

3.3.2 Wetlands and Other Waters

Regulatory Setting

Wetlands and other waters are protected under a number of laws and regulations. At the federal level, the Federal Water Pollution Control Act, more commonly referred to as the Clean Water Act (CWA) (33 U.S. Code 1344), is the main law regulating wetlands and surface waters. One purpose of the CWA is to regulate the discharge of dredged or fill material into waters of the United States, including wetlands. Waters of the U.S. include navigable waters, interstate waters, territorial seas and other waters that may be used in interstate or foreign commerce. To classify wetlands for the purposes of the CWA, a three-parameter approach is used that includes the presence of: hydrophytic (water-loving) vegetation, wetland hydrology, and hydric soils (soils formed during saturation/inundation). All three parameters must be present, under normal circumstances, for an area to be designated as a jurisdictional wetland under the Clean Water Act.

Section 404 of the CWA establishes a regulatory program that provides that discharge of dredged or fill material cannot be permitted if a practicable alternative exists that is less damaging to the aquatic environment or if the nation's waters would be significantly degraded. The Section 404 permit program is run by the U.S. Army Corps of Engineers (USACE) with oversight by the U.S. Environmental Protection Agency (EPA).

The USACE issues two types of 404 permits: General and Standard permits. There are two types of General Permits: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effects. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are two types of Individual permits: Standard permits and Letters of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of the USACE' Standard permits. For Standard permits, the USACE's decision to approve is based on compliance with EPA's Section 404(b)(1) guidelines (EPA 40 CFR Part 230), and whether permit approval is in the public interest. The Section 404(b)(1) guidelines were developed by the EPA in conjunction with the USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the United States) only if there is no practicable alternative that would have less adverse effect. The guidelines state that the USACE may not issue a permit if there is a least environmentally damaging practicable alternative to the proposed discharge that would have fewer effects on waters of the U.S., and not have any other significant adverse environmental consequences.

The Executive Order for the Protection of Wetlands (11990) also regulates the activities of federal agencies with regard to wetlands. Essentially, EO 11890 states that a federal agency, such as the FHWA and/or Caltrans, as assigned, cannot undertake or provide assistance for new construction located in wetlands unless the

head of the agency finds: (1) that there is no practicable alternative to the construction and (2) the proposed project includes all practicable measures to minimize harm.

At the state level, wetlands and waters are regulated primarily by the California Department of Fish and Wildlife (CDFW), the State Water Resources Control Board (SWRCB) and the Regional Water Quality Control Board (RWQCB). Sections 1600-1607 of the California Fish and Game Code require any agency that proposes a project that will substantially divert or obstruct the natural flow of or substantially change the bed or bank of a river, stream, or lake to notify the CDFW before beginning construction. If the CDFW determines that the project may substantially and adversely affect fish or wildlife resources, a Lake or Streambed Alteration Agreement will be required. CDFW jurisdictional limits are usually defined by the tops of the stream or lake banks, or the outer edge of riparian vegetation, whichever is wider. Wetlands under jurisdiction of the USACE may or may not be included in the area covered by a Streambed Alteration Agreement obtained from the CDFW.

RWQCBs were established under the Porter-Cologne Water Quality Control Act to oversee water quality. The RWQCBs also issue water quality certifications for impacts to wetlands and waters in compliance with Section 401 of the CWA. See the Water Quality section for more details.

Affected Environment

Information in this section comes from the *Natural Environment Study* (August, 2014) and the *Jurisdictional Determinations* contained in Appendix H of the *Natural Environment Study*.

Survey Results for Jurisdictional Waters

To determine the estimated acreages of jurisdictional features associated with an alternative/variation/option, calculations are divided to differentiate between the main alignment common areas, the main alignment corresponding to the variations, the variations, and the rail options (see Figure 3.3-1 Alignment Key Map for Biological Study Area). These acreages should be considered preliminary until designs are finalized and jurisdiction is verified by USACE, SWRCB, and CDFW.

A combined total of approximately 134.074 acres of hydrological features were mapped within the BSA inclusive of all variations to the proposed alternatives.

Freeway/Expressway Alternative

Potentially jurisdictional waters identified under this alternative will be separated by USACE, SWRCB and CDFW jurisdiction. The jurisdictional waters will then be further discussed by the Main Alignment common areas, by Main A, B, D, E, and by Variations A, B, B1, D, and E.

Approximately 121.18 acres of hydrological features were mapped within the BSA inclusive of all variations to the Freeway/Expressway Alternative.

Freeway/Tollway Alternative

Potentially jurisdictional waters identified under this alternative would be the same as the jurisdictional waters identified under the Freeway/Expressway Alternative (with Main Alignment common areas, Main A, B, D, E, and Variations A, B, B1, D, and E). This alternative follows the same footprint as the Freeway/Expressway alternative, but it would have sections that operate as a tollway.

Freeway/Expressway with HSR Alternative

Potentially jurisdictional waters identified under this alternative will be separated by USACE, SWRCB and CDFW jurisdiction. The jurisdictional waters will then be further discussed by the Main Alignment common areas, Rail Option 1, Rail Option 7, and by Main B, D, E, and Variations B, B1, D, and E with HSR Feeder Service.

Approximately 134.07 acres of hydrological features were mapped within the BSA inclusive of all variations to the Freeway/Expressway with HSR alternative.

Freeway/Tollway Alternative with HSR Alternative

Potentially jurisdictional waters identified under this alternative would be the same as the jurisdictional waters identified under the Freeway/Expressway Alternative with the HSR Feeder Service (with Main Alignment common areas, Rail Option 1, Rail Option 7, Main B, D, E, and Variations B, B1, D, and E with HSR Feeder Services). This alternative follows the same footprint as the Freeway/Expressway Alternative, but it would have sections that operate as a tollway.

Literature Review for Jurisdictional Waters

Upon further analysis, several of the hydrological features are identified as non-jurisdictional under USACE, SWRCB, or CDFW. These isolated and erosional features only flow during intense storms and vary in their lack of hydrophytic vegetation, ordinary high water mark (OHWM), and hydrological or biological functions. Caltrans identified one perennial stream (the Mojave River) and four of its ephemeral tributaries jurisdictional under USACE and SWRCB. CDFW will take jurisdiction over the Mojave River and its tributaries in addition to several isolated ephemeral washes occurring within the project footprint.

USACE and SWRCB Jurisdiction

Approximately 87.37 acres within the BSA of the Freeway/Expressway and Freeway/Tollway alternative and approximately 83.165 acres within the BSA of the alternatives with HSR that flow through the following HUC sub-watersheds either evaporate or percolate into the groundwater table: Apple Valley Dry Lake; Sheep Creek-El Mirage Lake; Le Montaine Creek-Eller Slough; Mescal Creek-Rocky Buttes; Big Rock Creek-Big Rock Wash; Rock Creek-Buckhorn Lake; Town of Pearblossom; Little Rock Wash; Rosamond Lake; Lake Palmdale-Piute Ponds; and Amargosa Creek.

The Rosamond dry lake, Buckhorn dry lake, Rogers dry lake, El Mirage dry lake, and Apple Valley dry lake serve as the downstream hydrological terminus to these

isolated intermontane basins (USACE, 2010; 2011a; 2011b; 2013). These dry lake systems are isolated waters without a surface connection and are considered non-jurisdictional waters of the U.S. (*Natural Environment Study, 2014*).

Within the BSA, several unnamed ephemeral dry washes occurring in the Lower Fremont Wash, Upper Fremont Wash, and Bell Mountain-Mojave River HUC sub-watersheds are characterized by short duration flows of storm surges and flash floods. A USACE-approved jurisdictional determination within the same Mojave watershed of numerous unnamed ephemeral streams 3.8 miles south of the BSA were considered non-jurisdictional under the Solid Waste Agency of Northern Cook County (SWANCC) (USACE, 2012) Caltrans concludes that numerous unnamed ephemeral dry washes downstream of these non-jurisdictional washes have the same flow regime that abate into the landscape. As such, they have no hydrological or ecological surface connections to the Mojave River and should be considered non-jurisdictional WUS under SWANCC (2001). Approximately 87.37 acres within the BSA of the Freeway/Expressway and Freeway/Tollway alternatives and approximately 83.165 acres within the BSA of the alternatives with HSR are considered non-jurisdictional WUS.

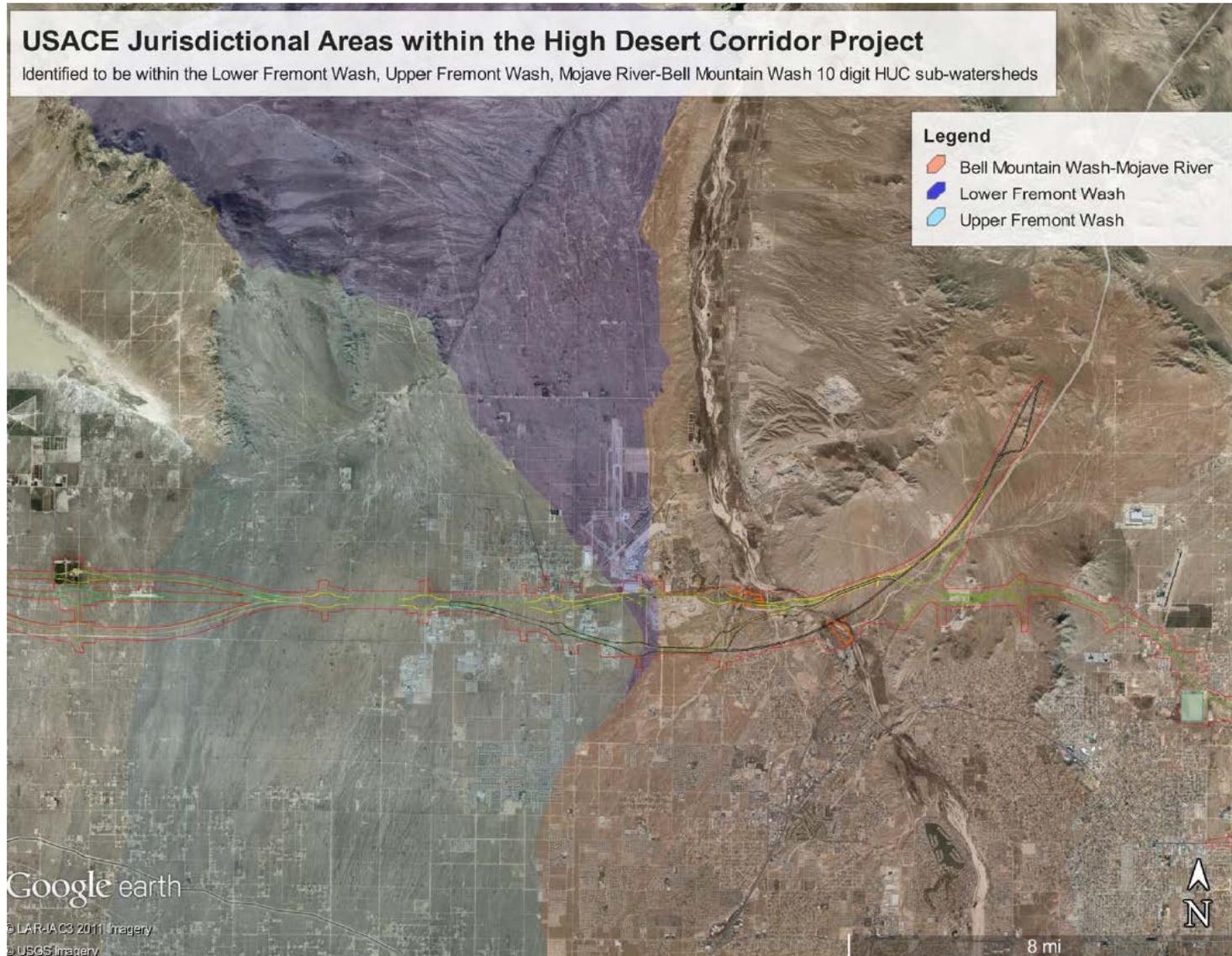
The Mojave River is an intermittent stream that is considered the largest USACE-determined waters of the U.S. within the project due to its downstream muted hydrological connection to Silver Lakes (two manmade navigable lakes in the city of Helendale). Due to this hydrological connection and that portions of the Mojave River within the BSA are perennial due to local geology through the area known as “the narrows” (ECORP, 2013), the Mojave River qualifies as a navigable water of the U.S. under 33 CFR § 329 and meets the definition of a traditional navigable water (TNW). Several ephemeral tributaries to the Mojave River that meet the definition of non-relatively permanent waters (non-RPWs) include Fremont Wash, an unnamed tributary to Fremont Wash, Turner Wash, Ossom Wash, and Bell Mountain Wash. These waters of the U.S. drainages are within the Upper Fremont Wash and Mojave River-Bell Mountain Wash HUC sub-watersheds (see Figure 3.3.2-1).

Freeway/Expressway and Freeway/Tollway Alternatives

Main Alignment/Common Areas

Within the BSA of the Main Alignment common areas, potential USACE jurisdictional features are identified as those within the Upper Fremont Wash and Bell Mountain-Mojave River 10-digit HUC sub-watersheds. Fremont Wash and Bell Mountain Wash are ephemeral non-RPWs identified as the USACE jurisdictional features within the main alignment common areas due to their downstream connections to the Mojave River. Approximately 15.984 acres within the Main Alignment/Common Areas are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives.

Figure 3.3.2-1 USACE Jurisdictional Areas within High Desert Corridor Project



Variation A

Potential USACE jurisdictional features were not identified within the BSA of the main alignment corridor corresponding to Variation A (a so-called Variation A Main alignment). The Rosamond dry lake, Buckhorn dry lake, Rogers dry lake serve as the downstream hydrological terminus to the washes within the isolated intermontane basins (USACE 2010, USACE 2011a). These dry lake systems are isolated waters without a surface connection and are considered non-jurisdictional WUS (AMEC 2012, ICF 2012, ECORP 2013). Approximately 16.306 acres within Variation A Main alignment are considered non-jurisdictional WUS for the Freeway/Expressway (Freeway/Tollway) Alternative. Approximately 27.926 acres within Variation A alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives.

Variation B

Potential USACE jurisdictional features identified within the Variation include Fremont Wash and its contributing unnamed washes. The El Mirage dry lake serves as the downstream hydrological terminus to the washes within the isolated intermontane basin for numerous drainages (USACE 2011b). This dry lake system within the Sheep Creek-El Mirage Lake 10 digit HUC watershed is considered an isolated water without a surface connection and is considered non-jurisdictional WUS (USACE 2011b). Approximately 1.665 acres within the main alignment corridor corresponding to Variation B (a so-called Variation B Main) are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives. Approximately 1.541 acres within Variation B alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives. Approximately 2.166 acres within Variation B1 alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives.

Variation D

Potential USACE jurisdictional features were not identified within the BSA of the main alignment corridor corresponding to Variation D (a so-called Variation D Main alignment) and Variation D alignment. The Rosamond dry lake, Buckhorn dry lake, and Rogers dry lake serve as the downstream hydrological terminus to the washes within the isolated intermontane basins (USACE, 2010; 2011a; 2011b; 2013). These dry lake systems are isolated waters without a surface connection and are considered non-jurisdictional waters of the U.S. (AMEC, 2012; ICF, 2012; ECORP, 2013). Approximately 3.633 acres within Variation D Main alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives. Approximately 1.941 acres within Variation D alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives.

Variation E

Within the BSA of the main alignment corridor corresponding to Variation E (a so-called Variation E Main alignment) and Variation E alignment, TNW Mojave River is perennial and is considered a USACE jurisdictional feature, along with several of its ephemeral non-RPW tributaries; these include Turner Wash and Ossom Wash.

Approximately 2.97 acres within Variation E Main alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives. Approximately 12.91 acres within Variation E alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway alternatives.

Summary

Approximately 121.18 acres of hydrological features were mapped within the BSA inclusive of all variations to the Freeway/Expressway Alternative. Of these hydrological features, approximately 87.37 acres within the BSA are considered non-jurisdictional WUS.

Approximately 33.81 acres within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway alternatives are considered under USACE jurisdiction.

Freeway/Expressway and Freeway/Tollway with HSR Alternatives

Main Alignment/Common Areas

Within the BSA of the Main Alignment common areas, potential USACE jurisdictional features are identified as those within the Upper Fremont Wash, and Bell Mountain-Mojave River 10-digit HUC sub-watershed. Fremont Wash and Bell Mountain Wash are ephemeral non-RPWs identified as the USACE jurisdictional features within the main alignment common areas due to their downstream connections to the Mojave River. Approximately 60.138 acres within the Main Alignment/Common areas are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives.

Rail Option 1

Potential USACE jurisdictional features were not identified within the BSA of Rail Option 1. The Rosamond dry lake, Buckhorn dry lake, and Rogers dry lake serve as the downstream hydrological terminus to the washes within the isolated intermontane basins (USACE, 2010; 2011a). These dry lake systems are isolated waters without a surface connection and are considered non-jurisdictional waters of the U.S. (AMEC, 2012; ICF, 2012; ECORP, 2013). Approximately 4.356 acres within Rail Option 1 are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives.

Rail Option 7

Potential USACE jurisdictional features were not identified within the BSA of Rail Option 7. The Rosamond dry lake, Buckhorn dry lake, and Rogers dry lake serve as the downstream hydrological terminus to the washes within the isolated intermontane basins (USACE, 2010; 2011a). These dry lake systems are isolated waters without a surface connection and are considered non-jurisdictional waters of the U.S. (AMEC, 2012; ICF, 2012; ECORP, 2013). Approximately 3.437 acres within Rail Option 7 are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives.

Variation B

Potential USACE jurisdictional features identified within Variation B Main alignment include Fremont Wash and its contributing unnamed washes. The El Mirage dry lake serves as the downstream hydrological terminus to the washes within the isolated intermontane basin for numerous drainages (USACE 2011b). This dry lake system is considered an isolated water without a surface connection and is considered non-jurisdictional WUS (USACE 2011b). Approximately 1.989 acres within Variation B Main alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives. Approximately 1.784 acres within Variation B alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives. Approximately 2.411 acres within Variation B1 are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives.

Variation D

Potential USACE jurisdictional features were not identified within the BSA of the main alignment corridor corresponding to Variation D (a so-called Variation D Main). The Rosamond dry lake, Buckhorn dry lake, Rogers dry lake serve as the downstream hydrological terminus to the washes within the isolated intermontane basins (USACE 2010, USACE 2011a, USACE 2011b, USACE 2013). These dry lake systems are isolated waters without a surface connection and are considered non-jurisdictional WUS (AMEC 2012, ICF 2012, ECORP 2013). Approximately 4.214 acres within Variation D Main alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives. Approximately 2.423 acres within Variation D alignment are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives

Variation E with Rail XpressWest Connection

Within the BSA of the main alignment corridor corresponding to Variation E (a so-called Variation E Main)E with HSR Feeder Service, Mojave River is perennial and is considered a USACE jurisdictional feature along with several of its ephemeral non-RPW tributaries; these include Turner Wash, Ossom Wash and Bell Mountain Wash. Approximately 5.669 acres within Main E are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives. Approximately 18.250 acres within Variation E are considered non-jurisdictional WUS for the Freeway/Expressway and Freeway/Tollway with HSR alternatives.

Summary

Approximately 134.07 acres of hydrological features were mapped within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway with HSR alternatives. Of these hydrological features, approximately 83.165 acres within the BSA are considered non-jurisdictional WUS.

Approximately 50.905 acres within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway with HSR alternatives are considered under USACE jurisdiction.

SWRCB Jurisdiction

Under CWA Section 401, SWRCB takes jurisdiction over CWA Section 404 USACE jurisdictional features, as well as SWRCB jurisdictional features identified as waters of the State under the Porter-Cologne Act.

Surveys conducted along the main alignment within the Big Rock Creek-Big Rock Wash 10-digit HUC watershed identified a potential waters of the U.S./waters of the State wetland (ICF, 2012). Further analysis concluded that the wetland lacked hydric soils and would not be considered SWRCB jurisdictional under the Porter-Cologne Act.

Common to All Alternatives/Variations/Options

Within the BSA, SWRCB jurisdictional features are the same as the USACE jurisdictional features for all of the alternatives, variations, and options. The Mojave River, Fremont Wash, an unnamed tributary to Fremont Wash, Turner Wash, Ossom Wash, and Bell Mountain Wash are considered SWRCB waters of the State (see Figure 3.3.2-2).

Approximately 121.18 acres of hydrological features were mapped within the BSA inclusive of all variations to the Freeway/Expressway alternative. Of these hydrological features, approximately 87.37 acres within the BSA are considered non-jurisdictional SWRCB WSC.

Approximately 33.81 acres within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway alternatives are considered under SWRCB jurisdiction.

Approximately 134.07 acres of hydrological features were mapped within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway with HSR alternatives. Of these hydrological features, approximately 83.165 acres within the BSA are considered non-jurisdictional SWRCB WSC.

Approximately 50.905 acres within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway with HSR alternatives are considered under SWRCB jurisdiction.

CDFW Jurisdiction

Under the California Fish and Game Code § 1600-1603, CDFW takes jurisdiction over any alteration of a river, stream, or lake where fish or wildlife resources may be substantially adversely affected. Streams (and rivers) are defined by the presence of a channel bed and banks, and at least an ephemeral flow of water.

Common to All Alternatives/Variations/Options

Within the BSA, the Mojave River and its tributaries, along with Little Rock Wash, Big Rock Wash, Grandview Canyon Creek, Graham Canyon Creek, Mescal Creek, Sheep Creek, several associated state-determined wetlands, and numerous isolated unnamed ephemeral washes, are considered CDFW waters of the State (see Figure 3.3.2-3). These drainages are located within the following 10-digit HUC watersheds: Amargosa Creek, Lake Palmdale-Piute Ponds, Rosamond Lake, Little Rock Wash, Town of Pearblossom, Rock Creek-Buckhorn Lake, Big Rock Creek-Big Rock Wash, Le Montaine Creek-Eller Slough, Mescal Creek-Rocky Buttes, Sheep Creek-El Mirage Lake, Lower Fremont Wash, Upper Fremont Wash, Bell Mountain-Mojave River, and Apple Valley Dry Lake.

Approximately 121.18 acres of CDFW jurisdictional features were mapped within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway alternative.

Approximately 134.07 acres of CDFW jurisdictional features were mapped within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway with HSR alternatives.

Figure 3.3.2-2 SWRCB Waters of the State Jurisdictional Areas within High Desert Corridor Project

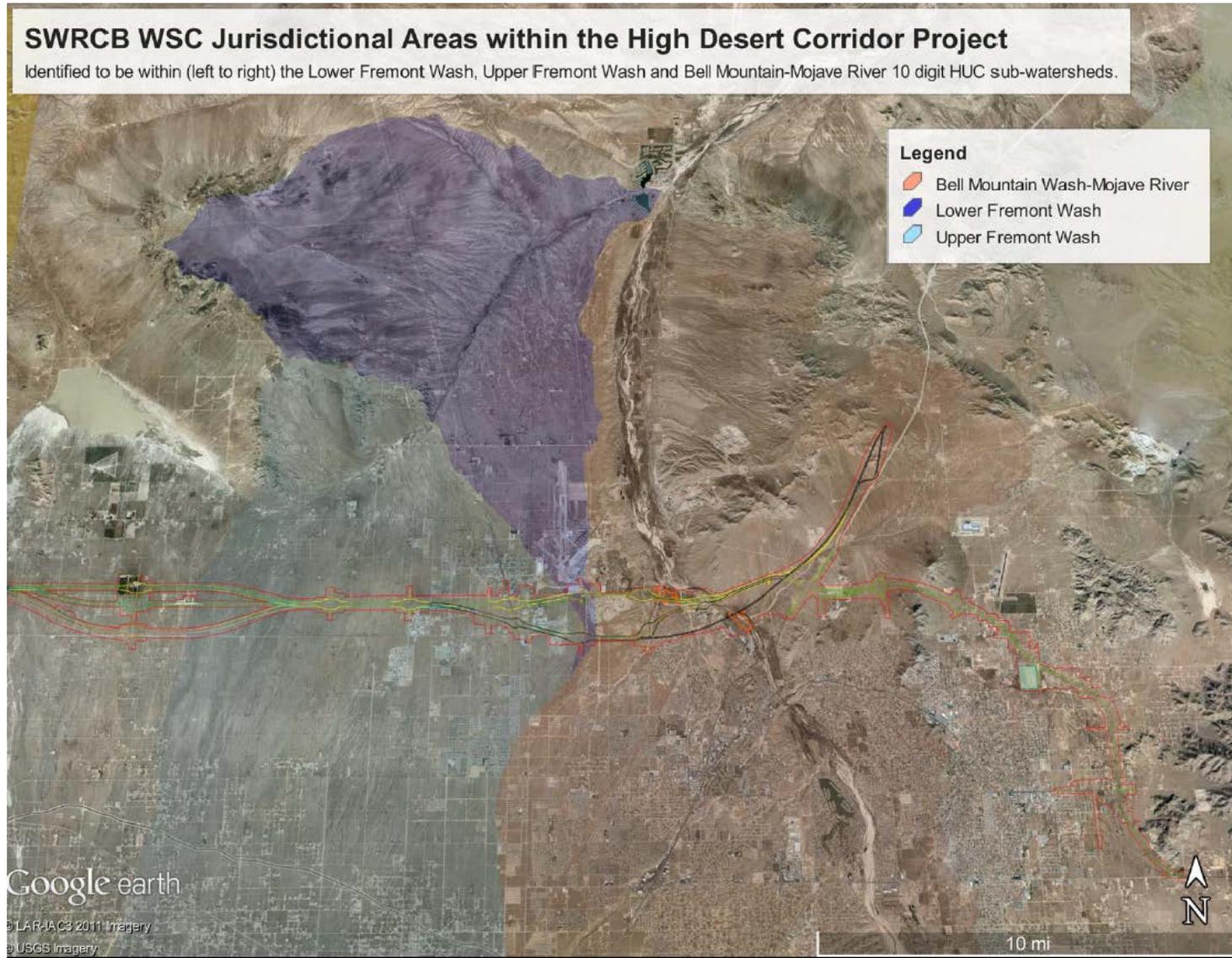
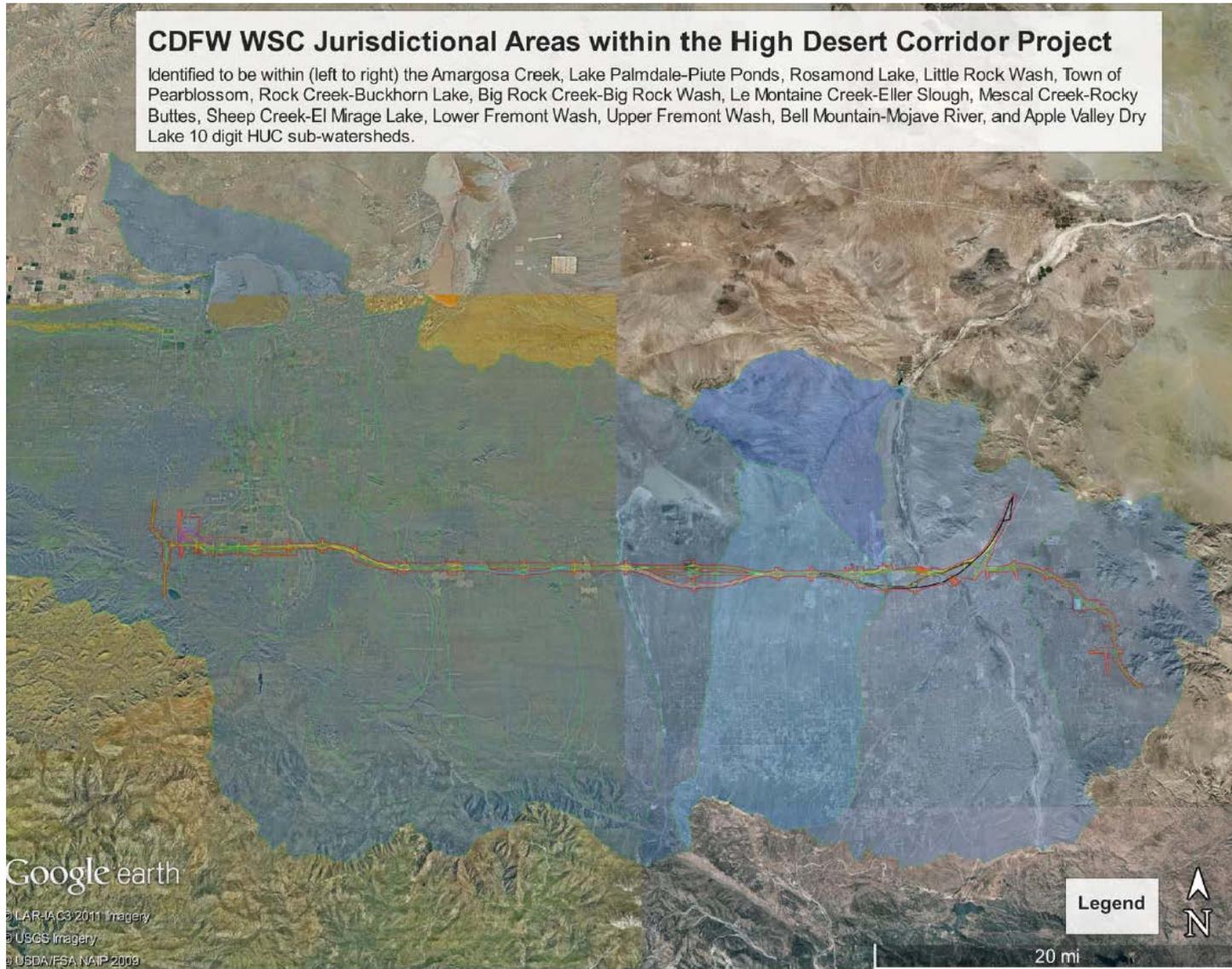


Figure 3.3.2-3 CDFW Waters of the State Jurisdictional Areas within High Desert Corridor Project



Environmental Consequences

No Build Alternative

No impacts would occur under the No Build Alternative.

Build Alternatives

USACE Jurisdiction Impacts

Pursuant to the CWA, all dredge and fill activities within waters of the U.S. are regulated under Section 404, by USACE. Within the project footprint, USACE jurisdictional features are located within the Lower Fremont Wash and Bell Mountain-Mojave River 10-digit HUC sub-watersheds of all alternatives, variations, and options.

The following subsections summarize the impacts to USACE jurisdictional waters by alternative. The data in table format can be found in the NES.

Freeway/Expressway and Freeway/Tollway Alternatives

There are 33.81 acres within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway alternative are considered under USACE jurisdiction.

Main Alignment/Common Areas

Permanent direct impacts to waters of the U.S. in the main alignment common areas are approximately 0.937 acres. These permanent impacts include:

- Piers, piling, or footing locations below the OHWM of several contributing unnamed washes to Bell Mountain Wash.
- Box culverts within Fremont Wash and an unnamed tributary to Fremont Wash. These washes do not have wetlands or riparian vegetation and are not considered shade-sensitive; permanent indirect impacts are not expected.

Based on the data presented in the NES, temporary impacts to waters of the U.S. in the main alignment common areas are approximately 10.297 acres. These temporary impacts include equipment maneuvering and unpaved access roads surrounding the Fremont Wash, an unnamed tributary to Fremont Wash, Bell Mountain Wash, and several contributing washes to Bell Mountain Wash.

Variations A and D

Potential USACE jurisdictional features were not identified within the project footprint of Variations A, and D of the Freeway/Expressway (Freeway/ Tollway) Alternative.

Variation B

Permanent direct impacts to waters of the U.S. in the Variation B Main alignment are approximately 0.080 acres, Variation B alignment are approximately 0.030 acres, and Variation B1 alignment are approximately 0.110 acres. These permanent impacts include:

- Box culverts within Fremont Wash and its contributing washes. These washes do not have wetlands or riparian vegetation and are not considered shade-sensitive; permanent indirect impacts are not expected.

Temporary impacts to waters of the U.S. in the Variation B Main alignment are approximately 0.110 acres, Variation B alignment are approximately 0.030 acres, and Variation B1 alignment are 0.180 acres. These temporary impacts include: equipment maneuvering and unpaved access roads surrounding the Fremont Wash and contributing washes.

Variation E Main Alignment with Mojave River Bridges Option 1

Permanent direct impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 1 are approximately 0.800 acre. These permanent impacts include:

- Piers, piling, or footing locations below the OHWM of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 1 are approximately 0.264 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River full-span bridges over non-wetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 1 are approximately 4.309 acres. These temporary impacts include equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Variation E Main Alignment with Mojave River Bridges Option 2

Permanent direct impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 2 are approximately 0.80 acres. These permanent impacts include:

- Piers, piling or footing locations below the OHWM of the Mojave River and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 2 are approximately 0.447 acres. These permanent indirect impacts include: Bridge shading from the Mojave River bridges over non-wetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

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Temporary impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 2 are approximately 4.309 acres. These temporary impacts include equipment maneuvering and unpaved access roads within the Mojave River, and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Variation E Main Alignment with Mojave River Bridges Option 3

Permanent direct impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 3 are approximately 0.750 acres. These permanent impacts include:

- Piers, piling or footing locations below the OHWM of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 3 are approximately 0.314 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River bridges over non-wetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to waters of the U.S. in Variation E Main alignment with the Mojave River Bridges: Option 3 are approximately 4.309 acres. These temporary impacts include: equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Variation E Alignment with Mojave River Bridges Option 1

Permanent direct impacts to waters of the U.S. in Variation E alignment with the Mojave River Bridges: Option 1 are approximately 1.811 acre. These permanent impacts include:

- Piers, piling or footing locations below the OHWM of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within WUS non-wetland riparian vegetation of the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E alignment with the Mojave River Bridges: Option 1 are approximately 0.601acre. These permanent indirect impacts include:

- Bridge shading from the Mojave River full-span bridges over non-wetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to waters of the U.S. in Variation E alignment with the Mojave River Bridges: Option 1 are approximately 14.262 acres. These temporary impacts include equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Variation E Alignment with Mojave River Bridge Option 2

Permanent direct impacts to waters of the U.S. in Variation E with the Mojave River Bridges Option 2 are approximately 1.811 acres. These permanent impacts include:

- Piers, piling, or footing locations below the OHWM of the Mojave River and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling, or footing locations within waters of the U.S. non-wetland riparian vegetation of the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E alignment with the Mojave River Bridges: Option 2 are approximately 0.871 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River bridges over non-wetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to Variation E alignment with the Mojave River Bridges Option 2 are approximately 14.262 acres. These temporary impacts include equipment maneuvering and unpaved access roads within the Mojave River, and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Variation E Alignment with Mojave River Bridge Option 3

Permanent direct impacts to waters of the U.S. in Variation E alignment with the Mojave River Bridges Option 3 are approximately 1.724 acres. These permanent impacts include:

- Piers, piling or footing locations below the OHWM of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E alignment with the Mojave River Bridges: Option 3 are approximately 0.688 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River bridges over non-wetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to waters of the U.S. in Variation E with the Mojave River Bridges: Option 3 are approximately 14.262 acres. These temporary impacts include: equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Freeway/Expressway and Freeway/Tollway with HSR Alternatives

Approximately 50.905 acres within the BSA inclusive of all variations to the Freeway/Expressway and Freeway/Tollway with HSR alternatives are considered under USACE jurisdiction.

Main Alignment/Common Areas

Permanent direct impacts to waters of the U.S. in the main alignment common areas are approximately 0.651 acre. These permanent impacts include:

- Box culverts within Fremont Wash and an unnamed tributary to Fremont Wash. These washes do not have waters of the U.S. wetlands or waters of the U.S. non-wetland riparian vegetation and are not considered shade-sensitive; permanent indirect impacts are not expected.

Temporary impacts to waters of the U.S. in the main alignment common areas are approximately 8.927 acre. These temporary impacts include equipment maneuvering and unpaved access roads surrounding Fremont Wash and an unnamed tributary to Fremont Wash.

Rail Option 1, Rail Option 7, and Variation D

Potential USACE jurisdictional features were not identified within the Rail Options 1 and 7, or Variation D of the Freeway/Expressway (Freeway/Tollway) Alternative with the HSR Feeder Service.

Variation B

Permanent direct impacts to waters of the U.S. in the Variation B Main alignment are approximately 0.115 acres, Variation B alignment are approximately 0.115 acres, and Variation B1 alignment are approximately 0.115 acres. These permanent impacts include:

- Box culverts within Fremont Wash and its contributing washes. These washes do not have wetlands or riparian vegetation and are not considered shade-sensitive; permanent indirect impacts are not expected.

Temporary impacts to waters of the U.S. in the Variation B Main alignment are approximately 0.086 acres, Variation B alignment are approximately 0.086 acres, Variation B1 alignment are approximately 0.086 acres. These temporary impacts include: equipment maneuvering and unpaved access roads surrounding the Fremont Wash and contributing washes.

Variation E Main Alignment with HSR and with Mojave River Bridges Option A

Permanent direct impacts to waters of the U.S. in Variation E Main alignment with HSR and with Mojave River Bridges Option A are approximately 2.955 acres. These permanent impacts include:

- Piers, piling, or footing locations below the OHWM of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E Main alignment with HSR and with Mojave River Bridges Option A are approximately 0.665 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River full-span bridges over nonwetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to waters of the U.S. in Variation E Main alignment with HSR and with Mojave River Bridges Option A are approximately 15.038 acres. These temporary impacts include equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Variation E Main Alignment with HSR and with Mojave River Bridges Option B

Permanent direct impacts to waters of the U.S. in Variation E Main alignment with HSR and with Mojave River Bridges Option B are approximately 3.125 acres. These permanent impacts include:

- Piers, piling, or footing locations below the OHWM of the Mojave River and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling, or footing locations within waters of the U.S. non-wetland riparian vegetation of the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E Main with HSR Feeder Service and with Mojave River Bridges Option B are approximately 0.665 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River clear-span bridges over nonwetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to waters of the U.S. in Variation E Main alignment with HSR and with Mojave River Bridges Option B are approximately 15.038 acres. These temporary impacts include equipment maneuvering and unpaved access roads within the Mojave River and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

*Variation E Alignment with HSR and with Mojave River Bridges Rail with Freeway
Option 1A*

Permanent direct impacts to waters of the U.S. in Variation E with HSR alignment and with Mojave River Bridges Option 1 are approximately 1.172 acres. These permanent impacts include:

- Piers, piling or footing locations below the OHWM of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within wetland waters of the U.S. of the Mojave River.
- Piers, piling or footing locations within non-wetland waters of the U.S. of the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E with HSR alignment and with Mojave River Bridges Option 1 are approximately 2.517 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River full-span bridges over waters of the U.S. non-wetland riparian vegetation. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to waters of the U.S. in Variation E Rail with HSR alignment and with Mojave River Bridges Option 1 are approximately 25.961 acres. These temporary impacts include equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

*Variation E with HSR Alignment and with Mojave River Bridges Rail with Freeway
Option 2*

Permanent direct impacts to waters of the U.S. in Variation E with HSR Feeder Service: Freeway Portion with the Mojave River Bridges Option 2 are approximately 1.169 acres. These permanent impacts include:

- Piers, piling or footing locations below the OHWM of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within wetland WUS of the Mojave River.
- Piers, piling or footing locations within non-wetland WUS of the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E with HSR Feeder Service: Freeway Portion with the Mojave River Bridges Option 2 are approximately 2.700 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River bridges over non-wetland riparian vegetation WUS and wetland WUS. Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to Variation E with HSR Feeder Service: Freeway Portion with the Mojave River Bridges Option 2 are approximately 25.961 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River, and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Variation E with HSR Feeder Service Alignment and with Mojave River Bridges Rail with Freeway Option 3

Permanent direct impacts to waters of the U.S. in Variation E with HSR Feeder Service: Freeway Portion with the Mojave River Bridges Option 3 are approximately 0.879 acres. These permanent impacts include:

- Piers, piling or footing locations below the OHWM of the Mojave River and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within WUS non-wetland riparian vegetation of the Mojave River.

Permanent indirect impacts to waters of the U.S. in Variation E with HSR Feeder Service: Freeway Portion with the Mojave River Bridges Option 2 are approximately 2.810 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River bridges over non-wetland riparian vegetation WUS and wetland WUS (see Table 3.3.2-1). Staging and equipment access will occur above the OHWM; temporary impacts are not anticipated.

Temporary impacts to Variation E with HSR Feeder Service: Freeway Portion with the Mojave River Bridges Option 3 are approximately 25.961 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River, and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Summary

With the implementation of avoidance and minimization measures, permanent impacts to no more than 3.537 acres of waters of the U.S. are anticipated within the proposed Freeway/Expressway and Freeway/Tollway alternatives along the longest/widest variations.

With the implementation of avoidance and minimization measures, permanent impacts to no more than 4.702 acres of waters of the U.S. are anticipated along the Freeway/Expressway and Freeway/Tollway with HSR along the widest variations.

Freeway/Expressway and Freeway/Tollway with HSR – Variation E is the most environmentally damaging alternative to USACE jurisdictional features and has adverse impacts to federal wetlands compared to Variation E Main.

Freeway/Expressway Freeway/Tollway with HSR – Variation E Main does not impact federal wetlands.

Option 1, 2 and Option B of the Mojave River Bridges has direct impacts to USACE jurisdictional features and is the most environmentally damaging alternative to the Mojave River compared to Option 3 and Option A of the Mojave River Bridges.

These acreage conclusions represent a calculated estimation of the jurisdictional areas within the project impact area, and are subject to modification following the USACE verification process.

With the implementation of avoidance and minimization measures, current designs of the proposed alignment and variations do not exceed the NEPA/404 MOU (FHWA et al. 2006) threshold of five or more acres of permanent impacts to WUS. These acreage conclusions were brought to the attention of USACE during the March 13, 2014 coordination meeting, which discussed impacts and possible NEPA/404 coordination. During project refinement, coordination with USACE will continue to ensure recommendations are implemented further avoid or minimize impacts to USACE jurisdictional features.

**Table 3.3.2-1 Temporary and Permanent Impacts to USACE Jurisdictional Features
for the High Desert Corridor Project**

	Non-Wetland Waters of the U.S.			Wetland Waters of the U.S.			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
Freeway/Expressway (Freeway/Tollway) Alternative								
Total Main Alignment/ Common Areas (Acres)	10.297	0.00	0.937	0.00	0.00	0.00	10.297	0.937
TOTAL VARIATION B MAIN (acres)	0.110	0.00	0.080	0.00	0.00	0.00	0.110	0.080
TOTAL VARIATION B (acres)	0.030	0.00	0.030	0.00	0.00	0.00	0.030	0.030
TOTAL VARIATION B1 (acres)	0.180	0.00	0.110	0.00	0.00	0.00	0.180	0.110
TOTAL VARIATION E MAIN WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	4.309	0.264	0.800	0.000	0.000	0.000	4.309	1.064
TOTAL VARIATION E MAIN WITH MOJAVE RIVER BRIDGES: OPTION 2 (acres)	4.309	0.447	0.800	0.00	0.00	0.00	4.309	1.247
TOTAL VARIATION E MAIN WITH MOJAVE RIVER BRIDGES: OPTION 3 (acres)	4.309	0.314	0.750	0.000	0.000	0.000	4.309	1.064
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	14.262	0.601	1.811	0.000	0.000	0.000	14.262	2.412
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 2 (acres)	14.262	0.871	1.811	0.000	0.000	0.000	14.262	2.682
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 3 (acres)	14.262	0.688	1.724	0.000	0.000	0.000	14.262	2.412

**Table 3.3.2-1 Temporary and Permanent Impacts to USACE Jurisdictional Features
for the High Desert Corridor Project**

	Non-Wetland Waters of the U.S.			Wetland Waters of the U.S.			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
Freeway/Expressway (Freeway/Tollway) Alternative with HSR Feeder Service								
TOTAL MAIN ALIGNMENT/Common AREAS (acres)	8.927	0.00	0.651	0.00	0.00	0.00	8.927	0.651
TOTAL VARIATION B MAIN (acres)	0.086	0.00	0.115	0.00	0.00	0.00	0.086	0.115
TOTAL VARIATION B (acres)	0.103	0.00	0.044	0.00	0.00	0.00	0.103	0.044
TOTAL VARIATION B1 (acres)	0.123	0.00	0.179	0.00	0.00	0.00	0.123	0.179
TOTAL VARIATION E MAIN WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION A (acres)	15.038	0.665	2.955	0.00	0.00	0.00	15.038	3.620
TOTAL MAIN E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION B (acres)	15.038	0.665	3.125	0.00	0.00	0.00	15.038	3.790
TOTAL VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	25.234	0.00	0.879	0.73	2.52	0.29	25.961	3.689
VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: RAIL WITH FREEWAY OPTION 2 (acres)	25.234	0.00	0.879	0.73	2.70	0.29	25.961	3.872

**Table 3.3.2-1 Temporary and Permanent Impacts to USACE Jurisdictional Features
for the High Desert Corridor Project**

	Non-Wetland Waters of the U.S.			Wetland Waters of the U.S.			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: RAIL WITH FREEWAY OPTION 3 (acres)	25.234	0.00	0.879	0.73	2.81	0.00	25.961	3.689

SWRCB Jurisdiction

Pursuant to the CWA, all dredge and fill activities regulated under Section 404 are required to obtain a 401 Water Quality Certification from the SWRCB. Typically, waters of the State, as regulated under Section 401 of the CWA, reflect those waters that fall under USACE jurisdiction. The SWRCB is ultimately responsible for determining waters of the State pursuant to Section 401 of the CWA and the Porter-Cologne Act.

Common to All Alternatives/Variations/Options

Within the project footprint, impacts to SWRCB jurisdictional features are the same as the impacts to USACE jurisdictional features for all of the alternatives, variations, and options. The Mojave River, Fremont Wash, Turner Wash, Ossom Wash, Bell Mountain Wash and contributing unnamed washes are considered SWRCB WSC (see Table 3.3.2-2).

With the implementation of avoidance and minimization measures, permanent impacts to no more than 3.537 acres of SWRCB WSC (see Table 3.3.2-2) are anticipated within the proposed Freeway/Expressway and Freeway/Tollway alternatives along the longest/widest variations.

With the implementation of avoidance and minimization measures, permanent impacts to no more than 4.702 acres of SWRCB WSC are anticipated along the Freeway/Expressway and Freeway/Tollway with HSR along the widest variations (see Table 3.3.2-2).

Freeway/Expressway and Freeway/Tollway with HSR – Variation E is the most environmentally damaging alternative to SWRCB WSC jurisdictional features and has adverse impacts to federal wetlands compared to Main E. Freeway/Expressway (Freeway/Tollway) with HSR Feeder Service – Main E does not impact federal wetlands.

Option 1, 2 and Option B of the Mojave River Bridges has direct impacts to SWRCB WSC jurisdictional features and is the most environmentally damaging alternative to the Mojave River compared to Option 3 and Option A of the Mojave River Bridges. Coordination with the SWRCB will be required to confirm waters of the State and to obtain Section 401 Certification.

**Table 3.3.2-2 Temporary and Permanent Impacts to SWRCB Waters of the State Jurisdictional Features
for the High Desert Corridor Project**

	Non-Wetland SWRCB Waters of the State			Wetland SWRCB Waters of the State			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
Freeway/Expressway (Freeway/Tollway) Alternative								
TOTAL MAIN ALIGNMENT/COMMON AREAS (acres)	10.297	0.00	0.937	0.00	0.00	0.00	10.297	0.937
TOTAL VARIATION B MAIN (acres)	0.110	0.00	0.080	0.00	0.00	0.00	0.110	0.080
TOTAL VARIATION B (acres)	0.030	0.00	0.030	0.00	0.00	0.00	0.030	0.030
TOTAL VARIATION B1 (acres)	0.180	0.00	0.110	0.00	0.00	0.00	0.180	0.110
TOTAL VARIATION E MAIN WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	4.309	0.264	0.800	0.000	0.000	0.000	4.309	1.064
TOTAL VARIATION E MAIN WITH MOJAVE RIVER BRIDGES: OPTION 2 (acres)	4.309	0.447	0.800	0.00	0.00	0.00	4.309	1.247
TOTAL VARIATION E MAIN WITH MOJAVE RIVER BRIDGES: OPTION 3 (acres)	4.309	0.314	0.750	0.000	0.000	0.000	4.309	1.064
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	14.262	0.601	1.811	0.000	0.000	0.000	14.262	2.412
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 2 (acres)	14.262	0.871	1.811	0.000	0.000	0.000	14.262	2.682
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 3 (acres)	14.262	0.688	1.724	0.000	0.000	0.000	14.262	2.412

**Table 3.3.2-2 Temporary and Permanent Impacts to SWRCB Waters of the State Jurisdictional Features
for the High Desert Corridor Project**

	Non-Wetland SWRCB Waters of the State			Wetland SWRCB Waters of the State			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
Freeway/Expressway (Freeway/Tollway) Alternative with the HSR Feeder Service								
TOTAL MAIN ALIGNMENT/COMMON AREAS (acres)	8.927	0.00	0.651	0.00	0.00	0.00	8.927	0.651
TOTAL VARIATION B MAIN (acres)	0.086	0.00	0.115	0.00	0.00	0.00	0.086	0.115
TOTAL VARIATION B (acres)	0.103	0.00	0.044	0.00	0.00	0.00	0.103	0.044
TOTAL VARIATION B1 (acres)	0.123	0.00	0.179	0.00	0.00	0.00	0.123	0.179
TOTAL VARIATION E MAIN WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION A (acres)	15.038	0.665	2.955	0.00	0.00	0.00	15.038	3.620
TOTAL VARIATION E MAIN WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION B (acres)	15.038	0.665	3.125	0.00	0.00	0.00	15.038	3.790
TOTAL VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	25.234	0.00	0.879	0.73	2.52	0.29	25.961	3.689

**Table 3.3.2-2 Temporary and Permanent Impacts to SWRCB Waters of the State Jurisdictional Features
for the High Desert Corridor Project**

	Non-Wetland SWRCB Waters of the State			Wetland SWRCB Waters of the State			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: RAIL WITH FREEWAY OPTION 2 (acres)	25.234	0.00	0.879	0.73	2.70	0.29	25.961	3.872
VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: RAIL WITH FREEWAY OPTION 3 (acres)	25.234	0.00	0.879	0.73	2.81	0.00	25.961	3.689

CDFW Jurisdiction

Pursuant to Fish and Game Code Section 1600-1603, any alterations within the streambed, bank, and channels of waters of the State are regulated by CDFW.

The following subsections summarize the impacts to CDFW jurisdictional waters by alternatives. The data in table format can be found in the NES.

Freeway/Expressway (Freeway/Tollway) Alternative

Approximately 121.18 acres of CDFW jurisdictional features were mapped within the BSA inclusive of all variations to the Freeway/Expressway alternative.

Main Alignment/Common Areas

Ephemeral washes located in the main alignment common areas are located within the following 10-digit HUC sub-watersheds: Bell Mountain-Mojave River, Amargosa Creek, Lake Palmdale-Piute Ponds, Little Rock Wash, Town of Pearblossom, Rock Creek-Buckhorn Lake, Big Rock Creek-Big Rock Wash, Le Montaine Creek-Eller Slough, Mescal Creek-Rocky Buttes, Lower Fremont Wash, Upper Fremont Wash, and Apple Valley Dry Lake.

Permanent direct impacts to CDFW jurisdictional features in the Main Alignment common areas are approximately 24.017 acres. These permanent direct impacts include:

- Box culverts, desert scrub vegetation clearing, limited to the top of the banks of Grandview Canyon Creek, Graham Canyon Creek, Mescal Creek, Sheep Creek, Fremont Wash, contributing washes and numerous isolated unnamed washes.
- Piers, pilings, footings, desert scrub vegetation clearing within the streambeds of Little Rock Wash. Piers, piling or footing locations within CDFW-defined wetlands of Big Rock Wash.

Temporary impacts to CDFW jurisdictional features in the Main Alignment common areas are approximately 34.649 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Little Rock Wash, Big Rock Wash, Grandview Canyon Creek, Graham Canyon Creek, Mescal Creek, Sheep Creek, Fremont Wash, contributing washes and numerous isolated unnamed washes.

Variation A

Ephemeral washes located in the Variation A Main alignment and Variation A alignment are located within the following 10-digit HUC sub-watersheds:

- Lake Palmdale-Piute Ponds
- Amargosa Creek
- Little Rock Wash

Permanent direct impacts to CDFW jurisdictional features in the Variation A Main are approximately 11.516 acres and Variation A are approximately 15.379 acres. These permanent direct impacts include:

- Box culverts and desert scrub vegetation clearing several isolated unnamed washes
- Piers, pilings, footings, desert scrub vegetation clearing within the streambeds of Little Rock Wash.

Permanent indirect impacts are not anticipated as these ephemeral washes do not contain CDFW-defined wetlands.

Temporary impacts to CDFW jurisdictional features in the Variation A Main are approximately 4.791 acres and Variation A are approximately 12.547 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within Little Rock Wash, and several isolated unnamed washes.

Variation B

Ephemeral washes located in the Variation B Main alignment, Variation B alignment, and Variation B1 alignment are located within the following 10 digit HUC sub-watersheds:

- Sheep Creek-El Mirage Lake
- Le Montaine Creek-Eller Slough
- Lower Fremont Wash

Permanent direct impacts to CDFW jurisdictional features in the Variation B Main alignment are approximately 0.642 acres, Variation B alignment are approximately, 0.623 acres, and Variation B1 are approximately 0.745 acres. These permanent direct impacts include:

- Box culverts and desert scrub vegetation clearing within Sheep Creek, Fremont Wash, contributing washes and several isolated unnamed washes

Permanent indirect impacts are not anticipated as these ephemeral washes do not contain CDFW-defined wetlands.

Temporary impacts to CDFW jurisdictional features in the Variation B Main are approximately 1.060 acres, Variation B are approximately 0.908 acres, and Variation B1 are approximately 1.346 acres within Sheep Creek, Fremont Wash, an unnamed tributary to Fremont Wash and several isolated unnamed washes.

Variation D

Ephemeral washes located in the Variation D Main alignment and Variation D alignment are located within the following 10-digit HUC sub-watersheds:

- Le Montaine Creek-Eller Slough

- Mescal Creek-Rocky Buttes

Permanent direct impacts to CDFW waters of the State in the Variation D Main alignment are approximately 1.315 acres and Variation D alignment are approximately 0.581 acres.

Permanent indirect impacts are not anticipated because these ephemeral washes do not contain CDFW-defined waters of the State wetlands.

Temporary impacts to CDFW waters of the State in the Variation D Main alignment are approximately 2.319 acres and Variation D alignment are approximately 1.36 acres. These temporary impacts include equipment maneuvering and unpaved access roads within Mescal Creek and several isolated unnamed washes.

Variation E with the Mojave River Bridges Option 1

Ephemeral washes located in the Variation E Main alignment and Variation E alignment with the Mojave River Bridges: Option 1 are located within the following 10-digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent direct impacts to CDFW jurisdictional features in the Variation E Main with Mojave River Bridge Option 1 are approximately 2.223 acres. Permanent direct impacts to CDFW jurisdictional features in Variation E with Mojave River Bridge Option 1 are approximately 3.310 acres. These permanent impacts include bridge shading and:

- Piers, pilings, footings, desert scrub vegetation clearing, limited to the top of the banks of Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within CDFW-defined wetlands of the Mojave River.

Temporary impacts to CDFW jurisdictional features in the Variation E Main with Mojave River Bridge Option 1 are approximately 2.580 acres. Temporary impacts to CDFW jurisdictional features in the Variation E with Mojave River Bridge Option 1 are approximately 16.714 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Variation E with the Mojave River Bridges Option 2

Ephemeral washes located in the Variation E Main alignment and Variation E alignment with the Mojave River Bridges: Option 2 are located within the following 10-digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent direct impacts to CDFW jurisdictional features in the Variation E Main with Mojave River Bridge Option 2 are approximately 2.410 acres. Permanent direct impacts to CDFW jurisdictional features in the Variation E with the Mojave River Bridge Option 2 are approximately 3.418 acres. These permanent impacts include bridge shading and:

- Piers, pilings, footings, desert scrub vegetation clearing, limited to the top of the banks of Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within CDFW-defined wetlands of the Mojave River.

Temporary impacts to CDFW jurisdictional features in the Variation E Main with Mojave River Bridge Option 2 are approximately 2.58 acres. Temporary impacts to CDFW jurisdictional features in the Variation E with the Mojave River Bridge Option 2 are approximately 16.714 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Variation E with the Mojave River Bridges Option 3

Ephemeral washes located in the Main E with Mojave River Bridge Option 3 are located within the following 10 digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent direct impacts to CDFW jurisdictional features in the Variation E Main alignment with Mojave River Bridge Option 3 are approximately 1.622 acres. Permanent direct impacts to CDFW jurisdictional features in the Variation E with Mojave River Bridge Option 3 are approximately 2.634 acres. These permanent impacts include:

- Piers, pilings, footings, desert scrub vegetation clearing, limited to the top of the banks of Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within CDFW-defined wetlands of the Mojave River.

Permanent indirect impacts to CDFW jurisdictional features in the Variation E Main alignment with the Mojave River Bridges: Option A are approximately 0.615 acres. Permanent indirect impacts to CDFW jurisdictional features in the Variation E with

Mojave River Bridge Option 3 are approximately 0.78 acres. These permanent indirect impacts include:

- Bridge shading from the Mojave River multi-span bridges over CDFW-defined wetlands.

Temporary impacts to CDFW jurisdictional features in the Variation E Main alignment with Mojave River Bridge Option 3 are approximately 2.580 acres. Temporary impacts to CDFW jurisdictional features in the Variation E with Mojave River Bridge Option 3 are approximately 16.714 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Freeway/Expressway and Freeway/Tollway with HSR Alternatives

Approximately 134.07 acres of CDFW jurisdictional features were mapped within the BSA inclusive of all variations to the Freeway/Expressway (Freeway/Tollway) with HSR Feeder Service Alternative.

Main Alignment/Common Areas

Permanent direct impacts to CDFW jurisdictional features in the Main Alignment common areas are approximately 45.975 acres. These permanent direct impacts include:

- Piers, pilings, footings, desert scrub vegetation clearing, limited to the top of the banks of several isolated unnamed washes.
- Piers, piling or footing locations within CDFW-defined WSC wetlands of Big Rock Wash.

Temporary impacts to CDFW jurisdictional features in the Main Alignment common areas are approximately 50.889 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within several isolated unnamed washes.

Rail Option 1

Ephemeral washes located in the Rail Option 1 are located within the following 10-digit HUC sub-watersheds:

- Amargosa Creek
- Lake Palmdale-Piute Ponds

Permanent and temporary impacts to CDFW jurisdictional features in the in the Rail Option 1 areas are approximately 3.136 acres. These permanent direct impacts include:

- Piers, pilings, footings, desert scrub vegetation clearing, limited to the top of the banks of several isolated unnamed washes.

- Piers, piling or footing locations within CDFW-defined WSC wetlands of Big Rock Wash.
- Temporary impacts include: equipment maneuvering and unpaved access roads within several isolated unnamed washes.

Rail Option 7

Ephemeral washes located in the Rail Option 1 are located within the following 10-digit HUC sub-watersheds:

- Amargosa Creek
- Lake Palmdale-Piute Ponds

Permanent and temporary impacts to CDFW jurisdictional features in the Rail Option 7 are approximately 2.005 acres. These permanent direct impacts include:

- Piers, pilings, footings, desert scrub vegetation clearing, limited to the top of and several isolated unnamed washes.
- Temporary impacts include: equipment maneuvering and unpaved access roads within several isolated unnamed washes.

Variation B

Ephemeral washes located in the Variation B Main alignment are located within the following 10 digit HUC sub-watersheds:

- Sheep Creek-El Mirage Lake
- Le Mountaine Creek-Eller Slough
- Lower Fremont Wash

Permanent direct impacts to CDFW jurisdictional features in the Main B are approximately 0.995 acres. Permanent direct impacts to CDFW jurisdictional features in the Variation B are approximately 0.899 acres. Permanent direct impacts to CDFW jurisdictional features in the Variation B1 are approximately 1.247 acres. These permanent direct impacts include:

- Box culverts and desert scrub vegetation clearing within Sheep Creek, Fremont Wash, an unnamed tributary to Fremont Wash and several isolated unnamed washes

Temporary impacts to CDFW jurisdictional features in the Main B are approximately 1.060 acres. Temporary impacts to CDFW jurisdictional features in the Variation B are approximately 0.888 acres. Temporary impacts to CDFW jurisdictional features in the Variation B1 are approximately 1.30 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within Sheep Creek, Fremont Wash, contributing unnamed washes and several isolated unnamed washes.

Variation D

Ephemeral washes located in the Variation D Main alignment are located within the following 10 digit HUC sub-watersheds:

- Le Montaine Creek-Eller Slough
- Mescal Creek-Rocky Buttes

Permanent direct impacts to CDFW jurisdictional features in the Variation D Main are approximately 2.737 acres. Permanent direct impacts to CDFW jurisdictional features in the Variation D are approximately 1.264 acres. These permanent direct impacts include:

- Box culverts and desert scrub vegetation clearing within Mescal Creek and several isolated unnamed washes

Permanent indirect impacts are not anticipated as these ephemeral washes do not contain CDFW-defined wetlands.

Temporary impacts to CDFW jurisdictional features in the Variation D Main alignment are approximately 1.476 acres. Temporary impacts to CDFW jurisdictional features in the Variation D are approximately 1.080 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within Mescal Creek and several isolated unnamed washes.

Variation E Main Alignment with HSR and with the Mojave River Bridges Option A

Ephemeral washes located in the Variation E alignment with the Mojave River Bridges: Option A are located within the following 10 digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent impacts to CDFW jurisdictional features in Variation E Main alignment with HSR and with Mojave River Bridges Option A are approximately 5.358 acres. These permanent impacts include:

- Piers, piling or footing locations below the banks of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Indirect impacts will be due to bridge shading from the Mojave River clear-span bridges over riparian vegetation (see Table 3.3.2-3). Staging and equipment access will occur above banks.

Temporary impacts to CDFW jurisdictional features in Variation E Main HSR and with Mojave River Bridges Option A are approximately 7.771 acres. These temporary impacts include: equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Variation E Main with HSR Alignment and with the Mojave River Bridges Option B

Ephemeral washes located in the Variation E- with the Mojave River Bridges: Option B are located within the following 10 digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent impacts to CDFW jurisdictional features in the Variation E with HSR Feeder Service and with Mojave River Bridges: Option B are approximately 5.286 acres. These permanent impacts include:

- Piers, pilings, footings, desert scrub vegetation clearing, limited to the top of the banks of Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within CDFW-defined wetlands of the Mojave River.
- Indirect impacts will be due to bridge shading from the Mojave River clear-span bridges over riparian vegetation (see Table 3.3.2-3). Staging and equipment access will occur above banks.

Temporary impacts to CDFW jurisdictional features in the Variation E with HSR Feeder Service and with Mojave River Bridges: Option B are approximately 7.771 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Variation E with HSR: with Mojave River Bridges: Rail with Freeway Option 1

Ephemeral washes located in the Variation E with the Mojave River Bridges: Option B are located within the following 10 digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent impacts to CDFW jurisdictional features in Variation E with HSR Feeder Service: with Mojave River Bridges: Rail with Freeway Option 1 are approximately 5.484 acres. These permanent impacts include:

- Piers, piling or footing locations below the banks of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Indirect impacts will be due to bridge shading from the Mojave River full-span bridges over riparian vegetation (see Table 3.3.2-3). Staging and equipment access will occur above banks.

Temporary impacts to CDFW jurisdictional features in Variation E with HSR Feeder Service: with Mojave River Bridges: Rail with Freeway Option 1 are approximately 25.551 acres. These temporary impacts include: equipment maneuvering and unpaved access roads surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Fremont Wash, Turner Wash, Ossom Wash, and the Mojave River.

Variation E with HSR: with Mojave River Bridges: Rail with Freeway Option 2

Ephemeral washes located in the Variation E with the Mojave River Bridges: Option B are located within the following 10 digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent impacts to CDFW jurisdictional features in Variation E with HSR Feeder Service: with Mojave River Bridges: Rail with Freeway Option 2 are approximately 6.697 acres. These permanent impacts include:

- Piers, piling or footing locations below the banks of several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within CDFW defined wetlands of the Mojave River.
- Indirect impacts will be due to bridge shading from the Mojave River full-span bridges over riparian vegetation. Staging and equipment access will occur above banks.

Temporary impacts to Variation E with HSR Feeder Service: with Mojave River Bridges: Rail with Freeway Option 2 are approximately 24.338 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River, and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Variation E with HSR: with Mojave River Bridges: Rail with Freeway Option 3

Ephemeral washes located in the Variation E with the Mojave River Bridges: Option B are located within the following 10 digit HUC sub-watersheds:

- Bell Mountain-Mojave River
- Upper Fremont Wash
- Lower Fremont Wash

Permanent direct impacts to CDFW jurisdictional features in Variation E with HSR Feeder Service: with Mojave River Bridges: Rail with Freeway Option 3 are approximately 6.315 acres. These permanent impacts include:

- Piers, piling or footing locations below the banks of the Mojave River and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.
- Piers, piling or footing locations within CDFW-defined wetlands of the Mojave River.
- Indirect impacts will be due to bridge shading from the Mojave River full-span bridges over riparian vegetation. Staging and equipment access will occur above banks.

Temporary impacts to Variation E with HSR Feeder Service: with Mojave River Bridges: Rail with Freeway Option 3 are approximately 20.833 acres. These temporary impacts include: equipment maneuvering and unpaved access roads within the Mojave River, and surrounding Turner Wash, Ossom Wash, and several contributing unnamed washes to Turner Wash, Ossom Wash, and the Mojave River.

Summary

With the implementation of avoidance and minimization measures, permanent impacts to no more than 43.559 acres of CDFW jurisdictional features (see Table 3.3.2-3) are anticipated along the proposed Freeway/Expressway and Freeway/Tollway alternatives along the widest variations.

With the implementation of avoidance and minimization measures, permanent impacts to no more than 59.792 acres of CDFW jurisdictional features are anticipated along the Freeway/Expressway and Freeway/Tollway with HSR along the widest variations.

Freeway/Expressway and Freeway/Tollway with HSR – Variation E is the most environmentally damaging alternative to CDFW jurisdictional features and has more impacts to CDFW-defined wetlands compared to Main E.

Option 1, Option 2 and Option B of the Mojave River Bridges has more impacts to CDFW jurisdictional features and is the most environmentally damaging alternative to the Mojave River compared to Option 3 and Option A of the Mojave River Bridges.

Coordination with CDFW will be required to confirm jurisdictional features and obtain a 1602 Streambed Alteration Agreement.

**Table 3.3.2-3 Temporary and Permanent Impacts to CDFW Waters of the State Jurisdictional Features
for the High Desert Corridor Project**

	CDFW Waters of the State Ephemeral Washes			CDFW Defined Waters of the State Wetlands			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
Freeway/Expressway (Freeway/Tollway) Alternative								
TOTAL MAIN ALIGNMENT/COMMON AREAS (acres)	34.649	0.00	24.017	0.00	0.00	0.00	34.649	24.017
TOTAL VARIATION A MAIN (acres)	4.791	0.00	11.516	0.00	0.00	0.00	4.791	11.516
TOTAL VARIATION A (acres)	12.547	0.00	15.379	0.00	0.00	0.00	12.547	15.379
TOTAL VARIATION B MAIN (acres)	1.060	0.00	0.642	0.00	0.00	0.00	1.060	0.642
TOTAL VARIATION B (acres)	0.908	0.00	0.623	0.00	0.00	0.00	0.908	0.623
TOTAL VARIATION B1 (acres)	1.346	0.00	0.745	0.00	0.00	0.00	1.346	0.745
TOTAL VARIATION D MAIN (acres)	2.319	0.00	1.315	0.00	0.00	0.00	2.319	1.315
VARIATION D (acres)	1.360	0.00	0.581	0.00	0.00	0.00	1.360	0.581
TOTAL MAIN E WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	1.944	0.00	1.533	0.64	0.00	0.70	2.580	2.237
TOTAL MAIN E WITH MOJAVE RIVER BRIDGES: OPTION 2 (acres)	1.944	0.00	1.533	0.64	0.00	0.89	2.580	2.420
TOTAL MAIN E WITH MOJAVE RIVER BRIDGES: OPTION 3 (acres)	1.944	0.00	1.533	0.64	0.62	0.09	2.580	2.237

**Table 3.3.2-3 Temporary and Permanent Impacts to CDFW Waters of the State Jurisdictional Features
for the High Desert Corridor Project**

	CDFW Waters of the State Ephemeral Washes			CDFW Defined Waters of the State Wetlands			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	15.106	0.00	2.526	1.61	0.00	0.78	16.714	3.310
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 2 (acres)	15.106	0.00	2.526	1.61	0.00	0.89	16.714	3.418
TOTAL VARIATION E- WITH MOJAVE RIVER BRIDGES: OPTION 3 (acres)	15.106	0.00	2.526	1.61	0.78	0.11	16.714	3.418
Freeway/Expressway (Freeway/Tollway) Alternative with the HSR Feeder Service								
TOTAL MAIN ALIGNMENT/COMMON AREAS (acres)	47.640	0.000	41.416	3.249	0.000	4.559	50.889	45.975
TOTAL RAIL OPTION 1 (acres)	0.000	0.00	3.136	0.00	0.00	0.00	0.000	3.136
TOTAL RAIL OPTION 7 (acres)	0.000	0.00	2.005	0.00	0.00	0.00	0.000	2.005
TOTAL VARIATION B MAIN (acres)	1.060	0.00	0.995	0.00	0.00	0.00	1.060	0.995
TOTAL VARIATION B (acres)	0.888	0.00	0.899	0.00	0.00	0.00	0.888	0.899
TOTAL VARIATION B1 (acres)	1.300	0.00	1.247	0.00	0.00	0.00	1.300	1.247
VARIATION D MAIN (acres)	1.476	0.00	2.737	0.00	0.00	0.00	1.476	2.737
VARIATION D (acres)	1.080	0.00	1.264	0.00	0.00	0.00	1.080	1.264

**Table 3.3.2-3 Temporary and Permanent Impacts to CDFW Waters of the State Jurisdictional Features
for the High Desert Corridor Project**

	CDFW Waters of the State Ephemeral Washes			CDFW Defined Waters of the State Wetlands			Total	
	Temporary Impacts	Permanent Indirect	Permanent Direct	Temporary	Permanent Indirect	Permanent Direct	Temporary Impacts	Permanent Impacts (Direct and Indirect)
	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>Shading Effects</i>	<i>Fill</i>	<i>Equipment and Access Roads</i>	<i>(Fill and Shading Effects)</i>
TOTAL VARIATION E MAIN WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION A (acres)	7.570	0.00	4.157	0.20	1.08	0.12	7.771	5.358
TOTAL VARIATION E MAIN WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION B (acres)	7.570	0.00	4.157	0.20	0.48	0.65	7.771	5.286
TOTAL VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: OPTION 1 (acres)	24.671	0.00	2.042	0.88	3.10	0.34	25.551	5.484
VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: RAIL WITH FREEWAY OPTION 2 (acres)	23.458	0.00	3.255	0.88	0.00	3.44	24.338	6.697
VARIATION E WITH RAIL EXPRESSWEST CONNECTION WITH MOJAVE RIVER BRIDGES: RAIL WITH FREEWAY OPTION 3 (acres)	23.458	0.00	2.873	0.88	0.00	3.44	20.833	6.315

Summary of Impacts

The project has three alternatives that avoid adverse impacts to federal wetlands. Specifically, the Freeway/Expressway and Freeway/Tollway alternatives – Main Alignment, the Freeway/Expressway and Freeway/Tollway alternatives – Variation E, and the Freeway/Expressway and Freeway/Tollway with HSR – Main Alignment are the wetlands only practicable alternatives.

Per Executive Order 11990 for the Protection of Wetlands, the Freeway/Expressway and Freeway/Tollway with HSR – Variation E was identified as the most environmentally damaging to federal wetlands.

USACE Jurisdiction

With the implementation of avoidance and minimization measures, permanent impacts to no more than 3.537 acres of WUS are anticipated within the proposed Freeway/Expressway and Freeway/Tollway alternatives along the longest/widest variations.

With the implementation of avoidance and minimization measures, permanent impacts to no more than 4.702 acres of WUS are anticipated along the Freeway/Expressway and Freeway/Tollway with HSR along the widest variations.

Freeway/Expressway and Freeway/Tollway with HSR – Variation E is the most environmentally damaging alternative to USACE jurisdictional features and has adverse impacts to federal wetlands compared to Main E. Freeway/Expressway and Freeway/Tollway with HSR – Main E does not impact federal wetlands.

Option 1, 2 and Option B of the Mojave River Bridges has direct impacts to USACE jurisdictional features and is the most environmentally damaging alternative to the Mojave River compared to Option 3 and Option A of the Mojave River Bridges.

These acreage conclusions represent a calculated estimation of the jurisdictional areas within the project impact area, and are subject to modification following the USACE verification process. With the implementation of avoidance and minimization measures, current designs of the proposed alignment and variations do not exceed the NEPA/404 MOU (FHWA et al. 2006) threshold of five or more acres of permanent impacts to WUS. These acreage conclusions were brought to the attention of USACE during the March 13, 2014 coordination meeting, which discussed impacts and possible NEPA/404 coordination. During project refinement, coordination with USACE will continue to ensure recommendations are implemented further avoid or minimize impacts to USACE jurisdictional features.

SWRCB Jurisdiction

With the implementation of avoidance and minimization measures, permanent impacts to no more than 3.537 acres of SWRCB WSC are anticipated within the proposed Freeway/Expressway and Freeway/Tollway alternatives along the longest/widest variations.

With the implementation of avoidance and minimization measures, permanent impacts to no more than 4.702 acres of SWRCB WSC are anticipated along the Freeway/Expressway and Freeway/Tollway with HSR alternatives along the widest variations.

Freeway/Expressway and Freeway/Tollway with HSR alternatives – Variation E is the most environmentally damaging alternative to SWRCB WSC jurisdictional features and has adverse impacts to federal wetlands compared to Main E. Freeway/Expressway and Freeway/Tollway with HSR alternatives – Main E does not impact federal wetlands.

Option 1, 2 and Option B of the Mojave River Bridges has direct impacts to SWRCB WSC jurisdictional features and is the most environmentally damaging alternative to the Mojave River compared to Option 3 and Option A of the Mojave River Bridges.

Coordination with the SWRCB will be required to confirm WSC and obtain Section 401 Certification

CDFW Jurisdiction

With the implementation of avoidance and minimization measures, permanent impacts to no more than 43.559 acres of CDFW jurisdictional features are anticipated along the proposed Freeway/Expressway and Freeway/Tollway alternatives along the widest variations.

With the implementation of avoidance and minimization measures, permanent impacts to no more than 59.792 acres of CDFW jurisdictional features are anticipated along the Freeway/Expressway and Freeway/Tollway with HSR alternatives along the widest variations.

Freeway/Expressway and Freeway/Tollway with HSR alternatives – Variation E is the most environmentally damaging alternative to CDFW jurisdictional features and has more impacts to CDFW-defined wetlands compared to Main E.

Option 1, Option 2 and Option B of the Mojave River Bridges has more impacts to CDFW jurisdictional features and is the most environmentally damaging alternative to the Mojave River compared to Option 3 and Option A of the Mojave River Bridges.

Coordination with CDFW will be required to confirm jurisdictional features and obtain a 1602 Streambed Alteration Agreement.

The project would require the following permits:

- U.S. Army Corps of Engineers Section 404 Permit
- RWQCB Section 401 Water Quality Certification
- CDFW Section 1602 Streambed Alteration Agreement

Avoidance, Minimization, and/or Mitigation Measures

Complete avoidance of permanent impacts to WUS, WSC, CDFW jurisdictional features was determined not possible in achieving the project purpose. The project has been designed to minimize temporary and permanent impacts to WUS, WSC and CDFW jurisdictional areas to the maximum extent practicable. Due to the topography associated with the eastern portion of the project within the Mojave River Valley, the proposed main alignment will be constructed with an above-grade separation supported by piers from Phantom W Street to I-15. This preliminary design will ease the fluctuations of the transportation corridor over the terrain and avoid or minimize impacts to the following jurisdictional features:

- Mojave River and several contributing unnamed washes
- Bell Mountain Wash and several contributing unnamed washes
- Ossom Wash
- Turner Wash and a contributing unnamed wash

The following avoidance, minimization, and mitigation measures will be implemented:

- BWL-1:** Project alternatives and pier locations will continue to be refined to include measures to protect sensitive areas and to maintain the hydrological integrity of the jurisdictional washes.
- BWL-2:** Any work within the ephemeral washes will be conducted when there is no flow during the dry season (May 1 to October 15).
- BWL-3:** Temporary construction staging areas and access roads will be strategically placed to avoid and/or minimize impacts to jurisdictional features to the extent feasible and are expected to be enhanced to pre-project conditions.
- BWL-4:** Compensatory mitigation for impacts to jurisdictional features of USACE, RWQCB, and CDFW will be determined during the permitting process with the agencies with considerations to on-site restoration, off-site mitigation, and in-lieu fees. In general, the ratios are based on the amount and quality of the permanently and directly impacted jurisdictional features of the agencies.