

**Initial Study/
Mitigated Negative Declaration
for the
Institution Road Reconstruction and
Maintenance Project**

Lead Agency:

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Department of Public Works
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San Bernardino, California 92415



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Initial Study

A.1 Project Description

The San Bernardino County Department of Public Works (County) proposes the reconstruction of Institution Road over a distance of approximately 5,400 feet to a uniform 26-foot paved width and a maximum 10-foot temporary disturbance at the shoulder areas (total of 20 feet). Institution Road is an existing paved road which was recently declared a County highway within the city limits of the City of San Bernardino. Existing pavement is between 24 to 28 feet wide within an 80-foot-wide road right-of-way (ROW). Reconstruction may include removing existing asphalt concrete surfacing, excavation of roadway, placement of new asphalt concrete over aggregate base, placement of Portland Cement Concrete, including cutoff walls, and the painting of traffic striping and pavement markings. Regular and routine maintenance and repair activities will occur, such as debris removal, pothole patching, chip seal, fog seal, shoulder grading (up to 10 feet from pavement edge), storm clean-up (up to 20 feet from pavement edge), and repair, traffic control; maintenance of traffic signage, pavement striping and markings.

The project site is located in the City of San Bernardino, approximately 0.5 mile south-southwest of Interstate 215 (Figure 1).

A.1.1 Background and Purpose and Need

Institution Road was established as a County Highway in order for the County to maintain and/or improve continued access to the Sheriff's Department's Helen Rehabilitation Center and the Frank Bland Regional Training Center. The subject reach of Institution Road is physically located in the City, but has never been accepted by the City into its maintained street system.

Institution Road has experienced numerous closures after storm events have deposited large amounts of sediment across it. In addition, the surface of the road is in quite poor condition and there are safety issues with the uneven edges. As a County highway, the County will ensure the establishment and maintenance of Institution Road, and maintain public safety by ensuring access to the Glen Helen Rehabilitation Center and the Frank Bland Regional Training Center.

A.1.2 Project Site, Location, and Vicinity

The proposed project is located in the City of San Bernardino (Figure 1). The proposed project site is comprised of the existing paved Institution Road. Institution Road connects to Verdernont Ranch Road (north-south) on the west and Cajon Boulevard (northwest-southeast) on the east. Institution Road also connects to Palm Avenue (southwest-northeast) east of the project site. The closest major highway with access to the proposed project site is Interstate 215, approximately 0.5 mile east-northeast of the proposed project site.

Aside from Institution Road, the vicinity of the project area is natural habitat that varies from sparse sandy wash to mature sage scrub. The San Bernardino County Sheriff Training Facilities and Rehabilitation Center, the Glen Helen Off-road Vehicle recreation area, and County Fire facilities are located west of the project site. Light industrial businesses exist east of the project site. Residential communities, including university housing exist further east. The Cajon Wash flows from north to south intercepting Institution Road, which runs south-southwest to north-northeast.



**Figure 1
 Project Location**

A.1.3 Proposed Project

The County proposes the reconstruction of Institution Road over a distance of approximately 5,400 feet to a uniform 26-foot paved width and a maximum 10-foot temporary disturbance at the shoulder areas (total of 20 feet [see Figure 3]). Reconstruction would include the following activities:

- Removing existing asphalt concrete surfacing,
- Excavation of roadway,
- Placement of new asphalt concrete over aggregate base,
- Placement of Portland Cement Concrete, including cutoff walls, and
- Painting of traffic striping and pavement markings.

The placement of Portland Cement Concrete, including cutoff walls (sediment removal facilitation areas) is included in the proposed project to provide protection to the integrity of Institution Road during flood flows by being designed to withstand the flow of water without being carried away or damaged (see Figure 4). No detour road is associated with the proposed project. One lane of 11-foot minimum width would be available during construction and on non-construction hours.

The proposed project may entail between 2.5 to 4 feet of excavation that would only take place within the existing paved roadway bed. This excavation is anticipated to generate approximately 2,100 cy of asphalt and approximately 4,000 cy of dirt/soil. The roadway shoulders would only experience minimal surficial disturbance as a result of equipment movement.

A.1.3.1 Construction

Construction of the proposed project is expected to be completed in less than four weeks. The construction stages are summarized below in Table A.1-1.

Stage	Activities	Summary	Duration (Days)
1	Mobilization	Mobilize vehicles, equipment, and materials to the project site.	3
2	Road Excavation	Excavate approximately 2,100 cubic yards (CY) of asphalt and 4,000 CY of dirt/soil.	6
3	Placement of Aggregate Base and Asphalt Surface	Approximately 1,800 CY of compacted aggregate base and 4,000 tons of asphalt to be placed.	10
4	Concrete Structures Installation	Approximately 1,460 CY of concrete to be installed for curbs and cutout walls.	14
5	Street Completion and Misc. Works	Painting and road sign installation, etc.	2

Construction would be completed during daylight hours, 8 hours per day. The construction work would be staged to reconstruct one lane of the two lane road then the other lane in order to allow flagged traffic flow in one lane at all times. This would cause the work stages to overlap in different areas of the 5,400-foot length of road reconstruction.

The number of active off-road equipment used during construction of the proposed project could vary from one or two to as many as 12, depending on actual site conditions and the specific construction activities that are ongoing. The types of off-road equipment anticipated to be required during construction of the proposed project include the following: excavator, loaders, dozer, compaction equipment/rollers,

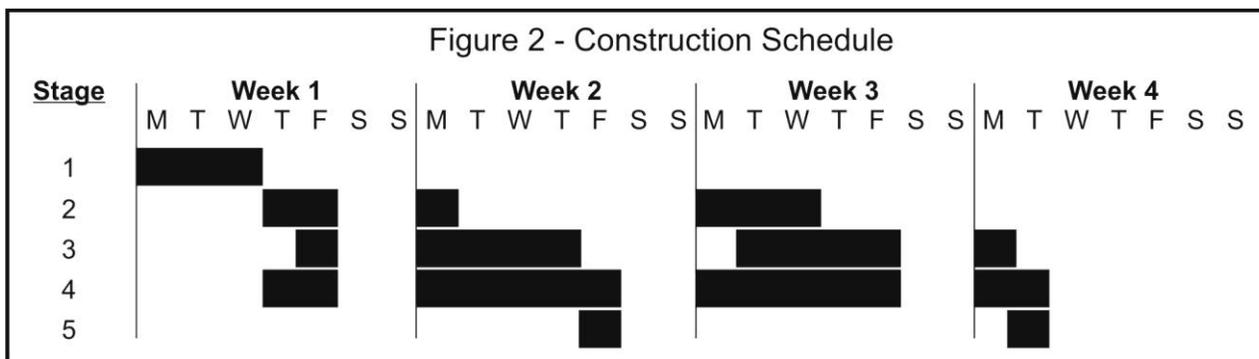
wheel-mounted air compressor(s), paver, forklift, and concrete pump. Table A.1-2 gives the estimated list and activity levels for the required off-road equipment.

Table A.1-2. Off-Road Construction Equipment

Equipment Type	Horsepower	Number	Hours / Day	# Days
Mobilization (Stage 1)				
Rough Terrain Forklift	100	1	2	3
Road Excavation (Stage 2)				
Excavator/Breaker/Pulverizer	70	1	7	6
Bulldozer	150	1	8	6
Bobcat	60	1	4	6
Loader	129	2	4	6
Placement of Aggregate Base and Asphalt Surface (Stage 3)				
Loader	129	1	6	10
Paver	121	1	7	10
Grader	200	1	4	10
Soil Compactor	100	1	7	10
Asphalt Roller	100	1	7	10
Steel Wheel Compactor	60	1	7	10
Concrete Structures Installation (Stage 4)				
Concrete Pump	43	1	6	14
Street Completion and Misc. Works (Stage 5)				
Compressor	100	1	8	2
Bobcat	60	1	8	2

In addition to the off-road construction equipment items noted above, the project will also require a large number of on-road vehicle trips/use, such as water trucks, crew trucks, haul/dump trucks, fuel trucks, and employee vehicles. The maximum daily trip assumptions for the on-road vehicles are provided in the Traffic and Transportation section, and the total trips and vehicle miles traveled per trip are presented in the Air Quality Appendix A. Temporary disturbance and staging areas for the vehicles and equipment identified in Table A.1-2 would occur within the existing paved roadway. The total area of temporary disturbance is 5.7 acres.

The assumed project schedule, showing the overlap of work phases and separation of work for construction of each traffic lane, is provided below in Figure 2.





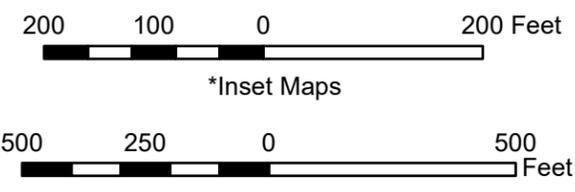
500 250 0 500 Feet

Permanent Impact Area

Temporary Impact Area

Temporary Equipment Staging Area

Figure 3
Proposed Project During Construction



- Existing Road
- Sediment Removal Facilitation Area
- Permanent Impact Areas**
- Maintenance Impact Limits of Road
- Maintenance Impact Limits of Sediment Removal Facilitation Area

Figure 4
Proposed Project During
Operation and Maintenance

Transportation. Institution Road is the primary access route to the San Bernardino County Sheriff Training Facilities and Rehabilitation Center, the Glen Helen Off-road Vehicle recreation area, and County Fire facilities. Travelers acquire access to Institution Road via Cajon Boulevard (northwest-southeast) and Palm Avenue (northeast-southwest). One lane of 11-foot minimum width would be available during construction and on non-construction hours as no detour is available.

Utilities. Portable toilets would be provided on the construction site. The construction contractor selected to construct the proposed project would be responsible for providing generators and fuel as needed to power the equipment and vehicles required during construction.

Existing utilities include a petroleum pipeline crossing the project site at the west end, near the intersection of Institution Road and Verdemont Ranch Road; An overhead electrical transmission line crossing the route near the east end of the project area; and buried telecommunications infrastructure located parallel to the project route.

A Kinder Morgan petroleum line, natural gas line, and Verizon telecommunications line would be potholed to verify its location and depth. The County would coordinate if any relocation(s) is/are required. Otherwise, the existing utilities would be protected in place.

Water. During construction of the proposed project, a water source would be required for soil compaction, dust suppression, concrete/grout/equipment, wash-down (in designated areas per the Stormwater Pollution Prevention Plan [SWPPP]), concrete placement preparation, and possibly miscellaneous concrete or grout production. The water source would be the closest fire hydrant located approximately 1.15 miles east of the proposed project at the intersection of Palm Avenue and Kendall Drive and is serviced by the City of San Bernardino Water Department.

A.1.3.2 Operation and Maintenance

Regular and routine maintenance and repair activities would occur as necessary, and typically includes activities such as debris removal, pothole patching, chip seal, fog seal, shoulder grading (up to 10 feet from pavement edge), storm clean-up (up to 20 feet from pavement edge), and repair, traffic control; maintenance of traffic signage, pavement striping and markings (see Figure 3).

A.1.3.3 Project Design Features

The proposed project includes a number of design features that have been incorporated to avoid or reduce potential adverse environmental effects. These features are listed below.

- Equipment staging would be located on the empty lot in the southwest corner of the intersection of Institution Road and Verdemont Ranch Road, and existing Institution Road.
- Access to the wash area would be restricted.

The measures listed above are project design features and would be implemented with the proposed project; these are not mitigation measures, or additional requirements considered necessary to avoid or minimize impacts.

A.1.4 Required Permits and Approvals

Construction and operation of the proposed project may require the discretionary actions and approvals listed below, per jurisdiction. State and federal Endangered Species Act (ESA) permits are listed below

because the project site is located within the geographic range of the Santa Ana River woollystar, which is listed as endangered under both State and federal ESAs. The applicable regulatory agencies [US Fish and Wildlife Service (USFWS) and California Department of Fish and Wildlife (CDFW)] would make the final determinations as to whether ESA permits are required. In the absence of ESA permits, suitable measures would be developed to ensure that the project would not result in a take of Santa Ana River woollystar.

Federal

- USFWS
 - Biological Opinion/Endangered Species Act/Section 7 Consultation
- United States Army Corps of Engineers (USACE)
 - Clean Water Act Section 404

State

- CDFW
 - Streambed Alteration Agreement/California Fish and Game Code Section 1600
 - Incidental Take Permit (if applicable)
- Native American Heritage Commission
 - Consultation on Sacred Areas to comply with State requirements

Regional

- Santa Ana Regional Water Quality Control Board (RWQCB)
 - National Pollutant Discharge Elimination System (NPDES) Permit (SWPPP), if applicable under Section 404 of the Clean Water Act
 - Water Quality Certification/Clean Water Act Section 401

B. Environmental Determination

B.1 Environmental Factors Potentially Affected

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" and requiring implementation of mitigation as indicated by the checklist on the following pages.

- | | | |
|--|---|--|
| <input type="checkbox"/> Aesthetics | <input type="checkbox"/> Agriculture and Forestry Resources | <input type="checkbox"/> Air Quality |
| <input checked="" type="checkbox"/> Biological Resources | <input checked="" type="checkbox"/> Cultural Resources | <input type="checkbox"/> Geology/Soils |
| <input type="checkbox"/> Greenhouse Gas Emissions | <input type="checkbox"/> Hazards/Hazardous Materials | <input type="checkbox"/> Hydrology/Water Quality |
| <input type="checkbox"/> Land Use/Planning | <input type="checkbox"/> Mineral Resources | <input type="checkbox"/> Noise |
| <input type="checkbox"/> Population/Housing | <input type="checkbox"/> Public Services | <input type="checkbox"/> Recreation |
| <input checked="" type="checkbox"/> Transportation/Traffic | <input type="checkbox"/> Utilities/Service Systems | <input checked="" type="checkbox"/> Mandatory Findings of Significance |

B.2 Environmental Determination

On the basis of this initial evaluation:

- I find that the Proposed Project COULD NOT have a significant effect on the environment, and a **NEGATIVE DECLARATION** will be prepared.
- I find that although the Proposed Project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A **MITIGATED NEGATIVE DECLARATION** will be prepared.
- I find that the Proposed Project MAY have a significant effect on the environment, and an **ENVIRONMENTAL IMPACT REPORT** is required.
- I find that the Proposed Project may have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect (1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and (2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An **ENVIRONMENTAL IMPACT REPORT** is required, but it must analyze only the effects that remain to be addressed.
- I find that although the Proposed Project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the Proposed Project, nothing further is required.


Harold Zamora, P.E., Division Chief
Environmental Management Division
County of San Bernardino
Department of Public Works

8/1/2016
Date

C. Evaluation of Environmental Impacts

C.1 Aesthetics

AESTHETICS				
Would the project:	Potentially Significant Impact	Less Than Significant with Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect on a scenic vista?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Substantially degrade the existing visual character or quality of the site and its surroundings?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project have a substantial adverse effect on a scenic vista?

LESS THAN SIGNIFICANT IMPACT. Construction of the proposed project would temporarily have an adverse effect on the scenic vista surrounding the project site due to construction activity and vehicles. However, construction is expected to occur within 35 days; therefore, impacts from construction would be temporary. The proposed project would not present permanent structures that would obstruct views from vehicle travelers in the area. Therefore, there would not be any substantial or permanent adverse effects during operation of the proposed project. After construction, the new road would appear nearly identical to the existing road. As such, visual impacts associated with the proposed project would be less than significant.

b. Would the project substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a State scenic highway?

LESS THAN SIGNIFICANT IMPACT. No scenic resources or historic structures exist in the project area. Impacts from construction would be temporary and there would not be any permanent adverse effects during operation of the proposed project. As such, visual impacts along Institution Road would be less than significant.

c. Would the project substantially degrade the existing visual character or quality of the site and its surroundings?

LESS THAN SIGNIFICANT IMPACT. There is no development in the immediate vicinity of Institution Road. The San Bernardino County Sheriff Training Facilities and Rehabilitation Center, the Glen Helen Off-road Vehicle recreation area, and County Fire facilities are located west of the project site. During the construction period, the proposed improvements would introduce construction activities and equipment for approximately 35 days. Therefore, this impact to the visual character of the area would be temporary and less than significant.

When construction is complete, the project would replace the existing road. Therefore, the proposed improvements would not permanently alter nor degrade the existing visual character of the area, and impacts would be less than significant.

d. Would the project create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?

LESS THAN SIGNIFICANT IMPACT. Construction of the proposed project would only occur during the daytime hours. No construction would occur during the nighttime. Additionally, there is no development in the immediate vicinity of the road, and the closest residential community is located 0.5 mile east-northeast of the project site across the Interstate 215. Therefore, the project would not create a new source of substantial light or glare which would adversely affect residents, or other sensitive receptors.

C.2 Agriculture and Forestry Resources

AGRICULTURE AND FORESTRY RESOURCES

In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment Project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resources Board. **Would the project:**

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with existing zoning for agricultural use, or a Williamson Act contract?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Result in the loss of forest land or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as Shown on the Maps Prepared Pursuant to the Farmland Mapping and Monitoring Program (FMMP) of the California Resources Agency, to Non-agricultural use?

NO IMPACT. According to the San Bernardino County FMMP map, the proposed project site is designated as Urban and Built-up Land and Non-Irrigated Lands. The proposed project site is not located within Prime Farmland, Unique Farmland, or Farmland of Statewide Importance as designated by the FMMP (DOC, 2014). Therefore, construction and operation of the proposed project would not convert designated Farmland and there would be no impact under this criterion.

b. Would the project conflict with existing zoning for agricultural use, or a Williamson Act contract?

NO IMPACT. The proposed project site is not located within a county agricultural zoning district. According to San Bernardino County Williamson Act maps from FY 2014/2015, the proposed project site is located within Non-Enrolled Land. As defined by the Department of Conservation, Non-Enrolled Land is land not enrolled in a Williamson Act contract and not mapped by the FMMP as Urban and Built-Up Land or Water (DOC, 2015). Therefore, construction and operation of the proposed project would not conflict with Williamson Act contracts and there would be no impact under this criterion.

- c. Would the project conflict with existing zoning for, or cause rezoning of, forest land [as defined in Public Resources Code section 12220(g)], timber-land (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production [as defined by Government Code section 51104(g)]?**

NO IMPACT. The proposed project site is not located on land that is zoned for forest land or timberland. Therefore, the proposed project would not conflict with existing zoning for forest land or timberland, and there would be no impact under this criterion.

- d. Would the project result in the loss of forest land or conversion of forest land to non-forest use?**

NO IMPACT. The proposed project site is not located on or adjacent to forest or wilderness land. Therefore, the proposed project would not conflict with existing zoning for forest land or timberland, and there would be no impact under this criterion.

- e. Would the project involve other changes in the existing environment, which, due to their location or nature, could result in conversion of Farmland to non-agricultural use or conversion of forest land to non-forest use?**

NO IMPACT. The proposed project would not convert any agricultural land to non-agricultural uses nor would it convert any forest land to non-forest use; therefore, it is not anticipated that the proposed project would involve other changes that would result in conversions to non-agricultural or non-forest uses. There would be no impact under this criterion.

C.3 Air Quality

AIR QUALITY

Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. **Would the project:**

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Conflict with or obstruct implementation of the applicable air quality plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable Federal or State ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Expose sensitive receptors to substantial pollutant concentrations?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Create objectionable odors affecting a substantial number of people?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project conflict with or obstruct implementation of the applicable air quality plan?

LESS THAN SIGNIFICANT IMPACT. The Southern California Air Quality Management District (SCAQMD) and Southern California Association of Governments (SCAG) have developed air quality management plans (AQMPs) to meet the requirements of the Federal Clean Air Act. The focus of the 2003 AQMP was to demonstrate attainment of the federal particulate matter (PM10) standard by 2006 and the federal 1-hour ozone (O₃) standard by 2010, while making expeditious progress toward attainment of State standards (SCAQMD, 2003). The 2003 AQMP also includes a nitrogen dioxide (NO₂) maintenance plan. The 2007 AQMP was developed for the purposes of demonstrating compliance with the new National Ambient Air Quality Standards (NAAQS) for PM2.5, the NAAQS for PM10, the 8-hour O₃ NAAQS, the 1-hour O₃ NAAQS, and other air quality planning requirements. The 1-hour O₃ standard was revoked by the USEPA, but the SCAQMD is still tracking progress towards attainment of this standard. The SCAQMD Governing Board adopted the Final 2007 AQMP on June 1, 2007 (SCAQMD, 2007). The AQMD Governing Board approved the 2012 AQMP on December 7, 2012 (SCAQMD, 2012). This plan addresses the 1-hour and 8-hour Ozone Plan inadequacies identified by the USEPA and provides a 24-hour PM2.5 plan. However, this AQMP has not yet been approved by the USEPA, so it is not the applicable AQMP for CEQA review. Currently, the 2009 Maintenance Plan is the applicable plan for PM10, and the 2007 AQMP is the applicable plan for ozone and PM2.5.

There are no applicable emissions reduction measures in these plans, that are not already part of approved regulations, since the proposed project includes no major stationary emission sources. Additionally, the proposed project would not cause new growth; and the operations and maintenance requirements would not increase as a result of the project, with similar or more routine maintenance and repair activities occurring under existing conditions for Institution Road. Therefore, the proposed project would not conflict with or obstruct the applicable air quality plans.

b. Would the project violate any air quality standard or contribute substantially to an existing or projected air quality violation?

LESS THAN SIGNIFICANT IMPACT. The proposed project's construction and operation air pollutant emissions are well below the magnitude needed to cause an air quality standard violation or contribute

substantially to an existing or projected air quality standard violation. Therefore, the proposed project would not significantly impact ambient air quality.

Also, please see the regional and localized air pollutant emissions analysis provided below under Impacts c. and d.

c. *Would the project result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

LESS THAN SIGNIFICANT IMPACT. Pollutant emission calculations related to the proposed project construction activities includes the emissions from on-road vehicles and off-road equipment utilized during construction, and fugitive PM emissions resulting from earthmoving activities and vehicle travel. The CalEEMod program was used to calculation emissions. No mitigation was assumed for on-road vehicles and off-road equipment engine emissions. The fugitive dust emissions calculations included mitigation that would be required to comply with SCAQMD Rule 403 (i.e. primarily wet dust suppression-watering). Detailed assumptions for the construction phases, including equipment and on-road vehicle use and construction task overlap assumptions, are provided in Appendix A. Table C.3-1 compares the maximum daily construction emissions of the project with the SCAQMD regional significance thresholds.

Table C.3-1. Maximum Daily Construction Emissions						
	VOC	CO	NOx	SOx	PM10	PM2.5
Maximum Daily Construction Emissions (lbs/day)	42.6	58.5	93.2	0.19	12.4	4.6
SCAQMD Regional Significance Thresholds (lbs/day)	75	550	100	150	150	55
<i>Exceeds Thresholds?</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>	<i>No</i>

Source: Appendix A; SCAQMD 2016a

The maximum daily regional emissions throughout project construction have been determined to be below all SCAQMD regional emissions thresholds. This estimate includes the conservative assumptions of an aggressive construction schedule that has several construction tasks overlapping in time, and the use of 2016 fleet average emissions factors for off-road and on-road equipment. Therefore, the project's regional air quality impacts are less than significant.

d. *Would the project expose sensitive receptors to substantial pollutant concentrations?*

LESS THAN SIGNIFICANT IMPACT. SCAQMD Localized Significance Thresholds (LSTs) are used to determine if a project could exceed ambient air quality thresholds for nearby sensitive receptors. The LSTs were established by SCAQMD for each source receptor area (SRA) within their jurisdiction, and represent on-site emission levels that could cause ambient air quality standard exceedances or substantial contributions to existing exceedances at given distances from the site to nearby receptor locations. The project is located in SRA 34 (Central San Bernardino Valley), and the nearest sensitive receptors are 140 meters west of the western most construction area within the Glen Helen Rehabilitation Center. The nearest non-institutional residential receptors are located more than a mile from the project site.

The appropriate LSTs for project site construction, linearly interpolated, were compared to the assumed reasonably foreseeable maximum localized on-site daily construction emissions in Table C.3-2. The nitrogen oxides (NOx) and carbon monoxide (CO) LSTs are higher than the regional thresholds, which were not exceeded, so those thresholds are not presented in the table.

Table C.3-2. Maximum Localized Daily Construction Emissions		
	PM10	PM2.5
Maximum Daily On-site Construction Emissions (lbs/day)	1.4	1.1
SCAQMD Localized Significance Thresholds (lbs/day)	33	14
<i>Exceeds Thresholds?</i>	<i>No</i>	<i>No</i>

Source: Appendix A; SCAQMD, 2016b

The maximum daily on-site emissions for LST determined are based on the maximum daily emissions for a single task, not the overlap of all daily emissions. This is the case because the overlapping tasks will not be working in the same areas of the 5,400-foot road reconstruction project, and would not notably contribute to the near-field localized air pollutant impacts. The maximum daily localized emissions have been determined to be below all SCAQMD LST emissions thresholds. Therefore, the project's localized criteria pollutant air quality impacts are less than significant.

The proposed project's toxic air contaminant (TAC) emissions and associated health risk potential are primarily associated with the diesel particulate matter (DPM) emissions during construction. As noted previously, the operation emissions from maintenance activities would not change. The emissions of acutely hazardous pollutants are negligible so the potential health risks are all related to long-term effects. The project's construction would only last a few weeks and would have minimal DPM emissions that would not have the potential to create health risks that exceed the SCAQMD significance thresholds. Therefore, the project's TAC emissions and air quality impacts are less than significant.

e. Would the project create objectionable odors affecting a substantial number of people?

LESS THAN SIGNIFICANT IMPACT. Some objectionable odors may be temporarily created during construction-related activities, such as from diesel exhaust and paving activities. Due to the distance of the nearest receptors from the project site (refer to question C.3.d, above), these odors would not affect a substantial number of people and would only occur proximate to the work area. Therefore, less than significant impacts related to objectionable odors would occur.

C.4 Biological Resources

BIOLOGICAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less Than Significant Impact	No Impact
a. Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
f. Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or State habitat conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

Background and Methods

A Biological Resources Technical Report (BRTR) was prepared by Aspen Environmental Group (Aspen) for the project and is included as an appendix to this document (Appendix B). The report includes a literature review and a search of the California Natural Diversity Database (CNDDDB) for the Devore, San Bernardino North, Cajon, Fontana, and San Bernardino South United States Geological Survey (USGS) 7.5-minute topographic quad. In addition, the report describes field surveys conducted by Justin M. Wood (of Aspen) in 2016 and an earlier field survey by San Bernardino County (County) Ecological Resource Specialists in 2014. During the 2014 surveys, Santa Ana River woollystar (*Eriastrum densifolium* ssp. *sanctorum*) were observed and mapped on the project site. In addition, San Bernardino kangaroo rat (SBKR) burrows were observed on the project site by a permitted (SBKR) biologist from the County. The purpose of the 2016 surveys was to map vegetation, map all Santa Ana River woollystar locations, map all kangaroo rat burrows, assess habitat suitability for all other special-status species, and conduct a reconnaissance-level survey for all special-status species. Transects were walked throughout the project site parallel to Institution Road.

A Jurisdictional Delineation (JD) was prepared by Aspen for the project and is included as an appendix to this document (Appendix C). The field survey was conducted by Mr. Wood during the January 2016 site visit to determine the type and extent of jurisdictional waters present.

a. Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local

or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife (CDFW) or U.S. Fish and Wildlife Service (USFWS)?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The project is likely to result in the removal or “take” of one endangered species: Santa Ana River woollystar. It also has a very high potential to “take” San Bernardino kangaroo rat. No additional special-status species were found during the field surveys described above, but several have a moderate or high potential to be present during project activities. These species are discussed below:

Listed Plant and Wildlife Species

Santa Ana River woollystar is listed as endangered under the California Endangered Species Act (CESA) and federal Endangered Species Act (ESA). A total of 158 individual plants were mapped within the project site. Of these, 2 individuals were growing within the project disturbance area and are expected to be impacted by project activities.

San Bernardino kangaroo rat is listed as endangered under the federal ESA. It is recognized as a state species of special concern by the CDFW. The majority of the project site lies within Unit 2 of the designated critical habitat for San Bernardino kangaroo rat (USFWS, 2008). During the 2016 surveys, Aspen mapped 14 kangaroo rat burrows, representing six precincts (burrow systems) within the project site but none of these were within the project disturbance area. Without additional protocol-level trapping surveys, it cannot be confirmed that these burrows belong to San Bernardino kangaroo rat. It is therefore assumed that suitable habitat within the project site is occupied by San Bernardino kangaroo rat and that up to six burrows (12 individuals) may be impacted by project activities.

Mitigation measures listed below would require the County or lead federal agency to consult with the USFWS to obtain a Biological Opinion (BO) to account for the take of a listed plants and animals. Mitigation measures listed below would require the County or lead federal agency to consult with the USFWS) to obtain a BO to account for the take of a listed plant and animal species. The mitigation measures would also require the County to provide compensatory mitigation for impacts to habitat within the project area at a ratio of 1:1. In addition, the mitigation measures below would reduce some of the impacts to Santa Ana River woollystar and San Bernardino kangaroo rats by (1) requiring a pre-construction clearance survey of the project site, and (2) requiring on-site monitoring project activities.

Other Special-status Plants.

Several other special-status plants have potential to be present but were not observed. These include slender-horned spineflower (*Dodecahema leptoceras*), Parry’s spineflower (*Chorizanthe parryi* var. *parryi*), White-bracted spineflower, Plummer’s mariposa-lily (*Calochortus plummerae*), and southern California black walnut (*Juglans californica* var. *californica*) both have a CRPR of 4.2. There are occurrences in the vicinity of the project and suitable habitat is present (CDFW, 2016). These species and several others are described in more detail in the Biological Resources Technical Report (Appendix A). Any impacts to additional special-status species will be reduced by the Mitigation Measures below which 1) requiring a pre-construction clearance survey of the project site, (2) requiring on-site monitoring project activities, and (3) require avoidance of special-status species to the greatest extent practicable.

Other Special-status Wildlife

Several other special-status wildlife species have potential to be present but were not observed. These include Coastal California gnatcatcher (*Polioptila californica californica*), Coast horned lizard

(*Phrynosoma blainvillii*), Orangethroat whiptail (*Aspidoscelis hyperythra*), Burrowing owl (*Athene cunicularia*), Northwestern San Diego pocket mouse (*Chaetodipus fallax fallax*), Los Angeles pocket mouse (*Perognathus longimembris brevinasus*), San Diego desert woodrat (*Neotoma lepida intermedia*), San Diego black-tailed jackrabbit (*Lepus californicus bennettii*). These species and several others are described in more detail in the BRTR (Appendix B). Any impacts to additional special-status species would be reduced by the mitigation measures below which 1) require a pre-construction clearance survey of the project site, (2) require on-site monitoring project activities, and (3) require avoidance of special-status species to the greatest extent practicable.

Nesting birds. The federal Migratory Bird Treaty Act (MBTA) and California Fish and Game Code Sections 3503, 3503.5, and 3513 prohibit take of migratory birds, including eggs or active nests, except as permitted by regulation (e.g., licensed hunting). Measures listed below would avoid potential take or other adverse impacts to nesting birds by (1) avoiding nesting season if possible, (2) requiring a pre-construction clearance survey of the project site during bird nesting season; (3) identifying buffer areas around any bird nest within or near the project site; (4) requiring on-site monitoring during project activities.

Mitigation Measures. The following mitigation measures would reduce potentially significant impacts to special-status species to less than significant.

- BIO-1** *Agency Coordination.* The County of San Bernardino, Department of Public Works (County) or lead agency will consult with the US Fish and Wildlife Service (USFWS) to obtain take for the Santa Ana River woollystar present within the project disturbance area as well impacts to San Bernardino kangaroo rat occupied and critical habitat. The County or lead agency will also obtain an Incidental Take Permit from California Department of Fish and Wildlife (CDFW) for impacts to state listed species. The County will abide by all conditions stated in the permit from the USFWS and CDFW.
- BIO-2** *Santa Ana River woollystar and San Bernardino kangaroo rat habitat compensation.* The County of San Bernardino, Department of Public Works proposes compensatory mitigation at a ratio of 1:1 (i.e., 1 acre of off-site compensation habitat for each acre of habitat affected by the project) for permanent or long-term loss of 2.71 acres of habitat within the project area. This mitigation ratio may be adjusted based on consultation with the US Fish and Wildlife Service and California Department of Fish and Wildlife.
- BIO-3** *Assign Project Biologist.* The County of San Bernardino, Department of Public Works (County) will assign a qualified biologist to conduct pre-construction surveys, construction monitoring, and related tasks listed below. A "qualified biologist" is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other monitoring-related actions. The Project Biologist will be authorized by the County to temporarily halt project activities if needed to prevent take of listed species or harm to any other special-status species.
- BIO-4** *Pre-construction clearance survey.* Prior to the start of any ground disturbance or vegetation clearing, the Project Biologist will survey the work area to determine if Santa Ana River woolly star are present. During the survey the Project Biologist should also search for small mammal burrows, nesting birds, or any other special-status species within the work area. Any special-status species or sensitive resources should be flagged and avoided as feasible.

- BIO-5* *Limit disturbance area.* Prior to the initiation of any ground-disturbing activity, the Project Biologist will work with County of San Bernardino, Department of Public Works staff and contractors to clearly demarcate the approved work area with fencing, flagging, lathe and rope, or other devices. The demarcated area shall be limited to the mapped project disturbance area shown in Figure 1 of the Initial Study/Mitigated Negative Declaration. No construction-related activity will be permitted outside the marked area.
- BIO-6* Nesting birds. Vegetation removal and initial ground disturbance will be completed outside the breeding season (i.e., no removal of potential nesting habitat from February 15 through August 15), or after a pre-construction nesting bird survey has been completed. The qualified biologist will confirm that no birds are nesting in or adjacent to areas to be disturbed. If native birds are nesting on the site, then construction will be postponed until nesting is completed or the qualified biologists will designate appropriate avoidance buffers around nests to protect nesting birds. No project related disturbance will be allowed within these buffers.
- BIO-7* Burrowing owl: A qualified biologist will survey the site in advance of vegetation and soil clearing to determine burrowing owl presence or absence. If burrowing owls are present on the site outside of the nesting season (September 1 to January 31), then the California Department of Fish and Wildlife (CDFW) will be consulted and the qualified biologist may be authorized to exclude them from the site using passive exclusion methods described in the most recent CDFW staff report on burrowing owl mitigation (CDFG, 2012). If burrowing owls are present on the site during nesting season (February 1 through August 31), then construction will be either be postponed until nesting is completed, or no disturbance will be allowed within an appropriate buffer area to be established by a qualified biologist in accordance with the CDFW staff report on burrowing owl mitigation (CDFG, 2012).
- BIO-8* *Biological Monitoring.* The Project Biologist or another qualified biological resources monitor will be present on the work site during all initial ground disturbance or vegetation clearing on a daily basis to document compliance with the avoidance and minimization measures and any additional mitigation, and to provide guidance in avoiding or minimizing impacts to biological resources. Once initial ground disturbance and clearing is completed the biological monitor should return on at least a weekly basis to ensure special-status species are being avoided and to inspect all the special-status species and evaluate the buffer distance.
- BIO-9* *Worker training.* The assigned Project Biologist will conduct training to ensure that all workers on the Project site (including contractors) are aware of all applicable Conservation Measures for biological resources. Specifically, workers will be required to (1) limit all activities to approved work areas; (2) report any Santa Ana River woollystar, small mammals, burrowing owl, or other special-status species, or bird nest observation in the work areas and access routes to the supervisor or Project Biologist; (3) avoid contact with any wildlife that may approach a work area and be aware of potential venomous reptile bites from carelessness or unnecessary harassment; (4) pick up and properly dispose of any food, trash or construction refuse; and (5) report any spilled materials (oil, fuel, solvent, engine coolant, raw concrete, or other material potentially hazardous to wildlife), to the supervisor or on-site Project Biologist. During the training, the instructor will briefly discuss special-status species that may occur in the work areas, their habitats, and requirements to avoid or minimize impacts. In addition, all workers will be informed of civil and criminal

penalties for violations of the federal Endangered Species Act, California Endangered Species Act, and the Migratory Bird Treaty Act.

BIO-10 Animals. No pets will be permitted on the work site. Workers will not be permitted to feed, harm, approach, harass, or handle wildlife at any time.

BIO-11 Trash, refuse, concrete, and other materials. All trash and food materials will be properly contained within vehicles or closed refuse bins while on the site, and will be regularly removed from the site (at least on a weekly basis) for proper disposal. All refuse from Project activities will be removed from each work site upon completion of maintenance work. No raw cement, concrete or washings thereof, asphalt, paint, oil, solvents, or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, shall be disposed of on-site or allowed to spill onto soil. Cleanup of any spilled material shall begin immediately.

BIO-12 Non-native plant species control. Throughout the duration of project activities the project disturbance area should be kept free of invasive non-native species. Additional non-native plant removal should also take place prior the storm clean-up to reduce the chances of spreading invasive species throughout the project area or into other offsite locations.

BIO-13 Construction Equipment. All construction vehicles and equipment shall be inspected by the biological monitor upon arrival to the project site. All equipment must arrive clean and free of mud and debris that could harbor invasive plant species seeds. If equipment is not clean, it may be sent off-site for thorough cleaning (i.e., to remove caked mud from the undercarriage, fenders, bumpers, etc., and vacuum or sweep the interior) before being allowed back into the work area. If the mud and debris can be safely removed and contained on the work site, the contained spoils may then be transported and disposed of at an approved facility offsite, allowing the equipment to remain on the site.

BIO-14 Work Hours. All project activities will take place during day time hours and no work will be allowed to take place at night. In addition, no nighttime lighting will be used.

b. Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The project is expected to result in the temporary loss of approximately 0.17 acres of scalebroom scrub and a permanent loss of approximately 0.46 acres of scalebroom scrub. This vegetation has a CDFW rating of S3, meaning it is considered vulnerable and at moderate risk of extinction (CDFG, 2010).

Mitigation measure *BIO-2* would off-set the direct loss of scalebroom scrub vegetation by (1) requiring off-site habitat compensation for permanent impacts that result from project activities. Any impacts to scalebroom in the temporary impact area are expected to be negligible because work in these areas is only proposed following large flood events when sediment is deposited and this event is expected to either scour the vegetation or cover it with sediment. In addition the acreage of impacts is considered negligible because of the large amount of similar habitat in the immediate vicinity of the project site.

c. *Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) either individually or in combination with the known or probable impacts of other activities through direct removal, filling, hydrological interruption, or other means?*

LESS THAN SIGNIFICANT WITH MITIGATION. There are no wetlands within the project site or in the immediate vicinity. However, there are a total of 0.93 acres of federal non-wetland waters of United States and 1.90 acres of CDFW jurisdictional waters of the state are present in the project area and are regulated under section 1600 of the California Fish and Game Code. Alteration to these features would necessitate authorization from the CDFW. Alteration to federal waters of the U.S would necessitate authorization from the United States Army Corps of Engineers (Corps) in Section 404 of the Clean Water Act (CWA). Alteration would also require authorization from the California Regional Water Quality Control Board (RWQCB) in Section 401 of the CWA. The mitigation measure below would require the County to obtain a Streambed Alteration Agreement from the CDFW and permits from the Corps and RWQCB for impacts to waters and to abide by all permit conditions. With the implementation of this mitigation measure, impacts would be less than significant.

BIO-15 Required Permits. The County of San Bernardino, Department of Public Works will obtain all required permits from the US Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife for impacts to jurisdictional waters of the state and non-wetland waters of the U.S.

d. *Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of wildlife nursery sites?*

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Wildlife may use the project area on occasion to move around the wash habitat or between upstream and downstream habitat. The project would not erect permanent or long-term barriers to wildlife movement, although there would be some short-term interruption of potential movement during project activities. These short-term impacts would be less than significant because of the short duration and the project activities being planned for daytime hours.

Project activities would be located primarily on an existing paved road and unpaved road shoulders and would not be expected to substantially affect wildlife movement or nursery areas. There is a small potential for nesting birds to be present in the project area and impacted by project activities. Mitigation Measure *BIO-6* would require pre-construction nesting bird surveys on the project area and would require avoidance of nests until they are allowed to fledge. Nesting bird buffers would be established, as needed to further avoid impacts to any nesting birds should they be present during project activities.

Wildlife nursery sites such as shrubs for birds; bare ground for ground-nesting birds; and burrows or other nesting areas for ground-dwelling vertebrates are present but impacts from project activities are not expected. Impacts to wildlife breeding areas would not be substantial for common or wide-ranging species, but could be substantial for special-status wildlife (see above). Due to availability of similar habitat surrounding the project area, any loss of habitat would be considered negligible and less than significant.

e. Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

LESS THAN SIGNIFICANT. The project is located within the Cajon Pass open space area identified in the County of San Bernardino General Plan Open Space Element (County of San Bernardino, 2007). It was designated as open space to preserve habitat values and maintain dispersion area. The Open Space Element states that this open space should be maintained to prevent damage to important dispersion areas and habitat. The project is not expected to result in long-term changes to the habitat in the open space. It may impact wildlife movement or dispersion through the area during project activities. The project activities are proposed to take place only during daytime hours and are not expected to create new barriers to wildlife movement through the area. Any impacts to the designated open space would be less than significant because of the nature of, duration of, and timing of all the project activities.

f. Would the project conflict with the provisions of an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or State habitat conservation plan?

NO IMPACT. The project site would not conflict with an adopted Habitat Conservation Plan, Natural Communities Conservation Plan, or other approved local, regional, or State habitat conservation plan because the proposed project site is not located within the limits of any existing or proposed plans. The project site is located immediately adjacent to the Cajon Creek Habitat Conservation Bank, however the project is not expected to impact the adjacent lands.

C.5 Cultural Resources and Tribal Cultural Resources

CULTURAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Cause a substantial adverse change in the significance of a historical resource as defined in §15064.5, or cause a substantial adverse change in the significance of a tribal cultural resource as defined in §21074?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
d. Disturb any human remains, including those interred outside of formal cemeteries?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

Background and Methods

Cultural resources are historic and prehistoric archaeological sites, historic architectural and engineering features and structures, and sites and resources of traditional cultural significance to Native Americans and other groups. Tribal cultural resources are sites, features, places, cultural landscapes, and sacred places or objects that have cultural value or significance to a Tribe. Unless otherwise noted, the following discussion is based on the 2016 Aspen cultural resources inventory and assessment report (Aspen, 2016; Appendix B).

The project area is located in the Cajon Pass, a location that is considered sensitive for cultural resources. The Cajon Pass is well known as a travel route, for Native Americans during prehistoric and historic times, as well as the route of the Old Spanish Trail, various historic toll roads, multiple rail lines, and Route 66. The project area also crosses Cajon Creek Wash, an important source of water, which would have been the focus of activity in both prehistoric and historic times. However, much of the project area is within the creek itself, and has been subject to frequent erosion.

A cultural resources study area was defined as a 5,400 foot long and 80 foot wide segment of Institution Road with a 50 feet buffer on each side of the road. The Los Angeles District, United States Army Corps of Engineers has not yet determined an Area of Potential Effect as part of the National Historic Preservation Act (NHPA) Section 106 process. A cultural resources literature and records search of the California Historical Resources Information System (CHRIS) of the study area and a ¼ mile buffer was conducted at the South Central Coast Information Center (SCCIC) located at the California State University, Fullerton. The search revealed that the entire study area was previously surveyed for cultural resources in 1982 and in 1990. The western segment of the project area was surveyed in 2009. Eight previous projects have taken place in the record search area: four grade separation projects, two Cajon Creek Plan projects, a storm drain project, and a utility pole and transmission line replacement project. Five of the projects overlap with the study area. In addition, four previously recorded resources were identified in the record search area: a segment of Institution Road, utility poles, and transmission lines, a segment of the Union Pacific Railroad cutoff and bridge, a concrete tank, and a trash scatter of glass bottles. Only the segment of Institution Road, utility poles, and transmission lines are in the cultural resources study area.

A review of historic United States Geologic Survey (USGS) and General Land Office (GLO) maps, and local geologic and soils maps was conducted. This review indicated that two previous road alignments, one

dating from the late nineteenth to early twentieth century, and the other from the 1930s to 1950s, were once located along the western section of the cultural resources study area, but are no longer present. The maps depict the construction of Institution Road in the 1960s. A review of soils and geologic maps indicate that project area is located in the Cajon Wash, a large drainage frequent to extensive flooding that contains recent Quaternary Alluvium deposited by fluvial processes. The Native American Heritage Commission (NAHC) was contacted to request a list of Native American groups and individuals interested in the proposed project area and a review of the Sacred Sites File. The NAHC responded that their database failed to indicate the presence of sacred sites in the project vicinity. The NAHC also forwarded a list of 11 Native American groups or individuals interested in development projects in the project area. Aspen sent 11 letters to those groups or individuals listed by the NAHC. The San Miguel Band of Mission Indians responded by requesting a copy of the record search results. The Soboba Band of Luiseño Indians responded by requesting that Native American Monitor(s) be present during any ground disturbing proceedings associated with the project. No other tribe has responded.

a. *Would the project cause a substantial adverse change in the significance of an historical resource as defined in §15064.5 [§15064.5 generally defines historical resource under CEQA], or cause a substantial adverse change in the significance of a tribal cultural resource as defined in §21074?*

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. A segment of the historic-era Institution Road and adjacent utility poles and transmission lines (P-36-02135/CA-SBR-13699H) are located within the cultural resources study area. However, this resource has been previously recommended not eligible for the California Register of Historical Resources.

However, the nearby facilities located outside the project area that the Institution Road is the primary access route for (i.e., San Bernardino County Sheriff Training Facilities and Rehabilitation Center) have not been evaluated for listing on the National Register, California Register, or local designation. If these facilities are evaluated and determined eligible in the future (i.e., an eligible district) then structures associated with those facilities (i.e., Institution Road, utility poles, and transmission lines) might be considered eligible as contributing elements of the district. The facilities are currently located outside of the project area and an evaluation of their eligibility for listing on the National Register, California Register, or local designation as a historical resource is beyond the scope of work for this proposed project.

Based on tribal consultation for the proposed project conducted in compliance with Assembly Bill (AB) 52, no known tribal cultural resources have been identified within the cultural resources study area. Annual or periodic flooding of the project area associated with the Cajon Wash has likely heavily disturbed the surface and subsurface of the project area, disturbing or destroying any intact historical resources or tribal cultural resources. As such, ground disturbance associated with the proposed project is not anticipated to impact historical resources as defined in CEQA Guidelines Section 15064.5. However, it is possible that previously unknown buried historical resources could be discovered and damaged or destroyed during ground disturbing work, which would constitute a significant impact absent mitigation.

Mitigation Measure. Implementation of Mitigation Measure CR-1 would evaluate and protect unanticipated discoveries of historical resources or tribal cultural resources, thereby reducing this impact to less than significant.

CR-1 Management of Unanticipated Discoveries of Historical Resources, Unique Archaeological Resources or Tribal Cultural Resources. If previously unidentified cultural resources and tribal cultural resources are identified during construction activities, construction work

within 100 feet of the find shall be halted and directed away from the discovery until a Secretary of the Interior qualified archaeologist or tribal representative assesses the significance of the resource. The archaeologist, in consultation with the County of San Bernardino, Department of Public Works, State Historic Preservation Officer, any interested Tribes, and any other responsible public agency, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be eligible to the National or California Registers, qualify as a unique archaeological resource under California Environmental Quality Act Section 21083.2 or determined to be tribal cultural resource as defined in Section 21074.

b. *Would the project cause a substantial adverse change in the significance of an archaeological resource pursuant to §15064.5?*

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. No unique archaeological resources have been identified in the cultural resources study area. Annual or periodic flooding of the project area associated with the Cajon Wash has likely heavily disturbed the surface and subsurface of the project area, disturbing or destroying any significant archaeological resources. However, it is possible that previously unknown buried archaeological resources could be discovered and damaged or destroyed during ground disturbing work, which would constitute a significant impact absent mitigation.

Mitigation Measure. Implementation of Mitigation Measure CR-1 described above would evaluate and protect unanticipated discoveries of unique archaeological resources, thereby reducing this impact to less than significant.

c. *Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?*

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. A vertebrate paleontology records check for resources located within the project area was conducted by the National History Museum of Los Angeles County (NHMLA) (McLeod, 2016). The search at the NHMLA revealed that the museum has no vertebrate fossils in their collection that lie within the project area, but there are fossils located farther afield from similar sedimentary deposits that may occur in the project area. The closest vertebrate fossil locality from a similar basin deposit is LACM 7811, located over 20 miles to the southwest of the project area. LACM 7811 is described as a fossil specimen of whipsnake, *Masticophis*, which was located at a depth of nine to 11 feet below the surface.

A review of geologic maps indicates that surface sediments within the proposed project area are composed of younger Quaternary Alluvium (about 14,000 years old to present), derived broadly as alluvial fan deposits from the San Gabriel Mountains adjacent to the northwest including via Cajon Wash that currently flows through the middle of the proposed project area (Rogers, 1967; Bortungno and Spittler, 1986). These younger Quaternary alluvial fan deposits typically do not contain significant vertebrate fossils, at least in the uppermost layers, but they might have pockets at depth (about eight to nine feet below the surface) within older Quaternary deposits that contain significant vertebrate fossil remains (McLeod, 2016). The proposed project is anticipated to disturb the ground surface to a max depth of 4.5 feet below the ground surface, and will likely not impact older Quaternary Alluvium that has the potential to contain unique paleontological resources or sites, or unique geologic features. However, there is low possibility that previously unknown paleontological resources or unique geologic features could be discovered and damaged or destroyed during ground disturbance, which would constitute a significant impact absent mitigation.

Mitigation Measure. Implementation of Mitigation Measure CR-2 described above would evaluate and protect unanticipated discoveries of unique paleontological resources or unique geologic features, thereby reducing this impact to less than significant.

CR-2 In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing or other construction activities, a paleontologist must be retained who meets the professional paleontologist qualifications (San Bernardino County Development Code §82.20.040, 2007; Society of Vertebrate Paleontology's Standard Procedures, 2010) and has demonstrated experience in carrying paleontological projects to completion. This qualified paleontologist must develop and implement a Paleontological Resources Management Plan (PRMP) for the project area that meets the standards set forth in San Bernardino County Development Code §82.20.030. This shall include:

- A Worker Environmental Awareness Program (WEAP) wherein all construction personnel are trained on the processes to be followed upon encountering any fossils.
- A monitoring plan for ground disturbing activities that provides the monitor(s) with the authority to temporarily halt or divert equipment. Monitors shall be onsite for any disturbance of sediments with high or unknown paleontological sensitivity. Monitors must have demonstrated sufficient paleontological training and field experience to have acceptable knowledge and experience of fossil identification, salvage and collection methods, paleontological techniques, and stratigraphy.
- A recovery plan for significant fossils that provides for the treatment of specimens to the point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.
- A specimen identification, analysis, and curation plan that includes identification to the lowest taxonomic level possible; taxonomic, taphonomic, and biostratigraphic analysis; and curation to the standards of the San Bernardino County Museum, where they will be curated.
- Documentation of the results of the construction monitoring program with daily monitoring reports, monthly progress reports, and a final report of findings with an appended itemized of specimens. These must be submitted to the County of San Bernardino, Department of Public Works for review.

d. Would the project disturb any human remains, including those interred outside of formal cemeteries?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. There is no indication that human remains are present within the cultural resources study area. Background archival research failed to find any potential for human remains (e.g., existence of formal cemeteries). The limited nature of the proposed ground disturbance makes it unlikely that human remains would be unearthed during construction. However, it is possible that previously unknown human remains could be discovered and damaged or destroyed during ground disturbance, which would constitute a significant impact absent mitigation.

Mitigation Measure. Implementation of Mitigation Measure CR-3, which requires evaluation, protection, and appropriate disposition of human remains, would reduce this impact to less than significant.

CR-3 All human remains discovered are to be treated with respect and dignity. Upon discovery of human remains, all work within 50 feet of the discovery area must cease immediately, nothing is to be disturbed, and the area must be secured. The San Bernardino County

Coroner's Office must be called. The Coroner has two working days to examine the remains after notification. The appropriate land manager/owner of the site is to be called and informed of the discovery. If the remains are located on federal lands, federal land managers, federal law enforcement, and the federal archaeologist must be informed as well, due to complementary jurisdiction issues. It is very important that the suspected remains, and the area around them, are undisturbed and the proper authorities called to the scene as soon as possible, as it could be a crime scene. The Coroner will determine if the remains are archaeological/historic or of modern origin and if there are any criminal or jurisdictional questions.

After the Coroner has determined the remains are archaeological/historic-era, the Coroner will make recommendations concerning the treatment and disposition of the remains to the person responsible for the excavation, or to his or her authorized representative. If the Coroner believes the remains to be those of a Native American, he/she shall contact the Native American Heritage Commission (NAHC) by telephone within 24 hours. The NAHC will immediately notify the person it believes to be the most likely descendant (MLD) of the remains. The MLD has 48 hours to make recommendations to the land owner for treatment or disposition of the human remains. If the descendant does not make recommendations within 48 hours, the land owner shall reinter the remains in an area of the property secure from further disturbance. If the land owner does not accept the descendant's recommendations, the owner or the descendant may request mediation by NAHC. According to the California Health and Safety Code, six (6) or more human burials at one (1) location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

C.6 Geology and Soils

GEOLOGY AND SOILS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ii) Strong seismic groundshaking?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iii) Seismic-related ground failure, including liquefaction?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
iv) Landslides?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in substantial soil erosion or the loss of topsoil?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:

i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.

LESS THAN SIGNIFICANT IMPACT. The proposed project is located in a seismically active region of Southern California in close proximity to faults of the San Andreas Fault System. The project site is located within the San Jacinto fault zone and is crossed by two active faults of the fault zone, the San Jacinto fault and the Glen Helen fault (USGS and CGS, 2016). Both of these faults have mapped Alquist-Priolo Earthquake Fault Zones, which merge into one wide zone that crosses approximately 2/3 of the project site (CGS, 1974 and 1995). Although the site crosses an active fault zone, the Institution Road Project consists only of regrading and repaving of an existing road within an existing ROW and would not include new utilities or habitable structures, and would therefore not result in a change or increase in the seismic hazard to people or other structures along the road. In the event of an earthquake and resultant fault displacement or offset causing roadway damage along this portion of Institution Road, it could be readily repaired and put back into use, resulting in a less than significant impact.

ii) Strong seismic ground shaking?

LESS THAN SIGNIFICANT. The proposed project is located in a seismically active area of Southern California in close proximity to active faults of the San Andreas Fault System, including faults of the San Jacinto and San Andreas Fault Zones. The project site is located within and crossed by faults of the San Jacinto Fault Zone and the San Andreas fault is located approximately 2 miles northeast of the east end of the proposed project. Strong groundshaking should be expected in the event of a large earthquake on any of the major faults in the region or on the faults near the proposed project.

The intensity of the seismic shaking, or strong ground motion, during an earthquake is dependent on the distance between the project area and the epicenter of the earthquake, the magnitude of the earthquake, and the geologic conditions underlying and surrounding the project area. Earthquakes occurring on faults closest to the project area would most likely generate the largest ground motion. The intensity of earthquake-induced ground motions can be described using peak site accelerations, represented as a fraction of the acceleration of gravity (g). The CGS Probabilistic Seismic Hazards Ground Motion Interpolator website was used to estimate peak ground accelerations (PGAs) at the project site for a large regional or local earthquake (CGS, 2016). Peak ground acceleration is the maximum acceleration experienced by a particle on the Earth's surface during the course of an earthquake, and the units of acceleration are most commonly measured in terms of fractions of g, the acceleration due to gravity (980 cm/sec²). The interpolator uses data from the 2008 Probabilistic Seismic Hazard Assessment Maps (PSHA) to interpolate peak ground accelerations with a 2 percent probability of exceedance in 50 years which corresponds to a return interval of 2,475 years for a maximum considered earthquake. Peak ground accelerations at the proposed project site is approximately 1.2 g, which corresponds to very strong ground shaking (CGS, 2016).

Although the site is likely to experience strong to very strong ground shaking within its lifetime, the Institution Road Project consists only of regrading and repaving of an existing road within an existing ROW and would not include new utilities or habitable structures, and would therefore not result in a change or increase in the seismic hazard to people or other structures along the road. In the event of earthquake ground shaking causing roadway damage along this portion of Institution Road, it could be readily repaired and put back into use, resulting in a less than significant impact.

iii) Seismic-related ground failure, including liquefaction?

LESS THAN SIGNIFICANT. Liquefaction is the phenomenon in which saturated granular sediments temporarily lose their shear strength during periods of earthquake-induced strong ground shaking. The susceptibility of a site to liquefaction is a function of the depth, density, and water content of the granular sediments and the magnitude and frequency of earthquakes in the surrounding region. Saturated, unconsolidated silts, sands, and silty sands within 50 feet of the ground surface are most susceptible to liquefaction. Liquefaction-related phenomena include lateral spreading, ground oscillation, flow failures, loss of bearing strength, subsidence, and buoyancy effects. In addition, densification of the soil resulting in vertical settlement of the ground can also occur. This phenomenon can result in damage to infrastructure, including foundations. The County of San Bernardino Geologic Hazard Maps for the project area present liquefaction susceptibility and the project site is in an area mapped as having high liquefaction susceptibility (County of San Bernardino, 2010). Although the site is likely underlain by shallow groundwater seasonally and is underlain by unconsolidated sediments, the abundance of coarse gravels and cobbles in the river wash/alluvium likely results in low liquefaction susceptibility for these sediments. As discussed above, the project consists only of regrading and repaving of an existing road within an existing ROW and would not include new utilities or habitable structures, and would therefore not result in a

change or increase in the seismic hazard to people or other structures along the road. In the event of earthquake induced liquefaction causing roadway damage along this portion of Institution Road, it could be readily repaired and put back into use, resulting in a less than significant impact.

Other types of seismic-related ground failures may include landslides and lateral spreading. Lateral spreading is the lateral movement or displacement of gently to steeply sloping, saturated soil deposits caused by liquefaction. The project site is located along a generally flat alluvial fan/alluvial wash and would not therefore be susceptible to landslides or lateral spreading. Additionally, the County of San Bernardino's Geologic Hazards Map for the project area indicates that the proposed project site and surrounding areas are not susceptible to landslides (County of San Bernardino, 2010). No impact would occur from earthquake induced landslides or lateral spreading.

iv) Landslides?

NO IMPACT. As described above, the project site is located on generally flat alluvial wash/alluvial fan and is not located in an area considered susceptible to landslides. The project would not expose people or the environment to adverse effects associated with landslides. No impact would occur.

b. Would the project result in substantial soil erosion or the loss of topsoil?

LESS THAN SIGNIFICANT IMPACT. The proposed project includes construction activities that may result in soil erosion and loss of topsoil. Regrading of the roadway and construction vehicles and equipment may degrade and disturb soils, which may subsequently be transported by wind and/or surface water runoff (in response to precipitation), accelerating the erosion processes. NRCS soil units along the project alignment, the Psammets-fluents-frequently flooded soils, Soboba soils, and Tujunga soils, all have low susceptibility to sheet and rill erosion by water and high susceptibility to wind erosion (NRCS, 2016). It is not anticipated that the project would result in substantial soil erosion, but temporary and site-specific impacts may occur. The NPDES permit obtained from the project would require BMP measures to control erosion during construction. Therefore, potential impacts would be less than significant.

c. Would the project be located on geologic units or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse?

LESS THAN SIGNIFICANT. As described above, the project site is mapped by San Bernardino County in an area of high liquefaction susceptibility, however the coarse geologic material underlying the site is not likely to be liquefiable. Additionally as the project only consists of regrading and repaving of an existing road within an existing ROW and would not include new utilities or habitable structures, there would be no change in the potential hazard to people or other structures along the road. In the event of earthquake induced liquefaction causing roadway damage along this portion of Institution Road, it could be readily repaired and put back into use, resulting in a less than significant impact. The project is not located in an area that is susceptible to landslides or lateral spreading. No impact would occur from landslides or earthquake induced lateral spreading.

d. Would the project be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?

NO IMPACT. Expansive soils are characterized by their ability to undergo significant volume change (shrink and swell) due to variation in soil moisture content. Changes in soil moisture could result from a number of factors, including rainfall, landscape irrigation, utility leakage, and/or perched groundwater.

Expansive soils are typically very fine grained with a high to very high percentage of clay. Soils with moderate to high shrink-swell potential would be classified as expansive soils. The three soils units mapped by the NRCS along the project alignment, the Psammments-fluents-frequently flooded soils, Soboba soils, and Tujunga soils, are all formed in alluvium and consist of sandy soils with varying amounts of gravel and minor silt and clay (NRCS, 2016). All three units have low shrink swell potential and would therefore not be defined as expansive soils (NRCS, 2016). No impact would occur.

e. Would the project have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?

NO IMPACT. The proposed project does not include installation of septic tanks or alternative wastewater disposal systems. No impact would occur.

C.7 Greenhouse Gas Emissions

GREENHOUSE GAS EMISSIONS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Note: Significance criteria established by CEQA Guidelines, Appendix G.

a. Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?

LESS THAN SIGNIFICANT IMPACT. The proposed project would generate greenhouse gas (GHG) emissions through construction activities. The period of construction would be short term (less than four weeks), and construction-phase GHG emissions would occur directly from the off-road, heavy-duty equipment and the on-road motor vehicles needed to mobilize crew, equipment, and materials. The project would also create a small amount of indirect GHG emissions from water use, but there is no incremental electricity use associated with this project. The indirect GHG emissions are considered to be negligible and were not calculated for this project.

Operation and maintenance of the proposed project would include activities such as repair, resurfacing, and restriping. Maintenance levels are not anticipated to increase from existing conditions as a result of this proposed project. Therefore, ongoing emissions will not increase from current levels.

The South Coast Air Quality Management District (SCAQMD) has established a GHG significance threshold of 10,000 tons per year (SCAQMD, 2016). The GHG emissions estimate calculations for construction are provided in Appendix A, and the summary of the proposed project's carbon dioxide equivalent (CO₂e) construction emissions estimates is shown in Table C.7-1.

	GHG Emissions (Tons CO ₂ e)
Construction Emissions	72.1
Amortized Annual Construction Emissions ¹	2.4
SCAQMD GHG Emissions Significance Threshold	10,000
Exceeds Thresholds?	No

Source: Appendix A; SCAQMD 2016; and note below.

1. Amortized emissions are the operation emissions plus the annualized construction emissions over the Project life (30 years).

The project's determined GHG emissions, shown above in Table C.7-1, are orders of magnitude below the SCAQMD GHG emissions significance threshold. Therefore, the project would have less-than-significant GHG emissions impacts.

b. Conflict with any applicable plan, policy or regulation of an agency adopted for the purpose of reducing the emissions of greenhouse gases?

LESS THAN SIGNIFICANT IMPACT. Climate change is a global phenomenon, and the regulatory background and scientific data are changing rapidly. In 2006, the California state legislature adopted Assembly Bill (AB) 32, the California Global Warming Solutions Act of 2006. AB 32 describes how global

climate change would affect the environment in California. The impacts described in AB 32 include changing sea levels, changes in snow pack and availability of potable water, changes in storm flows and flood inundation zones, and other impacts.

The GHG emissions for the proposed project, as described above, are expected to be minimal during construction. Furthermore, maintenance of the proposed project would not increase annual emissions from current levels. Estimated GHG emissions from construction of the proposed project would be well below the threshold of the federal and State mandatory reporting regulation. The proposed project's GHG emissions would not trigger regulatory action under the federal 40 CFR Part 52 and the State Cap-and-Trade regulations.

A summary of the compliance with all potentially applicable GHG plans, policies, and regulations is provided in Table C.7-2.

Table C.7-2. Project Consistency with Applicable Plans, Policies, and Regulations for GHG Emissions		
Adopted Plan, Policy, or Regulation	Consistency Determination	Proposed Project Consistency
Federal		
40 CFR Part 98. Mandatory Reporting of Greenhouse Gases Rule.	Not Applicable	The proposed project would not have emissions sources that would be subject to this regulation.
40 CFR Part 52. Proposed Prevention of Significant Deterioration and Title V Greenhouse Gas Tailoring Rule.	Not Applicable	The proposed project would not have emissions sources that would be subject to this regulation.
State		
AB 32. Annual GHG Emissions Reporting	Not Applicable	The proposed project does not include emissions sources that would be subject to this regulation.
AB 32. Cap-and-trade	Not Applicable	The proposed project does not include emissions sources that would be subject to this regulation.
Local		
San Bernardino County Greenhouse Gas Emissions Reduction Plan (San Bernardino County, 2015)	Consistent	Table C.7-1 indicates that the annualized GHG emissions are below the San Bernardino GHG Emissions Reduction Plan review standard threshold of 3,000 MT CO ₂ e per year.

Table C.7-3 identifies current potentially applicable California emission reduction strategies to reduce GHGs and identifies the project design feature or mitigation measure that is proposed to comply with these potentially applicable strategies.

Table C.7-3. California GHG reduction strategies	
Strategy	Project Design/Mitigation to Comply with Strategy
Vehicle Climate Change Standards	These are ARB enforced standards; vehicles that access the project that are required to comply with the standards would comply with these strategies.
Limit Idling Time for Commercial Vehicles	Project vehicles would be required to comply with ARB idling restriction regulations.
Construction and Demolition Waste Reduction	Construction wastes, specifically asphalt and concrete, would be recycled to the extent feasible.
Increase Water Use Efficiency	The project would only use water as necessary to comply with regulations for dust control during construction.
Building Energy Efficiency Standards	Not applicable.
Appliance Energy Efficiency	Not applicable.
California Solar Initiative	Not applicable.

Source: OPR 2008; CAPCOA 2009

This project would not conflict with state and local GHG emissions reduction plans and policies.

In summary, the proposed project would conform to State and local GHG emissions/climate change regulations and policies/strategies; therefore, the proposed project would have less-than-significant GHG impacts.

C.8 Hazards and Hazardous Materials

HAZARDS AND HAZARDOUS MATERIALS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
h. Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?

NO IMPACT. Construction of the project would include the use and transport of hazardous materials in the form of fuels and lubricants required to operate construction vehicles and equipment. Such use is not unusual and would occur in compliance with best management practices (BMPs) to avoid accidental leaks or spills. Materials used during construction of the project would not present a significant hazard to the public or the environment. During operation of the project, existing maintenance activities at Institution Road would continue, and would not require the routine transport, use, or disposal of hazardous materials. No impact would occur.

b. Would the project create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?

NO IMPACT. As described above, construction of the project would require the use of hazardous materials in the form of vehicle fuels and other materials required to operate construction vehicles and equipment. Operation of the project would not include the routine transport, use, or disposal of

hazardous materials. There is no reasonably foreseeable upset or accident condition involving the release of hazardous materials as a result of the project. No impact would occur.

c. Would the project emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?

NO IMPACT. No schools are located within one-quarter mile of the proposed project. The proposed project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste in proximity to any existing or proposed school.

d. Would the project be located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?

NO IMPACT. The California Department of Toxic Substance Control (DTSC) maintains the Hazardous Waste and Substances Sites List, also referred to as the Cortese List, for compliance with Section 65962.5 of the California Government Code. The Cortese List identifies hazardous materials sites selected for remedial action, sites with known toxic materials identified through the abandoned site assessment program, sites with underground storage tanks (USTs) having a reportable release, drinking water wells with detectable levels of contamination, and solid waste disposal facilities from which there is known migration of hazardous materials. The project site was not identified on the Cortese List (DTSC, 2007). The project is not located on a site that is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, therefore would not create a significant hazard to the public or the environment.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?

NO IMPACT. No airports are located within 2 miles of the proposed project. The San Bernardino International Airport is located over 8 miles southeast of the proposed project. The proposed project is not located within two miles of a public airport or public use airport and is not located within an airport land use plan. No impact would occur.

f. For a project within the vicinity of a private airstrip, would the project result in a safety hazard for people residing or working in the project area?

NO IMPACT. The San Bernardino International Airport is located over 8 miles southeast of the proposed project. The proposed project is not located within two miles of a public airport or public use airport and is not located within an airport land use plan. The proposed project would therefore not result in a safety hazard for people residing or working in the project area. No impact would occur.

g. Would the project impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. Implementation of a detour road would not occur during construction of the proposed project. One lane of 11' minimum width would be available during construction and on non-construction hours. Construction of the proposed project may require short-term traffic lane diversions and/or closures to ensure public safety while installing project infrastructure. Such diversions/closures would be conducted in coordination with Caltrans and standard BMPs to avoid adverse traffic effects, including as related to emergency response and evacuation.

A traffic control plan (Mitigation Measure T-1; Section C.16 Transportation/Traffic) would be implemented during project construction to minimize or avoid potential adverse impacts associated with transporting vehicles and equipment to and from the project site. During operation and maintenance of the project, the intensity and frequency of maintenance activities and associated truck traffic would not increase or result in new or increased impacts to emergency response or evacuation routes compared to existing and previous maintenance activities. Maintenance activities would likely decrease after the proposed project is constructed. Impacts related to emergency response and evacuation access would be less than significant with mitigation.

h. Would the project expose people or structures to a significant risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?

NO IMPACT. Wildland fires are not expected due to minimal vegetation in the project area. The proposed project site is not located on forest or wilderness land, and there is no immediate development adjacent to the proposed project. The proposed project would not involve the construction or operation of habitable structures in wildland areas or promote development in wildland areas. The proposed project would not introduce adverse impacts associated with wildland fires.

C.9 Hydrology and Water Quality

HYDROLOGY AND WATER QUALITY

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Violate any water quality standards or waste discharge requirements?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Substantially deplete groundwater supplies or interfere substantially with groundwater discharge such that there would be a net deficit in the aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner which would result in substantial erosion or siltation on or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on or off site?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e. Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Otherwise substantially degrade water quality?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
g. Place housing within a 100-year flood hazard area as mapped on a Federal Flood Hazard Boundary or Flood Insurance Rate Map or other hazard delineation map?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
h. Place within 100-year flood hazard area structures that would impede or redirect flood flows?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
i. Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
j. Cause inundation by seiche, tsunami, or mudflow?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project violate any water quality standards or waste discharge requirements?

LESS THAN SIGNIFICANT IMPACT. Required permits and approvals applicable to the proposed project are identified in Section A.1.4 (Required Permits and Approvals). The project is located within the jurisdiction of the Santa Ana Regional Water Quality Control Board (RWQCB) and is subject to the management direction of the Water Quality Control Plan for the Santa Ana River Basin region. Compliance with the California Stormwater Construction General Permit, and other applicable regulations, would be required. It is expected that the proposed project would be in compliance with all applicable permits and regulations.

Cajon Creek qualifies as jurisdictional waters of the State under Section 1600 of the State Fish and Game Code. Prior to initiation of the project, correspondence with the California Department of Fish and Wildlife (CDFW) would be required to obtain a Streambed Alteration Agreement. Cajon Creek is also jurisdictional under Section 404 of the Federal Clean Water Act (CWA). Therefore, a CWA Section 404 permit would be required. A 404 Permit would ensure minimization of, and mitigation of, impacts to Waters of the U.S. A water quality certification from the RWQCB would be required under Section 401 of the CWA.

During construction of the proposed project there would be a potential for spills of oil, grease, or other water contaminants associated with the use of vehicles, equipment, and materials used in construction, as well as the potential for increased erosion and sedimentation associated with soil disturbance. Any spill of a hazardous or potentially hazardous material, including oil or grease, would be immediately addressed in accordance with standard construction best management practices (BMPs) required by compliance with the Construction General Permit. In addition, compliance with existing laws and regulations, including the federal CWA, would include use of erosion control measures such as but not limited to straw wattles, as necessary, thereby minimizing or avoiding the potential for disturbed soils to migrate and result in increased turbidity in surface waters. Potential water quality impacts would likely only pose an immediate issue if a precipitation event were to occur during soil disturbing activities. It is not anticipated that soil-disturbing activities would be carried out during precipitation events, in accordance with standard construction BMPs.

Operation and maintenance of the proposed project would be the same as under existing conditions, and would not introduce potential to alter compliance with water quality permits and waste discharge requirements. It is expected that the proposed project operations would be in compliance with all applicable permits and regulations.

In summary, there is potential for project-related construction activities to result in adverse water quality effects, but such potential occurrences would be immediately addressed in compliance with construction BMPs as well as water quality permits and regulations. Impacts would be less than significant.

b. Would the project substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (i.e., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?

NO IMPACT. The proposed project does not involve the pumping of local groundwater resources, and would not introduce new impervious areas such that recharge rates or patterns would be affected. Any water needed for implementation of the proposed project, such as the manufacture of concrete and the suppression of dust generated during project construction, would be obtained from a local water purveyor. No impact to groundwater resources would occur.

c. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on or off site?

LESS THAN SIGNIFICANT IMPACT. The proposed project includes construction activities that may temporarily alter site-specific drainage patterns due to the ground disturbance associated with the use of off-road construction vehicles and equipment. Such disturbance would be temporary, of short duration, and limited to the construction period. The proposed project would not substantially alter the existing drainage pattern of the site or area, and potential impacts associated with temporary drainage pattern alterations and associated erosion would be less than significant. The proposed paved roadway surface would be at the same elevation and horizontal extent as the existing paved roadway surface and would therefore have no effect on the sediment transport of Cajon Wash.

d. Would the project substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on or off site?

NO IMPACT. The project would replace an existing at-grade roadway crossing with a new at-grade roadway crossing, and would have no effect on the course of Cajon Creek or any local tributaries. The

proposed project would not introduce substantial new areas of impervious surfaces such that the rate or amount of surface runoff would be affected. There would be no alteration of the drainage pattern. No impact would occur.

e. Would the project create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems to provide substantial additional sources of polluted runoff?

NO IMPACT. The proposed project replaces an existing paved roadway with a new paved roadway and would not introduce substantial new sources of surface water runoff. Potential effects associated with water quality degradation (the contribution of polluted runoff) would be less than significant as described under Item “a” above. All applicable local, State and federal requirements regarding stormwater drainage and water quality would be incorporated into construction of the project. No impact would occur.

f. Would the project otherwise substantially degrade water quality?

NO IMPACT. As described under Items “a” and “c”, potential degradation to water quality would be temporary and less than significant. All potential water quality effects associated with the proposed project are characterized above. No additional water quality impacts would occur.

g. Would the project place housing within a 100-year floodplain, as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?

NO IMPACT. The project would not involve the construction of any housing or habitable structures. No impact would occur.

h. Would the project place within a 100-year floodplain structures that would impede or redirect flood flows?

NO IMPACT. The proposed project would replace an existing at-grade roadway crossing, and would not introduce any structure with the potential to alter existing flood hazards in the project area. The proposed project would not impede or redirect flood flows. No impact would occur.

i. Would the project expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?

NO IMPACT. The project is adjacent to, but not protected by, levees. The project would have no effect on the risk or hazard to the public from levee failure. The project is a replacement of an existing roadway and would not alter the potential for failure of the existing levees. There are no nearby dams on this watercourse.

Traffic on Institution Road would be subject to hazards if Cajon Creek overflows the roadway after the project is constructed. This risk is an existing condition that would continue, unchanged, by the project. Since the flood hazard to traffic is an existing condition, and would not be increased by the project, there is no project-related impact.

j. Would the project cause inundation by seiche, tsunami, or mudflow?

NO IMPACT. The proposed project is not located near the coast and is not subject to inundation by tsunami. The project is also not located near another type of large body of water that could result in inundation by seiche. The project area topography is flat and is not subjected to mudflows. No impact would occur.

C.10 Land Use and Planning

LAND USE PLANNING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Physically divide an established community?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Conflict with any applicable habitat conservation plan or natural community conservation plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project physically divide an established community?

NO IMPACT. A community may be divided if a project were to introduce a physical barrier through that community. The proposed project is the reconstruction of the existing paved Institution Road, which would ensure continued access to the Glen Helen Rehabilitation Center and the Frank Bland Regional Training Center. There would be no additional roadway infrastructure introduced to the project area as part of the proposed project. During construction, one lane along Institution Road would be available for continued public access to the facilities. Therefore, the proposed project would not physically divide an established community.

b. Would the project conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to, the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?

NO IMPACT. The western side of the proposed project is located on lands under the jurisdiction of San Bernardino County, while the eastern side of the project is located on lands under the jurisdiction of the City of San Bernardino. The County's land use plans applicable to the project site include the 2007 General Plan and Development Code and the Glen Helen Specific Plan. As stated in the General Plan, the County utilizes a "one-map" system in which the County's General Plan Land Use Map also serves as the County's official Zoning Map. According to the Land Use Map, the western-most portion of the project site, from the western edge of the Cajon Wash to the Institution Road's western terminus, falls within the Glen Helen Specific Plan and is designated as a Public Facility corridor (The Planning Center, 2015). The eastern portion of the project site within the City of San Bernardino borders land designated as Light Industrial (IL) and Heavy Industrial (IH) (City of San Bernardino, 1990). Table C.10-1 provides an analysis of the proposed project's consistency with the applicable plans, policies and regulations.

Table C.10-1. Land Use Consistency Analysis		
Planning Document	Policy or Regulation	Consistency Analysis
San Bernardino County Glen Helen Specific Plan, Adopted 2005/revised 2015	Chapter 3, Land Use Plan, GH2.0430 Public Facilities (PF). Temporary support facilities associated with highway construction and other public facilities including, but not limited to, batch plants and equipment storage yards require a conditional use permit within the PF designation.	As the County is the applicant for this project, the County would obtain any applicable permits for the portion of the project within its jurisdiction to ensure consistency with the specific plan provisions for a PF zone. The project would be consistent with existing zoning.
City of San Bernardino General Plan and Development Code, Adopted 2007, revised 2013	Chapter 2, Article II, 19.08.010 and 19.08.015. Permitted, Development Permitted, Conditionally Permitted Uses. 43. Other. Temporary Uses (Subject to Temporary Use Permit)	Equipment staging associated with the proposed project would require a Temporary Use Permit. The project would be consistent with existing zoning.
City of San Bernardino Calmat/Cajon Creek Specific Plan, 1990	E. Land Use Designations and Zoning. Light Industrial (IL): This zone is intended to retain, enhance, and intensify existing and provide for the new development of lighter industrial uses along major vehicular, rail, and air transportation routes serving the City. Heavy Industrial (IH). This zone is intended to provide for the continuation and development of heavy manufacturing industries in locations where they will be compatible with and not adversely impact adjacent land uses.	The proposed project would be consistent with the specific plan provisions as it would not impair the long term intended use within the existing zoning.

As summarized in Table C.10-1, the proposed project would be subject to the permitting requirements of the County and City of San Bernardino, but would not necessitate a zone change to comply with County or City regulations. As the County would ensure compliance with County and City permitting requirements applicable to the project site, the proposed project would not conflict with applicable land use plans, policies, or regulations.

c. Would the project conflict with any applicable habitat conservation plan or natural community conservation plan?

NO IMPACT. The proposed project does not fall within the boundaries of any habitat conservation plan or natural community conservation plan (CDFW, 2015). Therefore, there would be no impact under this criterion.

C.11 Mineral Resources

MINERAL RESOURCES

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the State?

NO IMPACT. Mineral resources are solid, inorganic substances typically obtained through mining, including sand, gravel (aggregate resources), as well as metals such as gold and silver. A variety of mineral resources are available in the Southern California area, In the project region the most commonly mined mineral resource is aggregate which includes sand, gravel, and crushed rock. The Project area is within and across the Cajon Creek wash, which is classified by the California Geological Survey (CGS), under the Surface Mining and Reclamation Act (SMARA), as a MRZ-2. A MRZ-2 is an area which has been designated as an area of identified mineral resource significance. In the project area the identified mineral resource is aggregate. The USGS Mineral Resources Database System which provides data on metallic and nonmetallic mineral resources, including deposit name, location, commodity, deposit description, geologic characteristics, production, reserves, resources, and references (USGS, 2014) and the County of San Bernardino list of active mines (San Bernardino County, 2016) were reviewed for the presence of known and active mineral resource sites at the Project site. The review indicates that there are no mapped mineral resource sites or mines at or adjacent to the project area along Institution Road; the closest active mining site to the project area is the Lytle Creek Quarry which mines sand and gravel and is located within the Lytle Creek wash, approximately 1 mile southwest of the site (San Bernardino County, 2016).

Neither construction nor operation and maintenance of the project would interfere with active mining operations, including as related to access restrictions. Additionally construction and operation of the project would not restrict or cause loss of availability of potential aggregate resources in Cajon Creek, as the project would only entail reconstruction of an existing road in an existing ROW. No impact would occur.

b. Would the project result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?

NO IMPACT. As noted above, the project is in an area classified by the CGS as MRZ-2 with identified aggregate resources, however this area is not identified as a locally important resource area on any local plans. Construction and operation of the proposed project along the current road alignment and within the existing ROW would have no adverse effect on mineral resources or the potential for mineral extraction operations.

C.12 Noise

NOISE

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. A substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. A substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. For a project within the vicinity of a private airstrip, would the project expose people residing or working in the project area to excessive noise levels?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project result in exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?

LESS THAN SIGNIFICANT IMPACT.

Construction Noise Analysis

The following provides the applicable San Bernardino County plans and ordinances applicable to construction noise generated by the proposed project. As show, the General Plan defers to the standards provided within the Development Code for construction noise performance standards.

- San Bernardino County General Plan – Noise Element (San Bernardino County, 2007a). Policy N 1.6 of the General Plan Noise Element states noise level performance standards for stationary and other locally regulated sources (such as industrial, recreational, and construction activities) will be enforced via the standards and thresholds provided in the Counties Development Code.
- San Bernardino County Development Code (San Bernardino County, 2007b). Section 83.01.080, Noise, of the County Development Code provides noise standards for stationary and mobile noise sources. Per Section 83.01.080(g), temporary construction, maintenance, repair or demolition activities are exempt between 7:00 a.m. and 7:00 p.m., except Sundays and federal holidays.

As discussed in Section A.1.3.1, construction would occur for approximately 4-weeks, between the hours of 7:00 a.m. and 7:00 p.m., Monday through Saturday only. As shown above, temporary construction noise from the project would be exempt from any performance standards identified in Section 83.01.080 of the County Development Code (per Section 83.01.080g of the County Development Code). This impact would be less-than-significant.

Operational Noise Analysis

As discussed in Section A.1.3.2, regular and routine maintenance and repair activities would occur, such as debris removal, pothole patching, chip seal, fog seal, shoulder grading (10 feet from pavement edge), storm cleanup (20 feet from pavement edge), and repair, traffic control; maintenance of traffic signage, pavement striping and markings. However, these operations and maintenance requirements would not increase as a result of the project, with similar or more routine maintenance and repair activities occurring under existing conditions for Institution Road. Therefore, the proposed project would not generate any new operational noise and would be compliant with all operational noise performance standards and policies contained within the San Bernardino County General Plan Noise Element and San Bernardino County Development Code Section 83.01.080. No operational noise impacts would occur.

b. Would the project result in exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?

LESS THAN SIGNIFICANT IMPACT. Vibration is an oscillatory motion through a solid medium in which the motion's amplitude can be described in terms of displacement, velocity, or acceleration. Vibration velocity is most often described in terms of peak particle velocity (PPV) for purposes of groundborne vibration analysis. Typically, groundborne vibrations generated by man-made activities attenuate rapidly with distance from the source of the vibration. Man-made vibration issues are therefore usually confined to short distances (i.e., 500 feet or less) from the source (FTA, 2006).

Construction Vibration Analysis

Section A.1.3.1, Table A.1-2 (Construction Equipment), identifies the types of equipment anticipated to be required during construction of the proposed project. Heavy equipment use, primarily during roadway scraping and compaction activities, has the potential to generate groundborne vibration. Additionally, heavy truck haul trips may produce short-term groundborne vibration.

The nearest sensitive receptors to the proposed project site are residential homes located approximately 1.4 miles northeast of the project site. Because no sensitive receptors or structures are located proximate (within 500 feet) to the segment of Institution Road proposed for resurfacing, temporary construction vibration at the site would have no impact to any receptors. Furthermore, heavy truck haul trips during the temporary construction period would only utilize roads designated for allowable weight and use. Therefore, any structures located proximate to those roads are already subject to any momentary vibration from heavy truck transit. Project construction would result in less than significant vibration impacts.

Operational Vibration Analysis

As discussed in Section A.1.3.2, once constructed, maintenance levels of Institution Road are not anticipated to increase from existing conditions. Furthermore, no receptors are located proximate to the roadway segment proposed for resurfacing that could be subject to temporary vibration from any maintenance activities. Additionally, the resurfacing of Institution Road under the proposed project would reduce permanent vibration from vehicles travelling over uneven roadway surface. Therefore, the proposed project would result in no operational vibration impacts.

c. Would the project result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project?

NO IMPACT. As discussed in Section A.1.3.2, once constructed, maintenance levels of Institution Road are not anticipated to increase from existing conditions. Furthermore, no receptors are located

proximate to the roadway segment proposed for resurfacing that could be subject to temporary noise from any maintenance activities. Additionally, the resurfacing of Institution Road under the proposed project would reduce permanent noise from vehicles travelling over uneven roadway surface. Furthermore, the proposed project would not introduce additional travel lanes or other features that could increase traffic volumes on Institution Road potentially increasing ambient noise levels in the vicinity. Therefore, the proposed project would not generate any new operational noise or increase existing ambient conditions.

d. *Would the project result in a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project?*

LESS THAN SIGNIFICANT IMPACT. The assessment of noise uses specific terminology and fundamental descriptors not commonly used in everyday conversation. Therefore, in order to assist in a thorough understanding of the subsequent analysis, the following terms utilized in this subsection are defined below:

- **Decibel (dB)** is a unit used to describe the amplitude of sound, and sound levels are calculated on a logarithmic, not linear, basis. The lowest sound level that an unimpaired human ear can hear is described as zero on the decibel scale. Due to the logarithmic nature of measuring sound levels on the decibel scale, a 10-dB increase represents a tenfold increase in acoustic energy; whereas a 20-dB increase represents a hundredfold increase in acoustic energy. Because a relationship exists between acoustic energy and intensity, each 10-dB increase in sound level can have an approximate doubling effect on loudness as perceived by the human ear.

The most common metric is the overall A-weighted sound level measurement (dBA) that has been adopted by regulatory bodies worldwide. The A-weighting network measures sound in a fashion similar to the way a person perceives or hears sound, thus achieving very good correlation in terms of evaluating acceptable and unacceptable sound levels.

Community noise levels are usually closely related to the intensity of nearby human activity. Noise levels are generally considered low when ambient levels are below 45 dBA, moderate in the 45 to 60 dBA range, and high above 60 dBA.

- **Ambient noise level** is the composite noise from all sources resulting in the normal, existing level of environmental noise at a given location. Ambient noise levels are typically defined by the average dBA.

Typical daytime ambient exterior noise levels range between 50 to 60 dBA in small towns or wooded or lightly used residential areas, 75 dBA in busy urban areas, and 85 dBA near major freeways and airports. The nearest sensitive receptors to the proposed project site are residential homes located approximately 1.4 miles northeast of the project site. Based on the land uses surrounding the nearest residences, exterior daytime noise levels are expected to be approximately 65 dBA at these receptor locations.

Section A.1.3.1, Table A.1-2 (Construction Equipment), identifies the types of equipment anticipated to be required during construction of the proposed project. Decibel levels for typical pieces of stationary and mobile construction equipment (at 50 feet from the source) are expected to range between 80-85 dBA (FHWA, 2006). However, noise from on-site stationary construction equipment attenuates over distance because of spreading losses, absorption of the intervening terrain, and reflection off any intervening walls or berms. Spreading losses account for an attenuation factor of 6 dBA per doubling of distance.

As discussed, the nearest sensitive receptors to the proposed project site are residential homes located approximately 1.4 miles northeast of the project site. At this distance, construction noise from the project site would attenuate below the expected ambient daytime exterior level of 65 dBA and be undetectable by the nearest residential receptors. Furthermore, heavy truck haul trips during the temporary construction period would only utilize roads designated for allowable weight and use. Therefore, momentary noise from construction-related vehicles on these roads is not expected to exceed those of other large vehicles already travelling on them under existing conditions. Therefore, due to the distance of the nearest residential receptors to the project site, construction noise would not increase ambient noise conditions at these locations and would result in a less-than-significant impact.

e. For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?

NO IMPACT. The nearest civil aviation facility to the proposed project site is Redlands Municipal Airport, which is located approximately 16 miles southeast of the proposed project site. The proposed project is not located within the airport land use boundary or sphere of influence of this aviation facility. Given the distance of the proposed project to this small aviation facility, the short duration of construction (4-weeks), and the nature of operational activities (roadway resurfacing with no permanent residential housing), neither construction nor operation of the project would subject people residing or working in the project area to excessive aviation-generated noise levels. No impact would occur.

f. For a project within the vicinity of a private air strip, would the project expose people residing or working in the project area to excessive noise levels?

NO IMPACT. There are no known private airstrips located within five miles from the proposed project sites. Therefore, neither construction nor operation of the project would subject workers to excessive aviation-generated noise levels. No impacts would occur.

C.13 Population and Housing

POPULATION AND HOUSING

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Displace substantial numbers of people necessitating the construction of replacement housing elsewhere?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?

NO IMPACT. Construction activities associated with the proposed project would last approximately 30 days and would be performed by the County of San Bernardino’s construction crews or contractors. Therefore, construction would be short term and temporary, and construction personnel are expected to reside either in the County or in the immediate vicinity of the County. It is expected that all construction workers would commute to the proposed project site from surrounding communities. Therefore, proposed project construction would not induce an increase in population levels or a decrease in available housing, and no impacts to existing or future population growth levels would occur as a result of construction of the proposed project.

Once completed, maintenance levels are not anticipated to increase from existing conditions as a result of this proposed project. Therefore, operation would have no impact with respect to induced population.

b. Would the project displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?

NO IMPACT. The proposed project does not contain any habitable structures. There is no housing development in the immediate vicinity of the proposed road replacement. Institution Road is utilized for access to the Sheriff Department’s Glen Helen Rehabilitation Center and the Frank Bland Regional Training Center, located west of the proposed road replacement. Residences exist approximately 0.5 mile east-northeast of the project site pass the Interstate 215. Therefore, implementation of the proposed project would not result in the displacement of housing, nor would it necessitate the construction of replacement housing. No impacts would occur.

c. Would the project displace substantial numbers of people necessitating the construction of replacement housing elsewhere?

NO IMPACT. As stated in Section C.13(b) above, there is no housing located within the proposed project site and no housing would be removed or temporarily displaced as part of the proposed project. No impacts would occur.

C.14 Public Services

PUBLIC SERVICES

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a) Fire protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b) Police protection?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c) Schools?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d) Parks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
e) Other public facilities?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:

a) Fire protection?

LESS THAN SIGNIFICANT IMPACT. The City of San Bernardino Fire Department provides fire suppression and emergency medical services to the project area. The primary fire station that would serve the project area is Station 232, located at 6065 Palm Avenue, San Bernardino, California, approximately 0.6 mile east-northeast of the proposed project site. Based on the maps of the Fire Hazard Severity Zones provided by the California Department of Forestry and Fire Protection (CAL FIRE), the proposed project site is designated as a Very High Fire Hazard Severity Zone; and the fire protection responsibility for the project site and surrounding areas are designated as State/Federal and Local (unincorporated) Responsibility Areas (CAL FIRE, 2008). Construction activities, as described in Section A.1.3, are not expected to result in increased risk of wildfire as watering activities associated with dust suppression would reduce the potential for any fire accident to occur.

No detour road is associated with the proposed project. One lane of 11 feet minimum width would be available during construction hours.

Fire protection could be required at the proposed project construction site in the event of a construction accident. However, the likelihood of an accident requiring such a response is unknown and is not expected to be significant as construction activities associated with the proposed project would last approximately 35 days. Furthermore, as discussed in Section C.13(a), proposed project construction and operation would not induce an increase in population levels. Once completed, maintenance levels are not anticipated to increase from existing conditions as a result of this proposed project. The proposed project would have a less-than-significant impact with respect to disrupting existing fire service levels and would not require new or expanded fire facilities.

b) Police Protection?

LESS THAN SIGNIFICANT IMPACT. Police protection services in the proposed project area are provided by the San Bernardino County Sheriff-Coroner Department and the City of San Bernardino Police Department. The Sheriff's Department Dispatch Center, located at 1771 Miro Way, Rialto, California, approximately 3.8 miles south of the proposed project area, would be the primary substation to service the proposed project area. Although the potential is low, the construction site may attract vandals or other security risks that would increase demand on law enforcement services. However, the likelihood of requiring such a response is unknown and is not expected to be significant as construction activities associated with the proposed project would last approximately 35 days. Therefore, vandalism or other security risks would not be an impact.

Furthermore, as discussed in Section C.13(a), proposed project construction and operation would not induce an increase in population levels. Once completed, maintenance levels are not anticipated to increase from existing conditions as a result of this proposed project. The proposed project would have a less-than-significant impact with respect to disrupting existing police service levels and would not require new or expanded police facilities.

c) Schools?

NO IMPACT. As discussed in Section C.13(a), proposed project construction and operation would not induce an increase in population levels that could adversely affect local school service levels or require new or expanded school facilities. There would be no impact on schools.

d) Parks?

NO IMPACT. As discussed in Section C.13(a), proposed project construction and operation would not induce an increase in population levels. Consequently, the proposed project would not increase population in a manner that would result in additional demand for park facilities. There would be no impacts on parks.

e) Other Public Facilities?

NO IMPACT. As discussed in Section C.13(a), proposed project construction and operation would not induce an increase in population levels. Consequently, the proposed project would not increase population in a manner that would substantially affect public facilities. The proposed project would not result in impacts on public facilities, such as post office and library services.

C.15 Recreation

RECREATION

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. *Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?*

NO IMPACT. Recreation facilities in the vicinity of the project area include the Glen Helen Off-Road Vehicle recreation area and the Glen Helen Regional Park. An increase in use of existing recreational facilities could occur as a result of increased access to the recreation area. The existing Institution Road provides access to the Glen Helen Off-road Vehicle recreation area. Therefore, the proposed road reconstruction would not create new access or otherwise result in a change in accessibility to this recreation area. An increase in use of existing recreational facilities could also be spurred by population growth, which increases use of existing recreational resources. Such a demand on these resources could result in the physical deterioration of the facilities. However, construction of the proposed project would be short-term, with expected completion at less than four weeks, and would require a small, local workforce. Therefore, the proposed project is not expected to induce either short-term or long-term population growth, either during project construction or operation. Therefore, there would be no impact to recreational facilities because there would be no increased need for recreational resources.

b. *Does the project include recreational facilities or require the construction or expansion of recreational facilities, which might have an adverse physical effect on the environment?*

NO IMPACT. The proposed project consists of the reconstruction of the existing Institution Road. Project activities do not include construction of recreational facilities or the expansion of existing recreational facilities. Therefore, no adverse physical impacts on the environment due to recreational facilities would be associated with the proposed project.

C.16 Transportation/Traffic

TRANSPORTATION AND TRAFFIC

Would the project:

	Potentially Significant Impact	Less Than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
c. Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
d. Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
e. Result in inadequate emergency access?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
f. Conflict with adopted policies, plans, or programs supporting regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?

LESS THAN SIGNIFICANT IMPACT. The following outlines applicable plans, ordinances or policies establishing measures of effectiveness for the performance of the proposed project area circulation system:

- The County of San Bernardino 2007 General Plan Circulation and Infrastructure Element (San Bernardino County, 2007) contains goals and policies pertaining to all modes of transportation, including mass transit and non-motorized travel. However, the goals and policies contained within are not applicable to the proposed project as they are directed toward guiding development of transportation facilities and do not contain any significance thresholds or performance standards for project construction-related traffic on public roadways.
- The San Bernardino Association of Governments (SANBAG) has a number of countywide transportation plans, including the 2015 Comprehensive Transportation Plan (CTP) and the Regional 2012 Transportation Plan (RTP) (SANBAG, 2016). In reviewing the applicable 2015 CTP and 2012 RTP, no significance thresholds or performance standards for project area roadways were identified as applicable to the proposed project, which only results in temporary construction-related trips and roadway disruption of Institution Road (an access roadway only).

- As stated in the Caltrans Guide for the Preparation of Traffic Impact Studies (TIS), the following criterion are a starting point in determining when a TIS is needed (Caltrans, 2002):
 1. Generates over 100 peak hour trips assigned to a State highway facility
 2. Generates 50 to 100 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing noticeable delay; approaching unstable traffic flow conditions (LOS “C” or “D”).
 3. Generates 1 to 49 peak hour trips assigned to a State highway facility – and, affected State highway facilities are experiencing significant delay; unstable or forced traffic flow conditions (LOS “E” or “F”).

The project would not result in any permanent vehicle trips. As discussed below, temporary trips on I-215 generated by the proposed project would not exceed these thresholds. Therefore, the following analysis is intended to fulfill the TIS guidance (Caltrans, 2002).

Institution Road is an existing paved road, which was recently declared a County highway within the city limits of the City of San Bernardino. Interstate 215 (I-215) provides regional access to Institution Road via the Palm Avenue/Kendall Drive ramps. Local access is further provided via Palm Avenue, a northeast-southwest local roadway that becomes Institution Road 0.5 mile south of I-215. These roadways would provide regional and direct site access and be used to transport construction vehicles, equipment, and materials to and from the proposed project site. Recently published average daily traffic (ADT) volumes on I-215 at Palm Avenue were 56,000 vehicles (Caltrans, 2014). ADT volumes for Palm Avenue and Institution Road are not available.

Construction Impact Analysis

Construction workers and construction-related truck trips traveling to the site would generate daily traffic volumes to the area. Trips are broken down as:

- Passenger Vehicles (Worker Commutes): 30 daily round trips
- Medium Duty Trucks: 2 daily round trips
- Heavy Duty Trucks: 134 daily round trips (utilizing a 1.5 passenger car equivalent [PCE] for heavy duty trucks, the proposed project would result in a maximum of 201 total daily round trips)

Based on vehicle trip assumptions provided above, which are also presented in Appendix A (Air Quality), a maximum of 166 daily round trips (466 total daily trips PCE) would occur during construction.

These trips are all expected to come from the San Bernardino area, utilizing I-215. As discussed below in checklist question C.16.b, the addition of these temporary daily trips would result in a temporary 0.83% increase over existing ADT volumes on I-215. Furthermore, truck trips would be spread out throughout the day as they deliver paving materials. Therefore, it is conservatively estimated that 50 or less trips would occur during the morning and afternoon peak periods (particularly since most trips are heavy duty trucks, which are mostly related to cement and water deliveries that would occur evenly throughout the workday). This temporary increase in daily traffic volumes on I-215 is considered negligible during the 4-week construction period.

As discussed in Section A.1.3, no detours on Institution Road would be required during construction. One lane of 11' minimum width would be available during construction and on non-construction hours. Therefore, construction would not result in additional travel miles from motorists or detours. Institution Road is not a through roadway and only provides access to the Sheriff's Department's Helen

Rehabilitation Center and the Frank Bland Regional Training Center. While construction would result in a temporary increase to daily traffic volumes on this road, it would be temporary (during the construction period only). Therefore, less than significant impacts to the performance of the roadway system would occur from construction-related vehicle trips and activities of the proposed project.

Operational Impact Analysis

As discussed in Section A.1.3.2, regular and routine maintenance and repair activities would occur, such as debris removal, pothole patching, chip seal, fog seal, shoulder grading (up to 10 feet from pavement edge), storm cleanup (up to 20 feet from pavement edge), and repair, traffic control; maintenance of traffic signage, pavement striping and markings. However, these operations and maintenance requirements would not increase as a result of the project, with similar or more routine maintenance and repair activities occurring under existing conditions for Institution Road. Negligible annual traffic trips associated with maintenance would not increase from current levels. Furthermore, the proposed project would not create new travel lanes, roadway features, or uses that would increase ADT volumes on Institution Road. The proposed project would have no traffic impacts from maintenance activities. As such, operation of the proposed project would not generate any new operational vehicle trips and would be compliant with all applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system.

b. Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?

LESS THAN SIGNIFICANT IMPACT. I-215 is identified as a CMP roadway within San Bernardino County, but the segment nearest to the project site is in a rural area where the need for monitoring and the potential for system capacity deficiencies are reduced (SANBAG, 2007). The segment of I-215 at Palm Avenue will be utilized for the CMP analysis as it provides primary regional access to the project site and would serve all construction-related traffic. For all designated CMP roadways, level of service (LOS) E performance standards must be met for all roadway segments (SANBAG, 2007). As described within the San Bernardino County CMP, LOS E represents operating conditions “at or near the capacity level. All speeds are reduced to a low, but relatively uniform value. Small increases in flow will cause breakdowns in traffic movement” (SANBAG, 2007).

As discussed above in C.16 (a), 2014 ADT for I-215 at Palm Avenue was 56,000 (Caltrans, 2014). As further discussed above in C.16 (a), based on this ADT near the proposed project site, a maximum of 466 daily construction-related trips (temporary) during the 4-week construction period would result in a 0.83% increase over existing ADT volumes. Furthermore, these truck trips would be spread out throughout the day as they deliver paving materials. Therefore, it is conservatively estimated that 50 or less trips would occur during the morning and afternoon peak periods. This temporary and negligible increase in ADT volumes from construction-related trips on I-215 would not decrease the existing capacity of this CMP roadway segment over existing conditions or diminish below LOS E. As discussed in Section A.1.3.2, once constructed, maintenance levels of the proposed project site are not anticipated to increase from existing conditions. Therefore, operation and maintenance of the project would not generate any ADT. The proposed project would result in a less than significant impact to I-215 and is considered consistent with the San Bernardino County CMP.

c. *Would the project result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?*

NO IMPACT. The nearest civil aviation facility to the proposed project site is Redlands Municipal Airport, which is located approximately 16 miles southeast of the proposed project site. The proposed project is not located within the airport land use boundary or sphere of influence of this aviation facility. There are no known private airstrips located within five miles from the proposed project site. All project activities will occur at ground level. Therefore, construction and operation of the proposed project would have no impact to existing air traffic patterns or result in a change in air traffic levels that could result in a substantial safety risk.

d. *Would the project substantially increase hazards because of a design feature or incompatible uses?*

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. As discussed in Section A.1.3, no detours would be required during construction. One lane of 11' minimum width would be available during construction and on non-construction hours. Therefore, construction would not result in additional travel miles from motorists or detours. However, the temporary reduction in travel lanes on Institution Road during the 4-week construction period could increase potential motorist hazards. Mitigation Measure T-1 will ensure proper traffic control is provided to decrease potential motorist conflicts. With the implementation of Mitigation Measure T-1, any temporary impact to emergency access will be reduced to a less-than-significant level.

It is reasonably assumed that only roads without weight or use restrictions would be used as possible access routes for heavy trucks. Because of the necessary traffic control at both ends of the work area on Institution Road under Mitigation Measure T-1, construction-related egress and ingress from Institution Road into the work areas is not anticipated to create any hazards. Construction vehicle queuing is expected to be minimal at detour points.

Institution Road has experienced numerous closures after storm events have deposited large amounts of sediment across it. In addition, the surface of the road is in quite poor condition and there are safety issues with the uneven edges. As a County highway, the County would ensure the establishment and maintenance of Institution Road, and maintain public safety by ensuring access to the Glen Helen Rehabilitation Center and the Frank Bland Regional Training Center. Once completed, no impact to motorist safety to and through the project site area would occur. The resurfacing and maintenance of Institution Road would ensure adequate roadway safety during storm events and overall roadway integrity.

Mitigation Measures

- T-1* Prior to the commencement of construction, the San Bernardino County Department of Public Works shall prepare a Construction Traffic Control Plan. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation (Caltrans) Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook (WATCH) Manual and shall include detailed information on the following:
1. Plans and placement of temporary signing, lighting, and traffic control devices as required; including, but not limited to: appropriate signage along Institution Road to indicate travel lane closures and awareness of temporary one-way traffic, the presence of heavy vehicles and construction traffic, and access for emergency vehicles to and through the immediate project area;

2. Use of directing traffic through the work area with flag persons and/or other traffic control features;
3. Timing and schedule of heavy equipment and building materials deliveries;
4. Identification of construction-related vehicle safety procedures accessing work and staging areas;
5. The need for providing advance notification to affected property owners, emergency services, businesses, residents, etc. of detours;
6. Identification of vehicle safety procedures in the event of roadway flooding; and
7. Provisions for the establishment of a traffic control coordinator. The traffic control coordinator shall be responsible for responding to any local complaints about project construction and operational traffic concerns. The traffic control coordinator shall determine the cause of the traffic complaint and shall be required to implement reasonable measures to resolve the complaint. Signs posted along the project construction route shall list the telephone number for the traffic control coordinator.

e. Would the project result in inadequate emergency access?

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. The proposed project would result in a temporary 4-week disruption of Institution Road that could impede emergency vehicle movement on this roadway. Mitigation Measure T-1 will ensure emergency vehicle access through the project area is not significantly impacted. With the implementation of Mitigation Measure T-1, any temporary impact to emergency access would be reduced to a less-than-significant level. Once completed, no impact to emergency access on Institution Road would occur. The resurfacing and maintenance of Institution Road would ensure adequate roadway safety during storm events and overall roadway integrity.

f. Conflict with adopted policies, plans, or programs supporting regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?

LESS THAN SIGNIFICANT IMPACT WITH MITIGATION INCORPORATED. The following outlines applicable plans, ordinances or policies regarding public transit, bicycle, or pedestrian facilities:

- The County of San Bernardino 2007 General Plan Circulation and Infrastructure Element (San Bernardino County, 2007) contains goals and policies pertaining to public transit, bicycle, and pedestrian facilities. However, the goals and policies contained within are not applicable to the proposed project as they are directed toward guiding development of transportation facilities and do not contain any significance thresholds or performance standards for public transit, bicycle, or pedestrian facilities.
- The SANBAG CTP and RTP contain goals and policies pertaining to public transit, bicycle, and pedestrian facilities. (SANBAG, 2016). Furthermore, SANBAG has a 2015 Non-Motorized Transportation Plan and 2009 Long-Range Transit Plan (SANBAG, 2016). In reviewing these applicable plans, no significance thresholds or performance standards for public transit, bicycle, or pedestrian facilities were identified as applicable to the proposed project, which only results in temporary construction-related roadway disruption of Institution Road (an access roadway only).

The proposed project segment of Institution Road does not contain any designated bicycle lanes, pedestrian paths, or public transit facilities. However, being a public roadway, bicycle and pedestrian use of the roadway may occur during the construction period. The proposed project would result in a temporary 4-week disruption of Institution Road that could impede any bicycle travel or pedestrian

movement on this roadway. Mitigation Measure T-1 will ensure proper signage and notification of temporary roadway disruption is provided. With the implementation of Mitigation Measure T-1, any temporary impact to bicycle or pedestrian use of Institution Road would be reduced to a less-than-significant level. Once completed, no impact to alternative transportation on Institution Road would occur.

C.17 Utilities and Service Systems

UTILITIES AND SERVICE SYSTEMS

Would the project:

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
b. Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
c. Require or result in the construction of new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
d. Have sufficient water supplies available to serve the project from existing entitlements and resources, or are new or expanded entitlements needed?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
e. Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project's projected demand in addition to the provider's existing commitments?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
f. Be served by a landfill with sufficient permitted capacity to accommodate the project's solid waste disposal needs?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
g. Comply with federal, state, and local statutes and regulations related to solid waste?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

a. Would the project exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?

NO IMPACT. During construction of the proposed project, wastewater generation would be limited to construction workers and would be contained within portable toilet facilities and disposed of at an approved site. During operation, the proposed project would not generate wastewater. The proposed project would have no impact with respect to exceeding wastewater treatment requirements.

b. Would the project require, or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

NO IMPACT. As described above, during construction, wastewater would be contained within portable toilet facilities and disposed of at an approved site. During construction of the proposed project, a water source would be required for soil compaction, dust suppression, concrete/grout/equipment wash-down (in designated areas per the Stormwater Pollution Prevention Plan [SWPPP]), concrete placement preparation, and possibly miscellaneous concrete or grout production. The water source would be the closest fire hydrant about 1.15 miles at the intersection of Palm Avenue and Kendall Drive serviced by the City of San Bernardino Water Department. Based upon material to be compacted and dust control for the duration of the proposed project, a minimal amount of water would be used during construction. Only a few days of watering is required as no watering would be required after asphalt is placed and very little watering would be required during the concrete structure construction. Due to the limited construction schedule of approximately 30 days and the minimal amount of water required, it is reasonably anticipated that sufficient water supply is available. All applicable local, State and federal

requirements and best management practices shall be incorporated into construction of the project. No new or expanded water or wastewater facilities would be required for the proposed project, and no further analysis is warranted.

c. Would the project require, or result in the construction of, new stormwater drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?

LESS THAN SIGNIFICANT IMPACT. During construction of the proposed project, a water source would be required for soil compaction, dust suppression, concrete/grout/equipment wash-down (in designated areas per the SWPPP), concrete placement preparation, and possibly miscellaneous concrete or grout production. It is expected that all construction-related water would drain into the Cajon wash at the project site either directly or indirectly (via small local tributaries) at the outer reaches of the project. All applicable local, State, and federal requirements regarding stormwater drainage and water quality would be incorporated into construction of the project, including obtaining a National Pollutant Discharge Elimination System (NPDES) Permit from the Santa Ana River Regional Water Quality Control Board (RWQCB). As such, construction is expected to have a less than significant impact with respect to the stormwater drainage system and would not require expansion of existing facilities beyond that proposed by the project.

d. Would the project have sufficient water supplies available to serve the proposed project from existing entitlements and resources, or would new or expanded entitlements be needed?

LESS THAN SIGNIFICANT IMPACT. During construction of the proposed project, a water source would be required for soil compaction, dust suppression, concrete/grout/equipment wash-down (in designated areas per the SWPPP), concrete placement preparation, and possibly miscellaneous concrete or grout production. Based upon material to be compacted and dust control for the duration of the proposed project, a minimal amount of water would be used during construction. Only a few days of watering is required as no watering would be required after asphalt is placed and very little watering would be required during the concrete structure construction. This water would be provided by the closest fire hydrant about 1.15 miles east of the proposed project, at the intersection of Palm Avenue and Kendall Drive and is serviced by the City of San Bernardino Water Department. The availability of construction water would be verified prior to the issuance of a construction contract. As such, this analysis assumes sufficient water supplies are available to serve the proposed project from existing entitlements and resources, and no new or expanded water entitlements would be required, resulting in a less than significant impact.

e. Would the project result in a determination by the wastewater treatment provider that serves or may serve the Proposed Project that it has adequate capacity to serve the Proposed Project's projected demand in addition to the provider's existing commitments?

NO IMPACT. As described above in checklist questions C.17 (a) and (b), wastewater generated during construction would be contained within portable toilet facilities and disposed of at an approved site and no wastewater would be generated during operation and maintenance. Due to the temporary and short-term nature of construction activities, the volume of wastewater generated during construction would not exceed the capacity of wastewater treatment providers serving the portable toilet disposal site. No impact would occur.

f. Would the project be served by a landfill with sufficient permitted capacity to accommodate the proposed project's solid waste disposal needs?

LESS THAN SIGNIFICANT IMPACT. Material that is not suitable for reuse will be disposed of at an approved off-site facility. The County of San Bernardino Solid Waste Management Division (SWMD) is responsible for the operation and management of the County's solid waste disposal system, which consists of five regional landfills and nine transfer stations. Construction wastes generated during construction of the proposed project would be taken to the Mid-Valley Sanitary Landfill located at 2390 North Alder Avenue in Rialto, located approximately 3 miles to the southwest, or other approved construction/demolition waste recycling/disposal facility. The majority of SWMD landfills are permitted to accept construction and demolition debris and are assumed to have sufficient combined throughput and capacity to accommodate waste generated by the proposed project. Once operational, the proposed project would not generate any solid waste. Because construction waste is a short-term generation, any impacts to these landfills are considered to be less than significant.

g. Would the project comply with federal, State, and local statutes and regulations related to solid waste?

LESS THAN SIGNIFICANT IMPACT. The proposed project would generate solid waste during construction of the project, thus requiring the consideration of waste reduction and recycling measures. The 1989 California Integrated Waste Management Act (AB 939) requires San Bernardino County to attain specific waste diversion goals. In addition, the California Solid Waste Reuse and Recycling Access Act of 1991, as amended, requires expanded or new development projects to incorporate storage areas for recycling bins into the proposed project design. The proposed project would reuse and recycle excavated material to the extent feasible. Therefore, the proposed project is considered to be consistent with AB 939 and the California Solid Waste Reuse and Recycling Access Act of 1991, resulting in less than significant impacts with respect to compliance with these applicable regulations.

C.18 Mandatory Findings of Significance

MANDATORY FINDING OF SIGNIFICANCE

	Potentially Significant Impact	Less than Significant With Mitigation Incorporated	Less than Significant Impact	No Impact
a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
b. Does the project have impacts that are individually limited, but cumulatively considerable? (<i>Cumulatively considerable</i> means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
c. Does the project have environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly?	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Significance criteria established by CEQA Guidelines, Appendix G.

- a. Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?**

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. As described in Section C.4 (Biological Resources), the proposed project could result in impacts to habitats that support sensitive species, riparian habitats, and wetlands. However, implementation of mitigation measures would reduce these impacts to a less-than-significant level.

Section C.5 (Cultural Resources) shows the project will not have any direct or indirect (visual, noise/vibration, dust) impacts on any significant archaeological resources. A segment of the historic-era Institution Road and adjacent utility poles and transmission lines (P-36-02135/CA-SBR-13699H) are located within the cultural resources study area. However, this resource has been previously recommended not eligible for the California Register of Historical Resources. The nearby facilities located outside the project area that the Institution Road is the primary access route for (i.e., San Bernardino County Sheriff Training Facilities and Rehabilitation Center) have not been evaluated for listing on the National Register, California Register, or local designation. If these facilities are evaluated and determined eligible in the future (i.e., an eligible district) then structures associated with those facilities (i.e., Institution Road, utility poles, and transmission lines) might be considered eligible as contributing elements of the district.

Ground disturbance associated with the proposed project is not anticipated to impact historical resources as defined in CEQA Guidelines Section 15064.5. However, it is possible that previously unknown buried historical resources could be discovered and damaged or destroyed during ground disturbing work, which would constitute a significant impact absent mitigation.

Mitigation Measures

- BIO-1** *Agency Coordination.* The County of San Bernardino, Department of Public Works (County) or lead agency will consult with the US Fish and Wildlife Service (USFWS) to obtain take for the Santa Ana River woollystar present within the project disturbance area as well impacts to San Bernardino kangaroo rat occupied and critical habitat. The County or lead agency will also obtain an Incidental Take Permit from California Department of Fish and Wildlife (CDFW) for impacts to state listed species. The County will abide by all conditions stated in the permit from the USFWS and CDFW.
- BIO-2** *Santa Ana River woollystar and San Bernardino kangaroo rat habitat compensation.* The County of San Bernardino, Department of Public Works proposes compensatory mitigation at a ratio of 1:1 (i.e., 1 acre of off-site compensation habitat for each acre of habitat affected by the project) for permanent or long-term loss of 2.71 acres of habitat within the project area. This mitigation ratio may be adjusted based on consultation with the US Fish and Wildlife Service and California Department of Fish and Wildlife.
- BIO-3** *Assign Project Biologist.* The County of San Bernardino, Department of Public Works (County) will assign a qualified biologist to conduct pre-construction surveys, construction monitoring, and related tasks listed below. A "qualified biologist" is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other monitoring-related actions. The Project Biologist will be authorized by the County to temporarily halt project activities if needed to prevent take of listed species or harm to any other special-status species.
- BIO-4** *Pre-construction clearance survey.* Prior to the start of any ground disturbance or vegetation clearing, the Project Biologist will survey the work area to determine if Santa Ana River woolly star are present. During the survey the Project Biologist should also search for small mammal burrows, nesting birds, or any other special-status species within the work area. Any special-status species or sensitive resources should be flagged and avoided as feasible.
- BIO-5** *Limit disturbance area.* Prior to the initiation of any ground-disturbing activity, the Project Biologist will work with County of San Bernardino, Department of Public Works staff and contractors to clearly demarcate the approved work area with fencing, flagging, lathe and rope, or other devices. The demarcated area shall be limited to the mapped project disturbance area shown in Figure 1 of the Initial Study/Mitigated Negative Declaration. No construction-related activity will be permitted outside the marked area.
- BIO-6** *Nesting birds.* Vegetation removal and initial ground disturbance will be completed outside the breeding season (i.e., no removal of potential nesting habitat from February 15 through August 15), or after a pre-construction nesting bird survey has been completed. The qualified biologist will confirm that no birds are nesting in or adjacent to areas to be disturbed. If native birds are nesting on the site, then construction will be postponed until nesting is completed or the qualified biologists will designate appropriate avoidance buffers around nests to protect nesting birds. No project related disturbance will be allowed within these buffers.
- BIO-7** *Burrowing owl:* A qualified biologist will survey the site in advance of vegetation and soil clearing to determine burrowing owl presence or absence. If burrowing owls are present on the site outside of the nesting season (September 1 to January 31), then the California

Department of Fish and Wildlife (CDFW) will be consulted and the qualified biologist may be authorized to exclude them from the site using passive exclusion methods described in the most recent CDFW staff report on burrowing owl mitigation (CDFG, 2012). If burrowing owls are present on the site during nesting season (February 1 through August 31), then construction will be either postponed until nesting is completed, or no disturbance will be allowed within an appropriate buffer area to be established by a qualified biologist in accordance with the CDFW staff report on burrowing owl mitigation (CDFG, 2012).

BIO-8 Biological Monitoring. The Project Biologist or another qualified biological resources monitor will be present on the work site during all initial ground disturbance or vegetation clearing on a daily basis to document compliance with the avoidance and minimization measures and any additional mitigation, and to provide guidance in avoiding or minimizing impacts to biological resources. Once initial ground disturbance and clearing is completed the biological monitor should return on at least a weekly basis to ensure special-status species are being avoided and to inspect all the special-status species and evaluate the buffer distance.

BIO-9 Worker training. The assigned Project Biologist will conduct training to ensure that all workers on the Project site (including contractors) are aware of all applicable Conservation Measures for biological resources. Specifically, workers will be required to (1) limit all activities to approved work areas; (2) report any Santa Ana River woollystar, small mammals, burrowing owl, or other special-status species, or bird nest observation in the work areas and access routes to the supervisor or Project Biologist; (3) avoid contact with any wildlife that may approach a work area and be aware of potential venomous reptile bites from carelessness or unnecessary harassment; (4) pick up and properly dispose of any food, trash or construction refuse; and (5) report any spilled materials (oil, fuel, solvent, engine coolant, raw concrete, or other material potentially hazardous to wildlife), to the supervisor or on-site Project Biologist. During the training, the instructor will briefly discuss special-status species that may occur in the work areas, their habitats, and requirements to avoid or minimize impacts. In addition, all workers will be informed of civil and criminal penalties for violations of the federal Endangered Species Act, California Endangered Species Act, and the Migratory Bird Treaty Act.

BIO-10 Animals. No pets will be permitted on the work site. Workers will not be permitted to feed, harm, approach, harass, or handle wildlife at any time.

BIO-11 Trash, refuse, concrete, and other materials. All trash and food materials will be properly contained within vehicles or closed refuse bins while on the site, and will be regularly removed from the site (at least on a weekly basis) for proper disposal. All refuse from Project activities will be removed from each work site upon completion of maintenance work. No raw cement, concrete or washings thereof, asphalt, paint, oil, solvents, or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, shall be disposed of on-site or allowed to spill onto soil. Cleanup of any spilled material shall begin immediately.

BIO-12 Non-native plant species control. Throughout the duration of project activities the project disturbance area should be kept free of invasive non-native species. Additional non-native plant removal should also take place prior the storm clean-up to reduce the chances of spreading invasive species throughout the project area or into other offsite locations.

- BIO-13** *Construction Equipment.* All construction vehicles and equipment shall be inspected by the biological monitor upon arrival to the project site. All equipment must arrive clean and free of mud and debris that could harbor invasive plant species seeds. If equipment is not clean, it may be sent off-site for thorough cleaning (i.e., to remove caked mud from the undercarriage, fenders, bumpers, etc., and vacuum or sweep the interior) before being allowed back into the work area. If the mud and debris can be safely removed and contained on the work site, the contained spoils may then be transported and disposed of at an approved facility offsite, allowing the equipment to remain on the site.
- BIO-14** *Work Hours.* All project activities will take place during day time hours and no work will be allowed to take place at night. In addition, no nighttime lighting will be used.
- BIO-15** *Required Permits.* The County of San Bernardino, Department of Public Works will obtain all required permits from the US Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife for impacts to jurisdictional waters of the state and non-wetland waters of the U.S.
- CR-1** *Management of Unanticipated Discoveries of Historical Resources, Unique Archaeological Resources or Tribal Cultural Resources.* If previously unidentified cultural resources and tribal cultural resources are identified during construction activities, construction work within 100 feet of the find shall be halted and directed away from the discovery until a Secretary of the Interior qualified archaeologist or tribal representative assesses the significance of the resource. The archaeologist, in consultation with the County of San Bernardino, Department of Public Works, State Historic Preservation Officer, any interested Tribes, and any other responsible public agency, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be eligible to the National or California Registers, qualify as a unique archaeological resource under California Environmental Quality Act Section 21083.2 or determined to be tribal cultural resource as defined in Section 21074.
- CR-2** In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing or other construction activities, a paleontologist must be retained who meets the professional paleontologist qualifications (San Bernardino County Development Code §82.20.040, 2007; Society of Vertebrate Paleontology's Standard Procedures, 2010) and has demonstrated experience in carrying paleontological projects to completion. This qualified paleontologist must develop and implement a Paleontological Resources Management Plan (PRMP) for the project area that meets the standards set forth in San Bernardino County Development Code §82.20.030. This shall include:
- A Worker Environmental Awareness Program (WEAP) wherein all construction personnel are trained on the processes to be followed upon encountering any fossils.
 - A monitoring plan for ground disturbing activities that provides the monitor(s) with the authority to temporarily halt or divert equipment. Monitors shall be onsite for any disturbance of sediments with high or unknown paleontological sensitivity. Monitors must have demonstrated sufficient paleontological training and field experience to have acceptable knowledge and experience of fossil identification, salvage and collection methods, paleontological techniques, and stratigraphy.

- A recovery plan for significant fossils that provides for the treatment of specimens to the point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.
- A specimen identification, analysis, and curation plan that includes identification to the lowest taxonomic level possible; taxonomic, taphonomic, and biostratigraphic analysis; and curation to the standards of the San Bernardino County Museum, where they will be curated.
- Documentation of the results of the construction monitoring program with daily monitoring reports, monthly progress reports, and a final report of findings with an appended itemized list of specimens. These must be submitted to the County of San Bernardino, Department of Public Works for review.

CR-3 All human remains discovered are to be treated with respect and dignity. Upon discovery of human remains, all work within 50 feet of the discovery area must cease immediately, nothing is to be disturbed, and the area must be secured. The San Bernardino County Coroner's Office must be called. The Coroner has two working days to examine the remains after notification. The appropriate land manager/owner of the site is to be called and informed of the discovery. If the remains are located on federal lands, federal land managers, federal law enforcement, and the federal archaeologist must be informed as well, due to complementary jurisdiction issues. It is very important that the suspected remains, and the area around them, are undisturbed and the proper authorities called to the scene as soon as possible, as it could be a crime scene. The Coroner will determine if the remains are archaeological/historic or of modern origin and if there are any criminal or jurisdictional questions.

After the Coroner has determined the remains are archaeological/historic-era, the Coroner will make recommendations concerning the treatment and disposition of the remains to the person responsible for the excavation, or to his or her authorized representative. If the Coroner believes the remains to be those of a Native American, he/she shall contact the Native American Heritage Commission (NAHC) by telephone within 24 hours. The NAHC will immediately notify the person it believes to be the most likely descendant (MLD) of the remains. The MLD has 48 hours to make recommendations to the land owner for treatment or disposition of the human remains. If the descendant does not make recommendations within 48 hours, the land owner shall reinter the remains in an area of the property secure from further disturbance. If the land owner does not accept the descendant's recommendations, the owner or the descendant may request mediation by NAHC. According to the California Health and Safety Code, six (6) or more human burials at one (1) location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

- b. Does the project have impacts that are individually limited, but cumulatively considerable? (Cumulatively considerable means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)**

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. CEQA defines a cumulative impact as an effect that is created as a result of the combination of the proposed project together with other projects (past, present, or future) causing related impacts. Cumulative impacts of a project need to be evaluated

when the project's incremental effect is cumulatively considerable and, therefore, potentially significant.

As discussed in preceding Sections C.1 (Aesthetics) through C.17 (Utilities and Service Systems), many of the potential impacts of the proposed project would occur during construction, with few lasting operational effects. Because the construction-related impacts of the proposed project would be temporary and localized, they would only have the potential to combine with similar impacts of other projects if they occur at the same time and in close proximity. Construction impacts caused by the proposed project (primarily related to biological resources, cultural resources, and traffic) could combine with similar effects of other projects being built in the area. However, impacts would be less than significant with implementation of mitigation measures.

Mitigation Measures

- BIO-1** *Agency Coordination.* The County of San Bernardino, Department of Public Works (County) or lead agency will consult with the US Fish and Wildlife Service (USFWS) to obtain take for the Santa Ana River woollystar present within the project disturbance area as well impacts to San Bernardino kangaroo rat occupied and critical habitat. The County or lead agency will also obtain an Incidental Take Permit from California Department of Fish and Wildlife (CDFW) for impacts to state listed species. The County will abide by all conditions stated in the permit from the USFWS and CDFW.
- BIO-2** *Santa Ana River woollystar and San Bernardino kangaroo rat habitat compensation.* The County of San Bernardino, Department of Public Works proposes compensatory mitigation at a ratio of 1:1 (i.e., 1 acre of off-site compensation habitat for each acre of habitat affected by the project) for permanent or long-term loss of 2.71 acres of habitat within the project area. This mitigation ratio may be adjusted based on consultation with the US Fish and Wildlife Service and California Department of Fish and Wildlife.
- BIO-3** *Assign Project Biologist.* The County of San Bernardino, Department of Public Works (County) will assign a qualified biologist to conduct pre-construction surveys, construction monitoring, and related tasks listed below. A "qualified biologist" is defined as a person with appropriate education, training, and experience to conduct tortoise surveys, monitor project activities, provide worker education programs, and supervise or perform other monitoring-related actions. The Project Biologist will be authorized by the County to temporarily halt project activities if needed to prevent take of listed species or harm to any other special-status species.
- BIO-4** *Pre-construction clearance survey.* Prior to the start of any ground disturbance or vegetation clearing, the Project Biologist will survey the work area to determine if Santa Ana River woolly star are present. During the survey the Project Biologist should also search for small mammal burrows, nesting birds, or any other special-status species within the work area. Any special-status species or sensitive resources should be flagged and avoided as feasible.
- BIO-5** *Limit disturbance area.* Prior to the initiation of any ground-disturbing activity, the Project Biologist will work with County of San Bernardino, Department of Public Works staff and contractors to clearly demarcate the approved work area with fencing, flagging, lathe and rope, or other devices. The demarcated area shall be limited to the mapped project disturbance area shown in Figure 1 of the Initial Study/Mitigated Negative Declaration. No construction-related activity will be permitted outside the marked area.

- BIO-6* Nesting birds. Vegetation removal and initial ground disturbance will be completed outside the breeding season (i.e., no removal of potential nesting habitat from February 15 through August 15), or after a pre-construction nesting bird survey has been completed. The qualified biologist will confirm that no birds are nesting in or adjacent to areas to be disturbed. If native birds are nesting on the site, then construction will be postponed until nesting is completed or the qualified biologists will designate appropriate avoidance buffers around nests to protect nesting birds. No project related disturbance will be allowed within these buffers.
- BIO-7* Burrowing owl: A qualified biologist will survey the site in advance of vegetation and soil clearing to determine burrowing owl presence or absence. If burrowing owls are present on the site outside of the nesting season (September 1 to January 31), then the California Department of Fish and Wildlife (CDFW) will be consulted and the qualified biologist may be authorized to exclude them from the site using passive exclusion methods described in the most recent CDFW staff report on burrowing owl mitigation (CDFG, 2012). If burrowing owls are present on the site during nesting season (February 1 through August 31), then construction will be either be postponed until nesting is completed, or no disturbance will be allowed within an appropriate buffer area to be established by a qualified biologist in accordance with the CDFW staff report on burrowing owl mitigation (CDFG, 2012).
- BIO-8* *Biological Monitoring.* The Project Biologist or another qualified biological resources monitor will be present on the work site during all initial ground disturbance or vegetation clearing on a daily basis to document compliance with the avoidance and minimization measures and any additional mitigation, and to provide guidance in avoiding or minimizing impacts to biological resources. Once initial ground disturbance and clearing is completed the biological monitor should return on at least a weekly basis to ensure special-status species are being avoided and to inspect all the special-status species and evaluate the buffer distance.
- BIO-9* *Worker training.* The assigned Project Biologist will conduct training to ensure that all workers on the Project site (including contractors) are aware of all applicable Conservation Measures for biological resources. Specifically, workers will be required to (1) limit all activities to approved work areas; (2) report any Santa Ana River woollystar, small mammals, burrowing owl, or other special-status species, or bird nest observation in the work areas and access routes to the supervisor or Project Biologist; (3) avoid contact with any wildlife that may approach a work area and be aware of potential venomous reptile bites from carelessness or unnecessary harassment; (4) pick up and properly dispose of any food, trash or construction refuse; and (5) report any spilled materials (oil, fuel, solvent, engine coolant, raw concrete, or other material potentially hazardous to wildlife), to the supervisor or on-site Project Biologist. During the training, the instructor will briefly discuss special-status species that may occur in the work areas, their habitats, and requirements to avoid or minimize impacts. In addition, all workers will be informed of civil and criminal penalties for violations of the federal Endangered Species Act, California Endangered Species Act, and the Migratory Bird Treaty Act.
- BIO-10* *Animals.* No pets will be permitted on the work site. Workers will not be permitted to feed, harm, approach, harass, or handle wildlife at any time.
- BIO-11* *Trash, refuse, concrete, and other materials.* All trash and food materials will be properly contained within vehicles or closed refuse bins while on the site, and will be regularly

removed from the site (at least on a weekly basis) for proper disposal. All refuse from Project activities will be removed from each work site upon completion of maintenance work. No raw cement, concrete or washings thereof, asphalt, paint, oil, solvents, or other petroleum products, or any other substances that could be hazardous to vegetation or wildlife resources, shall be disposed of on-site or allowed to spill onto soil. Cleanup of any spilled material shall begin immediately.

BIO-12 Non-native plant species control. Throughout the duration of project activities the project disturbance area should be kept free of invasive non-native species. Additional non-native plant removal should also take place prior the storm clean-up to reduce the chances of spreading invasive species throughout the project area or into other offsite locations.

BIO-13 Construction Equipment. All construction vehicles and equipment shall be inspected by the biological monitor upon arrival to the project site. All equipment must arrive clean and free of mud and debris that could harbor invasive plant species seeds. If equipment is not clean, it may be sent off-site for thorough cleaning (i.e., to remove caked mud from the undercarriage, fenders, bumpers, etc., and vacuum or sweep the interior) before being allowed back into the work area. If the mud and debris can be safely removed and contained on the work site, the contained spoils may then be transported and disposed of at an approved facility offsite, allowing the equipment to remain on the site.

BIO-14 Work Hours. All project activities will take place during day time hours and no work will be allowed to take place at night. In addition, no nighttime lighting will be used.

BIO-15 Required Permits. The County of San Bernardino, Department of Public Works will obtain all required permits from the US Army Corps of Engineers, Regional Water Quality Control Board, and California Department of Fish and Wildlife for impacts to jurisdictional waters of the state and non-wetland waters of the U.S.

CR-1 Management of Unanticipated Discoveries of Historical Resources, Unique Archaeological Resources or Tribal Cultural Resources. If previously unidentified cultural resources and tribal cultural resources are identified during construction activities, construction work within 100 feet of the find shall be halted and directed away from the discovery until a Secretary of the Interior qualified archaeologist or tribal representative assesses the significance of the resource. The archaeologist, in consultation with the County of San Bernardino, Department of Public Works, State Historic Preservation Officer, any interested Tribes, and any other responsible public agency, shall make the necessary plans for treatment of the find(s) and for the evaluation and mitigation of impacts if the finds are found to be eligible to the National or California Registers, qualify as a unique archaeological resource under California Environmental Quality Act Section 21083.2 or determined to be tribal cultural resource as defined in Section 21074.

CR-2 In the event that unanticipated paleontological resources or unique geologic resources are encountered during ground-disturbing or other construction activities, a paleontologist must be retained who meets the professional paleontologist qualifications (San Bernardino County Development Code §82.20.040, 2007; Society of Vertebrate Paleontology's Standard Procedures, 2010) and has demonstrated experience in carrying paleontological projects to completion. This qualified paleontologist must develop and implement a Paleontological Resources Management Plan (PRMP) for the project area that meets the standards set forth in San Bernardino County Development Code §82.20.030. This shall include:

- A Worker Environmental Awareness Program (WEAP) wherein all construction personnel are trained on the processes to be followed upon encountering any fossils.
- A monitoring plan for ground disturbing activities that provides the monitor(s) with the authority to temporarily halt or divert equipment. Monitors shall be onsite for any disturbance of sediments with high or unknown paleontological sensitivity. Monitors must have demonstrated sufficient paleontological training and field experience to have acceptable knowledge and experience of fossil identification, salvage and collection methods, paleontological techniques, and stratigraphy.
- A recovery plan for significant fossils that provides for the treatment of specimens to the point of identification and permanent preservation, including washing of sediments to recover small invertebrates and vertebrates.
- A specimen identification, analysis, and curation plan that includes identification to the lowest taxonomic level possible; taxonomic, taphonomic, and biostratigraphic analysis; and curation to the standards of the San Bernardino County Museum, where they will be curated.
- Documentation of the results of the construction monitoring program with daily monitoring reports, monthly progress reports, and a final report of findings with an appended itemized list of specimens. These must be submitted to the County of San Bernardino, Department of Public Works for review.

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After the Coroner has determined the remains are archaeological/historic-era, the Coroner will make recommendations concerning the treatment and disposition of the remains to the person responsible for the excavation, or to his or her authorized representative. If the Coroner believes the remains to be those of a Native American, he/she shall contact the Native American Heritage Commission (NAHC) by telephone within 24 hours. The NAHC will immediately notify the person it believes to be the most likely descendant (MLD) of the remains. The MLD has 48 hours to make recommendations to the land owner for treatment or disposition of the human remains. If the descendant does not make recommendations within 48 hours, the land owner shall reinter the remains in an area of the property secure from further disturbance. If the land owner does not accept the descendant's recommendations, the owner or the descendant may request mediation by NAHC. According to the California Health and Safety Code, six (6) or more human burials at one (1) location constitute a cemetery (Section 8100), and willful disturbance of human remains is a felony (Section 7052).

- T-1 Prior to the commencement of construction, the San Bernardino County Department of Public Works shall prepare a Construction Traffic Control Plan. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation (Caltrans) Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook (WATCH) Manual and shall include detailed information on the following:
1. Plans and placement of temporary signing, lighting, and traffic control devices as required; including, but not limited to: appropriate signage along Institution Road to indicate travel lane closures and awareness of temporary one-way traffic, the presence of heavy vehicles and construction traffic, and access for emergency vehicles to and through the immediate project area;
 2. Use of directing traffic through the work area with flag persons and/or other traffic control features;
 3. Timing and schedule of heavy equipment and building materials deliveries;
 4. Identification of construction-related vehicle safety procedures accessing work and staging areas;
 5. The need for providing advance notification to affected property owners, emergency services, businesses, residents, etc. of detours;
 6. Identification of vehicle safety procedures in the event of roadway flooding; and
 7. Provisions for the establishment of a traffic control coordinator. The traffic control coordinator shall be responsible for responding to any local complaints about project construction and operational traffic concerns. The traffic control coordinator shall determine the cause of the traffic complaint and shall be required to implement reasonable measures to resolve the complaint. Signs posted along the project construction route shall list the telephone number for the traffic control coordinator.

c. Does the project have environmental effects, which would cause substantial adverse effects on human beings, either directly or indirectly?

LESS THAN SIGNIFICANT WITH MITIGATION INCORPORATED. The preceding sections of this IS/MND discuss various types of impacts that could have adverse effects on human beings, including:

- Construction-related traffic and emergency access (see Section C.16, Transportation and Traffic).

These are primarily temporary impacts associated with the proposed project's construction activities. Each type of impact with the potential to cause substantial adverse effects on human beings has been evaluated, and this IS/MND concludes that with implementation of mitigation measures these impacts are less than significant.

Mitigation Measures

- T-1 Prior to the commencement of construction, the San Bernardino County Department of Public Works shall prepare a Construction Traffic Control Plan. The Construction Traffic Control Plan must be prepared in accordance with both the California Department of Transportation (Caltrans) Manual on Uniform Traffic Control Devices and Work Area Traffic Control Handbook (WATCH) Manual and shall include detailed information on the following:
8. Plans and placement of temporary signing, lighting, and traffic control devices as required; including, but not limited to: appropriate signage along Institution Road to

indicate travel lane closures and awareness of temporary one-way traffic, the presence of heavy vehicles and construction traffic, and access for emergency vehicles to and through the immediate project area;

9. Use of directing traffic through the work area with flag persons and/or other traffic control features;
10. Timing and schedule of heavy equipment and building materials deliveries;
11. Identification of construction-related vehicle safety procedures accessing work and staging areas;
12. The need for providing advance notification to affected property owners, emergency services, businesses, residents, etc. of detours;
13. Identification of vehicle safety procedures in the event of roadway flooding; and
14. Provisions for the establishment of a traffic control coordinator. The traffic control coordinator shall be responsible for responding to any local complaints about project construction and operational traffic concerns. The traffic control coordinator shall determine the cause of the traffic complaint and shall be required to implement reasonable measures to resolve the complaint. Signs posted along the project construction route shall list the telephone number for the traffic control coordinator.

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Appendix A

Air Quality Data

South Coast Air Basin, Summer

1.0 Project Characteristics**1.1 Land Usage**

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
Other Asphalt Surfaces	5.70	Acre	5.70	248,292.00	0

1.2 Other Project Characteristics

Urbanization	Urban	Wind Speed (m/s)	1.7	Precipitation Freq (Days)	31
Climate Zone	10			Operational Year	2017
Utility Company	Southern California Edison				
CO2 Intensity (lb/MW hr)	630.89	CH4 Intensity (lb/MW hr)	0.029	N2O Intensity (lb/MW hr)	0.006

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Wind Speed Revised to average from SCAQMD AERMOD file for San Bernardino

Land Use - Total road reconstruction disturbed area is 5.7 acres.

Construction Phase - Phases are per construction plans developed specifically for this road construction project, with South and North lane construction being sequential.

Off-road Equipment - Equipment specifically estimated for this task.

Off-road Equipment - Project Specific Estimate

Off-road Equipment - Specific project estimates.

Off-road Equipment - Concrete pump is the only off-road equipment item needed during Concrete Structures Installation

Off-road Equipment - Assumed to support equipment/materials delivery during mobilization

Off-road Equipment - Specific Project Estimate

Off-road Equipment - Equipment specified for this project.

Off-road Equipment - Specific project estimate.

Off-road Equipment - Project Specific Estimate

Trips and VMT - Vendor trips include fuel and other misc. needs from smaller service trucks. Worker trip distance based on rounding up RTP average commute value, and others are based on maximum of 15 mile radius (one-way) for each trip.

On-road Fugitive Dust - Assumes hauling trips for road excavation and paving require 500 feet of travel on temporary unpaved areas.

Grading - Project specific values provided, as well as SCAQMD guideline values for mitigated moisture and overburden silt content. Conservatively added all bulk material imports and bulk waste exports to this these two phases.

Architectural Coating - Coating of pavement areas only, assumed to be 5 percent of total road surface.

Construction Off-road Equipment Mitigation -

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Mobilization	Site Preparation	9/12/2016	9/14/2016	5	3	
2	Road Excavation SL	Grading	9/15/2016	9/19/2016	5	3	
3	Concrete Structures Installation	Trenching	9/15/2016	10/4/2016	5	14	
4	Aggregate and Asphalt Placement SL	Paving	9/16/2016	9/22/2016	5	5	
5	Street Completion and Misc. Works SL	Architectural Coating	9/23/2016	9/23/2016	5	1	
6	Road Excavation NL	Grading	9/26/2016	9/28/2016	5	3	
7	Aggregate and Asphalt Placement NL	Paving	9/27/2016	10/3/2016	5	5	
8	Street Completion and Misc. Works NL	Architectural Coating	10/4/2016	10/4/2016	5	1	

Acres of Grading (Site Preparation Phase): 0

Acres of Grading (Grading Phase): 0

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 3,510 (Architectural Coating – sqft)

Off Road Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Mobilization	Rough Terrain Forklifts	1	2.00	100	0.40
Road Excavation SL	Crawler Tractors	1	8.00	150	0.43
Road Excavation SL	Excavators	1	7.00	70	0.38
Road Excavation SL	Rubber Tired Loaders	2	4.00	129	0.36
Road Excavation SL	Tractors/Loaders/Backhoes	1	4.00	60	0.37
Concrete Structures Installation	Pumps	1	8.00	43	0.74
Aggregate and Asphalt Placement SL	Graders	1	4.00	200	0.43
Aggregate and Asphalt Placement SL	Pavers	1	7.00	121	0.42
Aggregate and Asphalt Placement SL	Rollers	2	7.00	100	0.38
Aggregate and Asphalt Placement SL	Rollers	1	7.00	60	0.38
Aggregate and Asphalt Placement SL	Rubber Tired Loaders	1	6.00	129	0.36
Street Completion and Misc. Works SL	Air Compressors	1	8.00	100	0.48
Street Completion and Misc. Works SL	Tractors/Loaders/Backhoes	1	8.00	60	0.37
Road Excavation NL	Crawler Tractors	1	8.00	150	0.43
Road Excavation NL	Excavators	1	7.00	70	0.38
Road Excavation NL	Rubber Tired Loaders	2	4.00	129	0.36
Road Excavation NL	Tractors/Loaders/Backhoes	1	4.00	60	0.37
Aggregate and Asphalt Placement NL	Graders	1	4.00	200	0.41
Aggregate and Asphalt Placement NL	Pavers	1	7.00	121	0.42
Aggregate and Asphalt Placement NL	Rollers	2	7.00	100	0.38
Aggregate and Asphalt Placement NL	Rollers	1	7.00	60	0.38
Aggregate and Asphalt Placement NL	Rubber Tired Loaders	1	6.00	129	0.36
Street Completion and Misc. Works NL	Air Compressors	1	8.00	100	0.48
Street Completion and Misc. Works NL	Tractors/Loaders/Backhoes	1	8.00	60	0.37

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Mobilization	1	6.00	2.00	10.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT
Road Excavation SL	5	10.00	0.00	255.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT
Concrete Structures Installation	1	8.00	2.00	162.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT
Aggregate and Asphalt Placement SL	6	12.00	0.00	182.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT
Street Completion and Misc. Works SL	2	6.00	0.00	1.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT
Road Excavation NL	5	10.00	0.00	255.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT
Aggregate and Asphalt Placement NL	6	12.00	0.00	182.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT
Street Completion and Misc. Works NL	2	6.00	0.00	1.00	30.00	30.00	30.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

Water Exposed Area

Water Unpaved Roads

Reduce Vehicle Speed on Unpaved Roads

3.2 Mobilization - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0532	0.6773	0.5894	8.6000e-004		0.0376	0.0376		0.0346	0.0346		89.4311	89.4311	0.0270		89.9976
Total	0.0532	0.6773	0.5894	8.6000e-004	0.0000	0.0376	0.0376	0.0000	0.0346	0.0346		89.4311	89.4311	0.0270		89.9976

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0757	1.3499	0.7811	3.6600e-003	0.0871	0.0213	0.1084	0.0238	0.0196	0.0435		368.9968	368.9968	2.5800e-003		369.0510
Vendor	0.0369	0.6224	0.3519	1.7700e-003	0.0542	0.0119	0.0661	0.0154	0.0109	0.0263		177.7692	177.7692	1.1400e-003		177.7930
Worker	0.0345	0.0608	0.7578	1.7200e-003	0.1368	1.0900e-003	0.1379	0.0363	1.0100e-003	0.0373		144.1791	144.1791	7.2600e-003		144.3315
Total	0.1471	2.0330	1.8908	7.1500e-003	0.2781	0.0343	0.3123	0.0755	0.0315	0.1071		690.9451	690.9451	0.0110		691.1755

3.2 Mobilization - 2016
Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.0000	0.0000	0.0000	0.0000	0.0000	0.0000			0.0000			0.0000
Off-Road	0.0532	0.6773	0.5894	8.6000e-004		0.0376	0.0376		0.0346	0.0346	0.0000	89.4311	89.4311	0.0270		89.9976
Total	0.0532	0.6773	0.5894	8.6000e-004	0.0000	0.0376	0.0376	0.0000	0.0346	0.0346	0.0000	89.4311	89.4311	0.0270		89.9976

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0757	1.3499	0.7811	3.6600e-003	0.0871	0.0213	0.1084	0.0238	0.0196	0.0435		368.9968	368.9968	2.5800e-003		369.0510
Vendor	0.0369	0.6224	0.3519	1.7700e-003	0.0542	0.0119	0.0661	0.0154	0.0109	0.0263		177.7692	177.7692	1.1400e-003		177.7930
Worker	0.0345	0.0608	0.7578	1.7200e-003	0.1368	1.0900e-003	0.1379	0.0363	1.0100e-003	0.0373		144.1791	144.1791	7.2600e-003		144.3315
Total	0.1471	2.0330	1.8908	7.1500e-003	0.2781	0.0343	0.3123	0.0755	0.0315	0.1071		690.9451	690.9451	0.0110		691.1755

3.3 Road Excavation SL - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1679	0.0000	1.1679	0.1331	0.0000	0.1331			0.0000			0.0000
Off-Road	1.4739	15.2741	9.1279	0.0125		0.9018	0.9018		0.8297	0.8297		1,295.1427	1,295.1427	0.3907		1,303.3465
Total	1.4739	15.2741	9.1279	0.0125	1.1679	0.9018	2.0697	0.1331	0.8297	0.9627		1,295.1427	1,295.1427	0.3907		1,303.3465

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9305	34.4220	19.9167	0.0933	7.4751	0.5437	8.0189	1.1301	0.5002	1.6303		9,409.4184	9,409.4184	0.0658		9,410.8011
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0575	0.1013	1.2630	2.8600e-003	0.2280	1.8200e-003	0.2298	0.0605	1.6800e-003	0.0621		240.2985	240.2985	0.0121		240.5525
Total	1.9880	34.5233	21.1797	0.0961	7.7031	0.5456	8.2487	1.1906	0.5019	1.6924		9,649.7170	9,649.7170	0.0779		9,651.3536

3.3 Road Excavation SL - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4555	0.0000	0.4555	0.0519	0.0000	0.0519			0.0000			0.0000
Off-Road	1.4739	15.2741	9.1279	0.0125		0.9018	0.9018		0.8297	0.8297	0.0000	1,295.1427	1,295.1427	0.3907		1,303.3465
Total	1.4739	15.2741	9.1279	0.0125	0.4555	0.9018	1.3573	0.0519	0.8297	0.8816	0.0000	1,295.1427	1,295.1427	0.3907		1,303.3465

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9305	34.4220	19.9167	0.0933	5.4351	0.5437	5.9789	0.9261	0.5002	1.4263		9,409.4184	9,409.4184	0.0658		9,410.8011
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0575	0.1013	1.2630	2.8600e-003	0.2280	1.8200e-003	0.2298	0.0605	1.6800e-003	0.0621		240.2985	240.2985	0.0121		240.5525
Total	1.9880	34.5233	21.1797	0.0961	5.6631	0.5456	6.2087	0.9866	0.5019	1.4884		9,649.7170	9,649.7170	0.0779		9,651.3536

3.4 Concrete Structures Installation - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6959	2.6613	2.6040	3.9300e-003		0.1880	0.1880		0.1880	0.1880		318.9344	318.9344	0.0623		320.2425
Total	0.6959	2.6613	2.6040	3.9300e-003		0.1880	0.1880		0.1880	0.1880		318.9344	318.9344	0.0623		320.2425

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2628	4.6860	2.7114	0.0127	0.3022	0.0740	0.3763	0.0828	0.0681	0.1508		1,280.9460	1,280.9460	8.9600e-003		1,281.1343
Vendor	0.0369	0.6224	0.3519	1.7700e-003	0.0542	0.0119	0.0661	0.0154	0.0109	0.0263		177.7692	177.7692	1.1400e-003		177.7930
Worker	0.0460	0.0810	1.0104	2.2900e-003	0.1824	1.4600e-003	0.1839	0.0484	1.3400e-003	0.0497		192.2388	192.2388	9.6700e-003		192.4420
Total	0.3457	5.3894	4.0737	0.0168	0.5388	0.0874	0.6262	0.1465	0.0804	0.2269		1,650.9540	1,650.9540	0.0198		1,651.3693

3.4 Concrete Structures Installation - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	0.6959	2.6613	2.6040	3.9300e-003		0.1880	0.1880		0.1880	0.1880	0.0000	318.9344	318.9344	0.0623		320.2425
Total	0.6959	2.6613	2.6040	3.9300e-003		0.1880	0.1880		0.1880	0.1880	0.0000	318.9344	318.9344	0.0623		320.2425

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.2628	4.6860	2.7114	0.0127	0.3022	0.0740	0.3763	0.0828	0.0681	0.1508		1,280.9460	1,280.9460	8.9600e-003		1,281.1343
Vendor	0.0369	0.6224	0.3519	1.7700e-003	0.0542	0.0119	0.0661	0.0154	0.0109	0.0263		177.7692	177.7692	1.1400e-003		177.7930
Worker	0.0460	0.0810	1.0104	2.2900e-003	0.1824	1.4600e-003	0.1839	0.0484	1.3400e-003	0.0497		192.2388	192.2388	9.6700e-003		192.4420
Total	0.3457	5.3894	4.0737	0.0168	0.5388	0.0874	0.6262	0.1465	0.0804	0.2269		1,650.9540	1,650.9540	0.0198		1,651.3693

3.5 Aggregate and Asphalt Placement SL - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9469	20.4863	11.4365	0.0180		1.1774	1.1774		1.0832	1.0832		1,870.4896	1,870.4896	0.5642		1,882.3379
Paving	2.9868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	4.9337	20.4863	11.4365	0.0180		1.1774	1.1774		1.0832	1.0832		1,870.4896	1,870.4896	0.5642		1,882.3379

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8267	14.7407	8.5290	0.0399	3.2011	0.2328	3.4340	0.4840	0.2142	0.6982		4,029.4451	4,029.4451	0.0282		4,030.0372
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.1216	1.5156	3.4300e-003	0.2736	2.1900e-003	0.2758	0.0726	2.0100e-003	0.0746		288.3583	288.3583	0.0145		288.6630
Total	0.8957	14.8623	10.0447	0.0434	3.4747	0.2350	3.7098	0.5565	0.2162	0.7727		4,317.8033	4,317.8033	0.0427		4,318.7002

3.5 Aggregate and Asphalt Placement SL - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9469	20.4863	11.4365	0.0180		1.1774	1.1774		1.0832	1.0832	0.0000	1,870.4896	1,870.4896	0.5642		1,882.3379
Paving	2.9868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	4.9337	20.4863	11.4365	0.0180		1.1774	1.1774		1.0832	1.0832	0.0000	1,870.4896	1,870.4896	0.5642		1,882.3379

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8267	14.7407	8.5290	0.0399	2.3275	0.2328	2.5604	0.3966	0.2142	0.6108		4,029.4451	4,029.4451	0.0282		4,030.0372
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.1216	1.5156	3.4300e-003	0.2736	2.1900e-003	0.2758	0.0726	2.0100e-003	0.0746		288.3583	288.3583	0.0145		288.6630
Total	0.8957	14.8623	10.0447	0.0434	2.6011	0.2350	2.8362	0.4692	0.2162	0.6854		4,317.8033	4,317.8033	0.0427		4,318.7002

3.6 Street Completion and Misc. Works SL - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	40.6721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8405	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787		681.3205	681.3205	0.1171		683.7799
Total	41.5127	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787		681.3205	681.3205	0.1171		683.7799

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0227	0.4050	0.2343	1.1000e-003	0.0261	6.4000e-003	0.0325	7.1500e-003	5.8800e-003	0.0130		110.6990	110.6990	7.7000e-004		110.7153
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0345	0.0608	0.7578	1.7200e-003	0.1368	1.0900e-003	0.1379	0.0363	1.0100e-003	0.0373		144.1791	144.1791	7.2600e-003		144.3315
Total	0.0572	0.4657	0.9921	2.8200e-003	0.1629	7.4900e-003	0.1704	0.0434	6.8900e-003	0.0503		254.8782	254.8782	8.0300e-003		255.0468

3.6 Street Completion and Misc. Works SL - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	40.6721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8405	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787	0.0000	681.3205	681.3205	0.1171		683.7799
Total	41.5127	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787	0.0000	681.3205	681.3205	0.1171		683.7799

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0227	0.4050	0.2343	1.1000e-003	0.0261	6.4000e-003	0.0325	7.1500e-003	5.8800e-003	0.0130		110.6990	110.6990	7.7000e-004		110.7153
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0345	0.0608	0.7578	1.7200e-003	0.1368	1.0900e-003	0.1379	0.0363	1.0100e-003	0.0373		144.1791	144.1791	7.2600e-003		144.3315
Total	0.0572	0.4657	0.9921	2.8200e-003	0.1629	7.4900e-003	0.1704	0.0434	6.8900e-003	0.0503		254.8782	254.8782	8.0300e-003		255.0468

3.7 Road Excavation NL - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					1.1679	0.0000	1.1679	0.1331	0.0000	0.1331			0.0000			0.0000
Off-Road	1.4739	15.2741	9.1279	0.0125		0.9018	0.9018		0.8297	0.8297		1,295.1427	1,295.1427	0.3907		1,303.3465
Total	1.4739	15.2741	9.1279	0.0125	1.1679	0.9018	2.0697	0.1331	0.8297	0.9627		1,295.1427	1,295.1427	0.3907		1,303.3465

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9305	34.4220	19.9167	0.0933	7.4751	0.5437	8.0189	1.1301	0.5002	1.6303		9,409.4184	9,409.4184	0.0658		9,410.8011
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0575	0.1013	1.2630	2.8600e-003	0.2280	1.8200e-003	0.2298	0.0605	1.6800e-003	0.0621		240.2985	240.2985	0.0121		240.5525
Total	1.9880	34.5233	21.1797	0.0961	7.7031	0.5456	8.2487	1.1906	0.5019	1.6924		9,649.7170	9,649.7170	0.0779		9,651.3536

3.7 Road Excavation NL - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Fugitive Dust					0.4555	0.0000	0.4555	0.0519	0.0000	0.0519			0.0000			0.0000
Off-Road	1.4739	15.2741	9.1279	0.0125		0.9018	0.9018		0.8297	0.8297	0.0000	1,295.1427	1,295.1427	0.3907		1,303.3465
Total	1.4739	15.2741	9.1279	0.0125	0.4555	0.9018	1.3573	0.0519	0.8297	0.8816	0.0000	1,295.1427	1,295.1427	0.3907		1,303.3465

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	1.9305	34.4220	19.9167	0.0933	5.4351	0.5437	5.9789	0.9261	0.5002	1.4263		9,409.4184	9,409.4184	0.0658		9,410.8011
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0575	0.1013	1.2630	2.8600e-003	0.2280	1.8200e-003	0.2298	0.0605	1.6800e-003	0.0621		240.2985	240.2985	0.0121		240.5525
Total	1.9880	34.5233	21.1797	0.0961	5.6631	0.5456	6.2087	0.9866	0.5019	1.4884		9,649.7170	9,649.7170	0.0779		9,651.3536

3.8 Aggregate and Asphalt Placement NL - 2016**Unmitigated Construction On-Site**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9329	20.2865	11.3851	0.0178		1.1710	1.1710		1.0773	1.0773		1,852.440 1	1,852.440 1	0.5588		1,864.174 1
Paving	2.9868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	4.9197	20.2865	11.3851	0.0178		1.1710	1.1710		1.0773	1.0773		1,852.440 1	1,852.440 1	0.5588		1,864.174 1

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8267	14.7407	8.5290	0.0399	3.2011	0.2328	3.4340	0.4840	0.2142	0.6982		4,029.445 1	4,029.445 1	0.0282		4,030.037 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.1216	1.5156	3.4300e-003	0.2736	2.1900e-003	0.2758	0.0726	2.0100e-003	0.0746		288.3583	288.3583	0.0145		288.6630
Total	0.8957	14.8623	10.0447	0.0434	3.4747	0.2350	3.7098	0.5565	0.2162	0.7727		4,317.803 3	4,317.803 3	0.0427		4,318.700 2

3.8 Aggregate and Asphalt Placement NL - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Off-Road	1.9329	20.2865	11.3851	0.0178		1.1710	1.1710		1.0773	1.0773	0.0000	1,852.440 1	1,852.440 1	0.5588		1,864.174 1
Paving	2.9868					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Total	4.9197	20.2865	11.3851	0.0178		1.1710	1.1710		1.0773	1.0773	0.0000	1,852.440 1	1,852.440 1	0.5588		1,864.174 1

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.8267	14.7407	8.5290	0.0399	2.3275	0.2328	2.5604	0.3966	0.2142	0.6108		4,029.445 1	4,029.445 1	0.0282		4,030.037 2
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0690	0.1216	1.5156	3.4300e-003	0.2736	2.1900e-003	0.2758	0.0726	2.0100e-003	0.0746		288.3583	288.3583	0.0145		288.6630
Total	0.8957	14.8623	10.0447	0.0434	2.6011	0.2350	2.8362	0.4692	0.2162	0.6854		4,317.803 3	4,317.803 3	0.0427		4,318.700 2

3.9 Street Completion and Misc. Works NL - 2016

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	40.6721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8405	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787		681.3205	681.3205	0.1171		683.7799
Total	41.5127	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787		681.3205	681.3205	0.1171		683.7799

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0227	0.4050	0.2343	1.1000e-003	0.0261	6.4000e-003	0.0325	7.1500e-003	5.8800e-003	0.0130		110.6990	110.6990	7.7000e-004		110.7153
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0345	0.0608	0.7578	1.7200e-003	0.1368	1.0900e-003	0.1379	0.0363	1.0100e-003	0.0373		144.1791	144.1791	7.2600e-003		144.3315
Total	0.0572	0.4657	0.9921	2.8200e-003	0.1629	7.4900e-003	0.1704	0.0434	6.8900e-003	0.0503		254.8782	254.8782	8.0300e-003		255.0468

3.9 Street Completion and Misc. Works NL - 2016

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Archit. Coating	40.6721					0.0000	0.0000		0.0000	0.0000			0.0000			0.0000
Off-Road	0.8405	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787	0.0000	681.3205	681.3205	0.1171		683.7799
Total	41.5127	6.0685	4.7127	7.0100e-003		0.4911	0.4911		0.4787	0.4787	0.0000	681.3205	681.3205	0.1171		683.7799

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	lb/day										lb/day					
Hauling	0.0227	0.4050	0.2343	1.1000e-003	0.0261	6.4000e-003	0.0325	7.1500e-003	5.8800e-003	0.0130		110.6990	110.6990	7.7000e-004		110.7153
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000	0.0000		0.0000
Worker	0.0345	0.0608	0.7578	1.7200e-003	0.1368	1.0900e-003	0.1379	0.0363	1.0100e-003	0.0373		144.1791	144.1791	7.2600e-003		144.3315
Total	0.0572	0.4657	0.9921	2.8200e-003	0.1629	7.4900e-003	0.1704	0.0434	6.8900e-003	0.0503		254.8782	254.8782	8.0300e-003		255.0468

Annual Construction Emissions

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2016	0.0890	0.4048	0.2659	8.0000e-004	0.0458	0.0139	0.0597	7.6300e-003	0.0129	0.0206	0.0000	72.0320	72.0320	4.7000e-003	0.0000	72.1307
Total	0.0890	0.4048	0.2659	8.0000e-004	0.0458	0.0139	0.0597	7.6300e-003	0.0129	0.0206	0.0000	72.0320	72.0320	4.7000e-003	0.0000	72.1307