

SUMMARY

New information on the southern California/Central Coast evolutionarily significant unit (ESU) mountain lion's candidacy status under the California Endangered Species Act (CESA) and the candidate status of monarch butterfly for listing under the Federal Endangered Species Act (FESA) was specifically considered relative to the impact to biological resources.

Both the mountain lion and monarch butterfly have the potential to occur but were not observed in the biological resource study area (RSA) defined for the project analysis. Construction has the potential to directly impact mountain lion from vehicle strikes in construction work areas, loss of habitat, noise, dust, and increased vibration. Indirect impacts could occur from temporary habitat conversion and fragmentation. During operations and maintenance (O&M), direct impacts to mountain lion could include injury or mortality of individuals from maintenance vehicles or equipment. Indirect impacts from noise and vibration could result in the displacement, shifts in foraging patterns or territories, shifts in dispersal movements, decreased reproductive success, and reduced population viability. Mitigation Measures BIO-MM#84 and BIO-MM#85 would avoid and mitigate impacts to mountain lion. With implementation of mitigation measures, construction and operational impacts to mountain lion were determined to be less than significant under the California Environmental Quality Act (CEQA).

Direct impacts on monarch butterfly during construction could include mortality and destruction or degradation of habitat. Indirect impacts to monarch butterfly could occur from habitat fragmentation. O&M activities could result in direct impacts to monarch butterfly from incidental trampling or crushing of individuals by maintenance vehicles or equipment or temporary disturbance of habitat, or train strikes. Mitigation Measures BIO-MM#82 and BIO-MM#83 would avoid or minimize and mitigate impacts to monarch butterfly. With implementation of mitigation measures, construction and operational impacts to monarch butterfly were determined to be less than significant under CEQA.

In addition to providing new information about mountain lion and monarch butterfly, the Authority has identified two new mitigation measures to address impacts to wildlife resulting from lighting during construction and during project operation. Mitigation Measures BIO-MM#86 and BIO-MM#87 have been added to avoid or minimize lighting impacts during construction and operations, respectively.

Tables S-6, S-7, and S-8 of the Draft EIR/EIS have been updated to include mitigation measures from Section 3.7, which now includes mitigation measures to avoid, minimize, and mitigate impacts to mountain lion and monarch butterfly and impacts related to lighting.

Table S-1 Comparison of Potential Adverse Impacts of Bakersfield to Palmdale Project Section Build Alternatives

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
Biological and Aquatic Resources								
Construction Impacts								
Impact BIO#2: Disturbance of Suitable Habitat that has the Potential to Support Special-status Reptile, Amphibian, and Insect Species	X	X	X	X	X	X	<p>BIO-MM#7: Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species</p> <p>BIO-MM#8: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species</p> <p>BIO-MM#11: Conduct Surveys for Blunt-Nosed Leopard Lizard</p> <p>BIO-MM#13: Implement Avoidance Measures for Blunt-Nosed Leopard Lizard</p> <p>BIO-MM#36: Install Aprons or Barriers within Security Fencing</p> <p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#55: Prepare and Implement a Weed Control Plan</p> <p>BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones</p> <p>BIO-MM#61: Establish and Implement a Compliance Reporting Program</p>	Less than significant

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
							BIO-MM#62: Prepare Plan for Dewatering and Water Diversions BIO-MM#63: Work Stoppage BIO-MM#79: Mitigation for Desert Tortoise BIO-MM#80: Conduct Surveys and Implement Avoidance Measures for Crotch Bumble Bee BIO-MM#82: Avoid Direct Impacts on Monarch Butterfly Host Plants BIO-MM#83: Provide Compensatory Mitigation for Impacts on Monarch Butterfly Breeding and Foraging Habitat BIO-MM#86: Implement Lighting Minimization Measures During Construction	
Impact BIO#2: Construction Impacts on Special-status Bird Species (Including Raptors)	X	X	X	X	X	X	BIO-MM#14: Conduct Pre-construction Surveys and Delineate Active Nest Exclusion Areas for Other Breeding Birds BIO-MM#15: Conduct Pre-construction Surveys and Monitoring for Raptors BIO-MM#16: Implement Avoidance Measures for California Condor BIO-MM#17: Conduct Surveys for Swainson's Hawk Nests and implement Avoidance and Minimization Measures BIO-MM#18: Implement Avoidance and Minimization Measures for Swainson's Hawk Nests BIO-MM#20: Conduct Protocol Surveys for Burrowing Owls BIO-MM#21: Implement Avoidance and Minimization Measures for Burrowing Owl BIO-MM#43: Provide Compensatory Mitigation for Loss of Swainson's Hawk Nesting Trees and Habitat BIO-MM#44: Provide Compensatory Mitigation for Loss of Active Burrowing Owl Burrows and Habitat	Less than significant

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
							<p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#56: Conduct Monitoring of Construction Activities</p> <p>BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones</p> <p>BIO-MM#61: Establish and Implement a Compliance Reporting Program</p> <p>BIO-MM#62: Prepare Plan for Dewatering and Water Diversions</p> <p>BIO-MM#63: Work Stoppage</p> <p>BIO-MM#66: Implement Avoidance Measures for Active Eagle Nests</p> <p>BIO-MM#67: Provide Compensatory Mitigation for Loss of Eagle Nests</p> <p>BIO-MM#68: Avoid and Minimize Impacts to White-tailed kite</p> <p>BIO-MM#69: Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies</p> <p>BIO-MM#70: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat</p> <p>BIO-MM#71: Implement California Condor Avoidance Measures During Helicopter Use</p> <p>BIO-MM#72: Implement Avoidance of Nighttime Light Disturbance for California Condor</p>	

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
							BIO-MM#74: Implement Bird Nest and Avian Special Status Species Avoidance Measures for Helicopter-Based Construction Activities BIO-MM#76: Implement Wildlife Rescue Measures BIO-MM#86: Implement Lighting Minimization Measures During Construction	
Impact BIO#2: Disturbance to Suitable Habitat that has the Potential to Support Special-status Mammal Species	X	X	X	X	X	X	BIO-MM#22: Conduct Pre-Construction Surveys for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse BIO-MM#23: Implement Avoidance and Minimization Measures for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse BIO-MM#25: Conduct Pre-construction Surveys for Special-Status Bat Species BIO-MM#26: Implement Bat Avoidance and Relocation Measures BIO-MM#27: Implement Bat Exclusion and Deterrence Measures BIO-MM#28: Conduct Pre-construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures BIO-MM#29: Conduct Pre-construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures BIO-MM#30: Conduct Pre-construction Surveys for San Joaquin Kit Fox BIO-MM#31: Minimize Impacts on San Joaquin Kit Fox BIO-MM#36: Install Aprons or Barriers within Security Fencing	Less than significant

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
							<p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#56: Conduct Monitoring of Construction Activities</p> <p>BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones</p> <p>BIO-MM#60: Limit Vehicle Traffic and Construction Site Speeds</p> <p>BIO-MM#61: Establish and Implement a Compliance Reporting Program</p> <p>BIO-MM#62: Prepare Plan for Dewatering and Water Diversions</p> <p>BIO-MM#63: Work Stoppage</p> <p>BIO-MM#76: Implement Wildlife Rescue Measures</p> <p>BIO-MM#77: Implement Wildlife Height Requirements for Enhanced Security Fencing</p> <p>BIO-MM#78: Install Wildlife Jump-outs</p> <p>BIO-MM#84: Conduct Pre-Construction Surveys and Implement Avoidance and Minimization Measures for Mountain Lion Dens</p> <p>BIO-MM#85: Provide Compensatory Mitigation for Impacts on Mountain Lion Core and Patch Habitat</p> <p>BIO-MM#86: Implement Lighting Minimization Measures During Construction</p>	

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
Impact BIO#5: Construction Impacts on Wildlife Movement	X	X	X	X	X	X	BIO-MM#36: Install Aprons or Barriers within Security Fencing BIO-MM#37: Minimize Effects to Wildlife Movement Corridors During Construction BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites BIO-MM#56: Conduct Monitoring of Construction Activities BIO-MM#64: Establish Wildlife Crossings BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel BIO-MM#77: Implement Wildlife Height Requirements for Enhanced Security Fencing BIO-MM#78: Install Wildlife Jump-outs BIO-MM#86: Implement Lighting Minimization Measures During Construction	Less than significant
Operations Impacts								
Impact BIO#8: Disturbance to Suitable Habitat that has the Potential to Support Special-Status Reptile, Amphibian, and Insect Species	X	X	X	X	X	X	BIO-MM#36: Install Aprons or Barriers within Security Fencing BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat BIO-MM#79: Mitigation for Desert Tortoise	Less than significant

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
							BIO-MM#81: Provide Compensatory Mitigation for Impacts to Crotch Bumble Bee BIO-MM#83: Provide Compensatory Mitigation for Impacts on Monarch Butterfly Breeding and Foraging Habitat BIO-MM#87: Implement Lighting Minimization Measures for Operations	
Impact BIO#8: Operational Impacts on Special-Status Bird Species	X	X	X	X	X	X	BIO-MM#43: Provide Compensatory Mitigation for Loss of Swainson’s Hawk Nesting Trees and Habitat BIO-MM#44: Provide Compensatory Mitigation for Loss of Active Burrowing Owl Burrows and Habitat BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat BIO-MM#67: Provide Compensatory Mitigation for Loss of Eagle Nests BIO-MM#70: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat BIO-MM#71: Implement California Condor Avoidance Measures During Helicopter Use BIO-MM#73: Implement Removal of Carrion that may Attract Condors and Eagles BIO-MM#76: Implement Wildlife Rescue Measures BIO-MM#87: Implement Lighting Minimization Measures for Operations	Less than significant
Impact BIO#8: Permanent Impacts to Suitable Habitat that has the Potential to	X	X	X	X	X	X	BIO-MM#36: Install Aprons or Barriers within Security Fencing	Less than significant

Impact	Alt 1	Alt 2	Alt 3	Alt 5	CCNM Design Option	Refined CCNM Design Option	Mitigation Measures	CEQA Level of Significance after Mitigation
Support Special-Status Mammal Species							<p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel</p> <p>BIO-MM#45: Provide Compensatory Mitigation for Impacts to San Joaquin Kit Fox Habitat</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#76: Implement Wildlife Rescue Measures</p> <p>BIO-MM#77: Implement Wildlife Height Requirements for Enhanced Security Fencing</p> <p>BIO-MM#78: Install Wildlife Jump-outs</p> <p>BIO-MM#85: Provide Compensatory Mitigation for Impacts on Mountain Lion Core and Patch Habitat</p> <p>BIO-MM#87: Implement Lighting Minimization Measures for Operations</p>	

¹ Impact conclusions are shown for the greatest impact in the issue area (i.e., if impacts after mitigation were found to remain significant and unavoidable in some locations and be reduced to less than significant in some locations, the table indicates the overall impact in that issue area to be significant and unavoidable).

“X” denotes the adverse impact conclusion and mitigation applies to that alternative. “N/A” denotes the impact conclusion and mitigation are not applicable to that alternative or design option

CEQA = California Environmental Quality Act

CCNM = César E. Chávez National Monument Design Option

Table S-2 Comparison of Potential Adverse Impacts of Station Sites

Impact	Bakersfield Station F Street (Locally Generated Alternative)	Palmdale Station	Mitigation Measures	CEQA Level of Significance after Mitigation
Biological and Aquatic Resources				
Construction Impacts				
<p>Impact BIO#2: Disturbance of Suitable Habitat that has the Potential to Support Special-Status Reptile, Amphibian, and Insect Species</p>	X	X	<p>BIO-MM#7: Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species BIO-MM#8: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species BIO-MM#11: Conduct Surveys for Blunt-Nosed Leopard Lizard BIO-MM#13: Implement Avoidance Measures for Blunt-Nosed Leopard Lizard BIO-MM#36: Install Aprons or Barriers within Security Fencing BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat BIO-MM#55: Prepare and Implement a Weed Control Plan BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones BIO-MM#61: Establish and Implement a Compliance Reporting Program BIO-MM#62: Prepare Plan for Dewatering and Water Diversions BIO-MM#63: Work Stoppage BIO-MM#79: Mitigation for Desert Tortoise BIO-MM#80: Conduct Surveys and Implement Avoidance Measures for Crotch Bumble Bee BIO-MM#83: Provide Compensatory Mitigation for Impacts on Monarch Butterfly Breeding and Foraging Habitat BIO-MM#86: Implement Lighting Minimization Measures During Construction</p>	Less than significant

Impact	Bakersfield Station F Street (Locally Generated Alternative)	Palmdale Station	Mitigation Measures	CEQA Level of Significance after Mitigation
<p>Impact BIO#2: Construction Impacts on Special-Status Bird Species (Including Raptors)</p>	<p>X</p>	<p>X</p>	<p>BIO-MM#14: Conduct Pre-construction Surveys and Delineate Active Nest Exclusion Areas for Other Breeding Birds BIO-MM#15: Conduct Pre-construction Surveys and Monitoring for Raptors BIO-MM#16: Implement Avoidance Measures for California Condor BIO-MM#17: Conduct Surveys for Swainson’s Hawk Nests and implement Avoidance and Minimization Measures BIO-MM#18: Implement Avoidance and Minimization Measures for Swainson’s Hawk Nests BIO-MM#20: Conduct Protocol Surveys for Burrowing Owls BIO-MM#21: Implement Avoidance and Minimization Measures for Burrowing Owl BIO-MM#43: Provide Compensatory Mitigation for Loss of Swainson’s Hawk Nesting Trees and Habitat BIO-MM#44: Provide Compensatory Mitigation for Loss of Active Burrowing Owl Burrows and Habitat BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat BIO-MM#56: Conduct Monitoring of Construction Activities BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones BIO-MM#61: Establish and Implement a Compliance Reporting Program BIO-MM#62: Prepare Plan for Dewatering and Water Diversions BIO-MM#63: Work Stoppage BIO-MM#65: Conduct Pre-construction Surveys and Monitoring for Bald and Golden Eagles</p>	<p>Less than significant</p>

Impact	Bakersfield Station F Street (Locally Generated Alternative)	Palmdale Station	Mitigation Measures	CEQA Level of Significance after Mitigation
			<p>BIO-MM#66: Implement Avoidance Measures for Active Eagle Nests</p> <p>BIO-MM#67: Provide Compensatory Mitigation for Loss of Eagle Nests</p> <p>BIO-MM#68: Avoid and Minimize Impacts to White-tailed kite</p> <p>BIO-MM#69: Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies</p> <p>BIO-MM#70: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat</p> <p>BIO-MM#71: Implement California Condor Avoidance Measures During Helicopter Use</p> <p>BIO-MM#72: Implement Avoidance of Nighttime Light Disturbance for California Condor</p> <p>BIO-MM#86: Implement Lighting Minimization Measures During Construction</p>	
<p>Impact BIO#2: Construction Impacts on Special-Status Mammal Species</p>	<p>X</p>	<p>N/A</p>	<p>BIO-MM#22: Conduct Pre-Construction Surveys for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse</p> <p>BIO-MM#23: Implement Avoidance and Minimization Measures for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse</p> <p>BIO-MM#25: Conduct Pre-construction Surveys for Special-Status Bat Species</p> <p>BIO-MM#26: Implement Bat Avoidance and Relocation Measures</p> <p>BIO-MM#27: Implement Bat Exclusion and Deterrence Measures</p> <p>BIO-MM#28: Conduct Pre-construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures</p> <p>BIO-MM#29: Conduct Pre-construction Surveys for American Badger Den Sites and Implement Minimization Measures</p> <p>BIO-MM#30: Conduct Pre-construction Surveys for San Joaquin Kit Fox</p> <p>BIO-MM#31: Minimize Impacts on San Joaquin Kit Fox</p> <p>BIO-MM#36: Install Aprons or Barriers within Security Fencing</p>	<p>Less than significant</p>

Impact	Bakersfield Station F Street (Locally Generated Alternative)	Palmdale Station	Mitigation Measures	CEQA Level of Significance after Mitigation
			<p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#56: Conduct Monitoring of Construction Activities</p> <p>BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones</p> <p>BIO-MM#60: Limit Vehicle Traffic and Construction Site Speeds</p> <p>BIO-MM#61: Establish and Implement a Compliance Reporting Program</p> <p>BIO-MM#62: Prepare Plan for Dewatering and Water Diversions</p> <p>BIO-MM#63: Work Stoppage</p> <p>BIO-MM#76: Implement Wildlife Rescue Measures</p> <p>BIO-MM#77: Implement Wildlife Height Requirements for Enhanced Security Fencing</p> <p>BIO-MM#86: Implement Lighting Minimization Measures During Construction</p>	
Operations Impacts				
<p>Impact BIO#8: Operational Impacts on Special-Status Reptile, Amphibian, and Insect Species</p>	X	X	<p>BIO-MM#36: Install Aprons or Barriers within Security Fencing</p> <p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson's Antelope Squirrel</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p>	Less than significant

Impact	Bakersfield Station F Street (Locally Generated Alternative)	Palmdale Station	Mitigation Measures	CEQA Level of Significance after Mitigation
			BIO-MM#79: Mitigation for Desert Tortoise BIO-MM#81: Provide Compensatory Mitigation for Impacts to Crotch Bumble Bee BIO-MM#83: Provide Compensatory Mitigation for Impacts on Monarch Butterfly Breeding and Foraging Habitat BIO-MM#87: Implement Lighting Minimization Measures for Operations	
Impact BIO#8: Operational Impacts on Special-status Bird Species	X	X	BIO-MM#43: Provide Compensatory Mitigation for Loss of Swainson’s Hawk Nesting Trees and Habitat BIO-MM#44: Provide Compensatory Mitigation for Loss of Active Burrowing Owl Burrows and Habitat BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat BIO-MM#67: Provide Compensatory Mitigation for Loss of Eagle Nests BIO-MM#70: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat BIO-MM#71: Implement California Condor Avoidance Measures During Helicopter Use BIO-MM#73: Implement Removal of Carrion that may Attract Condors and Eagles BIO-MM#76: Implement Wildlife Rescue Measures BIO-MM#87: Implement Lighting Minimization Measures for Operations	Less than significant
Impact BIO#8: Operational Impacts on Special-Status Mammal Species	X	X	BIO-MM#36: Install Aprons or Barriers within Security Fencing BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel BIO-MM#45: Provide Compensatory Mitigation for Impacts to San Joaquin Kit Fox Habitat	Less than significant

Impact	Bakersfield Station F Street (Locally Generated Alternative)	Palmdale Station	Mitigation Measures	CEQA Level of Significance after Mitigation
			<p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#76: Implement Wildlife Rescue Measures</p> <p>BIO-MM#77: Implement Wildlife Height Requirements for Enhanced Security Fencing</p> <p>BIO-MM#78: Install Wildlife Jump-outs</p> <p>BIO-MM#87: Implement Lighting Minimization Measures for Operations</p>	

For additional analysis of the Bakersfield Station-F Street LGA refer to the *Fresno to Bakersfield Section Draft Supplemental EIR/EIS (California High-Speed Rail Authority and Federal Railroad Administration 2017)*. Cumulative analysis considers all project components together; therefore, cumulative impacts associated with stations are included in the cumulative impact analysis for the B-P Build Alternatives in Table S-1.

"X" denotes the adverse impact conclusion and mitigation applies to that alternative. "N/A" denotes the impact conclusion and mitigation are not applicable to that alternative

- Authority = California High-Speed Rail Authority
- B-P = Bakersfield to Palmdale Project Section
- CEQA = California Environmental Quality Act
- EIR = Environmental Impact Report
- EIS = Environmental Impact Statement
- FRA = Federal Railroad Administration
- HSR = high-speed rail
- IAMF = impact avoidance and minimization feature
- LGA = Locally Generated Alternative

Table S-3 Comparison of Potential Adverse Impacts of Maintenance Facility Alternatives

Impact	Maintenance Facility Alternatives		Mitigation Measure	CEQA Level of Significance after Mitigation
	Lancaster North A and Lancaster North B Sites	Avenue M LMF Zone		
Biological and Aquatic Resources				
Construction Impacts				
Impact BIO#2: Disturbance of Suitable Habitat that has the Potential to Support Special-Status Reptile, Amphibian, and Insect Species	X	X	<p>BIO-MM#7: Conduct Pre-construction Surveys for Special-Status Reptile and Amphibian Species</p> <p>BIO-MM#8: Implement Avoidance and Minimization Measures for Special-Status Reptile and Amphibian Species</p> <p>BIO-MM#11: Conduct Surveys for Blunt-Nosed Leopard Lizard</p> <p>BIO-MM#13: Implement Avoidance Measures for Blunt-Nosed Leopard Lizard</p> <p>BIO-MM#36: Install Aprons or Barriers within Security Fencing</p> <p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#55: Prepare and Implement a Weed Control Plan</p> <p>BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones</p> <p>BIO-MM#61: Establish and Implement a Compliance Reporting Program</p> <p>BIO-MM#62: Prepare Plan for Dewatering and Water Diversions</p>	Less than significant

Impact	Maintenance Facility Alternatives		Mitigation Measure	CEQA Level of Significance after Mitigation
	Lancaster North A and Lancaster North B Sites	Avenue M LMF Zone		
			BIO-MM#63: Work Stoppage BIO-MM#79: Mitigation for Desert Tortoise BIO-MM#80: Conduct Surveys and Implement Avoidance Measures for Crotch Bumble Bee BIO-MM#83: Provide Compensatory Mitigation for Impacts on Monarch Butterfly Breeding and Foraging Habitat BIO-MM#86: Implement Lighting Minimization Measures During Construction	
Impact BIO#2: Construction Impacts on Special-Status Bird Species (Including Raptors)	X	X	BIO-MM#14: Conduct Pre-construction Surveys and Delineate Active Nest Exclusion Areas for Other Breeding Birds BIO-MM#15: Conduct Pre-construction Surveys and Monitoring for Raptors BIO-MM#16: Implement Avoidance Measures for California Condor BIO-MM#17: Conduct Surveys for Swainson’s Hawk Nests and implement Avoidance and Minimization Measures BIO-MM#18: Implement Avoidance and Minimization Measures for Swainson’s Hawk Nests BIO-MM#20: Conduct Protocol Surveys for Burrowing Owls BIO-MM#21: Implement Avoidance and Minimization Measures for Burrowing Owl BIO-MM#43: Provide Compensatory Mitigation for Loss of Swainson’s Hawk Nesting Trees and Habitat BIO-MM#44: Provide Compensatory Mitigation for Loss of Active Burrowing Owl Burrows and Habitat BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources	Less than significant

Impact	Maintenance Facility Alternatives		Mitigation Measure	CEQA Level of Significance after Mitigation
	Lancaster North A and Lancaster North B Sites	Avenue M LMF Zone		
			<p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#56: Conduct Monitoring of Construction Activities</p> <p>BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones</p> <p>BIO-MM#61: Establish and Implement a Compliance Reporting Program</p> <p>BIO-MM#62: Prepare Plan for Dewatering and Water Diversions</p> <p>BIO-MM#63: Work Stoppage</p> <p>BIO-MM#65: Conduct Pre-construction Surveys and Monitoring for Bald and Golden Eagles</p> <p>BIO-MM#66: Implement Avoidance Measures for Active Eagle Nests</p> <p>BIO-MM#67: Provide Compensatory Mitigation for Loss of Eagle Nests</p> <p>BIO-MM#68: Avoid and Minimize Impacts to White-Tailed Kite</p> <p>BIO-MM#69: Conduct Surveys and Implement Avoidance Measures for Active Tricolored Blackbird Nest Colonies</p> <p>BIO-MM#70: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat</p> <p>BIO-MM#71: Implement California Condor Avoidance Measures During Helicopter Use</p> <p>BIO-MM#72: Implement Avoidance of Nighttime Light Disturbance for California Condor</p> <p>BIO-MM#86: Implement Lighting Minimization Measures During Construction</p>	

Impact	Maintenance Facility Alternatives		Mitigation Measure	CEQA Level of Significance after Mitigation
	Lancaster North A and Lancaster North B Sites	Avenue M LMF Zone		
Impact BIO#2: Construction Impacts on Special-status Mammal Species	X	X	<p>BIO-MM#22: Conduct Pre-Construction Surveys for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse</p> <p>BIO-MM#23: Implement Avoidance and Minimization Measures for Nelson’s Antelope Squirrel, Tipton Kangaroo Rat, Dulzura Pocket Mouse, and Tulare Grasshopper Mouse</p> <p>BIO-MM#25: Conduct Pre-construction Surveys for Special-Status Bat Species</p> <p>BIO-MM#25: Conduct Pre-construction Surveys for Special-Status Bat Species</p> <p>BIO-MM#26: Implement Bat Avoidance and Relocation Measures</p> <p>BIO-MM#27: Implement Bat Exclusion and Deterrence Measures</p> <p>BIO-MM#28: Conduct Pre-construction Surveys for American Badger Den Sites and Implement Minimization Measures</p> <p>BIO-MM#29: Conduct Pre-construction Surveys for Ringtail and Ringtail Den Sites and Implement Avoidance Measures</p> <p>BIO-MM#30: Conduct Pre-construction Surveys for San Joaquin Kit Fox</p> <p>BIO-MM#31: Minimize Impacts on San Joaquin Kit Fox</p> <p>BIO-MM#36: Install Aprons or Barriers within Security Fencing</p> <p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resources</p>	Less than significant

Impact	Maintenance Facility Alternatives		Mitigation Measure	CEQA Level of Significance after Mitigation
	Lancaster North A and Lancaster North B Sites	Avenue M LMF Zone		
			<p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#56: Conduct Monitoring of Construction Activities</p> <p>BIO-MM#58: Establish Environmentally Sensitive Areas and Non-Disturbance Zones</p> <p>BIO-MM#60: Limit Vehicle Traffic and Construction Site Speeds</p> <p>BIO-MM#61: Establish and Implement a Compliance Reporting Program</p> <p>BIO-MM#62: Prepare Plan for Dewatering and Water Diversions</p> <p>BIO-MM#63: Work Stoppage</p> <p>BIO-MM#76: Implement Wildlife Rescue Measures</p> <p>BIO-MM#77: Implement Wildlife Height Requirements for Enhanced Security Fencing</p> <p>BIO-MM#86: Implement Lighting Minimization Measures During Construction</p>	
Operations Impacts				
Impact BIO#8: Disturbance to Suitable Habitat that has the Potential to Support Special-status Reptile, Amphibian, and Insect Species	X	X	<p>BIO-MM#36: Install Aprons or Barriers within Security Fencing</p> <p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p>	Less than significant

Impact	Maintenance Facility Alternatives		Mitigation Measure	CEQA Level of Significance after Mitigation
	Lancaster North A and Lancaster North B Sites	Avenue M LMF Zone		
			<p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#79: Mitigation for Desert Tortoise</p> <p>BIO-MM#81: Provide Compensatory Mitigation for Impacts to Crotch Bumble Bee</p> <p>BIO-MM#83: Provide Compensatory Mitigation for Impacts on Monarch Butterfly Breeding and Foraging Habitat</p> <p>BIO-MM#87: Implement Lighting Minimization Measures for Operations</p>	
Impact BIO#8: Operational Impacts on Special-status Bird Species	X	X	<p>BIO-MM#43: Provide Compensatory Mitigation for Loss of Swainson's Hawk Nesting Trees and Habitat</p> <p>BIO-MM#44: Provide Compensatory Mitigation for Loss of Active Burrowing Owl Burrows and Habitat</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#67: Provide Compensatory Mitigation for Loss of Eagle Nests</p> <p>BIO-MM#70: Provide Compensatory Mitigation for Impacts on Tricolored Blackbird Habitat</p> <p>BIO-MM#71: Implement California Condor Avoidance Measures During Helicopter Use</p> <p>BIO-MM#73: Implement Removal of Carrion that may Attract Condors and Eagles</p> <p>BIO-MM#76: Implement Wildlife Rescue Measures</p> <p>BIO-MM#87: Implement Lighting Minimization Measures for Operations</p>	Less than significant

Impact	Maintenance Facility Alternatives		Mitigation Measure	CEQA Level of Significance after Mitigation
	Lancaster North A and Lancaster North B Sites	Avenue M LMF Zone		
Impact BIO#8: Operational Impacts on Special-status Mammal Species	X	X	<p>BIO-MM#36: Install Aprons or Barriers within Security Fencing</p> <p>BIO-MM#42: Provide Compensatory Mitigation for Impacts to Habitat for Blunt-Nosed Leopard Lizard, Tipton Kangaroo Rat, and Nelson’s Antelope Squirrel</p> <p>BIO-MM#45: Provide Compensatory Mitigation for Impacts to San Joaquin Kit Fox Habitat</p> <p>BIO-MM#47: Prepare and Implement a Compensatory Mitigation Plan (CMP) for Impacts to Aquatic Resource</p> <p>BIO-MM#50: Implement Measures to Minimize Impacts During Offsite Habitat Restoration, or Enhancement, or Creation on Mitigation Sites</p> <p>BIO-MM#53: Prepare a Compensatory Mitigation Plan (CMP) for Species and Species Habitat</p> <p>BIO-MM#76: Implement Wildlife Rescue Measures</p> <p>BIO-MM#77: Implement Wildlife Height Requirements for Enhanced Security Fencing</p> <p>BIO-MM#78: Install Wildlife Jump-outs</p> <p>BIO-MM#87: Implement Lighting Minimization Measures for Operations</p>	Less than significant

Cumulative analysis considers all project components together; therefore, cumulative impacts associated with stations are included in the cumulative impact analysis for the B-P Build Alternatives in Table S-1.

“X” denotes the adverse impact conclusion and mitigation applies to that alternative. “N/A” denotes the impact conclusion and mitigation are not applicable to that alternative

B-P = Bakersfield to Palmdale Project Section

CEQA = California Environmental Quality Act

HSR = high-speed rail

IAMF = impact avoidance and minimization feature

LMF = light maintenance facility