

3.3.5 Threatened and Endangered Species

Regulatory Setting

The main federal law protecting threatened and endangered species is the Federal Endangered Species Act (FESA): 16 U.S.C., Section 1531, et seq. See also 50 CFR Part 402. This act and subsequent amendments provide for the conservation of endangered and threatened species and the ecosystems upon which they depend. Under Section 7 of this act, federal agencies, such as the FHWA, are required to consult with the U.S. Fish and Wildlife Service (USFWS) and the National Oceanic and Atmospheric Administration's (NOAA) National Marine Fisheries Service to ensure that they are not undertaking, funding, permitting or authorizing actions likely to jeopardize the continued existence of listed species or destroy or adversely modify designated critical habitat. Critical habitat is defined as geographic locations critical to the existence of a threatened or endangered species. The outcome of consultation under Section 7 may include a Biological Opinion (BO) with an Incidental Take statement, a Letter of Concurrence, and/or documentation of a no effect finding. Section 3 of the FESA defines take as "harass, harm, pursue, hunt, shoot, wound, kill, trap, capture or collect or any attempt at such conduct."

California has enacted a similar law at the state level, the California Endangered Species Act (CESA), California Fish and Game Code (FGC), Section 2050, et seq. The California Endangered Species Act emphasizes early consultation to avoid potential impacts to rare, endangered, and threatened species and to develop appropriate planning to offset project-caused losses of listed species populations and their essential habitats. The California Department of Fish and Wildlife (CDFW) is the agency responsible for implementing the CESA. Section 2081 of the Fish and Game Code prohibits take of any species determined to be an endangered species or a threatened species. "Take" is defined in Section 86 of the Fish and Game Code as "hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill." The CESA allows for take incidental to otherwise lawful development projects; for these actions, an incidental take permit is issued by the CDFW. For species listed under both the FESA and the CESA requiring a BO under Section 7 of the FESA, the CDFW may also authorize impacts to CESA species by issuing a Consistency Determination under Section 2080.1 of the FGC.

Affected Environment

Information regarding threatened and endangered species was obtained from the *Natural Environment Study* (August 2014). USFWS, the CDFW, and NOAA's National Marine Fisheries Service are the primary agencies responsible for coordination and review involving special-status species.

The findings summarized in this section were based on extensive research and field surveys for special-status species in the biological study area and its vicinity. Prior to the surveys, record searches of the USFWS species lists, and the California Natural Diversity Database (CNDDDB) were conducted. The species list and CNDDDB covering the project study area are provided in Appendix L.

USFWS species records were reviewed at the outset of the biological studies for the project. A copy of the records list is included in Appendix L. Formal Section 7 consultation with USFWS has been initiated for the following species: desert tortoise, southwestern willow flycatcher and least Bell’s vireo. Caltrans will seek concurrence from USFWS that the proposed project may have adverse effects to the desert tortoise and is not likely to have adverse effects to the southwestern willow flycatcher and least Bell’s vireo. An incidental take permit from the USFWS for these species would be required prior to project construction for any project-related effects to these species.

Consultation with CDFW is also ongoing for the following species: desert tortoise, Mojave ground squirrel, least Bell’s vireo and southwestern willow flycatcher. The proposed project may have adverse effects to these species. The CDFW authorizes take of endangered, threatened or candidate species through the provisions of Section 2081 and 2080.1 of the Fish and Game Code. A take permit from the CDFW will be required prior to construction of the proposed project.

Copies of the agency correspondence are provided in Appendix K.

A total of thirty-nine (39) special status animal species were identified as occurring within the vicinity of the Biological Study Area (BSA). Of those, 7 threatened or endangered species were observed or have a potential to occur within the project limits due to habitat suitability, as described in Table 3.3.5-1.

Table 3.3.5-1: Threatened and Endangered Species with Potential to Occur in the Biological Study Area

Species	Status	Habitat	Potential to Occur in the Biological Study Area
Birds			
Golden eagle <i>Aquila chrysaetos</i>	CDFW: FP BLM: S	Wide range of flat or mountainous, largely open habitats, often above the tree line from seal level to 4000 meters elevation.	Foraging habitat present. Observed near project limits.
Swainson's hawk <i>Buteo swainsoni</i>	CA: ST	Open and semi-open country within deserts, grasslands and prairies.	Moderate potential for occurrence. Suitable foraging habitat present. None observed during site visits.
Western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>	US: FC CA: SE	Riparian obligate species primarily with willow-cottonwood riparian forests, but other species occur in alder and box elder dominated riparian habitats.	Moderate potential for occurrence. Suitable habitat present. None observed during site visits.

Table 3.3.5-1: Threatened and Endangered Species with Potential to Occur in the Biological Study Area

Species	Status	Habitat	Potential to Occur in the Biological Study Area
Southwestern willow flycatcher <i>Empidonax traillii extimus</i>	US: FE CA: SE	Breeds and nests in riparian forest with dense understory. Rare and local in southern California.	Present. Suitable habitat in Mojave River. Observed in Mojave River during focused surveys.
Least Bell's vireo <i>Vireo bellii pusillus</i>	US: FE CA: SE	Riparian forests and willow thickets. Breeds and nests only in southwestern California; winters in Baja California.	Present. Suitable habitat present. Observed during focused surveys.
Mammals			
Mohave ground squirrel <i>Xerospermophilus mohavensis</i>	CA: ST	Occupies creosote bush scrub, saltbush scrub, and Joshua tree woodland type plant communities. This species is found in open areas of sandy and gravelly soils devoid of rocky areas in the eastern and northern parts of the Mojave Desert region.	Low potential for occurrence. Potential suitable habitat present. Not observed during investigative surveys.
Reptiles			
Desert tortoise <i>Gopherus agassizii</i>	US: FT CA: ST	Historically found throughout the Mojave and Sonoran Deserts into Arizona, Nevada, and Utah. Occurs throughout the Mojave Desert in scattered populations. Found in creosote bush scrub, saltbush scrub, thornscrub (in Mexico), and Joshua tree woodland. Found in the open desert as well as in oases, riverbanks, washes, dunes, and occasionally rocky slopes.	Present. Suitable habitat present. Observed during focused surveys.
Federal (US): FE = Federal Endangered FT = Federal Threatened FC = Federal Candidate Species		State (CA): SE = State Endangered ST = State Threatened CDFW: FP = Fully Protected Species BLM: S = Sensitive	

Source: Natural Environment Study 2014

Focused surveys for special-status wildlife species were conducted in 2011, 2012, and 2013. Desert tortoise, southwestern willow flycatcher and least Bell's vireo were observed during focused surveys, and a golden eagle was observed outside the project

limits near the High Speed Rail (HSR) alignment. Individuals and nesting behavior of southwestern willow flycatcher and least Bell's vireo have only been observed in the area where the variation E HSR rail line intersects the Mojave River. Burrows, scat, and carcass material of the desert tortoise were identified within the eastern most portion of the BSA. Suitable habitat is present within the BSA for Swainson's hawk, western yellow-billed cuckoo, and Mohave ground squirrel, but none were observed during focused surveys.

In addition, critical habitat for the southwestern willow flycatcher is present within the Mojave River at all proposed crossing locations.

For the purpose of avoiding redundancy, when discussing project impacts, it should be noted that the Freeway/Expressway Alternative, Freeway/Tollway Alternative, Freeway/Expressway Alternative with the HSR Feeder Service, and the Freeway/Tollway Alternative with the HSR Feeder Service are discussed collectively because the impacts amount to the same in main alignment/common areas; however, it is the variations and options that differ in impacts to animal species, and thus they are each broken down and discussed (see Figure 3.3-1 Alignment Key Map for Biological Study Area).

Environmental Consequences

No Build Alternative

Because no ground disturbance would occur under the No Build Alternative, there would be no impacts on threatened and endangered species.

Build Alternatives

Golden Eagle

Implementation of the proposed project has the potential to impact the golden eagle during the construction phase of this project. Because these species have the ability to fly away, direct impacts to individual adults are not expected. However, relatively large amounts of natural desert scrub habitats would be removed under all build alternatives, which may impact nesting habitat. Impacts to nesting habitat for the golden eagle are not anticipated because suitable nesting habitat is not present.

Because the Freeway/Expressway and Freeway/Tollway alternatives feature a highway only, the affected area is less in comparison to the alternatives with HSR, and therefore impacts to habitat for this species would occur to a lesser extent. The HSR alternatives increase the potential impact to this species proportional to the increase in scrubland community impacts. In addition to this, the HSR spur in Victorville that departs from the highway alignment would be an additional impact for this alternative, affecting approximately 85 acres of scrubland habitat, and thus result in increased impacts to habitat for this species.

Main Alignment/Common Areas

Within the BSA of the main alignment common areas, impacts to the golden eagle have the potential to occur. Golden eagle foraging and nesting habitat occurs throughout the proposed project corridor within flat or mountainous, largely open habitats. Impacts to this species are expected to occur due to construction activities associated with implementation of the proposed project. With incorporation of the minimization measures listed below, the impacts to individuals of this species are expected to be low.

Rail Option 1 and Rail Option 7

Rail Options 1 and 7 include areas that are potential habitat to the golden eagle, and with implementation of either option, impacts to the golden eagle may occur; however, with the avoidance and minimization measures mentioned below, impacts to the golden eagle are expected to be low. Rail Option 1 has the potential to impact golden eagle foraging and nesting habitat to a greater extent than Rail Option 7, because this option traverses more open space than Rail Option 7; however, this option runs through the outskirts of urbanized areas within Palmdale, which is considered to be marginal quality habitat. Rail Option 1 also requires more acreage of permanent and temporary impacts to golden eagle preferred foraging and nesting habitat of flat or mountainous, largely open habitats compared to Rail Option 7.

Variation A

Potential impacts to the golden eagle may occur with implementation of the main alignment corridor corresponding to Variation A (a so-called Variation A Main alignment) and Variation A alignment. Golden eagle preferred foraging and nesting habitat type is known to occur within the limits of these alignments; however, with the avoidance and minimization measures mentioned below, impacts to this species are expected to be low. Variation A Main alignment would require fewer acres of permanent and temporary impacts to golden eagle preferred foraging and nesting habitat of flat or mountainous, largely open habitats compared to the Variation A alignment; therefore, potential impacts to this species and its foraging and nesting habitat are slightly higher under the Variation A alignment.

Variation B

The main alignment corridor corresponding to Variation B (a so-called Variation B Main alignment), Variation B alignment, and Variation B1 alignment include areas that are potential habitat to the golden eagle, and with implementation of these variations, impacts to this species may occur; however, with the avoidance and minimization measures mentioned below, impacts to golden eagle are expected to be low. Variation B Main alignment has the potential to have impacts on golden eagle habitat to a lesser extent than Variation B1 alignment and Variation B alignment, because this option traverses less space than these variations and, at one location, bisects farmland which is not considered suitable habitat. Variation B requires considerably more acres of temporary and permanent impacts to golden eagle preferred foraging and nesting habitat of flat or mountainous, largely open habitats

compared to Variation B Main alignment and Variation B1 alignment due to its alignment encompassing a greater distance.

Variation D

Potential impacts to the golden eagle may occur with implementation of the main alignment corridor corresponding to Variation D (a so-called Variation D Main alignment) and Variation D alignment. Golden eagle preferred foraging and nesting habitat type is known to occur within the limits of these alignments; however, with the avoidance and minimization measures mentioned below, impacts to this species would be minor. Variation D Main alignment would require fewer acres of permanent and temporary impacts to foraging and nesting habitat of flat or mountainous largely open habitats compared to Variation D alignment due to traversing a shorter distance. Variation D requires considerably more acres of temporary and permanent impacts to golden eagle preferred foraging and nesting habitat of flat or mountainous, largely open habitats compared to Variation D Main alignment due to its alignment encompassing a greater distance. Much of this alignment includes undisturbed space, which is a higher quality habitat to the golden eagle.

Variation E

Potential habitat for the golden eagle occurs within the potential impact area of the main alignment corridor corresponding to Variation E (a so-called Variation E Main alignment), Variation E Highway Only alignment, and Variation E with Rail ExpressWest Connection alignment and, if implemented, these variations could have an impact to golden eagle individuals. With the avoidance and minimization measures mentioned below, impacts to this species are to be considered low. Variation E Main alignment requires fewer acres for implementation compared to Variation E Highway Only alignment and Variation E with Rail ExpressWest Connection alignment; therefore, it would have less of an impact to golden eagle foraging and nesting habitat if implemented. Variation E Highway Only alignment has the potential to have impact on golden eagle foraging and nesting habitat to a greater extent than Variation E Main alignment, because this option traverses more open space in comparison; however, Variation E Highway Only alignment has less of an impact than Variation E with Rail ExpressWest Connection alignment.

Swainson's Hawk

Implementation of the proposed project has the potential to impact this species during the construction phase. Because this species has the ability to fly away, direct impacts to individual adults are not expected during the construction phase. Potential exists for impacts to nesting birds should they be present.

Because the Freeway/Expressway and Freeway/Tollway alternatives feature a highway only, the affected area is less in comparison to the alternatives with HSR, and therefore impacts to habitat for this species would occur to a lesser extent. The HSR alternatives increase the potential impact to this species proportional to the increase in scrubland community impacts. In addition to this, the HSR spur in Victorville that departs from the highway alignment would be an additional impact

for this alternative, affecting approximately 85 acres of scrubland habitat, and thus result in increased impacts to habitat for this species.

Main Alignment/Common Areas

Within the BSA of the main alignment common areas, impacts to the Swainson's hawk have the potential to occur. Swainson's hawk foraging and nesting habitat occurs throughout the project corridor within open and semi-open country within deserts, grasslands, and prairies. Impacts to this species are expected to occur due to construction activities associated with implementation of the proposed project. With incorporation of the minimization measures listed below, the impact to individuals of this species is expected to be low.

Rail Option 1 Variations 1 and 7

Rail Option 1 Variations 1 and 7 include areas that are potential habitat to the Swainson's hawk and, with implementation of this option, impacts to the Swainson's hawk may occur; however, with the avoidance and minimization measures mentioned below, impacts to the Swainson's hawk are expected to be low. Rail Option 1 has the potential to impact Swainson's hawk foraging and nesting habitat to a greater extent than Rail Option 7, because this option traverses more open space than Rail Option 7; however, Rail Option 1 runs through the outskirts of urbanized areas within Palmdale, which is considered to be marginal quality habitat. Rail Option 1 also requires more acreage of permanent and temporary impacts to Swainson's hawk preferred foraging and nesting habitat of flat or mountainous, largely open habitats compared to Rail Option 7. Rail Option 7 traverses less open space and is within the outskirts of urbanized areas near Palmdale, which are of marginal quality habitat.

Variation A

Potential impacts to the Swainson's hawk may occur with implementation of the main alignment corridor corresponding to Variation A (a so-called Variation A Main alignment) and Variation A alignment. Swainson's hawk preferred foraging and nesting habitat type is known to occur within the limits of these variations; however, with the avoidance and minimization measures mentioned below, impacts to this species are expected to be low. Variation A Main alignment would require fewer acres of permanent and temporary impacts to Swainson's hawk preferred foraging and nesting habitat of open and semi-open country within deserts, grasslands, and prairies compared to Variation A alignment. Variation A alignment requires considerably more acres of temporary and permanent impacts to Swainson's hawk preferred foraging and nesting habitat of open and semi-open country within deserts, grasslands, and prairies compared to Variation A Main alignment; therefore, potential impacts to this species and its foraging and nesting habitat are slightly higher under Variation A alignment.

Variation B

The main alignment corridor corresponding to Variation B (a so called Variation B Main alignment), Variation B alignment, and Variation B1 alignment include areas that are potential habitat to the Swainson's hawk and, with implementation of these

variations, impacts to this species may occur; however, with the avoidance and minimization measures mentioned below, impacts to Swainson's hawk are expected to be low. Variation B Main alignment has the potential to have impacts on Swainson's hawk habitat to a lesser extent than Variation B1 alignment and Variation B alignment, because this option traverses less space than these variations and, at one location, bisects farmland, which is not considered suitable habitat. Variation B requires considerably more acres of temporary and permanent impacts to Swainson's hawk preferred foraging and nesting habitat of open and semi-open country within deserts, grasslands, and prairies compared to Variation B Main alignment and Variation B1 alignment due to its alignment encompassing a greater distance.

Variation D

Potential impacts to the Swainson's hawk may occur with implementation of the main alignment corridor corresponding to Variation D (a so-called Variation D Main alignment) and Variation D alignment. Swainson's hawk preferred foraging and nesting habitat type is known to occur within the limits of these variations; however, with the avoidance and minimization measures mentioned below, impacts to this species would be minor. Variation D Main alignment would require fewer acres of permanent and temporary impacts to foraging and nesting habitat of open and semi-open country within deserts, grasslands, and prairies compared to Variation D alignment due to traversing a shorter distance. Variation D requires considerably more acres of temporary and permanent impacts to Swainson's hawk preferred foraging and nesting habitat of open and semi-open country within deserts, grasslands, and prairies due to its alignment encompassing a greater distance. Much of this alignment includes undisturbed space, which is a higher quality habitat to the Swainson's hawk.

Variation E

Potential habitat for the Swainson's hawk occurs within the potential impact area of the main alignment corridor corresponding to Variation E (a so-called Variation E Main alignment), Variation E Highway Only alignment, and Variation E with Rail ExpressWest Connection alignment and, if implemented, these variations could have an impact to Swainson's hawk individuals. With the avoidance and minimization measures mentioned below, impacts to this species are to be considered low. Variation E Main alignment requires fewer acres for implementation compared to Variation E Highway Only alignment and Variation E with Rail ExpressWest Connection alignment; therefore, it would have less of an impact to Swainson's hawk foraging and nesting habitat if implemented. Variation E Highway Only alignment has the potential to have impact on Swainson's hawk foraging and nesting habitat to a greater extent than Variation E Main alignment, because this option traverses more open space in comparison; however, Variation E Highway Only alignment has less of an impact than Variation E with Rail ExpressWest Connection alignment.

Western Yellow-Billed Cuckoo

Implementation of the proposed project has the potential to impact this species during the construction phase of this project. Because this species has the ability to fly away,

direct impacts to individual adults are not expected during the construction phase of this project. Potential exists for impacts to nesting birds should they be present. This species is a riparian obligate species primarily within willow-cottonwood riparian forests, but other species occur in alder and box elder-dominated riparian habitats. Because only a few variations contain this type of habitat, others are eliminated from discussion. Variation E Main, Variation E Highway Only, and Variation E with Rail ExpressWest Connection are discussed below.

Because the Freeway/Expressway and Freeway/Tollway alternatives feature a highway only, the affected area is less in comparison to the alternatives with HSR, and therefore impacts to habitat for this species would occur to a lesser extent. The HSR alternatives increase the potential impact to this species proportional to the increase in scrubland community impacts. The HSR Alternative increases the potential impact to this species proportional to the increase in scrubland community impacts.

Variation E

Potential habitat for the western yellow-billed cuckoo occurs within the potential impact area of the main alignment corridor corresponding to Variation E (a so-called Variation E Main alignment) and, if implemented, this alignment could have an impact to western yellow-billed cuckoo individuals. With the avoidance and minimization measures mentioned below, impacts to this species are to be considered low. Variation E Main alignment requires fewer acres for implementation compared to Variation E Highway Only alignment and Variation E with Rail ExpressWest Connection alignment; therefore, it would have less of an impact to western yellow-billed cuckoo foraging and nesting habitat within the Mojave River if implemented. Variation E Highway Only alignment has the potential to have impact on western yellow-billed cuckoo foraging and nesting habitat within the Mojave River to a greater extent than Variation E Main alignment, because this option traverses more open space in comparison; however, Variation E Highway Only alignment has less of an impact than Variation E with Rail ExpressWest Connection alignment.

Southwestern Willow Flycatcher and Least Bell's Vireo

Focused surveys indicate that southwestern willow flycatcher and least Bell's vireo are not present within the reach of the main alignment. Spanning the reach of the Mojave River with a bridge along the main alignment would have low impacts to the habitat of these two species. Impacts to designated critical habitat for the southwestern willow flycatcher would be low and the continued existence of both species in this area along the Mojave River would not be jeopardized.

However, the reach of the Mojave River that intersects with Variation E of the Freeway/Expressway and Freeway/Tollway with HSR alternatives supports a greater area of suitable habitat for these species. Surveys have shown successful nesting of these species in this area as well. Therefore, under Variation E of the alternatives with HSR, impacts to these species have the potential to occur. Spanning the reach of the river at this location with a bridge would impact the quality of habitat to a point

where nesting of these species may not occur. Additionally, this area would be impacted by increased litter and vagrancy, as is typical of bridge structures over rivers. Therefore, there is potential for Variation E of the alternatives with HSR to have a substantial impact on nesting habitat for these species as well as on the critical habitat designated for the southwestern willow flycatcher.

Formal consultation with USFWS for southwestern willow flycatcher and least Bell's vireo is ongoing.

Mohave Ground Squirrel

Potential suitable habitat for this species is present within the BSA; however, none were observed during focused surveys and impacts are expected to be low.

Because the Freeway/Expressway and Freeway/Tollway alternatives feature a highway only, the affected area is less in comparison to the alternatives with HSR, and therefore impacts to habitat for this species would occur to a lesser extent. The HSR alternatives increase the potential impact to this species proportional to the increase in scrubland community impacts. In addition to this, the HSR spur in Victorville that departs from the highway alignment would be an additional impact for this alternative, affecting approximately 85 acres of scrubland habitat, and thus result in increased impacts to habitat for this species.

Main Alignment/Common Areas

Within the BSA of the main alignment common areas, impacts to Mohave ground squirrel have the potential to occur. Mohave ground squirrel habitat occurs throughout the proposed project corridor within brushlands with little groundcover. Impacts to this species are expected to be low due to clearing and grubbing activities associated with implementation of the proposed project. With incorporation of the minimization measures listed below, the impacts to individuals of this species are expected to be low.

Rail Options 1 and 7

Rail Options 1 and 7 include areas that are potential habitat to the Mohave ground squirrel, and with implementation of these options, impacts to the Mohave ground squirrel may occur; however, with the avoidance and minimization measures mentioned below, impacts to Mohave ground squirrel are expected to be low. Rail Option 1 has the potential to impact Mohave ground squirrel habitat to a greater extent than Rail Option 7, because this option traverses more open space than Rail Option 7; however, this option runs through the outskirts of urbanized areas within Palmdale, which is considered to be marginal quality habitat. Rail Option 1 also requires more acreage of permanent and temporary impacts to the Mohave ground squirrel's preferred habitat of brushlands with little groundcover compared to Rail Option 7.

Variation A

Potential impacts to the Mohave ground squirrel may occur with implementation of the main alignment corridor corresponding to Variation A (a so-called Variation A Main alignment) and Variation A alignment. The Mohave ground squirrel's preferred habitat type is known to occur within the limits of these variations; however, with the avoidance and minimization measures mentioned below, impacts to this species are expected to be low. Variation A Main alignment would require fewer acres of permanent and temporary impacts to Joshua tree woodland, pinyon-juniper woodland, mixed and chamise-redshank chaparral, and sagebrush compared to the Variation A alignment, because it traverses less distance along existing roadways. Variation A alignment requires considerably more acres of temporary and permanent impacts to brushlands with little groundcover compared to Variation A Main alignment; therefore, potential impacts to Mohave ground squirrel and its habitat is slightly higher with implementation of this variation.

Variation B

The main alignment corridor corresponding to Variation B (a so-called Variation B Main alignment), Variation B alignment, and Variation B1 alignment include areas that are potential habitat to the Mohave ground squirrel, and with implementation of these variations, impacts to the Mohave ground squirrel may occur; however, with the avoidance and minimization measures mentioned below, impacts to Mohave ground squirrel are expected to be low. Variation B Main alignment has the potential to impact Mohave ground squirrel habitat to a lesser extent than Variation B alignment and Variation B1 alignment, because this option traverses less open space than these variations and, at one location, bisects farmland rather than suitable habitat. Variation B requires considerably more acres of temporary and permanent impacts to brushlands with little groundcover compared to Variation B Main alignment and Variation B1 alignment due to its alignment encompassing a greater distance. Variation B1 alignment would require fewer acres of permanent and temporary impacts to brushlands with little groundcover compared to Variation B alignment.

Variation D

Potential impacts to the Mohave ground squirrel may occur with implementation of the main alignment corridor corresponding to Variation D Main alignment and Variation D alignment. The Mohave ground squirrel's preferred habitat type is known to occur within the limits of these variations; however, with the avoidance and minimization measures mentioned below, impacts to this species would be minor. Variation D Main alignment would require fewer acres of permanent and temporary impacts to brushlands with little groundcover compared to Variation D alignment due to the shorter distance along an existing roadway. Variation D requires considerably more acres of temporary and permanent impacts to brushlands with little groundcover compared to Variation D Main alignment due to its alignment encompassing a greater distance. Much of this alignment includes open space, which is one of the Mohave ground squirrel's preferred habitats.

Variation E

Potential habitat for the Mohave ground squirrel occurs within the potential impact area of the main alignment corridor corresponding to Variation E (a so-called Variation E Main alignment), Variation E Highway Only alignment, and Variation E with Rail ExpressWest Connection alignment and, if implemented, these variations could have an impact to Mohave ground squirrel individuals. With the avoidance and minimization measures mentioned below, impacts to this species are to be considered low. Variation E Main alignment requires fewer acres for implementation compared to Variation E Highway Only alignment and Variation E with Rail ExpressWest Connection alignment; therefore, it would have less of an impact to Mohave ground squirrel habitat if implemented. Variation E Highway Only alignment has the potential to impact Mohave ground squirrel habitat to a greater extent than Variation E Main alignment, because this option traverses more open space in comparison; however, Variation E Highway Only alignment has less of an impact than Variation E with Rail ExpressWest Connection alignment.

Desert Tortoise

This species is likely to occur within the BSA in natural shrub communities. Due to the presence of suitable habitat, and the observance of this species during focused surveys, impacts have the potential to occur. Formal consultation with USFWS for desert tortoise is ongoing.

Because the Freeway/Expressway and Freeway/Tollway alternatives feature a highway only, the affected area is less in comparison to the alternatives with HSR, and therefore impacts to habitat for this species would occur to a lesser extent. The HSR alternatives increase the potential impact to this species proportional to the increase in scrubland community impacts. In addition to this, the HSR spur in Victorville that departs from the highway alignment would be an additional impact for this alternative, affecting approximately 85 acres of scrubland habitat, and thus result in increased impacts to habitat for this species.

Main Alignment/Common Areas

Within the BSA of the main alignment common areas, impacts to desert tortoise have the potential to occur. Desert tortoise habitat occurs throughout the proposed project corridor within creosote bush scrub, saltbush scrub, and Joshua tree woodland. Impacts to this species are expected to occur due to clearing and grubbing activities associated with implementation of the proposed project. With incorporation of the minimization measures listed below, the impacts to individuals of this species is expected to be low.

Rail Options 1 and 7

Rail Options 1 and 7 include areas that are potential habitat to the desert tortoise, and with implementation of this option, impacts to the desert tortoise may occur; however, with the avoidance and minimization measures mentioned below, impacts to desert tortoise are expected to be low. Rail Option 1 has the potential to impact desert tortoise habitat to a greater extent than Rail Option 7, because this option

traverses more open space than Rail Option 7; however, Rail Option 1 runs through the outskirts of urbanized areas within Palmdale, which is considered to be low quality habitat. Rail Option 1 also requires more acreage of permanent and temporary impacts to the desert tortoise's preferred habitat of creosote bush scrub, saltbush scrub, and Joshua tree woodland compared to Rail Option 7.

Variation A

Potential impacts to the desert tortoise may occur with implementation of the main alignment corridor corresponding to Variation A (a so-called Variation A Main alignment) and Variation A alignment. The desert tortoise's preferred habitat type is known to occur within the limits of these variations; however, with the avoidance and minimization measures mentioned below, impacts to this species are expected to be low. Variation A Main alignment would require fewer acres of permanent and temporary impacts to creosote bush scrub, saltbush scrub, and Joshua tree woodland compared to Variation A alignment, because it traverses less distance along existing roadways; therefore, potential impacts to this species and its habitat are slightly higher with implementation of Variation A alignment.

Variation B

The main alignment corridor corresponding to Variation B (a so-called Variation B Main alignment), Variation B alignment, and Variation B1 alignment include areas that are potential habitat to the desert tortoise, and with implementation of these variations, impacts to the desert tortoise may occur; however, with the avoidance and minimization measures mentioned below, impacts to desert tortoise are expected to be low. Variation B Main alignment has the potential to impact desert tortoise habitat to a lesser extent than Variation B alignment and Variation B1 alignment, because this option traverses less open space than these variations and, at one location, bisects farmland rather than suitable habitat. Variation B requires considerably more acres of temporary and permanent impacts to creosote bush scrub, saltbush scrub, and Joshua tree woodland compared to Variation B Main alignment and Variation B1 alignment due to its alignment encompassing a greater distance. Variation B1 alignment would require fewer acres of permanent and temporary impacts to brushlands with little groundcover compared to Variation B.

Variation D

Potential impacts to the desert tortoise may occur with implementation of the main alignment corridor corresponding to Variation D (a so-called Variation D Main alignment) and Variation D. The desert tortoise's preferred habitat type is known to occur within the limits of these variations; however, with the avoidance and minimization measures mentioned below, impacts to this species would be minor. Variation D Main alignment would require fewer acres of permanent and temporary impacts to creosote bush scrub, saltbush scrub, and Joshua tree woodland compared to Variation D alignment due to the shorter distance along an existing roadway. Variation D requires considerably more acres of temporary and permanent impacts to creosote bush scrub, saltbush scrub, and Joshua tree woodland compared to Variation

D Main alignment due to its alignment encompassing a greater distance. Much of this alignment includes open space, which is one of the desert tortoise's preferred habitats.

Variation E

Potential habitat for the desert tortoise occurs within the potential impact area of the main alignment corridor corresponding to Variation E (a so-called Variation E Main alignment), Variation E Highway Only alignment, and Variation E with Rail ExpressWest Connection alignment and, if implemented, these variations could have an impact to desert tortoise individuals. With the avoidance and minimization measures mentioned below, impacts to this species would be low. Variation E Main alignment requires fewer acres for implementation compared to Variation E Highway Only alignment and Variation E with Rail ExpressWest Connection alignment; therefore, it would have less of an impact to desert tortoise habitat if implemented. Variation E Highway Only alignment has the potential to impact desert tortoise habitat to a greater extent than Variation E Main alignment, because this option traverses more open space in comparison; however, Variation E Highway Only alignment has less of an impact than Variation E with Rail ExpressWest Connection. Variation E with Rail ExpressWest Connection would have the greatest impact compared to the other two Variation E alignments due to the alignment encompassing a larger area with more open space.

Avoidance, Minimization, and/or Mitigation Measures

Golden Eagle, Swainson's Hawk, and Western Yellow-Billed Cuckoo

The following avoidance measures will be implemented to avoid impacts on golden eagle, Swainson's hawk, and western yellow-billed cuckoo:

BTE-1: A qualified biologist will recommend approved limits of disturbance, including construction staging areas and access routes, to minimize impacts to adjacent habitat. To ensure the avoidance of impacts to migratory birds, the following measures will be implemented pursuant to the Migratory Bird Treaty Act (MBTA). Clearing and grubbing of vegetation will be conducted outside of bird-nesting season. If clearing and grubbing of vegetation needs to be conducting during bird-nesting season (February 15th to September 1st), a qualified biologist will monitor construction during clearing, grading and/or trenching activities for any occurrence of the birds nesting. In the event birds are observed nesting, construction should stop until it is determined that the fledglings have left their nests. If this is not possible, coordination with the a qualified biologist should take place in order to minimize the risk of violating the MBTA, and the following minimization measure should be put in place: an environmentally sensitive area (ESA) fencing buffer of 150 feet for songbirds and 500 feet for raptors, which must be maintained during all phases of construction.

BTE-2: A biological monitor shall be present a minimum of 1 week prior to and during clearing and grubbing activities in order to walk the

proposed areas to be cleared and grubbed and disperse animals that have the ability to flee.

Southwestern Willow Flycatcher and Least Bell's Vireo

The main alignment alternative would completely avoid and minimize impacts to these species. BTE-1 and BTE-2, described above, will be implemented if Variation E is selected to avoid impacts on southwestern willow flycatcher and least Bell's vireo.

Mohave Ground Squirrel

The following avoidance, minimization, and/or mitigation measures will be implemented to avoid impacts on Mohave ground squirrel:

BTE-3: As identified in the Biological Opinion/Incidental Take Permit, a qualified biologist shall survey for, trap/capture species present, and relocate to a designated area approved by USFWS or CDFW.

BTE-4: Replanting appropriate native habitat in temporarily impacted areas. Additionally, a Habitat Mitigation Monitoring Plan (HMMP) will be established.

BTE-5: Like-habitat conducive to this species habitat requirements will be purchased and preserved in perpetuity.

BTE-6: The boundaries of right-of-way (ROW) will be fenced off with approved materials for the following reasons: (1) serve as a guide for wildlife to utilize the appropriate crossings meanwhile reducing impacts to wildlife/vehicle collisions, and (2) reduce vandalism to restoration sites.

Desert Tortoise

BTE-3 described above will also be implemented to avoid impacts to desert tortoise. The following additional avoidance, minimization, and/or mitigation measures will be implemented to avoid impacts on desert tortoise:

BTE-7: Temporary desert tortoise fencing will be installed on all portions of the project site accessible to desert tortoise. Locations of this fencing will be identified on plans during the design phase of the project.

BTE-8: Focused surveys will be conducted for desert tortoise and their burrows within the fenced area after the fence is installed and prior to ground-disturbing activities. A qualified biologist shall survey for, trap/capture species present, and relocate to a designated area approved by USFWS or CDFW.

BTE-9: Habitat for this species will be re-established within temporary impact zones between the highway and edge of ROW. This area will be replanted with native plants similar to the natural surrounding area and

the soil compacted only to a point necessary for construction purposes. This will allow any natural occurring individuals within the immediate vicinity to repopulate the temporary impact zone.