

3.3 Wetlands and Other Waters of the U.S.

3.3.1 What are wetlands and other waters of the U.S. and why are they important?

Section 3.3 describes the affected environment and the environmental consequences to wetlands, fens, other waters of the U.S., and riparian areas associated with the various Action Alternatives under consideration in this document. The *I-70 Mountain Corridor PEIS Wetlands and Other Waters of the U.S. Technical Report* (Colorado Department of Transportation [CDOT], March 2011) provides additional information about the wetlands and other waters of the U.S. in the Corridor. Wetlands and waters of the U.S. are part of the larger biological community for the Corridor and can have direct correlations to riparian areas, water quality, and aquatic and other biological resources. **Section 3.2, Biological Resources**, discusses these biological resources.

Wetlands Issues

- Loss of wetlands, fens, and other waters of the U.S.
- Reduced function of wetlands, fens, and other waters of the U.S.
- Changes in surface and subsurface hydrology and water quality (for example, inflows, sedimentation, winter maintenance) that result in loss of area or function

Wetlands and other waters of the U.S. are regulated through a permit process administered by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act. Section 404 defines waters of the U.S. as all traditional navigable waters of the U.S. and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. The USACE's Regulatory Program administers, and the Environmental Protection Agency enforces, Section 404 of the Clean Water Act.

The definition of waters of the U.S. under USACE jurisdiction does not include wetlands that lack a surface connection to, and therefore are isolated from, regulated waters. Executive Order 11990, Protection of Wetlands, requires that federal agencies "...take action to minimize the destruction, loss, or degradation of wetlands..." The Executive Order does not indicate exclusion of isolated wetlands (non-jurisdictional). The Federal Highway Administration (FHWA) Regulations at Code of Federal Regulations 23 Sections 771 and 777 and guidance provided in Technical Advisory T6640.8A (Section V.G.12) direct that impacts on wetlands be avoided wherever possible and minimized to the extent practicable during transportation construction projects.

Fens are wetlands that are recognized as irreplaceable resources in the Southern Rocky Mountain Region due to the functional and biological values they provide (Cooper, 2009). They are afforded special protection because of their rarity and the difficulty of mitigation and restoration.

Other waters of the U.S. are classified as either channel/riverine or water storage features. Other waters of the U.S. exist below the ordinary high water mark of each stream system that occurs along the Corridor, as well as some ponds and lakes (for example, Black Lakes Reservoirs).

3.3.2 What study area and process were used to analyze wetland resources and other waters of the U.S.?

The study area for wetlands and other waters of the U.S. included the areas adjacent to the Corridor that could be directly impacted by the Action Alternatives or indirectly impacted by contamination or sedimentation from roadway operations or maintenance activities. The Colorado Department of Transportation mapped wetlands, other waters of the U.S., and riparian vegetation in a 2,000-foot-wide corridor along both sides (4,000 feet total) of the I-70 highway using color infrared aerial photography

3.3. Wetlands and Other Waters of the U.S.

and field reconnaissance. Limited field visits were performed to verify locations shown on the aerial mapping, to achieve confidence in the aerial photography interpretation, and to obtain data on the feature in question. This 2,000-foot-wide corridor encompasses the area likely to be directly or indirectly affected by the Action Alternatives.

The assessment area for fens included a 200-foot buffer along both sides (400 feet total) of the I-70 highway. Identification and delineation of possible fens was based on landscape context and color signature in aerial imagery compared to the signature of known fens in the area (Tiner, 1999). Sites were field verified during September and October of 2009. Fens were subject to more detailed field review because they are high-value and rare wetland types.

The three principal data categories identified for this resource are:

- **General wetlands** – These include wetland classifications of palustrine emergent, palustrine scrub-shrub, palustrine forested, and palustrine aquatic bed. These were analyzed as one category.
- **Fens** – These are distinguished from other wetlands and uplands by thickness of peat, hydrologic regime, and vegetation composition (Bedford and Godwin, 2003).
- **Other waters of the U.S.** – These include all “open waters” such as riverine (year-round flow), intermittent or seasonal tributaries, and water storage features (ponds or lakes). These were analyzed as one category.

The Colorado Department of Transportation mitigates impacts on all affected wetlands including non-jurisdictional wetlands. While wetlands not connected by surface water to waters of the U.S. were mapped as isolated waters/wetlands, CDOT took the most conservative approach possible by classifying all mapped areas as jurisdictional under the Clean Water Act Section 404. The USACE concurred with this approach for Tier 1. Jurisdictional and non-jurisdictional wetland impacts will be separated during Tier 2 processes, where issues of permitting for a specific alternative will be addressed.

3.3.3 What agencies have CDOT and FHWA coordinated with and what are their relevant issues?

Coordination with the USACE occurred throughout the analysis of the I-70 Mountain Corridor. Specific resource meetings were held with the USACE, which provided comments to the project team throughout development of this document. There have been no changes in how wetlands and other waters of the U.S. are classified since those USACE meetings, with the exception of the U.S. Supreme Court’s consolidated ruling in *Rapanos v. United States and Carabel v. United States* decisions (June, 2007), commonly known as *Rapanos*. This decision affects issues of agency jurisdiction over wetlands and waters of the U.S. However, this decision does not affect this Tier 1 analysis because all wetlands located in the project area are considered jurisdictional. There are no changes in the standards or the methodology used in this analysis since meeting with the USACE.

The Colorado Department of Transportation initiated the Stream and Wetland Ecological Enhancement Program (SWEEP) program that included a team of representatives from federal and state agencies, watershed associations, Clear Creek County, and special interest groups. The main goal of the SWEEP program is to enhance stream and wetland ecology and make mitigation recommendations for the entire Corridor.

The Colorado Department of Transportation led the effort to develop Sediment Control Action Plans to address impacts of winter sanding operations in the I-70 Mountain Corridor, and coordinated with the Black Gore Creek Steering Committee and the Straight Creek Cleanup Committee. This action resulted in

new practices to provide a beneficial effect on many of the stream systems and associated wetlands along the Corridor. Development of a Clear Creek Sediment Control Action Plan is underway.

3.3.4 What are the areas of wetlands and other waters of the U.S. interest identified in the Corridor?

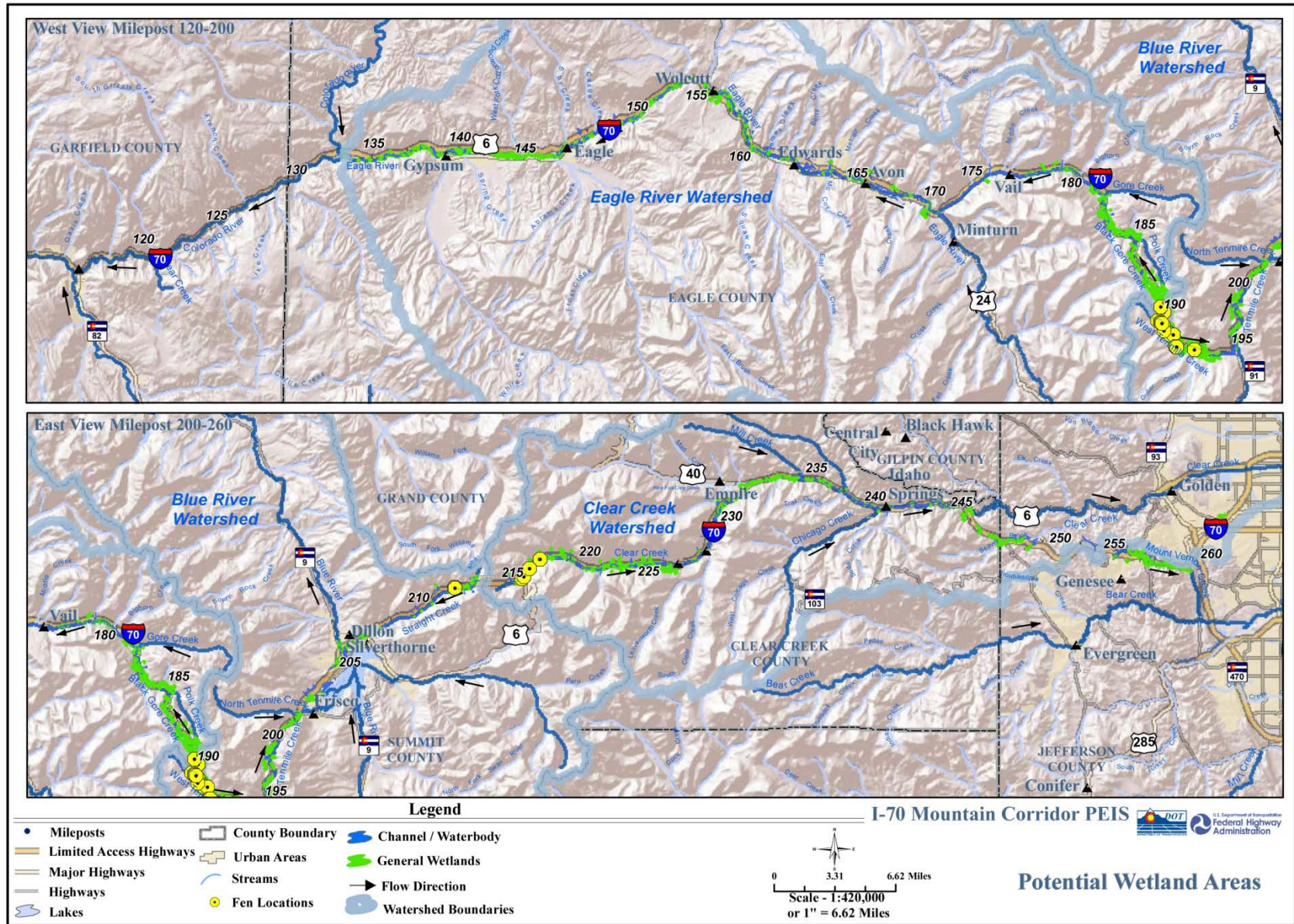
Wetlands and other waters of the U.S. within the Corridor were initially identified within a 4,000-foot-wide (2,000-feet on either side) area from Dotsero to C-470. The project area centers on the I-70 highway, and mapping was conducted using advanced photographic techniques, including geo-referenced, ortho-rectified, false-color infrared aerial photographs. Additional digitized, high-resolution, low-altitude, geo-referenced, ortho-rectified black-and-white or true color aerial photography was used to assist mapping. Areas of interest were determined by watershed basin and are discussed below.

The *I-70 Mountain Corridor PEIS Wetlands and Other Waters of the U.S. Technical Report* (CDOT, March 2011) provides detailed descriptions of the sub-basins within the Corridor, including existing wetland types, general geographic locations, acreage quantities for each sub-basin, and graphics showing the locations of mapped wetlands and other waters of the U.S. in the Corridor. **Figure 3.3-1** provides a Corridorwide overview of wetland locations. The sub-basins discussed in the Technical Report are:

- Colorado River Sub-basin
- Eagle River Sub-basin – including Eagle River, Gore Creek, and Black Gore Creek
- Blue River Sub-basin – including West Tenmile Creek, Tenmile Creek, and Straight Creek
- Clear Creek Sub-basin – including Clear Creek and Mount Vernon Creek

3.3. Wetlands and Other Waters of the U.S.

Figure 3.3-1. Wetlands



3.3.5 How do the alternatives potentially affect wetlands and other waters of the U.S.?

This section addresses direct, indirect, and temporary impacts on wetlands, fens, and other waters of the U.S. for each Action Alternative considered in this document. Impacts on wetlands, fens, and other waters of the U.S. were determined through a geographic information system overlay process in which the impact footprint was superimposed onto each of the above-mentioned resources within the Corridor. Impacts were quantified for the whole Corridor for each resource.

All Action Alternatives are included in the wetlands analysis, but as described in **Chapter 2, Summary and Comparison of Alternatives** the single mode alternatives, those alternatives consisting solely of roadway improvements or transit improvements, but not both, do not meet the purpose and need of the I-70 Mountain Corridor project. In addition, the Preferred Alternative Minimum Program does not meet purpose and need either, as highway capacity will be exceeded before 2050, based on current information.

In determining potential effects on wetlands and other waters of the U.S. from the Action Alternatives, direct and indirect effects were included. The following text addresses impacts by alternatives on wetlands, fens, and other waters of the U.S.

How do the alternatives directly affect wetlands and other waters of the U.S.?

Table 3.3-1 details the direct impacts on wetlands, fens, and other waters of the U.S. by alternative and resource. Direct impacts include areas where the conceptual footprints of alternatives, including estimated construction zones, intersect with identified wetlands. The alternatives presented in **Table 3.3-1** vary slightly from the grouping described in **Chapter 2, Summary and Comparison of Alternatives**. They include both variations of the Highway alternatives at 55 miles per hour (mph) and 65 mph because wetlands are affected differently under these scenarios. More wetlands are affected by the 65 mph Highway alternative because of the curve modifications, primarily between the Twin Tunnels and US 6 at the bottom of Floyd Hill, required to achieve a 65 mph westbound alignment. This conceptual level design results in increased encroachment into the Clear Creek channel. The decision between the 55 mph and 65 mph options will be made during Tier 2 processes, at which point CDOT and FHWA will evaluate, in greater detail, the associated wetland impacts as part of the decision making process.

Table 3.3-1: Comparison of Wetlands Impacts by Resource and Alternatives (acres)

Alternative	General Wetlands	Fens	Other Waters of the U.S.	Total Impacts
No Action	0.0	0.0	0.0	0.0
Minimal Action	5.6	0.0	9.0	14.6
Rail with IMC	10.0	0.0	15.5	25.5
AGS	4.6	0.0	10.8	15.4
Dual-Mode Bus in Guideway	7.2	0.0	11.7	18.9
Six-Lane Highway (55 mph)	9.0	0.0	11.4	20.4
Six-Lane Highway (65 mph)	9.1	0.0	12.4	21.5
Reversible/HOV/HOT Lanes	10.6	0.0	13.0	23.6
Combination Six-Lane Highway with Rail and IMC	17.2	0.0	19.4	36.6
Combination Six-Lane Highway with AGS	13.3	0.0	17.4	30.7
Combination Six-Lane Highway With Diesel Bus in Guideway	14.5	0.0	18.0	32.5

3.3. Wetlands and Other Waters of the U.S.

Alternative		General Wetlands	Fens	Other Waters of the U.S.	Total Impacts
Preferred Alternative ¹	55 mph	6.5 to 13.3	0.0	9.3 to 17.4	15.8 to 30.7
	65 mph	6.5 to 13.3	0.0	11.4 to 19.0	17.9 to 32.3

¹The Preferred Alternative is presented as a range because the adaptive management component allows it to be implemented based on future needs and associated triggers for further action. Section 2.7.2 describes the triggers for implementing components of the Preferred Alternative.

Key to Abbreviations/Acronyms

AGS = Advanced Guideway System

IMC = Intermountain Connection

HOV = high occupancy vehicle

HOT = high occupancy toll

mph = miles per hour

All of the Action Alternatives result in impacts on wetlands and other waters of the U.S. The least amount of impact is associated with the Minimal Action Alternative (14.6 acres), and the greatest impact with the Combination Six-Lane Highway with Rail and Intermountain Connection Alternative (36.6 acres). The Preferred Alternative results in impacts between 15.8 acres and 32.3 acres, which is comparable to nearly all other Action Alternatives, representing neither the lowest nor the highest amount of impact. Of the alternatives that meet the project purpose and need, the Preferred Alternative has the least amount of impacts under the 55mph design option.

All Action Alternatives avoid direct impacts to fens. This conclusion will be updated through an inventory of wetlands and fens completed during Tier 2 processes.

How do the alternatives indirectly affect wetlands and other waters of the U.S.?

Indirect impacts on wetlands, including fens, include erosion and sedimentation from winter sanding and effects associated with possible induced growth associated with Action Alternatives, as presented in Section 3.7, Land Use and Right of Way of this document. All Action Alternatives, except the Minimal Action Alternative, induce varying levels of growth in the Eagle River sub-basin. Induced growth causes additional impacts on wetlands, including fens, and other waters of the U.S. due to encroachment/loss and construction impacts (erosion/sedimentation). Sedimentation is an existing problem in the Corridor, and all of the Action Alternatives could contribute to that problem during construction. However, through implementation of the mitigation recommendations developed by the SWEEP Committee, all Action Alternatives improve the ecological condition of streams and wetlands within the Corridor.

Another indirect impact from induced growth in the Corridor is the increase of stormwater runoff to wetlands, including fens, and other waters of the U.S. Increased stormwater runoff increases the level of pollutants entering wetland systems, surface flows into adjacent streams, and the creation of channels in wetlands that were previously free of channelization.

Importing water to accommodate increased water supply demands from induced growth increases the flow of water in waterways. This increased flow potentially destabilizes streambanks throughout the Corridor. A more detailed analysis of indirect impacts on wetlands and other waters of the U.S. will be conducted during Tier 2 processes.

Winter traction sanding, deicing operations, and erosion along the Corridor have been identified as impairments to wetlands, including fens, and water quality. Sediment loading in wetlands due to erosion and sanding operations degrades the natural function of wetlands and degrades water quality in rivers, creeks, streams, reservoirs, and lakes. Means to reduce the impacts of winter sanding operations to area streams are currently being implemented in the Corridor. Sediment Control Action Plans are focusing on Black Gore Creek (Upper Eagle River sub-basin) and Straight Creek (Upper Blue River sub-basin) because these systems have already been adversely affected by traction sand. A Clear Creek Sediment

Control Action Plan is under development. The Colorado Transportation Commission identified these two creeks for immediate remediation action regardless of the outcome of this study. The Colorado Department of Transportation has led the effort and has coordinated with the Black Gore Creek Steering Committee and the Straight Creek Cleanup Committee. This action will result in new practices to provide a beneficial effect on many of the stream systems and associated wetlands along I-70. Other measures to address winter maintenance are currently being evaluated and include sand retrieval, automated deicing systems, and solar snow storage zones (CDOT, 2002a; CDOT, 2002b).

How does construction of the alternatives affect wetlands and other waters of the U.S.?

Impacts associated with the footprint of the project are considered permanent because the transportation facility (such as additional traffic lanes, rail, or guideways) covers the given resource. Impacts associated with construction disturbance are considered temporary because this area could later be reclaimed, with the exception of fens. Due to the unique hydrology and soil composition of fens, construction impacts to fens would be considered permanent.

In addition to causing losses of wetlands, construction of Action Alternatives has the potential to affect wetlands adjacent to and downstream from the alternatives. Changes in hydrological regime and water quality can cause changes in plant dispersal and survival, leading to plant community shifts over time and resulting in effects on an entire ecosystem's function.

What are the project effects on wetlands and other waters of the U.S. in 2050?

By 2050, climate change, continued development, and changing water supply demands in the Corridor could affect both groundwater and surface water levels, potentially contributing to the existing trend of loss and degradation of wetlands. As a result, the wetland acreage present at the time of construction impacts may be less than the current condition, resulting in the Action Alternatives impacting less wetland acreage than currently estimated. Because the Action Alternatives contribute to the existing trend of loss and degradation of wetlands in the Corridor, extending the timeframe for construction impacts out to 2050 allows the wetlands to exist in and contribute to the biological system for additional time. This benefits the biological system in the short-term.

For more information on cumulative effects, see **Chapter 4, Cumulative Impacts Analysis**.

3.3.6 What will be addressed in Tier 2 processes?

Tier 2 processes will include the following:

- A delineation of all wetlands in each project area, using the latest approved USACE methodology.
- Identification and analysis of impacts to fens for each specific project and in-depth field studies to identify potentially affected fens. In such cases, project plans will need to be modified to avoid affecting these areas.
- Functional Assessment of wetlands within the Corridor using the Functional Assessment of Colorado Wetlands (FACWet) Methodology.
- Analysis to separate jurisdictional and non-jurisdictional wetlands for permitting the specific alternative.
- A more detailed analysis of direct and indirect impacts on wetlands and other waters of the U.S.
- Development of specific and detailed mitigation strategies and measures.
- Development of specific best management practices for each project.

3.3. Wetlands and Other Waters of the U.S.

3.3.7 What are the approaches to programmatic mitigation planning for wetlands and other waters of the U.S.?

At the first tier, the mitigation focuses on avoidance and minimization of impacts. Impact avoidance and minimization strategies are incorporated into the development of Action Alternative alignments and design concepts. However, while mitigation activities avoid and minimize impacts, some impacts on Corridor wetlands and other water resources are likely. **Section 3.19, Mitigation Summary**, also provides a discussion of mitigation strategies.

The Colorado Department of Transportation is committed to implementing the SWEEP Memorandum of Understanding as the foundation of mitigation for aquatic resource impacts during projects along the Corridor and its communities (see **Appendix D, SWEEP Memorandum of Understanding**). The SWEEP Committee will identify and recommend appropriate mitigation strategies, including design, implementation, and monitoring to anticipate environmental impacts resulting from redevelopment of the Corridor. The SWEEP Committee will coordinate with the ALIVE (A Landscape Level Inventory of Valued Ecosystem Components) Committee to increase the permeability of the I-70 Mountain Corridor to terrestrial and aquatic species to provide and maintain long-term protection and restoration of wildlife linkage areas, improve habitat connectivity, and preserve essential ecosystem components.

Avoidance and Minimization Efforts for the First Tier

- Conceptual planning for roadway alignment and to reduce alternative template width
- Use of existing I-70 Mountain Corridor area
- Snow storage areas located to capture snow and roadway runoff
- Modification of Rail with Intermountain Connection and Advanced Guideway System alignments to avoid impacts on wetlands

Overall, mitigation strategies provide the opportunity to reduce impacts and enhance wetland environments in the Corridor. Impacts on wetlands and other waters of the U.S. will be addressed more specifically for each project evaluated during Tier 2 processes. Additionally, CDOT's policy is to mitigate all impacts on a one-to-one per acre basis, regardless of whether the wetland is jurisdictional or non-jurisdictional. The Colorado Department of Transportation owns the Clear Creek Mitigation Bank, which has been set aside for wetland mitigation. This site is located just west of US 40.