variation is shown in **Figure 2-33**.

Avoidance and Minimization

In Package B, minor shifts in I-25, interchange ramps, and frontage road horizontal alignments were included in the conceptual design that would minimize impacts to wetlands at WCR 34, SH 56, LCR 16, SH 392, Prospect Road, Harmony Road, and SH 14. I-25 horizontal alignment modifications also were included at SH 402 and SH 56 that would improve safety.

Minor modifications to the I-25 vertical alignment were included to improve safety at SH 56, SH 402, and LCR 16 and to avoid impacts to a historic ditch north of US 34.

Figure 2-31 Tolled Express Lane Access and Egress Locations

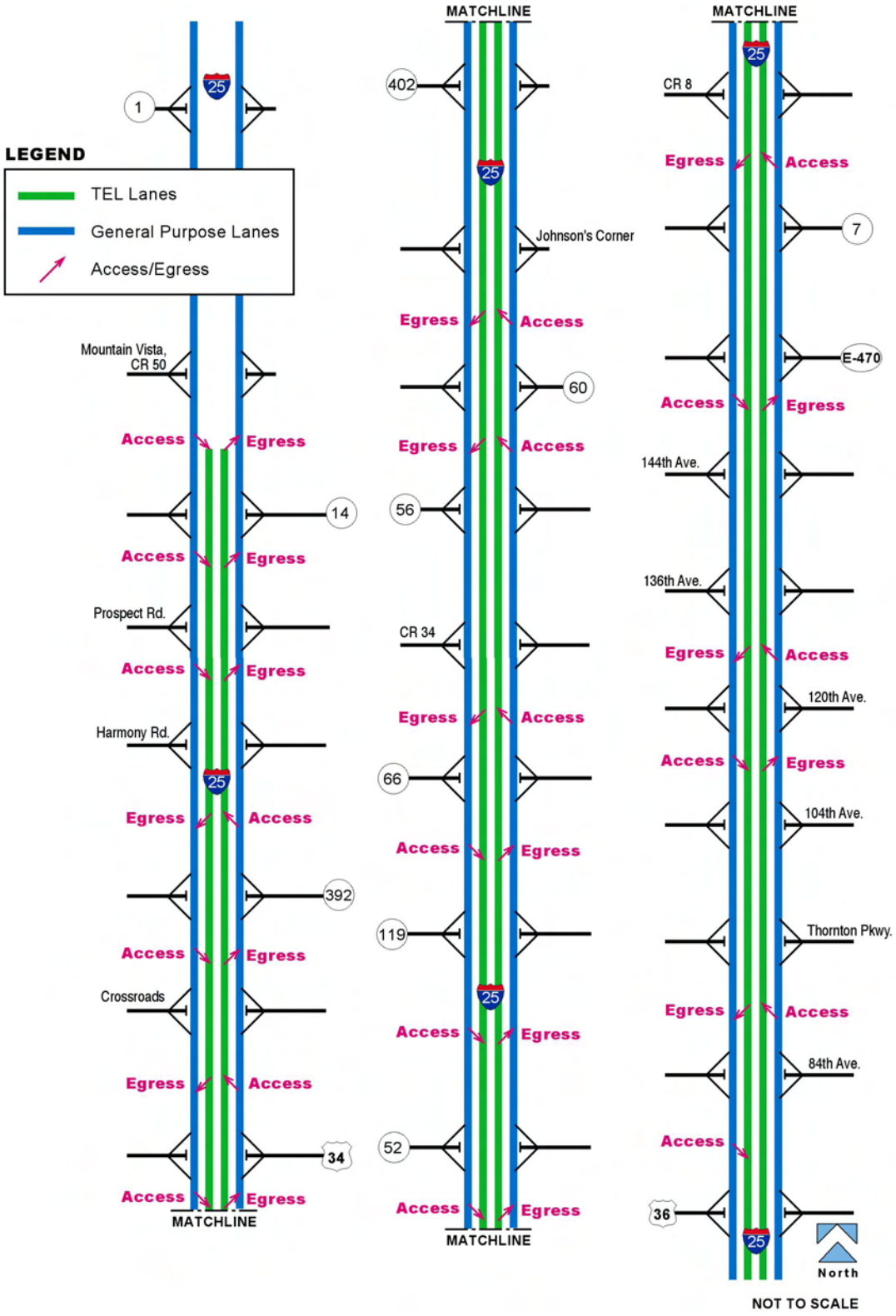
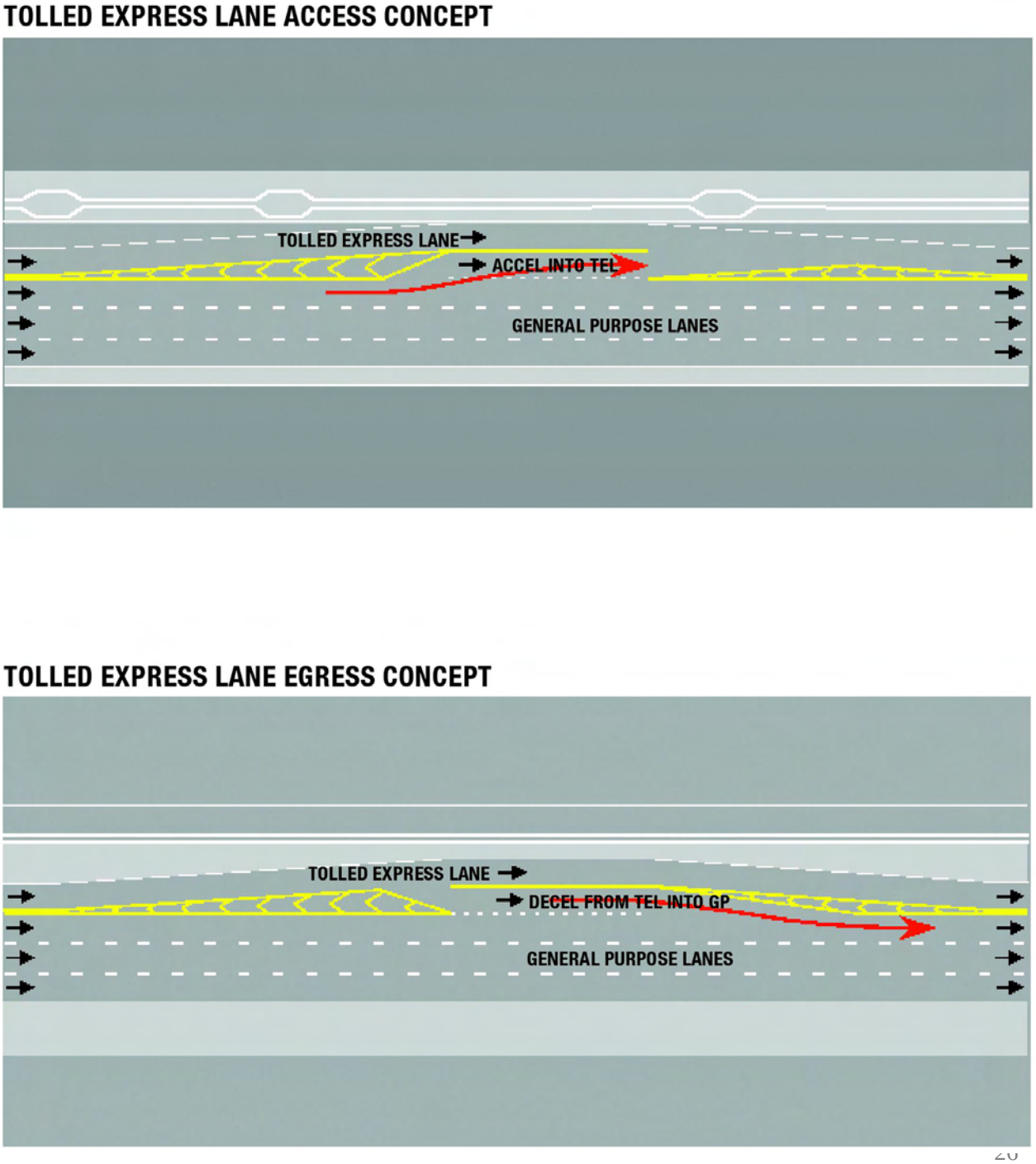
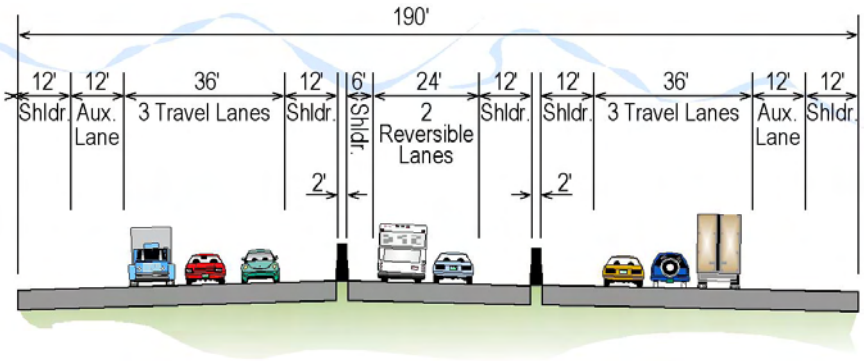


Figure 2-32 Slip-Ramp Design Concept



Source: Wilbur Smith Associates 12-06

Figure 2-33 Package B, Option B2 – Typical Reversible Cross Section – 120th to 84th Avenue



2.2.3.2 PACKAGE B INTERCHANGES

Preliminary travel demand forecasts indicate that Packages A and B would have similar travel demand in 2030 north of E-470. Therefore, while the design details would be somewhat different to accommodate mainline I-25, the interchange configurations north of E-470 would be similar between the two packages. **Table 2-9** lists the interchange improvements included in Package B. Unlike Package A, Package B includes a new structure at Harmony Road and upgrades south of E-470. The differences in interchange design between the two packages are described below.

- **Harmony Road.** Unlike Package A, the wider cross section of Package B improvements on I-25 would require replacement of this relatively new structure.
- **104th Avenue**. Package B includes a new diamond interchange with two through lanes and double left-turns from 104th Avenue to the northbound and southbound on ramps.
- **Thornton Parkway.** Package B would extend the northbound on and southbound off ramps by 380 feet compared to the existing configuration.
- **84th Avenue.** Package B includes a new diamond interchange with two through lanes and double left-turns from 84th Avenue to the northbound and southbound on ramps.

A more detailed description of the interchange configurations considered and the screening process is included in **Section 2.4.1** of this document. For detailed information about each interchange refer to the *Transportation Analysis Technical Report* (FHU and Jacobs, 2008c).

Table 2-9 summarizes the interchange improvements associated with Package B.

Table 2-9 Package B Interchange Improvements Compared to No-Action

Existing Interchange Location	No-Action Configuration	Package B Improvement
SH 1	substandard diamond	reconstructed diamond
Mountain Vista	substandard diamond	reconstructed diamond
SH 14	substandard partial cloverleaf	reconstructed diamond
Prospect Road	substandard diamond	reconstructed diamond
Harmony Road	standard diamond	reconstructed diamond
SH 392	substandard diamond	reconstructed tight diamond
Crossroads Boulevard	substandard cloverleaf	reconstructed diamond
US 34	substandard diamond	dual directional/diamond
SH 402	substandard diamond	reconstructed diamond
WCR 16	substandard off ramps	reconstructed diamond
SH 60	substandard diamond	reconstructed diamond
SH 56	substandard diamond	reconstructed diamond
WCR 34	substandard diamond	reconstructed diamond
SH 66	standard diamond	no improvement
SH 119	standard diamond	bridge widening
SH 52	standard diamond	bridge widening
WCR 8	standard diamond	reconstructed diamond
SH 7	standard diamond	reconstructed diamond
E-470	fully directional	no improvement
144th Avenue	standard diamond	no improvement
136th Avenue	standard diamond	no improvement
120th Avenue	standard diamond	no improvement
104th Avenue	substandard diamond	reconstructed diamond
Thornton Parkway	substandard diamond	structure rehabilitation and ramp extensions
84th Avenue	substandard diamond	reconstructed diamond

Option B2 would require replacement of the 104th Avenue, Thornton Parkway, and 84th Avenue interchange structures. These structures would be replaced to accommodate the reversible section as well as a single additional general purpose lane in each direction in order to accommodate DRCOG's Metro Vision.

2.2.3.3 Package B Bus Rapid Transit

BRT services would operate from Fort Collins and Greeley to downtown Denver, utilizing the express lanes along I-25. The service from Fort Collins would begin at the South Transit Center and operate along Harmony Road in mixed traffic until accessing I-25 at its interchange with Harmony Road. In addition, BRT service would operate from Fort Collins to DIA, using Harmony Road in shared general purpose lanes to access I-25. During the peak period, there would be three buses per hour, with two going to downtown Denver and one going to DIA. During off-peak hours, buses would depart every 30 minutes with, one going to downtown Denver and one going to DIA.

WHAT IS BUS RAPID TRANSIT?

A transit service that combines features of a passenger rail system with the flexibility of a bus system. It can travel in an exclusive lane along an arterial street, or a managed lane, such as the tolled express lanes.

Service from Greeley would begin at the 8th Street and 8th Avenue Transit Center in downtown Greeley and serve stops along US 34 in mixed traffic. It would access I-25 at US 34 and access the tolled express lane via a slip ramp south of US 34. It then would serve the same stations along I-25 as the service from Fort Collins to downtown Denver. During peak hours, buses would depart every 20 minutes from Greeley to downtown Denver; during off-peak hours, buses would depart every 30 minutes.

Stations along I-25 would be located in the median. This configuration was chosen to make this BRT service as competitive as possible with commuter rail service. Stops on interchange ramps could instead be considered, which would reduce capital costs. “Queue jumps” (intersection and signal treatments that allow buses to bypass queues) were considered along US 34 and Harmony Road in Package B. Intersection control, traffic volumes, speed limits, road configuration, and community plans for those roads were taken into consideration when recommending locations for queue jumps. No queue jumps were included along Harmony Road because the City of Fort Collins has designated it as an enhanced travel corridor that would include undefined transit amenities. The following US 34 queue jump locations are included in Package B:

- 26th Avenue Eastbound and Westbound
- 28th Avenue Eastbound and Westbound
- 35th Avenue Eastbound and Westbound
- 37th Avenue Court Eastbound and Westbound
- 39th Avenue Eastbound and Westbound
- 43rd Avenue Eastbound and Westbound
- 47th Avenue Eastbound and Westbound
- 71st Avenue Eastbound and Westbound

Circulation in downtown Denver would be similar to the commuter bus route shown in **Figure 2-23** and described below. During AM peak hours, southbound buses would enter downtown Denver via the North I-25 express lanes and go into downtown using 19th Street, turning southwest on Arapahoe and providing stops at 17th and 15th Streets. From there, buses would turn right on 15th Street, left at Little Raven and proceed to Elitch Gardens to layover before making the return trip. This downtown route is similar to the route of the current Front Range Express (FREX) bus from Colorado Springs to Denver. During hours when the reversible express lane flow is headed northbound, southbound buses would enter downtown Denver via the 20th Street interchange, take 20th to Arapahoe, and follow the remainder of the route described above.

During the PM peak hours, northbound buses would exit downtown Denver by turning right out of Elitch Gardens onto 15th Street, turning right again to access 14th Street and eventually turning left on Lawrence Street, picking up passengers at 15th and 17th Streets, and proceeding to the I-25 HOV entrance ramp on 20th Street. During hours when the reversible express lane flow is headed southbound, northbound buses would access I-25 via the 20th Street interchange.

Planned improvements at Denver Union Station might allow these buses to access and egress the HOV lanes from 18th and 19th Streets and serve Denver Union Station via Wewatta Street. In addition, provided there is enough space, the commuter bus service also might be able to layover at Denver Union Station before making the return trip instead of traveling the extra distance to Elitch Gardens. These possible connections could be further evaluated as planning for Denver Union Station moves forward.

A transit operator has not yet been identified to operate the bus rapid transit service. However, in the southern front range a similar commuter style service is operated by the City of Colorado Springs in partnership with the other communities served. This would indicate that one of the local transit providers in the area (Greeley, Loveland and Fort Collins) could operate this service.

While fares have not yet been determined, it is estimated that a BRT fare may be 25 percent higher than a commuter bus fare. This would yield a rate of approximately $0.15 per mile. Based on this rate, a BRT patron traveling from Fort Collins South Transit Center to downtown Denver would pay $8.70 one-way. A similar fare would be charged for a patron traveling from downtown Greeley to downtown Denver.

2.2.3.4 Package B Bus Rapid Transit Stations

BRT is proposed to travel on arterial roads and on I-25. When BRT travels on arterial roads, it would function similar to commuter bus. The BRT would load and unload passengers in the park-and-ride or at an on-street bus stop. When BRT travels on I-25, the BRT would stop at a platform located in the median of I-25. A pedestrian overpass would be provided from the median platform over I-25 to the proposed park-and-ride with the exception of SH 7 where the grade separated cross street would be utilized for pedestrian connectivity. The proposed overpass would only cross one side of I-25 but would not preclude a municipality or private developer from continuing the connection to the other side of the highway.

The station design at the South Transit Center in Fort Collins was developed before funding was committed for the South Transit Center; therefore does not incorporate the Mason Corridor South Transit Center. As detailed engineering occurs for the South Transit Center the North I-25 EIS will coordinate with the Mason Corridor to appropriately accommodate both projects.

Conceptual station layouts are shown in **Figure 2-34** and **Figure 2-35**.

Figure 2-34 BRT Station Layout at Windsor (Northbound Lanes with Barrier Separation)

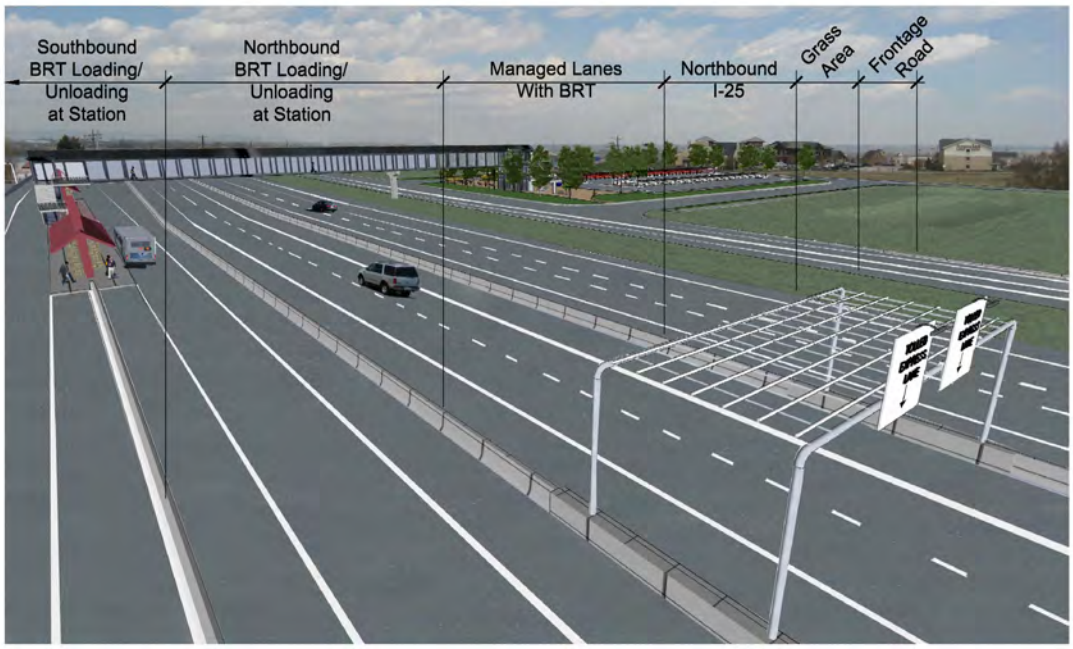
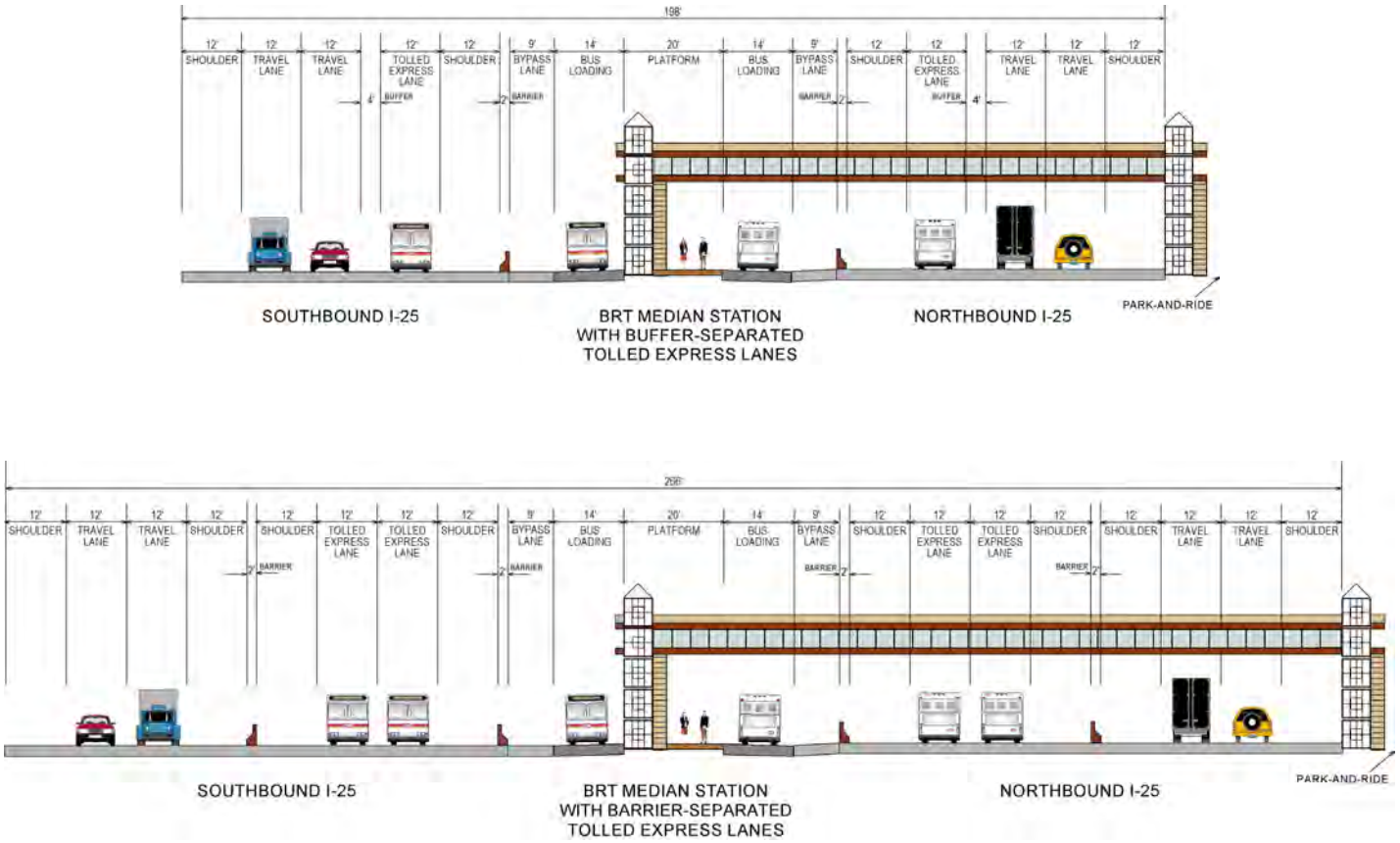


Figure 2-35 Package B Typical BRT Station Cross Sections



Station site selection criteria were similar to those applied to Package A commuter rail and commuter bus stations. Twenty-four potential station locations were screened down to twelve new stations and connections to three existing RTD stations. A range of three to sixteen sites were evaluated for each station location with the exception of the Fort Collins South Transit Center where one site was evaluated because the City of Fort Collins has an approved plan that identifies a location for a transit center. The South Transit Center is proposed to serve as the end of line for the Mason Street BRT system. In order to maximize ridership and access for the community it is important that the North I-25 commuter rail station connect to the proposed Mason Street BRT system. As a result of the station site evaluation one to three preferred site(s) were identified at each station to house the platform, park-and-ride and bus activity. A more detailed description of the station sites considered and the screening process is included in **Section 2.4.2** of this document and a full description of the station screening process is found in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a). As a result of the screening process, the following station sites were selected, as shown in **Table 2-10.** While bus rapid transit would serve three sites in the RTD district, no improvements or additional parking spaces are proposed as part of this EIS. Additional parking information is provided in **Section 2.2.3.8** Parking.

Table 2-10 Package B BRT Stations

BRT Station/Stop	Location
South Fort Collins Transit Center*	US 287 and Harmony Road - Fort Collins
Harmony Road and Timberline	Fort Collins
I-25 and Harmony Road	Fort Collins
Windsor	I-25 and SH 392
Crossroads Boulevard	Loveland Between Crossroads Boulevard and US 34
Greeley Downtown Transfer Center	8th Avenue and 8th Street - Greeley
West Greeley	US 34 and 83rd Avenue – Greeley
US 34 and SH 257	US 34 and SH 257 – Greeley
Berthoud	I-25 and SH 56
Firestone	I-25 and SH 119
Frederick/Dacono	I-25 and SH 52
I-25** and SH 7	I-25 at SH 7
Wagon Road	I-25 at 120th Avenue
Denver	Downtown Denver
DIA	Denver International Airport

* Station design will be coordinated with the recently funded Mason Corridor project.
** Two different sites are being evaluated as part of this Draft EIS.

2.2.3.5 PACKAGE B FEEDER BUS

Package B includes four feeder bus routes that would enable riders to access BRT service from the communities located along US 85 and US 287. These services would travel:

- Along SH 257, connecting Windsor and Timnath to the BRT
- Along US 34, connecting Loveland to the BRT
- Along SH 56, US 287, and SH 119, connecting Berthoud and Longmont to the BRT
- Along SH 52, connecting Fort Lupton, the tri-town area, and Niwot to the BRT

These feeder bus services would operate every 30 minutes during AM and PM peak periods and every 60 minutes during off-peak periods and would be scheduled to coincide with BRT service when possible.

A transit operator has not yet been identified to operate the feeder bus service

2.2.3.6 PACKAGE B BUS MAINTENANCE FACILITY

The two potential bus maintenance facility site locations being considered in Package A also are being considered in Package B.

The BRT maintenance facility would accommodate an estimated 90 employees, including staff for the maintenance and operation of buses for both the BRT and the North I-25 feeder bus routes. Approximately 200 daily trips would be generated to and from this facility, including visitor trips. An estimated 150 bus trips, including BRT and feeder bus trips, would occur to and from the site each day. Bus trips also would be spread throughout the day with little to no bus activity during peak hours, as nearly all buses would be in service during those times.

2.2.3.7 PACKAGE B CONGESTION MANAGEMENT

As with Package A, congestion management measures were developed based on further analysis and coordination with agencies, as well as more specific information about traffic congestion and other conditions associated with Package B. The tolling in the TEL constitutes the primary method of congestion management with Package B. **Table 2-11** summarizes congestion management measures that were selected for Package B in addition to tolling. Additional parking information is provided in **Section 2.2.3.8** *Parking*.

Table 2-11 Package B Congestion Management Measures

Congestion Management Strategy	Description of Application
Local Transit Service	Local routes would connect to BRT at the South Transit Center (Fort Collins), Harmony and Timberline (Fort Collins), the Harmony Transit Center, the Downtown Transfer Center (8th and 8th) in Greeley; Crossroads Boulevard (Jitterbug – Loveland); and SH 7 in Broomfield.
Carpool and Vanpool	Carpool/vanpool lots along I-25 would be provided at: o SH 1 o SH 14 o Prospect Rd. o Harmony Rd. o SH 392 o SH 402 o SH 60 o SH 56 o SH 66 o SH 119 o SH 52 o SH 7 These lots would be in addition to and replace the existing carpool/vanpool lots. The lots would be paved and have lighting and security cameras.
Incident Management Program	Courtesy patrols – Tow trucks with fuel, coolant, air, etc. would drive up and down I-25 from SH 14 to SH 7 during peak-period travel times (6:15 AM to 8:45 AM and 3:15 PM to 6:45 PM). These vehicles would pick up debris, help stalled motorists, and assist with other incidents as needed.
Signal Coordination and Prioritization	Timing at signals at interchanges along I-25 would be optimized as part of the interchange design process. Queue jumps, including signal treatments, would be included as part of the BRT design along US 34.
Ramp Metering	Based on a CDOT Region 6 precedent and policy along the T-REX corridor, ramp meters must be installed along continuous sections of a freeway in order to prevent trip detouring. At such time when volumes dictate ramp metering along I-25, they would be recommended at the following interchanges: o SH 14 o Prospect Rd. o Harmony Rd. o SH 392 o Crossroads Blvd o US 34 o SH 402 o SH 119 o SH 52 o WCR 8 o SH 7
Real-Time Transportation Information	The CDOT Region 4 intelligent transportation plan would be implemented in its entirety with additional variable message signs northbound and southbound north of SH 14.
Bicycle / Pedestrian Facilities	Station areas would be designed to provide pedestrian links to the nearest local road. A 12-ft wide multi-use path and 6-ft wide tree lawn would provide connectivity between the bus drop-off, park-and-ride and connectivity to the closest road. All stations would be designed in accordance with the accessibility standards set forth in the Americans with Disabilities Act (ADA).
Travel Demand Measures	During construction, proactive measures could be taken by the contractor to encourage use of alternative modes.

2.2.3.8 PACKAGE B PARKING

Parking in Package B would be provided for BRT patrons and for carpoolers. **Table 2-12** summarized the number of parking spaces for each travel mode and the total number of spaces at each location that would be included as part of this build package.

Table 2-12 Package B Parking Summary

Parking Location	BRT Station/Stops Spaces	Carpool/Vanpool Spaces	Total Spaces
SH 1 @ I-25	NA	80	80
SH 14 @ I-25	NA	170	170
Prospect @ I-25	NA	140	140
South Fort Collins Transit Center	70	NA	70
Harmony Road and Timberline	40	NA	40
I-25 @ Harmony	30	320	350
Windsor	40	100	140
Crossroads Boulevard	80	NA	80
Greeley Downtown Transfer Center	0	NA	0
West Greeley	100	NA	100
US 34 and SH 257	40	NA	40
SH 402 @ I-25	NA	360	360
Berthoud*	160	80	240
SH 56 @ I-25*	NA	40	40
Firestone	350	100	450
Frederick/Dacono	210	80	290
I-25 and SH 7	280	180	460
Wagon Road	0	0	0
Downtown Denver	0	0	0
Denver International Airport	0	0	0

* During the Final EIS consideration will be given to consolidating these two parking areas if Package B is chosen as the Preferred Alternative.

2.2.3.9 OTHER PACKAGE B FEATURES

Package B would also include retaining walls, water quality ponds, and drainage structures.

Retaining Walls

Retaining walls were used in the conceptual design along highway general purpose lanes to minimize impacts to environmentally sensitive areas and existing commercial buildings/ developments.

Water Quality

To conform to CDOT's MS4 permit, roadway runoff would need to be treated within urbanized areas. Using land use projections from the NFRMPO, urban areas were determined and potential treatment locations have been identified within Package B. These would be located along highways and at transit stations, maintenance facilities, and parking lots. Suggested locations for the water quality features are included in the Package B concept plans. Various methods for treating stormwater runoff, such as ponds, vaults, and infiltration basins would be considered during final design.

Floodplains and Drainage

Almost all of the existing drainage structures are undersized and cannot pass the 100-year storm flows under I-25. If Package B were selected, final design would include a detailed hydraulic analysis for each crossing. This would include addressing allowable backwater and methods for mitigating impacts to the environment.

2.2.3.10 PACKAGE B PRELIMINARY COST ESTIMATES

The capital cost for Package B is estimated to be approximately $2.006 billion. Additionally, the I-25 roadway would continue to require ongoing maintenance and the new bus services would have annual O&M costs associated with them. The total O&M cost is estimated to be $20 million annually. These estimates and a 30-year annualized capital cost estimate are shown in **Table 2-13**.

Table 2-13 Package B Cost Estimate

	Cost Element	Cost (2005 dollars)
Capital Cost Comparison		
	BRT – Downtown Denver and DIA	$119M
	Feeder/Local Bus	$23M
	Tolled Express Lanes	$1.864B
	Total	**$2.006B**
Annualized Capital		
	BRT – Downtown Denver and DIA	$10M
	Feeder/Local Bus	$2M
	Tolled Express Lanes	$150M
	Total	**$162M**
Annual O&M		
	BRT – Downtown Denver and DIA	$8M
	Feeder/Local Bus	$4M
	General Purpose Lanes	$6M
	Tolled Express Lanes	$2M
	Total	**$20M**

M=million; B=billion

2.2.4 Preliminary Opinions of Probable Cost Comparison

Preliminary opinions of probable costs for Packages A and B are compared in **Table 2-14** Capital costs include construction of the alternative; purchase of transit vehicles; and, where appropriate, purchase of toll collection and enforcement equipment. Annualized capital estimates are over a 30-year period. O&M costs include annual costs of operating transit, toll collection and enforcement, and maintenance of general purpose lanes. As shown in **Table 2-14**, the capital cost of Package A is approximately 21 percent higher than Package B. Additionally, the cost to operate the commuter rail service annually is nearly $30 million compared to the BRT system included in Package B, which would have annual O&M costs of less than $10 million.

The capital cost of the commuter rail would be substantially less if the line were constructed from Fort Collins to Longmont only. The estimated capital for this piece would be $615 million. Annual operating and maintenance for this piece would be $19.1 million.

Option B2, modifying Package B tolled express lanes in the metro area to two barrier-separated reversible lanes between 120th Avenue and 84th Avenue would be an additional $17 million in total capital cost. Minimal additional O&M cost would be associated with this alternative.

Table 2-14 Preliminary Opinion of Probable Costs

Cost Element	Cost (2005 dollars*)		
Capital Cost Comparison	**No-Action**	**Package A**	**Package B**
BRT – Downtown Denver and DIA	0	0	$119M
Commuter Rail	0	$1.098B	0
Commuter Bus – Downtown Denver and DIA	0	$28M	0
Feeder/Local Bus	0	$18M	$23M
General Purpose Lanes	$57M	$1.289B	0
Tolled Express Lanes	0	0	$1.864B
Total:	**$57M**	**$2.433B**	**$2.006B**
Annualized Capital	**No-Action**	**Package A**	**Package B**
BRT – Downtown Denver and DIA	0	0	$10M
Commuter Rail	0	$88M	0
Commuter Bus – Downtown Denver and DIA	0	$2M	0
Feeder/Local Bus	0	$2M	$2M
General Purpose Lanes	$4M	$103M	0
Tolled Express Lanes	0	0	$150M
Total:	**$4M**	**$195M**	**$162M**
Annual O&M	**No-Action**	**Package A**	**Package B**
BRT – Downtown Denver and DIA	0	0	$8M
Commuter Rail	0	$28M	0
Commuter Bus – Downtown Denver and DIA	0	$5M	0
Feeder/Local Bus	0	$5M	$4M
General Purpose Lanes	$4M	$5M	$6M
Tolled Express Lanes	0	0	$2M
Total:	**$4M**	**$43M**	**$20M**

*M=million; B=billion

2.2.5 Phasing

The Preferred Alternative will be identified in the Final EIS, and subsequently a ROD or RODs will be developed. Total funding for the proposed action has not been identified at this time. The availability of funding will impact the timing and phasing of construction of the Preferred Alternative.

Budget placeholders are included in *the North Front Range 2035 Regional Transportation Plan* and the *Upper Front Range 2035 Regional Transportation Plan* but fall short of the estimated costs for either of the packages being considered as reflected in this document.. The *North Front Range 2035 Regional Transportation Plan* identifies $238.0 million in 7th pot funds for improvements to I-25. It also allocates $26.3 million to "other projects" that could include transit on the I-25 and US 287 corridors and another $5.3 million to "other projects" that could include transit along the US 85 corridor. Transit projects could also be funded through $70.7 million in Enhancement and CMAQ funds. *The Upper Front Range 2035 Regional Transportation Plan* identifies I-25 and US 85 as two of five "high priority" corridors with $19.78 million allocated to corridors in the high priority category. It also allocates $440,000 (1% of the Regional Priority Program) to expanding transit service. No funding is identified in the *DRCOG Metro Vision Plan.*

This shortfall has been discussed with the public and agencies at public meetings conducted during preparation of this Draft EIS. In response to public comments received in these meetings, FHWA, FTA, and CDOT have established a process wherein phased implementation of the total project will be considered to complement the funding available. This process includes:

- Disclosure in this Draft EIS that a Preferred Alternative will likely be funded and constructed in phases
- The Final EIS to include a greater level of detail on the actual phase sections including:
  - Identification of the Preferred Alternative
  - Definition of probable phases of the Preferred Alternative and demonstration that each phase has independent utility
  - Analysis of phases of the Preferred Alternative
  - A statement that there is an intention to build the other phases
- A public hearing to be conducted after issuance of the Final EIS to allow for public review and comment

The identification of a Preferred Alternative for the entire project in the Final EIS is consistent with the USDOT's objective of analyzing and selecting transportation solutions on a broad enough scale to provide meaningful analysis and avoid segmentation. Examples of improvements that might be phased through use of a series of different ROD actions include interchange reconstruction, addition of new lanes for segments of the highway, and/or construction of new transit stations. It is the intent of CDOT, FTA, and FHWA to work toward implementation of the Preferred Alternative in its entirety through this phased approach, as funds become available. The selection of an initial phase and subsequent phases for implementation is dependent on prioritization of corridor needs, logical phase sequencing and any specific limitation of the use of funding sources. Depending on these considerations an individual phase may include highway improvements only, transit improvements only or a combination of both.

The two build packages have different phasing considerations. Some of these are listed below:

Package A

- Package A widening of I-25 would likely begin at SH 66 (where the existing 6-lane section ends) and move north to Fort Collins and Wellington. Widening I-25 to eight lanes between E-470 and SH 52 would occur subsequent to I-25 widening in the Denver Metro area south of E-470.
- Individual interchanges in either of the packages could be constructed as a separate action without widening I-25 but widening I-25 in either Package A or Package B would also entail reconstructing the interchanges.
- With the two connecting FasTracks rail lines currently identified as single track (for the Northwest Rail Corridor single tracking is assumed between Boulder and Longmont and for the North Metro Corridor single tracking is assumed north of 128th Avenue). Package A commuter rail could also potentially be constructed as a single track with passing tracks to reduce impacts to sensitive environmental resources as well as both capital and operating costs. This phasing option could include extension of a single tracked option from the 1st and Terry Station in Longmont to Berthoud or Loveland, addition of some passing track to allow for trains to pass each other, and limited service initially that could be increased as ridership increases. This option could be initiated more quickly with a reduced need for both capital and operating funding. It could also be expanded over time to be double tracked.
- Two minimal commuter rail options were considered during the alternatives development and evaluation phase. The intent of these was to provide a low cost rail solution for the entire corridor that could be phased over time. Both extended a single track from the 1st and Terry station in Longmont to the South Transit Center in Fort Collins and provided three trips every 60 minutes during each peak period. Option 1 would require a transfer at 1st and Terry to continue into downtown Denver. Option 2 would provide a single-seat ride from Fort Collins through Longmont and Boulder into downtown Denver. Because these options would not include constructing a new track adjacent to the existing freight rail track, they would result in substantially less construction and thus effect to environmental resources. Less right of way would be needed from parks and historic properties which would lessen the effects to historic resources and reduce 4(f) impacts. At river crossings, since there would be no new track, there would not be a need to construct a new bridge or culvert, therefore there would be fewer permanent impacts to wetlands and waters of the US. Temporary impacts would similarly be noticeably less with the single tracked options. Noise and vibration impacts from the rail would be lower for the residences adjacent to the new track but about the same as Package A impacts - for the residences adjacent to the freight rail track. Water quality impacts would not be much different because the only impervious surface is at station areas and those would not change. Wildlife habitat impacts would also be noticeably lessened with the single track options because substantially less wildlife habitat would be permanently removed due to fill for the new track. These minimal rail options would cost less to construct and to operate, but would also result in large reductions in rail ridership.
- New track would only be built for short sections to allow for passing, but these passing tracks would be placed in areas without sensitive environmental resources. These reductions made them uncompetitive with other transit options in this Draft EIS and for that reason, these were not carried forward as applicable to the entire corridor. Single tracking was used in two locations, however, to avoid direct impacts to historic resources.
- Single tracking of the entire corridor was determined to be a feasible and legitimate phasing opportunity, especially since it is likely that the two FasTracks corridors (Northwest Rail and North Metro) will also be single tracked at their northern termini .The complete memo describing the evaluation of these two options is included in the *Alternatives Development and Screening Report* Appendix I (FHU and Jacobs, 2008a).

- Construction of the Package A commuter rail would likely begin at one of the two FasTracks rail end of lines and be built north.
- As a cost savings measure, initial commuter rail service could begin with a shorter length of track (such as from 1st and Terry in Longmont to the South Transit Center in Fort Collins), limited peak hour service, fewer stops, and no new maintenance facility (assuming maintenance would be contracted out to RTD).
- Package A would require a transit operator to be identified prior to inception of transit operation.
- Package A commuter rail and commuter bus could be operated independently of any I-25 roadway improvements.
- Of the three transit services evaluated in Package A and Package B, commuter bus service would be the easiest method of initiating regional transit service.
- There is a lack of funding for both highway and transit components.

Package B

- Package B widening of I-25 would likely be phased to address the areas with the highest congestion first (Fort Collins/Loveland section and the Denver Metro section) or be completed in sections beginning at SH 66 (where the existing 6-lane section ends) and move north to Fort Collins and Wellington.
- Individual interchanges in either of the packages could be constructed as a separate action without widening I-25 but widening I-25 in either Package A or Package B would also entail reconstructing the interchanges.
- BRT service is dependent on construction of the tolled express lanes and tolled express lanes could be constructed independent of BRT service.
- Package B transit service could be initiated as a commuter bus service along I-25 (instead of a BRT service). This would not require construction of the managed lanes and would generally have fewer impacts than the BRT service because median stations would not be required.
- As a commuter bus or BRT, service could be initiated as limited peak period only service with little or no mid-day service provided.
- As demand grows, additional service frequency could be added during the peak periods and at mid-day.
- Once the peak period and mid-day services are established, the final phase of implementation could add express (non-stop) service between major origins and destinations along the route.
- Package B would require a transit operator to be identified prior to inception of transit operation. Package B BRT service is dependent on the construction of the tolled express lanes along I-25.
- Of the three transit services evaluated in Package A and Package B, commuter bus service would be the easiest method of initiating regional transit service.
- There is a lack of funding for both highway and transit components.

2.2.6 Package Components

The Preferred Alternative could be a combination of pieces of Package A and pieces of Package B combined to make a new build alternative. It is recogized that the packages are comprised of physically and functionally distinct parts, or components. This section provides a breakdown of the packages by component. Components of each package were identified in part to answer questions that had been raised through this environmental process such as “how beneficial is the commuter rail line connecting the Northwest Rail Corridor and the North Metro Corridor?” or “Could tolled express lanes be constructed in Northern Colorado without tying into E-470?” The components do not however, have independent utility or logical termini to be constructed on their own. They also do not represent construction phasing. Evaluation of the components answers these questions and provides a better comparison of the differences between Package A and Package B improvements and an understanding of the impacts associated with a potential Preferred Alternative developed from components of both packages.

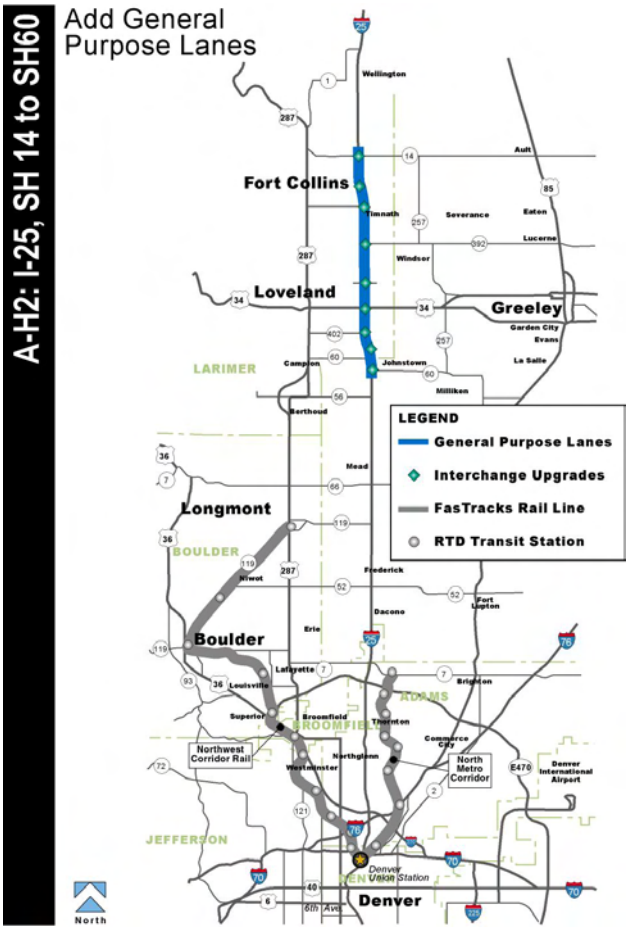
Examples of feasible combinations of Package improvements that meet the purpose and need include:

- Package A without the Longmont to North Metro Commuter Rail Component
- Package B with commuter bus service instead of BRT service to DIA
- Package A with commuter rail service from Longmont to Berthoud only

Package A Components

Component A-H1: I-25, SH 1 to SH 14
This component includes horizontal and vertical alignment improvements along I-25 as well as reconstruction of the SH 1 and Mountain Vista interchanges. No widening of I-25 is associated with this component. I-25 would remain four lanes.

The estimated capital cost of component A-H1 is $154.0 million.



Component A-H2: I-25, SH 14 to SH 60
This component consists of widening I-25 from four to six general purpose lanes from just north of SH 14 to just south of SH 60. Widening would address vertical and horizontal alignment concerns along I-25. In addition, auxiliary lanes would be included between Harmony Road and SH 60. This component would reconstruct interchanges at SH 14, Prospect Road, Harmony Road, SH 392, Crossroads Boulevard, US 34, SH 402, LCR 16 and SH 60. The relatively new interchange at Harmony Road would be widened to provide additional capacity.

The estimated capital cost of component A-H2 is $874.6 million.

Component A-H3: I-25, SH 60 to E-470

This component includes widening I-25 from four to six general purpose lanes from just south of SH 60 to just north of SH 66 and widening it from six to eight general purpose lanes from just north of SH 52 to E-470. No widening would be included between SH 66 and SH 52; this section is to be constructed to six lanes with No-Action. The widening would address vertical and horizontal alignment concerns along I-25. In addition, auxiliary lanes would be included between SH 7 and E-470. This component would reconstruct interchanges at SH 56, WCR 34, and SH 7. The relatively new SH 52 structure over I-25 would be widened to provide additional capacity along SH 52. The interchange at SH 119 is also relatively new and would require minimal upgrade to the off ramps. A new interchange at SH 66 is planned as part of a separate action.

The estimated capital cost of component A-H3 is $205.6 million.

Component A-H4: I-25, E-470 to US 36

This component includes improvements identified in the No-Action Alternative. No capacity improvements are included in Package A along this section of I-25 (I-25 is currently 6 lanes in this area). No-Action improvements include minor structure rehabilitation for Bull Canal, a pedestrian overpass north of 104th Avenue, Farmer's Highline Canal crossing, Thornton Parkway, 88th Avenue, and the pedestrian underpass south of 88th. In addition, major structural rehabilitation is included at 104th Avenue and 84th Avenue.

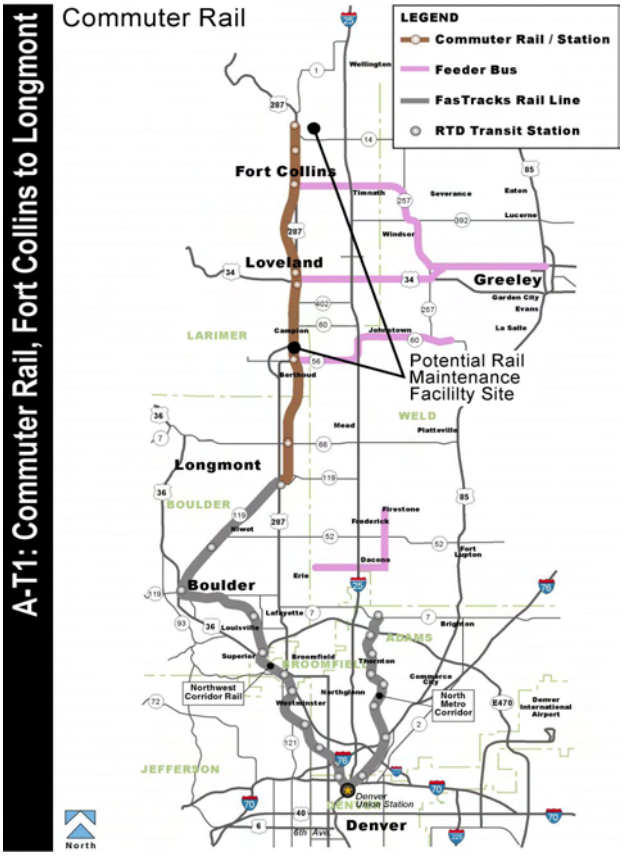
The estimated capital cost of component A-H4 is $54.7 million.

Package A Transit Components

Component A-T1: Commuter Rail Fort Collins to Longmont

This component includes single track commuter rail along the BNSF from near Mason Street and Maple Street in downtown Fort Collins to University Avenue and Mason near CSU and double track commuter rail using the existing BNSF railroad track plus one new track from University Avenue and Mason Street near CSU to 1st and Terry in Longmont. This component includes seven commuter rail stations, one maintenance facility, and the feeder bus service described in Package A.

The estimated capital cost of component A-T1 is $615.0 million.



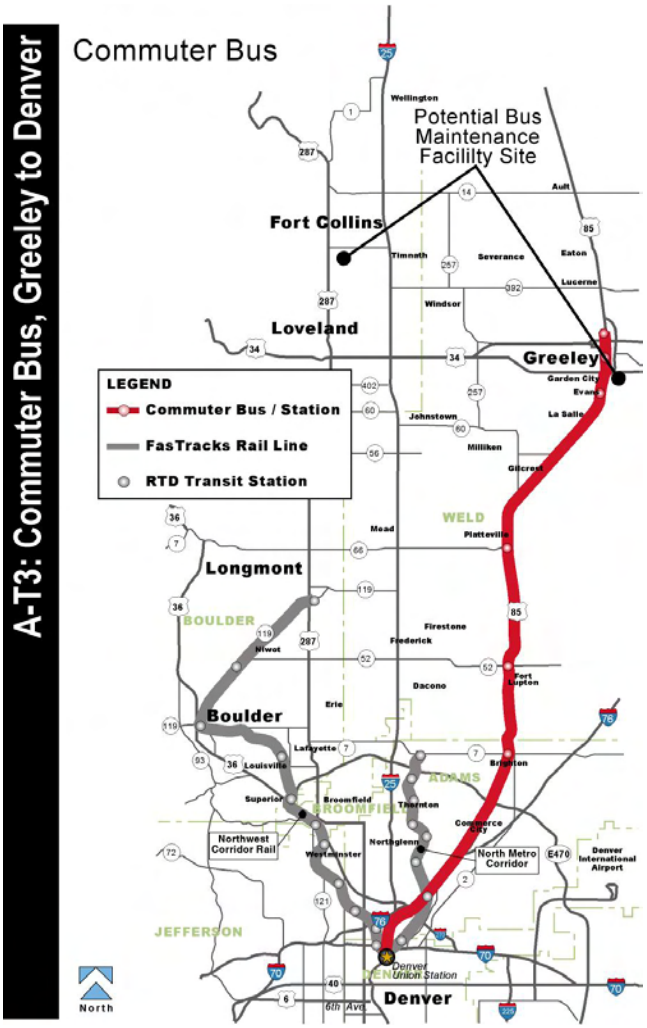
Component A-T2: Commuter Rail Longmont to FasTracks North Metro Corridor

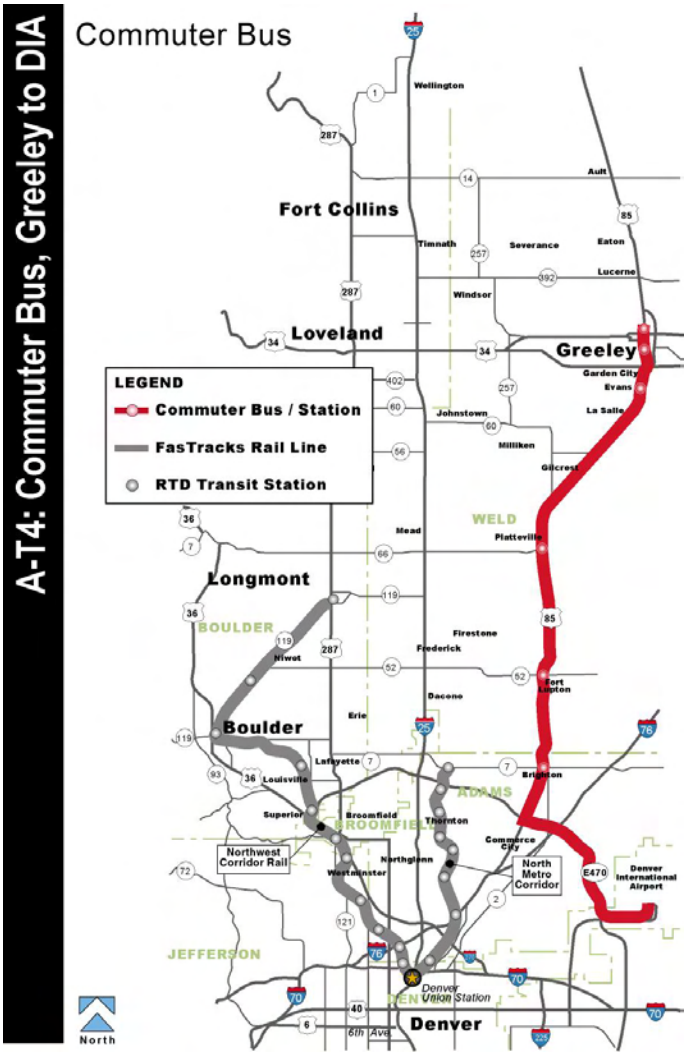
This component includes new double-track commuter rail from Longmont at 1st and Terry along SH 119, then southeast to CR 7, and southeast again to cross I-25, and would connect to the FasTracks North Metro Corridor at SH 7.
This component would not be constructed and operated independently, but would be in addition to the commuter rail component from Fort Collins to Longmont. This component includes two additional stations, one near the Sugar Mill in Longmont and one near CR 8/CR 7 near the tri-towns.

The estimated capital cost of component A-T2 is $438.0 million.

Component A-T3: Commuter Bus Greeley to Denver

This component includes commuter bus service from Greeley to downtown Denver. Queue jumps and stations along US 85 identified in the Package A description are associated with this component. A bus maintenance facility is also associated with this component.





Component A-T4: Commuter Bus Greeley to DIA

This component includes commuter bus service from Greeley to DIA. This component would be operated in addition to the commuter bus service to Denver and serve the same stations along US 85 north of E-470. No additional stations are associated with this service.

Together, Components A-T3 and A-T4 would have an estimated capital cost of $28.2 million.

Package A Highway Components Summary

Table 2-15 Summarizes key elements associated with Package A highway components summary.

Table 2-15 Package A Summary

PACKAGE A COMPONENT SUMMARY								
TRANSPORTATION ELEMENT	**COMPONENT**							
	A-H1	**A-H2**	**A-H3**	**A-H4**	**A-T1**	**A-T2**	**A-T3**	**A-T4**
I-25 Segment Length (Miles)	8.4	18.2	24.6	9.8	30.2	17.5	NA	NA
Additional General Purpose Lanes (Miles)	0	18.2	15.7	0	0	0	0	0
Interchanges – Reconstructed (Number)	2	8	4	0	0	0	0	0
Interchanges – Modified/Rehabilitated (Number)	0	1	2	3	0	0	0	0
Car Pool Lots (Number)	1	6	5	0	6	2	5	*
Water Quality Ponds (Number)	11	35	31	0	6	2	5	*
Structures – Modified/Rehabilitated (Number)	4	2	7	8	0	0	0	0
Structures – Replaced\New (Number)	10	37	18	0	18	24	0	0
Structures – Replaced (Hydraulic Deficiency) (Number)	0	11	8	0	0	0	0	0
Commuter Rail Line (Miles)	0	0	0	0	30.2	17.5	0	0
Commuter Bus Service (Miles)	0	0	0	0	0	0	57.6	54.1
Maintenance Facilities (Number)	0	0	0	0	1	0	1	*
Stations (Number)	0	0	0	0	7	2	7	*
Queue Jumps (Number)	0	0	0	0	0	0	10	*

NA = Not Applicable
* Included in A-T3

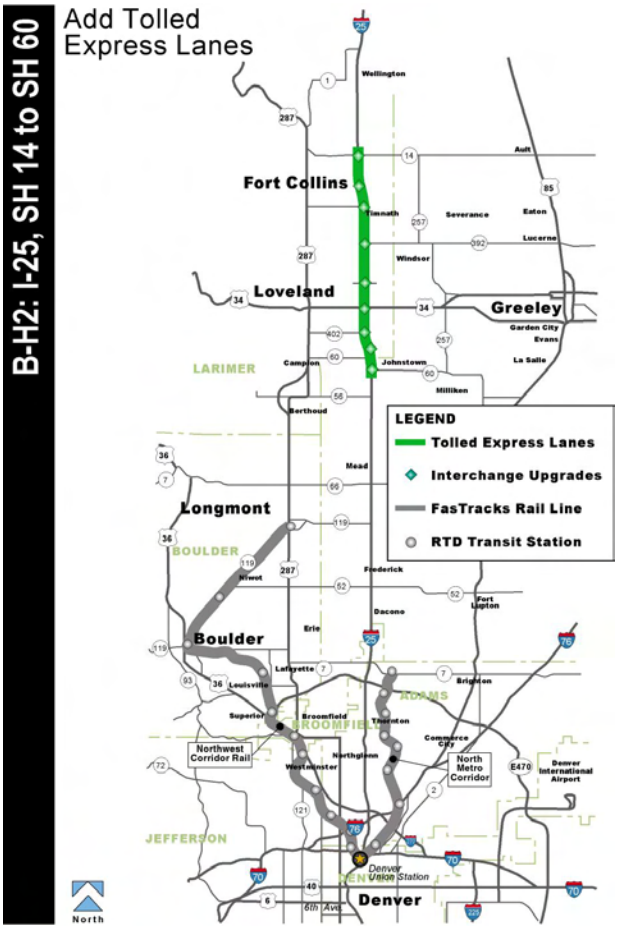
Package B Components

Package B Highway Components

Component B-H1: I-25, SH 1 to SH 14

This component includes horizontal and vertical alignment improvements along I-25 as well as reconstruction of the SH 1 and Mountain Vista interchanges. No widening of I-25 is associated with this component; I-25 would remain four lanes.

The estimated capital cost of component B-H1 is $154.0 million.



Component B-H2: I-25, SH 14 to SH 60

This component includes adding two buffer-separated tolled express lanes from SH 14 to Harmony Road and four barrier-separated tolled express lanes from just north of Harmony Road to just south of SH 60 to the existing four general purpose lanes.

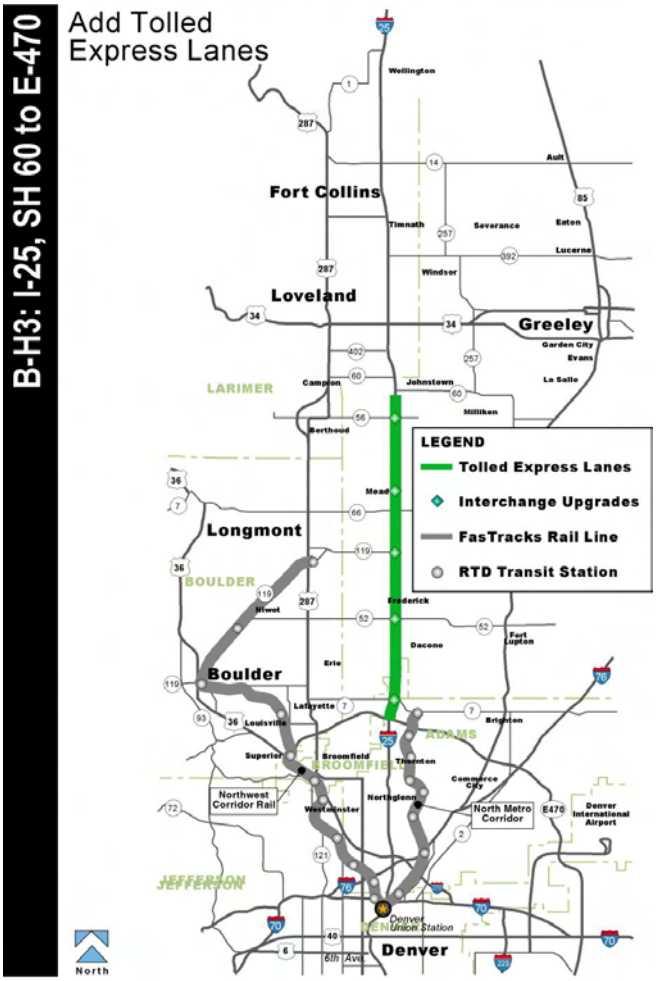
Widening would address vertical and horizontal alignment concerns along I-25. This component includes reconstruction of interchanges at SH 14, Prospect Road, Harmony Road, SH 392, Crossroads Boulevard, US 34, SH 402, LCR 16, and SH 60. The relatively new interchange bridge at Harmony Road would be replaced to accommodate the wider I-25 cross section in Package B.

The estimated capital cost of component B-H2 is $1.059 billion.

Component B-H3: I-25, SH 60 to E-470

This component includes adding two buffer-separated tolled express lanes from just south of SH 60 to SH 66 and the existing four general purpose lanes on I-25. From SH 66 to E-470, two buffer-separated lanes would be added to the existing six-lane I-25 cross section. Widening would address vertical and horizontal alignment concerns along I-25. In addition, auxiliary lanes would be included between SH 7 and E-470. This component would reconstruct interchanges at SH 56, WCR 34, and SH 7. The relatively new SH 52 structure over I-25 would be widened to provide additional capacity along SH 52. The interchange at SH 119 is also relatively new and would require minimal upgrade to the off ramps. A new interchange at SH 66 is planned as part of a separate action.

The estimated capital cost of component B-H3 is $333.2 million.



Component B-H4: I-25, E-470 to US 36

This component includes adding two buffer-separated tolled express lanes to the existing six general purpose lanes on I-25. Interchanges at 104th and 84th Avenues would be totally reconstructed, those at E-470 and 144th, 136th, and 120th Avenues and Thornton Parkway would be partially rebuilt. Improvements also include replacement of Bull Canal crossing, a pedestrian overpass north of 104th Avenue, Farmer's Highline Canal crossing, and the 88th Avenue pedestrian underpass.

The estimated capital cost of component B-H4 is $317.8 million.

Package B Transit Components

Component B-T1: BRT Fort Collins/ Greeley to Denver

This component includes BRT service from Fort Collins and Greeley to downtown Denver. Queue jumps along US 34 described in Package B are also included in this component. This includes a bus maintenance facility and 14 BRT stops located along Harmony Road, US 34/US 34 Business, and I-25. Twelve of these stations are being assessed as part of this Draft EIS. The other two stops are existing and within the RTD district. This component also includes the feeder bus network described in Package B.

Component B-T2: BRT Fort Collins/Greeley to DIA

This component includes BRT service from Fort Collins/Greeley to DIA. This component would not be operated independently but would be in addition to BRT service to Denver. No additional stations are associated with this service.

Together Components B-T1 and B-T2 would have an estimated capital cost of $141.7 million.

Package B Component Summary

Table 2-16 summarizes key elements associated with each Package B component.

Table 2-16 Package B Summary

PACKAGE B COMPONENT SUMMARY						
TRANSPORTATION ELEMENT	**COMPONENT**					
	B-H1	**B-H2**	**B-H3**	**B-H4**	**B-T1**	**B-T2**
I-25 Segment Length	8.4	18.2	24.6	9.8	NA	NA
Tolled Express Lanes (Miles)	0	18.2	15.7	0	0	0
Interchanges – Reconstructed (Number)	2	8	4	0	0	0
Interchanges – Modified/Rehabilitated (Number)	0	1	2	3	0	0
BRT/Car Pool Lots (Number)	1	6	5	0	2	*
Water Quality Ponds	11	35	31	0	1	*
Structures – Modified/Rehabilitated (Number)	4	2	7	8*	NTS	NTS
Structures – Replaced/New (Number)	10	37	18	0	NTS	NTS
Structures – Replaced (Hydraulic Deficiency) (Number)	0	11	8	0	NTS	NTS
Bus Rapid Transit Service (Miles)	0	0	0	0	76.5	78.6
Maintenance Facilities (Number)	0	0	0	0	1	*
Stations/Stops (Number)	0	0	0	0	14	*
Queue Jumps (Number)	0	0	0	0	12	*

*NTS = Not Tabulated Separately. Included in corresponding highway components.
NA = Not Applicable
*Included in B-T1

2.3 SCREENING OF PRIMARY ELEMENTS

This section describes the development of the primary transportation improvements in Packages A and B through the evaluation and screening process. The development and screening are described in detail in *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a). However, to simplify presentation of the process and its outcomes, results of the development and screening process are summarized below in a series of four primary questions and responses:

- Where should alternatives begin and end?
- What alignments should be used?
- What highway facility type and transit mode should be selected?
- How do the transit and highway alternatives fit together?

2.3.1 Question 1: Where should alternatives begin and end?

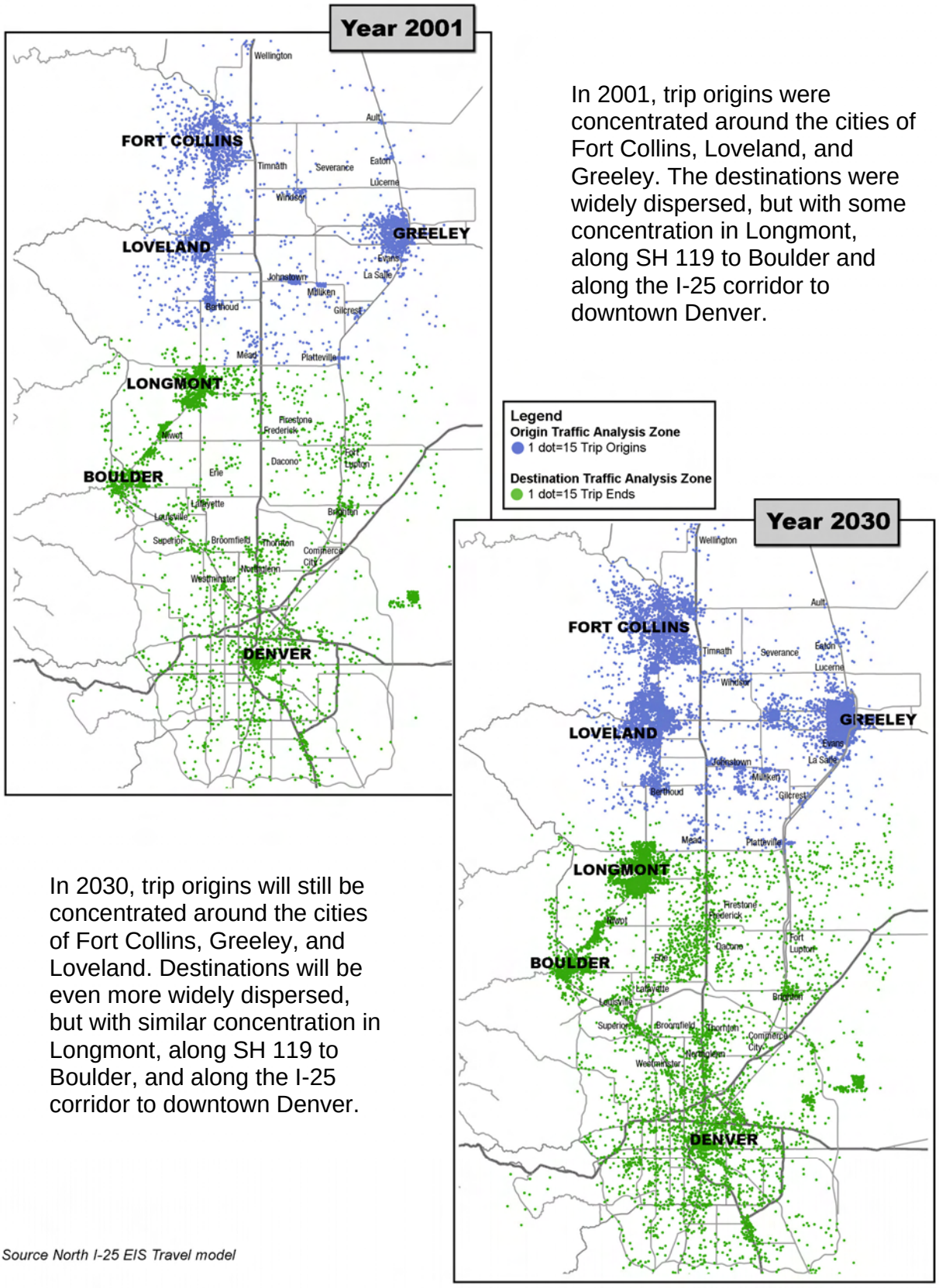
Various northern and southern endpoints were analyzed for both the transit and highway components to determine the project's "logical termini." The main considerations were the alternatives' accessibility to and from major population centers in the regional study area (shown in **Figure 2-36**), and the alternatives' potential connections to other facilities and services, as discussed in **Section 2.1.4** *Regional Planning Context*. Major population centers on the northern end included Fort Collins, Loveland, and Greeley, as shown. By contrast, there are several southern population centers, and the trip patterns destined to them from areas north of SH 66 are very diverse. Therefore, selecting the southern terminus depended less on population concentrations and more on connecting transportation facilities and services.

2.3.1.1 HIGHWAY TERMINI

The following logical termini were established based on the project's purpose and need and a review of travel patterns, roadway volumes, travel time, land use, population growth, employment growth, and travel modes:

- While traffic volumes drop off noticeably north of SH 14, a northern highway terminus of Wellington (SH 1) was selected to address existing safety concerns between SH 14 and SH 1. Improvements north of SH 14 would address the existing safety concerns but would not add capacity to this stretch of I-25. In addition, a 2002 household survey by the North Front Range MPO indicated that only a small portion of trips have destinations north of Wellington.
- Two different southern termini were established based on the different lane types being considered. For highway improvements focused on high-occupancy vehicles, such as HOT or HOV lanes, a southern terminus of US 36 was found to provide the best continuity of travel by providing a direct connection to the existing HOT reversible facility in the Denver Metro Area that currently has a northern terminus near US 36/84th Avenue. Terminating the lanes north of the exiting HOT facility would require users to exit the manage lanes and travel on the general purpose lanes on the section of I-25 with the slowest travel speeds. This would result in reducing the overall demand and possible revenue to proposed HOV and HOT lanes. For traditional toll and general purpose lane improvements, a southern terminus of E-470 (and the Northwest Parkway) was identified. This terminus would address the northern Colorado auto travel patterns that distribute throughout the Denver Metro area with a limited volume actually continuing on to downtown Denver. In addition, it provides independent utility, and it would not preclude consideration of other reasonably foreseeable transportation improvements along the corridor.

Figure 2-36 Origins and Destinations from North Front Range to South of SH 66



In 2001, trip origins were concentrated around the cities of Fort Collins, Loveland, and Greeley. The destinations were widely dispersed, but with some concentration in Longmont, along SH 119 to Boulder and along the I-25 corridor to downtown Denver.

In 2030, trip origins will still be concentrated around the cities of Fort Collins, Greeley, and Loveland. Destinations will be even more widely dispersed, but with similar concentration in Longmont, along SH 119 to Boulder, and along the I-25 corridor to downtown Denver.

Source North I-25 EIS Travel model

2.3.1.2 TRANSIT TERMINI

Various forms of both bus and rail technologies were considered for the North I-25 EIS, which influenced how the end-of-line locations were selected.

- **Northern Terminus.** The logical northern terminus would need to demonstrate accessibility by the projects' main population centers: Fort Collins, Greeley, and Loveland. Communities decrease substantially in size north of these communities. In addition, Fort Collins, Greeley, and Loveland have local transit services and facilities that new transit services could connect to, where multi-modal ends of line would provide greater accessibility for passengers. A northern transit terminus of SH 14 was found to adequately address multi-modal transportation opportunities in northern Colorado.
- **Southern Terminus**. Denver's RTD has committed funding for two commuter rail lines that extend into the regional study area through the FasTracks program, a referendum that funded the extensive passenger rail expansion program that will include service to Longmont and Thornton, among other corridors. Consequently, the North I-25 project focused on providing service to points with maximum transit connectivity without duplicating or competing for service, and all rail alternatives were designed to either end or begin coordinating with RTD service at the FasTracks corridors' ends-of-line, which terminate at Denver Union Station. Because the FasTracks rail corridors end in downtown Denver, bus alternatives also were designed to end in downtown Denver, in order to provide comparable end-of-line services and amenities to the rail alternatives. Terminating bus service north of downtown Denver would result in longer travel time for bus riders and a transfer which would result in a substantial reduction in bus ridership.

OUTCOME OF QUESTION 1: WHERE SHOULD ALTERNATIVES BEGIN AND END?

The need to address mobility needs, replace aging infrastructure and address safety concerns necessitated that capacity improvements extend north to Fort Collins and safety improvements on I-25 extend north to SH 1.

The need to provide accessibility screened out transit options that did not connect northern Colorado communities to the Denver Metro Area, such as the North Front Range Rail Loop.

The effect of the termini on the project had the following outcomes:

- General purpose lanes and toll lane alternatives need to connect to E-470 as a southern terminus to distribute northern Colorado auto travelers throughout the Denver metro area
- HOV and HOT alternatives need to connect to the HOT facility at US 36 as a southern terminus to be a competitive travel mode and provide a facility for BRT improvements
- Highway widening needs to extend north to SH 14 as a northern terminus
- Highway safety improvements need to extend to SH 1 to address current safety concerns
- Transit alternatives need to connect to existing and planned transit services to provide service to downtown Denver as a southern terminus a major transit destination
- Transit alternatives need to connect to the northern population centers of Fort Collins and Greeley to attract ridership

Additional details about the screening results are included in **Table 2-18**.

2.3.2 Question 2: What alignment(s) should be used?

Various north/south alignments along existing transportation corridors were considered. This question was analyzed separately for highway and transit improvements.

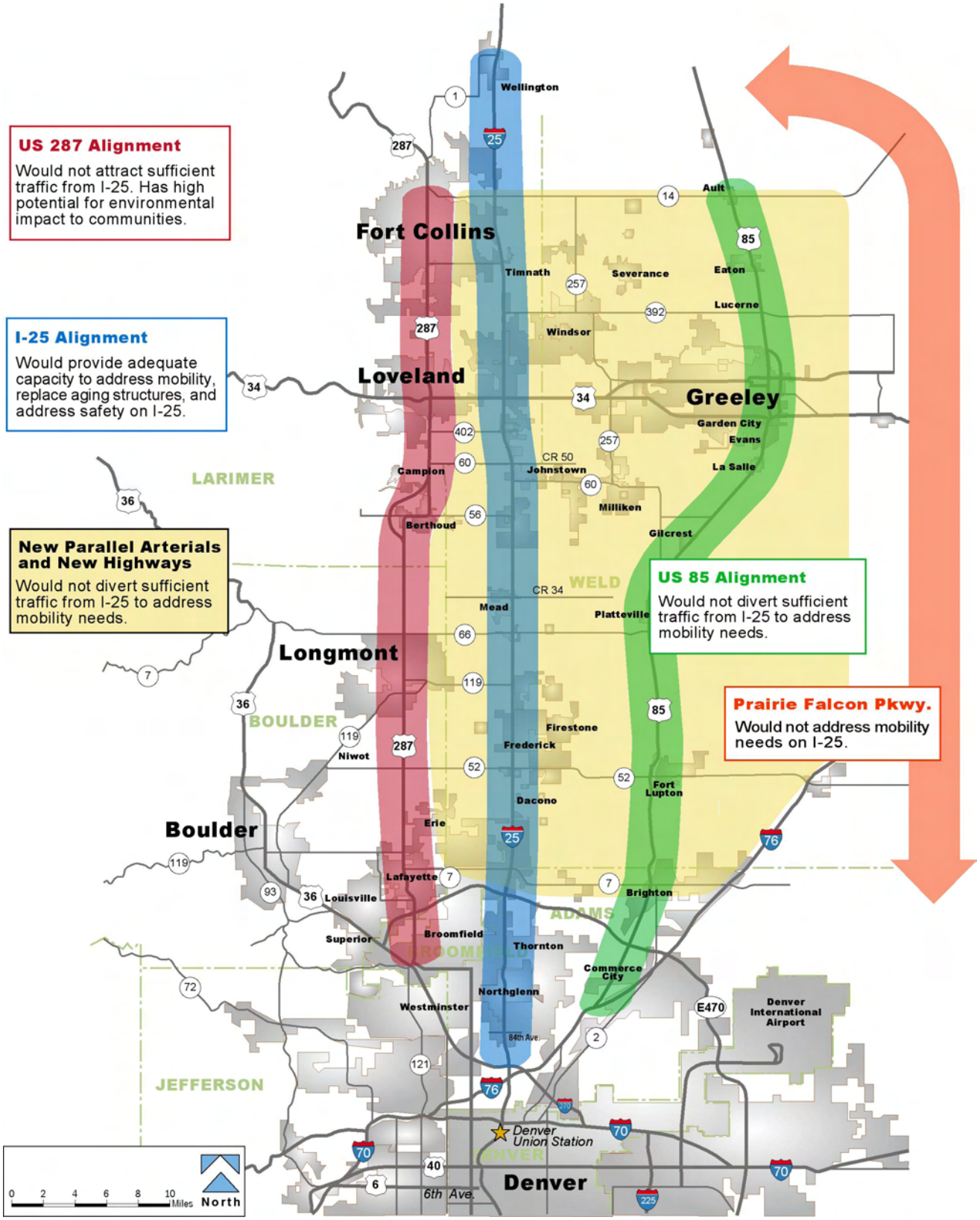
2.3.2.1 Highway Alignment

Alignments included widening I-25 with additional lanes; upgrading existing parallel facilities such as US 85, US 287 or arterials parallel to I-25; and building a new highway along existing county roads. The alignments considered are depicted in **Figure 2-37.**

Evaluation of the initial range of alignments found that improvements that paralleled I-25, such as upgrading US 85 or US 287 or a new highway or parallel arterial, did not divert sufficient traffic from I-25 to relieve anticipated congestion. This includes the proposed Prairie Falcon Parkway, a multi-modal toll facility approximately 25 miles east of I-25, connecting Larimer and Pueblo counties. While some interstate travel may divert to this new facility, the majority of residents in the regional study area would experience lengthy out-of-direction travel to connect to the Denver Metro Area if they used this facility. Without other improvements, the proposed parkway alone would not have the ability to address the mobility needs of northern Colorado residents traveling to the Denver Metro Area. Potential environmental impacts were also taken into consideration. New roadway alignments and upgrading roads through communities had more potential to impact environmental resources.

The alignment evaluation found that improvements located on I-25 (general purpose lanes or managed lanes) best addressed the anticipated congestion on I-25. In addition, these improvements had the most potential to also address safety concerns along I-25 and replace the aging infrastructure on I-25. These improvements also had a lower potential to impact the natural and human environment when compared to new highway and roadway alternatives.

Figure 2-37 Highway Alignments Considered



2.3.2.2 RAIL ALIGNMENTS

The potential rail transit alignments considered are pictured in **Figure 2-38**. Both active and abandoned railroad right-of-way were considered as well as new alignments along other existing transportation corridors. Alignments were evaluated based on the following:

- Concentration of employment and population centers served
- Ability to connect to other existing transit systems
- Travel time
- Anticipated trip patterns served
- Cost effectiveness
- Potential to adversely impact natural and built environmental resources

Detailed documentation of the evaluation of rail alignments considered is provided in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a).

The western side alignment was more favorable than the central or eastern alignment alternatives for the following reasons:

- Alternatives on the western side of the corridor would provide greater access to population and employment concentrations.
  - The initial alignment analysis found that an estimated 14,975 future work trips occur between western communities and the Denver area. Similarly, an estimated 9,075 future work trips occur between eastern communities and the Denver area. However, this analysis was inconclusive with respect to the travel patterns along the central area of the study area.
  - A more detailed analysis of the central and western alignments was subsequently undertaken. The quantity of existing population and employment within four miles of the preliminary station sites along each alignment was calculated. The preliminary station sites included the following:

Central rail alignment	**Western rail alignment**
I-25 at Harmony Road - Fort Collins	BNSF north of downtown – Fort Collins
I-25 at SH 392 - Windsor	BNSF at SH 14 – Fort Collins
I-25 at Crossroads - Loveland	BNSF at Harmony Road – Fort Collins
I-25 at US 34 - Loveland	BNSF at US 34 - Loveland
I-25 at SH 56 - Berthoud	BNSF at SH 402 - Loveland
I-25 at SH 119 - Longmont	BNSF at SH 56 - Berthoud
I-25 at SH 52 - Frederick	BNSF south of SH 66 - Longmont
	1st and Terry - Longmont

The evaluation showed that the western alignment currently has more than double the population and employment surrounding stations than the central alignment. This difference in the concentration of population and employment is projected to continue into the future, but at less pronounced levels. In 2030, there will be about 30% more population and employment along the west corridor compared to the central corridor.

- Western and central rail lines would attract a similar amount of ridership. However, the western rail lines would cost approximately 35% less than a comparable length of central rail line because the western line would utilize the existing BNSF rail line while the central line would require construction of new track.
- Commuter rail service down the UPRR line on the eastern side of the corridor was considered less feasible than service on either the western or central alignments due to the higher number of grade crossings which are a safety concern, the number of active trains running daily along that line which would restrict the availability of the line for commuter traffic, and the restricted capacity available at the Sand Creek Junction used to connect that line to Denver Union Station. All of these factors would degrade safety and reliability.

Despite more potential to impact the communities along US 287, the BNSF alignment is compatible with the land use plans for cities such as Fort Collins, Berthoud, Loveland, and Longmont. Their land use plans include rail to strengthen their downtown areas through redevelopment opportunities and improved travel choices.

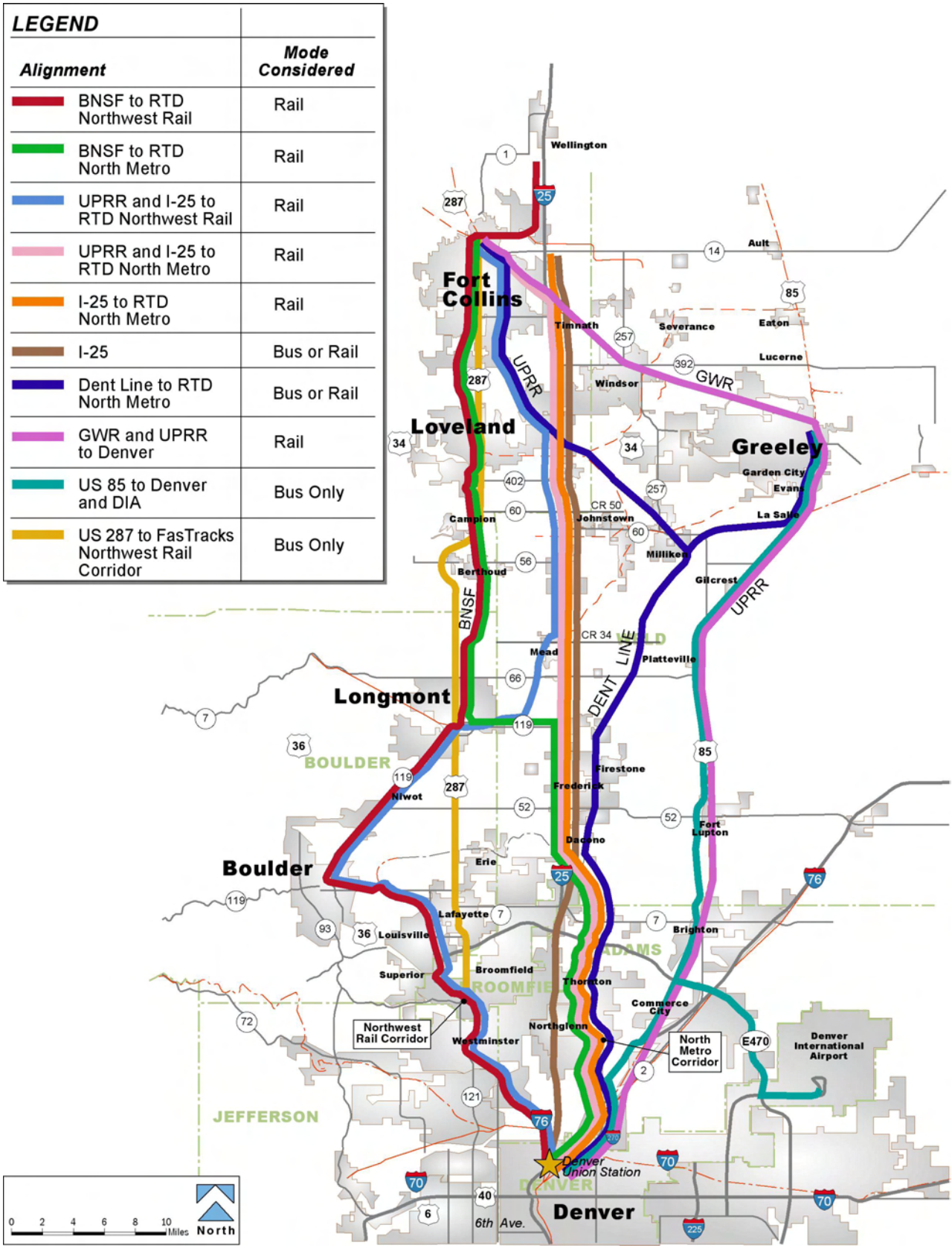
There are numerous existing freight rail corridors in the regional study area. Any of these could be used in the future for inter-regional transit purposes.

Rail spurs to cross-corridor communities were also considered if they could provide more direct service from the North Front Range to the Denver area. A spur between Longmont and Thornton and a spur to DIA were considered.

A spur from Longmont to Thornton was developed to retain connections to two FasTracks corridors (the FasTracks Northwest Rail Corridor, terminating in Longmont, and the FasTracks North Metro Corridor, terminating in Thornton) and providing faster service to downtown Denver. Its exact placement considered specific environmental analysis that determined the tradeoffs in locating the new alignment to the west or east of CR 7. The western alignment was considered more favorable because of impacts to 4 prairie dog towns, 0.36 acres of wetlands, and impacts to 66 properties, of which 22 are identified as low income associated with the alignment east of CR 7.

The rail spur connection to DIA was eliminated because it would be redundant service to RTD's East Corridor rail from downtown Denver to DIA.

Figure 2-38 Transit Alignments Considered



2.3.2.3 BUS ALIGNMENTS

The potential bus alignments considered are also pictured in **Figure 2-37**. Based on travel-time analysis, and the location of population centers, I-25 and US 85 alignments were considered to be the most promising. Bus alternatives traveling along I-25 would begin in Fort Collins and Greeley in order to provide similar service to both sides of the corridor. (Fort Collins, rather than Loveland, was chosen as the northern terminus for BRT due to the connection to more transit services and facilities, such as the South Transit Center at the southern end of the Mason Street corridor). Bus alignments traveling along US 85 would begin in Greeley to connect with their local bus service. The dent line was not advanced because it did not serve population and employment centers as well as other potential alignments. The US 287 alignment was not advanced because travel times along this facility were not competitive for regional service and therefore ridership was low.

A bus connection to DIA also was included, prompted by stakeholder interest, and after analysis showed that service to DIA could increase the line's ridership.

OUTCOME OF QUESTION 2: WHAT ALIGNMENT(S) SHOULD BE USED?

The need to replace aging infrastructure on I-25 and address safety and mobility concerns in the project area screened out highway alignments off I-25, such as Prairie Falcon Parkway, as well as the upgrading of US 85 or US 287. It was found that these alignments diverted less than 20% of the necessary 55,000 vehicles per day from I-25 to address the mobility concerns along the I-25 corridor. Therefore, I-25 would continue to operate at LOS E or lower even with improvements to those alignments.

The need to provide accessibility to population and employment centers and be practicable screened out eastern and central transit alignments along the UPRR and Dent lines. A western rail line along the BNSF corridor would serve about twice as many residents and jobs as a central rail line. In addition, the 2030 model results indicated that about 65% more Denver destined work trips occur between the western communities compared to the eastern communities in the regional study area. Eastern and central rail alignments as well as those that connect east/west movement would still be available for inter-regional transit purposes.

Therefore, it was determined that:

- Highway improvements would be on the I-25 alignment
- Rail improvements would be on the BNSF corridor between Fort Collins and Longmont
- Bus improvements would be on I-25 or US 85, but not both

Additional details about the screening results are included in **Table 2-18**.

2.3.3 Question 3: What facility type and transit mode should be evaluated?

A wide variety of highway modes and configurations including buffer and barrier-separated toll lanes, freeway lanes, HOV lanes, and arterial upgrades were evaluated to determine which had the potential to address project needs and were practical. Similarly, all type of transit modes were evaluated to determine if they would improve accessibility and if they were cost-effective.

Figure 2-39 describes all of the highway facility types and transit modes that were considered in the screening process. These descriptions are helpful when comparing the travel modes considered in the following section. For example, understanding the differences between the various tolled express lane/managed lane concepts is important: Toll lanes toll all vehicles using the facility, HOT lanes toll single-occupant vehicles and allow HOVs to the use the lanes for free, HOV lanes allow only high occupant vehicles to travel in the lane. Each of these three concepts falls under the tolled express lane/managed lane category but result in different traffic operations along the corridor.

Early stages of screening eliminated many of these initial options. The more promising highway facility types and transit modes were evaluated with more detail as described below.

2.3.3.1 Highway Facility Types

Preliminary estimates indicate that north/south travel demand would exceed capacity by approximately 55,000 vehicles per day in 2030. Therefore the selected improvements would need to accommodate this anticipated capacity deficiency. **Figure 2-40** illustrates the typical daily capacity achieved with key roadway expansion projects. As shown, upgrading the classification of an existing arterial facility to an expressway would result in the smallest capacity increase while adding lanes to a freeway would result in the largest capacity increase. As shown, four additional HOT lanes, toll lanes, or four new freeway lanes could accommodate this demand.

Limited access lanes would provide a similar capacity to four new freeway lanes. However, these lanes would cost slightly more and have more potential for environmental impacts, due to their wider cross section. The wider cross section and need for limited access infrastructure also limited the flexibility of the cross-section capacity (i.e., the ability to re-stripe or re-designate the lanes in the future).

Figure 2-39 Highway and Transit Modes Considered in Screening Process

TRANSIT

Bus Rapid Transit is a flexible rubber-tired transit service that typically operates in exclusive or semi-exclusive managed lanes for all or part of the route. There is no specific guidance on how much of a route must be in a managed lane but to qualify for FTA New Starts or Small Starts funding 50% of the route must be in a fixed-guideway. However, FTA's Very Small Starts program does not have this particular restriction. For the purpose of this evaluation BRT is defined as traveling in a semi exclusive or exclusive travel lane for 50% or more of the route. Bus options with less than 50% of the route in a managed lane would be considered commuter bus.

Express/regional/commuter bus service is regional transit service with limited stops in order to operate faster than other regional bus services. This type of transit service usually operates on roads designated as arterials or higher and has park-and-ride facilities located at its stops.

Local bus is regularly scheduled fixed-route bus service with frequent stops in local communities.

Demand response service operates in response to calls from qualified passengers, who are then provided door-to-door service.

Jitneys provide service based on market driven demand without fixed schedules or stops.

Commuter rail typically operates within freight rail right-of-way and services long distance trips. It may use locomotives with passenger cars or self-propelled passenger cars, known as diesel multiple units. Commuter rail trains could be diesel-powered (most common) or electrically-powered.

Personal rapid transit is service using small cars that carry one to four people on a fixed guideway.

Heavy rail is commonly referred to as metros or subways. Heavy rail usually provides high capacity, medium-speed service in densely populated urban areas on steel tracks in an exclusive right-of-way. Power is provided by a third rail along the tracks or by overhead electric cables.

Figure 2-39 Highway and Transit Modes Considered in Screening Process (cont'd)

TRANSIT

Rail transport cars would transport drivers in their private autos on a rail car. This service would be similar to a ferry.

Light rail typically provides medium capacity, medium speed service in urban areas. Light rail can operate in exclusive rights-of-way or share city streets. Power is generally provided by overhead electric cables.

Automated guideway transit describes a fully automated and driverless transit system that operates in an exclusive right-of-way guideway. These systems are generally found in major airports, activity centers, and downtown areas. Automated guideway transit systems can be self-propelled or powered by overhead electrical cables. This category includes monorail which can be fully automated or driver-operated.

High speed rail typically provides intercity service, operating on an exclusive guideway system of steel tracks, which can be located at-grade (usually existing rail lines), elevated, or below ground. Power is usually provided by overhead electrical cables.

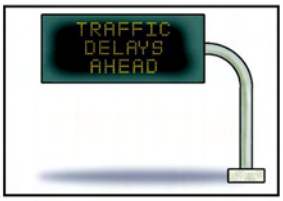
HIGHWAY

Additional lanes are the most common method of adding travel capacity along a corridor. Lanes could be added to any existing road in the corridor.

Tolled Express Lanes/Managed Lanes are lanes whose demand is managed to maintain reliable, fast operation even during peak periods. HOV lanes can be used by high occupancy vehicles only. HOT lanes can be used by high-occupant vehicles for free and single-occupant vehicles for a toll. Toll lanes can be used by drivers willing to pay a toll. The lanes are separated from general purpose lanes by a striped buffer or a raised median barrier.

Figure 2-39 Highway and Transit Modes Considered in Screening Process (cont'd)

HIGHWAY



Congestion management includes travel demand management measures, intelligent transportation systems, and transportation systems management measures that are geared towards improving the efficiency of travel without major construction. These include carpool programs, telecommuting, dynamic message signing, ramp metering, and incident management strategies.

Interchange replacement/upgrade would include improving or reconstructing existing interchanges that currently operate inefficiently or are expected to have operating deficiencies in the future.

Horizontal and vertical alignment improvements address specific stretches of a road that have been identified as having inadequate or unsafe geometric configurations. These include but are not limited to sight distance considerations and superelevation.

Intersection upgrades address lane configurations and safety issues at existing intersections. These include but are not limited to adding turn lanes or signalizing an intersection that is currently stop-sign controlled.

Frontage road revisions address the need to improve the capacity and layout of the frontage roads along I-25.

New highway, parallel arterial or local road includes construction of a new road facility on an alignment somewhere within the regional study area.

Figure 2-39 Highway and Transit Modes Considered in Screening Process (cont'd)

HIGHWAY

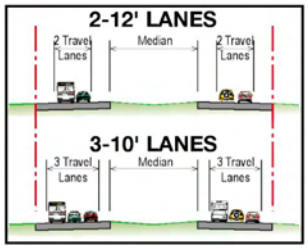
New interchanges are grade-separated access and egress points between a highway and a local street or between two highways.

Limited access lanes are grade-separated lanes that carry motorists through an intersection or interchange without providing the ability to get on or off at that location.

Climbing lanes are added for the upgrade direction of a road where high traffic volumes and heavy truck traffic combine to cause delays and platooning along the facility.

Truck lanes are exclusive lanes that carry trucks only. They may be separated from, or adjacent to, general purpose lanes and may provide only limited access to local intersections or interchanges.

Double deck I-25 would increase capacity by building elevated lanes over existing I-25 lanes.



Lane width reconfiguration would restripe I-25 to provide additional lanes within the existing cross section. This improvement would create narrower lanes and shoulders.

Figure 2-40 Typical Capacity of Facility Types Considered

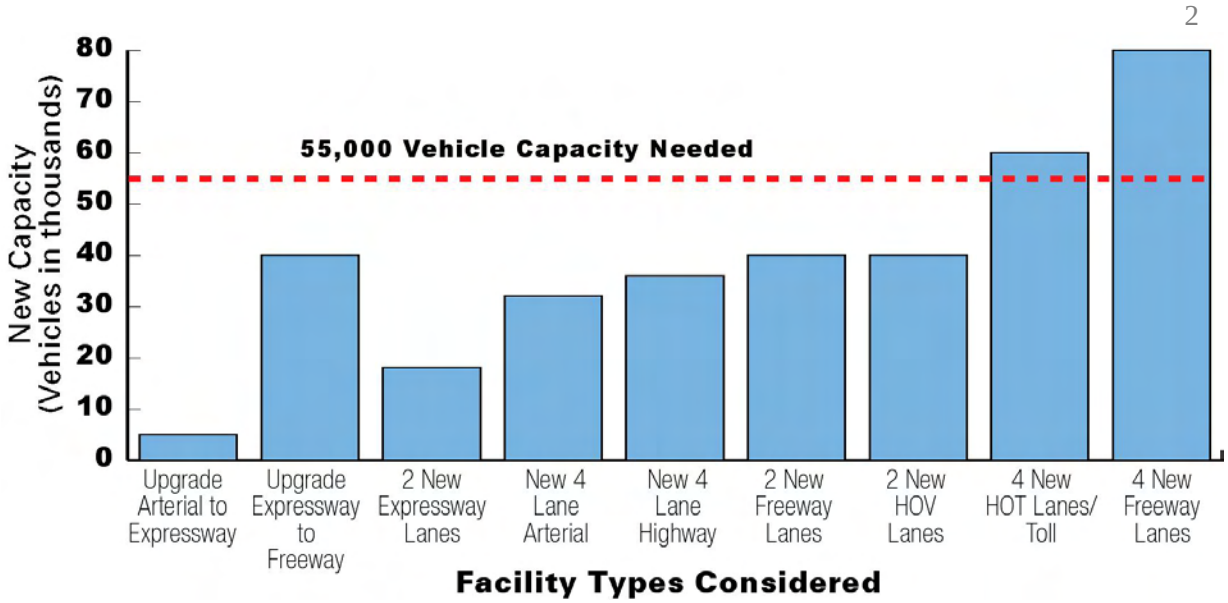
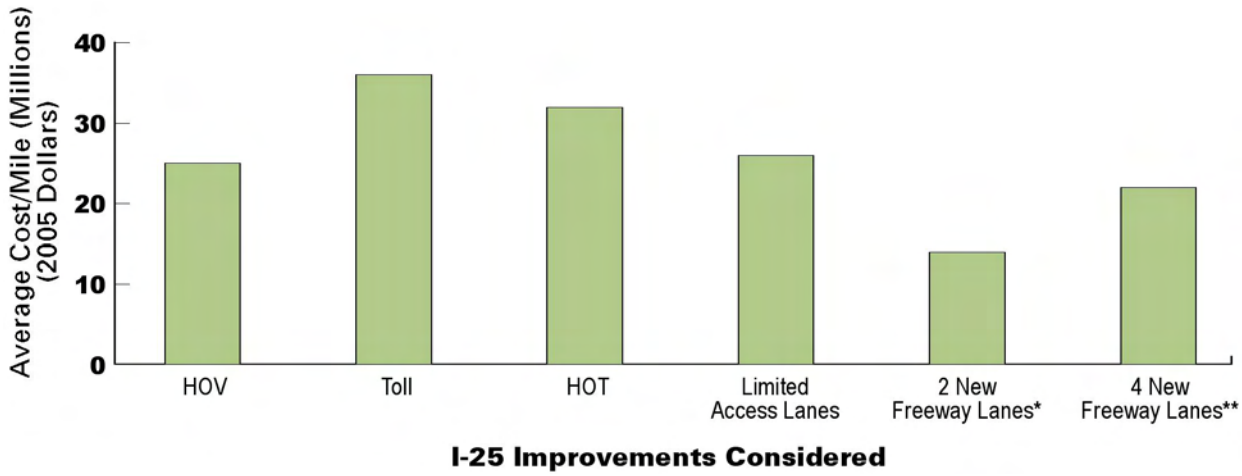


Figure 2-41 compares the costs per mile of the different variations of these lane types on I-25. As shown, adding four new HOT/toll lanes would cost the most per mile. Two new freeway lanes would cost the least but would also not quite provide enough capacity to fully accommodate the anticipated 55,000 vehicle demand.

Figure 2-41 Capital Cost of I-25 Lane Options Considered



* Cost of two new freeway lanes is based on widening north of SH 66 only, resulting in a six-lane cross section on I-25.

** Cost of four new freeway lanes is based on adding four lanes north of SH 66 and two lanes south of SH 66, resulting in an eight-lane cross section north of SH 7.

Evaluation of the three management methods for express lanes (HOV, HOT, and toll) included consideration of both buffer- and barrier-separated cross sections. Buffer-separated sections consisted of a single managed lane in each direction separated from the general purpose lanes with a 4-foot painted strip (the buffer). Barrier-separated sections consisted of two lanes in each direction that would be separated from the general purpose lanes with a raised concrete barrier. Single-lane barrier separated sections were not considered for incident management and emergency response reasons. Like limited access lanes, four barrier-separated lanes would cost

more and have more potential for environmental impacts due to their wider cross section. Because of this, barrier-separated cross sections with four additional lanes were only considered practical when traffic demand would warrant four additional lanes.

Figure 2-42 Miles of Congestion in I-25 General Purpose Lanes

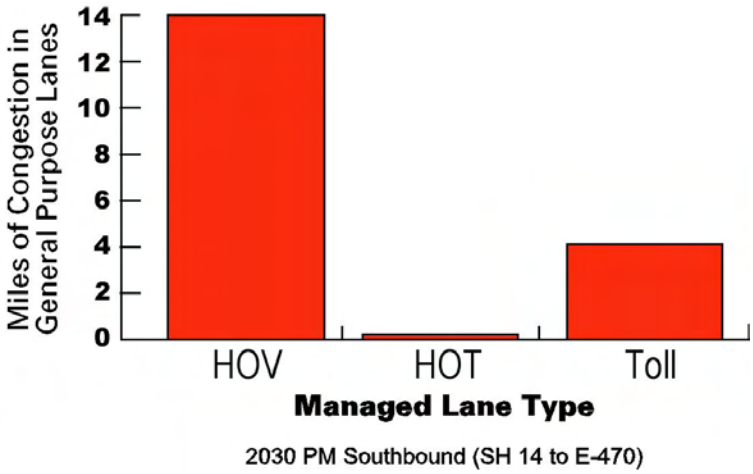


Figure 2-42 depicts congestion for the three management methods for express lanes and illustrates how congestion would differ if HOV lanes were chosen. As shown, HOV lanes would result in substantial congestion in the general purpose lanes because fewer drivers would be diverted from the general purpose lanes in to HOV lanes than HOT or Toll lanes. HOVs would therefore not address the project's need to improve mobility along I-25. This is the primary reason HOVs were eliminated.

HOT lanes, which would toll single-occupant vehicles and allow HOV's to use the lane free of charge, were found to provide the most congestion reduction in the general purpose lanes, and would have the highest utilization along the corridor. This is because they would attract both HOV drivers and drivers willing to pay a toll into the new lanes. Toll lanes resulted in somewhat more congestion than HOT lanes but far less the HOV lanes.

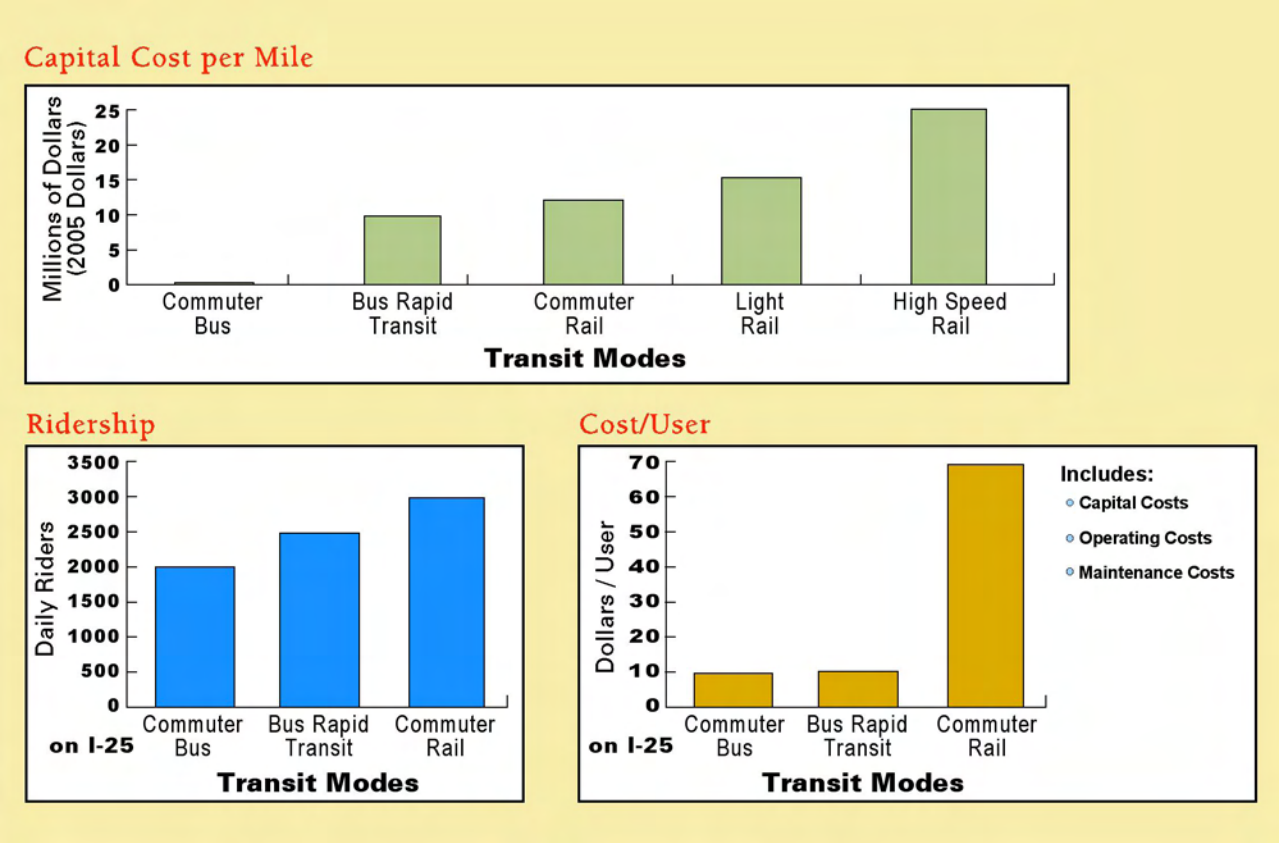
To understand more clearly the fiscal implications of the two remaining alternatives (HOT and Toll lanes), this Draft EIS alternatives include tolled express lanes that could be managed in a variety of ways, including: toll all vehicles (Toll); toll single-occupant vehicles and allow HOVs to the use the lanes for free (HOT); or toll single occupant vehicles and allow HOVs to use the lanes at a discount (Toll and HOT hybrid) to maximize the operations and available capacity of the additional lanes. These various management alternatives within the tolled express lane category could result in small differences in travel time and congestion, but would all have the same physical impact.

2.3.3.2 Transit Modes

Along the BNSF corridor, commuter rail was found to be the most appropriate technology, as high-speed and super high-speed rail would not be able to operate along the curves present in the alignment. Light rail, monorail, and heavy rail are ill-equipped for long-distance travel and would take more time with fewer car amenities to suit potential regional passengers. In addition, high speed rail, super high speed rail and light rail (in addition to other technologies such as heavy rail, magnetic levitation, and automated guideway transit) are more costly per mile, as shown in **Figure 2-43**.

The evaluation and screening process identified the possibility of providing HOT or Toll lanes along I-25. The presence of these lanes would provide reliable and fast travel time conducive to implementation of BRT service. Commuter bus service could operate along I-25 or US 85 in general purpose lanes.

Figure 2-43 Comparing Transit Alternatives by Cost and Ridership



OUTCOME OF QUESTION 3: WHAT FACILITY TYPE AND TRANSIT MODE SHOULD BE EVALUATED?

The need to address safety and mobility concerns as well as provide a practical, cost-effective alternative screened out modes such as double decking I-25 and lane-width reconfiguration. In addition, non-traditional highway modes, such as congestion management measures and bike and pedestrian alternatives, alone would not adequately address mobility needs but were retained to be used in conjunction with other improvements that would.

The need to address the desire for multi-modal transportation options that are practical and cost-effective screened out some transit modes such as light rail, super high speed rail, and automated guideway transit systems. These systems were found to be excessively expensive or impractical for a corridor of this length (more details on cost are found in **Section 2.5**)

After considering questions one through three, the reasonable highway and transit alternatives remaining included:

- General purpose lanes on I-25
- Tolled express lanes on I-25
- Commuter rail on the BNSF alignment
- BRT on I-25 in tolled express lanes
- Commuter bus on US 85

Additional details about the screening results are included in **Table 2-21**.

2.3.4 Question 4: How do the highway and transit alternatives fit together?

Packaging alternatives together began by ensuring that highway capacity needs would be met. Any combination of transit services was found to not reduce I-25 volumes enough to meet 2030 demand without additional highway improvements. Similarly, highway improvements alone would not address the multi-modal purpose and need. As depicted in **Figure 2-44**, to determine the most effective packages of highway and transit alternatives, various combinations were tested according to:

- The use and optimization of available operating environments for transit
- Potential competition between transit services

Based on the mode and alignment findings discussed in previous sections, commuter rail service along the BNSF rail line performed well and was paired with general purpose highway improvements. For equity throughout the regional study area, commuter bus service along US 85 with end points of both downtown Denver and DIA was added to this package of improvements. When additional transit elements were tested in combination with these elements, such as additional transit on I-25, a decrease in riders was observed on each component, though it would increase ridership overall. It was determined that to maintain maximum ridership on any one transit line, service might be offered on I-25 only or on the BNSF and US 85. Therefore, because more proximate services would decrease the cost-effectiveness of each line, commuter rail on the BNSF was paired with commuter bus service on US 85, with general purpose lanes (and no transit service) along I-25. This combination of improvements is Package A.

BRT and the tolled express lanes on I-25 were combined, due to the potential to use the semi-exclusive (less congested and more reliable) environment of the tolled express lanes for more rapid and reliable BRT service along I-25. In order to directly serve the communities which are offset from the interstate, BRT service on mixed-use lanes to Fort Collins and Greeley was provided. BRT destinations include both DIA and downtown Denver. This combination of improvements is Package B.

A third combination could include pairing commuter rail service along the BNSF with tolled express lanes along I-25. While this combination is possible it does not take advantage of the ability to cost effectively implement BRT as a result of the presence of the tolled express lanes. This pairing can be further evaluated through the component analysis contained in this document but because this is an unlikely and less cost effective pairing, it has not been identified as a separate improvement package.

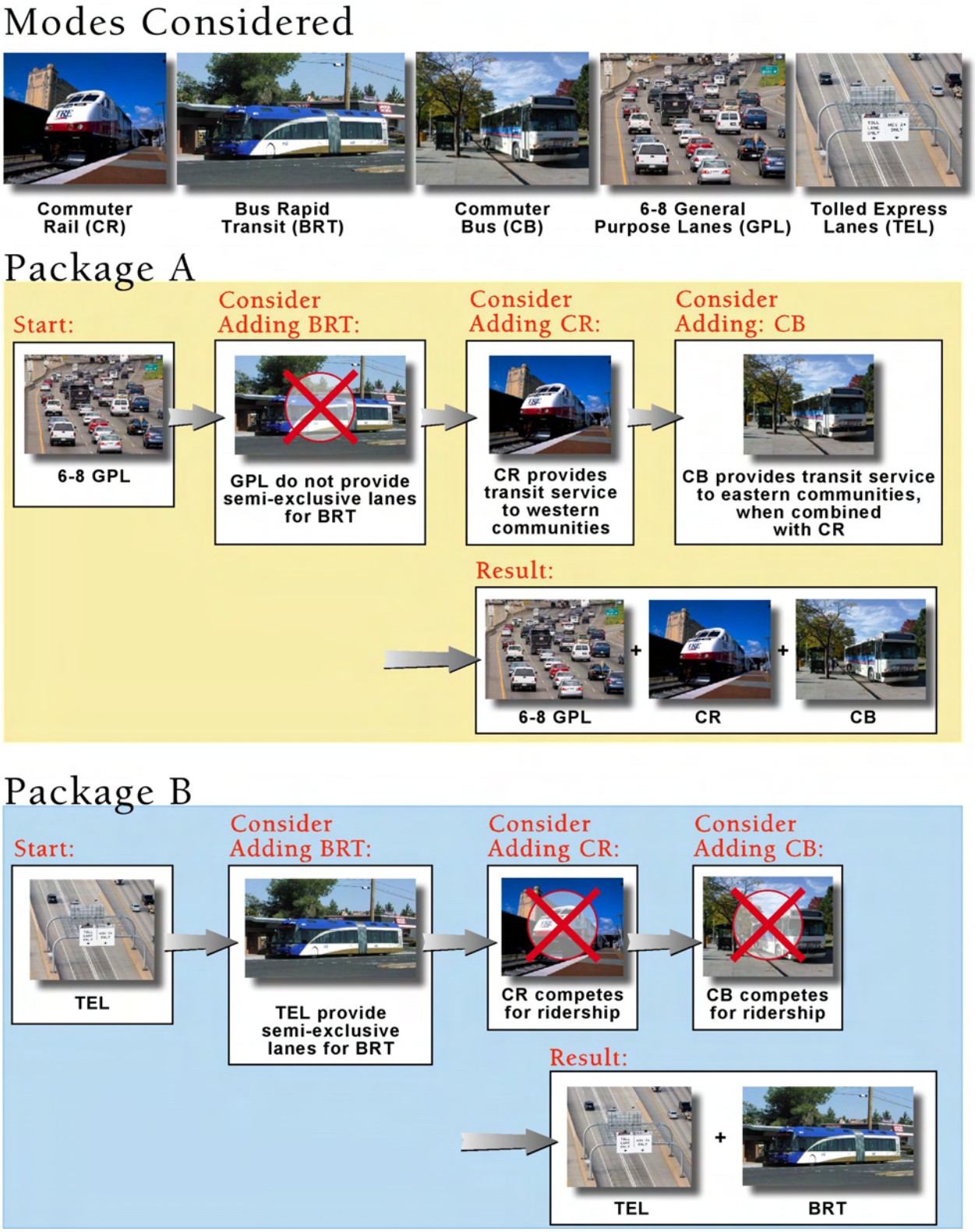
These two packages along with the No-Action Alternative package represent the reasonable alternatives to be fully evaluated in this EIS.

Outcome of Question 4: How do the highway and transit alternatives fit together?

The need to provide a practical, multi-modal transportation solution led to the development of two packages for detailed evaluation in this Draft EIS:

- **Package A:** General purpose lanes on I-25 with the western alignment commuter rail and commuter bus service along US 85
- **Package B:** Tolled express lanes on I-25 with BRT

Figure 2-44 Modes Considered for Combining into Packages



2.4 SCREENING OF SECONDARY ELEMENTS

With the primary mode, facility type, and alignment of the packages determined, details about interchange design, lane configuration, transit station locations, and maintenance facility locations were determined. The next section describes the processes used to determine these secondary elements of the packages.

2.4.1 Interchange Configurations

To complete the interchange screening, seven interchange small groups were established to invite public participation in the interchange alternatives development and analysis process. Initial interchange alternatives were developed based on the initial traffic analysis, initial public input at the first series of small group meetings, as well as environmental and design related factors specific to each of the existing interchange locations. Alternatives considered in the initial analysis included grade changes, access modifications (i.e. half-diamond to full-diamond), configuration types and local access considerations.

The initial interchange alternatives were presented at the interchange small group meetings with a discussion of the merits and impacts of each alternative. Public comments on the alternatives were recorded for each of the small group meetings. Based on the public comments as well as the merits and impacts of each alternative, a revised, refined preferred interchange configuration was established through subsequent meetings with each of the small groups.

The time requirement and complexity of this process varied for each of the interchanges in this Draft EIS. In some cases, only two or three alternatives were analyzed before a preferred interchange configuration was established in a matter of three months. In some cases six or more alternatives were developed and evaluated, and the process of establishing a preferred interchange configuration took up to 12 months. The process was adjusted according to the complexity, concerns and interests for each of the interchanges.

Most I-25 interchanges in the corridor were built in the late 1950s and early 1960s; these are generally considered functionally obsolete and do not meet current design standards. Interchanges identified as functionally obsolete were initially evaluated with a standard diamond configuration because this configuration typically provides the most capacity at the lowest cost with the most compact footprint to minimize impacts to environmental resources. Interchanges that have recently been rebuilt were evaluated using their current configuration to determine if they would continue to operate acceptably with 2030 traffic volumes or if they too would require modifications.

If LOS D operation was unachievable or impacts to environmental resources were identified, configurations that would provide more capacity or would cost more such as single-point urban, tight diamond, partial cloverleaf, and direct connects were considered. Only in cases where modifying an existing interchange did not result in operation at LOS D or better was a new interchange location considered. Appendix E of the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a) details the interchange planning methodology.

Example interchange designs considered are pictured in **Figure 2-45**. The cloverleaf configuration was not considered the optimal configuration at any location along the corridor because of well-documented concerns with capacity, weaving and safety. For example, design standards necessary to address these issues would create a cloverleaf much larger than the current US 34 interchange and would result in significant impacts to right-of-way and to local businesses located adjacent to I-25. The partial cloverleaf configuration was still considered a

viable option. Detailed traffic analyses of each interchange location are included in the *Transportation Analysis Technical Reports,* (FHU, 2008c).

On a case-by-case basis, consideration also was given to closing an existing interchange. However, in all locations, the existing interchanges were considered necessary to maintain accessibility to the communities in northern Colorado and maintain the economic viability of the businesses located adjacent to the interchanges. There are new interchanges (such as Sheridan Parkway) that are being considered by others. This project does not preclude their eventual construction at some point in the future.

Preliminary travel demand forecasting indicated that in most locations interchange traffic could be accommodated by replacing the existing interchanges with a diamond interchange designed to meet current standards. The evaluation of interchange configurations was an iterative process of evaluating various interchange enhancements such as the number of approach lanes and the signal timing to achieve LOS D or better. Input from stakeholders was provided though highway small group meetings held throughout the interchange evaluation process. **Table 2-17** presents a summary of interchange screening. This evaluation was conducted using NEPA screening and USACE practicability criteria consistent with those used during project alternative screening.

- **NEPA Screening:** Responsiveness to criteria that determine how reasonable it is. The definition of reasonable includes whether or not it is practical or feasible from a technical and economic standpoint, whether or not it meets purpose and need, and whether or not it has environmental impacts that are acceptable.
- **USACE Practicability:** Responsiveness to criteria determining practicability as determined by Clean Water Act Section 404 (b) (1) guidelines. The definition of practicability used was whether or not it meets the project's purpose and need and whether or not it is practicable, based on cost or logistics. This column also identifies whether or not an alternative has greater impacts to the aquatic environment.

Figure 2-45 Interchange Configurations Considered

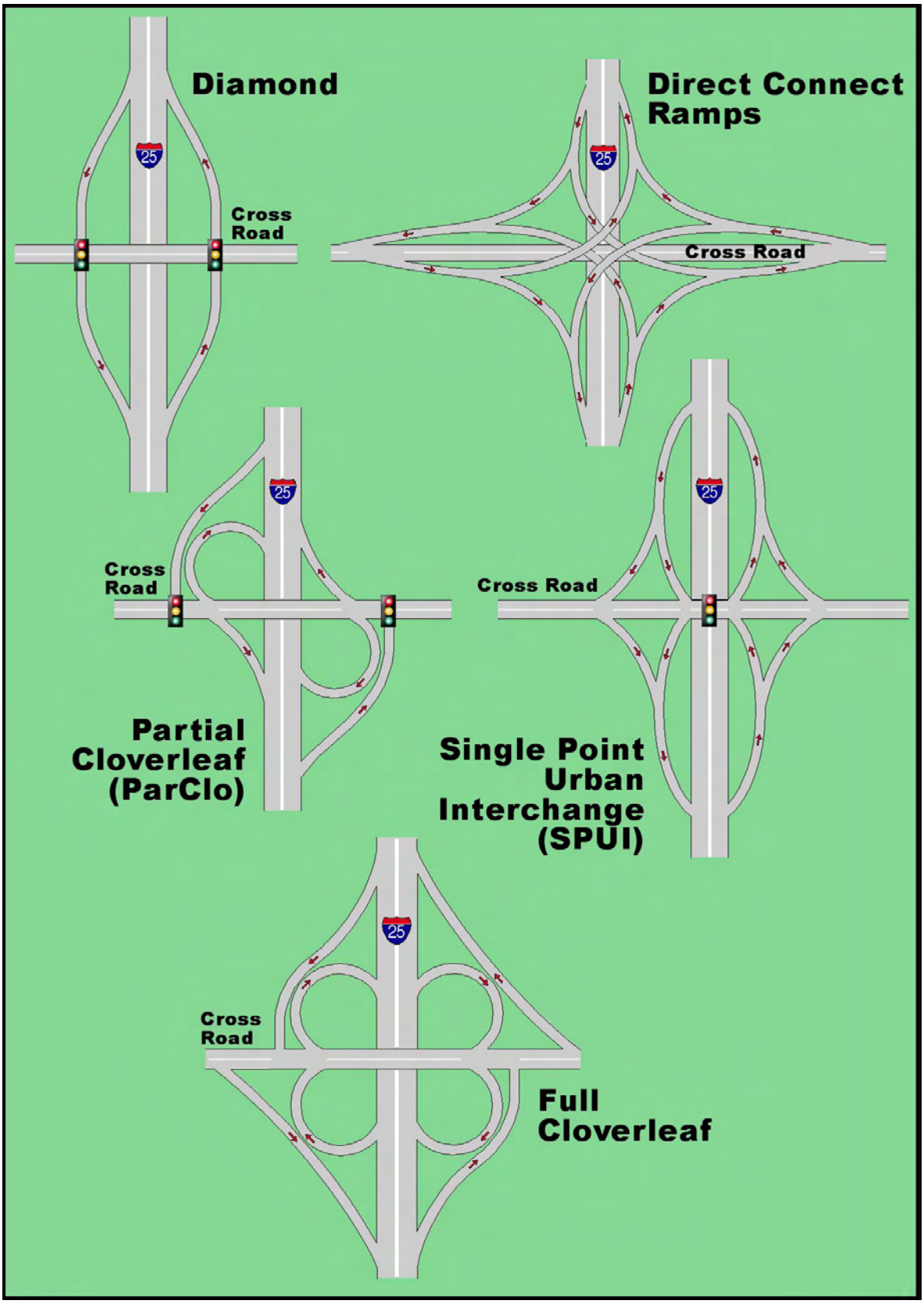


Table 2-17 Interchange Screening

Alternative Location	NEPA Screening Summary	USACE Practicability Summary
SH 1	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.	**Retained.** Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.
Mountain Vista	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.	**Retained.** Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.
SH 14	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond with Northbound to Westbound Flyover –Screened. Not Reasonable. Would not meet purpose and need because it would impede local access thereby reducing accessibility and not addressing economic growth demands.	**Screened. Not Practicable.** Would not meet purpose and need because it would impede local access thereby reducing accessibility and not addressing economic growth demands.
	New Diamond with Local Access Improvements – Retained. Would effectively accommodate anticipated demand, accessibility address safety concerns, and replace aging structure.	**Retained.** Would effectively accommodate anticipated demand, accessibility address safety concerns, and replace aging structure.
Prospect	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.	**Retained.** Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.
Harmony Road	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	No-Action Configuration Enhanced – Retained. Would enable interchange to operate at an acceptable level of service with potential to retain the relatively new structure.	**Retained.** Would enable interchange to operate at an acceptable level of service with potential to retain the relatively new structure.
	No-Action Configuration with Northbound to Westbound Flyover –Screened. Not Reasonable. Would cost 50 to 100% more than other comparable alternatives and would result in similar operation.	**Screened. Not Practicable.** Would cost 50 to 100% more than other comparable alternatives and would result in similar operation.

1 **Table 2-17 Interchange Screening (cont'd)**

Alternative Location	NEPA Screening Summary	USACE Practicability Summary
SH 392	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Screened. Not Reasonable. Environmental constraints (wetlands and bald eagle roosting activity) in the northwest quadrant preclude the ability to provide a standard ramp and intersection spacing at this location.	**Screened. Impacts to Aquatic Resources.** Environmental constraints (wetlands and bald eagle roosting activity) in the northwest quadrant preclude the ability to provide a standard ramp and intersection spacing at this location.
	Single-Point Urban Interchange – Screened. Not Reasonable. Not reasonable because it would cost twice as much as a tight diamond configuration with the same area of impact and 10% greater average delay per vehicle.	**Screened. Not Practicable.** Impracticable because it would cost twice as much as a tight diamond configuration with the same area of impact and 10% greater average delay per vehicle.
	New Tight Diamond Interchange – Retained. Would improve accessibility, accommodate anticipated demand, address safety concerns, and replace aging structure. This configuration would avoid impacting the bald eagle roosting sites and minimize impacts to the wetlands.	**Retained.** Would improve accessibility, accommodate anticipated demand, address safety concerns, and replace aging structure. This configuration would avoid impacting the bald eagle roosting sites and minimize impacts to the wetlands.
Crossroads Blvd.	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.	**Retained.** Effectively would accommodate anticipated demand, address safety concerns, and replace aging structure.

2

Table 2-17 Interchange Screening (cont'd)

Alternative Location	NEPA Screening Summary	USACE Practicability Summary
US 34	**No-Action Configuration – Screened. Not Reasonable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	Partial Cloverleaf Interchange – Screened. Not Reasonable. Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Screened. Not Reasonable. Would not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Would not meet purpose and need because it would operate at or below LOS E in 2030.
	Direct Connect US 34/I-25 - Screened. Not Reasonable. While this configuration could accommodate projected demand, it would not meet purpose and need because it would impede local access to economic activity centers. This would reduce accessibility and not address economic growth demands.	**Screened. Not Practicable.** While this configuration could accommodate projected demand, it would not meet purpose and need because it would impede local access thereby reducing accessibility and not addressing economic growth demands.
	Direct Connect US 34/I-25 with Diamond – Retained. Would provide adequate capacity to meet demand, retain access to adjacent intersections, and replace the aging structure.	**Retained.** Would provide adequate capacity to meet demand, retain access to adjacent intersections, and replace the aging structure.
SH 402	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.	**Retained.** Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.
CR 16	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would not address the need for accessibility.	**Screened. Not Practicable.** Does not meet purpose and need because it would not address the need for accessibility.
	New Diamond Interchange – Retained. Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.	**Retained.** Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.

Table 2-17 Interchange Screening (cont'd)

Alternative Location	NEPA Screening Summary	USACE Practicability Summary
SH 60	**Current Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.	**Retained.** Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.
SH 56	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.	**Retained.** Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.
CR 34	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.	**Retained.** Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.
SH 66	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	No-Action Configuration with Enhancements – Retained. Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.	**Retained.** Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.
SH 119	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	No-Action Configuration with Enhancements – Retained. Would enable interchange to operate at an acceptable level of service and retain relatively new I-25 structures over SH 119.	**Retained.** Would enable interchange to operate at an acceptable level of service and retain relatively new I-25 structures over SH 119.

Table 2-17 Interchange Screening (cont'd)

Alternative Location	NEPA Screening Summary	USACE Practicability Summary
SH 52	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	No-Action Configuration with Enhancements – Retained. Would enable interchange to operate at an acceptable level of service while retaining the relatively new structure.	**Retained.** Would enable interchange to operate at an acceptable level of service while retaining the relatively new structure.
WCR 8	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	No-Action Configuration with Minor Enhancements - Retained. Would enable interchange to operate at an acceptable level of service and retain relatively new structure.	**Retained.** Would enable interchange to operate at an acceptable level of service and retain relatively new structure.
SH 7	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.	**Screened. Not Practicable.** Does not meet purpose and need because it would operate at or below LOS E in 2030.
	New Diamond Interchange – Retained. Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.	**Retained.** Would effectively accommodate anticipated demand, address safety concerns, and replace the aging structure.
144th Avenue	**No-Action Configuration – Retained.** Would provide acceptable future levels of service.	**Retained.** Would provide acceptable future levels of service.
136th Avenue	**No-Action Configuration – Retained.** Would provide acceptable future levels of service.	**Retained.** Would provide acceptable future levels of service.
120th Avenue	**No-Action Configuration – Retained.** Would provide acceptable future levels of service.	**Retained.** Would provide acceptable future levels of service.
104th Avenue	**No-Action Configuration – Screened. Not Reasonable.** Would not accommodate wider cross section on I-25, would not address safety concerns or replace the aging structure.	**Screened. Not Practicable.** Would not accommodate wider cross section on I-25, would not address safety concerns, or replace the aging structure.
	New Diamond Interchange – Retained. Would replace the aging structure to accommodate I-25 widening and address safety concerns with improved ramp geometry.	**Retained.** Would replace the aging structure to accommodate I-25 widening and address safety concerns with improved ramp geometry.

Table 2-17 Interchange Screening (cont'd)

Alternative Location	NEPA Screening Summary	USACE Practicability Summary
Thornton Parkway	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would not accommodate wider cross section on I-25, would not address safety concerns or replace the aging structure.	**Screened. Not Practicable.** Does not meet purpose and need because it would not accommodate wider cross section on I-25, would not address safety concerns or replace the aging structure.
	No-Action Configuration with Minor Enhancements - Retained. Would maintain existing structure and improve ramp terminals at I-25.	**Retained.** Would maintain existing structure and improve ramp terminals at I-25.
84th Avenue	**No-Action Configuration – Screened. Not Reasonable.** Does not meet purpose and need because it would not address safety concerns at ramp terminal.	**Screened. Not Practicable.** Does not meet purpose and need because it would not address safety concerns at ramp terminal.
	New Diamond Interchange - Retained. Would replace the aging structure to accommodate I-25 widening and address safety concerns with improved ramp geometry.	**Retained.** Would replace the aging structure to accommodate I-25 widening and address safety concerns with improved ramp geometry.

2.4.2 Bus and Rail Transit Station Locations

Station locations were developed using a set of criteria that evaluated:

- Appropriate station spacing
- Future population and activity centers
- East/west (north/south) connectivity
- Existing infrastructure, land use, and environmental constraints
- Public, TAC, and RCC input

After determining the general vicinity of station locations, a more detailed evaluation was conducted for each station location. A range of two to ten sites were evaluated for each station location with the exception of the Fort Collins South Transit Center where one site was evaluated because the City of Fort Collins has an approved plan that identifies this location for a transit center. The South Transit Center is proposed to serve as the end of line for the Mason Street BRT system. In order to maximize ridership and access for the community it is important that the North I-25 BRT station connect to the proposed Mason Street BRT system. Twenty-two criteria were evaluated for each proposed station location. The primary criteria evaluated were:

- minimal neighborhood and environmental impacts
- impacts to parks
- environmental justice
- historic property
- hazardous materials
- accessibility to vehicles
- pedestrian and bicycle connectivity
- opportunity for joint development and compatibility with adjacent land use and zoning

- compatibility with local plans and ability to provide an opportunity for joint development.

Impacts to wetlands and threatened and endangered species were considered to be fatal flaws. In addition, if a new development was planned or under construction or if the station could not meet the engineering requirements this would be considered a fatal flaw. Each criteria was rated with either a +, - or 0. These ratings were provided a numerical value and tallied up at the end. The site with the highest total number was recommended to move forward. In some cases a lower ranking station site was moved forward due to recommendations by the local municipality. During the station screening process the station site analysis was presented at the third transit working group meeting. The group provided input that was incorporated into the evaluation process. A full description of the station screening process is found in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a).

Tables 2-18 summarizes the station screening process for commuter rail along US 287. Typically, a single station site was carried forward; exceptions include the following locations, where more than one site is being evaluated:

Package A Commuter Rail station sites with multiple locations being evaluated:

- **Fort Collins Downtown Transit Center.** Two sites were identified for the Fort Collins Downtown Transit Center. These sites were under consideration because they would provide shared parking opportunities and would be in close proximity to the existing transit center. One site is municipally owned and the other site is under negotiation with the city and a local developer.
- **I-25 / CR 8.** The communities of Frederick and Firestone have requested an additional station east of I-25 that would provide more convenient access for their residents to a rail station. There are two sites with similar benefits under consideration, but one is opposed by the Town of Erie.

Table 2-18 Package A - Station Site Evaluation Commuter Rail on US 287

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Fort Collins Downtown Transit Center		
BNSF and Maple Ave CR-A East of Mason Street between Maple Ave and Cherry Street	Retained.	Retained.
BNSF and Maple Ave CR-B East of Mason Street, north of Cherry Street	Screened. Not Reasonable. Impacts parks and hazardous materials.	Screened. Not Practicable. Impacts parks and hazardous materials.
BNSF and Maple Ave CR-C West of Mason Street between Maple Ave. and Laporte Ave	Retained.	Retained.
Fort Collins Colorado State University Transit Center		
US 287 and A Street - CR-A On the BNSF corridor between University Ave. and W. Pitkin St	Retained.	Retained.
South Fort Collins South Transit Center		
BNSF and Harmony CR-A Off of US 287 and W. Fairway Lane	Retained.	Retained.
North Loveland-29th and BNSF		
29th and BNSF CR-A On the east side of the BNSF and north of 29th Street	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
29th and BNSF CR-B On the east side of the BNSF and north of 29th Street	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
29th and BNSF CR-C On the east side of the BNSF and south of 29th Street	Retained.	Retained.
Downtown Loveland-US 34 and BNSF		
BNSF and US 34 CR-A On the east side of the BNSF north of US 34	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
BNSF and US 34 CR-B On the east side of the BNSF south of US 34	Screened. Not Reasonable. Site would require the purchase of 10+ parcels.	Screened. Not Practicable. Site would require the purchase of 10+ parcels.
BNSF and US 34 CR-C On the east side of the BNSF south of US 34	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
BNSF and US 34 CR-D On the east side of the BNSF between 8th St and 7th St	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
BNSF and US 34 CR-E On the east side of the BNSF between 7th Street and 6th Street	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
BNSF and US 34 CR-F On the east side of the BNSF between 7th Street and 6th Street	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
BNSF and US 34 CR-G On the east side of the BNSF between 6th Street and 5th Street	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
BNSF and US 34 CR-H On the east side of the BNSF between 4th Street and 6th Street	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.

Table 2-18 Package A - Station Site Evaluation Commuter Rail on US 287 (cont'd)

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Downtown Loveland-US 34 and BNSF (cont'd)		
BNSF and US 34 CR-I On the west side of the BNSF between 4th Street and 6th Street	Retained. City of Loveland recommended and owns land. Platform is designed to be immediately adjacent to the depot. Platform is designed to be 345' (400' is typical) in order to not impact historic building. Platform can still accommodate a four car train, but will require passengers to exit and enter using the front door of the fourth train.	Retained. City of Loveland recommended and owns land. Platform is designed to be immediately adjacent to the depot. Platform is designed to be 345' (400' is typical) in order to not impact historic building. Platform can still accommodate a four car train, but will require passengers to exit and enter using the front door of the fourth train. No wetland or waters of the U.S. impacts.
Berthoud-SH 56 and BNSF		
BNSF and SH 56 CR-A On the east side of the BNSF north of SH 56	Screened. Not Reasonable. Site impacts historic property and would require the purchase of 10+ parcels.	Screened. Not Practicable. Site impacts historic property and would require the purchase of 10+ parcels.
BNSF and SH 56 CR-B On the east side of the BNSF north of SH 56	Retained.	Retained.
BNSF and SH 56 CR-C On the east side of the BNSF south of SH 56	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
BNSF and SH 56 CR-D On the east side of the BNSF south of SH 56	Screened. Not Practicable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
North Longmont- SH 66 and BNSF		
BNSF and SH 66 CR-A On the east side of the BNSF and north of SH 66	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
BNSF and SH 66 CR-B On the east side of the BNSF and north of SH 66	Retained.	Retained.
Longmont at Sugar Mill		
Sugar Mill CR-A On the BNSF and near Ken Pratt Boulevard	Retained.	Retained.
Sugar Mill CR-B On the BNSF and near Ken Pratt Boulevard	Screened. Not Reasonable. Site would impact Sugar Mill Buildings.	Screened. Not Practicable. Site would impact Sugar Mill Buildings.
Sugar Mill CR-C On the BNSF and near Ken Pratt Boulevard	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
Sugar Mill CR-D North of SH 119 and east of County Line Rd	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: access to bus routes, adjacent land use does not compliment a station and impacts to wetlands.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: access to bus routes, adjacent land use does not compliment a station and impacts to wetlands.
Sugar Mill CR-E North of SH 119 and east of County Line Rd	Retained.	Retained.
Sugar Mill CR-F North of SH 119 east of County Line Rd	Screened. Not Reasonable. Site has hazardous materials.	Screened. Not Practicable. Site has hazardous materials.
Sugar Mill CR-G South of Rodgers and near Ken Pratt Boulevard	Retained.	Retained.

Table 2-18 Package A - Station Site Evaluation Commuter Rail on US 287 (cont'd)

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
I-25 and CR 8		
I-25 and CR 8 CR-A North of County Road 8 and west of CR 7	Screened. Not Reasonable. Site would require the purchase of 10+ parcels.	Screened. Not Practicable. Site would require the purchase of 10+ parcels.
I-25 and CR 8 CR-B North of County Road 8 and east of CR 7	Screened. Not Reasonable. Site is opposed by Erie, not compatible with Erie's plans.	Screened. Not Practicable. Site is opposed by Erie, not compatible with Erie's plans.
I-25 and CR 8 CR-C South of County Rd 10 and east of CR 7	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
I-25 and CR 8 CR-D South of County Rd 10 and west of I-25	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
I-25 and CR 8 CR-E South of County Road 10 and west of I-25	Retained.	Retained.
I-25 and CR 8 CR-F South of County Road 10 and east of I-1-25	Screened. Not Reasonable. Not technically feasible because platform location too close to I-25 requiring an elevated platform.	Screened. Not Practicable. Not technically feasible because platform location too close to I-25 requiring an elevated platform.
I-25 and CR 8 CR-G North of County Road 8 and east of I-25	Screened. Not Reasonable. Not technically feasible because site has no tangent track for the platform.	Screened. Not Practicable. Not technically feasible because site has no tangent track for the platform.
I-25 and CR 8 CR-H South of County Road 8 and east of I-25	Screened. Not Reasonable. Not technically feasible because distance between CR 8 and CR 11 does not allow for a platform.	Screened. Not Practicable. Not technically feasible because distance between CR 8 and CR 11 does not allow for a platform.
I-25 and CR 8-I North of County Road 7 and east of I-25	Screened. Not Reasonable. Site not compatible with local plan.	Screened. Not Practicable. Site not compatible with local plan.
I-25 and CR 8-J South of County Road 7 and east of I-25	Screened. Not Reasonable. Site does not meet zoning.	Screened. Not Practicable. Site does not meet zoning.

Table 2-19 summarizes the station screening for commuter bus along US 85. A single station site was carried forward for each of the general locations identified.

Table 2-19 Package A - Station Site Evaluation Commuter Bus on US 85

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Greeley		
8th Avenue and D CB-A On the west of US 85 and north of D St	Retained.	Retained.
8th Avenue and D CB-B East of US 85 and West of 6th Ave	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: adjacent land use does not compliment a station and impacts to wetlands.	Screened. Not Practicable. Site does not rate as high as other station site.
South Greeley		
US 85 and 19th St CB-A West of US 85 between 18th St and 19th St	Screened. Not Reasonable. Site impacts historic property.	Screened. Not Practicable. Site impacts historic property.
US 85 and 19th St CB-B West of US 85 between 19th St and 20th St	Screened. Not Reasonable. Does not meet purpose and need because there is no parking allowed.	Screened. Not Practicable. Does not meet purpose and need because there is no parking allowed. Site does not allow parking.
US 85 and 19th St CB-C East of US 85 and between 18th St and 19th St	Screened. Not Reasonable. Does not meet purpose and need because there is no parking allowed.	Screened. Not Practicable. Does not meet purpose and need because there is no parking allowed.
US 85 and 19th St CB-D East of US 85 between 19th St and 20th St	Screened. Not Reasonable. Does not meet purpose and need because there is no parking allowed.	Screened. Not Practicable. Does not meet purpose and need because there is no parking allowed.
US 85 and 19th St CB-E East of US 85 between 20th St 21st St	Screened. Not Reasonable. Does not meet purpose and need because there is no parking allowed.	Screened. Not Practicable. Does not meet purpose and need because there is no parking allowed.
US 85 and 19th St CB-F East of US 85 between 21 St and 22nd St	Screened. Not Reasonable. Does not meet purpose and need because there is no parking allowed.	Screened. Not Practicable. Does not meet purpose and need because there is no parking allowed.
US 85 and 19th St CB-G West of US 85 and 24th St	Retained.	Retained.
Evans		
US 85 and 37th Street CB-A West of US 85 and south of 31st Street	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
US 85 and 37th Street CB-B West of US 85 and south of 37th Street	Screened. Not Reasonable. Site impacts parks.	Screened. Not Practicable. Site impacts parks.
US 85 and 37th Street CB-C West of US 85 and north of 42nd Street	Screened. Not Reasonable. Does not meet purpose and need because it has no bus access.	Screened. Not Practicable. Does not meet purpose and need because it has no bus access.
US 85 and 37th Street CB-D East of US 85 and south of 31st Street	Screened. Not Reasonable. Does not meet purpose and need because it has no bus access.	Screened. Not Practicable. Does not meet purpose and need because it has no bus access.
US 85 and 37th Street CB-E East of US 85 and north of 37th Street	Screened. Not Reasonable. Not feasible because no expansion potential.	Screened. Not Practicable. Logistical problems.
US 85 and 37th Street CB-F East of US 85 and south of 42nd Street	Retained.	Retained.

1 **Table 2-19 Package A - Station Site Evaluation Commuter Bus on US 85 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Platteville		
US 85 and Grand Ave CB-A West of US 85 and north of Grand Ave.	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: bus access and compatibility with adjacent land use.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: bus access and compatibility with adjacent land use.
US 85 and Grand Ave CB-B West of US 85 and north of Grand Ave.	Screened. Not Reasonable. Site would require the purchase of 10+ parcels.	Screened. Not Practicable. Site would require the purchase of 10+ parcels.
US 85 and Grand Ave CB-C West of US 85 and south of Grand Ave.	Screened. Not Reasonable. Site would require the purchase of 10+ parcels.	Screened. Not Practicable. Site would require the purchase of 10+ parcels.
US 85 and Grand Ave CB-D East of US 85 and north of Grand Ave.	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: bus access and compatibility with adjacent land use.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: bus access and compatibility with adjacent land use.
US 85 and Grand Ave CB-E East of US 85 and RR and north of Grand Ave.	Screened. Not Reasonable. Not feasible because site does not have good access.	Screened. Not Practicable. Logistical problems.
US 85 and Grand Ave CB-F East of US 85 and RR and north of Grand Ave.	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.
US 85 and Grand Ave CB-G East of US 85 and RR and south of Grand Ave.	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.
US 85 and Grand Ave CB-H East of US 85 and RR and south of Grand Ave.	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.
US 85 and Grand Ave CB-I West of US 85 and north of Grand Ave.	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: bus access and traffic impacts.
US 85 and Grand Ave CB-J West of US 85 and north of SH 66	Retained.	Retained.
US 85 and Grand Ave CB-K West of US 85 and south of SH 66	Screened. Not Reasonable. Does not meet purpose and need because it is too small to serve its purpose.	Screened. Not Practicable. Does not meet purpose and need because it is too small to serve its purpose.
US 85 and Grand Ave CB-L East of US 85 and RR and north of SH 66	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
US 85 and Grand Ave CB-M East of US 85 and RR and south of SH 66	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.

Table 2-19 Package A - Station Site Evaluation Commuter Bus on US 85 (cont'd)

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Fort Lupton		
	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
US 85 and CR 14.5 CB-B West of US 85 and north of CR 14.5	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
US 85 and CR 14.5 CB-C West of US 85 and south of CR 14.5	Screened. Not Reasonable. Site has a visual impact.	Screened. Not Practicable. Site has a visual impact.
US 85 and CR 14.5 CB-D East of US 85 and north of CR 14.5	Screened. Not Reasonable. Does not meet purpose and need because it is too small to serve its purpose.	Screened. Not Practicable. Does not meet purpose and need because it is too small to serve its purpose.
US 85 and CR 14.5 CB-E East of US 85 and south of CR 14.5	Retained.	Retained.

Table 2-20 summarizes the station site evaluation process for BRT stations along I-25.

Package B BRT transit station sites with multiple locations being evaluated:

- SH 56 / 60. Two sites, which provide similar benefits, are under evaluation. The site favored by Berthoud and Johnstown has the potential for greater impact to wetlands.
- SH 7. Two sites are under analysis to show the tradeoffs involved in serving the Broomfield transit-oriented development site via a longer walk distance or by not serving the site but providing less walk distance for the station users.

With the exception of the station at CSU, all of the stations assumed parking, walk, and bus access for multi-modal accessibility. The stations were sized to reflect multi-modal access and the probable parking turnover during the day. A detailed report on station location development and evaluation is available in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a).

Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
South Fort Collins Transit Center		
US 287 and Harmony Rd BRT-A West of US 287 and south of Harmony Road	Retained.	Retained.
Harmony Road and Timberline		
Harmony Road and Timberline Rd CB-A North of Harmony Road and west of Timberline Road	Screened. Not Reasonable. Site would require the purchase of 10+ parcels.	Screened. Not Practicable. Site would require the purchase of 10+ parcels.
Harmony Road and Timberline CB-B South of Harmony Road and west of Timberline Road	Retained.	Retained.
Harmony Road and Timberline CB-C North of Harmony Road and east of Timberline Road	Screened. Not Reasonable. Does not meet purpose and need because site location would require out of direction local bus movement.	Screened. Not Practicable. Does not meet purpose and need because site location would require out of direction local bus movement.
Harmony Road and Timberline CB-D South of Harmony Road and east of Timberline Road	Screened. Not Reasonable. Does not meet purpose and need because site location would require out of direction local bus movement.	Screened. Not Practicable. Does not meet purpose and need because site location would require out of direction local bus movement.

1 **Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Harmony Road and Timberline (cont'd)		
Harmony Road and Timberline CB-E South of Harmony Road and west of Timberline Road	Retained.	Retained.
I-25 and Harmony Road		
I-25 and Harmony Rd BRT-A North of Harmony Road and west of I-25	Retained.	Retained.
I-25 and Harmony Rd BRT-B North of Harmony Road and west of I-25	Screened. Not Reasonable. Site has hazardous materials impacts.	Screened. Not Practicable. Site has hazardous materials impacts.
I-25 and Harmony Rd BRT-C North of Harmony Road and west of I-25	Retained.	Retained.
I-25 and Harmony Rd BRT-D North of Harmony Road and west of I-25	Retained.	Retained.
Windsor		
I-25 and SH 392 BRT-A North of SH 392 and west of I-25	Screened. Not Reasonable. Site has threatened and endangered species.	Screened. Not Practicable. Site has threatened and endangered species.
I-25 and SH 392 BRT-B North of SH 392 and west of I-25	Screened. Not Reasonable. Site has threatened and endangered species.	Screened. Not Practicable. Site has threatened and endangered species.
I-25 and SH 392 BRT-C North of SH 392 and west of I-25	Screened. Not Reasonable. Site has threatened and endangered species.	Screened. Not Practicable. Site has threatened and endangered species.
I-25 and SH 392 BRT-D North of SH 392 and west of I-25	Screened. Not Reasonable. Site has threatened and endangered species.	Screened. Not Practicable. Site has threatened and endangered species.
I-25 and SH 392 BRT-E South of SH 392 and west of I-25	Screened. Not Reasonable. Site has threatened and endangered species and impacts wetlands.	Screened. Not Practicable. Site has threatened and endangered species and impacts wetlands.
I-25 and SH 392 BRT-F South of SH 392 and west of I-25	Screened. Not Reasonable. Site does not meet engineering requirements so is not feasible.	Screened. Not Practicable. Site is not logistically possible.
I-25 and SH 392 BRT-G South of SH 392 and west of I-25	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
I-25 and SH 392 BRT-H North of SH 392 and west of I-25	Screened. Not Reasonable because of unacceptable site access problems.	Screened. Not Practicable due to logistical problems.
I-25 and SH 392 BRT-I North of SH 392 and west of I-25	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
I-25 and SH 392 BRT-J North of SH 392 and west of I-25	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.

1 **Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Windsor (cont'd)		
I-25 and SH 392 BRT-K South of SH 392 and west of I-25	Screened. Not Reasonable. Would require building relocations.	Screened. Not Practicable. Would require building relocations.
I-25 and SH 392 BRT-L South of SH 392 and west of I-25	Screened. Not Reasonable. Site does not meet engineering requirements so is not feasible.	Screened. Not Practicable. Not logistically possible
I-25 and SH 392 BRT-M South of SH 392 and west of I-25	Retained.	Retained.
I-25 and SH 392 BRT-N South of SH 392 and west of I-25	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible
Crossroads Boulevard		
I-25 and Crossroads Blvd BRT-A North of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.
I-25 and SH 56/60 BRT-A I-25 and Crossroads Blvd BRT-B North of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.
I-25 and Crossroads Blvd BRT-C North of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.
I-25 and Crossroads Blvd BRT-D North of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.
I-25 and Crossroads Blvd BRT-E North of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Site has hazardous materials impacts.	Screened. Not Practicable. Site has hazardous materials impacts.
I-25 and Crossroads Blvd BRT-F South of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Site has hazardous materials impacts.	Screened. Not Practicable. Site has hazardous materials impacts.
I-25 and Crossroads Blvd BRT-G South of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Site does not meet engineering requirements since it exceeds 2% grade.	Screened. Not Practicable. Site is not `logistically possible.

1 **Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Crossroads Boulevard (cont'd)		
I-25 and Crossroads Blvd BRT-H South of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: access to bus routes, not compatible with plans and visual impacts.
I-25 and Crossroads Blvd BRT-I North of Crossroads Blvd. and east of I-25	Screened. Not Reasonable. Site would require acquisition of a commercial building.	Screened. Not Practicable. Would require acquisition of a commercial building.
I-25 and Crossroads Blvd BRT-J South of Crossroads Blvd. and east of I-25	Screened. Not Reasonable. Site does not meet engineering requirements since it exceeds 2% grade.	Screened. Not Practicable. Site is not logistically possible.
I-25 and Crossroads Blvd BRT-K South of Crossroads Blvd. and east of I-25	Screened. Not Reasonable. Site does not meet engineering requirements since it exceeds 2% grade.	Screened. Not Practicable. Site is not logistically possible.
I-25 and Crossroads Blvd BRT-L South of Crossroads Blvd. and east of I-25	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: not compatible with plans, traffic impacts and visual impacts.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: not compatible with plans, traffic impacts and visual impacts.
I-25 and Crossroads Blvd BRT-M South of Crossroads Blvd. and west of I-25	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
I-25 and Crossroads Blvd BRT-N South of Crossroads Blvd. and west of I-25	Retained.	Retained.
I-25 and Crossroads Blvd BRT-O North of Crossroads Blvd. and east of I-25	Retained.	Retained.
Berthoud		
I-25 and SH 56/60 BRT-A South of US 60 and west of I-25	Screened. Not Reasonable. Site has visual impact.	Screened. Not Practicable. Site has visual impact.
I-25 and SH 56/60 BRT-B South of US 60 and west of I-25	Screened. Not Reasonable. Not technically feasible because platform would not be located adjacent to parking.	Screened. Not Practicable. Not logistically possible.
I-25 and SH 56/60 BRT-C South of US 60 and west of I-25	Screened. Not Reasonable. Site does not meet engineering requirements- site exceeds 2% grade.	Screened. Not Practicable. Not logistically feasible.
I-25 and SH 56/60 BRT-D South of US 60 and west of I-25	Screened. Site has traffic impacts.	Screened. Site has traffic impacts.
I-25 and SH 56/60 BRT-E South of US 60 and west of I-25	Screened. Not Reasonable. Site pedestrian access exceeds 2%.	Screened. Not Practicable. Site pedestrian access exceeds 2%. Not logistically feasible.
I-25 and SH 56/60 BRT-F South of US 60 and east of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
I-25 and SH 56/60 BRT-G South of US 60 and east of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.

1 **Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Berthoud (cont'd)		
I-25 and SH 56/60 BRT-H South of US 60 and east of I-25	Screened. Not Reasonable. Site does not meet engineering requirements it exceeds 2% grade.	Screened. Not Practicable. Not logistically possible.
I-25 and SH 56/60 BRT-I South of US 60 and east of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
I-25 and SH 56/60 BRT-J South of US 60 and east of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
I-25 and SH 56/60 BRT-K South of US 60 and west of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
I-25 and SH 56/60 BRT-L North of US 56 and west of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
I-25 and SH 56/60 BRT-M North of US 56 and west of I-25	Retained.	Retained.
I-25 and SH 56/60 BRT-N North of US 56 and east of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
I-25 and SH 56/60 BRT-O North of US 56 and east of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
I-25 and SH 56/60 BRT-P North of US 56 and east of I-25	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
Firestone		
I-25 and SH 119 BRT-A West of I-25 and north of US 119	Screened. Not Reasonable. Site impacts hazardous materials sites.	Screened. Not Practicable. Site impacts hazardous materials sites.
I-25 and SH 119 BRT-B West of I-25 and south of US 119	Screened. Not Reasonable. Site impacts hazardous materials sites.	Screened. Not Practicable. Site impacts hazardous materials sites.
I-25 and SH 119 BRT-C West of I-25 and south of US 119	Screened. Not Reasonable. Site impacts hazardous materials sites.	Screened. Not Practicable. Site impacts hazardous materials sites.
I-25 and SH 119 BRT-D West of I-25 and south of US 119	Screened. Not Reasonable. Site does not have good access and would have traffic impacts.	Screened. Not Practicable. Site does not have good access and would have traffic impacts.
I-25 and SH 119 BRT-E East of I-25 and north of US 119	Screened. Not Reasonable. Site too close to intersection so not feasible.	Screened. Not Practicable. Site too close to intersection so logistically not possible.
I-25 and SH 119 BRT-F East of I-25 and north of US 119	Screened. Not Reasonable. Site too close to intersection so not feasible.	Screened. Not Practicable. Site too close to intersection so logistically not possible.
I-25 and SH 119 BRT-G East of I-25 and north of US 119	Screened. Not Reasonable. Site has hazardous materials impacts.	Screened. Not Practicable. Site has hazardous materials impacts.
I-25 and SH 119 BRT-H East of I-25 and south of US 119	Screened. Not Reasonable. Interchange improvements do not allow a station at this site.	Screened. Not Practicable. Interchange improvements do not allow a station at this site: not logistically possible.
I-25 and SH 119 BRT-I East of I-25 and south of US 119	Screened. Not Reasonable. Would require acquisition of major commercial building.	Screened. Not Practicable. Would require acquisition of major commercial building.
I-25 and SH 119 BRT-J East of I-25 and south of US 119	Retained.	Retained.

1 **Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Frederick/Dacono		
I-25 and SH 52 BRT-A West of I-25 and north of SH 52	Retained.	Retained.
I-25 and SH 52 BRT-B West of I-25 and north of SH 52	Screened. Not Reasonable. Would require acquisition of new buildings.	Screened. Not Practicable. Would require acquisition of new buildings.
I-25 and SH 52 BRT-C West of I-25 and north of SH 52	Screened. Not Reasonable. Would require rebuilding SH 52 which is an unreasonable cost.	Screened. Not Practicable. Would require rebuilding SH 52 which is an unreasonable cost.
I-25 and SH 52 BRT-D West of I-25 and north of SH 52	Screened. Not Reasonable. Would require rebuilding SH 52 which is an unreasonable cost.	Screened. Not Practicable. Would require rebuilding SH 52 is an unreasonable cost.
I-25 and SH 52 BRT-E West of I-25 and south of SH 52	Screened. Not Reasonable. Would require rebuilding SH 52 is an unreasonable cost.	Screened. Not Practicable. Would require rebuilding SH 52 is an unreasonable cost.
I-25 and SH 52 BRT-F West of I-25 and South of SH 52	Screened. Not Reasonable. Site does not have good site access and would have traffic impacts.	Screened. Not Practicable. Site does not have good site access and would have traffic impacts.
I-25 and SH 52 BRT-G West of I-25 and south of SH 52	Screened. Not Reasonable. Site does not have good site access and would have traffic impacts.	Screened. Not Practicable. Site does not have good site access and would have traffic impacts.
I-25 and SH 52 BRT-H East of I-25 and north of SH 52	Screened. Not Reasonable. Site does not have good site access so is not feasible.	Screened. Not Practicable. Site does not have good site access so logistically is not possible.
I-25 and SH 52 BRT-I East of I-25 and north of SH 52	Screened. Not Reasonable. Site does not meet engineering requirements so is not feasible.	Screened. Not Practicable. Site does not meet engineering requirements so logistically is not possible.
I-25 and SH 52 BRT-J East of I-25 and north of SH 52	Screened. Not Reasonable. Site does not meet engineering requirements so is not feasible.	Screened. Not Practicable. Site does not meet engineering requirements so logistically is not possible.
I-25 and SH 52 BRT-K East of I-25 and north of SH 52	Screened. Not Reasonable. Site would require rebuilding SH 52 which is an unreasonable cost.	Screened. Not Practicable. Site would require rebuilding SH 52 which is an unreasonable cost.
I-25 and SH 52 BRT-L East of I-25 south of SH 52	Screened. Not Reasonable. Site would require rebuilding SH 52 which is an unreasonable cost.	Screened. Not Practicable. Site would require rebuilding SH 52 which is an unreasonable cost.
I-25 and SH 52 BRT-M East of I-25 and south of SH 52	Screened. Not Reasonable. Site impacts threatened and endangered species.	Screened. Not Practicable. Site impacts threatened and endangered species.
I-25 and SH 52 BRT-N East of I-25 south of SH 52	Screened. Not Reasonable. Site impacts threatened and endangered species.	Screened. Not Practicable. Site impacts threatened and endangered species.
I-25 and State Highway 7		
I-25 and SH 7 BRT-A West of I-25 and north of SH 7	Screened. Not Reasonable. Site has conflict with ditch.	Screened. Not Practicable. Site has conflict with ditch.
I-25 and SH 7 BRT-B West of I-25 and north of SH 7	Screened. Not Reasonable. Site has conflict with ditch.	Screened. Not Practicable. Site has conflict with ditch.

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1 **Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
I-25 and State Highway 7 (cont'd)		
I-25 and SH 7 BRT-C West of I-25 and south of SH 7	Retained.	Retained.
I-25 and SH 7 BRT-D West of I-25 and south of SH 7	Screened. Not Reasonable. Site does not meet engineering requirements so it is not feasible.	Screened. Not Practicable. Site does not meet engineering requirements so it is not logistically possible.
I-25 and SH 7 BRT-E East of I-25 and north of SH 7	Retained.	Retained.
I-25 and SH 7 BRT-F East of I-25 and north of SH 7	Screened. Not Reasonable. Site has conflict with ditch and would require reconstruction of interchange.	Screened. Not Practicable. Site has conflict with ditch and would require reconstruction of interchange.
I-25 and SH 7 BRT-G South of SH 7 between I-25 and Washington St.	Screened. Not Reasonable. Would require acquisition of new buildings.	Screened. Not Practicable. Would require acquisition of new buildings.
I-25 and SH 7 BRT-H South of SH 7 between I-25 and Washington St.	Screened. Not Reasonable. Would require acquisition of new buildings.	Screened. Not Practicable. Would require acquisition of new buildings.
I-25 and SH 7 BRT-I South of SH 7 between I-25 and Washington St.	Screened. Not Reasonable. Would require acquisition of new buildings.	Screened. Not Practicable. Would require acquisition of new buildings.
I-25 and SH 7 BRT-J South of SH 7 between I-25 and Washington St.	Screened. Not Reasonable. Site conflicts with E-470 so is not technically feasible.	Screened. Not Practicable. Not logistically feasible.
West Greeley		
US 34 and 83rd Ave BRT-A North of US Business 34 and west of 83rd Ave.	Screened. Not Reasonable. Does not meet purpose and need because a combination of factors including: zoning and adjacent land use is industrial and sit is not in close proximity to residential.	Screened. Not Practicable. Does not meet purpose and need because a combination of factors including: zoning and adjacent land use is industrial and sit is not in close proximity to residential.
US 34 and 83rd Ave BRT-B South of US Business 34 and west of 83rd Ave.	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
US 34 and 83rd Ave BRT-C North of US Business 34 and east of 83rd Ave.	Screened. Not Reasonable. Site impacts wetlands.	Screened. Not Practicable. Site impacts wetlands.
US 34 and 83rd Ave BRT-D South of US Business 34 and east of 83rd Ave.	Retained.	Retained.
US 34 and SH 257		
US 34 and SH 257 BRT-A South of US 34 and west of SH 257	Retained.	Retained.
US 34 and SH 257 BRT-B South of US 34 and east of SH 257	Screened. Not Reasonable. Utilizing existing park and ride.	Screened. Not Practicable. Utilizing existing park and ride.
US 34 and SH 257 BRT-C South of US 34 and east of SH 257	Screened. Not Reasonable. Utilizing existing park and ride.	Screened. Not Practicable. Utilizing existing park and ride.

1 **Table 2-20 Package B - Station Site Evaluation Bus Rapid Transit on I-25 (cont'd)**

Station/Stop Name and Location	NEPA Screening Summary	USACE Practicability Summary
Greeley Downtown Transfer Center		
8th Avenue and 8th Street CB-A North of 7th Street and west of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-B North of 8th Street and west of US 85	Retained.	Retained.
8th Avenue and 8th Street CB-C North of 9th Street and west of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-D North of 10th Street and west of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-E North of 7th Street and east of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-F North of 8th Street and east of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-G North of 9th Street and east of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-H North of 9th Street and east of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-I North of 9th Street and east of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-J North of 10th Street and east of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.
8th Avenue and 8th Street CB-K North of 10th Street and east of US 85	Screened. Not Reasonable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.	Screened. Not Practicable. Does not meet purpose and need because it does not connect to the Greeley Downtown Transfer Center.

2.4.3 Maintenance Facility Sites

Maintenance facility locations for both bus and rail were developed according to the following criteria:

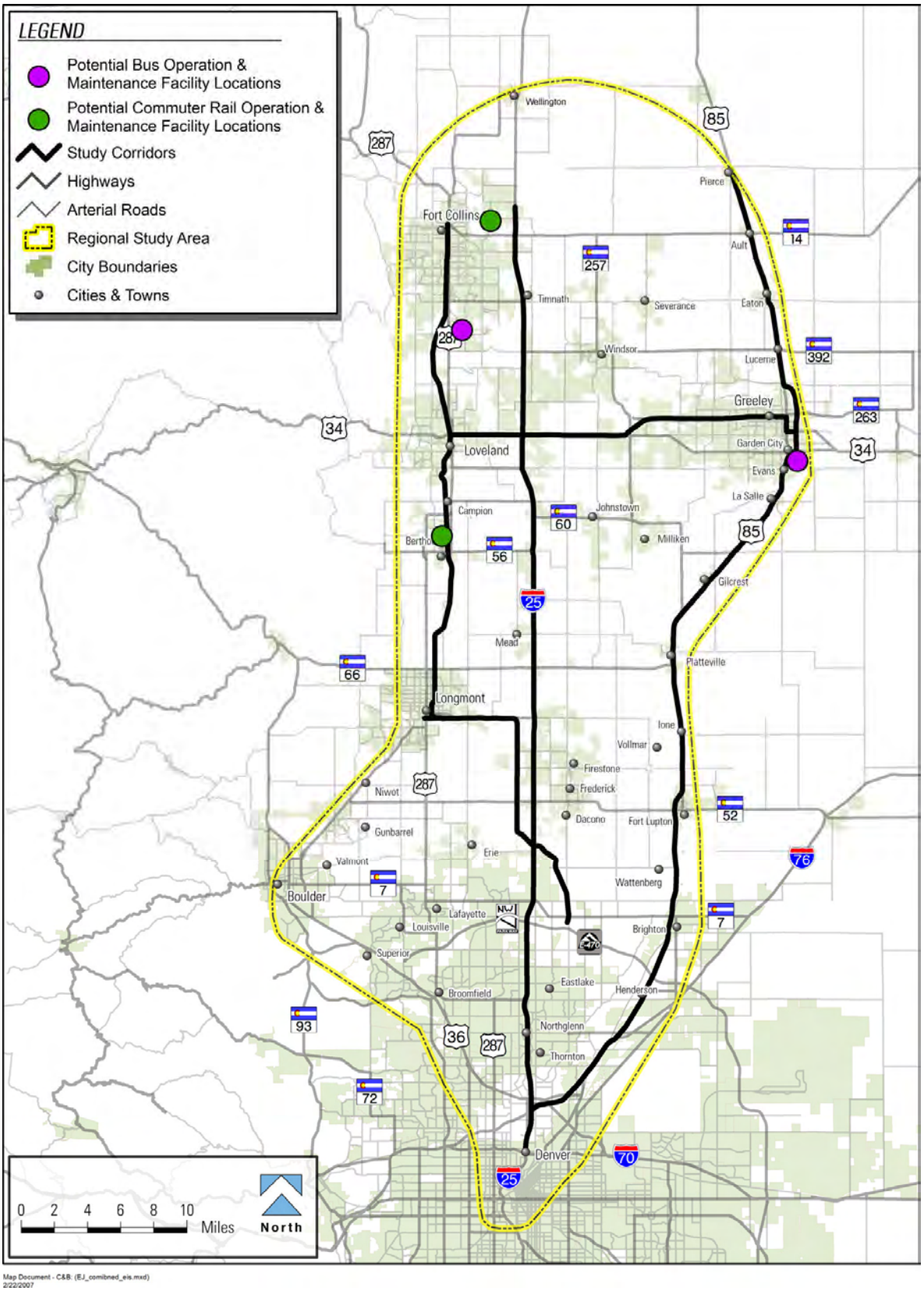
- Location (proximity to service area)
- Size (acres)
- Configuration (shape)
- Topography
- Zoning / use
- Access
- Availability of utilities
- Environmental constraints

After some candidate sites were evaluated, additional screening was conducted to evaluate:

- Does the site limit non-revenue service?
- How well does the site minimize the number of property acquisitions?
- Is there committee and stakeholder support?

Detailed information on the maintenance facility location development and screening is in the *Alternatives Development and Screening Report* (FHU and Jacobs, 2008a). As a result of the screening, two rail maintenance facility sites (Vine and Timberline in Fort Collins, US 287 and CR 46 in Berthoud) and two bus facility sites (Portner Road and Trilby in Fort Collins, 31st Street and 1st Avenue in Greeley) were selected for further analysis. **Figure 2-46** depicts potential maintenance facility locations that are being evaluated in this Draft EIS.

Figure 2-46 Maintenance Facility Locations Being Evaluated



2.5 ALTERNATIVES SCREENING SUMMARY

For reference and for more detailed information, **Table 2-21** includes all highway, transit, and congestion management alternatives considered during the process and lists why they were either screened out or retained. Information is provided in the two columns about the screening of each alternative based on:

Table 2-21 Screening Summary of All Alternatives Considered

Alternative Description	NEPA Screening Summary	USACE Practicability Summary
No-Action Alternative	**Retained.** As required by CEQ.	**Retained.** As required by CEQ.
HIGHWAY ALTERNATIVES		
TAFS recommended highway elements: Managed lane/bus lane: SH 66 to E-470 Managed lane/bus lane: E-470 to US 36	**Retained. Reasonable.** In conjunction with other improvements these improvements could address the mobility and multimodal needs in the corridor.	**Retained. Practicable.** In conjunction with other improvements these improvements could address the mobility and multimodal needs in the corridor.
Highway Alternatives not along I-25		
Improve US 287 or US 85 with additional lanes or higher roadway classification	**Screened. Not Reasonable.** Did not meet purpose and need because these alternatives diverted less than 20% of the needed 55,000 daily trips from I-25 and they would not improve safety on I-25.	**Screened. Not Practicable.** Did not meet purpose and need because these alternatives diverted less than 20% of the needed 55,000 daily trips from I-25 and they would not improve safety on I-25.
New highway or parallel arterial	**Screened. Not Reasonable.** Did not meet purpose and need because these alternatives diverted less than 20% of the needed 55,000 daily trips from I-25 and they would not improve safety on I-25.	**Screened. Not Practicable.** Did not meet purpose and need because it does not replace aging infrastructure on I-25 and it does not address safety on I-25.
Prairie Falcon Parkway	**Screened. Not Reasonable.** Did not meet purpose and need because these alternatives diverted less than 20% of the needed 55,000 daily trips from I-25 and would not improve safety on I-25.	**Screened. Not Reasonable.** Did not meet purpose and need because these alternatives diverted less than 20% of the needed 55,000 daily trips from I-25 and would not improve safety on I-25.
Highway Alternatives along I-25		
Lane width reconfiguration along I-25	**Screened. Not Reasonable.** Did not meet purpose and need because it would substantially compromise safety on I-25 by creating a substandard geometric configuration.	**Screened. Not Practicable.** Did not meet purpose and need because it would substantially compromise safety on I-25 by creating a substandard geometric configuration.
Double deck I-25	**Screened. Not Reasonable.** This alternative was infeasible for implementation because it would cost four times the cost of other feasible highway alternatives.	**Screened. Not Practicable.** This alternative was not practicable because it would cost four times the cost of other feasible highway alternatives.

Table 2-21 Screening Summary of All Alternatives Considered (cont'd)

Alternative Description	NEPA Screening Summary	USACE Practicability Summary
Highway Alternatives along I-25 (cont'd)		
Express lanes on I-25: HOV, HOT or toll with a northern terminus near US 34	**Screened. Not Reasonable.** Did not meet purpose and need because alternatives would not provide connectivity to northern communities or replace aging infrastructure north of US 34.	**Screened. Not Practicable.** Did not meet purpose and need because alternatives would not provide connectivity to northern communities or replace aging infrastructure north of US 34.
Express lanes on I-25: HOV or toll with a northern terminus of SH 14	**Screened. Not Reasonable.** Did not meet purpose and need because HOV or Toll alternatives alone diverted less than 20% of the needed 55,000 daily trips from I-25 into the new facility.	**Screened. Not Practicable.** Did not meet purpose and need because these alternatives diverted less than 20% of the needed 55,000 daily trips from I-25 into the new facility.
Express lanes on I-25: HOT with a northern terminus of SH 14	**Retained. Reasonable.** Would divert sufficient traffic from I-25 general purpose lanes to be considered for further evaluation.	**Retained. Practicable.** Would divert sufficient traffic from I-25 general purpose lanes to be considered for further evaluation.
Limited access lanes	**Screened. Not Reasonable.** Created more environmental impact while providing essentially the same mobility characteristics as an eight-lane facility. Wider cross section would create a lane balance issue at the southern project limit that would result in operation at or below LOS E. The cost would be nearly two times more than adding two general purpose lanes to I-25.	**Screened. Not Practicable.** Created more environmental impact while providing essentially the same mobility characteristics as an eight-lane facility. Wider cross section would create a lane balance issue at the southern project limit that would result in operation at or below LOS E. The cost would be nearly two times more than adding two general purpose lanes to I-25. Aquatic resource impacts were estimated to be double those anticipated with other I-25 widening options.
Interchanges at new locations	**Screened. Not Reasonable** Did not meet purpose and need because new interchanges reduce effective capacity and safety by introducing additional weaving areas. This could be considered as part of a separate action.	**Screened. Not Practicable.** Did not meet purpose and need because new interchanges reduce effective capacity and safety by introducing additional weaving areas. This could be considered as part of a separate action.

1 **Table 2-21 Screening Summary of All Alternatives Considered (cont'd)**

Alternative Description	NEPA Screening Summary	USACE Practicability Summary
Highway Alternatives along I-25 (cont'd)		
Additional lanes – 6 lanes and 8 lanes on I-25 from E-470 to SH 14	**Retained. Reasonable.** Six- and eight-lane general purpose cross sections were retained to achieve a level-of-service (LOS) D or better along the corridor.	**Retained. Practicable.** Six- and eight-lane general purpose cross sections were retained to achieve a level-of-service (LOS) D or better along the corridor.
Interchange replacement / upgrade	**Retained. Reasonable.** Included with any alternative that widens I-25 to address capacity needs, safety concerns, and replace aging infrastructure.	**Retained. Practicable.** Included with any alternative that widens I-25 to address capacity needs, safety concerns, and replace aging infrastructure.
Horizontal and vertical alignment improvements	**Retained. Reasonable.** Included with any alternative that widens I-25 to address capacity needs, safety concerns, and replace aging infrastructure.	**Retained. Practicable.** Included with any alternative that widens I-25 to address capacity needs, safety concerns, and replace aging infrastructure.
Frontage road revisions	**Retained. Reasonable.** Included with any alternative that widens I-25 to address capacity needs, safety concerns, and replace aging infrastructure.	**Retained. Practicable.** Included with any alternative that widens I-25 to address capacity needs, safety concerns, and replace aging infrastructure.
Climbing lanes	**Screened. Not Reasonable.** Did not meet purpose and need because this alternative diverted less than 45% of the needed 55,000 daily trips from I-25 into the climbing lanes.	**Screened. Not Practicable.** Did not meet purpose and need because this alternative diverted less than 45% of the needed 55,000 daily trips from I-25 into the climbing lanes.
Truck lanes	**Screened. Not Reasonable.** Did not meet purpose and need because this alternative diverted less than 45% of the needed 55,000 daily trips from I-25 into the truck lanes.	**Screened. Not Practicable.** Did not meet purpose and need because this alternative diverted less than 45% of the needed 55,000 daily trips from I-25 into the truck lanes.
Transit Alternatives		
TAFS recommended rail transit elements	**Screened. Not Reasonable.** The rail portion was infeasible due to multiple alignments that would more than double the cost compared to rail on BNSF alignment.	**Screened. Not Practicable.** The rail portion was not practicable due to more than double the cost compared to rail on BNSF alignment.
Automated guideway transit (including monorail) in existing highway corridors, freight rail corridors, and/or a new alignment	**Screened. Not Reasonable.** This alternative was considered infeasible for implementation because its reliability has not been proven in a corridor of this length, and it would cost up to 10 times more compared to commuter rail.	**Screened. Not Practicable.** This alternative was considered infeasible for implementation because its reliability has not been proven in a corridor of this length, and it would cost up to 10 times more compared to commuter rail.
Personal rapid transit along existing highway corridors, freight corridors and/or a new alignment	**Screened. Not Reasonable.** Implementation is infeasible because this type of technology has not been proven in revenue service.	**Screened. Not Practicable.** Implementation is impracticable because this type of technology has not been proven in revenue service.

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1 **Table 2-21 Screening Summary of All Alternatives Considered (cont'd)**

Alternative Description	NEPA Screening Summary	USACE Practicability Summary
Rail Transit Alternatives		
Rail transport cars in existing freight corridors	**Screened. Not Reasonable.** Did not meet purpose and need because this type of technology has not been proven to carry sufficient vehicles to reduce congestion in other corridors.	**Screened. Not Practicable.** Did not meet purpose and need because this type of technology has not been proven to carry sufficient vehicles to reduce congestion in other corridors.
Light rail in existing highway corridors, freight rail corridors, and/or a new alignment	**Screened. Not Reasonable.** Does not meet purpose and need because travel time is double and cost would be up to 4 times more compared to commuter rail.	**Screened. Not Practicable.** Does not meet purpose and need because travel time is double and cost would be up to 4 times more compared to commuter rail.
Heavy rail below grade, elevated, along existing highway corridors, in freight rail corridors and/or in a new alignment	**Screened. Not Reasonable.** Implementation is infeasible because the cost that would be up to 17 times greater compared to commuter rail, and land availability does not warrant a fully grade separated alignment.	**Screened. Not Practicable.** Implementation is infeasible because the cost that would be up to 17 times greater compared to commuter rail, and land availability does not warrant a fully grade separated alignment.
Super high-speed rail (>125 mph) in freight rail corridors, a new alignment, and/or existing highway corridors	**Screened. Not Reasonable.** Does not meet purpose and need because limited stations and greater station spacing necessary to sustain speed would not allow connectivity to many northern communities.	**Screened. Not Practicable.** Does not meet purpose and need because limited stations and greater station spacing necessary to sustain speed would not allow connectivity to many northern communities.
High-speed rail (79-125 mph) in existing highway corridors, freight rail corridors, and/or along a new alignment	**Screened. Not Reasonable.** Does not meet purpose and need because limited stations and greater station spacing necessary to sustain speed would not allow connectivity to many northern communities.	**Screened. Not Practicable.** Does not meet purpose and need because limited stations and greater station spacing necessary to sustain speed would not allow connectivity to many northern communities.
North Front Range Rail Loop	**Screened. Not Reasonable.** Does not meet purpose and need because it does not serve travel between northern communities and metropolitan Denver.	**Screened. Not Practicable.** Does not meet purpose and need because it does not serve travel between northern communities and metropolitan Denver.
Front Range Rail	**Screened. Not Reasonable.** Does not meet purpose and need because planned station spacing would not allow connectivity to many northern communities.	**Screened. Not Practicable.** Does not meet purpose and need because planned station spacing would not allow connectivity to many northern communities.
Commuter rail – Western along BNSF	**Retained. Reasonable.** This alignment would serve about twice as many people and jobs compared to central rail alignments and cost the least of the rail alignments considered.	**Retained. Practicable.** This alignment would serve about twice as many people and jobs compared to central rail alignments and cost the least of the rail alignments considered.
Commuter rail – Eastern along UPRR	**Screened. Not Reasonable.** Eastern alignments caused out-of-direction travel, had higher potential for environmental impact to natural resources, and would cost more due to 50% more at-grade crossings.	**Screened. Not Practicable.** Eastern alignments did not meet purpose and need because of out of direction travel and had higher potential for environmental impact to natural resources, including aquatic resources, and would cost more due to 50% more at-grade crossings

Table 2-21 Screening Summary of All Alternatives Considered (cont'd)

Alternative Description	NEPA Screening Summary	USACE Practicability Summary
Commuter rail – Central alignments	**Screened. Not Reasonable.** Infeasible because central alignments would cost up to four times more than alignments along an existing track.	**Screened. Not Practicable.** Central alignments would cost up to four times more than alignments along an existing track and had higher potential for environmental impact to natural resources, including aquatic resources.
Rail Transit Alternatives		
Commuter rail in a new alignment (entire corridor)	**Screened. Not Reasonable.** Infeasible because new alignments would cost up to four times more than alignments along an existing track. Segments of commuter rail in a new rail alignment that could be used in conjunction with an improvement in an existing rail corridor were retained for additional evaluation.	**Screened. Not Practicable.** New rail alignments would cost up to four times more than alignments along an existing track and had higher potential for environmental impact to natural resources, including aquatic resources. Segments of commuter rail in a new rail alignment that could be used in conjunction with an improvement in an existing rail corridor were retained for additional evaluation.
Bus Alternatives		
Bus rapid transit in bus-only exclusive lanes	**Screened. Not Reasonable.** Was not considered reasonable because ridership projections did not warrant bus service that would be frequent enough to merit exclusive lanes.	**Screened. Not Practicable.** Was not considered reasonable because ridership projections did not warrant bus service that would be frequent enough to merit exclusive lanes.
Bus rapid transit in semi-exclusive lanes along I-25	**Retained. Reasonable.** Semi-exclusive lanes would provide sufficient capacity for bus and enable fast, reliable travel time to address regional multimodal needs.	**Retained. Practicable.** Semi-exclusive lanes would provide sufficient capacity for bus and enable fast, reliable travel time to address regional multimodal needs.
Demand responsive bus on existing highways	**Screened. Not Reasonable.** Did not meet purpose and need because service is not designed to meet a regional travel need.	**Screened. Not Practicable.** Did not meet purpose and need because service is not designed to meet a regional travel need.
Commuter bus	**Retained. Reasonable.** In conjunction with highway improvements could address regional multimodal needs.	**Retained. Practicable.** In conjunction with highway improvements could address regional multimodal needs.
Other Transit Alternatives		
Jitney service along existing highway corridors	**Screened. Not Reasonable.** This technology is infeasible for implementation because it has not been proven in revenue service.	**Screened. Not Practicable.** This technology is impracticable because it has not been proven in revenue service.
Congestion Management Alternatives		
Bike and pedestrian improvements	**Retained. Reasonable.** Congestion management alternatives alone are not sufficient to meet purpose and need. However, these alternatives are retained to supplement the primary improvements.	**Retained. Practicable.** Congestion management alternatives alone are not sufficient to meet purpose and need. However these alternatives are retained to supplement the primary improvements.
Travel demand management		
Intelligent transportation systems		
Transportation system management		