

5.15 Wetlands and Other Waters of the U.S.

This section discusses wetlands and other waters of the U.S. in the study area and explains why these resources are important to the project. The impacts of the project alternatives on wetlands and other waters of the U.S. also are evaluated and proposed mitigation measures are discussed to offset any potential adverse effects.

5.15.1 What are wetlands and other waters of the U.S. and why are they important to this project?

Wetlands are specifically defined as areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and other similar areas. Wetland boundaries are delineated (defined) by the presence of hydrophytic vegetation (plant life that thrives in wet conditions) and soil, in addition to the presence of hydrological indicators (USACE, 1999).

The term “waters of the U.S.” generally is defined as all waters that are currently used, were used in the past, or may be susceptible to use in interstate or foreign commerce. According to 33 CFR §328, this includes the territorial seas, intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, wetlands adjacent to waters, sloughs, wet meadows, natural ponds, and all tributaries of those waters. These waters are referred to as jurisdictional waters. The boundaries of waters of the U.S., other than wetlands, are delineated by their bed, bank, and ordinary high water mark.

Wetlands and waters of the U.S. are important to this project for several reasons, including providing water quality improvement from runoff into the local watershed, flood protection, and erosion control. The other waters of the U.S. within the project area—the South Platte River and Sand Creek—provide water for human consumption and for recreation, and create integral habitat for fish and wildlife species within the area.

5.15.2 Have there been any changes to wetlands and other waters of the U.S. in the study area or to the analysis process since the release of the 2008 Draft EIS?

Because of the length of time between the release of the 2008 Draft EIS and this Supplemental Draft EIS, the wetlands and other waters of the U.S. within the study area were re-

Who governs the use of wetlands and other waters of the U.S.?

Anyone dredging or filling waters of the U.S. must obtain a permit from the U.S. Army Corps of Engineers.

delineated in 2012. The survey conducted in 2012 takes precedence over the previous survey that was used in the 2008 Draft EIS. As a result of this recent survey, previously identified wetland boundaries were modified, new wetlands were identified, and some previously identified wetlands were determined to no longer exist and were removed from the analysis. Additionally, the revised and new project alternatives have different impacts on wetlands and other waters of the U.S. in the study area.

In 2010, USACE issued new guidance for delineating (defining the boundaries of) wetlands in the Great Plains region (Denver and the project area are in this region) to supplement the *1987 Wetlands Delineation Manual*. This new guidance was used to delineate wetlands in the study area. At the time of the 2008 Draft EIS wetland delineations, CDOT did not have a wetland assessment method; therefore, a modified Montana Wetland Assessment Method was used. CDOT has since developed a wetland assessment method called the Functional Assessment of Colorado Wetlands (FACWet), which was used during the 2012 delineation.

5.15.3 What study area and evaluation process were used to analyze wetlands and other waters of the U.S. in the study area?

The study area reviewed for wetlands and wetland impacts occurs within 50 feet of the existing edge of pavement or within 50 feet of the proposed construction limits (Exhibit 5.15-1). One exception to this is in the Sand Creek area, north of I-70, where the project extends from I-70 northward to East 47th Avenue.

Wetland functions were assessed using CDOT's FACWet method. FACWet is a rapid assessment methodology that rates wetland condition by evaluating ecological stressors and their effects on nine state variables that drive wetland function. Stressors are used as indicators of functional impairment.

What does FACWet evaluate?

The following seven socially important functions are evaluated for this analysis (Johnson et al., 2011):

1. Support of characteristic wildlife habitat
2. Support of characteristic fish/aquatic habitat
3. Flood attenuation
4. Short- and long-term water storage
5. Nutrient/toxicant removal
6. Sediment retention/shoreline stabilization
7. Production export/food chain support

Exhibit 5.15-1. Wetlands and other waters of the U.S. in the study area



5.15.4 What are the existing conditions of wetlands and other waters of the U.S.?

The study area evaluated for wetlands and other waters of the U.S. lies entirely within developed urban areas. Due to the urban nature of the project corridor, hydrology has been altered in many areas. Streams throughout the study area have been channelized and the removal of meanders in streams has removed hydrology in areas that historically received creek overflow. Also, stormwater detention ponds and roadside drainages have been constructed to prevent flooding, creating wetland conditions in areas that historically were dry. Exhibit 5.15-1 shows the locations of the wetlands and other waters of the U.S. located in the study area.

Wetlands

Wetlands in the study area contain both emergent and scrub-shrub vegetation. Emergent wetlands primarily support herbaceous vegetation. Scrub-shrub wetlands support small trees and shrubs that are less than 20 feet in height. The characteristics of the existing plant communities vary, but dominant species are noted in the sidebar.

Jurisdictional wetlands within the study area are associated with the South Platte River and Sand Creek. Non-jurisdictional

Dominant wetland plant species in the study area

- Cattails (*Typha spp.*)
- Bulrushes (*Scirpus spp.*)
- Barnyard grass (*Echinochloa sp.*)
- Spikerushes (*Eleocharis spp.*)
- Smartweeds (*Polygonum spp.*)
- Western dock (*Rumex crispus*)
- Coyote willow (*Salix exigua*)
- Plains cottonwood trees (*Populus deltoides*)

wetlands, which are associated with stormwater detention basins and roadside ditches in the study area, generally lack a hydrologic connection to jurisdictional waters, so the USACE does not regulate them. The jurisdictional status for each wetland and water of the U.S. was determined based on the current guidance and approved by the USACE on July 9, 2013.

Mapped wetlands in the study area include nine scrub-shrub wetlands, four scrub-shrub/emergent wetlands, and 28 emergent wetlands totaling approximately 6.30 acres. Approximately 0.98 acre is considered jurisdictional and 5.32 acres are considered non-jurisdictional wetlands.

Other waters of the U.S.

Two major open water bodies are located within the study area: the South Platte River and Sand Creek. Both are considered jurisdictional waters.

South Platte River

The South Platte River is a perennial (continuous water flow) water body with a relatively large watershed. The primary sources of stream flow in the South Platte River include groundwater, snowmelt, precipitation, effluent discharge, and stormwater runoff. The river intersects I-70 just north of downtown Denver near the Globeville Neighborhood, where its banks have been highly disturbed. The existing spillway in Globeville Landing Park, which is connected to the river and serves as a stormwater detention pond, also is an open water body. Wetland and riparian areas were mapped adjacent to the river and the spillway.



South Platte River intersecting with I-70

Sand Creek

Sand Creek is a perennial stream with a relatively small watershed. The primary sources of stream flow are groundwater, precipitation, and stormwater runoff, although it may be influenced by effluent discharge and/or irrigation runoff. The creek crosses the project corridor west of the I-70/I-270 interchange. As with the South Platte River, Sand Creek also has been highly disturbed by urban development; however, the creek has retained more of a floodplain and wetland and riparian areas than the South Platte River through Denver.

The classification, jurisdictional status, and area of wetlands and other waters of the U.S. are provided in Attachment N, *Wetlands and Other Waters of the U.S. Technical Report*.

5.15.5 How do the project alternatives potentially impact wetlands and other waters of the U.S.?

An analysis of the potential impacts on wetlands and other waters of the U.S. was conducted for each alternative and option. The Build Alternatives result in greater impacts to wetlands and other waters of the U.S. than the No-Action Alternative and, therefore, they are discussed in greater detail.

The majority of impacts associated with the Build Alternatives will be permanent. Permanent impacts result from construction activities—specifically, placement of bridge piers, fill, and new roadway where a complete change in functionality of a wetland or other waters of the U.S. occurs.

Temporary impacts include those that temporarily alter the function of wetlands and other waters of the U.S. due to modification or disturbance during construction. These effects result from vegetation removal, soil exposure, and construction activities taking place in or adjacent to wetlands. These effects can be mitigated and returned to their pre-construction condition after construction activities are complete, if proper management is applied.

The No-Action Alternative will have no impacts to wetlands, but will have minor impacts to other waters of the U.S. The construction of the onsite drainage system north of I-70 will result in 0.001 acre of temporary impact to the South Platte River channel.

With the Build Alternatives, a total of 0.001 acre of jurisdictional impacts and 4.110 acres of non-jurisdictional, permanent wetland impacts are anticipated, as shown in Exhibit 5.15-2. (Note that the exhibit only shows wetlands impacted by the project). Temporary impacts to wetlands also will occur. The Build Alternatives temporarily impact an estimated 0.1 acre of jurisdictional wetlands and roughly 0.195 acre of non-jurisdictional wetlands.

The Build Alternatives also are anticipated to impact a total of 0.0001 acre permanently and 1.194 acres temporarily of the Sand Creek channel. The channel of Sand Creek is considered non-vegetated open water and creek bed, which is not classified as a wetland but is referred to as other waters of the U.S. The permanent impact will be caused by the installation of a bridge

pier. At the South Platte River, impacts in the river channel will occur from storm drain construction north and south of I-70. As with the No-Action Alternative, the onsite drainage system will cause 0.001 acre of temporary impact to the South Platte River channel. With the Partial Cover Lowered Alternative, an additional 0.012 acre of permanent impact to the South Platte River will result from construction of the offsite drainage system south of I-70. Impacts are summarized in Exhibit 5.15-3.

Exhibit 5.15-2. Impacts to wetlands in the study area¹

Jurisdictional or Non-Jurisdictional	Feature ID ²	Build Alternatives (acres)	
		Perm.	Temp.
Jurisdictional (Sand Creek Fringe)	WET278-09	0.001	0.066
	WET278-10	—	0.005
	WET278-11	—	0.014
	WET278-12	—	0.015
Jurisdictional Total		0.001	0.100
Non-jurisdictional (Stormwater basins)	WET279-01	1.053	0.095
	WET280-01	0.005	0.012
	WET280-02	0.008	0.012
	WET280-04	0.236	—
	WET281-07	0.094	0.068
	WET282-01	2.609	—
Non-jurisdictional (Roadside ditches)	WET280-05	0.001	0.005
	WET280-08	0.012	—
	WET281-01	0.024	—
	WET281-02	0.004	—
	WET281-03	0.022	—
	WET281-04	0.008	—
	WET281-05	0.024	—
	WET281-06	0.010	0.003
	WET284-01	—	—
	WET285-02	—	—
Non-jurisdictional Total		4.110	0.195
Total Wetland Impacts (jurisdictional and non-jurisdictional)		4.111	0.295

Note: Impacts were calculated based on conceptual design and are subject to change.

¹The No-Action Alternative has no wetland impacts; therefore, this table only reflects the Build Alternatives and associated options.

²This ID corresponds to wetlands mapped and discussed in the Wetlands and Other Waters of the U.S. Technical Report.

Exhibit 5.15-3. Impacts to other waters of the U.S. in the study area (all jurisdictional)

Waterbody	Feature ID ¹	No-Action Alternative (acres) ²		Revised Viaduct Alternative (acres) ²		Partial Cover Lowered Alternative (acres) ²	
		Perm.	Temp.	Perm.	Temp.	Perm.	Temp.
South Platte River	OW-N_Culv	—	0.001	—	0.001	—	0.001
	OW-S_Culv	—	—	—	—	0.012	—
Sand Creek	OW278-01	—	—	0.0001	1.194	0.0001	1.194
Total Other Waters of the U.S. Impacts		—	0.001	0.0001	1.195	0.012	1.195

Note: Impacts were calculated based on conceptual design and are subject to change.

¹This ID corresponds to wetlands mapped and discussed in the Wetlands and Other Waters of the U.S. Technical Report.

²Impact totals are applicable to all options associated with the No-Action and Build Alternatives.

5.15.6 Can impacts to wetlands and other waters of the U.S. be avoided? If not, how were impacts minimized?

The No-Action Alternative has unavoidable impacts to other waters of the U.S. (South Platte River) due to the need for a storm drain outfall, but avoids all impacts to wetlands. Due to the nature of the Build Alternatives, each alternative results in unavoidable wetland and other waters of the U.S. impacts. A number of measures were implemented for each design option to reduce the overall footprint of the roadway improvements; however, only one of these resulted in a reduction in impacts to wetlands. The proposed onsite outfall for the storm drain on the north side of I-70 with the No-Action and Build Alternatives was realigned to discharge to the South Platte River instead of the existing Burlington Ditch/O'Brien Canal, where there were no wetlands identified.

5.15.7 How are the negative effects from the project alternatives mitigated for wetlands and other waters of the U.S.?

Per CDOT policy, all permanently impacted wetlands—both jurisdictional and non-jurisdictional—will be replaced at a 1:1 ratio. Based on current estimates for the Build Alternatives, a total of 4.1 acres of compensatory mitigation will be required. At this time, it is planned that unavoidable impacts will be mitigated at a wetland mitigation bank in the South Platte River watershed. Non-jurisdictional wetlands also may form at planned new stormwater detention facilities, but these are not currently included in proposed mitigation measures. Wetlands and other waters of the U.S. temporarily impacted by both the

No-Action Alternative and Build Alternatives will be returned to pre-construction conditions after construction is complete.

The following mitigation measures will be implemented during and after construction of a preferred alternative to avoid or minimize effects to wetlands and other waters of the U.S.:

- Temporary erosion control and sediment control best management practices (BMPs) will be installed before ground disturbing activities. Completed areas will be permanently stabilized within 7 days. Proposed BMPs are listed in the *Wetlands and Other Waters of the U.S. Technical Report*.
- Wetlands temporarily affected during construction will be restored to pre-construction conditions.

All contractors will be required to consider methods, where feasible, to limit the effects of construction on water resources, as listed in the *Wetlands and Other Waters of the U.S. Technical Report* provided in Attachment N.

Permitting

All alternatives will require a Section 404 permit. It is likely that a Nationwide Permit 14 (Linear Transportation Projects) will permit the project because impacts to jurisdictional wetlands are less than 0.5 acre. In addition, Senate Bill 40 certification from Colorado Parks and Wildlife, and completion of an internal Wetland Finding, also will be required. CDOT will complete the Senate Bill 40, Wetland Finding, and obtain a permit from the USACE before starting work. Completion of the 404/NEPA merger process is currently not needed because of the limited amount (less than 0.01 acre) of permanent impact to jurisdictional wetlands. This will be revisited in the event additional jurisdictional impacts are identified.

Exhibit 5.15-4 summarizes impacts to wetlands and other waters of the U.S. and outlines mitigation.

Exhibit 5.15-4. Summary of wetlands and other waters of the U.S. impacts and mitigations

Alternative/ Option	Impacts and/or Benefits	Mitigation Measures Applicable to All Alternatives
No-Action Alternative	<ul style="list-style-type: none"> • No permanent wetland or other waters of the U.S. impacts • 0.001 acre of temporary impact to other waters of the U.S. 	<ul style="list-style-type: none"> • Mitigate unavoidable, permanent impacts at a 1:1 ratio in a wetland mitigation bank in the South Platte River watershed • Install temporary erosion control and sediment control BMPs before ground disturbing activities; stabilize completed areas permanently within 7 days; proposed BMPs are listed in the <i>Wetlands and Other Waters of the U.S. Technical Report</i> • Restore wetlands temporarily affected during construction to pre-construction conditions
Revised Viaduct Alternative	<ul style="list-style-type: none"> • 4.111 acres of permanent and 0.295 acre of temporary wetland impacts • 0.0001 acre of permanent and 1.195 acre of temporary impacts to other waters of the U.S. impacts 	
Partial Cover Lowered Alternative	<ul style="list-style-type: none"> • 4.111 acres of permanent and 0.295 acres of temporary wetland impacts • 0.012 acre of permanent and 1.195 acre of temporary impacts to other waters of the U.S. impacts 	
Managed Lanes Option (option to Build Alternatives)	No additional permanent or temporary wetland or other waters of the U.S. impacts	

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