

NORTH I-25
EIS



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**Technical Memorandum Addendum
WETLANDS AND OTHER WATERS OF THE U.S.**

Prepared by:

JACOBS™

August 2011

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INTRODUCTION

The Federal Highway Administration (FHWA), in cooperation with the Colorado Department of Transportation (CDOT), are evaluating alternative multimodal transportation improvements along the Interstate 25 (I-25) corridor from the Fort Collins-Wellington area to Denver. An Environmental Impact Statement (EIS) is being prepared to evaluate these improvements. The United States Army Corps of Engineers (USACE) is a cooperating agency for this NEPA process.

The North I-25 Draft Environmental Impact Statement (DEIS) evaluated two Alternatives, Package A and Package B, along with a No-Action Alternative. Through a collaborative process between CDOT and leaders from local agencies, municipalities, and transportation agencies in Northern Colorado, a Preferred Alternative was developed that combines elements from both Package A and Package B. The Preferred Alternative is being carried through and studied in more detail in the Final Environmental Impact Statement (FEIS).

The Preferred Alternative was identified during a six-month long collaborative process. USACE was an active participant in this process. The Preferred Alternative holds certain advantages over Package A and Package B as presented in the DEIS. Rationale for supporting the Preferred Alternative includes:

- ▶ As shown on Page 11 of this Technical Memorandum Addendum, the Preferred Alternative has the least impact to the aquatic environment.
- ▶ Comments received during DEIS comment period showed an overwhelming support of commuter rail and express bus service from both the general public and local agencies.
- ▶ Express bus service could be fairly easily implemented, providing multimodal options to commuters traveling the North I-25 and US 85 Corridor and better serving anticipated socio-economic growth along I-25. Given the uncertainty of the FasTracks schedule, whose completion date, pending financing options, ranges from 2017 to after 2035, Express Bus service on I-25 could provide an additional mode choice that would first supplement, and then complement, the proposed FasTracks North Metro Corridor commuter rail.
- ▶ Commuter rail has been placed on a single-track, with passing tracks as needed to maintain service levels. This change has led to a reduction in both cost and impacts to sensitive resources (including aquatic resources), while revised ridership forecasting indicates comparable ridership levels are maintained.
- ▶ The North I-25 cross section width has been reduced to minimize impacts to sensitive resources (including aquatic resources), while maintaining mobility, accessibility and mode choice. The use of Tolle Express Lanes is consistent with I-25 north of downtown Denver and with the proposed improvements to the US 36 corridor, creating a consistent and coherent network for the motoring public.
- ▶ Proposed changes in Express Bus stations from the median to the ramps will further reduce costs and impacts, including to aquatic resources.
- ▶ The Preferred Alternative adds one general purpose lane in each direction north of SH 66 which would accommodate the increased demand in freight movement.

- ▶ The Preferred Alternative accommodates anticipated growth in freight and private auto traffic as well as facilitating bus transit travel along I-25.
- ▶ The Preferred Alternative has been developed to provide broad geographic coverage based on community desires.
- ▶ The Preferred Alternative is strongly supported by the North I-25 Technical Advisory Committee and the Regional Coordination Committee

The North I-25 project is being conducted using the National Environmental Policy Act (NEPA)/404 merger process. The NEPA/404 merger process is guided by and supports the requirements of Section 404 of the Clean Water Act (CWA), United States Environmental Protection Agency (USEPA) regulations, and the Memorandum of Agreement among the USACE, FHWA, and CDOT. The NEPA/404 merger agreement requires consultation on four key points: (1) Project Purpose and Need, (2) Alternatives Selected for Detailed Evaluation, (3) the Preferred Alternative, and (4) Compensatory Mitigation. The North I-25 EIS began under the 2004 merger process, therefore four concurrence points are used.

USACE consultation with FHWA and CDOT was completed on the first two concurrence points required under the merger, with a letter received from USACE on July 25, 2005 concurring with the project's Purpose and Need and a letter received from USACE on August 6, 2006 providing concurrence regarding the Alternatives Selected for Detailed Evaluation. In a letter dated December 29, 2008, the USACE Denver Regulatory Office provided a preliminary determination that Package A would be the least environmentally damaging practicable alternative. As of May 2010, concurrence has not yet been received on the final two points in the merger process.

This document presents an analysis that was performed for the FEIS to assess potential impacts to wetlands and other waters of the U.S. as a result of implementation and operation of the Preferred Alternative. This document is an addendum to the previous technical memorandum for wetlands and other waters of the U.S. completed for the DEIS (CDOT, 2008).

Preferred Alternative

The Preferred Alternative includes the following elements:

General Purpose Lanes: One new general purpose lane in each direction of I-25 between State Highway (SH) 66 and SH 14.

Tolled Express Lanes (TEL): One buffer-separated TEL in each direction of I-25 from the existing High Occupancy Vehicle/Toll lanes at 84th Avenue to SH 14.

Interchange Replacements: 13 improved interchanges along the corridor.

Express Bus: Express bus service with 13 stations along I-25, US 34 and Harmony Road with service from Fort Collins and Greeley to downtown Denver, and from Fort Collins to Denver International Airport (DIA).

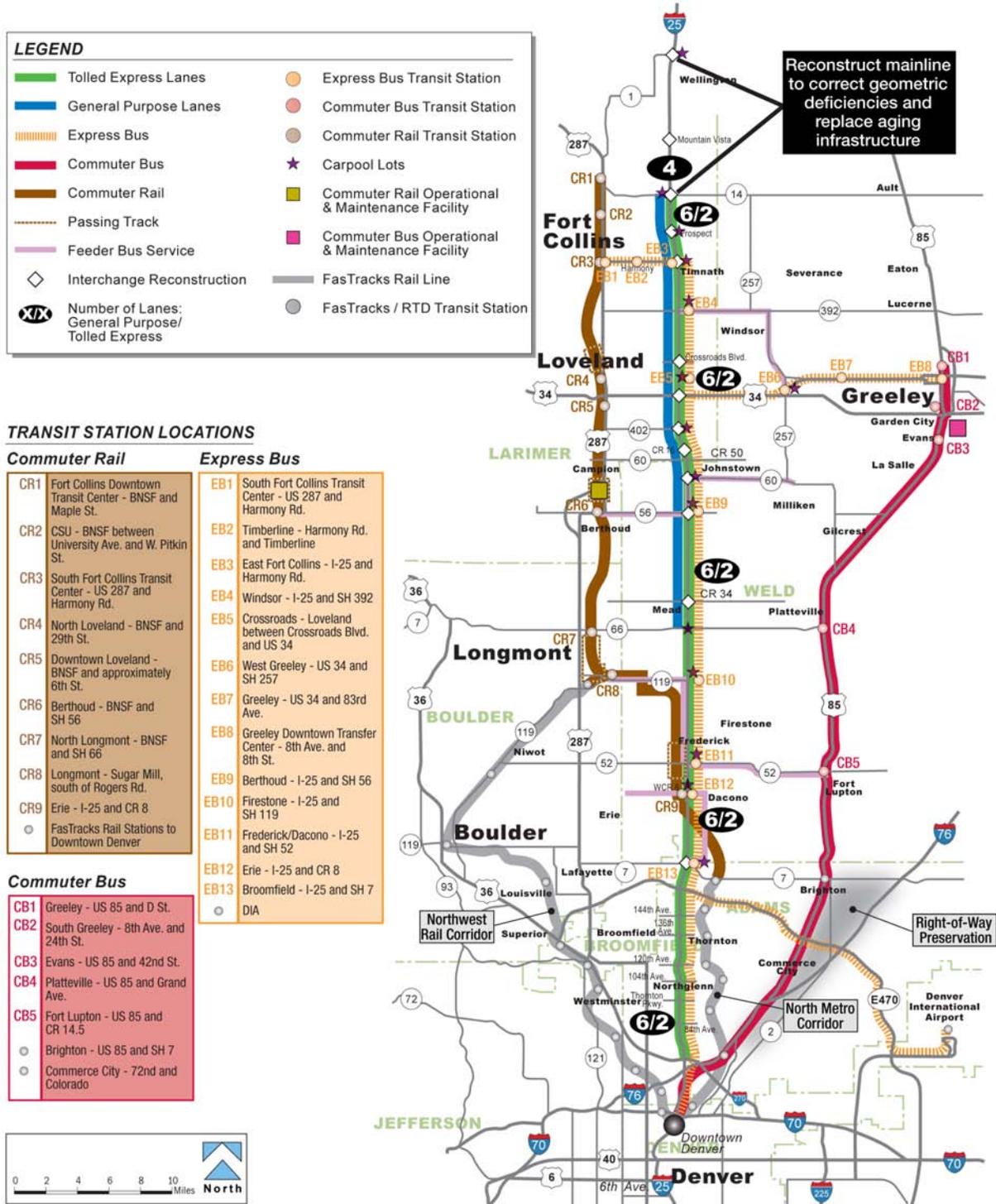
Commuter Rail: Commuter rail service with nine stations connecting Fort Collins to Longmont and Thornton using the Burlington Northern Santa Fe Railroad, generally paralleling United States Highway (US) 287 and tying into FasTracks Northwest Corridor Rail in Longmont, which will travel to Boulder. The commuter rail extends south to the North Metro northern terminus.

Commuter Bus: Commuter bus service with eight stations along US 85 connecting Greeley to downtown Denver.

Congestion Management: Accommodations for ridesharing, carpools, and vanpools, along with bicycle and pedestrian facilities. In addition, signal timing, ramp metering on I-25 and signage could also be improved.

Figure 1 shows a Project Vicinity Map and the elements of the Preferred Alternative.

Figure 1 Project Vicinity Map and the Elements of the Preferred Alternative.



UPDATED EXISTING CONDITIONS

Subsequent to the publication of the DEIS, materials regarding existing wetlands and other waters of the U.S. within the project area were submitted to the USACE Denver Regulatory Office for concurrence of boundaries. During that concurrence process, USACE requested that open water features be included in the total wetland acreage. Open water features were not included in the original analysis and total acreages of Packages A and B for the DEIS. In response to USACE's request, open water and other features mapping and classifications were reassessed and refined for the FEIS. As a result of reassessing and refining the mapping and classifications of open water and other features, the total acreage of wetlands and other waters of the U.S. within the project area for Packages A and B have increased.

On April 10, 2009, the USACE Denver Regulatory Office issued a public notice regarding required usage of the Functional Assessment of Colorado Wetlands (FACWet) Method, for use when evaluating and assessing wetlands in conjunction with application for Section 404 Individual Permits. Clarification was requested from the Corps regarding the implications of this new guidance on the North I-25 project. On April 28, 2009, USACE issued a statement clarifying that for corridor projects requiring an EIS, if a functional assessment other than FACWet was prepared prior to April 10, 2009, the Corps will use that functional assessment for evaluation of the mitigation plan associated with the permit application.

Wetlands identified within the project area were classified using vegetation classes based on the United States Fish and Wildlife Service (USFWS) wetland classification system (Cowardin et al., 1979), and by whether they are currently in natural or modified condition. Results of the updated wetland inventory within the project area are summarized in **Table 1**. Existing acreage for wetlands and other waters of the U.S. has been confirmed by the USACE, and confirmation letters can be found in **Appendix A**.

Table 1 Wetlands and Other Waters of the U.S. Identified Within the North I-25 Project Area

WETLAND TYPE	UPDATED EXISTING ACREAGE
Palustrine Scrub/Shrub	139.37
Palustrine Emergent	394.67
Open Waters*	140.83
Total Wetlands and Open Waters	674.87

*For the purpose of this document, open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Jurisdictional Status of Wetlands and Other Waters of the U.S.

On November 4, 2008, the USACE Denver Regulatory Office issued a Preliminary Jurisdictional Determination for wetlands and other waters of the U.S. along the I-25 highway corridor. On March 20, 2009, USACE provided a Preliminary Jurisdictional Determination for wetlands and other waters of the U.S. along the commuter rail corridor. A Preliminary Jurisdictional Determination assumes all wetlands and other waters of the U.S. are jurisdictional for determining impacts and compensatory mitigation requirements. Preliminary Jurisdictional Determinations can be found in **Appendix A**.

ENVIRONMENTAL CONSEQUENCES

The updates to the existing conditions documented for the EIS have resulted in updated impact estimates for the Build Alternatives. Environmental consequences include impacts to wetlands and other waters from all improvements within an alternative (e.g. interchanges, structural improvements, safety upgrades, feeder bus, and maintenance facilities). Package A and Package B Impacts are summarized below. For further discussion of components for these Packages, see the *Wetlands and Waters of the U.S. Technical Memorandum* (Jacobs, 2008).

Package A Impacts

Components of Package A include safety improvements, construction of additional general purpose lanes on I-25, structure upgrades, and the implementation of commuter rail and commuter bus service. Development of these components would result in impacts totaling an estimated 18.33 acres of wetlands, and 3.54 acres of open waters (see **Table 2**).

Table 2 Direct Impacts to Wetlands and Other Waters from Package A Components

PACKAGE A		PEM (ACRES)	PSS (ACRES)	OPEN WATERS* (ACRES)	TOTALS (ACRES)
Component	Location				
<i>I-25 Safety Improvements</i>					
A-H1	SH 1 to SH 14	0	0	0	0
<i>I-25 General Purpose Lanes</i>					
A-H2	SH 14 to SH 60	7.10	2.09	1.42	10.61
A-H3	SH 60 to E 470	3.97	0.89	0.42	5.28
<i>I-25 Structure Upgrades</i>					
A-H4	E 470 to US 36	0	0	0	0
<i>Commuter Rail</i>					
A-T1	Ft. Collins to Longmont	0.70	0.18	0.27	1.15
A-T2	Longmont to North Metro Denver	1.69	1.71	1.43	4.83
<i>Commuter Bus</i>					
A-T3	Greeley to North Metro Denver	0	0	0	0
A-T4	Greeley to DIA	0	0	0	0
<i>Commuter Rail Stations</i>		0	0	0	0
<i>Maintenance Facilities</i>		0	0	0	0
Package A Totals:		13.46	4.87	3.54	21.87

PEMPalustrine emergent wetland

PSS.....Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Package B Impacts

Development of these components would result in impacts totaling an estimated 19.01 acres of wetlands and 2.28 acres of open waters (see **Table 3**).

Table 3 Direct Impacts to Wetlands and Other Waters from Package B Components

PACKAGE B		PEM (ACRES)	PSS (ACRES)	OPEN WATERS* (ACRES)	TOTALS (ACRES)
Component	Location				
<i>I-25 Safety Improvements</i>					
BH-1	SH 1 to SH 14	0	0	0	0
<i>I-25 Tolled Express Lanes</i>					
BH-2	SH 14 to SH 60	9.67	2.84	1.76	14.27
BH-3	SH 60 to E 470	4.15	0.95	0.43	5.53
BH-4	E 470 to US 36	0.52	0.36	0.09	0.97
<i>Bus Rapid Transit</i>					
B-T1	Ft. Collins/Greeley to North Metro Denver	0	0	0	0
B-T2	Ft. Collins to DIA	0	0	0	0
<i>BRT Stations</i>					
	Ft. Collins to Greeley	0.52	0	0	0.52
	Ft. Collins to North Metro Denver	0	0	0	0
	Metro Denver to DIA	0	0	0	0
<i>Maintenance Facilities</i>					
		0	0	0	0
Package B Totals:		14.86	4.15	2.28	21.29

PEMPalustrine emergent wetland

PSS.....Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Preferred Alternative Impacts

Construction of the Preferred Alternative, which combines elements of both Package A and Package B, would result in direct impacts totaling 15.31 acres of wetlands and 2.87 acres of open waters. **Table 4** summarizes impacts by design components and component impacts are described below. **Figure 1** shows a map of components included as part of the Preferred Alternative.

Table 4 Direct Impacts to Wetlands and Other Waters from Preferred Alternative Components

PREFERRED ALTERNATIVE	PEM (ACRES)	PSS (ACRES)	OPEN WATERS* (ACRES)	TOTALS (ACRES)
<i>Commuter Rail</i>	1.82	1.69	1.42	4.93
<i>I-25 Highway Improvements</i>	9.05	2.75	1.45	13.25
<i>I-25 Express Bus</i>	0	0	0	0
<i>US 85 Commuter Bus</i>	0	0	0	0
Preferred Alternative Totals:	10.87	4.44	2.87	18.18

PEMPalustrine emergent wetland

PSS.....Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

This section describes wetland impacts by components associated with the Preferred Alternative.

Commuter Rail

The Preferred Alternative includes the construction of a commuter rail line from Fort Collins to Longmont, continuing from Longmont to FasTracks North Metro Corridor. The commuter rail will operate as a single track rail line with segments of passing track where feasible.

The Commuter Rail component would have direct impacts to wetlands and other waters within the Preferred Alternative footprint as a result of fill placement caused by construction of railway components, such as track installation and alignment, a maintenance road adjacent to the BNSF alignment, maintenance facilities, and station locations. Similar to Package A, the majority of impacts for this component would occur along the Big Thompson River, Cache la Poudre River, Fossil Creek, Little Thompson River, and St. Vrain Creek. Commuter Rail and its associated stations would affect 4.93 acres of wetlands and other waters of the U.S.

I-25 Highway Improvements

The Preferred Alternative includes buffer-separated Tolle Express Lanes in each direction of I-25. In addition, one additional general purpose lane would be added in each direction of I-25 from SH 14 to SH 66, and 13 existing interchanges would be replaced. These improvements would impact 13.25 acres of wetlands and other waters of the U.S. Impacts would occur as a result of construction activities requiring clearing, grading, or vegetation removal adjacent to and in the floodplains of perennial waterways. Impacts are primarily anticipated to occur along Big Dry Creek, Big Thompson River, Cache la Poudre River, Fossil Creek, Little Dry Creek, Little Thompson River, South Platte River, and St. Vrain Creek.

I-25 Express Bus

The Preferred Alternative would add Express Bus service with 13 stations along I-25, US 34 and Harmony Road. I-25 Express Bus service would use the proposed tolled express lanes included in the highway improvements and would not result in any additional impacts on existing wetlands and other waters of the U.S.

US 85 Commuter Bus

The Preferred Alternative would add Commuter Bus service and 8 stations along US 85 between Greeley and downtown Denver. The Commuter Bus lines would operate on existing roadways and would have no direct or indirect impacts to wetlands and other waters of the U.S. Similarly, the stations would be located immediately adjacent to the roadway and would have no direct or indirect impacts to wetlands or other waters of the U.S.

Indirect Impacts Common to All Build Packages

Package A, Package B, and the Preferred Alternative would cause indirect effects to wetlands located within and adjacent to areas of construction. The following indirect effects are common to build packages for general purpose lanes, commuter rail, commuter rail stations, commuter bus, tolled express lanes, BRT stations, and maintenance facilities.

Most indirect effects would result from the increase in impervious surfaces caused by additional lanes or added road shoulders. The greater area of impervious surfaces would be expected to increase roadway and new bus/train station runoff, surface flows in adjacent streams, erosion, and the creation of channels in wetlands that were previously free of channelization. New flows could contain pollutants associated with roadway runoff. Sediment from winter sanding operations, especially with additional roadway lanes, would likely accumulate in wetlands and drainages. De-icers, such as magnesium chloride, petroleum products, and other chemicals, would likely degrade water quality, thus impacting wetland plants and wildlife. Additional sediment and erosion would be expected during and after construction until exposed fill and cut slopes could be successfully re-vegetated.

Other indirect wetland effects include the decrease or elimination of upland tree and/or shrub buffers between the proposed roadway/rail corridor and wetlands adjacent to other aquatic sites. Buffers filter pollutants before they reach wetlands, streams, and lakes as well as provide habitat for wildlife.

Because proposed roadway and/or rail alignments primarily follow existing lines, many wetlands currently receive indirect effects from general activity and maintenance practices. However, the magnitude of indirect effects would increase with increased area of roadway and rail corridors.

Indirect impacts resulting from project induced growth, transit oriented development, and carpool lots are discussed within **Section 3.1.5.2 Land Use and Zoning Environmental Consequences** of the FEIS.

IMPACT AVOIDANCE AND MINIMIZATION

Impacts to wetlands and other waters of the U.S. will be avoided and minimized to the greatest extent possible during preliminary and final design through the use of established and approved best management practices (BMPs). During this conceptual design phase, roadway improvements, rail alignments, and retaining walls were located to reduce fill in wetlands where practicable. **Appendix B** of the Technical Memorandum Addendum: *Wetlands and Other Waters of the U.S.* (Jacobs, 2011d) includes detailed information on avoidance and minimization measures that have been incorporated into the project throughout the EIS process, including median designs incorporated into the highway

components that resulted in a smaller impact footprint, and the use of single tracking for the commuter rail component of the Preferred Alternative. **Appendix B** is preliminary and is currently being reviewed by the USACE.

During construction, BMPs will be used to avoid indirect construction impacts to wetlands and other waters of the U.S. Material and equipment will be stored outside of wetland areas and drainages that could carry toxic materials into wetlands. Construction fencing will be used to mark wetland boundaries and sensitive habitats during construction.

EPA Section 404(b)(1) guidelines require that impacts to wetlands be avoided and minimized to the greatest extent practicable.

MITIGATION

Per Section 404 of the Clean Water Act, impacts to wetlands and other waters of the U.S. must be avoided, minimized, and mitigated. Although the Act requires compensatory mitigation only for jurisdictional waters of the U.S., including wetlands, it is FHWA and CDOT policy to mitigate all wetlands impacts (jurisdictional and non-jurisdictional) at a minimum of a 1:1 ratio. On June 9, 2008, USACE and Environmental Protection Agency (EPA) issued a new Mitigation Rule, which replaced all previous USACE mitigation guidance and established a preference for a watershed-based mitigation approach, which requires measurable and enforceable standards of performance to strengthen documentation of mitigation success.

Acceptance of mitigation bank credit as compensation for impacts depends on the banks' ability to replace the impacted wetland functions and agreement from regulatory agencies, primarily the Omaha District of the USACE and EPA. There are three wetland mitigation banks in the North I-25 EIS study area that could serve the project. They are Mile High Wetland Mitigation Bank, Middle South Platte River Wetland Bank, and the Riverdale Wetland Mitigation Bank. Impacts south of SH 66 are within these banks' primary service areas and can provide mitigation credit at a 1:1 ratio. Project impacts north of SH 66 are generally within the secondary service area and would require mitigation credit at a higher ratio.

CDOT and FHWA are working with the Omaha District of the USACE and EPA to determine how impacts within the project area watersheds can be best mitigated. Proposed mitigation will consist of a combination of on-site wetland creation or restoration, in-lieu fee arrangements, off-site wetland creation or restoration, and the purchase of wetland credits at USACE-approved mitigation banks.

All impacted wetlands and other waters of the U.S. would be mitigated in accordance with the USACE mitigation policies, and the conditions of the USACE Section 404 Permit. All mitigation plans would be developed in coordination with the USACE and other appropriate agencies during the Section 404 permitting process. In addition, all mitigation for the wetlands as a result of the North I-25 project would be done in accordance with CDOT and FHWA (23 CFR 777).

CONCLUSION

Within the project area, there are 674.87 acres of existing wetland areas and other waters of the U.S., as confirmed by the USACE Denver Regulatory Office. A preliminary jurisdictional determination has been made by the USACE Denver Regulatory Office for all wetlands within the project area.

Based on proposed project activities and updated existing conditions, the following impacts would occur:

- ▶ **Package A**—A total of 21.87 acres of impact to wetlands and open waters are anticipated as a result of the construction of Package A. This would include 4.87 acres of impact to palustrine scrub/shrub wetlands, 13.46 acres to emergent wetlands, and 3.54 acres of impact to open waters.
- ▶ **Package B**—A total of 21.29 acres of impact to wetlands and open waters are anticipated as a result of the construction of Package B. This would include 4.15 acres of impact to palustrine scrub/shrub wetlands, 14.86 acres to emergent wetlands, and 2.28 acres of impact to open waters.
- ▶ **Preferred Alternative**—A total of 18.18 acres of impact to wetlands and open waters are anticipated as a result of the construction of the Preferred Alternative. This would include 4.44 acres of impact to palustrine scrub/shrub wetlands, 10.87 acres to emergent wetlands, and 2.87 acres of impact to open waters.

Direct impacts to wetlands and other waters of the U.S. would occur primarily from fill placement caused by construction of transportation improvements, such as roadway widening and realignment, new alignments, and intersection improvements. Indirect effects/impacts would result primarily from the increase in impervious surfaces caused by additional lanes or added road shoulders.

For the project, an application for a Standard Section 404 Individual Permit (IP) will be required based on the large volume of wetlands and anticipated impacts. Based on guidelines established in the NEPA/404 Merger Process, the Individual Permit application will be submitted coincident with the FEIS.

Impacts to wetlands will be avoided and minimized to the greatest extent possible during preliminary and final design. All impacts to wetlands and other water features will be mitigated as described in the mitigation section.

REFERENCES

Colorado Department of Transportation, 2008. North I-25 Technical Memorandum:
Wetlands and Other Waters.

Cowardin, L.M. et al. 1979. Classification of Wetlands and Deepwater Habitats of the United
States. United States Fish and Wildlife Service. Biological Services program;
FWS/OBS-79/31.

Dorn, R.D., 1997. Rocky Mountain Region Willow Identification Field Guide. U.S. Forest
Service, Renewable Resources R2-RR-97-01.

APPENDIX A

USACE Correspondence



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 SOUTH WADSWORTH BOULEVARD
LITTLETON, COLORADO 80128-6901

July 29, 2008

Ms. Carol Parr
Colorado Department of Transportation
Planning/Environmental Section
1420 2nd Street
Greeley, CO 80631

**RE: North I-25 Environmental Impact Statement
Wetland Delineations along the I-25 Highway Corridor
Corps File No. 200480110**

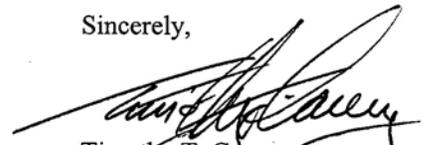
Dear Ms. Parr:

Mr. Terry McKee of my office has reviewed the July 28, 2008 wetland delineation report for this project. The wetland report and wetland mapping for this project is considered accurate and accepted by my office. This delineation verification is valid for 5 years from the date of this letter, unless there has been a change in hydrology.

If any work associated with this project requires the placement of dredged or fill material, and any excavation associated with a dredged or fill project, either temporary or permanent, in the aquatic sites identified in your delineation report, this office should be notified by a proponent of the project for Department of the Army permits, changes in permit requirements and jurisdictional determinations pursuant to Section 404 of the Clean Water Act. Work in an aquatic site should be shown on a map identifying the Quarter Section, Township, Range and County and Latitude and Longitude, Decimal Degrees (datum NAD 83) of the work and the dimensions of work in each area. Any loss of an aquatic site may require mitigation. Mitigation requirements will be determined during the Department of the Army permitting review.

If there are any questions regarding wetland determinations call **Mr. Terry McKee** at (303) 979-4120 and **reference Corps No. 200480110**. If there is any question regarding permitting and jurisdictional determinations call **Ms. Margaret Langworthy** at this office.

Sincerely,



Timothy T. Carey
Chief, Denver Regulatory Office

tm



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 SOUTH WADSWORTH BOULEVARD
LITTLETON, COLORADO 80128-6901

November 4, 2008

Carol Parr
Colorado Department of Transportation
Region 4
2207 E. Highway 402
Loveland, CO 80537

**RE: North I-25 EIS, Preliminary Jurisdictional Determination
Corps File No. 200480110**

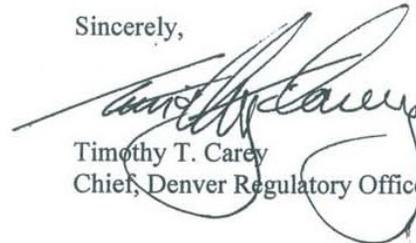
Dear Ms. Parr:

Reference is made to the above-mentioned project and your October 6, 2008 request for a Preliminary Jurisdictional Determination.

We have prepared a Preliminary Jurisdictional Determination (JD) which is a written indication that wetlands and waterways within your project area may be Waters of the United States (attached). Such waters will be treated as jurisdictional Waters of the US for purposes of computation of impacts and compensatory mitigation requirements. If you concur with the findings of the Preliminary JD, please sign it and return it to the letterhead address within two weeks. If you believe the Preliminary JD is inaccurate, you may request an Approved JD, which is an official determination regarding the presence or absence of Waters of the US. If an approved JD is requested, the Corps will complete one and you may not begin work on the proposed project until after the Approved JD is complete. If you do not want the Corps to complete an Approved JD, you may proceed with the proposed project.

If there are any questions call Margaret Langworthy or Matt Montgomery of my office at (303) 979-4120 and reference **Corps File No. 200480110**.

Sincerely,



Timothy T. Carey
Chief, Denver Regulatory Office

200480110

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

This preliminary JD finds that there “*may be*” waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

A. Report Completion Date for Preliminary Jurisdictional Determination (JD):

November 4, 2008

B. Name and Address of Person Requesting Preliminary JD:

Colorado Department of Transportation
Region 4
2207 E. Highway 402
Loveland, CO 80537

C. District Office, File Name, and Number:

Omaha District-Denver Regulatory Office, North I-25 EIS, NWO-2004-80110-DEN

D. PROJECT LOCATION(S), BACKGROUND INFORMATION, AND WATERS:

State: Colorado
County: includes the North I-25 from Denver to Wyoming border
Name of nearest waterbody: N/A

Identify amount of waters in the review area: 99.42 acres of waters

Table 1 - Waters of the U.S.

Aquatic Complex ID	Complex Type	Latitude	Longitude	Complex Area (Acres)	Cowardin Class
OW-1	Open Water	40.5724	105.0021	0.211	W
WL-1	Wetland	40.5731	105.0022	0.369	PSS, PEM
WL-2	Wetland	40.5722	105.0021	0.137	PEM
OW-2	Open Water	40.5703	105.0005	0.024	W
OW-3	Open Water	40.5702	105.0006	0.074	W
WL-3	Wetland	40.5769	105.0005	0.649	PSS, PEM
WL-4	Wetland	40.5732	105.0005	0.110	PSS, PEM
WL-5	Wetland	40.5703	105.0005	0.016	PEM

WL-6	Wetland	40.5702	105.0006	-	0.075	PEM
WL-10	Wetland	40.5611	105.0023	-	0.274	PSS, PEM
WL-11	Wetland	40.5588	105.0020	-	0.103	PSS, PEM
WL-7	Wetland	40.5667	105.0049	-	0.018	PEM
WL-8	Wetland	40.5668	105.0042	-	0.036	PSS, PEM
WL-9	Wetland	40.5665	105.0042	-	0.067	PEM
OW-4	Open Water	40.5596	105.0004	-	0.018	W
WL-12	Wetland	40.5664	104.9985	-	0.034	PEM
WL-13	Wetland	40.5627	105.0007	-	0.326	PEM
WL-14	Wetland	40.5596	105.0004	-	0.036	PEM
OW-5	Open Water	40.5427	104.9975	-	1.046	W
WL-15	Wetland	40.5449	104.9982	-	4.685	PSS, PEM
OW-6	Open Water	40.5318	104.9943	-	0.948	W
OW-7	Open Water	40.5308	104.9933	-	0.063	W
OW-8	Open Water	40.5309	104.9925	-	0.274	W
WL-16	Wetland	40.5314	104.9941	-	0.783	PSS, PEM
WL-17	Wetland	40.5311	104.9934	-	0.177	PSS, PEM
WL-18	Wetland	40.5314	104.9927	-	2.685	PSS, PEM
OW-9	Open Water	40.5214	104.9939	-	4.375	W
WL-19	Wetland	40.5243	104.9999	-	6.529	PEM
WL-20	Wetland	40.5214	104.9937	-	0.562	PSS, PEM
OW-10	Open Water	40.5222	104.9907	-	0.145	W
WL-21	Wetland	40.5221	104.9907	-	0.141	PEM
WL-22	Wetland	40.5202	104.9902	-	0.546	PEM
WL-23	Wetland	40.5244	104.9863	-	1.350	PSS

OW-11	Open Water	40.5100	104.9908	1.413	W
OW-12	Open Water	40.5049	104.9923	0.129	W
WL-24	Wetland	40.5124	104.9912	0.696	PEM
WL-25	Wetland	40.5093	104.9921	0.041	PEM
WL-26	Wetland	40.5088	104.9924	0.047	PEM
WL-27	Wetland	40.5084	104.9913	0.019	PSS, PEM
WL-28	Wetland	40.5049	104.9923	0.102	PSS, PEM
WL-29	Wetland	40.5057	104.9912	0.554	PSS, PEM
WL-30	Wetland	40.5051	104.9907	0.309	PSS, PEM
OW-13	Open Water	40.5013	104.9923	0.239	W
OW-14	Open Water	40.4934	104.9910	0.156	W
OW-15	Open Water	40.4914	104.9924	0.099	W
WL-31	Wetland	40.5008	104.9922	0.217	PEM
WL-32	Wetland	40.4982	104.9910	0.338	PSS, PEM
WL-33	Wetland	40.4935	104.9910	0.063	PEM
WL-34	Wetland	40.4931	104.9923	0.166	PEM
WL-35	Wetland	40.4912	104.9924	0.286	PEM
WL-36	Wetland	40.4907	104.9911	0.333	PEM
WL-37	Wetland	40.4890	104.9909	1.213	PEM
WL-38	Wetland	40.4881	104.9907	0.036	PEM
WL-39	Wetland	40.4838	104.9904	0.120	PEM
WL-40	Wetland	40.4807	104.9966	7.984	PSS, PEM
WL-41	Wetland	40.4789	104.9965	3.971	PEM
WL-42	Wetland	40.4650	104.9914	0.035	PSS
WL-43	Wetland	40.4645	104.9911	0.326	PSS

OW-16	Open Water	40.4140	104.9937	0.253	W
OW-46	Open Water	40.4150	104.9920	0.156	W
WL-44	Wetland	40.4139	104.9937	0.109	PEM
WL-45	Wetland	40.4059	105.0138	0.593	PEM
WL-46	Wetland	40.4059	105.0138	0.338	PEM
OW-17	Open Water	40.4093	104.9942	1.227	W
OW-18	Open Water	40.4100	104.9914	0.233	W
OW-19	Open Water	40.4091	104.9897	0.292	W
OW-20	Open Water	40.4065	104.9885	0.060	W
WL-47	Wetland	40.4092	104.9943	0.328	PSS, PEM
WL-48	Wetland	40.4099	104.9914	0.249	PEM
WL-49	Wetland	40.4093	104.9905	7.166	PSS, PEM
WL-50	Wetland	40.4089	104.9897	0.329	PEM
WL-51	Wetland	40.4065	104.9886	0.087	PEM
WL-52	Wetland	40.3962	104.9940	5.371	PSS, PEM
WL-53	Wetland	40.4002	104.9931	0.120	PSS, PEM
OW-21	Open Water	40.3972	104.9940	0.185	W
OW-22	Open Water	40.3973	104.9934	0.033	W
OW-23	Open Water	40.3973	104.9930	0.022	W
OW-24	Open Water	40.3973	104.9925	0.114	W
OW-25	Open Water	40.3939	104.9925	1.432	W
OW-26	Open Water	40.3879	104.9941	0.111	W
OW-27	Open Water	40.3881	104.9926	0.072	W
WL-141	Wetland	40.3978	104.9924	0.240	PSS, PEM
WL-54	Wetland	40.3989	104.9931	0.002	PEM

WL-55	Wetland	40.3987	104.9931	0.002	PEM
WL-56	Wetland	40.3972	104.9933	0.082	PEM
WL-57	Wetland	40.3972	104.9930	0.090	PEM
WL-58	Wetland	40.3973	104.9925	0.239	PSS
WL-59	Wetland	40.3971	104.9924	0.258	PSS
WL-60	Wetland	40.3958	104.9926	0.994	PSS, PEM
WL-61	Wetland	40.3932	104.9925	1.460	PSS, PEM
WL-62	Wetland	40.3901	104.9938	0.433	PSS, PEM
WL-63	Wetland	40.3879	104.9941	0.055	PEM
WL-64	Wetland	40.3881	104.9926	0.058	PEM
WL-65	Wetland	40.3876	104.9939	0.172	PEM
WL-66	Wetland	40.3874	104.9928	0.100	PEM
WL-67	Wetland	40.3858	104.9941	0.046	PEM
WL-68	Wetland	40.3853	104.9940	0.018	PEM
WL-69	Wetland	40.3799	104.9948	0.141	PEM
WL-70	Wetland	40.3799	104.9923	0.021	PEM
WL-71	Wetland	40.3723	104.9893	1.362	PEM
WL-72	Wetland	40.3714	104.9905	1.132	PEM
WL-142	Wetland	40.3679	104.9871	0.049	PSS, PEM
WL-73	Wetland	40.3685	104.9874	0.256	PSS, PEM
WL-74	Wetland	40.3624	104.9794	0.094	PEM
OW-28	Open Water	40.3354	104.9757	0.269	W
WL-75	Wetland	40.3354	104.9760	0.530	PEM
WL-76	Wetland	40.3136	104.9796	0.003	PEM
OW-29	Open Water	40.3010	104.9793	0.034	W

OW-30	Open Water	40.3011	104.9799	0.010	W
OW-31	Open Water	40.3011	104.9802	0.011	W
OW-32	Open Water	40.3009	104.9808	0.070	W
OW-33	Open Water	40.3005	104.9810	0.017	W
WL-77	Wetland	40.3065	104.9839	0.086	PEM
WL-78	Wetland	40.3066	104.9824	0.155	PSS, PEM
WL-79	Wetland	40.3056	104.9828	0.259	PEM
WL-80	Wetland	40.3060	104.9807	0.085	PSS, PEM
WL-81	Wetland	40.3043	104.9802	0.035	PEM
WL-82	Wetland	40.3016	104.9794	0.619	PSS, PEM
WL-83	Wetland	40.3011	104.9799	0.035	PSS, PEM
WL-84	Wetland	40.3011	104.9802	0.051	PSS, PEM
WL-85	Wetland	40.3009	104.9809	0.292	PSS, PEM
WL-86	Wetland	40.3005	104.9810	0.031	PEM
OW-34	Open Water	40.2617	104.9815	0.167	W
OW-35	Open Water	40.2618	104.9798	0.032	W
OW-36	Open Water	40.2614	104.9781	0.215	W
WL-87	Wetland	40.2617	104.9797	0.063	PSS, PEM
WL-88	Wetland	40.2596	104.9797	0.077	PEM
WL-89	Wetland	40.2590	104.9797	0.035	PSS
OW-37	Open Water	40.2508	104.9808	0.124	W
WL-90	Wetland	40.2537	104.9811	0.055	PEM
OW-38	Open Water	40.2373	104.9810	0.017	W
WL-100	Wetland	40.2365	104.9790	0.001	PEM
WL-101	Wetland	40.2364	104.9795	0.009	PEM

WL-102	Wetland	40.2349	104.9771	0.410	PEM
WL-103	Wetland	40.2330	104.9815	0.138	PSS
WL-104	Wetland	40.2313	104.9806	0.022	PSS
WL-105	Wetland	40.2308	104.9808	0.009	PSS
WL-91	Wetland	40.2410	104.9809	0.909	PSS, PEM
WL-92	Wetland	40.2413	104.9795	0.206	PEM
WL-93	Wetland	40.2393	104.9794	2.087	PEM
WL-94	Wetland	40.2375	104.9792	0.048	PEM
WL-95	Wetland	40.2373	104.9810	0.029	PEM
WL-96	Wetland	40.2364	104.9812	3.194	PSS, PEM
WL-99	Wetland	40.2366	104.9794	0.038	PEM
OW-39	Open Water	40.2186	104.9807	0.047	W
WL-106	Wetland	40.2205	104.9808	4.124	PSS, PEM
WL-107	Wetland	40.2185	104.9807	0.310	PSS, PEM
WL-108	Wetland	40.2116	104.9808	0.065	PSS, PEM
WL-109	Wetland	40.2093	104.9805	0.038	PSS
WL-110	Wetland	40.2088	104.9807	0.119	PSS
OW-47	Open Water	40.2036	104.9854	0.100	W
WL-111	Wetland	40.1799	104.9791	0.052	PEM
OW-40	Open Water	40.1455	104.9810	0.020	W
WL-112	Wetland	40.1455	104.9810	0.080	PEM
WL-113	Wetland	40.1074	104.9807	0.039	PEM
WL-114	Wetland	40.1067	104.9807	0.006	PEM
WL-115	Wetland	40.0897	104.9790	0.635	PEM
WL-116	Wetland	40.0352	104.9793	1.034	PEM

OW-41	Open Water	39.9993	104.9826	0.114	W
WL-117	Wetland	39.9993	104.9826	0.207	PSS, PEM
WL-118	Wetland	40.0063	104.9795	0.321	PEM
WL-119	Wetland	39.9686	104.9877	0.078	PEM
WL-120	Wetland	39.9441	104.9874	0.423	PEM
WL-121	Wetland	39.9436	104.9884	0.089	PSS
OW-42	Open Water	39.9373	104.9886	0.105	W
OW-43	Open Water	39.9374	104.9870	0.240	W
WL-122	Wetland	39.9421	104.9883	0.108	PEM
WL-123	Wetland	39.9382	104.9886	0.769	PEM
WL-124	Wetland	39.9373	104.9886	0.318	PSS, PEM
WL-125	Wetland	39.9368	104.9870	1.807	PSS, PEM
WL-126	Wetland	39.9368	104.9883	0.002	PEM
WL-127	Wetland	39.9272	104.9885	0.321	PEM
WL-128	Wetland	39.9241	104.9880	0.017	PSS, PEM
WL-129	Wetland	39.9221	104.9874	0.266	PSS, PEM
WL-130	Wetland	39.9188	104.9874	0.466	PSS, PEM
OW-44	Open Water	39.8987	104.9867	0.066	W
OW-45	Open Water	39.8975	104.9882	0.042	W
WL-131	Wetland	39.8987	104.9868	0.330	PSS
WL-132	Wetland	39.8975	104.9882	0.060	PSS
WL-133	Wetland	39.8746	104.9866	0.549	PSS, PEM
WL-134	Wetland	39.8704	104.9885	0.756	PSS, PEM
WL-135	Wetland	39.8691	104.9901	1.688	PSS, PEM
WL-136	Wetland	39.8690	104.9881	0.126	PEM

WL-137	Wetland	39.8690	104.9869	0.057	PEM
WL-138	Wetland	39.8663	104.9880	0.089	PEM
WL-139	Wetland	39.8536	104.9860	0.690	PSS, PEM
WL-140	Wetland	39.8523	104.9870	0.215	PSS, PEM

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

- Office (Desk) Determination. Date: November 4, 2008
 Field Determination. Date(s):

F. SUPPORTING DATA:

Data reviewed for preliminary JD (check all that apply - checked items should be included in case file and, where checked and requested, appropriately reference sources below):

- Maps, plans, plots or plat submitted by: Jacob, Carter, Burgess
 Office concurs with data sheets/delineation report.
 Office does not concur with data sheets/delineation report.
- Data sheets prepared by the Corps:
- Corps navigable waters' study:
- U.S. Geological Survey Hydrologic Atlas:
 USGS NHD data.
 USGS 8 and 12 digit HUC maps.
- U.S. Geological Survey map(s). Site quad name:.
- USDA Natural Resources Conservation Service Soil Survey. Citation: GIS.
- National wetlands inventory map(s). Cite name: GIS.
- State/Local wetland inventory map(s):
- FEMA/FIRM maps:
- 100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)
- Photographs: Aerial (Name & Date):
 or Other (Name & Date):
- Previous determination(s). File no. and date of response letter:
- Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.


Signature and date of
Regulatory Project Manager
(REQUIRED)


Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining the
signature is impracticable)

G. EXPLANATION OF PRELIMINARY AND APPROVED JURISDICTIONAL DETERMINATIONS:

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring “pre-construction notification” (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant’s acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable.

Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable.



DEPARTMENT OF THE ARMY
CORPS OF ENGINEERS, OMAHA DISTRICT
DENVER REGULATORY OFFICE, 9307 SOUTH WADSWORTH BOULEVARD
LITTLETON, COLORADO 80128-6901

March 20, 2009

Carol Parr
Colorado Department of Transportation
Region 4
2207 E. Highway 402
Loveland, CO 80537

**RE: North I-25 EIS- Rail, Preliminary Jurisdictional Determination
Corps File No. NOW-20094-00033-DEN**

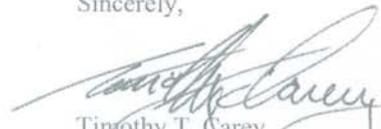
Dear Ms. Parr:

Reference is made to the above-mentioned project and your March 18, 2009 request for a Preliminary Jurisdictional Determination.

We have prepared a Preliminary Jurisdictional Determination (JD) which is a written indication that wetlands and waterways within your project area may be Waters of the United States (attached). Such waters will be treated as jurisdictional Waters of the US for purposes of computation of impacts and compensatory mitigation requirements. If you concur with the findings of the Preliminary JD, please sign it and return it to the letterhead address within two weeks. If you believe the Preliminary JD is inaccurate, you may request an Approved JD, which is an official determination regarding the presence or absence of Waters of the U.S.

If there are any questions call Margaret Langworthy or Kiel Downing of my office at (303) 979-4120 and reference **Corps File No. 200900033**.

Sincerely,


Timothy T. Carey
Chief, Denver Regulatory Office

ATTACHMENT

PRELIMINARY JURISDICTIONAL DETERMINATION FORM

BACKGROUND INFORMATION

A. REPORT COMPLETION DATE FOR PRELIMINARY JURISDICTIONAL DETERMINATION (JD): 3/20/09

B. NAME AND ADDRESS OF PERSON REQUESTING PRELIMINARY JD:

Carol Parr
Colorado Department of Transportation
Region 4
2207 E. Highway 402
Loveland, CO 80537

C. DISTRICT OFFICE, FILE NAME, AND NUMBER: NWO-2004-80110-DEN

D. PROJECT LOCATION(S) AND BACKGROUND INFORMATION:
(USE THE ATTACHED TABLE TO DOCUMENT MULTIPLE WATERBODIES AT DIFFERENT SITES)

State: Colorado County/parish/borough: Adams, Weld, Broomfield,
Boulder, And Larimer Counties City:
Center coordinates of site (lat/long in degree decimal format): Lat. 40.2224°
N, Long. 105.0932° W.

Universal Transverse Mercator:

Name of nearest waterbody: numerous

Identify (estimate) amount of waters in the review area:

Non-wetland waters: linear feet: width (ft) and/or 95.48 acres.

Cowardin Class: Riverine Lacustrine

Stream Flow:

Wetlands: 183.52 acres.

Cowardin Class: Emergent

Name of any water bodies on the site that have been identified as Section 10 waters:

Tidal: none

Non-Tidal: none

E. REVIEW PERFORMED FOR SITE EVALUATION (CHECK ALL THAT APPLY):

Office (Desk) Determination. Date: 3/20/09

Field Determination. Date(s):

1. The Corps of Engineers believes that there may be jurisdictional waters of the United States on the subject site, and the permit applicant or other affected party who requested this preliminary JD is hereby advised of his or her option to request and obtain an approved jurisdictional determination (JD) for that site. Nevertheless, the permit applicant or other person who requested this preliminary JD has declined to exercise the option to obtain an approved JD in this instance and at this time.

2. In any circumstance where a permit applicant obtains an individual permit, or a Nationwide General Permit (NWP) or other general permit verification requiring "pre-construction notification" (PCN), or requests verification for a non-reporting NWP or other general permit, and the permit applicant has not requested an approved JD for the activity, the permit applicant is hereby made aware of the following: (1) the permit applicant has elected to seek a permit authorization based on a preliminary JD, which does not make an official determination of jurisdictional waters; (2) that the applicant has the option to request an approved JD before accepting the terms and conditions of the permit authorization, and that basing a permit authorization on an approved JD could possibly result in less compensatory mitigation being required or different special conditions; (3) that the applicant has the right to request an individual permit rather than accepting the terms and conditions of the NWP or other general permit authorization; (4) that the applicant can accept a permit authorization and thereby agree to comply with all the terms and conditions of that permit, including whatever mitigation requirements the Corps has determined to be necessary; (5) that undertaking any activity in reliance upon the subject permit authorization without requesting an approved JD constitutes the applicant's acceptance of the use of the preliminary JD, but that either form of JD will be processed as soon as is practicable; (6) accepting a permit authorization (e.g., signing a proffered individual permit) or undertaking any activity in reliance on any form of Corps permit authorization based on a preliminary JD constitutes agreement that all wetlands and other water bodies on the site affected in any way by that activity are jurisdictional waters of the United States, and precludes any challenge to such jurisdiction in any administrative or judicial compliance or enforcement action, or in any administrative appeal or in any Federal court; and (7) whether the applicant elects to use either an approved JD or a preliminary JD, that JD will be processed as soon as is practicable. Further, an approved JD, a proffered individual permit (and all terms and conditions contained therein), or individual permit denial can be administratively appealed pursuant to 33 C.F.R. Part 331, and that in any administrative appeal, jurisdictional issues can be raised (see 33 C.F.R. 331.5(a)(2)). If, during that administrative appeal, it becomes necessary to make an official determination whether CWA jurisdiction exists over a site, or to provide an official delineation of jurisdictional waters on the site, the Corps will provide an approved JD to accomplish that result, as soon as is practicable. This preliminary JD finds that there "*may be*" waters of the United States on the subject project site, and identifies all aquatic features on the site that could be affected by the proposed activity, based on the following information:

SUPPORTING DATA. Data reviewed for preliminary JD (check all that apply)

- checked items should be included in case file and, where checked and requested, appropriately reference sources below):

Maps, plans, plots or plat submitted by or on behalf of the applicant/consultant: North I-25 Rail Corridor JD Mapbook.

Data sheets prepared/submitted by or on behalf of the applicant/consultant.

Office concurs with data sheets/delineation report.

Office does not concur with data sheets/delineation report.

Data sheets prepared by the Corps:

Corps navigable waters' study:

U.S. Geological Survey Hydrologic Atlas:

USGS NHD data.

USGS 8 and 12 digit HUC maps.

U.S. Geological Survey map(s). Cite scale & quad name:

USDA Natural Resources Conservation Service Soil Survey. Citation:

National wetlands inventory map(s). Cite name:

State/Local wetland inventory map(s):

FEMA/FIRM maps:

100-year Floodplain Elevation is: (National Geodetic Vertical Datum of 1929)

Photographs: Aerial (Name & Date): Google Maps.

or Other (Name & Date):

Previous determination(s). File no. and date of response letter:

Other information (please specify):

IMPORTANT NOTE: The information recorded on this form has not necessarily been verified by the Corps and should not be relied upon for later jurisdictional determinations.

 3/20/09
Signature and date of
Regulatory Project Manager
(REQUIRED)

 4-8-09
Signature and date of
person requesting preliminary JD
(REQUIRED, unless obtaining
the signature is impracticable)

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
3	1361	40.5610	-105.0783	Pem	0.155	section 404- wetland
3	1362	40.5613	-105.0796	Pem	0.006	section 404- wetland
3	1548	40.5647	-105.0803	Pss	3.151	section 404- wetland
3	1550	40.5610	-105.0814	Pem	0.939	section 404- wetland
3	2026	40.5626	-105.0782	Pem	0.198	section 404- wetland
3	2584	40.5534	-105.0813	W	1.438	section 404- non wetland
4	1363	40.5504	-105.0804	Pss	0.083	section 404- wetland
4	1364	40.5504	-64.5190	Pss	0.044	section 404- wetland
4	1365	40.5479	-105.0799	Pem	0.443	section 404- wetland
4	1366	40.5479	-105.0800	Pem	0.413	section 404- wetland
4	1367	40.5443	-105.0802	Pem	0.251	section 404- wetland
4	1368	40.5443	-105.0800	Pem	0.301	section 404- wetland
4	1554	40.5420	-105.0827	Pem	0.374	section 404- wetland
4	1555	40.5412	-105.0817	Pem	0.055	section 404- wetland
4	1556	40.5403	-105.0812	Pem	0.160	section 404- wetland
4	1557	40.5401	-105.0812	Pem	0.188	section 404- wetland
4	2308	40.5497	-105.0814	W	1.352	section 404- non wetland
4	2328	40.5441	-105.0801	W	0.389	section 404- non wetland
4	2330	40.5425	-105.0791	W	0.078	section 404- non wetland
4	2331	40.5406	-105.0815	W	0.035	section 404- non wetland
4	2333	40.5412	-105.0817	W	0.066	section 404- non wetland
5	1558	40.5311	-105.0810	Pem	3.799	section 404- wetland
5	2600	40.5333	-105.0819	W	0.073	section 404- non wetland
5	2332	40.5400	-105.0810	W	0.042	section 404- non wetland
5	2334	40.5393	-105.0812	W	0.123	section 404- non wetland
5	2335	40.5385	-105.0815	W	0.092	section 404- non wetland
6	1074	40.5219	-105.0811	Pss	0.153	section 404- wetland
6	1378	40.5229	-105.0807	Pss	0.346	section 404- wetland
6	1560	40.5159	-105.0799	Pss	1.315	section 404- wetland
6	2336	40.5233	-105.0827	W	0.489	section 404- non wetland

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
6	2337	40.5161	-105.0820	W	0.800	section 404- non wetland
6	2338	40.5162	-105.0803	W	0.436	section 404- non wetland
7	1379	40.5145	-105.0790	Pss	0.355	section 404- wetland
7	1561	40.5100	-105.0796	Pem	1.055	section 404- wetland
7	1562	40.5091	-105.0842	Pem	0.914	section 404- wetland
7	1563	40.5046	-105.0836	Pem	1.447	section 404- wetland
7	1564	40.5029	-105.0878	Pem	1.030	section 404- wetland
7	1565	40.4996	-105.0891	Pem	1.695	section 404- wetland
7	2601	40.5143	-105.0815	W	0.063	section 404- non wetland
7	2602	40.5074	-105.0843	W	0.107	section 404- non wetland
7	2603	40.5068	-105.0821	W	0.053	section 404- non wetland
7	2604	40.5059	-105.0832	W	0.100	section 404- non wetland
7	2340	40.5071	-105.0831	W	0.034	section 404- non wetland
8	2605	40.4968	-105.0900	W	0.409	section 404- non wetland
8	2606	40.4941	-105.0917	W	0.061	section 404- non wetland
8	2607	40.4897	-105.0922	W	0.557	section 404- non wetland
9	1566	40.4866	-105.0953	Pem	0.607	section 404- wetland
9	1567	40.4830	-105.0957	Pem	0.669	section 404- wetland
9	1568	40.4821	-105.0956	Pem	0.610	section 404- wetland
9	2608	40.4869	-105.0940	W	0.036	section 404- non wetland
9	2609	40.4849	-105.0939	W	0.378	section 404- non wetland
11	2586	40.4501	-105.0862	W	0.205	section 404- non wetland
11	1569	40.4551	-105.0928	Pem	0.672	section 404- wetland
11	1570	40.4550	-105.0926	Pem	0.466	section 404- wetland
11	1571	40.4543	-105.0889	Pem	0.410	section 404- wetland
11	1572	40.4544	-105.0890	Pem	0.319	section 404- wetland
11	2610	40.4515	-105.0895	Pem	2.584	section 404- wetland
11	2611	40.4534	-105.0894	Pem	0.502	section 404- wetland
11	2311	40.4545	-105.0892	W	0.359	section 404- non wetland
11	2341	40.4548	-105.0917	W	0.478	section 404- non wetland

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
12	1573	40.4447	-105.0872	Pem	41.456	section 404- wetland
13	559	40.4263	-105.0797	Pem	0.409	section 404- wetland
13	1342	40.4293	-105.0797	Pss	0.348	section 404- wetland
13	1574	40.4347	-105.0825	Pem	0.487	section 404- wetland
13	1575	40.4314	-105.0807	Pem	1.456	section 404- wetland
13	1576	40.4273	-105.0800	Pem	0.283	section 404- wetland
13	1577	40.4240	-105.0814	Pem	0.897	section 404- wetland
13	2344	40.4259	-105.0805	W	0.052	section 404- non wetland
13	2346	40.4258	-105.0810	W	0.054	section 404- non wetland
13	2347	40.4264	-105.0796	W	0.066	section 404- non wetland
14	2348	40.4176	-105.0803	W	0.072	section 404- non wetland
14	2349	40.4147	-105.0793	W	3.807	section 404- non wetland
16	1579	40.3929	-105.0739	Pem	0.046	section 404- wetland
16	1580	40.3930	-105.0739	Pem	0.035	section 404- wetland
16	1581	40.3929	-105.0751	Pem	0.051	section 404- wetland
16	1582	40.3931	-105.0768	W	0.103	section 404- non wetland
16	1583	40.3923	-105.0789	Pem	0.104	section 404- wetland
16	1586	40.3912	-105.0797	Pem	0.080	section 404- wetland
16	1587	40.3908	-105.0784	W	0.082	section 404- non wetland
16	1588	40.3901	-105.0760	Pem	0.138	section 404- wetland
16	1591	40.3899	-105.0806	Pss	0.564	section 404- wetland
16	1593	40.3881	-105.0778	Pss	0.903	section 404- wetland
16	1598	40.3848	-105.0813	Pss	1.173	section 404- wetland
16	1599	40.3868	-105.0833	Pss	1.576	section 404- wetland
16	1600	40.3884	-105.0817	Pss	1.642	section 404- wetland
16	2350	40.3925	-105.0779	W	0.106	section 404- non wetland
16	2351	40.3933	-105.0762	W	0.024	section 404- non wetland
16	2352	40.3929	-105.0753	W	0.129	section 404- non wetland
16	2353	40.3929	-105.0744	W	0.016	section 404- non wetland
16	2354	40.3904	-105.0776	W	0.005	section 404- non wetland

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
12	1573	40.4447	-105.0872	Pem	41.456	section 404- wetland
13	559	40.4263	-105.0797	Pem	0.409	section 404- wetland
13	1342	40.4293	-105.0797	Pss	0.348	section 404- wetland
13	1574	40.4347	-105.0825	Pem	0.487	section 404- wetland
13	1575	40.4314	-105.0807	Pem	1.456	section 404- wetland
13	1576	40.4273	-105.0800	Pem	0.283	section 404- wetland
13	1577	40.4240	-105.0814	Pem	0.897	section 404- wetland
13	2344	40.4259	-105.0805	W	0.052	section 404- non wetland
13	2346	40.4258	-105.0810	W	0.054	section 404- non wetland
13	2347	40.4264	-105.0796	W	0.066	section 404- non wetland
14	2348	40.4176	-105.0803	W	0.072	section 404- non wetland
14	2349	40.4147	-105.0793	W	3.807	section 404- non wetland
16	1579	40.3929	-105.0739	Pem	0.046	section 404- wetland
16	1580	40.3930	-105.0739	Pem	0.035	section 404- wetland
16	1581	40.3929	-105.0751	Pem	0.051	section 404- wetland
16	1582	40.3931	-105.0768	W	0.103	section 404- non wetland
16	1583	40.3923	-105.0789	Pem	0.104	section 404- wetland
16	1586	40.3912	-105.0797	Pem	0.080	section 404- wetland
16	1587	40.3908	-105.0784	W	0.082	section 404- non wetland
16	1588	40.3901	-105.0760	Pem	0.138	section 404- wetland
16	1591	40.3899	-105.0806	Pss	0.564	section 404- wetland
16	1593	40.3881	-105.0778	Pss	0.903	section 404- wetland
16	1598	40.3848	-105.0813	Pss	1.173	section 404- wetland
16	1599	40.3868	-105.0833	Pss	1.576	section 404- wetland
16	1600	40.3884	-105.0817	Pss	1.642	section 404- wetland
16	2350	40.3925	-105.0779	W	0.106	section 404- non wetland
16	2351	40.3933	-105.0762	W	0.024	section 404- non wetland
16	2352	40.3929	-105.0753	W	0.129	section 404- non wetland
16	2353	40.3929	-105.0744	W	0.016	section 404- non wetland
16	2354	40.3904	-105.0776	W	0.005	section 404- non wetland

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
16	2355	40.3903	-105.0774	W	0.005	section 404- non wetland
16	2356	40.3902	-105.0768	W	0.031	section 404- non wetland
16	2357	40.3894	-105.0797	W	0.357	section 404- non wetland
16	2358	40.3890	-105.0789	W	0.013	section 404- non wetland
16	2359	40.3889	-105.0780	W	0.139	section 404- non wetland
16	2360	40.3888	-105.0772	W	0.060	section 404- non wetland
16	2361	40.3879	-105.0813	W	6.765	section 404- non wetland
16	2362	40.3870	-105.0786	W	0.279	section 404- non wetland
17	1601	40.3718	-105.0832	Pem	3.806	section 404- wetland
17	2612	40.3815	-105.0835	W	0.088	section 404- non wetland
17	2613	40.3801	-105.0828	W	0.058	section 404- non wetland
17	2614	40.3790	-105.0822	W	0.050	section 404- non wetland
17	2615	40.3778	-105.0813	W	0.053	section 404- non wetland
17	2616	40.3751	-105.0818	W	0.339	section 404- non wetland
17	2617	40.3736	-105.0831	W	1.302	section 404- non wetland
18	1602	40.3673	-105.0835	Pem	0.371	section 404- wetland
18	2363	40.3694	-105.0821	W	0.312	section 404- non wetland
18	2364	40.3663	-105.0838	W	0.147	section 404- non wetland
19	1604	40.3570	-105.0820	Pem	0.214	section 404- wetland
19	1606	40.3553	-105.0798	Pss	0.512	section 404- wetland
19	1607	40.3556	-105.0818	Pem	0.205	section 404- wetland
19	1608	40.3535	-105.0837	Pem	8.270	section 404- wetland
19	1609	40.3445	-105.0824	Pem	0.865	section 404- wetland
19	1611	40.3459	-105.0794	Pem	1.054	section 404- wetland
19	2588	40.3570	-105.0820	W	0.560	section 404- non wetland
19	2365	40.3560	-105.0827	W	0.143	section 404- non wetland
20	1610	40.3438	-105.0809	Pss	0.152	section 404- wetland
20	1612	40.3437	-105.0787	Pem	1.299	section 404- wetland
20	1613	40.3399	-105.0784	Pem	0.902	section 404- wetland
20	1614	40.3317	-105.0802	Pss	1.212	section 404- wetland

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Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
20	2618	40.3342	-105.0803	W	0.089	section 404- non wetland
20	2619	40.3348	-105.0796	W	0.063	section 404- non wetland
20	2366	40.3373	-105.0788	W	0.262	section 404- non wetland
20	2367	40.3352	-105.0792	W	0.015	section 404- non wetland
20	2368	40.3350	-105.0793	W	0.024	section 404- non wetland
20	2369	40.3329	-105.0811	W	0.435	section 404- non wetland
21	2371	40.3309	-105.0810	W	0.377	section 404- non wetland
21	2372	40.3309	-105.0813	W	0.485	section 404- non wetland
22	1615	40.3067	-105.0770	Pem	2.274	section 404- wetland
23	1616	40.2979	-105.0779	Pem	1.820	section 404- wetland
23	1617	40.2959	-105.0749	Pss	0.288	section 404- wetland
23	2620	40.2950	-105.0743	Pem	0.091	section 404- wetland
23	2621	40.2945	-105.0740	W	0.018	section 404- non wetland
23	2622	40.2949	-105.0737	Pem	0.173	section 404- wetland
23	2623	40.2943	-105.0725	Pem	0.044	section 404- wetland
23	2624	40.2932	-105.0738	W	0.206	section 404- non wetland
24	1618	40.2895	-105.0717	Pss	0.963	section 404- wetland
24	1619	40.2887	-105.0752	Pss	1.359	section 404- wetland
24	2625	40.2910	-105.0730	W	0.144	section 404- non wetland
24	2626	40.2837	-105.0750	W	0.076	section 404- non wetland
24	2627	40.2844	-105.0742	W	0.004	section 404- non wetland
24	2628	40.2845	-105.0739	W	0.003	section 404- non wetland
24	2629	40.2851	-105.0729	W	0.109	section 404- non wetland
24	2630	40.2810	-105.0730	W	0.075	section 404- non wetland
25	1620	40.2734	-105.0752	Pem	0.125	section 404- wetland
25	2631	40.2792	-105.0740	W	0.074	section 404- non wetland
25	2632	40.2761	-105.0748	W	0.203	section 404- non wetland
25	2633	40.2721	-105.0762	W	0.044	section 404- non wetland
25	2634	40.2723	-105.0753	W	0.006	section 404- non wetland
25	2635	40.2721	-105.0746	W	0.017	section 404- non wetland

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Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
25	2636	40.2723	-105.0735	W	0.032	section 404- non wetland
25	2637	40.2696	-105.0761	W	0.064	section 404- non wetland
25	2638	40.2677	-105.0760	W	0.080	section 404- non wetland
26	1621	40.2644	-105.0748	Pss	0.221	section 404- wetland
26	1622	40.2625	-105.0734	Pss	0.377	section 404- wetland
26	1623	40.2640	-105.0731	Pss	0.122	section 404- wetland
26	1624	40.2625	-105.0745	Pem	0.128	section 404- wetland
26	1625	40.2592	-105.0741	Pem	0.415	section 404- wetland
26	1626	40.2555	-105.0762	Pem	0.471	section 404- wetland
26	1627	40.2530	-105.0801	Pss	0.704	section 404- wetland
26	2639	40.2648	-105.0767	W	0.176	section 404- non wetland
28	1629	40.2402	-105.0807	Pem	0.226	section 404- wetland
28	1630	40.2398	-105.0832	Pss	0.059	section 404- wetland
28	1631	40.2395	-105.0844	Pss	0.469	section 404- wetland
29	560	40.2378	-105.0887	Pss	3.872	section 404- wetland
29	561	40.2301	-105.0936	Pem	1.355	section 404- wetland
29	562	40.2276	-105.0907	Pem	7.030	section 404- wetland
29	2640	40.2358	-105.0899	W	0.276	section 404- non wetland
29	2641	40.2376	-105.0861	W	0.135	section 404- non wetland
29	2642	40.2387	-105.0851	W	0.069	section 404- non wetland
29	2373	40.2346	-105.0922	W	0.303	section 404- non wetland
29	2374	40.2347	-105.0891	W	0.718	section 404- non wetland
30	563	40.2224	-105.0932	Pss	1.069	section 404- wetland
30	2643	40.2271	-105.0944	W	0.152	section 404- non wetland
31	268	40.2044	-105.0963	Pss	0.742	section 404- wetland
31	269	40.2031	-105.0893	Pss	0.063	section 404- wetland
31	564	40.2044	-105.0912	Pss	0.288	section 404- wetland
31	1077	40.2044	-105.0939	Pss	0.140	section 404- wetland
32	565	40.1905	-105.0944	Pem	0.683	section 404- wetland
32	2644	40.1971	-105.0940	W	0.074	section 404- non wetland

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Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
33	566	40.1879	-105.0934	Pem	0.188	section 404- wetland
33	567	40.1861	-105.0922	Pem	0.445	section 404- wetland
33	568	40.1830	-105.0907	Pem	0.584	section 404- wetland
33	2583	40.1755	-105.0924	W	0.088	section 404- non wetland
33	2375	40.1774	-105.0939	W	0.257	section 404- non wetland
35	2135	40.1611	-105.0890	Pem	1.286	section 404- wetland
35	2136	40.1602	-105.0888	Pem	1.258	section 404- wetland
35	2645	40.1606	-105.0940	W	0.046	section 404- non wetland
35	2646	40.1595	-105.0946	W	0.073	section 404- non wetland
36	2132	40.1582	-105.0829	Pem	6.841	section 404- wetland
36	2133	40.1590	-105.0848	Pem	0.234	section 404- wetland
36	2134	40.1595	-105.0865	Pem	10.143	section 404- wetland
37	2138	40.1613	-105.0726	Pem	0.210	section 404- wetland
37	2139	40.1606	-105.0714	Pem	0.071	section 404- wetland
37	2140	40.1601	-105.0704	Pem	0.096	section 404- wetland
37	2141	40.1591	-105.0687	Pem	0.251	section 404- wetland
38	2142	40.1607	-105.0614	Pss	0.223	section 404- wetland
38	2143	40.1612	-105.0576	Pem	0.412	section 404- wetland
38	2647	40.1588	-105.0655	W	0.025	section 404- non wetland
38	2648	40.1594	-105.0639	W	0.101	section 404- non wetland
40	1977	40.1610	-105.0435	Pem	0.375	section 404- wetland
40	1978	40.1595	-105.0422	Pem	0.435	section 404- wetland
40	1979	40.1603	-105.0359	Pem	0.048	section 404- wetland
40	1980	40.1603	-105.0344	Pem	0.057	section 404- wetland
40	2123	40.1620	-105.0445	Pss	0.330	section 404- wetland
41	1981	40.1603	-105.0328	Pem	0.053	section 404- wetland
41	1982	40.1601	-105.0296	Pss	0.074	section 404- wetland
41	1983	40.1605	-105.0288	Pem	0.450	section 404- wetland
41	1984	40.1613	-105.0281	Pss	0.074	section 404- wetland
41	1985	40.1606	-105.0254	Pss	0.769	section 404- wetland

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Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
41	1986	40.1606	-105.0231	Pss	0.523	section 404- wetland
41	2174	40.1612	-105.0249	Pem	0.327	section 404- wetland
41	2175	40.1611	-105.0274	Pem	0.043	section 404- wetland
41	2176	40.1610	-105.0314	Pem	0.189	section 404- wetland
41	2376	40.1616	-105.0282	W	1.594	section 404- non wetland
42	1987	40.1605	-105.0215	Pss	0.451	section 404- wetland
42	2161	40.1611	-105.0139	W	0.660	section 404- non wetland
42	2170	40.1613	-105.0120	Pem	4.676	section 404- wetland
42	2171	40.1608	-105.0145	Pem	0.075	section 404- wetland
42	2172	40.1607	-105.0165	Pem	0.057	section 404- wetland
42	2173	40.1611	-105.0211	Pem	0.430	section 404- wetland
42	2377	40.1589	-105.0120	W	0.279	section 404- non wetland
43	1988	40.1628	-105.0066	Pss	1.053	section 404- wetland
43	1989	40.1618	-105.0071	Pss	2.166	section 404- wetland
43	1990	40.1588	-105.0077	Pem	0.562	section 404- wetland
43	1991	40.1599	-105.0090	Pem	0.280	section 404- wetland
43	1992	40.1594	-105.0089	Pem	1.030	section 404- wetland
43	2313	40.1595	-105.0094	W	1.483	section 404- non wetland
43	2378	40.1589	-105.0113	W	0.205	section 404- non wetland
43	2379	40.1615	-105.0097	W	2.640	section 404- non wetland
43	2380	40.1615	-105.0051	W	3.486	section 404- non wetland
43	2381	40.1612	-105.0079	W	0.400	section 404- non wetland
43	2382	40.1594	-105.0073	W	2.191	section 404- non wetland
43	2383	40.1591	-105.0029	W	21.270	section 404- non wetland
44	2192	40.1540	-104.9981	Pem	0.012	section 404- wetland
44	2193	40.1540	-104.9982	Pem	0.006	section 404- wetland
44	2649	40.1533	-104.9999	W	0.033	section 404- non wetland
44	2384	40.1557	-105.0001	W	8.025	section 404- non wetland
45	2188	40.1468	-104.9993	Pss	0.027	section 404- wetland
45	2189	40.1462	-104.9985	Pem	0.002	section 404- wetland

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Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
45	2190	40.1464	-104.9992	Pss	0.021	section 404- wetland
45	2191	40.1462	-104.9984	Pss	0.020	section 404- wetland
45	2194	40.1529	-104.9985	Pem	0.016	section 404- wetland
45	2196	40.1517	-104.9985	Pem	0.080	section 404- wetland
45	2198	40.1500	-104.9980	Pem	0.034	section 404- wetland
45	2200	40.1481	-104.9985	Pem	0.752	section 404- wetland
45	2201	40.1461	-104.9989	Pss	0.001	section 404- wetland
45	2202	40.1461	-104.9989	Pss	0.003	section 404- wetland
45	2204	40.1458	-104.9980	W	0.117	section 404- non wetland
45	2205	40.1465	-104.9984	Pss	0.045	section 404- wetland
45	2206	40.1459	-104.9981	Pem	0.001	section 404- wetland
45	2207	40.1458	-104.9985	Pem	0.011	section 404- wetland
45	2208	40.1454	-104.9976	Pem	0.211	section 404- wetland
45	2209	40.1456	-104.9982	Pss	0.081	section 404- wetland
45	2210	40.1444	-104.9985	Pem	0.009	section 404- wetland
45	2211	40.1438	-104.9983	Pem	0.032	section 404- wetland
45	2212	40.1435	-104.9985	Pss	0.003	section 404- wetland
45	2214	40.1442	-104.9983	Pem	0.041	section 404- wetland
45	2590	40.1438	-104.9984	W	0.260	section 404- non wetland
45	2385	40.1490	-105.0004	W	8.589	section 404- non wetland
45	2388	40.1449	-105.0001	W	7.050	section 404- non wetland
45	2650	40.1515	-104.9988	W	0.011	section 404- non wetland
45	2651	40.1493	-104.9992	W	0.323	section 404- non wetland
45	2652	40.1450	-104.9989	W	0.064	section 404- non wetland
45	2653	40.1436	-104.9999	W	0.103	section 404- non wetland
46	2168	40.1284	-104.9986	Pem	0.005	section 404- wetland
46	2169	40.1329	-104.9986	Pem	0.017	section 404- wetland
46	2216	40.1368	-104.9989	Pem	0.007	section 404- wetland
46	2217	40.1367	-104.9989	Pem	0.007	section 404- wetland
46	2218	40.1365	-104.9991	Pem	0.016	section 404- wetland

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
46	2219	40.1365	-104.9991	Pem	0.009	section 404- wetland
46	2220	40.1371	-104.9985	Pem	0.009	section 404- wetland
46	2221	40.1370	-104.9985	Pem	0.006	section 404- wetland
46	2222	40.1373	-104.9984	Pem	0.008	section 404- wetland
46	2223	40.1373	-104.9984	Pem	0.010	section 404- wetland
46	2224	40.1332	-104.9990	Pem	0.009	section 404- wetland
46	2226	40.1332	-104.9990	Pem	0.007	section 404- wetland
46	2230	40.1272	-104.9991	Pem	0.013	section 404- wetland
46	2233	40.1273	-104.9991	Pem	0.015	section 404- wetland
46	2235	40.1273	-104.9983	Pem	0.031	section 404- wetland
46	2236	40.1273	-104.9983	Pem	0.023	section 404- wetland
46	2580	40.1325	-104.9979	W	0.035	section 404- non wetland
46	2321	40.1379	-104.9978	W	0.111	section 404- non wetland
46	2323	40.1347	-105.0000	W	0.366	section 404- non wetland
46	2324	40.1269	-105.0000	W	0.270	section 404- non wetland
46	2325	40.1274	-104.9980	W	0.099	section 404- non wetland
46	2654	40.1394	-104.9997	W	0.204	section 404- non wetland
46	2655	40.1356	-105.0006	W	0.069	section 404- non wetland
47	2163	40.1140	-104.9987	Pem	0.081	section 404- wetland
47	2164	40.1148	-104.9989	Pem	0.259	section 404- wetland
47	2165	40.1159	-104.9987	Pem	0.104	section 404- wetland
47	2166	40.1190	-104.9987	Pem	0.112	section 404- wetland
47	2167	40.1218	-104.9987	Pem	0.033	section 404- wetland
48	2162	40.1113	-104.9987	Pem	0.129	section 404- wetland
48	2241	40.1133	-105.0001	W	0.169	section 404- non wetland
48	2245	40.1129	-104.9984	Pem	0.010	section 404- wetland
48	2246	40.1130	-104.9984	Pem	0.016	section 404- wetland
48	2250	40.1094	-104.9994	Pem	0.029	section 404- wetland
48	2251	40.1095	-104.9993	Pem	0.020	section 404- wetland
48	2256	40.1094	-104.9984	Pem	0.036	section 404- wetland

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
48	2257	40.1095	-104.9984	Pem	0.022	section 404- wetland
48	2575	40.1133	-104.9978	W	0.109	section 404- non wetland
48	2319	40.1096	-105.0000	W	0.215	section 404- non wetland
48	2320	40.1095	-104.9979	W	0.175	section 404- non wetland
48	2656	40.1069	-105.0001	W	0.169	section 404- non wetland
48	2657	40.1051	-105.0001	W	0.069	section 404- non wetland
49	2658	40.0917	-104.9982	W	0.150	section 404- non wetland
49	2659	40.0901	-105.0000	W	0.175	section 404- non wetland
52	2177	40.0602	-104.9942	W	0.137	section 404- non wetland
52	2178	40.0591	-104.9960	W	0.075	section 404- non wetland
52	2179	40.0571	-104.9922	Pem	0.192	section 404- wetland
53	41	40.0487	-104.9814	Pem	0.034	section 404- wetland
53	2180	40.0551	-104.9877	Pem	0.624	section 404- wetland
53	2181	40.0545	-104.9885	Pem	0.456	section 404- wetland
54	2389	40.0506	-104.9788	W	0.044	section 404- non wetland
54	2390	40.0475	-104.9698	W	0.091	section 404- non wetland
54	2391	40.0465	-104.9712	W	0.102	section 404- non wetland
54	21	40.0502	-104.9793	Pem	0.249	section 404- wetland
54	22	40.0503	-104.9792	Pss	0.008	section 404- wetland
54	35	40.0496	-104.9795	W	0.033	section 404- non wetland
55	2182	40.0420	-104.9656	Pem	1.505	section 404- wetland
55	2183	40.0426	-104.9632	W	0.166	section 404- non wetland
55	2184	40.0401	-104.9601	Pem	0.460	section 404- wetland
55	2185	40.0399	-104.9593	Pem	0.349	section 404- wetland
55	2660	40.0397	-104.9606	W	0.112	section 404- non wetland
55	2661	40.0407	-104.9592	W	0.167	section 404- non wetland
56	1936	40.0381	-104.9525	Pem	3.197	section 404- wetland
56	1937	40.0341	-104.9538	Pem	4.751	section 404- wetland
56	2186	40.0311	-104.9558	Pem	0.197	section 404- wetland
56	2662	40.0301	-104.9565	W	0.088	section 404- non wetland

Wetlands and Other Waters of the U.S. - North I-25 Rail Corridor

Mapbook Page Number	Wetland/Waters of the U.S. ID	Latitude	Longitude	Cowardin Class	Acres of Aquatic Resource Within Study Area	Class of aquatic resource
57	2393	40.0263	-104.9548	W	0.082	section 404- non wetland
57	1938	40.0293	-104.9568	Pem	0.236	section 404- wetland
57	1939	40.0203	-104.9523	Pem	0.758	section 404- wetland
57	1940	40.0217	-104.9493	Pem	1.866	section 404- wetland
57	1941	40.0201	-104.9505	Pem	0.528	section 404- wetland
57	1942	40.0194	-104.9488	Pem	0.527	section 404- wetland
57	1943	40.0184	-104.9476	Pem	0.282	section 404- wetland
57	2395	40.0268	-104.9528	W	0.114	section 404- non wetland
57	2573	40.0189	-104.9482	W	1.453	section 404- non wetland
57	2591	40.0219	-104.9501	W	0.582	section 404- non wetland
58	1944	40.0144	-104.9447	Pem	0.324	section 404- wetland
58	1945	40.0095	-104.9419	Pem	0.232	section 404- wetland
58	2396	40.0127	-104.9444	W	0.089	section 404- non wetland
58	2397	40.0084	-104.9421	W	0.162	section 404- non wetland
58	2663	40.0076	-104.9423	W	0.001	section 404- non wetland
58	2664	40.0039	-104.9416	W	0.448	section 404- non wetland
59	1946	39.9951	-104.9408	Pem	3.144	section 404- wetland
59	1947	39.9943	-104.9416	Pem	1.877	section 404- wetland
59	1948	39.9936	-104.9401	Pem	0.094	section 404- wetland
59	1949	39.9924	-104.9427	Pem	0.291	section 404- wetland
59	1950	39.9923	-104.9426	Pem	0.337	section 404- wetland
59	2568	39.9925	-104.9421	W	0.451	section 404- non wetland
59	2570	39.9926	-104.9395	W	0.430	section 404- non wetland
59	2571	39.9931	-104.9406	W	0.059	section 404- non wetland
59	2665	39.9932	-104.9426	W	0.058	section 404- non wetland

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APPENDIX B

Avoidance and Minimization Memo

The material presented in this Appendix should be considered preliminary because it is currently under review by the USACE.

Date : November 10, 2010

By: Robert Rutherford, Jacobs Engineering

Subject: North I-25 EIS Stream Bridge Crossings—Avoidance and Minimization of Wetland and Other Waters of the U.S. Impacts

INTRODUCTION

This paper summarizes the measures for avoidance and minimization of wetland impacts at stream crossings along I-25 and the commuter rail alignment in the project area.

Specifically, for the I-25 crossings at the Cache la Poudre, Big Thompson, Little Thompson, St. Vrain, Little Dry Creek, Big Dry Creek, and for the rail crossings at Spring Creek, Fossil Creek, Big Thompson River, Little Thompson River, Boulder Creek, and Little Dry Creek, this section summarizes:

- 1) Where impacts were avoided and what was done to avoid these impacts.
- 2) Where impacts were minimized and what was done to minimize these impacts.
- 3) Where impacts were unavoidable and why they were unavoidable.

Appendix A provides detailed descriptions of minimization efforts incorporated into the overall design process of the North I-25 project, including median designs incorporated into the highway components, and the use of single tracking for the commuter rail component of the Preferred Alternative. This paper focuses just on impacts to the 12 crossings listed above since the wetlands are of higher functional value at these locations.

Table B-1 shows what total percentage of North I-25 wetlands are impacted at these crossings compared to the totals in the project area.

Table B-1: Stream Crossing Impacts Compared to Existing Wetlands and Other Waters of the U.S. Within the Project Area

Build Alternative	Stream Crossing Impacts (acres)	Project Area Wetlands and Other Waters of the U.S. (acres)	Percentage of Impacts Compared to Existing Wetlands and Other Waters of the U.S.
Package A	6.10	647.87	0.94
Package B	7.20	647.87	1.11
Preferred Alternative	5.27	647.87	0.81

IMPACT COMPARISON – I-25 STREAM CROSSINGS

The following section provides details about the avoidance and minimization measures employed at six stream crossings associated with the improvements proposed along I-25. **Table B-2** provides a summary of impacts to the six stream crossings associated with the highway component for each build alternative. Overall, the Preferred Alternative would result in the least amount of impacts to wetlands and other waters of the U.S.

Table B-2: Summary of Highway Component Impacts to Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	3.231	2.046	0.548	5.825
Package B	3.869	2.592	0.743	7.204
Preferred Alternative	2.847	1.811	0.600	5.258

PEM.... Palustrine emergent wetland

PSS Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

I-25 at Cache La Poudre

Existing wetlands associated with Cache La Poudre River are primarily comprised of palustrine scrub/shrub and palustrine emergent communities adjacent to the river. Wetlands in this area are generally of high quality, providing wildlife habitat, flood attenuation, bank stabilization, vegetative habitat diversity, water quality improvement, and potential habitat for the threatened Preble’s meadow jumping mouse, Ute ladies’-tresses orchid, and Colorado butterfly plant. **Figure B-1** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of Cache La Poudre River at I-25.

The anticipated impacts to wetlands and jurisdictional open waters occur as a result of the following design elements:

- ▶ Highway widening to include two new tolled express lanes and two new general purpose lanes (one in each direction in each case).
- ▶ Replacement of the multispan bridge structures (one in each direction) with piers in the river.
- ▶ A highway grassed median that is 32 feet wide (plus shoulders).
- ▶ Riprap placed at the bridge abutment and at bridge piers.

Table B-3 presents a comparison of impacts to wetlands and other waters of the U.S. associated with the Cache La Poudre River at I-25. For all build packages, impacts would occur as a result of construction of replacement

Table B-3: Summary of Impacts to Cache La Poudre Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0.598	0.525	0.146	1.269
Package B	0.707	0.840	0.202	1.749
Preferred Alternative	0.608	0.550	0.15	1.308

PEM Palustrine emergent wetland

PSS..... Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

bridges that span the Cache La Poudre River. **Figure B-2** shows design elements of the Preferred Alternative and areas of impact to wetlands and other waters of the U.S. at I-25 and the Cache La Poudre River.

Figure B-1: Wetlands and Other Waters of the U.S. at I-25 and Cache La Poudre River

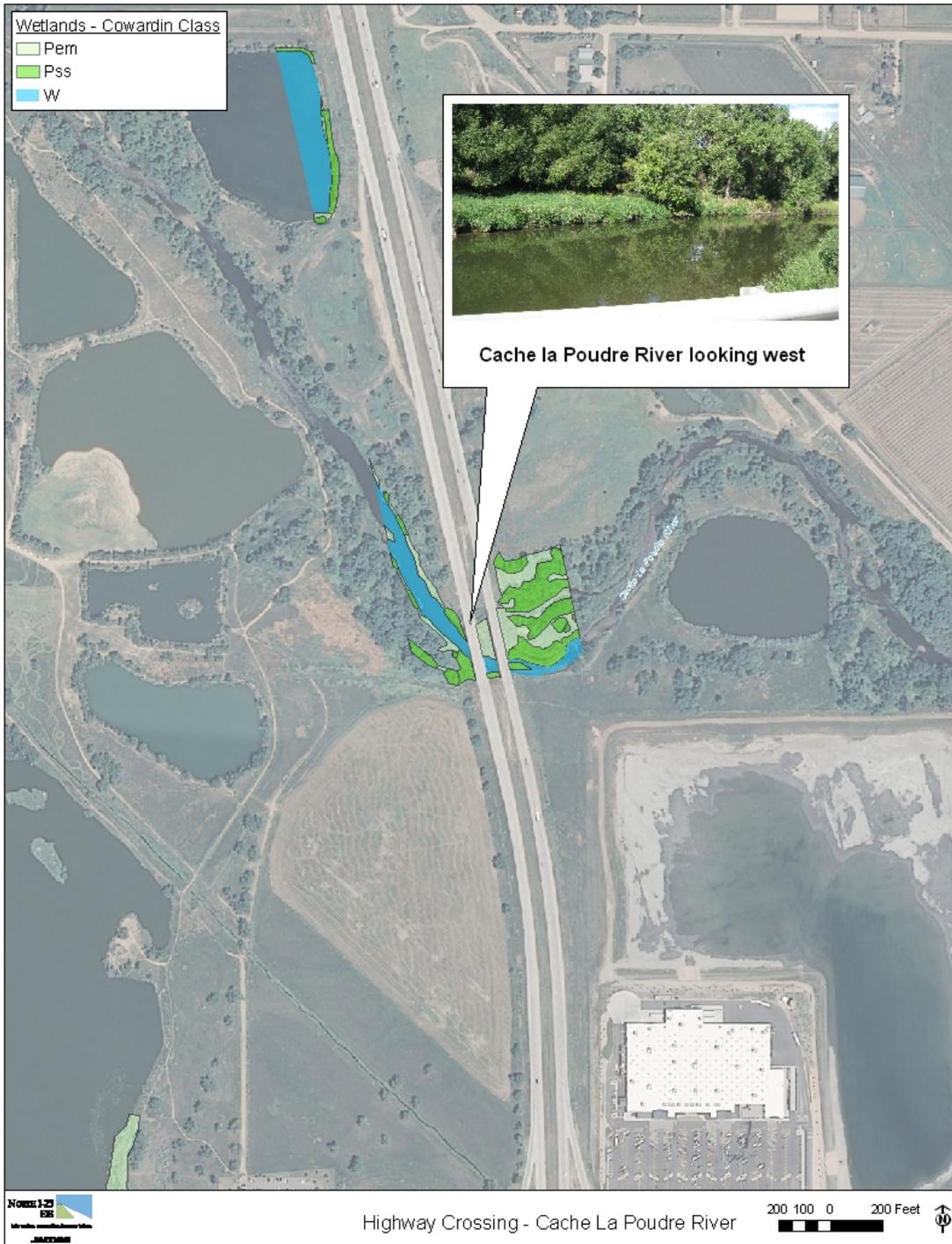
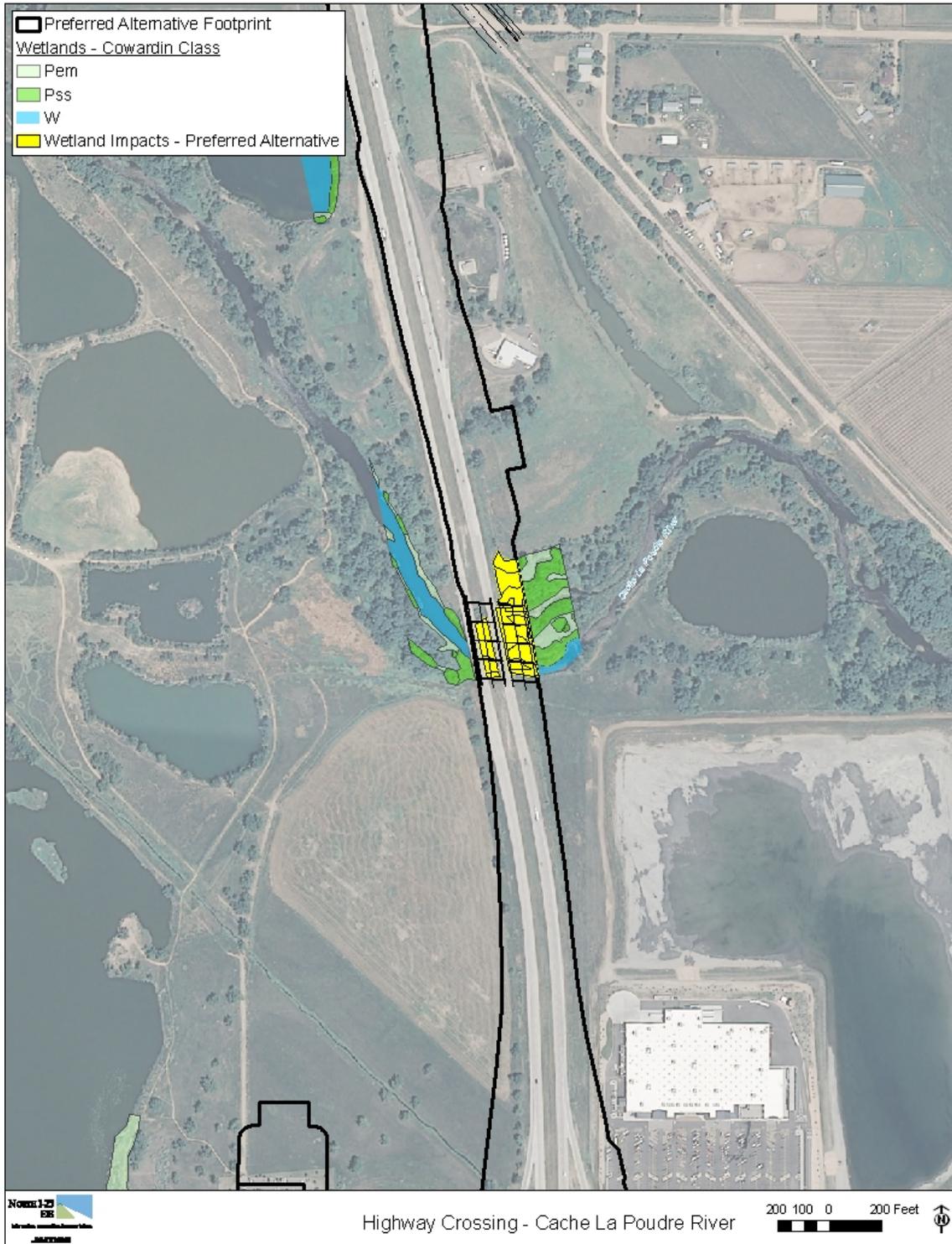


Figure B-2: Preferred Alternative Impacts to Wetlands and Other Waters of the U.S. at I-25 and Cache La Poudre River



Impacts to wetlands and other waters of the U.S. are unavoidable at the Cache La Poudre River crossing because the river runs perpendicular to I-25, and moving the highway alignment to the east or the west does not avoid impacts to aquatic resources. Minimization options which were explored include:

- ▶ Reducing the cross section for the highway, which was not advanced because reducing the width of lanes or shoulders or eliminating lanes or shoulders would not satisfy the purpose and need or the design criteria for the project. It would also create an unsafe condition.
- ▶ Replacing the grassy median with a concrete barrier:
 - The Design Team investigated closing the median at the Cache La Poudre River to determine if the wetland impacts could be further minimized. Closing the median was considered by transitioning from the I-25 typical section with a grassed median to a closed median over a half-mile length north and south of the river crossings. The cable median guardrail was replaced with a concrete barrier in the closed median areas. With a closed median, the proposed bridge structure at the stream crossing would be twice as wide (as opposed to two half width structures with a median gap in between), resulting in greater impacts to aquatic resources, including wetlands and other waters of the U.S.
 - Given that wetlands associated with the Cache La Poudre River exist in the median area, closing the median would jeopardize/impact existing wetland areas due to shading underneath the bridge crossings. Also, continuation of the reduced grassed median width along I-25 through the stream crossings maintains the ability to accommodate future (post 2035) transportation needs.
- ▶ The length of the bridge structure has been increased to address hydraulic deficiencies. The required length of the bridge structure is such that a single span structure (eliminating piers) is not feasible.

Further design measures incorporated to reduce the impact to wetlands and other waters of the U.S. associated with the Cache La Poudre River included the following:

- ▶ Retaining walls were added on the east edge of the roadway to contain the highway fill and minimize impacts to wetlands. These walls extend 100 feet north and south of the wetland areas.
- ▶ Water quality ponds were placed outside the limits of the wetland areas near the stream crossing.

Although Package A would result in the least amount of impacts to aquatic resources at the Cache La Poudre River, it is not a practicable build alternative for the following reasons:

- ▶ The likely delayed opening date of the Northwest Rail and Northwest Metro corridors for FasTracks, which would also delay opening the only transit element in Package A, the commuter rail component, therefore not addressing the multimodal service component described in the project Purpose and Need.
- ▶ Compared to 2030, the projected 2035 socio-economic growth shifts towards the north I-25 Corridor. Package A does not provide a readily accessible, system-wide transit service to these users.

- ▶ The US 36 Corridor will utilize tolled express lanes (TEs), whereas Package A does not propose the implantation of TELs. This would preclude the creation of a cohesive, system-wide TEL network and a dedicated funding stream for future transportation improvements and ongoing maintenance throughout the North I-25 transportation corridor.

I-25 at Big Thompson

Existing wetlands associated with the Big Thompson River at I-25 are primarily comprised of palustrine scrub/shrub and palustrine emergent communities adjacent to the river. Wetlands in this area are generally of high quality, providing wildlife habitat, flood attenuation, bank stabilization, vegetative habitat diversity, water quality improvement, occupied habitat for the threatened Preble's meadow jumping mouse, and potential habitat for two threatened plant species: Ute ladies'-tresses orchid and Colorado butterfly plant. **Figure B-3** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of Big Thompson River at I-25.

The anticipated impacts to wetlands and jurisdictional open waters occur as a result of the following design elements:

- ▶ Highway widening to include two new tolled express lanes and two new general purpose lanes (one in each direction in each case)
- ▶ Replacement of the multispan bridge structures (one in each direction) with piers in the river
- ▶ A highway grassed median that is 32 feet wide (plus shoulders)
- ▶ Replacement of the east frontage road (including one lane in each direction and shoulders) and replacement of the associated multispan bridge structure with piers in the river
- ▶ Riprap placed at the bridge abutment and at bridge piers

Table B-4 presents a comparison of impacts to wetlands and other waters of the U.S. associated with the Big Thompson River at I-25. For all build packages, impacts would occur as a result of construction of replacement bridges that span the Big Thompson River. **Figure B-4** shows design elements of the Preferred Alternative and areas of impact to wetlands and other waters of the U.S. at I-25 and the Big Thompson River. Minimization options which were explored include:

Table B-4: Summary of Impacts to Big Thompson River Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	2.485	1.255	0.332	4.072
Package B	2.929	1.429	0.332	4.690
Preferred Alternative	2.03	0.978	0.237	3.245

PEM.... Palustrine emergent wetland

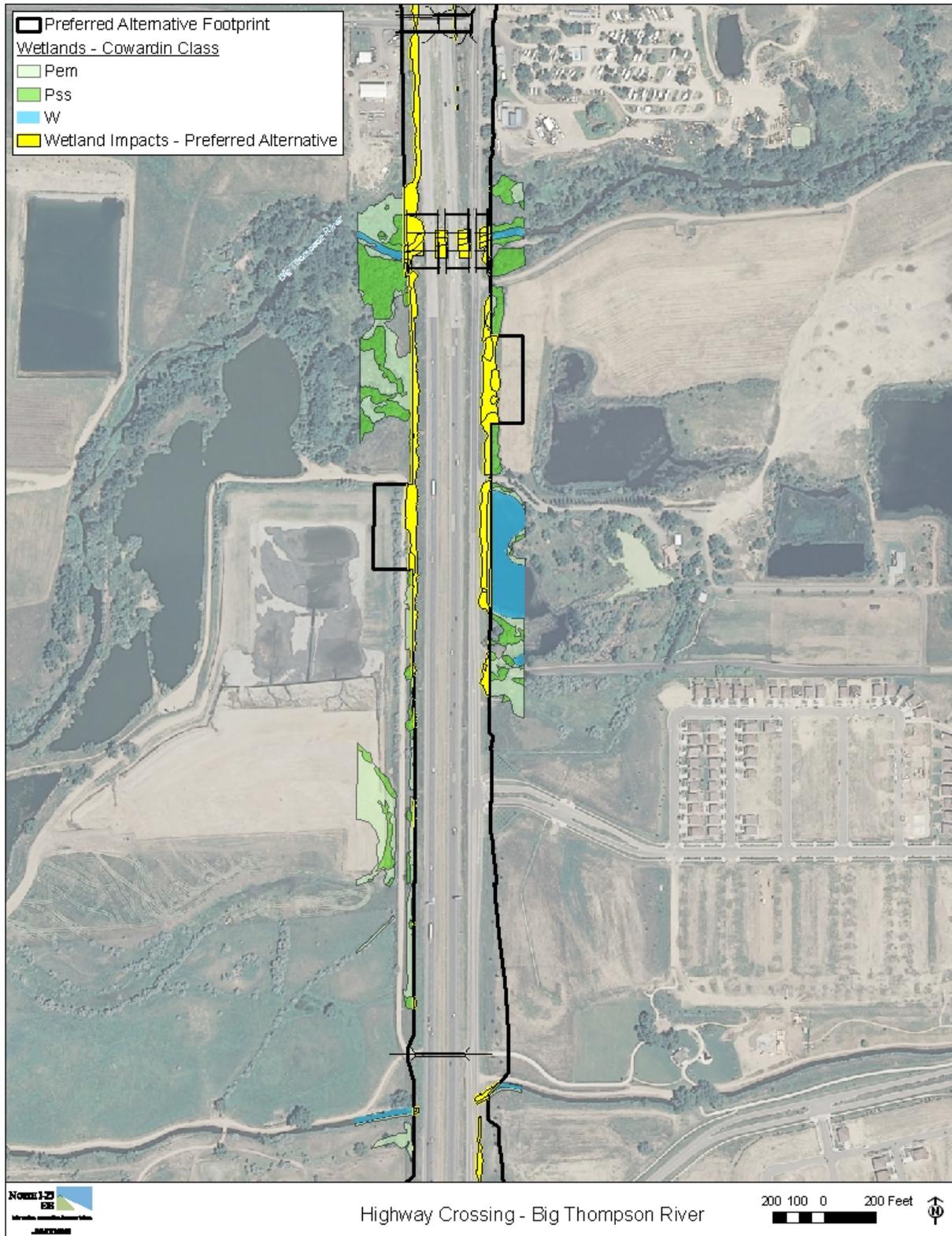
PSS Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Figure B-3: Wetlands and Other Waters of the U.S. at I-25 and Big Thompson River



Figure B-4: Preferred Alternative Impacts to Wetlands and Other Waters of the U.S. at I-25 and Big Thompson River



- ▶ Reducing the cross section for the highway, which was not advanced because reducing the width of lanes or shoulders or eliminating lanes or shoulders would not satisfy the purpose and need or the design criteria for the project. It would also create an unsafe condition.
- ▶ Replacing the grassy median with a concrete barrier:
 - The Design Team investigated closing the median at the Big Thompson River to determine if the wetland impacts could be further minimized. Closing the median was considered by transitioning from the I-25 typical section with a grassed median to a closed median over a half-mile length north and south of the river crossings. The cable median guardrail would be replaced with a concrete barrier in the closed median areas. With a closed median, the proposed bridge structure at the stream crossing would be twice as wide (as opposed to two half width structures with a median gap in between), resulting in greater impacts to aquatic resources, including wetlands and other waters of the U.S.
 - Given that wetlands associated with the Big Thompson River exist in the median area, closing the median would jeopardize/impact wetland areas due to shading underneath the bridge crossings. Also, continuation of the reduced grassed median width along I-25 through the stream crossing maintains the ability to accommodate future (post 2035) transportation needs.
- ▶ The length of the bridge structure has been increased to address hydraulic deficiencies. The required length of the bridge structure over the Big Thompson River is such that a single span structure (eliminating piers) is not feasible.

Further design measures to reduce the impact to wetlands included the following:

- ▶ Retaining walls were added on the east and west edges of roadway to contain the highway fill and minimize impacts to wetlands. These walls extend 100 feet north and south of the wetland areas on both sides of I-25.
- ▶ The design standard 40-foot wide ditch between I-25 and the east frontage road was eliminated near the river crossing to minimize impacts to the wetlands. A barrier separation between the roadways was utilized in lieu of the ditch.
- ▶ Water quality ponds were placed outside the limits of the wetland areas near the stream crossing.

I-25 at Little Thompson

Existing wetlands associated with Little Thompson River at I-25 are primarily composed of palustrine emergent and palustrine scrub/shrub wetlands. Wetlands in this area are generally of moderate quality, characterized by a history of disturbance and the spread of noxious weeds. Wetlands associated with the Little Thompson River provide wildlife habitat, flood attenuation, bank stabilization, occupied habitat for the threatened Preble's meadow jumping mouse, and potential habitat for two threatened plant species: Ute ladies'-tresses orchid and Colorado butterfly plant. **Figure B-5** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of the Little Thompson River at I-25.

Figure B-5: Wetlands and Other Waters of the U.S. at I-25 and Little Thompson River



At the I-25 Little Thompson crossing, the anticipated impacts to wetlands and jurisdictional open waters occur as a result of the following design elements:

- ▶ Highway widening to include two new tolled express lanes and two new general purpose lanes (one in each direction in each case)
- ▶ Replacement of the multispan bridge structures (one in each direction) with piers in the river
- ▶ A highway grassed median that is 32 feet wide (plus shoulders)
- ▶ Replacement of the east frontage road (including one lane in each direction and shoulders). The frontage road bridge structure is being replaced as part of the No Action Alternative. The Preferred Alternative includes replacement of the frontage road approach to either side of the replaced bridge. The reconstructed frontage road will include replacement of the two existing lanes and replacing the existing shoulders with wider shoulders to meet current design criteria and address safety issues
- ▶ Riprap placed at the bridge abutment and at bridge piers

Table B-5 presents a comparison of impacts to wetlands and other waters of the U.S. associated with the Little Thompson River at I-25. For all build packages, impacts would occur as a result of construction of replacement bridges that span the Little Thompson.

Table B-5: Summary of Impacts to Little Thompson River Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0.063	0.266	0.070	0.399
Package B	0.063	0.266	0.070	0.399
Preferred Alternative	0.038	0.226	0.074	0.338

PEM.... Palustrine emergent wetland

PSS Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Figure B-6 shows design elements of the Preferred Alternative and areas of impact to wetlands and other waters of the U.S. at I-25 and the Little Thompson River. Minimization options which were explored include:

- ▶ Reducing the cross section for the highway, which was not advanced because reducing the width of lanes or shoulders or eliminating lanes or shoulders would not satisfy the purpose and need or the design criteria for the project. It would also create an unsafe condition.
- ▶ Replacing the grassy median with a concrete barrier:
 - The Design Team investigated closing the median at the Little Thompson River to determine if the wetland impacts could be further minimized. Closing the median was considered by transitioning from the design I-25 typical section with a grassed median to a closed median over a half-mile length north and south of the river crossing. The cable median guardrail would be replaced with a concrete barrier in the closed median areas. With a closed median, the proposed bridge structure at

the stream crossing would be twice as wide (as opposed to two half width structures with a median gap in between), resulting in greater impacts to wetlands and other waters of the U.S.

Figure B-6: Preferred Alternative Impacts to Wetlands and Other Waters of the U.S. at I-25 and Little Thompson River



- Given that wetlands associated with the Little Thompson River exist in the median area, closing the median would jeopardize/impact existing wetland areas due to shading underneath the bridge crossings. Also, continuation of the reduced grassed median width along I-25 through the stream crossing maintains the ability to accommodate future (post 2035) transportation needs.
- ▶ The length of this bridge structure has been increased to address hydraulic deficiencies. The required length of the bridge structure over the Little Thompson River is such that a single span structure (eliminating piers) is not feasible, so it is not logistically possible.

Further minimization design measures that were incorporated include:

- ▶ Retaining walls were added on the west edge of the roadway to contain the highway fill and minimize impacts to wetlands.
- ▶ Water quality ponds were located south of the wetland area limits at the stream crossing.

I-25 at St Vrain

Existing wetlands associated with the St. Vrain River at I-25 are primarily comprised of palustrine scrub/shrub wetlands adjacent to the river. Wetlands in this area are generally of high quality, providing wildlife habitat, flood attenuation, bank stabilization, and potential habitat for the threatened Preble's meadow jumping mouse and two threatened plant species: Colorado butterfly plant and Ute ladies'-tresses orchid. **Figure B-7** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of St. Vrain River at I-25.

At the I-25 St. Vrain crossing, the anticipated impacts to wetlands and jurisdictional open waters occur as a result of the following design elements:

- ▶ Highway widening to include two new tolled express lanes (one in each direction)
- ▶ Widening of the existing multi-span bridge structures toward the median that include piers in the river
- ▶ A highway grassed median (plus shoulders)
- ▶ A channel drop structure to be removed and replaced at its existing location downstream of the frontage road
- ▶ Riprap placed at the bridge abutment and at bridge piers

Figure B-7: Wetlands and Other Waters of the U.S. at I-25 and St. Vrain River



Table B- presents a comparison of impacts to wetlands and other waters of the U.S. associated with the St. Vrain River at I-25. For all build packages, impacts would occur as a result of construction of a replacement channel drop structure downstream of the frontage road and widening the existing I-25 bridge structures (northbound and southbound) that span the St. Vrain River. **Figure B-8** shows design elements of the Preferred Alternative and areas of impact to wetlands and other waters of the U.S. at I-25 and the St. Vrain River. Minimization options which were explored include:

- ▶ Reducing the cross section for the highway, which was not advanced because reducing the width of lanes or shoulders or eliminating lanes or shoulders would not satisfy the purpose and need or the design criteria for the project. It would also create an unsafe condition.
- ▶ Replacing the grassy median with a concrete barrier:
 - The Design Team investigated closing the median at the St. Vrain River to determine if the wetland impacts could be further minimized. Closing the median was considered by transitioning from the design I-25 typical section with a grassed median to a closed median over a half-mile length north and south of the river crossings. The cable median guardrail would be replaced with a concrete barrier in the closed median areas. With a closed median, the proposed bridge structure at the stream crossing would be twice as wide (as opposed to two half width structures with a median gap in between), resulting in greater impacts to aquatic resources, including wetlands and other waters of the U.S.
 - Given that wetlands associated with the St. Vrain River exist in the median area, closing the median would jeopardize/impact existing wetland areas due to shading underneath the bridge crossings. Also, continuation of the reduced grassed median width along I-25 through the stream crossing maintains the ability to accommodate future (post 2035) transportation needs.
- ▶ At the St. Vrain crossing, the bridges will not be replaced. The existing bridges will be widened. Consequently increasing the span of the bridges is not logistically possible.

Table B-5: Summary of Impacts to St. Vrain River Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	N/A**	N/A	N/A	N/A
Package B	0	0.046	0.088	0.134
Preferred Alternative	0	0.046	0.088	0.134

PEM.... Palustrine emergent wetland

PSS Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

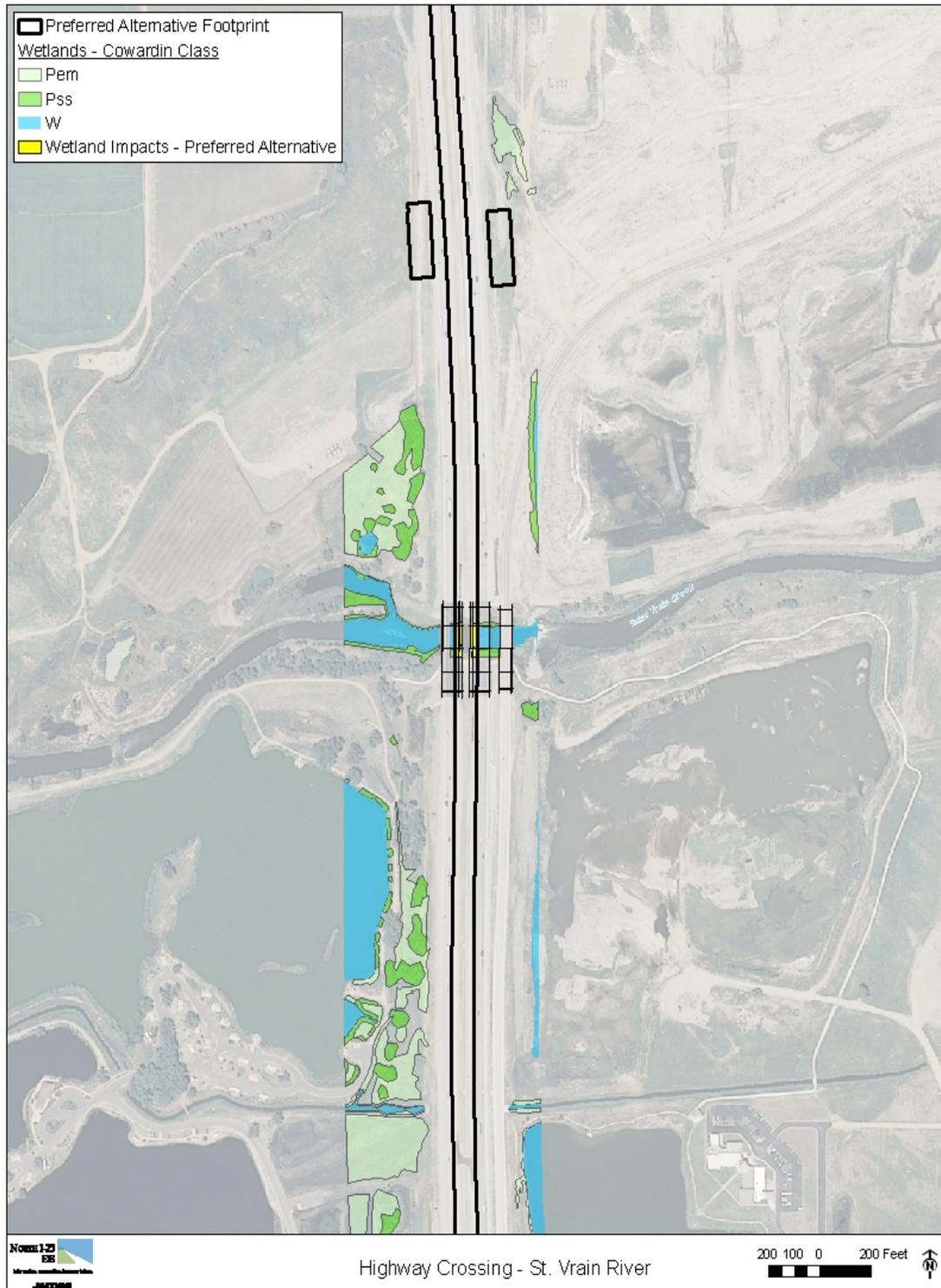
**N/A... Package A does not include highway improvements at this location.

Further minimization design measures that were incorporated include:

- ▶ Retaining walls were added on the east edge of the roadway to contain the highway fill and minimize impacts to wetlands. These walls extend 100 feet north and south of the wetland areas.
- ▶ Water quality ponds were placed outside the limits of the wetland areas near the stream crossing.

- ▶ At the St Vrain crossing, the transportation improvements only require additions to the inside portion of the typical section, along the median. Thus, the median width was reduced to accommodate these improvements and thereby minimize impacts.

Figure B-8: Preferred Alternative Impacts to Wetlands and Other Waters of the U.S. at I-25 and St. Vrain River



I-25 at Little Dry Creek

Existing wetlands associated with Little Dry Creek at I-25 are primarily comprised of palustrine emergent wetlands and an open water feature west of I-25. Wetlands in this area are generally of moderate quality, providing wildlife habitat, flood attenuation, and bank stabilization. **Figure B-9** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of Little Dry Creek at I-25.

At the I-25 Little Dry Creek crossing, the anticipated impacts to wetlands and jurisdictional open waters occur as a result of the following design elements:

- ▶ Highway widening to include two new tolled express lanes (one in each direction)
- ▶ Replacement of the multiple cell concrete box culvert structure to address hydraulic deficiency
- ▶ A highway grassed median (plus shoulders)
- ▶ An extension of the multiple cell concrete box culvert structure to address hydraulic deficiency
- ▶ Placement of riprap both upstream and downstream of the culvert crossing to redirect flow

Table B-6 presents a comparison of impacts to wetlands and other waters of the U.S. associated with the Little Dry Creek at I-25. For all build packages, impacts would occur as a result of construction of the multiple cell concrete box culvert structure that spans Little Dry Creek. **Figure B-10** shows design elements of the Preferred Alternative and areas of impact to wetlands and other waters of the U.S. at I-25 and Little Dry Creek.

Table B-6: Summary of Impacts to Little Dry Creek Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0.085	0	0	0.085
Package B	0.083	0	0	0.083
Preferred Alternative	0.083	0	0	0.083

PEM.... Palustrine emergent wetland

PSS Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

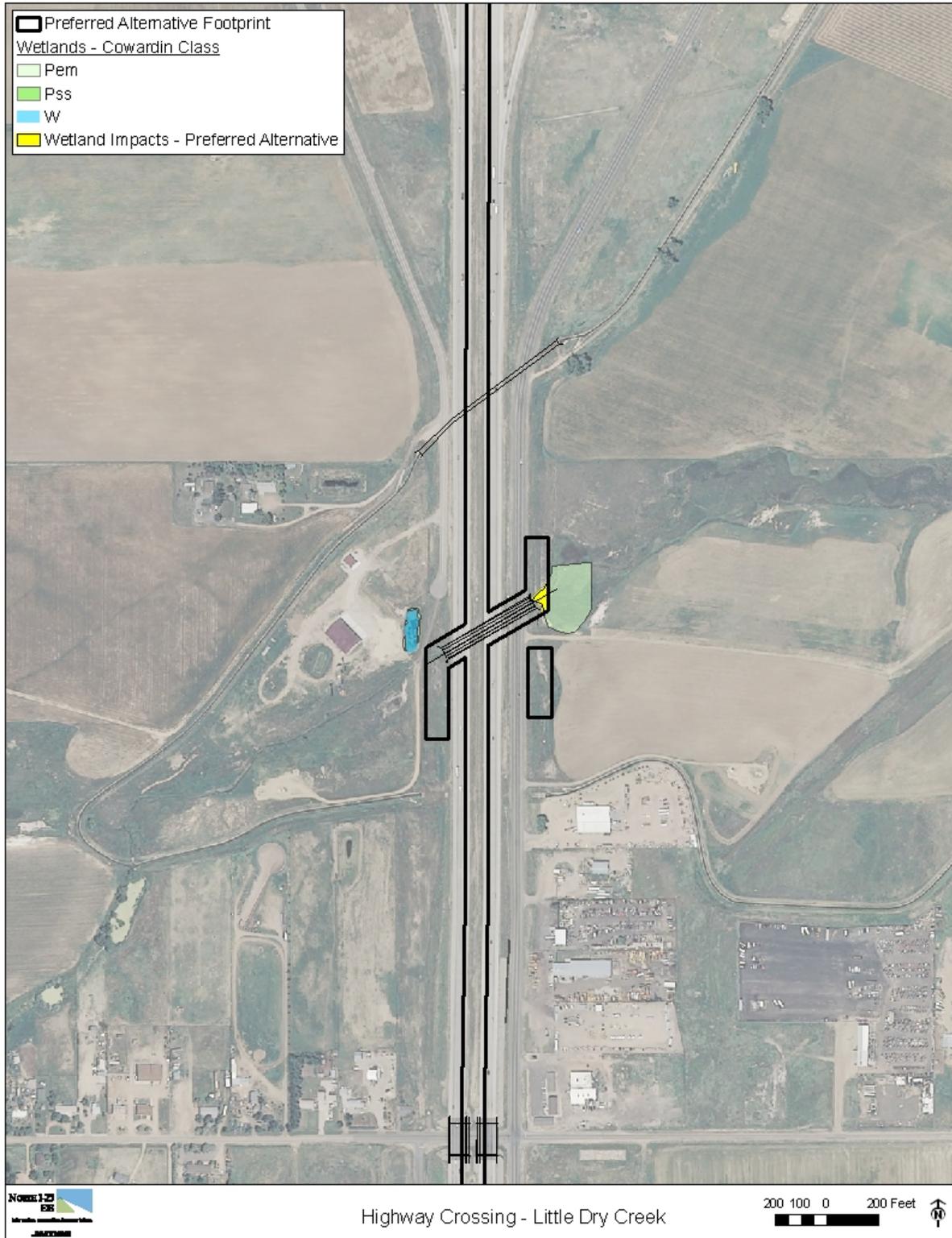
Impacts to wetlands and other waters of the U.S. are unavoidable at the Little Dry Creek crossing because the river runs perpendicular to I-25 and moving the highway alignment to the east or west does not avoid impacts to aquatic resources. Minimization options that were explored include:

- ▶ Reducing the cross section for the highway, which was not advanced because reducing the width of lanes or shoulders or eliminating lanes or shoulders would not satisfy the purpose and need or the design criteria for the project. It would also create an unsafe condition.

Figure B-9: Wetlands and Other Waters of the U.S. at I-25 and Little Dry Creek



Figure B-10: Preferred Alternative Impacts to Wetlands and Other Waters of the U.S. at I-25 and Little Dry Creek



Further minimization design measures that were incorporated include:

- ▶ Water quality ponds were placed outside the limits of the wetland areas near the stream crossing.
- ▶ At the Little Dry Creek crossing, the transportation improvements only require additions to the inside portion of the typical section, along the median. Thus, the median width was reduced to accommodate these improvements and thereby minimize impacts.

I-25 at Big Dry Creek

Existing wetlands associated with Big Dry Creek at I-25 are primarily comprised of palustrine scrub/shrub and palustrine emergent wetlands adjacent to the creek. Wetlands in this area are generally of moderate quality, providing wildlife habitat, flood attenuation, and bank stabilization. **Figure B-11** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of Big Dry Creek at I-25.

At the I-25 Big Dry Creek crossing, the anticipated impacts to wetlands and jurisdictional open waters occur as a result of the following design elements:

- ▶ Highway widening to include two new tolled express lanes (one in each direction) that requires reconstruction of the entire I-25 cross section due to the lack of a wide median
- ▶ Replacement of the existing multi-span bridge structure that includes piers in the river
- ▶ Riprap placed at the bridge abutment and at bridge piers

Table B-7 presents a comparison of impacts to wetlands and other waters of the U.S. associated with Big Dry Creek at I-25. For all build packages, impacts would occur as a result of construction of replacement bridges that span Big Dry Creek. **Figure B-12** shows design elements of the Preferred Alternative and areas of impact to wetlands and other waters of the U.S. at I-25 and Big Dry Creek.

Table B-7: Summary of Impacts to Big Dry Creek Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	N/A**	N/A	N/A	N/A
Package B	0.087	0.011	0.051	0.149
Preferred Alternative	0.088	0.011	0.051	0.150

PEM ... Palustrine emergent wetland

PSS Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

**N/A .. Package A does not include highway improvements at this location.

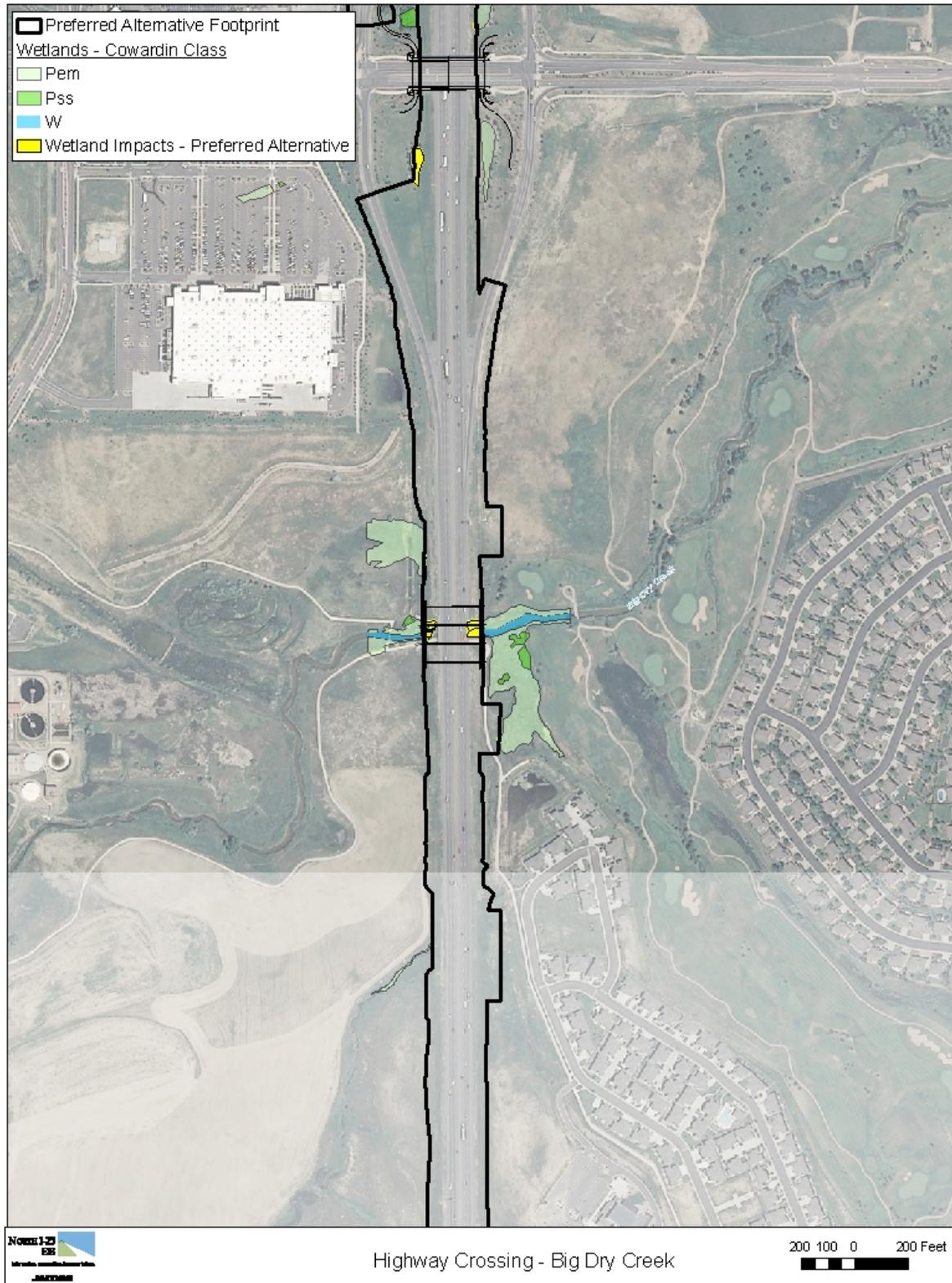
Impacts to wetlands and other waters of the U.S. are unavoidable at the Big Dry Creek crossing because the river runs perpendicular to I-25 and moving the highway alignment to the east or west does not avoid impacts to aquatic resources. Minimization options that were explored include:

- ▶ Reducing the cross section for the highway, which was not advanced because reducing the width of lanes or shoulders or eliminating lanes or shoulders would not satisfy the purpose and need or the design criteria for the project. It would also create an unsafe condition.

Figure B-11: Wetlands and Other Waters of the U.S. at I-25 and Big Dry Creek



Figure B-12: Preferred Alternative Impacts to Wetlands and Other Waters of the U.S. at I-25 and Big Dry Creek



- ▶ Increasing the span of the bridge:
 - The length of each bridge structure has been increased to address alignment deficiencies. The required length of each structure is such that a single span structure (eliminating piers) is not feasible.

Further minimization design measures that were incorporated include:

- ▶ Retaining walls were added on the east and west edges of the roadway to contain the highway fill and minimize impacts to wetlands. These walls extend 100 feet north and south of the wetland areas.
- ▶ Water quality ponds were placed outside the limits of the wetland areas near the stream crossing.

IMPACT COMPARISON – RAIL STREAM CROSSINGS

The following section provides details about the avoidance and minimization measures employed at six stream crossings associated with the proposed commuter rail alignment as part of Package A and the Preferred Alternative. **Table B-8** provides a summary of impacts to the six stream crossings associated with the proposed commuter rail component. Overall, the Preferred Alternative would result in the least amount of impacts to wetlands and other waters of the U.S.

Table B-8: Summary of Commuter Rail Impacts to Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0.106	0.073	0.099	0.278
Preferred Alternative	0.009	0	0.003	0.012

PEMPalustrine emergent wetland

PSS.....Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

BNSF railway at Spring Creek

Existing wetlands associated with Spring Creek at its intersection with the BNSF railway are primarily comprised of palustrine scrub/shrub wetlands. Wetlands in this area are generally of moderate quality, providing wildlife habitat, water quality improvement, and bank stabilization. **Figure B-13** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of the BNSF/Spring Creek crossing.

Since the single-track commuter rail proposed for the Preferred Alternative would use the existing BNSF tracks through this area, avoiding impacts to Spring Creek and its associated wetlands, no further design measures were required. There are no improvements planned that would extend north of the South Transit Center where Spring Creek is located. The double track and maintenance road considered in the DEIS were removed north of the South Transit Center due to overall property and resource impacts.

Figure B-13: Wetlands and Other Waters of the U.S. at the BNSF/Spring Creek Crossing



BNSF railway at Fossil Creek

Existing wetlands associated with Fossil Creek at its intersection with the BNSF railway are primarily comprised of palustrine scrub/shrub wetlands adjacent to the creek. Wetlands in this area are generally of moderate quality, providing wildlife habitat, water quality improvement, and bank stabilization. **Figure B-14** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of the BNSF/Fossil Creek crossing.

At the BNSF/Fossil Creek crossing, the anticipated impacts to wetlands and jurisdictional open waters occur as a result of the following design elements:

- ▶ The existing box culvert would need to be extended to accommodate the construction of a maintenance road.

Table B-9 presents a comparison of impact to wetlands and other waters of the U.S. associated with the BNSF/Fossil Creek crossing. For Package A and the Preferred Alternative, impacts would occur as a result of construction of a box culvert extension. **Figure B-15** shows design elements of the Preferred Alternative and areas of impact to wetlands and other waters of the U.S. at the BNSF/Fossil Creek crossing.

Impacts to wetlands and other waters of the U.S. are unavoidable at the BNSF/Fossil Creek crossing because the creek runs perpendicular to the railway and moving the rail alignment to the east or west does not avoid impacts to aquatic resources. Minimization options that were explored include:

- ▶ In this section of track, the required maintenance road was added to the east side of the existing BNSF track instead of the west side as the east side better avoided and minimized impacts to wetlands.
- ▶ At Fossil Creek, consideration was given to stopping the maintenance road on each side and providing a vehicle turn-around. However, the impacts of the vehicular turnaround would likely affect the Fossil Creek riparian area, would require a large amount of additional ROW, and would result in long out-of-direction travel of maintenance vehicles.

During final design several options may be considered to reduce impacts to Fossil Creek:

- ▶ A variance could be requested from BNSF to either construct a narrower maintenance road section or to reduce the horizontal offset between the existing tracks and the proposed maintenance road. Both options would eliminate the need to extend the box culvert thereby avoiding wetland impacts.

Table B-9: Summary of Impacts to Fossil Creek Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0.025	0	0.019	0.044
Preferred Alternative	0.009	0	0.003	0.012

PEM ... Palustrine emergent wetland

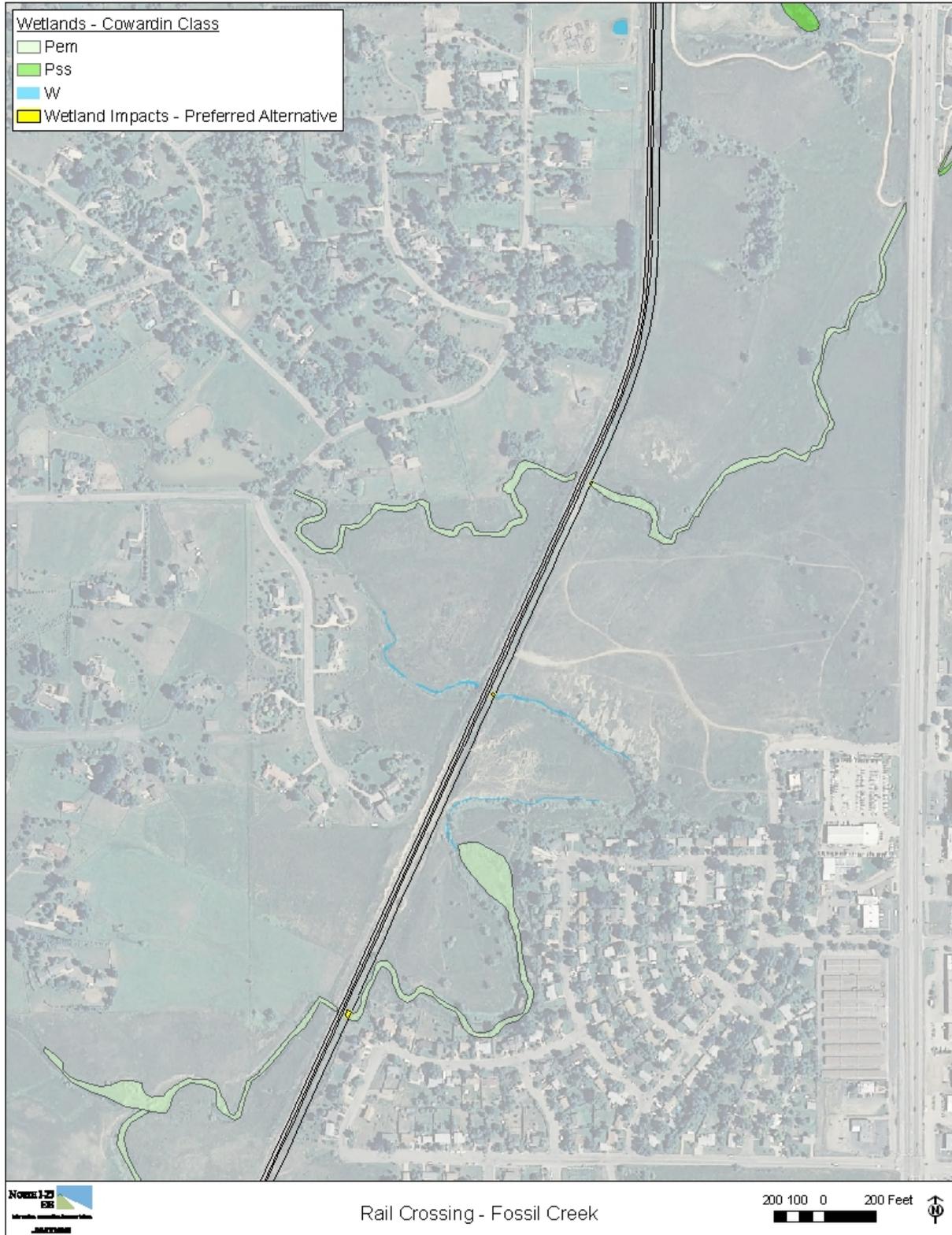
PSS.... Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Figure B-14: Wetlands and Other Waters of the U.S. at the BNSF/Fossil Creek Crossing



Figure B-15: Preferred Alternative Elements and Wetlands and Other Waters of the U.S. at the BNSF/Fossil Creek Crossing



- ▶ It may be possible to vertically extend up to 1 foot, the headwall and wingwalls of the existing box culvert to retain the roadway embankment and avoid impacts to the wetlands below. The existing culvert would have to be analyzed for structural integrity before this option could be considered.
- ▶ The existing box culvert and wingwalls could be extended to the east approximately 10' to lessen direct impacts to the wetlands.

BNSF railway at Big Thompson River

Existing wetlands associated with the Big Thompson River at its intersection with the BNSF railway are primarily comprised of palustrine scrub/shrub wetlands adjacent to the creek. Wetlands in this area are generally of high quality, providing wildlife habitat, water quality improvement, bank stabilization, and potential habitat for the threatened Preble's meadow jumping mouse and two threatened plant species: Colorado butterfly plant and Ute ladies'-tresses orchid. **Figure B-16** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of BNSF/Big Thompson River crossing.

Table B-10 presents a comparison of impacts to wetlands and other waters of the U.S. associated with the BNSF/Big Thompson River crossing for each build alternative. Rail components associated with Package A would impact wetlands and other waters of the U.S. due to the construction of a new bridge crossing to accommodate the second track for the commuter rail.

Table B-10: Summary of Impacts to Big Thompson River Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0	0.073	0.011	0.084
Preferred Alternative	0	0	0	0

PEMPalustrine emergent wetland

PSS.....Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Figure B-17 shows elements of the Preferred Alternative and wetlands and other waters of the U.S. at the BNSF/Big Thompson River crossing. Design measures incorporated as part of the Preferred Alternative to reduce the impact to wetlands included the following:

- The commuter rail will use the existing BNSF tracks through this area, avoiding impacts to Big Thompson River.
- The proposed maintenance road can stop north and south of the Big Thompson crossing, and vehicles can use the existing Roosevelt Avenue. This measure will remove the need for a new bridge crossing, and will avoid impacts to Big Thompson River.

Figure B-16: Wetlands and Other Waters of the U.S. at the BNSF/Big Thompson River Crossing



Figure B-17: Preferred Alternative Elements and Wetlands and Other Waters of the U.S. at the BNSF/Big Thompson River Crossing



BNSF at Little Thompson River

Existing wetlands associated with the Little Thompson River at its intersection with the BNSF railway are primarily comprised of palustrine scrub/shrub wetlands. Wetlands in this area are generally of moderate quality, providing wildlife habitat, water quality improvement, flood attenuation, bank stabilization, and potential habitat for two threatened plant species: Colorado butterfly plant and Ute ladies'-tresses orchid. **Figure B-18** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of the BNSF/Little Thompson River crossing and elements of the Preferred Alternative.

Design measures incorporated as part of the Preferred Alternative to avoid impacts to wetlands and other waters of the U.S. at the BNSF/Little Thompson River crossing included the following:

- ▶ The maintenance road will be revised to have connections to South CR15A and utilize the existing CR 15A structure over the river.
- ▶ Because a public road provides accessibility to the BNSF line and adjacent maintenance road on both sides of the river, design guidance used for this project would not require a new structure. The maintenance road across the river has been removed.

Rail Alignment at Boulder Creek

Existing wetlands associated with Boulder Creek at its intersection with the proposed railway are primarily comprised of palustrine scrub/shrub and palustrine emergent wetlands adjacent to the creek. Wetlands in this area are generally of high quality, providing wildlife habitat, water quality improvement, flood attenuation, bank stabilization, and potential habitat for the threatened Preble's meadow jumping mouse, Ute ladies'-tresses orchid, and Colorado butterfly plant. **Figure B-19** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of Boulder Creek at the proposed rail alignment.

Table B-11 presents a comparison of impact to wetlands and other waters of the U.S. associated with Boulder Creek, south of State Highway 119. For Package A, impacts would occur as a result of construction of a bridge structure that spans Boulder Creek.

Table B-11: Summary of Impacts to Boulder Creek Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0.081	0	0.065	0.146
Preferred Alternative	0	0	0	0

PEMPalustrine emergent wetland

PSS.....Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Figure B-18: Wetlands and Other Waters of the U.S. at the BNSF/Little Thompson River Crossing



Figure B-19: Wetlands and Other Waters of the U.S. at the Boulder Creek Crossing



Figure B-20 shows elements of the Preferred Alternative and wetlands and other waters of the U.S. at the Boulder Creek crossing. Design measures incorporated as part of the Preferred Alternative to avoid impacts to wetlands and other waters of the U.S. included the following:

- ▶ Placing the bridge abutments outside of the wetland area. The new bridge would include a span length of approximately 200' with the abutments and riprap protection placed outside of the wetlands.

Rail Alignment at Little Dry Creek

Existing wetlands associated with Little Dry Creek at its intersection with the proposed railway are primarily comprised of palustrine scrub/shrub and palustrine emergent wetlands adjacent to the creek. Wetlands in this area are generally of moderate quality, providing wildlife habitat, water quality improvement, flood attenuation, and bank stabilization. **Figure B-21** shows the location of delineated wetlands and other waters of the U.S. within the survey area in the vicinity of Little Dry Creek at the proposed rail alignment, and design elements of the Preferred Alternative.

Table B-12 presents a comparison of impact to wetlands and other waters of the U.S. associated with Little Dry Creek and the proposed rail alignment. For Package A, impacts would occur as a result of an extension to the box culvert that spans Little Dry Creek for the construction of an additional rail line.

Table B-12: Summary of Impacts to Little Dry Creek Wetlands and Other Waters of the U.S. by Build Alternative

Build Alternative	PEM (acres)	PSS (acres)	Open Waters* (acres)	Totals (acres)
Package A	0	0	0.004	0.004
Preferred Alternative	0	0	0	0

PEMPalustrine emergent wetland

PSS.....Palustrine scrub-shrub wetland

*For the purpose of this document, jurisdictional open waters are defined as perennial and intermittent waterways, or bodies of water including irrigation canals, ponds, lakes, and reservoirs.

Design measures incorporated as part of the Preferred Alternative to avoid impacts to wetlands and other waters of the U.S. included the following:

- ▶ This area requires only the replacement or rehabilitation of the existing track. The existing structure over Little Dry Creek will remain in place, resulting in an avoidance of impacts to wetlands and other waters of the U.S.

Figure B-20: Preferred Alternative Elements and Wetlands and Other Waters of the U.S. at the Boulder Creek Crossing



Figure B-21: Preferred Alternative Elements and Wetlands and Other Waters of the U.S. at the Little Dry Creek Crossing



**Appendix B:
DEIS and FEIS Minimization Efforts**

Additional Minimization of Wetland Impacts—Median Design

The definition of a median according to CDOT is the area between the inside edge of travel lane of opposing directions of traffic, so this definition includes the width of the insider shoulder for both directions of traffic. Historically this distance for I-25 in Region 4 had been 80 feet. With 12 inside shoulder widths, this resulted in an edge-of-pavement to edge-of-pavement dimension of 56 feet (80 feet less the two 12-foot shoulders).

The project team coordinated with representatives of CDOT Region 4 and the project Executive Oversight Committee (EOC) to develop policy and details pertaining to the design criteria for development of I-25 transportation improvement alternatives. One of these considerations was the width of the median. During the project scoping process, the EOC approved a policy specific to the median width. In order to maintain the rural character of the corridor, the EOC directed the project team to maintain the existing median width of 80 feet from SH 66 to SH 14 in the development of I-25 transportation improvement alternatives to be considered in the project process. The project team subsequently identified, developed and screened all I-25 transportation improvements alternatives according to the median width policy that was made part of the project design criteria. This included the two Packages (A and B) evaluated in the Draft Environmental Impact Statement published in October, 2008.

At the beginning of the FEIS process, representatives from CDOT Region 4 and the project consultant team reevaluated the design criteria in conjunction with initiating design development for the preferred alternative to be evaluated in the Final Environmental Impact Statement (FEIS) for the project. This group reevaluated all project design criteria in conjunction with addressing feedback from various agencies with regard to interests to further reduce environmental impacts associated with preferred alternative to be evaluated in the FEIS. The group identified a reduction to a median width in the range of 50-56 feet (26-32 feet edge-of-pavement to edge-of-pavement) worthy of consideration for the following reasons:

- ▶ Design Criteria Conformance
- ▶ Corridor Typical Section Consistency
- ▶ Future Corridor Transportation Capacity Expansion
- ▶ Wetland Resource Impact Reduction
- ▶ Safety and Cost

The project team recommended to CDOT Region 4 that the revision in the median width policy for I-25 from SH 66 to SH 14 noted above be brought to the attention of the EOC for consideration. The EOC has since agreed to adopt the revised median width policy for I-25 from SH 66 to SH 14.

The Design Team investigated closing the median at stream crossings to determine if the wetland impacts could be further minimized. Closing the median was accomplished by transitioning from the design I-25 typical section with an 80-foot median to a closed median over a half-mile length north and south of the river crossings. The cable median guardrail was replaced with a concrete median guardrail in the closed median areas. With a closed median, the proposed bridge structure at the stream crossing would be twice as wide (as opposed to two half width structures with a median gap in between).

Closing the median does not require any design variances from the design criteria set forth for the project. Both the original design and the alternative introduce a barrier treatment at bridge crossings that is different from the mainline guardrail treatment, but in both cases transitions would be included in the design. Thus, there is no appreciable difference in safety conditions.

However, wetlands do exist at the crossings in the median area. Closing the median would jeopardize/impact existing wetland areas underneath the bridge crossings and/or minimize the potential for wetland development in that same area. Consequently, the design team incorporated the revised design width policy but did not incorporate the closed median alternative at the stream crossings.

Additional Minimization of Wetland Impacts—Single Tracking

The 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.

Because the proposed commuter rail as part of the Preferred Alternative would not include constructing a new track adjacent to the existing freight rail track, it 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 option because substantially fewer habitat would be permanently removed due to fill for the new track.

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.