2.1.6 Traffic and Transportation/Pedestrian and Bicycle Facilities

This section addresses the potential effects to traffic and circulation associated with construction of the proposed project and compares the relative benefits of each alternative. The traffic circulation analysis is based on the results of the *Traffic Operations Analysis* (January 2015). The *Traffic Operations Analysis* evaluates the existing and future traffic flow conditions within the traffic study area of San Bernardino County (defined below in Section 2.1.6.2, Affected Environment).

The *Traffic Operations Analysis* evaluation includes demand, capacity, and LOS for study area intersections. LOS analysis was conducted for the a.m. and p.m. peak hours (7:00 to 9:00 a.m. and 4:00 to 6:00 p.m.) based on the HCM 2000, which states:

> LOS is a quality of measure describing operational conditions within a traffic stream, generally in terms of such service measures as speed and travel time, freedom to maneuver, traffic interruptions, and comfort and convenience. Six LOS are defined for each type of facility that has analysis procedures available (see Table 2.1.6-1). Letters designate each level, from A to F, with LOS A representing the best operating conditions and LOS F the worst. Each LOS represents a range of operating conditions and the driver's perception of those conditions. (HCM, page 2-2)

Table 2.1.6-1. Intersection Level of Service Definitions

Level of Service	Description	Signalized Intersection Delay (seconds per vehicle)	Unsignalized Intersection Delay (seconds per vehicle)
A	Excellent operation. All approaches to the intersection appear quite open, turning movements are easily made, and nearly all drivers find freedom of operation.	≤ 10	≤ 10
B	Very good operation. Many drivers begin to feel somewhat restricted within platoons of vehicles. This represents stable flow. An approach to an intersection may occasionally be fully utilized and traffic queues start to form.	>10 and ≤ 20	>10 and ≤ 15
C	Good operation. Occasionally drivers may have to wait more than 60 seconds, and backups may develop behind turning vehicles. Most drivers feel somewhat restricted.	>20 and ≤ 35	>15 and ≤ 25

Table 2.1.6-1. Intersection Level of Service Definitions

Level of Service	Description	Signalized Intersection Delay (seconds per vehicle)	Unsignalized Intersection Delay (seconds per vehicle)
D	Fair operation. Cars are sometimes required to wait more than 60 seconds during short peaks. There are no long-standing traffic queues.	>35 and ≤ 55	>25 and ≤ 35
E	Poor operation. Some long-standing vehicular queues develop on critical approaches to intersections. Delays may be up to several minutes.	>55 and ≤ 80	>35 and ≤ 50
F	Forced flow. Represents jammed conditions. Backups form locations downstream or on the cross street may restrict or prevent movement of vehicles out of the intersection approach lanes; therefore, volumes carried are not predictable. Potential for stop and go type traffic flow.	> 80	> 50

Source: Highway Capacity Manual, Special Report 209, Transportation Research Board, Washington, DC, 2000.

The City maintains a standard of LOS E or better as acceptable operating LOS at its intersections. At freeway ramp intersections, which fall under Caltrans' jurisdiction, a standard of LOS D or better is considered acceptable in this analysis.

The analysis was conducted for the following scenarios:

- Existing (2013);
- Opening Year 2025 No Build Alternative;
- Opening Year 2025 Build Alternative;
- Horizon Year 2045 No Build Alternative; and
- Horizon Year 2045 Build Alternative.

2.1.6.1 Regulatory Setting

Caltrans, as assigned by FHWA, directs that full consideration should be given to the safe accommodation of pedestrians and bicyclists during the development of federal-aid highway projects (see 23 CFR 652). It further directs that the special needs of the elderly and the disabled must be considered in all federal-aid projects that include pedestrian facilities. When current or anticipated pedestrian and/or bicycle traffic presents a potential conflict with motor vehicle traffic, every effort must be made to minimize the detrimental effects on all highway users who share the facility.

In July 1999, USDOT issued an Accessibility Policy Statement pledging a fully accessible multimodal transportation system. Accessibility in federally assisted programs is governed by the USDOT regulations (49 CFR Part 27) implementing Section 504 of the Rehabilitation Act (29 U.S.C. 794). FHWA has enacted regulations for implementation of the 1990 Americans with Disabilities Act (ADA), including a commitment to build transportation facilities that provide equal access for all persons. These regulations require application of the ADA requirements to federal-aid projects, including Transportation Enhancement Activities.

2.1.6.2 Affected Environment

The existing lane configuration, traffic volumes, LOS, and other operational characteristics within the traffic study area are presented in this subsection.

Traffic Study Area

Within the project area, Grove Avenue is a collector street that runs in the north-south direction through Ontario. The existing Grove Avenue corridor is a critical arterial in the region's transportation network connecting automobile and truck traffic between I-10 and Ontario International Airport. Much of the project area is characterized by typical highway-adjacent urban residential neighborhoods, commercial, and light industrial properties with on-street and off-street parking in residential areas and usually plentiful off-street surface parking at commercial lots. The traffic study area, as shown in Figure 2.1.6-1, includes Grove Avenue interchanges between Mission Boulevard and 4th Street. The area for analysis includes the following seven intersections:

1. Grove Avenue/4th Street
2. Grove Avenue/I Street
3. Grove Avenue/G Street
4. Grove Avenue/D Street
5. Grove Avenue/Holt Boulevard
6. Grove Avenue/State Street-Airport Drive
7. Grove Avenue/Mission Boulevard

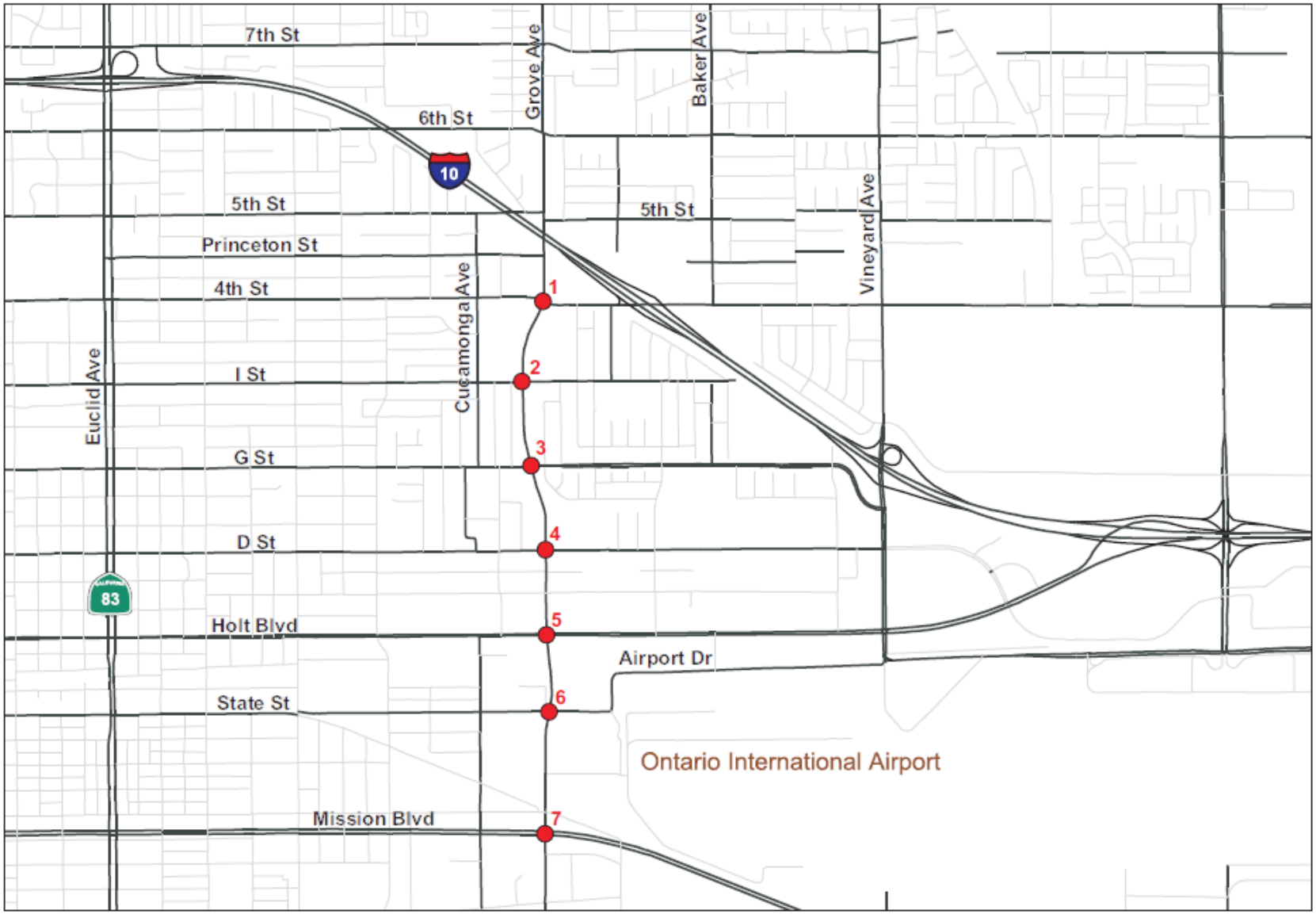


Figure 2.1.6-1. Grove Avenue Corridor Project Study Intersections

Existing Traffic Conditions

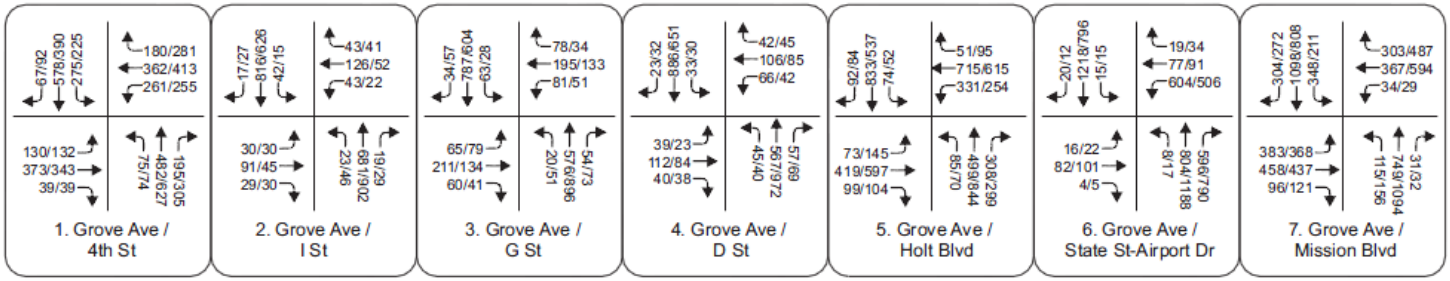
Existing traffic data for the traffic study area are for the year 2013. Existing conditions traffic data and the results of operational analysis are presented below for the Grove Avenue corridor intersections.

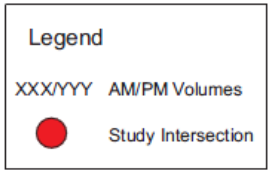
The existing a.m. and p.m. peak period (7:00 to 9:00 a.m., 4:00 to 6:00 p.m.) intersection turning movement counts were collected at the study intersections near the existing I-10/4th Street interchange in February 2013. All intersection traffic counts were collected while local schools were in session. As part of the volume development, trucks were converted into their respective passenger car equivalents (PCE). PCE factors of 1.5, 2, and 3 were used for light-duty trucks, medium-duty trucks with three axles, and heavy-duty trucks with four axles, respectively. The peak hour was determined by taking the peak 1-hour interval within the peak period. Existing a.m. and p.m. peak-hour intersection volumes are shown in Figure 2.1.6-2. All study intersections are currently operating at LOS D or better and are at sufficient capacity to accommodate existing travel demands within the project limits, as shown in Table 2.1.6-2.

Table 2.1.6-2. Existing (2013) Peak–Hour Intersection LOS Summary

Intersection	AM Peak Hour 2013		PM Peak Hour 2013	
	Delay (sec)	LOS	Delay (sec)	LOS
1) Grove Avenue/4th Street	35.0	D	34.5	C
2) Grove Avenue/I Street	5.7	A	3.8	A
3) Grove Avenue/G Street	7.1	A	5.5	A
4) Grove Avenue/D Street	5.4	A	4.4	A
5) Grove Avenue/Holt Boulevard	33.7	C	31.8	C
6) Grove Avenue/State Street	20.4	C	29.9	C
7) Grove Avenue/Mission Boulevard	44.4	D	36.5	D
Note: sec = seconds;				

Source: Traffic Operations Analysis, 2015.





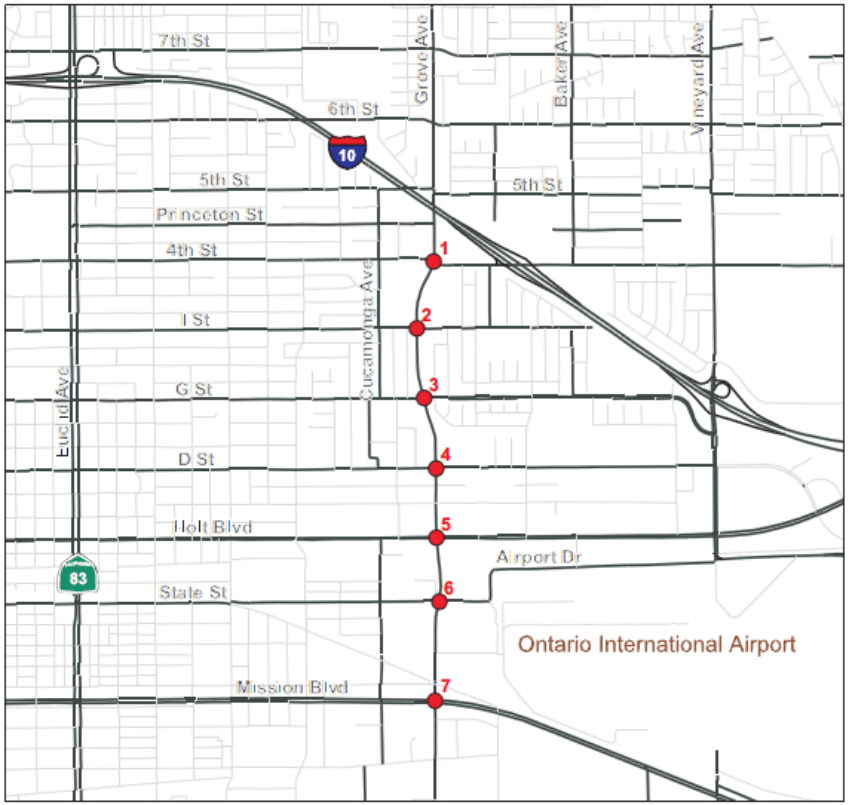


Figure 2.1.6-2. Existing Peak-Hour Intersection Volumes

Pedestrian and Bicycle Facilities

SBCTA's Non-Motorized Transportation Plan (2014) identifies existing and planned bikeways that run below or adjacent to the proposed project area, as shown in Figure 2.1.6-3. There are three classes of bikeways: Class I, Class II, and Class III. A Class I bikeway, or shared-used path or bike path, is a bikeway physically separated from any street or highway and used by a variety of users. Class II bikeways, or bike lane, is a portion of a roadway that is designated by striping, signaling, and pavement markings for the preferential or exclusive use of bicyclists. Class III bikeways, or bike routes, are any road, street, path, or way that in some manner is specifically designed for bicycle travel regardless of whether such facilities are designated for the exclusive use of bicycles or shared with other transportation modes.

2.1.6.3 Environmental Consequences

An evaluation of the traffic and transportation impacts associated with each alternative is presented below.

Permanent Impacts

Year 2025 is the year in which the proposed project is scheduled to open to traffic if the Build Alternative is implemented. Year 2045 is the design horizon year for the proposed Build Alternative; therefore, traffic analyses were conducted for the following five future conditions:

- Existing (2013)
- Opening Year 2025 No Build Alternative
- Opening Year 2025 Build Alternative
- Design Year 2045 No Build Alternative
- Design Year 2045 Build Alternative

The traffic modeling effort sought to maintain consistency with the traffic forecasts developed for the recently completed *I-10 Corridor Study – PA/ED HOV and Express Lanes Project by SBCTA*. The SBTAM in that study was utilized for the I-10/Grove Avenue Interchange PA/ED, including all roadway network and demographic data assumptions.

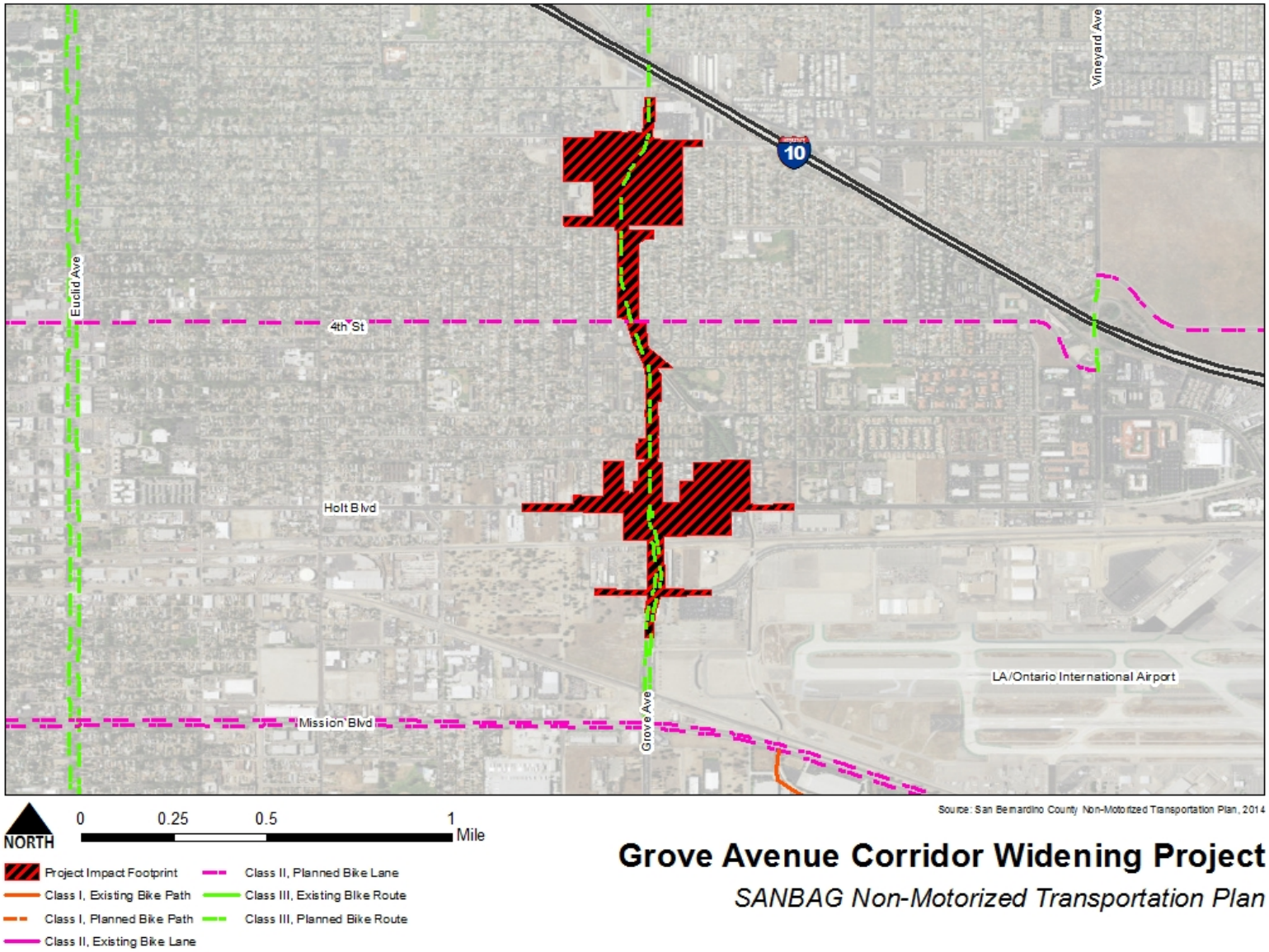


Figure 2.1.6-3. San Bernardino County Bikeways in Project Area

The two alternatives are generally described as follows:

No Build Alternative

The No Build Alternative would maintain four through lanes along Grove Avenue within the project limits and the existing configuration at the Grove Avenue/Holt Boulevard intersection. Figures 2.1.6-4 and 2.1.6-5 show forecasted intersection traffic volumes under the No Build Alternative in opening year (2025) and design year (2045), respectively.

In Table 2.1.6-3, the length of delay and LOS at each study area intersection under no-build conditions for opening year (2025) and design year (2045) are shown.

Table 2.1.6-3. 2025 and 2045 No-Build Peak-Hour Intersection LOS Summary

Intersection	AM Peak Hour				PM Peak Hour			
	2025		2045		2025		2045	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1) Grove Avenue/4th Street	44.7	D	51.2	D	63.8	E	**117.4**	**F**
2) Grove Avenue/I Street	6.7	A	8.0	A	6.3	A	7.5	A
3) Grove Avenue/G Street	9.0	A	11.1	B	9.0	A	20.6	C
4) Grove Avenue/D Street	6.4	A	18.3	B	9.2	A	14.8	B
5) Grove Avenue/Holt Boulevard	**82.8**	**F**	**213.8**	**F**	134.7	F	**352.9**	**F**
6) Grove Avenue/State Street	25.1	C	**88.3**	**F**	29.3	C	**83.2**	**F**
7) Grove Avenue/Mission Boulevard	**60.9**	**E**	**117.1**	**F**	**102.8**	**F**	**265.6**	**F**
Note: sec = seconds; **BOLD** indicates unsatisfactory								

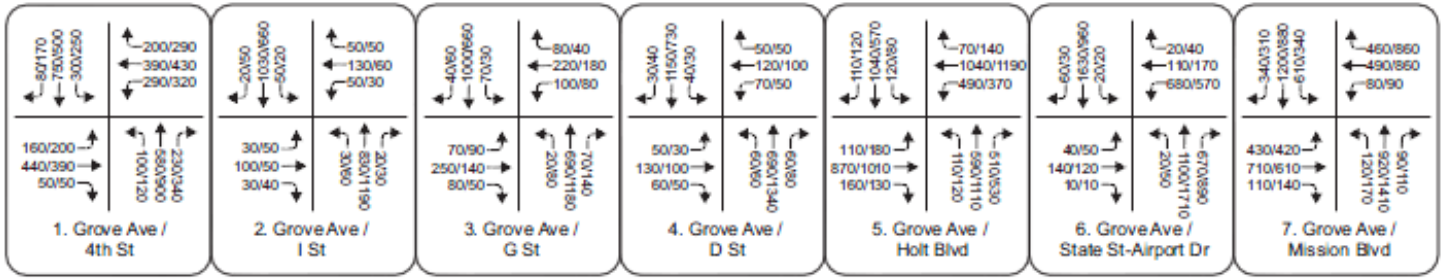
Source: Traffic Operations Analysis, 2015.

The following intersections are forecast to operate at unsatisfactory LOS in opening year (2025) No Build conditions:

- Grove Avenue/Holt Boulevard (a.m. and p.m. peak hour); and
- Grove Avenue/Mission Boulevard (p.m. peak hour).

By 2045, the following intersections are forecast to operate at unsatisfactory LOS in opening year (2045) no-build conditions:

- Grove Avenue/4th Street (p.m. peak hour);
- Grove Avenue/Holt Boulevard (a.m. and p.m. peak hour);
- Grove Avenue/State Street-Airport Drive (a.m. and p.m. peak hour); and
- Grove Avenue/Mission Boulevard (a.m. and p.m. peak hour).



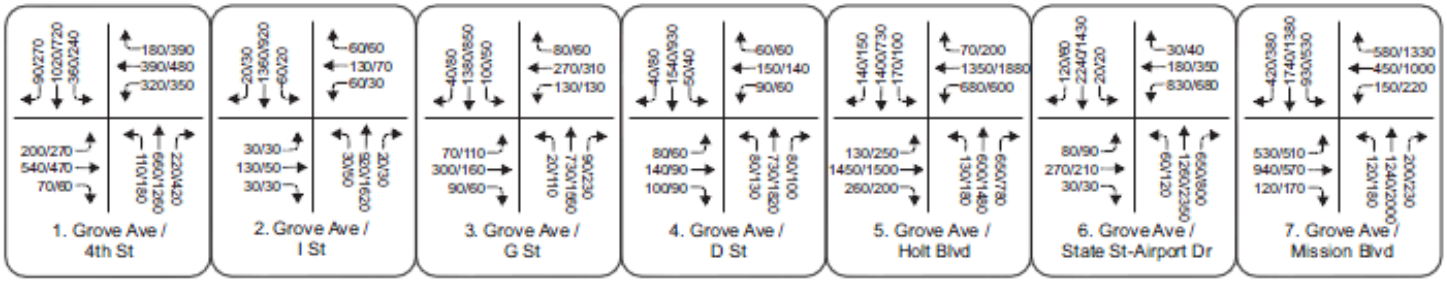
Note: Volumes have been rounded to the nearest 10 trips

Legend

XXX/YYY AM/PM Volumes

Study Intersection

Figure 2.1.6-4. Opening Year 2025 No-Build AM/PM Peak-Hour Intersection Volumes



Note: Volumes have been rounded to the nearest 10 trips

Legend

XXX/YYY AM/PM Volumes

Study Intersection

Figure 2.1.6-5. Design Year 2045 No-Build AM/PM Peak-Hour Intersection Volumes

Direct effects of the No Build Alternative would include continued deterioration of vehicle miles traveled (VMT), LOS, and congestion of freeway and local interchange operations. Indirect and cumulative effects of the No Build Alternative are projected to increase effects on the communities related to increased commute times and traffic diversion through adjacent neighborhoods as drivers seek alternate routes. Additionally, the No Build Alternative would increase the amount of time the users/ travelers have to endure construction-related effects associated with addressing the corridor needs through many smaller projects completed over an extended period of time.

Build Alternative (Proposed Project)

The Build Alternative includes widening Grove Avenue from four lanes to six lanes between 4th Street and State Street/Airport Drive in accordance with the City of Ontario Master Plan. The proposed widening would not conflict with congestion management plans or applicable transportation-related plans, policies, or programs. The roadway improvements would be designed to meet all applicable roadway design standards.

South of 4th Street, Grove Avenue would be widened to the west to avoid impacts to the historic Jay Littleton Ballpark. Between I Street and Holt Boulevard, Grove Avenue would be widened to the east, and between Holt Boulevard and State Street/ Airport Drive, Grove Avenue would be widened on both sides.

In addition, Holt Boulevard would be widened at the Grove Avenue intersection from two through lanes, two through-right lanes, and one left–turn lane to four through lanes, two through-right lanes, and two left–turn lanes. Figure 2.1.6-6 shows the future lane configurations at the study intersections with implementation of the proposed widening along Grove Avenue and the additional project improvements described.

Figures 2.1.6-7 and 2.1.6-8 show forecasted intersection traffic volumes under the Build Alternative in opening year (2025) and design year (2045), respectively.

As shown in Table 2.1.6-4, under the Build Alternative the Grove Avenue/Mission Boulevard intersection, which is located outside of the project limits, is forecasted to operate at unsatisfactory LOS in opening year 2025 build conditions in the p.m. peak hour. By 2045, the intersection would operate at unsatisfactory LOS levels for both the a.m. and p.m. peak periods.

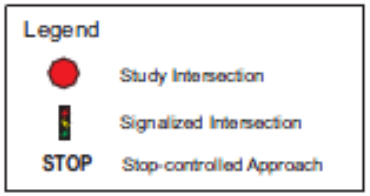
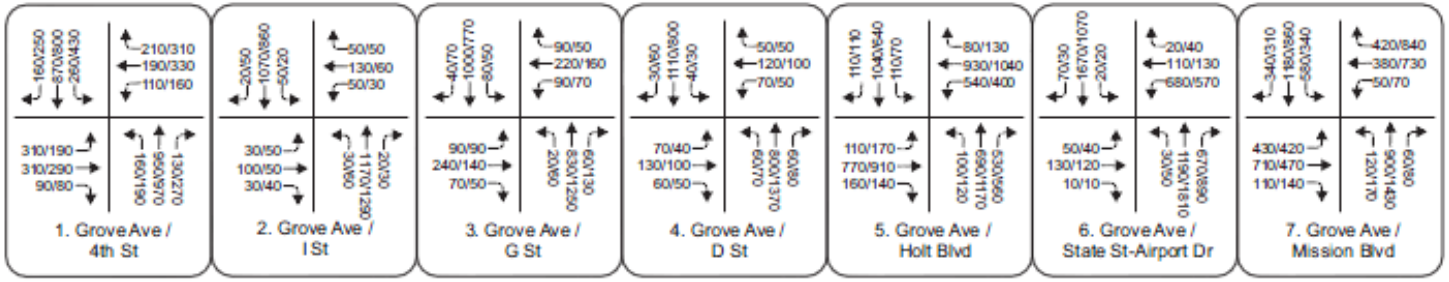


Figure 2.1.6-6. Build Alternative Intersection Lane Configurations



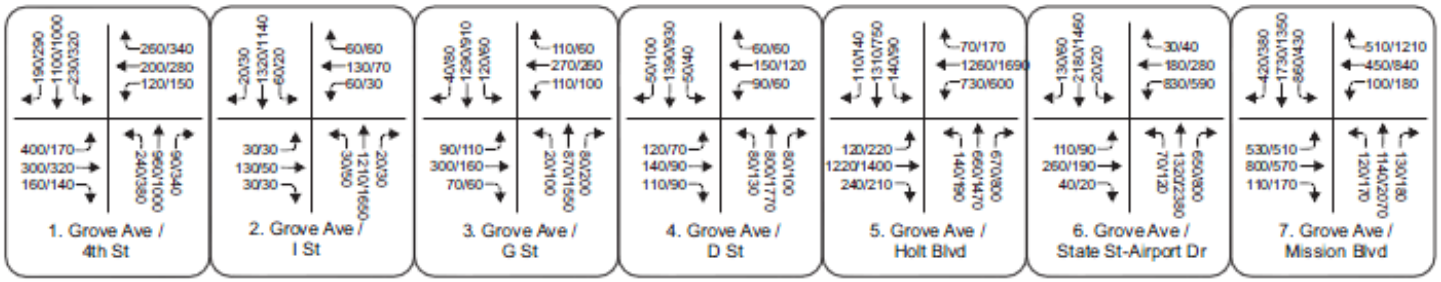
Note: Volumes have been rounded to the nearest 10 trips

Legend

XXX/YYY AM/PM Volumes

Study Intersection

Figure 2.1.6-7. Opening Year 2025 Build Alternative AM/PM Peak-Hour Intersection Volumes



Note: Volumes have been rounded to the nearest 10 trips

Legend

XXX/YYY AM/PM Volumes

Study Intersection

Figure 2.1.6-8. Design Year 2025 Build Alternative AM/PM Peak-Hour Intersection Volumes

Table 2.1.6-4. 2025 and 2045 Build Alternative Peak-Hour Intersection LOS Summary

Intersection	AM Peak Hour				PM Peak Hour			
	2025		2045		2013		2025	
	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS	Delay (sec)	LOS
1) Grove Avenue/4th Street	39.0	D	49.4	D	46.4	D	47.8	D
2) Grove Avenue/I Street	6.4	A	5.9	A	5.4	A	5.0	A
3) Grove Avenue/G Street	8.8	A	11.5	B	8.4	A	10.9	B
4) Grove Avenue/D Street	8.3	A	7.6	A	5.9	A	6.9	A
5) Grove Avenue/ Holt Boulevard	38.7	D	61.3	E	37.9	D	59.5	E
6) Grove Avenue/State Street	27.0	C	39.2	D	30.4	C	71.8	E
7) Grove Avenue/Mission Boulevard	52.3	D	**95.5**	**F**	**101.5**	**F**	**233.7**	**F**
Note: sec = seconds; **BOLD** indicates unsatisfactory								

Source: Traffic Operations Analysis, 2015

While the Grove Avenue/Holt Boulevard, Grove Avenue/State Street-Airport Drive, and Grove Avenue/Mission Boulevard intersections are forecast to continue to operate at LOS E or F in horizon year 2045 build conditions, the average delays are forecast to significantly improve with implementation of the Build Alternative compared to the No Build Alternative.

Because no arterial roadways would be permanently closed, there are no permanent impacts to access or circulation, and no indirect impacts are anticipated with implementation of the Build Alternative.

Nonmotorized and Pedestrian Features

Grove Avenue is designated as a Bicycle Corridor by the City of Ontario Multipurpose Trails and Bikeway Corridor Plan. The project would include a new Class III bikeway along Grove Avenue in conformance with SBCTA's Non-Motorized Transportation Plan 2014. The Build Alternative would be designed to retain and improve the existing pedestrian sidewalk on the west side of Grove Avenue between I Street and G Street. The Build Alternative would improve pedestrian connectivity by constructing a new sidewalk that seamlessly connects with an existing walkway in Grove Memorial Park. Additionally, pedestrian sidewalks along the project area would include a landscaped median between traffic and pedestrians to enhance safety. There would also be a design element that provides a pedestrian connection across the West Cucamonga Channel to an existing trail leading to James Galanis Park. All pedestrian sidewalk changes would be ADA-compliant. As such, no adverse effects with respect to nonmotorized and pedestrian features would occur as a result of implementation of the Build Alternative.

Temporary Impacts

No Build Alternative

There are no improvements proposed under the No Build Alternative; therefore, there would be no temporary impacts.

Build Alternative (Proposed Project)

Temporary impacts to circulation and access would result from construction activities. Street closures and detours would temporarily delay goods movements, affect business parking, and impede access to businesses. To the extent feasible, this work would occur during non-peak commute hours, at night, or on weekends.

As discussed in previous sections, a TMP would be implemented to minimize temporary construction impacts to circulation. Closure of streets that are in proximity to one another would not coincide so there would be convenient nearby alternate routes available for automobiles and pedestrians.

TMP strategies would accommodate major traffic movements during construction and minimize construction impacts by maintaining pedestrian, bicycle, business, and residential access to the extent practicable; minimizing parking impacts; and avoiding disruptions to existing transit service operating in the project vicinity, including OmniTrans Bus Route 63, which runs along 4th Street and 6th Street and Ontario-Montclair School District bus routes. Coordination with local jurisdictions and emergency service providers would be made during the final design to identify emergency service routes that serve hospitals, fire/police stations, emergency shelters, emergency command centers, and other facilities that provide essential emergency services within the study area. Emergency service routes would be maintained during construction or alternate routes would be provided.

The Grove Avenue Corridor Project was originally intended to be analyzed at the same time as the I-10/Grove Avenue Interchange Project. These two projects are now on separate design and environmental clearance schedules. Coordination with the design and construction team for the I-10/Grove Avenue Interchange Project would need to occur to ensure the Grove Avenue Corridor Project and the I-10/Grove Avenue Interchange Project are designed compatibly.

2.1.6.4 Avoidance, Minimization, and/or Mitigation Measures

The following minimization measures were identified for impacts to traffic and transportation as a result of the proposed project:

T-1: Final TMP – A TMP (July 2015) was prepared during development of the preliminary engineering for the project. During final design, a Final TMP will be prepared. At a minimum, the Final TMP will include the detailing of any projected temporary street closures or expected traffic delays due to project construction activities. The Final TMP will include a public awareness program that will use an appropriate combination of the HAR, local media, newsletters, and/or flyers. The following elements will be major components of the Final TMP: Public Awareness Campaign, particularly related to the scheduling of work; COZEEP; Utilization of portable CMSs; and notification to be sent to local cities and emergency responders, if applicable.

T-2: During project construction, the Project Engineer will ensure that the measures in the Final TMP are properly implemented by the contractor.

T-3: During final design and construction, the Project Engineer will work with affected property owners to identify means to avoid and minimize parking impacts, including space management, such as restriping of parking areas and identifying parking replacement options.

T-4: All pedestrian facilities will be designed to meet or exceed requirements of the ADA and current safety standards. Access to pedestrians and bicyclists shall be maintained to the extent practicable during the construction period.

T-5: Prior to and during construction, the Project Engineer will coordinate with Omnitrans, the Ontario-Montclair School District, and other affected transit providers to request and comply with applicable procedures for any required temporary bus stop relocations or other disruptions to transit service during construction, if necessary.

T-6: During final design and prior to and during construction, the Project Engineer will coordinate with the design and construction team for the I-10/Grove Avenue Interchange Project to ensure the Grove Avenue Corridor Project and the I-10/Grove Avenue Interchange Project are designed compatibly.

2.1.7 Visual/Aesthetics

2.1.7.1 Regulatory Setting

NEPA, as amended, establishes that the federal government use all practicable means to ensure all Americans safe, healthful, productive, and *aesthetically* and culturally pleasing surroundings (42 U.S.C. 4331[b][2]). To further emphasize this point, FHWA, in its implementation of NEPA (23 U.S.C. 109[h]), directs that final decisions on projects are to be made in the best overall public interest taking into account adverse environmental impacts, including among others, the destruction or disruption of aesthetic values.

CEQA establishes that it is the policy of the state to take all action necessary to provide the people of the state "with…enjoyment of *aesthetic,* natural, scenic, and historic environmental qualities" (CA PRC Section 21001[b]).

In addition to federal and State environmental regulations, local agencies may also have requirements or recommendations regarding developments within their boundaries. The project corridor falls within jurisdiction of the City of Ontario, which has established guidelines and requirements for development within the community through its Municipal Code and the City of Ontario Development Code. The following codes reinforce the need for landscaping and other aesthetic treatments to roadways within the city and do not discuss the interface between City roads and Interstate 10 (I-10):

- Design Quality:
  - Rich blend of architectural styles, including the historic downtown, residential neighborhoods, equestrian properties, commercial centers, and industrial and office complexes.
  - Encourage durable landscaping materials and design that enhance the aesthetics of structures, create and define public and private spaces, and provide shade and environmental benefits.
  - Encourage the inclusion of amenities, signage, and landscaping at the entry to neighborhoods, commercial centers, mixed-use areas, industrial developments, and public spaces that reinforce them as uniquely identifiable places.

- Pedestrian and Transit Environments
  - Require that pedestrian, vehicular, bicycle, and equestrian circulation on both public and private property is coordinated and designed to maximize safety, comfort, and aesthetics.

  - Utilize landscaping to enhance the aesthetics, functionality, and sustainability of streetscapes, outdoor spaces, and buildings.

- City Identity
  - For many, the primary image of Ontario is shaped by what is seen from these transportation systems. Enhancing these transportation corridors to provide aesthetically pleasing visual experiences will make people want to experience more of what Ontario has to offer.

2.1.7.2 Affected Environment

This section describes the aesthetic and visual resource conditions within the project limits and discusses potential aesthetic impacts that could result from implementation of the proposed project Build Alternative. A program of minimization measures is also identified. Information in this section is based on the *Visual Impact Assessment* completed for this project (November 2016).

The visual impacts of the proposed project were determined by assessing the existing visual resources, the visual resource change due to the project, and predicting viewer response to that change. The degree of visual quality in a view was evaluated using the following FHWA descriptive terms:

- *Vividness:* Vividness is the visual power or memorability of landscape components as they combine in striking and distinctive visual patterns (e.g., Niagara Falls is a highly vivid landscape component).
- *Intactness:* Intactness is the visual integrity of the natural and human-built landscape and its freedom from encroaching elements. This factor can be present in well-kept urban and rural landscapes and natural settings (e.g., a two-lane road that meanders through the countryside).
- *Unity:* Unity is the visual coherence and compositional harmony of the landscape considered as a whole; it frequently attests to the careful design of individual components in the landscape (e.g., an English or Japanese garden).

The degree of visual character in a view was evaluated using the following FHWA descriptive terms:

- *Scale:* Visual scale is the apparent size relationship between landscape components or features and their surroundings.
- *Diversity:* Diversity is the number of pattern elements, as well as the variety among them and edge relationships between them.

- *Continuity:* Continuity is the uninterrupted flow pattern elements and the maintenance of visual relationships between immediately connected or related landscape components or features.
- *Dominance:* Dominance is components or specific features in a scene that may be dominant because of prominent positioning, contrast, extent, or importance of pattern elements.

For projects that do not create a significant impact on existing visual character or quality, a more nuanced approach categorizes impact levels as low, moderately low, moderate, moderately high, and high based on the following descriptions:

- *Low (L):* Low negative change to existing visual resources and low viewer response to change. May or may not require mitigation.
- *Moderately Low (ML):* Low negative change to the visual resource with a moderate viewer response or moderate negative change to the resource with a low viewer response. Impact can be mitigated using conventional methods.
- *Moderate (M):* Moderate negative change to the visual resource with moderate viewer response. Impact can be mitigated within 5 years using conventional practices.
- *Moderately High (MH):* Moderate negative change in the visual resource with high viewer response or high negative change with a moderate viewer response. Extraordinary mitigation practices may be required. Landscape treatment required will generally take longer than 5 years to mitigate.
- *High (H):* High level of negative change in character or a high level of viewer response to the change such that extraordinary architectural design and landscape treatments may not mitigate impacts below a high level. An alternative project design may be required to avoid high negative impacts.

Visual Environment

The project is located within Ontario. Grove Avenue is currently a four-lane road that traverses through commercial, park, and residential land. Buildings adjacent to the existing roadway are one- to two-story buildings. The regional landscape of the project corridor is characterized by two identifying elements: the flat appearance of the foreground landscape and the steep San Bernardino and San Gabriel mountains, which form a dramatic backdrop. One additional element to be considered in the regional landscape is the haze that frequently develops in the area, obscuring the views of the mountains and influencing the overall appearance of the regional landscape.

Project Viewshed

A viewshed is the area normally visible from an observer's viewpoint of location and is limited by the screening/obstruction effects of any vegetation or structures. A viewshed can include views from within the project outward or from outside of the area into the project corridor. While viewpoints represent specific locations within the project area, a viewshed describes what is seen from that viewpoint, including the limits of what can be seen. When these individual points are strung together, the viewsheds create an overall project viewshed that can be used to describe the project area. The viewshed includes the locations of viewers within the project area that are likely to be affected by visual changes brought about by the project features.

For the Grove Avenue Corridor Project, the presence of the existing roadway in the corridor establishes much of the existing visual quality present in the corridor. The other element that contributes a large component to the visual character in the north end of the project is John Galvin Park and the plantings associated with it. The middle reach of the project has a moderate visual character, with the residences and their associated landscaping adding to the character, while the existing concrete drainage ditch and overhead wires detract. The southern reach of the project is typified by undeveloped land. The visual character is moderately low given the open and weedy appearance of the adjacent fields.

Landscape Unit

Landscape units are defined as that portion of the regional landscape that can be thought of as containing a distinct visual character. A landscape unit will often correspond to a place or district that is commonly known among the community.

In accordance with the criteria described above, the Grove Avenue Corridor Project only contains one landscape unit: the area in and around John Galvin Park. The visual character of the rest of the corridor is largely established by the existing roadway. Typical views for the John Galvin Park landscape unit are shown in Figure 2.1.7-1

Existing Visual Character: Within the John Galvin Park landscape unit, the roadway traverses through the park, giving viewers a direct line of sight to the plantings associated with the park.

Existing Visual Quality: The park nature of the view gives the existing parkway a moderately high visual quality, with moderately high vividness, intactness, and unity.

Figure 2.1.7-1. Typical Viewpoints within the Project Corridor

Key Viewpoints

The FHWA analysis methodology recommends selecting key viewpoints that represent the potential visual effects of the project and the viewers' experience. A key viewpoint is representative, typical, characteristic, and has a clear perception of project elements to the primary viewer group. Neighbors (people with views to the road) and roadway users (people with views from the road) are the two broadly defined user groups that could be most affected by the project. Key viewpoints also need to represent the landscape units and include all of the project elements. Viewpoints #2 and #4 were not chosen to be evaluated further because the visual quality of the existing corridor is not anticipated to be substantially altered from the existing by the proposed project. The largest effect on the existing corridor would be the removal of existing mature trees within the parkway strip, assessed in Viewpoints #1 and #3 for the John Galvin Park Landscape Unit. Descriptions of the key viewpoints are provided below.

- **Viewpoint #1, John Galvin Park Landscape Unit:** This view was taken looking north from the center northbound lanes of Grove Avenue within the area of John Galvin Park. The view was selected as key because it demonstrates the proposed roadway changes and views to the widened corridor within the park area.
- **Viewpoint #3, John Galvin Park Landscape Unit:** This view was taken from the north end of the pocket park at Grove Avenue and East G Street. This view was selected as a key viewpoint because it shows the widening associated with the project as it crosses the area of the park.

2.1.7.3 Environmental Consequences

An evaluation of potential visual impacts associated with each alternative is presented below.

Permanent Impacts

No Build Alternative

The No Build Alternative would maintain the existing roadway; therefore, it would not alter existing views. Existing visual/aesthetic resources would not be permanently affected by the No Build Alternative.

Build Alternative (Proposed Project)

The anticipated visual impact of the Build Alternative is expected to be low. The presence of the existing roadway in the corridor establishes much of the existing visual quality present in the corridor. The new, widened corridor is not anticipated to create any new sources of glare. The existing roadway is already lit, and lighting would be

incorporated into the new configuration at a similar lighting level as the existing roadway.

The other element that contributes a large component to the visual character of the project area is the John Galvin Park Landscape Unit and its associated plantings. It is anticipated that removal of trees within the existing parkway strips is likely to be the area of most concern for residents living near the proposed project. The removals could, in the short term, increase light trespass from streetlights along the widened road into adjacent neighborhoods. It is anticipated that this effect would be reduced over time as the newly planted trees in the new parkway strips grow; however, it would be many years before the new trees reach the stature to achieve the previously existing character along Grove Avenue. While there are no designated scenic vistas or scenic resources along the corridor, the proposed roadway modifications should allow a more direct line of sight to the mountains, given its wider cross section.

Key Viewpoints – Build Alternative

Viewpoints identified as key for identifying the changes to the visual environment anticipated with the Build Alternative are Viewpoints #1 and #3. These are evaluated below.

The post-construction simulations shown for the key viewpoints on the following pages include application of BMPs and avoidance and minimization measures described in Section 2.1.7.4 for each particular view. Aesthetic treatments shown in the simulations, such as specific plant types, are representative only. Actual types of treatments and landscaping would be based on community and City input during the design phase of the work. The location of each key viewpoint is denoted with a star in Figure 2.1.7-1.

Viewpoint #1 Analysis

Orientation: Figure 2.1.7-2 shows the location of Viewpoint #1. Figure 2.1.7-3 shows a photosimulation for Viewpoint #1 and depicts the pre- and post-construction views. The photograph is taken looking north from the center northbound lanes of Grove Avenue within the area of John Galvin Park.

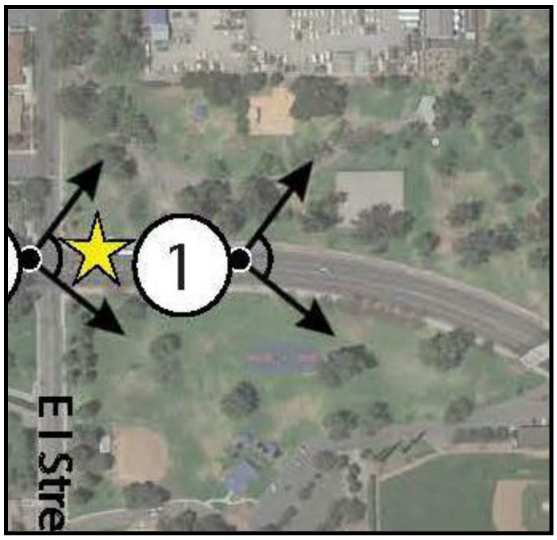


Figure 2.1.7-2. Location of Key Viewpoint #1

Existing Visual Character/Quality: The view shows Grove Avenue as it currently appears in the area of John Galvin Park. The park nature of the view gives it a moderately high visual quality, with moderately high vividness, intactness, and unity.

Proposed Project Features: The proposed project features in this view include an additional lane constructed in each direction, plus a landscaped median. Some of the existing trees in the background of this view (those closest to the road, past the bend) would be removed by construction of the new roadway; however, a new parkway strip would be constructed, and new street trees would be included in this strip. It is also anticipated that the new center median would be planted.

Changes to Visual Character: From the vantage of the roadway traveler, the anticipated changes are anticipated to be minor and mostly associated with the extra lanes and new median in the road, which are elements that are not currently part of the view. The replacement plantings in the parkway strip along the roadway would eventually create a similar visual character to the existing (as the trees grow and mature), and the planted median would help relieve the additional roadway paving associated with the new lanes.

Anticipated Viewer Response: Given the City's requirements for aesthetics and comfort that are described by the local regulatory environment, as described in the *Visual Impact Assessment*, it is anticipated that the viewers would be sensitive to changes to their visual environment. Due to this regulatory requirement, the potential impact has been categorized as moderately high.

Resulting Visual Impact: The overall anticipated impact of the project on the view is expected to be less than substantial. Overall, the effect is anticipated to be a moderately low change to the visual environment given the inclusion of minimization measures discussed in Section 2.1.7.4.

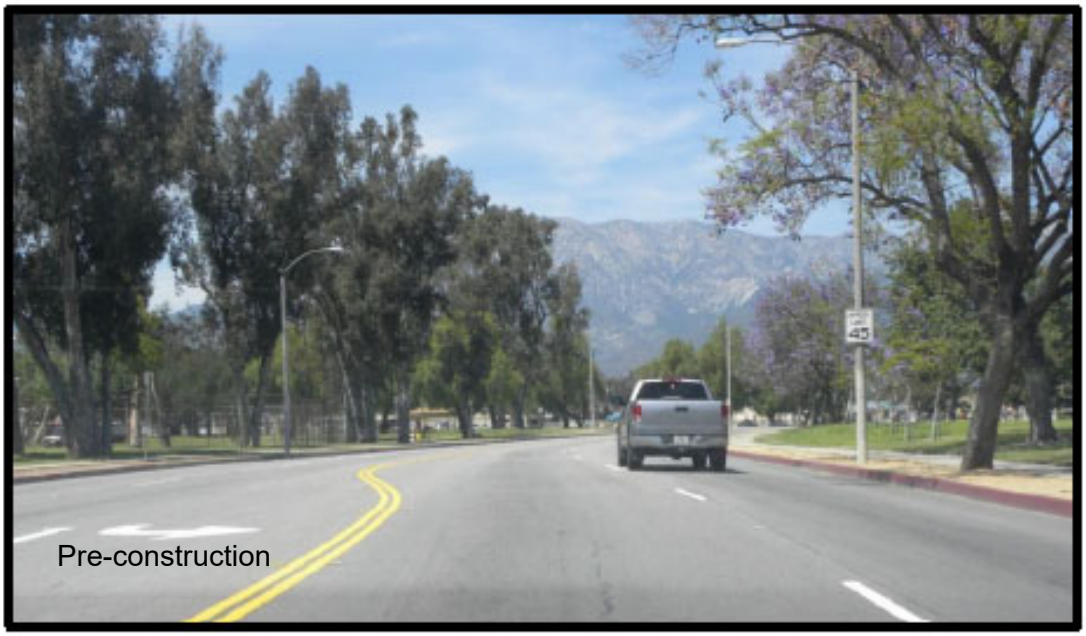


Figure 2.1.7-3. Viewpoint #1, Looking North along Grove Avenue near East I Street

Minimization measures depicted in the simulation include replacement plantings. Aesthetic and landscape treatments are representative only. Actual aesthetics and landscaping would be designed in collaboration with City staff during the design phase.

Viewpoint #3 Analysis

Orientation: Figure 2.1.7-4 shows the location of Viewpoint #3. Figure 3.1.7-5 shows a photosimulation for Viewpoint #3 and depicts the pre- and post-construction views. The photograph is taken from the north end of the pocket park at Grove Avenue and East G Street.

Figure 2.1.7-4. Location of Key Viewpoint #3

Existing Visual Character/Quality: The view shows Grove Avenue as it exits the area of John Galvin Park. The cars coming towards the photographer are the southbound vehicles on Grove Avenue. The park nature of the view gives it a moderately high visual quality, with moderately high vividness, intactness, and unity.

Proposed Project Features: The proposed project features in this view are an additional lane constructed in each direction, plus a landscaped median. The existing row of trees along the back wall/fence of the neighbors (left side of the image, mid-ground) would be removed by construction of the sidewalk; however, a new parkway strip would be constructed, and new street trees would be included in this strip. It is also anticipated that the new center median would be planted.

Changes to Visual Character: From the vantage of the existing pocket park, the anticipated changes are anticipated to be minor and mostly associated with the new sidewalk. The replacement plantings in the parkway strip behind the existing fence line would, over time, create a similar visual character to the existing, and the planted median would help relieve the additional roadway paving associated with the new lanes.

Anticipated Viewer Response: Given the City's requirements for aesthetics and comfort that are described by the local regulatory environment, as described in the *Visual Impact Assessment*, it is anticipated that the viewers would be sensitive to changes to their visual environment. Due to this regulatory environment, the anticipated viewer response is categorized as moderately high sensitivity.

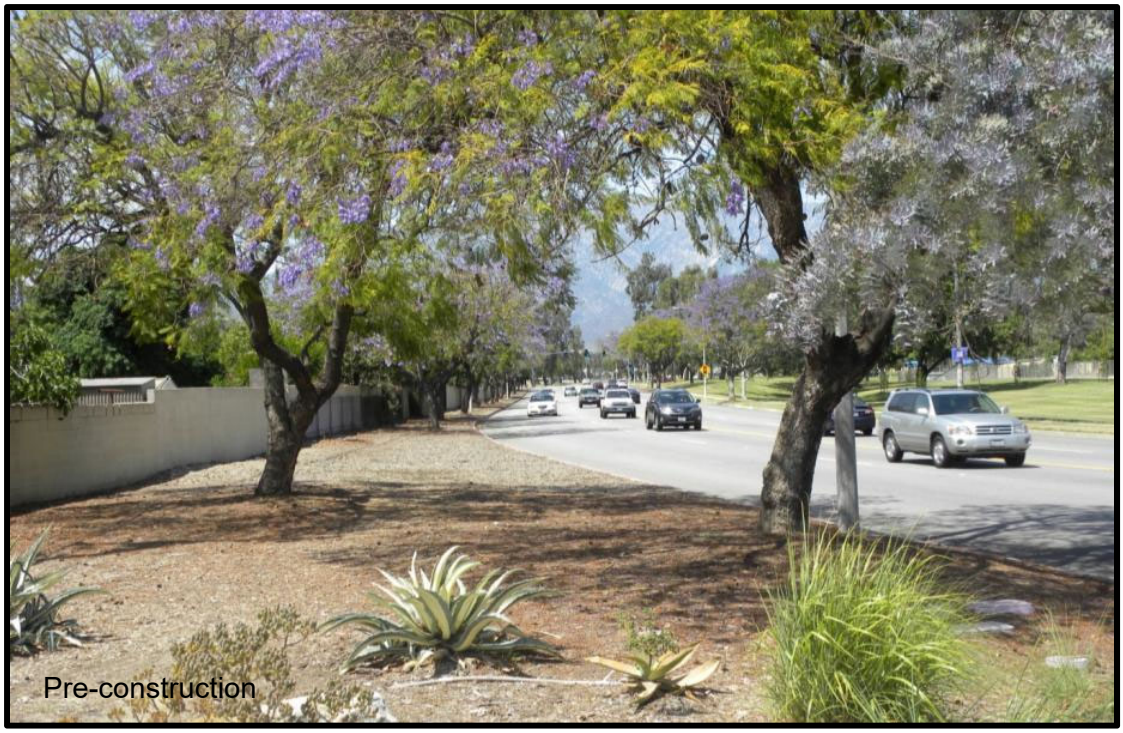


Figure 2.1.7-5. Viewpoint #3, Looking North along Grove Avenue at the Existing Pocket Park

Minimization measures depicted in the simulation include replacement plantings. Aesthetic and landscape treatments are representative only. Actual aesthetics and landscaping would be designed in collaboration with City staff during the design phase.

Resulting Visual Impact: The overall anticipated impact of the project on the view is expected to be less than substantial. The visual character (scale, diversity, continuity, and dominance) of the corridor is expected to have a low degree of change, with a 4.88 percent change in rating post-project. The change is primarily related to the increased presence of the roadway, due to its wider cross section, in the view. The visual quality (vividness, intactness, and unity) of the corridor is also expected to have a low degree of change, with a rating change of 2.51 percent post-project. Overall, the effect is anticipated to be a moderately low change to the visual environment.

Table 2.1.7-1 provides a summary of findings from the analysis for each key viewpoint for the anticipated change to the visual resource, the anticipated viewer response to that change, and the overall anticipated visual impact for the Build Alternative.

Table 2.1.7-1. Summary of Anticipated Visual Impacts of Build Alternative by Key Viewpoint

Key Viewpoint	Anticipated Change to Visual Resource	Anticipated Viewer Response	Anticipated Visual Impact
Key Viewpoint #1	Low	Moderately High	Moderately Low
Key Viewpoint #3	Low	Moderately High	Moderately Low

Overall, the new widened roadway is not anticipated to change the overall visual character or quality of the corridor. While the widened pavement section would detract from existing views, the addition of planted medians, preserving as much of the existing trees in the corridor as feasible, and the addition of new street tree plantings would have the overall effect of maintaining the existing character and quality. The undergrounding of power lines in the southern stretch of the corridor would also help improve the quality of the views in that portion of the project area.

2.1.7.4 Avoidance, Minimization, and/or Mitigation Measures

To address the potential adverse visual impacts to the project area and to generate public acceptance of the project, the following actions are required. With implementation of these minimization measures, the visual impacts of this project

would be reduced and would not result in a substantial change in overall visual quality for the area.

VA-1: The existing trees, particularly within the park area, provide scale, shade, and visual relief to the extent of roadway paving. Preserving existing trees to the extent feasible will help maintain the existing visual character of the roadway.

VA-2: Where it is not feasible to save the existing trees, new tree and vegetation plantings shall be included in the final design of the roadway. Replacement trees shall be two 24-inch boxed trees for each tree removed by the project. All areas disturbed by the project shall be fitted with new landscaping, including trees, groundcovers, accent plants, and turf grass (in park areas adjacent to existing remaining turf).

VA-3: To support the replacement of plantings, the project shall include a permanent irrigation system to all new plantings. Materials used for irrigation shall be as per City of Ontario standards.

VA-4: Decorative paving shall be employed for medians, islands, and parkway strips that are too narrow to plant. Paving color and texture/pattern shall match City of Ontario standards.

2.1.8 Cultural Resources

This section addresses potential impacts to archaeological and architectural resources that are historic properties and are within the defined Area of Potential Effects (APE). The APE includes areas that may be directly or indirectly affected by construction of the project's Build Alternative. An indirect impact occurs when the project would cause a change in character or use of the historic property but would not directly encroach or physically alter the property.

2.1.8.1 Regulatory Setting

The term "cultural resources," as used in this document, refers to the "built environment" (e.g., structures, bridges, railroads, water conveyance systems), places of traditional or cultural importance, and archaeological sites (both prehistoric and historic), regardless of significance. Under federal and state laws, cultural resources that meet certain criteria of significance are referred to by various terms including "historic properties," "historic sites," "historical resources," and "tribal cultural resources." Laws and regulations dealing with cultural resources include:

The National Historic Preservation Act (NHPA) of 1966, as amended, sets forth national policy and procedures for historic properties, defined as districts, sites, buildings, structures, and objects included in or eligible for listing in the National Register of Historic Places (NRHP). Section 106 of the NHPA requires federal agencies to take into account the effects of their undertakings on historic properties and to allow the Advisory Council on Historic Preservation (ACHP) the opportunity to comment on those undertakings, following regulations issued by the ACHP (36 CFR 800). On January 1, 2014, the First Amended Section 106 Programmatic Agreement (PA) among FHWA, the ACHP, the California State Historic Preservation Officer (SHPO), and Caltrans went into effect for Caltrans projects, both state and local, with FHWA involvement. The PA implements the ACHP's regulations, 36 CFR 800, streamlining the Section 106 process and delegating certain responsibilities to Caltrans. The FHWA's responsibilities under the PA have been assigned to Caltrans as part of the Surface Transportation Project Delivery Program (23 U.S.C. 327).

Historic properties may also be covered under Section 4(f) of the USDOT Act, which regulates the "use" of land from historic properties. See Appendix A for specific information about Section 4(f).

CEQA requires the consideration of cultural resources that are historical resources and tribal cultural resources, as well as "unique" archaeological resources. California PRC Section 5024.1 established the California Register of Historical Resources (CRHR) and

outlined the necessary criteria for a cultural resource to be considered eligible for listing in the CRHR and, therefore, a historical resource. Historical resources are defined in PRC Section 5020.1(j). In 2014, AB 52 added the term "tribal cultural resources" to CEQA, and AB 52 is commonly referenced instead of CEQA when discussing the process to identify tribal cultural resources (as well as identifying measures to avoid, preserve, or mitigate effects to them). Defined in PRC Section 21074(a), a tribal cultural resource is a CRHR or local register eligible site, feature, place, cultural landscape, or object which has a cultural value to a California Native American tribe. Tribal cultural resources must also meet the definition of a historical resource. Unique archaeological resources are referenced in PRC Section 21083.2.

PRC Section 5024 requires state agencies to identify and protect state-owned historical resources that meet the NRHP listing criteria. It further requires Caltrans to inventory State-owned structures in its ROWs. Sections 5024(f) and 5024.5 require State agencies to provide notice to and consult with the SHPO before altering, transferring, relocating, or demolishing State-owned historical resources that are listed on or are eligible for inclusion in the NRHP or are registered or eligible for registration as California Historical Landmarks. Procedures for compliance with PRC Section 5024 are outlined in a Memorandum of Understanding (MOU) between Caltrans and SHPO, effective January 1, 2015. For most federal-aid projects on the State Highway System, compliance with the Section 106 PA will satisfy the requirements of PRC Section 5024.

2.1.8.2 Affected Environment

Cultural resource studies completed for this project are the *Historic Property Survey Report* (HPSR) (March 2017), and an *Archaeological Survey Report* (ASR) (March 2017), and *Historical Resources Evaluation Report* (HRER) (March 2017). Although the cultural resource reports completed for this project specifically address evaluation significance with regard to the federal NHPA and evaluation significance under NEPA, the information and analyses are consistent with the accepted approaches to support this analysis of evaluation significance under CEQA because of the similarity in the established criteria.

The purpose of the HRER and ASR is to identify and evaluate buildings, structures, and sites along the project alignments that may qualify for listing in the NRHP and the CRHR. Both reports were prepared using the established framework for resource identification and treatment outlined in the First Amended Section 106 PA (2014), as appropriate. Potential historic properties were identified and evaluated for inclusion in the NRHP as required by 36 CFR Part 800 and the regulations implementing Section 106 of the NHPA. This assessment also conforms to CEQA requirements and evaluates

potential historical resources for inclusion in the CRHR in accordance with Section 15064.5(a) (2)–(3) of the CEQA Guidelines using the criteria outlined in Section 5024.1 of the PRC.

Methodology and Results

The project APE includes all areas where potential direct and indirect impacts to cultural resources could occur as a result of project construction, operation, and maintenance. The same APE is used for archaeological and architectural history study areas. Consistent with general cultural resource practices, the APE for potential impacts was established as the project footprint, which includes all areas of permanent and temporary impacts. Properties that may be affected have been included within the APE, as well as existing and proposed ROW, TCEs, staging areas, and areas where there are potential visual/setting impacts. Potential indirect impacts are generally established as the legal parcel adjacent to where potential impacts would occur. If any part of a parcel would be temporarily or permanently impacted, then the whole parcel was included in the APE footprint. In terms of the vertical APE, construction of the additional street lanes would generally be confined to previously disturbed sediments that resulted from the original construction and maintenance of Grove Avenue and the existing commercial, residential, and other infrastructure developments. The exceptions may include areas associated with the proposed widening and reconstruction or construction of some of the bridge overcrossings, which have potential for undisturbed native sediments.

The minimum age threshold for the NRHP and CRHR eligibility consideration is established as 50 years. A resource less than 50 years old may be considered for listing in the registers if it can be demonstrated that sufficient time has passed to understand its historical importance. The baseline age for studying cultural resources within the project's APE was established as 1967, or the year that properties will achieve 50 years of age in 2017, which is the anticipated year of environmental clearance for the project. This is to account for lead time between preparation of Section 106 compliance documentation and the conclusion of environmental analysis and is consistent with general cultural resources practices.

The ASR and HRER evaluated the eligibility of properties and sites within the APE using the NRHP criteria:

The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures, and objects

that possess integrity of location, design, setting, materials, workmanship, feeling, and association and

A. That are associated with events that have made a significant contribution to the broad patterns of our history; or

B. That are associated with the lives of significant persons in our past; or

C. That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. That have yielded or may be likely to yield, information important in history or prehistory.

Within this Environmental Impact Report (EIR)/Environmental Assessment (EA), CRHR eligibility criteria and City-designated historic properties are considered in addition to the NRHP criteria listed above. The CRHR criteria are similar to the NRHP. The four criteria for the CRHR are:

1. It is associated with events or patterns of events that have made a significant contribution to the broad patterns of local or regional history, or the cultural heritage of California or the United States; or
2. It is associated with the lives of persons important to local, California, or national history; or
3. It embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of a master, or possesses high artistic values; or
4. It has yielded, or has the potential to yield, information important to the prehistory or history of the local area, California, or the nation.

Any property located in California that is listed in or eligible for the NRHP is automatically eligible for the CRHR. The CRHR criteria are tied to CEQA and any resource that meets the criteria listed above is considered a historical resource under CEQA.

The following standard sources of information were consulted in the process of compiling this report:

- NRHP Web site (http://www.cr.nps.gov/nr), through August 2015
- California Historical Landmarks
- California Points of Historical Interest
- City of Ontario List of Designated Historic Landmarks and Historic Districts
- City of Ontario Public Library
- San Bernardino County Historical Archives

In addition, archival research helped determine the location of previously documented cultural resources proximate to the project and helped establish a context for significance. In March 2015, a literature and records search was conducted at the San Bernardino Archaeological Information Center (SBAIC). The records search covered a 1-mile radius around the APE boundary. National, State, and local inventories of cultural resources were examined to identify local historical events and personages, development patterns, and interpretations of architectural styles.

Results of the literature and records search and subsequent research indicate that there are two previously recorded sites located within the project's APE. A total of 17 cultural resources have been previously documented to be outside the APE but within the 1-mile search radius. These include four sites within a 0.25-mile radius of the APE, five sites within a 0.5-mile radius of the APE, and eight sites documented between a 0.5- to 1-mile radius of the APE. All of the previously recorded sites are of the historic built environment type; no archaeological resources were identified.

Of the two sites located within the APE, one is the SPRR, which crosses Grove Avenue 0.1 mile south of Holt Boulevard in Ontario; however, it is located above the vertical extent of improvements associated with this project and is thus above and outside of the APE established for this project. No impacts would occur to the railroad or its operations.

John Galvin Park is located between 4th Street and I Street, with Grove Avenue bisecting the park into east and west halves. John Galvin Park is listed on the Historical Resources Inventory with a status code of 7N, indicating that it needed to be re-evaluated, which was done in conjunction with this project. John Galvin Park appears to be ineligible for listing in the NRHP.

However, Jay Littleton Ballpark, which is located within John Galvin Park, appears eligible for listing in the NRHP and CRHR, even though John Galvin Park does not appear eligible for listing in the NRHP or CRHR. The ballpark was evaluated as a result of the cultural reports prepared for this project and was found eligible under Criteria A

and C at the local level of significance, with the period 1937–1960 as the span of significance.

To identify archaeological resources, an intensive-level pedestrian survey of the APE was completed on May 26, 2015. The survey consisted of walking parallel transects, spaced at 10-meter intervals, in nonhardscaped areas within the APE while closely inspecting the ground surface. Existing disturbances (e.g., rodent burrows, ditches) were examined for artifacts or buried cultural deposits. Most of the APE consisted of hardscaped, paved roads, curbs, sidewalks, and portions of the channelized Cucamonga Creek. Hardscaped areas were not surveyed because there was no ground visibility.

As a result of this survey and the project plans, no known archaeological resources are anticipated to be negatively impacted by this project.

Eight of the 85 parcels located within the APE contained buildings, groups of buildings, or structures that were constructed in or before 1967 and possess sufficient integrity to warrant evaluation in this study, as defined by the PA. These include seven historic architectural properties. Seven of these eight properties that were evaluated in the HRER were found to be ineligible for the NRHP:

- 1111 E. Holt Boulevard, Ontario, CA
- 1101 E. Holt Boulevard, Ontario, CA
- 1175 E. Holt Boulevard, Ontario, CA
- 1179 E. Holt Boulevard, Ontario, CA
- 1300 E. Holt Boulevard, Ontario, CA
- 1329 E. Holt Boulevard, Ontario, CA
- John Galvin Park, Ontario, CA

The oldest building in the APE was constructed in 1920; however, most of the buildings are houses constructed in the 1950s and 60s as part of larger post-World War II housing tracts. Some of these residences have been converted to other uses or have been in-filled with commercial buildings, and they were excluded from a formal evaluation due to substantial compromises in integrity as is allowed under the Caltrans Section 106 PA Attachment 4 as Property Type 7. Numerous post-war residential tracts are located throughout the APE; however, research does not indicate these tracts are associated with either historically significant events at the local or regional level or associated with persons known to have made contributions to local history. In addition, many of the residences no longer retain sufficient integrity due to numerous alterations to character-defining features. In sum, many of the neighborhoods fronting Grove Avenue

contain a diverse mixture of old and new residential and commercial buildings, and they no longer represent intact neighborhoods or integral districts within the APE. SHPO concurred with the exemptions and the evaluations on April 25, 2017. See Appendix G for the SHPO concurrence letter.

Public Participation and Native American Coordination

In accordance with Section 106 of the NHPA, on April 15, 2015, letters were sent to local historical societies/historic preservation groups requesting from them any information they may have regarding any cultural resources that may be of significance within the project APE. Letters were also sent to the Museum of History and Art, Ontario; the Chaffey Communities Cultural Center; and the Cooper Regional Museum on June 5, 2015. Follow-up phone calls to these entities were made on August 17, 2015. No response has been received to date.

A response was received via e-mail from Mr. Richard Delman on behalf of the Ontario Heritage Society on June 9, 2015, indicating the presence of a historic building at 1206 N. Grove Avenue (also 1204 N. Grove Avenue), which is now a local business known as Halgren's Chocolates, as well as indicating that John Galvin Park could potentially be a national or State historic resource. It should be noted that the Jay Littleton Ballpark would not be impacted by the project, and the building located at 1206 N. Grove Avenue was not found to be a historic property using the NRHP criteria because it does not appear to retain integrity of setting, feeling, or association (it is also not located within this project's APE).

A sacred lands records search was requested for this project from the Native American Heritage Commission (NAHC) on March 27, 2015. The NAHC responded on April 22, 2015, that a search of the sacred lands file failed to indicate the presence of Native American cultural resources in the immediate project area. The NAHC requested that four Native American tribes or individuals be contacted for further information regarding the general project vicinity. Caltrans requested an additional two be contacted; however, one of them overlapped with another contact. The results are as follows:

- Gabrieleno/Tongva Band of Mission Indians: The Chairperson of the Gabrieleno/Tongva Band of Mission Indians, San Gabriel, Mr. Anthony Morales, responded by phone. Mr. Morales felt that archaeological monitoring should be conducted in case of subsurface archaeological material.
- Sandonne Goad, Chairperson, Gabrielino/Tongva Nation. Letter sent May 13, 2015; e-mail sent June 5, 2015; and a follow-up phone call made June 12, 2015. On

June 12, 2015, Ms. Goad deferred to Mr. Sam Dunlap, who provides all cultural resource consultation comments for the Gabrielino/Tongva Tribe. See below for Mr. Dunlap's response.

- Gabrieliño Band of Mission Indians: Mr. Andrew Salas, Chairperson of the Gabrieliño Band of Mission Indians, Covina, did not respond to any of the three attempts to contact him.
- Gabrielino/Tongva Nation Los Angeles: Mr. Sam Dunlap, Cultural Resources Director of the Gabrielino/Tongva Nation Los Angeles, responded by e-mail and recommended implementing Native American monitoring oversight during construction and to be informed of any unanticipated discovery of prehistoric cultural material. Ms. Sandonne Goad of the Gabrielino/Tongva Nation Los Angeles was reached by phone. Ms. Goad deferred to Mr. Dunlap for cultural resources consultation comments concerning the Gabrielino/Tongva Tribe.
- San Manuel Band of Mission Indians: The San Manuel Band of Mission Indians representative Leslie Mouriquand responded by e-mail asking for further information about the project and requested a copy of the cultural records search and the draft ASR. These documents were provided to her. Ms. Mouriquand commented by e-mail on the report the same day to Monica Corpuz, noting that the ethnography section contained no discussion of the Serrano. Cogstone was informed of the request and added the information to the report. Lee Claus, Cultural Resources Department Manager, responded by e-mail to the revised report asking that the tribal territory match the description developed by the tribe, that nearby villages be mentioned, and that mention of the Vanyume be removed.
- Serrano Nation: Ms. Goldie Walker of the Serrano Nation, in a phone conversation, requested to be notified if any cultural resources are observed during construction activities and emphasized she would like to be contacted no matter how small the artifact. She also requested to be contacted immediately if any human remains are encountered.

Due to the limited archaeological sensitivity of the project APE (i.e., no previously identified prehistoric archaeological sites were identified) and because the area is generally disturbed by previous development, archaeological monitoring during construction was determined not to be warranted. In the event of an unanticipated discovery during construction, the Gabrielino/Tongva Tribe will be consulted (Minimization Measures CR-1 and CR-2).

The requested changes provided by the San Manuel Band of Mission Indians were made to the ASR prepared for the project.

2.1.8.3 Environmental Consequences

No Build Alternative

The No Build Alternative would maintain the existing roadway; therefore, it would not alter existing conditions. Existing built environment resources would not be permanently affected by the No Build Alternative.

Build Alternative (Proposed Project)

Archaeological Resources

No NRHP-eligible archaeological resources were identified during the survey for the current project. The literature and records search did not reveal any known archaeological sites within a 1-mile radius, and the NAHC sacred lands file search did not reveal any results. There are not any anticipated project-related effects to any archaeological resources.

If cultural materials are discovered during construction, all earth-moving activity within and around the immediate discovery area will be diverted until a qualified archaeologist can assess the nature and significance of the find.

If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities shall stop in any area or nearby area suspected to overlie remains, and the County Coroner contacted. Pursuant to CA PRC Section 5097.98, if the remains are thought to be Native American, the coroner will notify the NAHC, which will then notify the Most Likely Descendent (MLD). At this time, the Caltrans District 8 Environmental Branch Chief, Andrew Walters (909) 383-2647, will be contacted so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

Built Environment Resources

As a result of the cultural studies completed for this project, the APE contains one historic property that was determined to be eligible for listing in the NRHP (and is thus a CEQA resource as well) and two additional historical resources for the purposes of CEQA only, as defined by CEQA Section 21084.1.

Jay Littleton Ballpark

Jay Littleton Ballpark, located within John Galvin Park, consists of a baseball field, grandstands, press box, clubhouse, and lockers. The ballpark, built in 1937, is still in popular use today and is well maintained and in good condition. The Los Angeles Angels of the old Pacific Coast League (PCL) became the first professional ball club

to use Ontario as their spring training anchor in 1937. Other PCL teams followed their footsteps over the years, including the Hollywood Stars, San Diego Padres, Sacramento Solons, and Hawaiian Islanders. In addition to the PCL, major league baseball teams, including the Chicago Cubs, the Chicago White Sox, and the Pittsburgh Pirates, all played at the Ontario ballpark, coming in from their own spring training camps held elsewhere in southern California. However, by approximately 1960, the Ontario ballpark stopped hosting games for the PCL. Local organizations that used the park mainly in the post-WWII era included the Colt League, American Legion, American Baseball Congress, and Little League. The ballpark appears eligible under Criterion A and C at the local level of significance, with the period 1937–1960 as the span of significance.

On April 25, 2017, the SHPO concurred with Caltrans' determination that the Jay Littleton Ballpark was eligible for the NRHP at the local level under Criteria A and C, with a period of significance from 1937 to 1960.

Although the ballpark is within the APE, the project improvements do not infringe on the physical aspects of any portion of the ballpark. The project as proposed would widen Grove Avenue to the west, which is merely adjacent to the ballpark; therefore, there would be no impact to the sidewalk or area surrounding the ballpark. At a maximum, the following would be performed: pavement maintenance to the roadway (Grove Avenue), grind and overlay of hot mix asphalt, and repavement of the pavement delineation striping. The ballpark has been avoided in the engineering design. Access to the ballpark and its facilities would be maintained at all times throughout construction. Visual, noise, air quality, and vibration impacts during construction would be typical of roadway construction projects. Any minor visual changes associated with the Build Alternative would not be out of character with the existing corridor. The ballpark is currently subject to indirect air quality, vibration, and noise impacts due to its proximity to the existing I-10 mainline and Grove Avenue and due to the ballpark's location in a built-out suburban environment. The incremental increase in noise, vibration, and air quality impacts during construction and once the proposed project is built would not inhibit existing recreational functions in the park that are already subject to noise and air quality proximity impacts. Therefore, the Jay Littleton Ballpark, the only Historic Property in the APE, would not be directly affected by the undertaking, and potential indirect effects would be minimal. Pursuant to Caltrans Section 106 Programmatic Agreement Stipulation IX.A, Caltrans has made a finding of No Historic Properties Affected for the undertaking.

Fountain Winery

The one-story, 4,400-square-foot warehouse building located at 1300 E. Holt Boulevard in Ontario is located in the eastern portion of the parcel. The warehouse is estimated to have been built prior to 1927. The warehouse was known as the Fontaine Winery (alternately known as the Fountain Winery) from 1938 to 1972. No significant historical events could be identified to have occurred at this location. Although the Fountain Winery is one of the businesses associated with the wine industry in Ontario and the region, it was a small operation in comparison to many others in Ontario. Although the warehouse was not found to be eligible for the NRHP in consultation with SHPO (see April 25, 2017, letter), it has been determined eligible for the City's List of Eligible Historical Resources because of its historical associations with the local wine industry and is thus considered a CEQA-only resource (Note: The CEQA determination for this building was made by the City).

Cucamonga Valley Wine Company and Distillery

Estimated to have been built in the late 1920s, this approximately 6,500-square-foot building in the Mission Revival style is located at 1101 E. Holt Boulevard. The building originally served as a warehouse for a poultry rancher named Paul Walter, and then, beginning in 1933, as the Cucamonga Valley Wine Company and Distillery, which it remained until it began serving as a church. Although the building itself has lost some integrity over the years, the building is still easily recognizable in comparison with photos from the 1930s. While the former Cucamonga Winery warehouse located at 1101 E. Holt Boulevard does not appear to be eligible for the NRHP based on SHPO consultation (see April 25, 2017, letter), the building has been added to the City's List of Eligible Historical Resources as recommended by the City's Historic Preservation Commission in 2009, because of its associations with the local wine industry; thus, it is a resource for the purposes of CEQA (Note: The CEQA determination for this building was made by the City).

Based on SHPO consultation conducted in April 2017 (see Appendix G), Caltrans has made a finding of No Historic Properties Affected for the undertaking pursuant to Caltrans Section 106 Programmatic Agreement Stipulation IX.A.

Jay Littleton Ballpark was determined eligible for the NRHP; therefore, it is considered a Section 4(f) resource. No historic archaeological sites were found eligible for listing in the NRHP.

Based on design plans for the project, Grove Avenue would be widened to the west to avoid the historic ballpark. No adverse effects to any cultural resources are anticipated.

All historic properties identified along the project corridor are outside of the direct impact footprint and would not be directly affected by the Build Alternative. However, because Jay Littleton Ballpark was found eligible for listing in the NRHP and is located in the indirect APE, a Section 4(f) analysis was completed. The effect to the ballpark was found to be *De Minimis.* See Appendix A for the Section 4(f) *De Minimis* Finding.

2.1.8.4 Avoidance, Minimization, and/or Mitigation Measures

The proposed project is not expected to impact any cultural resources. However, the following minimization measures will be followed in the event of any unanticipated discoveries:

CR-1: If cultural resources are discovered at the job site, all work activities shall stop within a 60-foot radius of the discovery, the discovery area shall be protected, and the Resident Engineer shall be notified. Cultural resources shall not be moved or taken from the job site until Caltrans investigates and determines the significance of the find. Work activities shall not resume within the discovery area until Caltrans provides written notification authorizing work activities to resume.

CR-2 **Human Remains.** If human remains are discovered, State Health and Safety Code Section 7050.5 states that further disturbances and activities will cease in any area or nearby area suspected to overlie remains, and the County Coroner will be contacted. Pursuant to PRC Section 5097.98, if the remains are thought to be Native American, the Coroner will notify the NAHC, who will designate the MLD. At this time, the Caltrans District 8 Environmental Branch Chief, Andrew Walters (909) 383-2647, will be contacted so that they may work with the MLD on the respectful treatment and disposition of the remains. Further provisions of PRC 5097.98 are to be followed as applicable.

2.2 Physical Environment

2.2.1 Hydrology and Floodplains

This section describes the regulatory setting associated with hydrology and floodplains, the affected environment, the environmental consequences on hydrology and floodplains that would result from the project, and the minimization and/or mitigation measures that would reduce any potential impact.

2.2.1.1 Regulatory Setting

EO 11988 (Floodplain Management) directs all federal agencies to refrain from conducting, supporting, or allowing actions in floodplains unless it is the only practicable alternative. FHWA requirements for compliance are outlined in 23 CFR 650 Subpart A.

To comply, the following must be analyzed:

- The practicability of alternatives to any longitudinal encroachments.
- Risks of the action.
- Impacts on natural and beneficial floodplain values.
- Support of incompatible floodplain development.
- Measures to minimize floodplain impacts and to preserve/restore any beneficial floodplain values affected by the project.

The base floodplain is defined as "the area subject to flooding by the flood or tide having a 1 percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

Floodplains are a natural feature of rivers that may also occur in portions of a watershed on land depressions or wetlands. They are the mostly flat land adjacent to the river and are formed due to the actions of a river. The base floodplain is defined as "the area subject to flooding by the flood or tide having a 1 percent chance of being exceeded in any given year." An encroachment is defined as "an action within the limits of the base floodplain."

In general, a floodplain cannot be altered in any way until it has been shown that alteration will pass the base flood without significant damage to either the floodplain or surrounding areas. No bridge abutment or embankment shall encroach on a regulatory floodway.

The Federal Emergency Management Agency (FEMA) designates Special Flood Hazard Areas according to zones. The base flood elevation (BFE) is the water surface elevation of the 1 percent annual chance of flood. The zones are described as:

Zone A – Corresponds to the 100-year floodplains that are determined in the Flood Insurance Study (FIS) by approximate methods. No BFEs or depths have been determined.

Zone AE – Corresponds to the areas of 100-year floodplains that are determined in the FIS by detailed methods. In most instances, BFEs have been derived from detailed hydraulic analyses and are shown within this zone.

Zone AH – Corresponds to the areas of 100-year shallow flooding with a constant water surface elevation. Flood depths are 1 to 3 feet (usually areas of ponding); BFEs are derived from detailed hydraulic analyses and are shown at selected intervals within this zone.

Zone AO – Corresponds to the areas of 100-year shallow flooding. Flood depths are 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities are also determined.

Zone AR – Depicts areas protected from flood hazards by flood control structures such as levees that are being restored.

Zone X (dotted) – Other flood areas. Areas of 0.2 percent annual chance flood; areas of 1 percent annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1 percent annual chance flood.

Zone X – Areas determined to be outside the 0.2 percent annual chance floodplain.

2.2.1.2 Affected Environment

This section is based on the *Floodplain Evaluation Rep*ort (September 2015) and *Water Quality Technical Report* (June 2016).

The primary drainage that conveys stormwater in the project corridor is the West Cucamonga Channel. The West Cucamonga Channel traverses south through the project corridor before terminating at the Ely Percolation Basins, just north of SR-60. Flow from Ely Basin is conveyed to Cucamonga Creek. Cucamonga Creek is a concrete-lined channel that serves as the major drainage course within Ontario. It flows

south through the approximate center of the city, converges with Lower Deer Creek Channel at Chris Basin (a small retention basin), exits the city, and eventually discharges to the Prado Flood Control Basin in Riverside County. Once the water reaches Prado Basin, it is discharged through the outlet of Prado Dam into the Santa Ana River, which ultimately discharges into the Pacific Ocean near the Huntington Beach/Newport Beach city boundary (The Planning Center, 2009).

In accordance with FEMA Flood Insurance Rate Map (FIRM), the project is fully encompassed by the 100-year flood plain (Zone X), in which the West Cucamonga Channel has a 1 percent annual chance flood capacity throughout the project area.

2.2.1.3 Environmental Consequences

An evaluation of potential hydrological and floodplain impacts associated with each alternative is presented below.

Permanent Impacts

No Build Alternative

Implementation of the No Build Alternative would not result in any floodplain encroachment.

Build Alternative (Proposed Project)

The proposed Build Alternative improvements include roadway widening, grading, retaining walls, and culverts. There are two locations of floodplain encroachments where two existing culverts (12 feet by 6.5 feet and 12 feet by 8 feet) cross under Grove Avenue and G Street, respectively. At these two locations, the roadway widening would require covering portions of the West Cucamonga Channel, thereby extending the existing culverts.

Although the roadway widening associated with the Build Alternative would geometrically encroach on the West Cucamonga Channel's floodplain at the culvert crossings, it is not anticipated that the proposed work would alter the floodplain. The culvert crossings would only be extended to accommodate the roadway widening by a maximum of approximately 37 feet. Other than the culvert extensions, there would be no modifications to the existing channel, and the 100-year flood event would still be contained in the channel under the proposed conditions.

No natural or beneficial uses for this floodplain have been identified in the Santa Ana Regional Water Quality Control Board's (RWQCB) Basin Plan for the Santa Ana River Basin. As such, West Cucamonga Channel's only use is for drainage conveyance.

Because the proposed work is located on an existing roadway, a new roadway alignment is not a feasible alternative to floodplain encroachment. The only variable to the impacts is the degree of encroachment; therefore, during the final design and construction phases, disturbance to the floodplain shall be minimized where possible.

Temporary Impacts

No Build Alternative

The No Build Alternative would not change the existing physical environment; therefore, the No Build Alternative would result in no temporary impacts to hydrology and floodplains.

Build Alternative (Proposed Project)

During construction of the Build Alternative, temporary impacts to hydrology and floodplains are not anticipated with inclusion of the measures described below.

2.2.1.4 Avoidance, Minimization, and/or Mitigation Measures

The proposed project would be designed to minimize impacts, where possible, by limiting the grading and structural encroachments at designated floodplain and floodway areas. The following minimization measures would be incorporated into the design and construction phases to minimize potential floodplain impact:

HYD-1: Provide positive drainage during construction and refrain from filling designated floodplains. Construction site surface runoff will be channeled into existing drainage facilities so as to not cause water flow on neighboring properties. Offsite flows will be managed in a manner that will mimic the existing drainage network and will not inundate the roadway surface of any of the existing drainage systems.

HYD-2: Implement standard BMPs as identified in the City of Ontario's Water Quality Management Plan, including temporary construction site BMPs to address site soil stabilization and reduce deposition of sediments to receiving waters.

HYD-3: Include erosion control and water quality protection during construction at the West Cucamonga Channel. BMPs will be designed and implemented to reduce the discharge of pollutants to the Maximum Extent Practicable (MEP). Typical measures that may be implemented include preservation of existing vegetation, use of soil binders or hydroseeding, and installation of silt fences or fiber rolls.

HYD-4: Contractor shall develop a contingency plan for unforeseen discovery of underground contaminants in the Stormwater Pollution Prevention Plan (SWPPP).

HYD-5: Limit construction activities between October and May to those actions that can adequately withstand high flows and entrainment of construction materials. The Contractor shall prepare a Rain Event Action Plan (REAP) and discuss high flows mitigation.

2.2.2 Water Quality and Stormwater Runoff

This section describes the regulatory setting associated with water quality, the affected environment, the environmental consequences on water quality and stormwater runoff that would result from the proposed project, and the minimization and/or mitigation measures that would reduce any potential impact.

2.2.2.1 Regulatory Setting

Federal Requirements: Clean Water Act

In 1972, Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the U.S. from any point source[4] unlawful unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) permit. This act and its amendments are known today as the Clean Water Act (CWA). Congress has amended the act several times. In the 1987 amendments, Congress directed dischargers of stormwater from municipal and industrial/ construction point sources to comply with the NPDES permit scheme. The following are important CWA sections:

- Sections 303 and 304 require states to issue water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the U.S. to obtain certification from the state that the discharge will comply with other provisions of the act. This is most frequently required in tandem with a Section 404 permit request (see below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. RWQCBs administer this permitting program in California. Section 402(p) requires permits for discharges of stormwater from industrial/construction and municipal separate storm sewer systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the United States Army Corps of Engineers (USACE).

The goal of the CWA is "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters."

[4] A point source is any discrete conveyance such as a pipe or a man-made ditch.

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

Ordinarily, projects that do not meet the criteria for a Regional or Nationwide Permit may be permitted under one of USACE's Individual permits. There are two types of Individual permits: Standard permits and Letters of Permission. For Individual permits, the USACE decision to approve is based on compliance with United States Environmental Protection Agency's (EPA) Section 404 (b)(1) Guidelines (40 CFR Part 230), and whether the permit approval is in the public interest. The Section 404(b)(1) Guidelines (Guidelines) were developed by EPA in conjunction with USACE and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA) to the proposed discharge that would have lesser effects on waters of the U.S. and not have any other significant adverse environmental consequences. According to the Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures has been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent[5] standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause "significant degradation" to waters of the U.S. In addition, every permit from USACE, even if not subject to the Section 404(b)(1) Guidelines, must meet general requirements (see 33 CFR 320.4). A discussion of the LEDPA determination, if any, for the document is included in Section 2.3.2, Wetlands and Other Waters.

State Requirements: Porter-Cologne Water Quality Control Act

California's Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This act requires a "Report of Waste Discharge" for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the state. It predates the CWA and regulates discharges to waters of the state. Waters of the state include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of "waste" as defined, and this definition

[5] EPA defines "effluent" as "wastewater, treated or untreated, that flows out of a treatment plant, sewer, or industrial outfall."

is broader than the CWA definition of "pollutant." Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA and regulating discharges to ensure compliance with the water quality standards. Details about water quality standards in a project area are included in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions and then set criteria necessary to protect these uses. As a result, the water quality standards developed for particular water segments are based on the designated use and vary depending on that use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants. These waters are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-point source controls (NPDES permits or WDRs), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB administers water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWCQBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

National Pollution Discharge Elimination System Program

Municipal Separate Storm Sewer Systems

Section 402(p) of the CWA requires issuance of NPDES permits for five categories of stormwater discharges, including MS4s. An MS4 is defined as "any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over stormwater, that is designed or used for collecting or conveying stormwater." The SWRCB has identified Caltrans as an owner/operator of an MS4 under federal regulations. Caltrans' MS4 permit covers all Caltrans ROWs, properties, facilities, and activities in the state.

The SWRCB or the RWQCB issue NPDES permits for 5 years, and permit requirements remain active until a new permit has been adopted.

Caltrans' MS4 Permit, Order No. 2012-0011-DWQ (adopted on September 19, 2012, and effective on July 1, 2013), as amended by Order No. 2014-0006-EXEC (effective January 17, 2014), Order No. 2014-0077-DWQ (effective May 20, 2014) and Order No. 2015-0036-EXEC (conformed and effective April 7, 2015), has three basic requirements:

1. Caltrans must comply with the requirements of the Construction General Permit (see below);
2. Caltrans must implement a year-round program in all parts of the State to effectively control stormwater and non-stormwater discharges; and
3. Caltrans stormwater discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs), to the maximum extent practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, Caltrans developed the Statewide Storm Water Management Plan (SWMP) to address stormwater pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within Caltrans for implementing stormwater management procedures and practices, as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices Caltrans uses to reduce pollutants in stormwater and non-stormwater discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs. The proposed project will be programmed to follow the guidelines and procedures outlined in the latest SWMP to address stormwater runoff.

Construction General Permit

Construction General Permit, Order No. 2009-0009-DWQ (adopted on September 2, 2009, and effective on July 1, 2010), as amended by Order No. 2010-0014-DWQ (effective February 14, 2011) and Order No. 2012-0006-DWQ (effective on July 17, 2012), regulates stormwater discharges from construction sites that result in a Disturbed Soil Area (DSA) of 1 acre or greater, and/or are smaller sites that are part of a larger common plan of development. By law, all stormwater discharges associated with construction activity where clearing, grading, and excavation result in soil

disturbance of at least 1 acre must comply with the provisions of the Construction General Permit. Construction activity that results in soil disturbances of less than 1 acre is subject to this Construction General Permit if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop SWPPPs; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the Construction General Permit.

The Construction General Permit separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and they are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory stormwater runoff pH and turbidity monitoring, and before construction and after construction aquatic biological assessments during specified seasonal windows. For all projects subject to the permit, applicants are required to develop and implement an effective SWPPP. In accordance with Caltrans' SWMP and Standard Specifications, a Water Pollution Control Program (WPCP) is necessary for projects with DSA less than 1 acre.

Local Agency Construction Activity Permitting. The City is regulated under an Area Wide Municipal Urban Storm Water Runoff Permit (NPDES Order No. R8 2010-0036, NPDES No. CAS 618036) issued by the Santa Ana RWQCB. This permit sets out guidelines and regulates WDRs for the discharge of stormwater from areas of San Bernardino County. The principal permittee of this permit is the SBCFCD, and there are 17 other co-permittees, including the City. It is noted that the above permit expired on January 29, 2015; this permit has been extended. The SBCFCD is in the process of obtaining renewal of the County Municipal NPDES Stormwater Permit. On August 1, 2014, the SBCFCD submitted a Report of Waste Discharge on behalf of San Bernardino County and the 16 incorporated cities within San Bernardino County, including the City. The Report of Waste Discharge serves as the permit renewal application. The permit application is still in the permit renewal process. The Santa Ana RWQCB's Dewatering Permit Order is identified as R8-2015-0004 (NPDES NO. CAG998001). This permit covers the General WDRs for Discharges to Surface Water which Pose an Insignificant *(De Minimis)* Threat to Water Quality from dewatering activities.

Section 401 Permitting. Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the U.S. must obtain a 401 Certification, which certifies that the project will be in compliance with

state water quality standards. The most common federal permits triggering 401 Certification are CWA Section 404 permits issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases, the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as WDRs under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

Section 1602 Streambed Alteration Agreement. Section 1602 of the California Fish and Game Code (CFG Code) requires a Streambed Alteration Agreement for any alteration to the bank or bed of a stream or lake or for any activity that substantially diverts or obstructs the natural flow of any river, stream, or lake. Further coordination with the California Department of Fish and Wildlife (CDFW) regarding potential project impacts is required,

2.2.2.2 Affected Environment

Analysis in this section is based on the *Water Quality Technical Report* (June 2016) prepared for the project.

The project is located within the Santa Ana River hydrologic unit, and in the Chino Split hydrologic subarea (HSA) as identified in Table 2.2.2-1 by the Caltrans Water Quality Planning Tool (Caltrans, 2014). The Chino Split covers approximately 191,515 acres or approximately 300 square miles.

Table 2.2.2-1. Grove Avenue Corridor Project Receiving Hydrologic Units Hydrologic Subareas

Hydrologic Unit	Hydrologic Area	Hydrologic Subarea #	Hydrologic Subarea Name
Santa Ana River	Middle Santa Ana River	801.21	Chino (Split)

The project corridor is located in the Chino Creek watershed and the Lower Chino Creek subwatershed. The primary drainage that conveys stormwater in the project corridor is the West Cucamonga Channel. The West Cucamonga Channel is an engineered, concrete channel that traverses south through the project corridor before terminating at the Ely Percolation Basins, just north of SR-60. Flow from Ely Basin is

conveyed to Cucamonga Creek. Cucamonga Creek is a concrete-lined channel that serves as the major drainage course within Ontario. It flows south through the approximate center of the city, converges with Lower Deer Creek Channel at Chris Basin (a small retention basin), exits the city, and eventually discharges to the Prado Flood Control Basin in Riverside County. Once the water reaches Prado Basin, it is discharged through the outlet of Prado Dam into the Santa Ana River, which ultimately discharges into the Pacific Ocean near the Huntington Beach/Newport Beach city boundary (The Planning Center, 2009).

The Santa Ana RWQCB conducted a 6-year study (2006–2011) of the waterways within the Santa Ana River watershed (Surface Water Ambient Monitoring Program 2014). The purpose of the study was to determine the integrity of surface waters by sampling the biological (i.e., benthic macroinvertebrates), physical (i.e., in-stream habitat, surrounding riparian habitats), and chemical attributes. During the 2011 bioassessment sampling events, benthic macroinvertebrates were identified from 45 locations. Of the 45 locations, 2 are close to the Grove Avenue Corridor Project, as indicated in Table 2.2.2-2.

Table 2.2.2-2. Santa Ana River Watershed Sampling Sites

SWAMP Code	Stream Name	Latitude NAD 83	Longitude NAD 83	Distance from Proposed Project	Elevation (meters)	Collection Date
801RB8566	Cucamonga Creek	33.99743	-117.59924	6 miles southeast	216	June 15, 2011
801RB8197	Chino Creek	33.9827	-117.69921	8 miles southwest	179	July 11, 1011

Biological assessments provide a more familiar representation of the ecological health of a particular location. Locations can then be ranked by values and classified into qualitative categories of “very good,” “good,” “fair,” “poor,” and “very poor.” This system of ranking and categorizing biological conditions is referred to as an Index of Biotic Integrity (IBI). Water chemistry, IBI metrics, and the overall rating for the two locations within the Santa Ana River Watershed are provided in Appendix B of the Water Quality Technical Report. The overall rating for Cucamonga Creek Channel and Chino Creek was “poor.”

The drainage course of water from the proposed project corridor to offsite areas was used to determine what water bodies could potentially be impacted by the project. Table

2.2.2-3 summarizes these water bodies and lists the impairments and established TMDLs per the 2010 Integrated Report (CWA Section 303(d) List/305(b) Report) and the Caltrans Water Quality Planning Tool[6] (SWRCB, 2011).

Table 2.2.2-3. Impaired Waters

Water Body	Impairment	Size (miles)	TMDL Status
Cucamonga Creek Reach 1 - Confluence with Mill Creek to 23rd Street in Upland	Cadmium	10	Required
	Coliform Bacteria	10	Being addressed by an EPA-approved TMDL
	Copper	10	Required
	Lead	10	Required
	Zinc	10	Required
Mill Creek (Prado Area)	Nutrients	1.6	Required
	Pathogens	1.6	Being addressed by an EPA-approved TMDL
	Total Suspended Solids	1.6	Required
Chino Creek 1A (Santa Ana River confluence with Mill Creek [Prado Area])	Nutrients	0.8	Required
	Pathogens	0.8	Being addressed by an EPA-approved TMDL
Santa Ana River, Reach 3 Prado Dam to Mission Boulevard in Riverside	Pathogens	26	Being addressed by an EPA-approved TMDL
	Copper	26	Required
	Lead	26	Required
Santa Ana River, Reach 2 17th Street in Santa Ana to Prado Dam	Indicator Bacteria	20	Required

Ontario sits on the Chino Groundwater Basin and in the Santa Ana River hydrologic unit. The basin is bounded by the Rialto-Colton Fault on the northeast, the Jurupa Mountains and La Sierra Hills to the southeast, the Central Avenue Fault to the southwest, and the San Jose Fault and Red Hill Fault to the northwest. Ontario currently draws all of its groundwater supply from the Chino Basin. The primary water quality concerns for Ontario's groundwater wells are nitrate and perchlorate levels. Other contaminants of concern are volatile organic compounds (VOC) and total dissolved solids (TDS) (The Planning Center, 2009). There are known groundwater contamination plumes affecting Ontario's groundwater supply although none of them are located within the project corridor.

[6] http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx.

The City of Ontario water supply is derived from a combination of local and imported water, obtained primarily from four sources: Ontario wells and treatment in the Chino Groundwater Basin; the Chino Desalter Authority wells and treatment in the Chino Groundwater Basin; treated State Water Project water from the Water Facilities Authority; and recycled water from the Inland Empire Utilities Agency, a member of the Metropolitan Water District.

Ontario has a rapidly expanding recycled water program and currently serves approximately 4,000 acre-feet per year of recycled water to more than 70 customers, including interim agricultural users in the area. The source for recycled water is locally reclaimed nonpotable wastewater provided by the wholesaler, Inland Empire Utilities Agency, which operates the regional wastewater treatment plants for the cities in the area and provides transmission back to Ontario.

Of the water quality impairments for receiving waters within the Grove Avenue Corridor, cadmium, copper, lead (Pb), zinc, and nutrients (e.g., nitrogen and phosphorus) are associated with roadway runoff and must therefore be considered when evaluating and implementing BMP techniques for utilization on the Grove Avenue Corridor Project.

2.2.2.3 Environmental Consequences

An evaluation of potential water quality impacts associated with each alternative is presented below.

Permanent Impacts

No Build Alternative

Under the No Build Alternative, no changes to the existing condition would occur. As such, there would be no increase in runoff flow velocities, volumes, or peak flow rates; therefore, no adverse impacts to water quality would result from the No Build Alternative.

Build Alternative (Proposed Project)

Based on the current level of design of the Build Alternative, there are no permanent impacts to jurisdictional features. As the design advances, the City would coordinate with resource agencies, including USACE, RWQCB, and CDFW, and keep Caltrans updated with the project status. Should final design of the Build Alternative result in impacts to jurisdictional features, the appropriate permits (i.e., Section 404 Permit from USACE, Section 401 Water Quality Certification from RWQCB, or Streambed

Alteration Agreement from CDFW) would be obtained with all minimization and/or mitigation measures identified as part of the permitting process implemented.

Construction of the Build Alternative would add 2.57 acres of additional impervious surface area, as shown in Table 2.2.2-4. The additional impervious surface area would not alter the existing drainage patterns or result in runoff that would exceed the existing stormwater drainage system capacity. Construction of the project and the increase in runoff would potentially cause or contribute to an alteration in water quality and have the potential to affect the beneficial use of receiving water bodies downstream of the project corridor.

It is not anticipated that the Build Alternative would cause a change to sedimentation in downstream receiving water bodies because the proposed project would result in a very minor increase in runoff compared to the entire hydrologic area. Design Principles, such as conservation of natural areas, minimization of disturbances to natural drainage, and use of landscaping to promote surface infiltration, would be implemented to the MEP once the project is complete.

The addition of impervious surfaces as a result of implementation of the Build Alternative would not interfere with groundwater recharge because the proposed project area is not located in an area used by local water districts for aquifer recharge. Recharge to the subbasins is predominantly accomplished at spreading grounds located outside of the proposed project corridor.

Table 2.2.2-4. Comparison of Existing and Proposed Impervious Surface Area for the Build Alternative

Existing Impervious Surface Area (acres)	Proposed Additional Impervious Surface Area (acres)	Total Impervious Surface Area (acres)
20.12	2.57	22.69

Source: Developed from the Water Quality Technical Report, 2016.

Table 2.2.2-5 summarizes the operation and maintenance (long-term) activities that were evaluated for their potential impact on downstream water bodies for the Build Alternative. No unique impacts were identified for the Build Alternative.

Table 2.2.2-5. Summary of Operation/Maintenance (Long-Term) Impacts to the Aquatic Environment

Summary of Impacts
Physical/Chemical Characteristics
Proposed slopes may be a source of sedimentation in downstream substrates.
Pollutants associated with the new roadway may create turbidity in downstream receiving water bodies.
Pollutants, such as oil and grease and other pollutants associated with operation of the proposed project, may impair downstream receiving water bodies.
Nutrients associated with chemicals used in roadway landscaping may cause oxygen depletion and increased temperatures in the aquatic environment.
Biological Characteristics
Sedimentation from natural erosion to any special aquatic sites located downstream from the project corridor.
Increase in stormwater discharge to the aquatic organisms' habitat downstream from the project and higher concentrations of pollutants of concern because of the increase in impervious surface area.
Human Use Characteristics
No long-term impacts to the human use characteristics of the aquatic environment are anticipated.

The proposed project is not sited in a location used by a local water district for existing or potential water supplies or water conservation; therefore, no changes to existing water supplies, potential water supplies, or water conservation are anticipated.

Temporary Impacts

No Build Alternative

The No Build Alternative would not change the existing physical environment; therefore, the No Build Alternative would result in no temporary water quality impacts.

Build Alternative (Proposed Project)

Construction of the proposed corridor has the potential to contribute pollutants to offsite receiving water bodies. These pollutants include sediment and silt associated with soil disturbance because of construction of the proposed corridor and chemical pollutants associated with the construction materials that are brought onto the project site. Table 2.2.2-6 summarizes the construction (short-term) activities that were evaluated for their potential impact on downstream water bodies for the Build Alternative. No unique impacts were identified for the Build Alternative.

Table 2.2.2-6. Summary of Construction (Short-Term) Impacts to the Aquatic Environment

Summary of Impacts
Physical/Chemical Characteristics
Excavation and trenching, soil compaction and moving, cut and fill activities, and grading could contribute sediment to downstream receiving water bodies.
Construction materials, waste handling, and the use of construction equipment could also result in stormwater contamination and affect water quality.
Chemical contaminants, such as oils, fuels, paints, solvents, nutrients, trace metals, and hydrocarbons, can attach to sediment and be transported to downstream drainages and ultimately into collecting waterways contributing to the chemical degradation of water quality.
Biological Characteristics
Erosion and sedimentation could affect biological characteristics of the aquatic environment in downstream water resources.
Human Use Characteristics
Service vehicle access.

Construction materials, waste handling, and the use of construction equipment could also result in stormwater contamination and affect water quality. Spills or leaks from heavy equipment and machinery can result in oil and grease contamination. Operation of vehicles during construction could also result in tracking of dust and debris. Staging areas can also be sources of pollutants because of the use of paints, solvents, cleaning agents, and materials containing metals that are used during construction.

A total of 13.60 acres of temporary DSA would result from construction of the Build Alternative. Implementation of the SWPPP is expected to attenuate and minimize the amount of sediments released from the construction site. Short-term impacts caused by the Build Alternative include potential increases in sediment loads because of removal of existing groundcover and disturbance of soil during grading. The temporary residual increase in sediment loads from construction areas is unlikely to alter the hydrologic response (i.e., erosion and deposition) downstream in the HSA and, subsequently, the sediment processes in these areas would be reduced because all DSAs would be stabilized before completion of construction with permanent landscaping and/or permanent erosion control measures.

During the construction phase, Construction Site BMPs would be implemented to treat stormwater and nonstormwater discharges to the MEP; therefore, runoff from the construction area would not likely create any surface water quality impacts.

2.2.2.4 Avoidance, Minimization, and/or Mitigation Measures

Project design features for the selected alternative would include Construction Site, Source Control, Design Principles, and BMP Techniques. These BMPs would be implemented to improve stormwater quality during construction and operation of the transportation facility to minimize potential stormwater and non-stormwater impacts to water quality. The County of San Bernardino's Transportation Project BMP Guidance describes how the City would comply with their MS4 NPDES Permit. The BMPs are organized into four categories, as shown in Table 2.2.2-7.

Table 2.2.2-7. Transportation Project BMP Categories

BMP	Description
Construction Site	Temporary soil stabilization and sediment control, non-stormwater management, and waste management.
Design Principles	Conservation of natural areas, minimization of impervious surface areas, designing pervious areas to receive roadway runoff and use of landscaping to promote infiltration.
Techniques	Permanent treatment devices and minimizing street width.
Source Control	Includes nonstructural (e.g., litter pickup, landscape management, street sweeping) and structural (e.g., storm drain stenciling, efficient irrigation slope and channel protection) BMPs.

The Grove Avenue Corridor Project would require the following minimization measures to minimize potential water quality and hydrological impacts associated with implementation of the project.

WQ-1: **Implement Temporary Construction BMPs.** The project will be required to conform to the requirements of the NPDES Permit for Construction Activities, Order No. 2009-0009-DWQ, as amended by 2010-0014-DWQ and 2012-0006-DWQ, NPDES No. CAS000002.

WQ-2: **Prepare and Implement an SWPPP.** The Contractor will be required to develop an acceptable SWPPP. The SWPPP shall contain BMPs that have demonstrated effectiveness at reducing stormwater pollution. The SWPPP shall address all construction-related activities, equipment, and materials that have the potential to affect water quality. All Construction Site BMPs will be installed, maintained, and inspected to control and minimize the impacts of construction-related pollutants. The SWPPP shall include BMPs to control pollutants, sediment from erosion, stormwater runoff, and other construction-related impacts. In addition, the SWPPP shall include implementation of specific stormwater

effluent monitoring requirements based on the project's risk level to ensure that the implemented BMPs are effective in preventing discharges from exceeding any of the water quality standards.

WQ-3: **Incorporate Design Principles into Final Roadway Design.** Design Principles are permanent measures to minimize pollution discharges by retaining source materials and stabilizing soils. The three objectives associated with Design Principle BMPs include maximizing vegetated surfaces; preventing downstream erosion; and stabilizing soil areas. These design objectives will be applied to the entire project.

2.2.3 Geology/Soils/Seismic/Topography

This section describes the regulatory setting, affected environment, environmental consequences on geological resources that would result from the proposed project, and minimization and/or mitigation measures that would reduce any potential impact. This section of the environmental document references findings from the Caltrans *Geotechnical Memorandum* (September 2015).

2.2.3.1 Regulatory Setting

For geologic and topographic features, the key federal law is the Historic Sites Act of 1935, which establishes a national registry of natural landmarks and protects "outstanding examples of major geological features." Topographic and geologic features are also protected under CEQA.

This section also discusses geology, soils, and seismic concerns as they relate to public safety and project design. Earthquakes are prime considerations in the design and retrofit of structures. Caltrans' Office of Earthquake Engineering is responsible for assessing the seismic hazard for Caltrans projects. Structures are designed using the Caltrans' Seismic Design Criteria (SDC). The SDC provides the minimum seismic requirements for highway bridges designed in California. A bridge's category and classification will determine its seismic performance level and which methods are used for estimating the seismic demands and structural capabilities. For more information, please see the Caltrans Division of Engineering Services, Office of Earthquake Engineering, SDC.

2.2.3.2 Affected Environment

Topography

The natural site topography is relatively flat along the corridor, dropping from an elevation of near 1,070 feet on the north end of the corridor to approximately 960 feet on the south end of the corridor. There are no natural creeks, streams, or rivers within the site. There is a channelized storm drainage U-channel that crosses Grove Avenue south of 4th Street, goes into a buried box culvert until East I Street, where it again becomes a U-shaped open channel, runs along the east side of the Grove Avenue corridor until south of East G Street, where it diverges from Grove Avenue and heads southeast. The area between Holt Boulevard was excavated a maximum of approximately 20 feet below surrounding grades to create a grade separation at the SPRR, which creates a low-lying basin in this area.

Geology/Soils

The Grove Avenue Corridor Project is located at the northern end of the Peninsular Ranges geomorphic province of southern California. It is situated within the northern portion of the Perris Block, between the Elsinore and San Jacinto Fault Zones, and north of the Santa Ana River. In the project area, the basement rock of the Perris Block has been buried by the deep alluvial fan sediments from the San Gabriel Mountains of the Transverse Ranges.

Based on the Geologic Map of the San Bernardino 30' x 60' Quadrangle (Figure 2.2.3-1), the surficial soils consist of young alluvial fan deposits derived from the San Gabriel Mountains in the Transverse Ranges to the north. Cucamonga Creek and other washes have contributed to the formation of the deep alluvial fan complexes along the steep mountain front. The project area is mapped as being completely underlain by middle Holocene young alluvial fan deposits. Regionally, these deposits are generally poorly consolidated, undissected to slightly dissected, boulder, cobble, gravel, sand and silt deposits, and are generally underlain by older more consolidated early Holocene and Pleistocene alluvial fan soils. Holocene alluvium in the area is up to 150 feet in thickness, underlain by 600 to 700 feet of Pleistocene alluvium. Due to natural hydraulic sorting, the alluvial fan grain size is coarsest near the mountains (containing boulders and cobbles), becoming finer farther down the fan. Within the project area, soils are mixtures of primarily sand, with a lesser percentage of silt and gravel.

Groundwater

The project site overlies the Chino Groundwater Basin. The groundwater within this managed basin is relatively deep. Current groundwater levels at the Grove Avenue Corridor Project site are at an elevation of approximately 615 to 625 feet, or more than 300 feet below current site grades. No groundwater was encountered in any of the previous borings drilled to depths of up to 30 feet below the ground surface (bgs). No springs, artesian conditions, or groundwater barriers are known to be present at the site. No known perched groundwater is present, but as with any site, localized perched water may be present due to man-made sources.

Faulting and Seismicity

The site is not located in an Alquist-Priolo Fault Special Studies Zone, it is not within 1,000 feet of any unzoned fault, and no faults considered capable of surface rupture are mapped at the site of projecting towards the site.

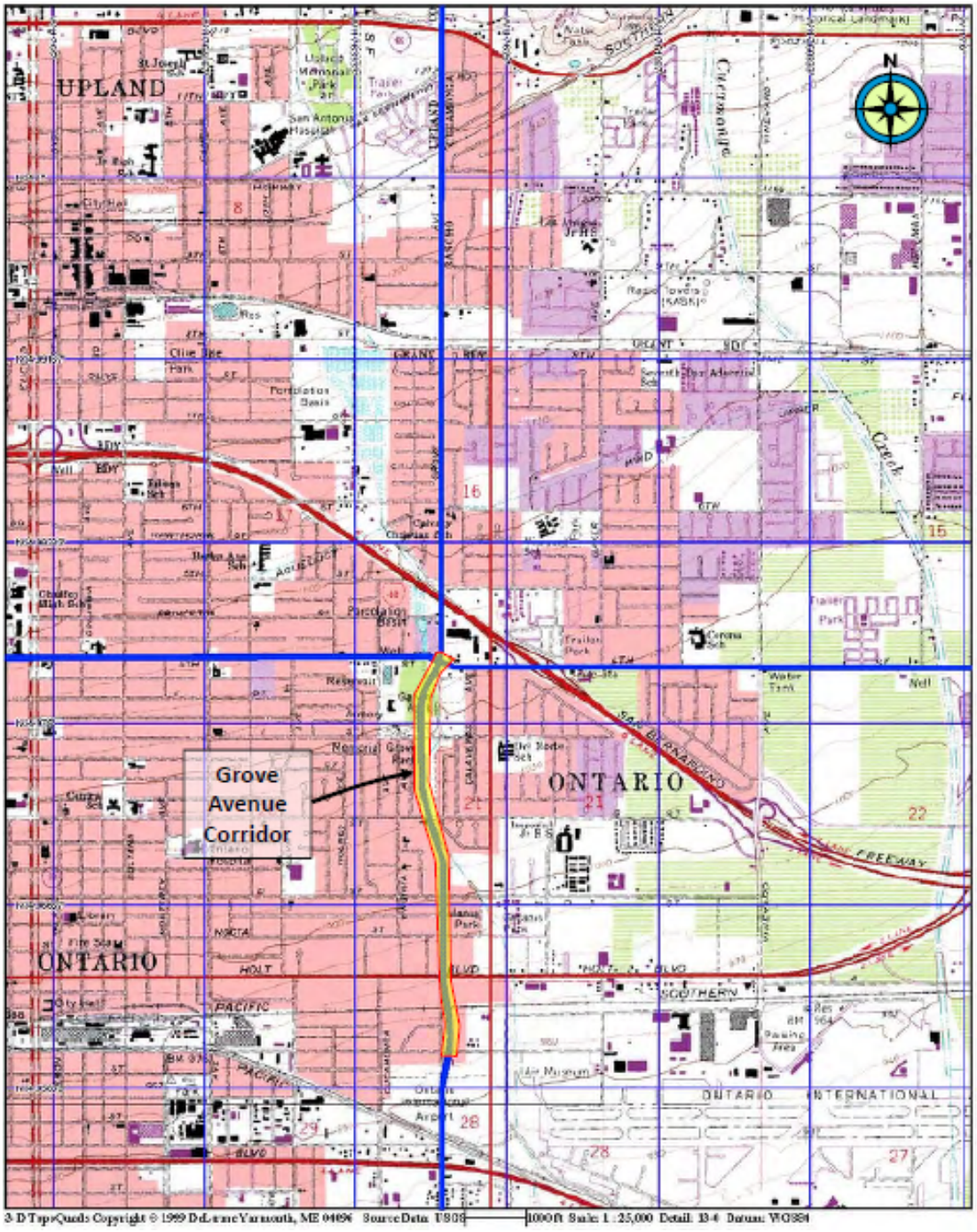


Figure 2.2.3-1. Topographic Map Quadrangle

However, the site is located within a seismically active region within the zone of influence of the highly active strike-slip faults of the Elsinore, San Jacinto, and San Andreas Fault Zones. Many other less significant strike-slip and reverse faults also contribute to the seismic risk at the site. Based on an estimated shear wave velocity of 300 m/s, the preliminary Peak Ground Acceleration at the site is estimated at 0.68g, with a probabilistic moment magnitude of 6.8.

2.2.3.3 Environmental Consequences

An evaluation of potential geology and seismic-related impacts associated with each alternative is presented below.

No Build Alternative

Under the No Build Alternative, there would be no change to the existing corridor, posing no changes to the existing environment and requiring no disturbance of soils; therefore, there would be no impact to geologic resources.

Build Alternative (Proposed Project)

The project area generally has a low to negligible potential for geologic hazards such as landslides, expansive soil, collapsible soil, tsunamis, seismic slope instability, and subsidence due to its relatively flat topography, distance from the ocean, and presence of numerous structures. Fault rupture potential is remote due to distance from earthquake faults, and the risk of secondary seismic hazards, such as liquefaction and earthquake-induced landslide, is generally low as Grove Avenue is located outside designated earthquake zones of required investigations and groundwater is estimated at 375 to 475 feet below the ground surface. The primary seismic hazard at the site is strong shaking.

Seismicity

Although the proposed project site is located in seismically active southern California, it is within an existing transportation corridor. The project would be designed to meet the City's design standards to minimize geologic and seismic hazards. No structures would be constructed that would increase the current risk of loss, injury, or death as a result of ground shaking or seismically induced effects. The proposed project would not increase the risk of exposing people or structures to potential adverse effects because of seismic activities or seismic-related ground failure beyond the existing level already present with the Grove Avenue configuration.

2.2.3.4 Avoidance, Minimization, and/or Mitigation Measures

All project components will be designed in accordance with standard engineering practices and Caltrans' Standard Specifications. Because no substantial adverse effects under NEPA or significant impacts under CEQA would occur related to geology, soils, topography and seismicity, no avoidance, minimization, and/or mitigation measures are required.

2.2.4 Paleontology

This section describes the regulatory setting, affected environment, environmental consequences on paleontological resources that would result from the proposed project, and minimization and/or mitigation measures that would reduce any potential impact.

2.2.4.1 Regulatory Setting

Paleontology is a natural science focused on the study of ancient animal and plant life as it is preserved in the geologic record as fossils. Many federal statutes specifically address paleontological resources, their treatment, and funding for mitigation as a part of federally authorized or funded projects. The following laws and regulations are applicable to this project:

- Antiquities Act of 1906 (16 U.S.C. 431-433) prohibits appropriating, excavating, injuring, or destroying any object of antiquity situated on federal land without the permission of the Secretary of the department of government having jurisdiction over the land;
- 23 U.S.C. 1.9(a) requires that the use of federal-aid funds must be in conformity with federal and state law;
- Federal-Aid Highway Act of 1960 (23 U.S.C. 305) authorizes funds be appropriated and used for archaeological and paleontological salvage as necessary by the highway department of any state, in compliance with 16 U.S.C. 431-433;
- Native American Historic Resource Protection Act, California PRC 5097-5097.993; and
- San Bernardino County Development Code Section 82.20.040.

Under California law, paleontological resources are protected by CEQA.

2.2.4.2 Affected Environment

The information from this section was synthesized from the combined *Paleontological Identification Report and Paleontological Evaluation Report* prepared for the project (March 2017).

The Grove Avenue Corridor Project is located in one of the most tectonically active regions of North America. To the northeast of the project corridor, the San Andreas Fault Zone travels up Cajon Pass where it forms the boundary between the Pacific Plate and the North American Plate. The Transverse Ranges are a result of these two plates grinding past each other and “catching” along the bend in the San Andreas Fault. The Pacific Plate is composed of numerous blocks that can move independently.

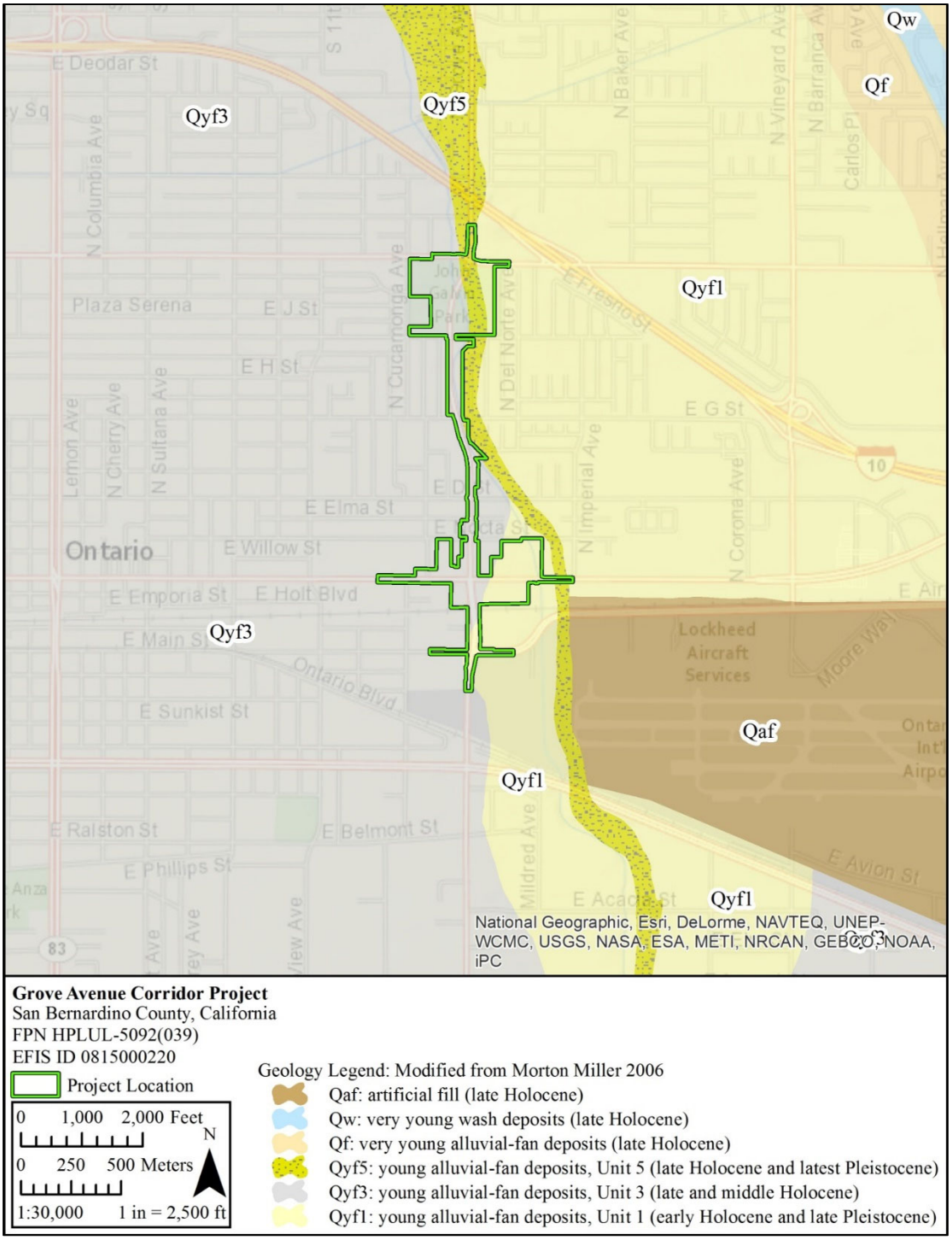
The Transverse Range Province is an east-west trending series of steep mountain ranges and valleys aligned obliquely to the normal northwest trend of coastal California, hence the name "Transverse." The province extends offshore to include San Miguel, Santa Rosa, and Santa Cruz islands. Its eastern extension, the San Bernardino Mountains, has been displaced to the south along the San Andreas Fault. Intense north-south compression is squeezing the Transverse Ranges, and as a result, this is one of the most rapidly rising regions of the earth.

The project area is mapped as various types of Quaternary alluvial fan deposits. These deposits are between early Pleistocene and latest Holocene in age (less than 2.6 million years old).

Figure 2.2.4-1 shows the geological composition of the project area. Units Qyf 1, 3, and 5 are late Pleistocene to late Holocene alluvial fan deposits that are less than 126,000 years old and consist of unconsolidated to moderately consolidated silts, sands, and conglomerates eroded from the highlands. Clasts are coarsest adjacent to the highlands and fine away from them. Surfaces are slightly to moderately dissected by more recent erosional activities. All young alluvial fan deposits in the area are very similar in their compositions.

A review of records at the San Bernardino County Museum (SBCM) and in published materials yielded no fossil records known from the deposits within the project area. However, in at least eight localities between 2.5 and 8 miles from the APE, extinct animals have been recovered in the Quaternary older alluvial deposits, including ground sloth, mammoth, horse, bison, and camel. Other localities in similar sediments in San Bernardino and Riverside counties have also produced ground sloths, short-faced bears, dire wolves, and horses.

Only the oldest Young alluvial fan deposit (Qyf1) has the potential for fossils near the surface. Based on other finds in the area, the Pleistocene portion of this unit is assigned moderate sensitivity, while all other units are too young to contain fossils; however, they do overlie older deposits that are fossiliferous, and fossils may be impacted if the depths of the cuts extend more than 5 feet below the original ground surface. Figure 2.2.4-2 displays the paleontological sensitive areas in the proposed project area.



Grove Avenue Corridor Project
San Bernardino County, California
FPN HPLUL-5092(039)
EFIS ID 0815000220

Project Location

0 1,000 2,000 Feet
0 250 500 Meters
1:30,000 1 in = 2,500 ft
N

Geology Legend: Modified from Morton Miller 2006
- Qaf: artificial fill (late Holocene)
- Qw: very young wash deposits (late Holocene)
- Qf: very young alluvial-fan deposits (late Holocene)
- Qyf5: young alluvial-fan deposits, Unit 5 (late Holocene and latest Pleistocene)
- Qyf3: young alluvial-fan deposits, Unit 3 (late and middle Holocene)
- Qyf1: young alluvial-fan deposits, Unit 1 (early Holocene and late Pleistocene)

Figure 2.2.4-1. Geology Map

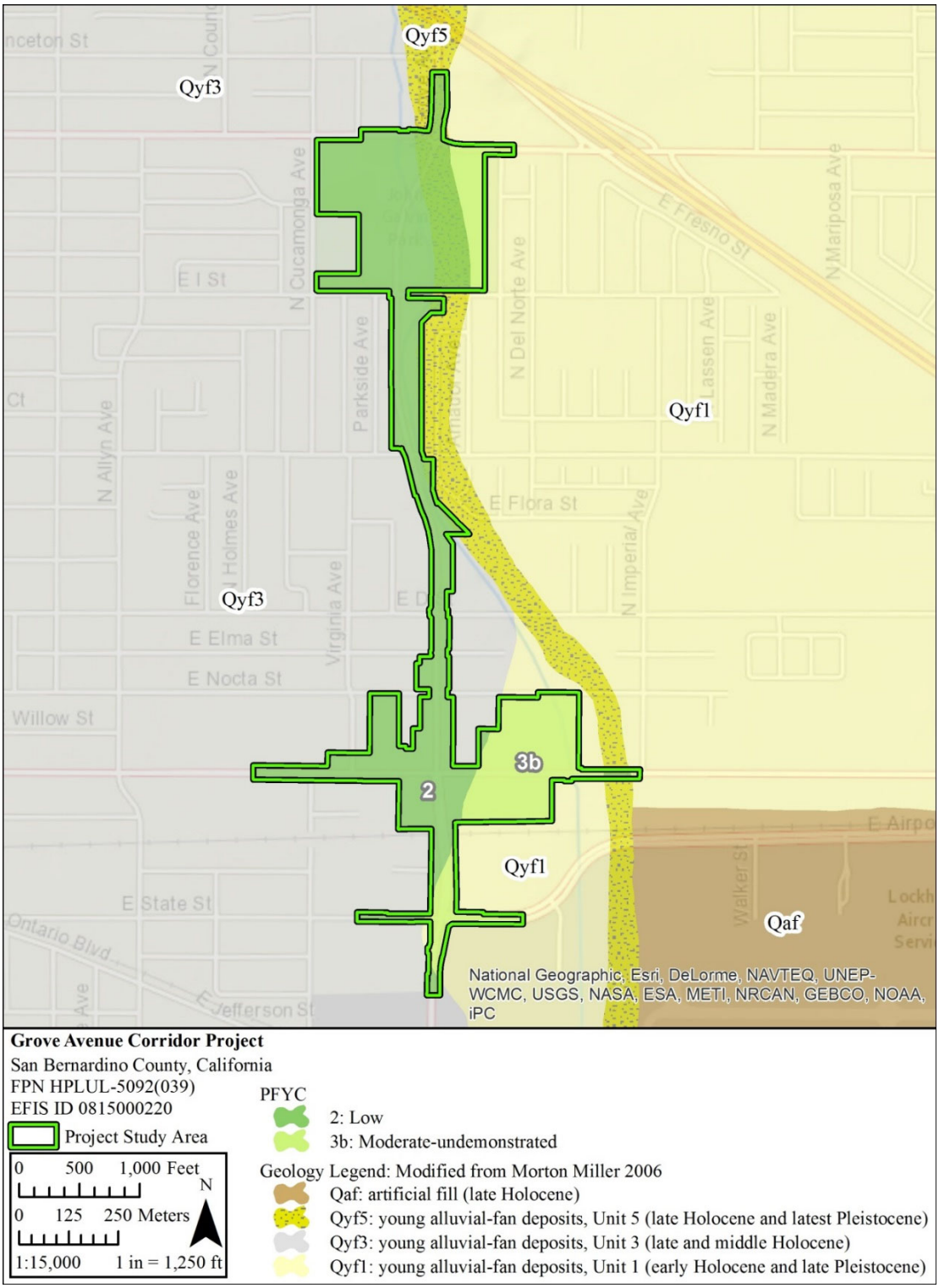


Figure 2.2.4-2. Paleontological Sensitivity Map

2.2.4.3 Environmental Consequences

Paleontological resources are considered significant if they provide new data on fossil animals, distribution, evolution, or other scientifically important information as previously stated. Caltrans uses a tripartite scale to characterize paleontological sensitivity:

- **High Potential:** Rock units that, based on previous studies, contain or are likely to contain significant vertebrate, significant invertebrate, or significant plant fossils. These units include sedimentary formations that contain significant nonrenewable resources anywhere within the geographic extent.
- **Low Potential:** Rock units that are not known to have produced significant fossils in the past but possess a potential to contain fossils or those that yield common fossil invertebrates.
- **No Potential:** Rock units with no potential to contain fossils. This includes most rocks of igneous origin or metamorphosed transformation.

A multilevel ranking system was developed by professional resource managers as a more practical tool, the Potential Fossil Yield Classification (PFYC) system (BLM, 2007). Using the PFYC system, geologic units are classified based on the relative abundance of vertebrate fossils or scientifically significant invertebrate or plant fossils and their sensitivity to adverse impacts. This ranking is not intended to be applied to specific paleontological localities or small areas within units. Although significant fossil localities may occasionally occur in a geologic unit, a few widely scattered important fossils or localities do not necessarily indicate a higher PFYC value; instead, the relative abundance of fossil localities provides the major determinant for the value assignment.

Only the oldest Young alluvial fan deposit (Unit 1) has the potential for fossils near the surface. Based on other finds in the area, the Pleistocene portion of this unit is assigned a PFYC level of 3b, moderate – unknown. All other units are too young to contain fossils and are assigned a PFYC level of 2. However, they do overlie older deposits that are fossiliferous, and fossils may be impacted if the depths of the cuts extend to more than 5 feet below the original ground surface (see Table 2.2.4-1).

Table 2.2.4-1. Paleontological Sensitivity Rankings

PFYC Rankings	5: Very High	4: High	3a: Moderate-Patchy	3b: Moderate Undemonstrated	2: Low	1: Very Low
Rock Units						
Young alluvial fan deposit (Qyf_5)					X[1]	
Young alluvial fan deposit (Qyf_3)					X[1]	
Young alluvial fan deposit (Qyf_1)				X		

No Build Alternative

The No Build Alternative would have no surface or subsurface impacts; therefore, it would not create adverse impacts to potential paleontological resources.

Build Alternative (Proposed Project)

The Build Alternative has the potential to impact significant paleontological resources during construction. Depth of construction would typically be 3 to 5 feet for the widening of Grove Avenue. The segment of ROW where Grove Avenue passes below the SPRR line has the highest potential for encountering fossil resources during ground disturbances. In this area, the roadway is depressed to approximately 20 feet deep through the deepest portion immediately under the SPRR line. Excavations deeper than 5 feet below the original ground surface have the potential to impact fossils in the Quaternary old alluvial deposits because extinct Ice Age animal fossils have previously been recovered at shallow depths in the project vicinity. Paleontological monitoring is needed for all excavations greater than 10 feet deep in sediments mapped as Holocene at the surface and for all excavations greater than 5 feet deep in sediments mapped as Pleistocene at the surface. Drilling with augers smaller than 3 feet in diameter are exempt from monitoring because recovered fossil fragments would not meet significance criteria.

2.2.4.4 Avoidance, Minimization, and/or Mitigation Measures

The following construction specifications would be implemented as a minimization measure to ensure there are no impacts to paleontological resources:

P-1: Develop and implement a Paleontological Monitoring Plan (PMP), with monitoring in excavations more than 10 feet deep for sediments mapped as Holocene at the surface and more than 5 feet deep for excavations mapped as Pleistocene at the surface. The PMP will guide and facilitate

the identification and treatment of paleontological resources, if any are found, during project construction to reduce adverse effects on significant resources. The PMP will summarize identified paleontologically sensitive areas within the APE, the organization and responsibilities of the paleontological team, the responsibilities of other parties, and the treatment and communications procedures to be implemented if paleontological resources are encountered during the project.

2.2.5 Hazardous Waste/Materials

This section describes the regulatory setting associated with hazardous waste and materials, the affected environment, the environmental consequences related to hazardous waste and materials that would result from the proposed project, and the minimization and/or mitigation measures that would reduce any potential impact. Information in this section is from the *Initial Site Assessment* (September 2015) prepared for the project.

2.2.5.1 Regulatory Setting

Hazardous materials, including hazardous substances and wastes, are regulated by many state and federal laws. Statutes govern the generation, treatment, storage, and disposal of hazardous materials, substances, and waste, and also the investigation and mitigation of waste releases, air and water quality, human health, and land use.

The primary federal laws regulating hazardous wastes/materials are the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (CERCLA) and the Resource Conservation and Recovery Act of 1976 (RCRA). The purpose of CERCLA, often referred to as "Superfund," is to identify and clean up abandoned contaminated sites so that public health and welfare are not compromised. The RCRA provides for "cradle to grave" regulation of hazardous waste generated by operating entities. Other federal laws include:

- Community Environmental Response Facilitation Act (CERFA) of 1992
- CWA
- Federal Clean Air Act (FCAA)
- Safe Drinking Water Act
- Occupational Safety and Health Act (OSHA)
- Atomic Energy Act
- Toxic Substances Control Act (TSCA)
- Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)

Section 121(d) of CERCLA requires that remedial action plans include consideration of more stringent state environmental "Applicable or Relevant and Appropriate Requirements" (ARARs). The 1990 National Oil and Hazardous Substances Pollution Contingency Plan (NCP) also requires compliance with ARARs during remedial actions and during removal actions to the extent practicable. As a result, State laws pertaining to hazardous waste management and cleanup of contamination are also pertinent.

In addition to the acts listed above, EO 12088, *Federal Compliance with Pollution Control Standards*, mandates that necessary actions be taken to prevent and control environmental pollution when federal activities or federal facilities are involved.

California regulates hazardous materials, waste, and substances under the authority of the California Health and Safety Code and is also authorized by the federal government to implement RCRA in the state. California law also addresses specific handling, storage, transportation, disposal, treatment, reduction, cleanup, and emergency planning of hazardous waste. The Porter-Cologne Water Quality Control Act also restricts disposal of wastes and requires cleanup of wastes that are below hazardous waste concentrations but could impact ground and surface water quality. California regulations that address waste management and prevention and cleanup of contamination include Title 22 Division 4.5 Environmental Health Standards for the Management of Hazardous Waste, Title 23 Waters, and Title 27 Environmental Protection.

Worker and public health and safety are key issues when addressing hazardous materials that may affect human health and the environment. Proper management and disposal of hazardous material are vital if it is found, disturbed, or generated during project construction.

2.2.5.2 Affected Environment

Information in this section is from the *Initial Site Assessment* (September 2015) prepared for the project.

The scope of the Initial Site Assessment included a review of reasonably ascertainable environmental regulatory agency databases to identify known or suspected environmental concerns or Recognized Environmental Conditions (RECs) that may be associated with the project. A search of readily available environmental records was obtained from Environmental Data Resources, Inc. (EDR). The purpose of the regulatory database report review was to evaluate to the extent possible whether activities, processes, operations, or actions in the project corridor, adjoining properties, and nearby locations have the potential to adversely impact the environmental condition of the project area, are suspected sources of environmental concern, or are present RECs for the site. Available historical information was reviewed to ascertain the historical uses of the project corridor and the adjoining properties. Review references primarily were Sanborn insurance maps, historic aerial photographs, topographic maps, building department records, and oil exploration maps. Online records maintained by California state agencies for all addresses and parcels associated

with the project area were reviewed. In addition, an interview was conducted with Mr. Jay Bautista, Principal Engineer with the City of Ontario in May 2015.

The scope of this assessment is interpreted as limited because owner interviews were not conducted for acquisition parcels, onsite reconnaissance was not conducted for acquisition parcels, and no environmental sampling of media of concern (e.g., soil, paint) is conducted as part of an Initial Site Assessment. It was also not within the scope of the assessment to address issues not included in ASTM 1527-13 (e.g., radon, lead in drinking water, naturally occurring hazardous materials). Furthermore, it is not the purpose of the site assessment to determine the degree or extent of contamination, if any, at the project location.

The proposed project is located in Ontario in San Bernardino County, California. The project corridor consists of City ROW along portions of Grove Avenue and Holt Boulevard. Adjacent properties include residential, commercial, industrial, and parkland uses.

Visual reconnaissance of the project area found that all properties adjacent to the project corridor were well maintained and did not appear to be of environmental concern. There was no evidence of storage tanks, drums, hazardous substances or petroleum products, unidentified substance containers, odors, pools of liquid, or any other RECs. Utility poles and overhead transformers are located within the corridor, and these features are considered environmental areas of concern (AOC) that may require further investigation during construction if necessary.

The ISA identified the following two AOCs in City ROW:

Grove Avenue and Holt Boulevard: Utility poles exist along Grove Avenue and Holt Boulevard that may require removal in support of the project. The poles consist of creosote-treated wood and are considered AOCs. If removed during the project, the poles should be managed as treated wood waste (TWW) in accordance with the Department of Toxic Substances Control (DTSC) Alternative Management Standards for TWW.

Grove Avenue: Overhead transformers appear to be mounted on multiple utility poles along Grove Avenue. Historically, pole-mounted transformers have contained polychlorinated biphenyls (PCBs), which would need to be profiled and managed appropriately, if present.

The ISA identified the following one AOC, one historic recognized environmental condition (HREC), and one REC in association with the acquisition properties:

Residential Structures: Multiple residential structures would be removed in support of the project. Depending on the age of the structures, they may contain asbestos-containing materials (ACM) and lead-based paint (LBP). The presence of these materials would need to be investigated prior to removal of the structures to comply with environmental and worker safety regulatory requirements for ACM and LBP. Residential structures are considered an AOC.

1194 E. Holt Boulevard: The partial acquisition property located at 1194 E. Holt Boulevard is listed as a leaking underground storage tank (LUST) Cleanup Site. The cleanup status is shown as "Completed – Case Closed" as of October 2000. The San Bernardino Case Closure Summary reports that eight 10,000-gallon tanks once operated on the property. Petroleum hydrocarbons as gasoline and diesel, as well as benzene, toluene, ethyl benzene, and xylenes (BTEX), were detected in soil at the property. Although it is reported that the contaminated soil was removed from the property, the potential for residual contamination exists. 1194 E. Holt Boulevard is considered an HREC.

1111 E. Holt Boulevard: Illegal disposal of hazardous liquid waste to soil is documented by the San Bernardino County Fire Department for this property. The precise location where these illicit activities occurred is unknown; however, residual contamination likely still exists in the soil on this property. 1111 E. Holt Boulevard is considered an REC.

On May 14, 2015, an interview was conducted with Mr. Jay Bautista, Principal Engineer with the City of Ontario. The interview was conducted to satisfy the Initial Site Assessment requirement for an interview with a local government official. The interview was conducted to obtain information regarding the environmental history and current conditions of the site and to evaluate the potential presence of hazardous substances and petroleum products on the site. The Initial Site Assessment Interview Checklist was used in accordance with the Caltrans Guidance to conduct the interview. Mr. Bautista was not aware of any environmental conditions at the site, including any hazardous substances and petroleum products.

2.2.5.3 Environmental Consequences

An evaluation of potential hazardous waste impacts associated with each alternative is presented below.

As previously discussed, three AOCs, one HREC, and one REC that may warrant additional investigation or BMPs during construction were identified within the project area.

No Build Alternative

The No Build Alternative would have no surface or subsurface impacts; therefore, it would not create adverse impacts associated with hazardous waste or materials.

Build Alternative (Proposed Project)

The Build Alternative may require the removal of utility poles along Grove Avenue and Holt Boulevard. The poles consist of creosote-treated wood and are considered AOCs. If removed, the poles should be managed as TWW in accordance with the DTSC Alternative Management Standards for TWW. In addition, several utility poles along Grove Avenue have overhead transformers mounted on them. Historically, pole-mounted transformers have contained PCBs, which need to be profiled and managed appropriately, if present.

The Build Alternative would require the removal of multiple residential structures and, depending on the structures' age, they may contain ACM and LBP. The presence of these materials would need to be investigated prior to removal of the structures to comply with environmental and worker safety regulatory requirements for ACM and LBP.

Additionally, two properties identified for acquisition present potential hazardous waste issues:

- 1194 E. Holt Boulevard: The partial acquisition property located at 1194 E. Holt Boulevard is listed as a LUST Cleanup Site. The cleanup status is shown as "Completed – Case Closed" as of October 2000. The San Bernardino Case Closure Summary reports that eight 10,000-gallon tanks once operated on the property. Total petroleum hydrocarbons (TPH) as gasoline and diesel and BTEX were detected in soil at the property. Although it has been reported that the contaminated soil was removed from the property, the potential for residual contamination exists. 1194 E. Holt Boulevard is considered an HREC.
- 1111 E. Holt Boulevard: Illegal disposal of hazardous liquid waste to soil is documented by the San Bernardino County Fire Department for this property. The precise location where these illicit activities occurred is unknown; however, residual contamination likely still exists in the soil on this property. 1111 E. Holt Boulevard is considered an REC.

The proposed project would not create a significant hazard to the public or environment through transport, use, or disposal of hazardous materials because the project is not expected to produce a large amount of hazardous waste, and BMPs and industry standards would be utilized while handling and transporting any project-related hazardous materials. In addition, project activities, especially those that are identified as being near potential hazardous waste concerns, are not located near schools or airstrips. Lastly, there is no potential for the project to interfere with an adopted emergency response or evacuation plan, and there are no wildlands in the project vicinity.

2.2.5.4 Avoidance, Minimization, and/or Mitigation Measures

Although it has not been proven that hazardous waste may exist on the aforementioned properties, the following minimization measure is used to address the potential adverse hazardous waste impacts to the project area.

HW-1: Prior to property acquisition, limited soil investigations at 1194 E. Holt Boulevard and 1111 E. Holt Boulevard will be performed to determine the presence of compromised soils. If any compromised soils are present, they shall be removed and disposed of per regulatory requirements.

2.2.6 Air Quality

This section evaluates potential air quality impacts related to construction and operational activities associated with the project by determining whether the project would:

- Exceed established construction emission thresholds of significance;
- Cause a carbon monoxide (CO) or particulate matter (PM) hot spot;
- Violate any ambient air quality standard, contribute substantially to an existing or projected violation, or expose sensitive receptors to substantial pollution concentrations; or
- Have a significant effect on the environment from a cumulative standpoint.

This section provides information to make a conformity determination on a regional and project-level basis.

2.2.6.1 Regulatory Setting

The FCAA, as amended, is the primary federal law that governs air quality, while the California Clean Air Act (CCAA) is its companion state law. These laws, and related regulations by EPA and the California Air Resources Board (ARB), set standards for the concentration of pollutants in the air. At the federal level, these standards are called National Ambient Air Quality Standards (NAAQS). NAAQS and State ambient air quality standards have been established for six transportation-related criteria pollutants that have been linked to potential health concerns: CO, nitrogen dioxide (NO_2), ozone (O_3), PM—which is broken down for regulatory purposes into particles of 10 micrometers or smaller (PM_{10}) and particles of 2.5 micrometers and smaller ($PM_{2.5}$)—and sulfur dioxide (SO_2). In addition, national and State standards exist for Pb, and State standards exist for visibility reducing particles, sulfates, hydrogen sulfide (H_2S), and vinyl chloride. The NAAQS and State standards are set at levels that protect public health with a margin of safety and are subject to periodic review and revision. Both State and federal regulatory schemes also cover toxic air contaminants (air toxics); some criteria pollutants are also air toxics or may include certain air toxics in their general definition.

Federal air quality standards and regulations provide the basic scheme for project-level air quality analysis under NEPA. In addition to this environmental analysis, a parallel "Conformity" requirement under the FCAA also applies.

Conformity

The conformity requirement is based on FCAA Section 176(c), which prohibits USDOT and other federal agencies from funding, authorizing, or approving plans, programs, or projects that do not conform to State Implementation Plan (SIP) for attaining the NAAQS. "Transportation Conformity" applies to highway and transit projects and takes place on two levels: the regional (or planning and programming) level and the project level. The proposed project must conform at both levels to be approved.

Conformity requirements apply only in nonattainment and "maintenance" (former nonattainment) areas for the NAAQS, and only for the specific NAAQS that are or were violated. EPA regulations at 40 CFR 93 govern the conformity process. Conformity requirements do not apply in unclassifiable/attainment areas for NAAQS and do not apply at all for State standards regardless of the status of the area.

Regional conformity is concerned with how well the regional transportation system supports plans for attaining the NAAQS for CO, NO_2, O_3, PM_{10}, $PM_{2.5}$, and in some areas (although not in California), SO_2. California has nonattainment or maintenance areas for all of these transportation-related "criteria pollutants" except SO_2, and also has a nonattainment area for Pb; however, Pb is not currently required by the FCAA to be covered in transportation conformity analysis. Regional conformity is based on emission analysis of RTPs and Federal Transportation Improvement Programs (FTIPs) that include all transportation projects planned for a region over a period of at least 20 years (for the RTP) and 4 years (for the FTIP). RTP and FTIP conformity uses travel demand and emission models to determine whether or not the implementation of those projects would conform to emission budgets or other tests at various analysis years showing that requirements of the FCAA and the SIP are met. If the conformity analysis is successful, the MPO, FHWA, and Federal Transit Administration (FTA) make the determinations that the RTP and FTIP are in conformity with the SIP for achieving the goals of the FCAA. Otherwise, the projects in the RTP and/or FTIP must be modified until conformity is attained. If the design concept and scope and the "open-to-traffic" schedule of a proposed transportation project are the same as described in the RTP and FTIP, then the proposed project meets regional conformity requirements for purposes of project-level analysis.

Project-level conformity is achieved by demonstrating that the project comes from a conforming RTP and FTIP; the project has a design concept and scope[7] that has not changed significantly from those in the RTP and FTIP; project analyses have used the latest planning assumptions and EPA-approved emissions models; and in PM areas, the project complies with any control measures in the SIP. Furthermore, additional analyses (known as hot-spot analyses) may be required for projects located in CO and PM nonattainment or maintenance areas to examine localized air quality impacts.

2.2.6.2 Affected Environment

Information described in this section comes from the *Air Quality Report* (February 2017) for the project. Detailed analysis methodology, modeling files, and calculation worksheets can be found in the *Air Quality Report* (February 2017).

The project site is located within the South Coast Air Basin (Basin). The topography and climate within the Basin make it an area of high air pollution potential. The Basin is a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean to the west and high mountains around the rest of the perimeter. The general region lies in the semipermanent high-pressure zone of the eastern Pacific, resulting in a mild climate tempered by cool sea breezes with light average wind speeds. During the summer months, a warm air mass frequently descends over the cool, moist marine layer produced by the interaction between the ocean's surface and the lowest layer of the atmosphere. The warm upper layer forms a cap over the cool marine layer and inhibits the pollutants in the marine layer from dispersing upward. In addition, light winds during the summer further limit ventilation, and sunlight triggers the photochemical reactions that produce O_3.

Attainment Status

Federal, State, and local agencies have established ambient air quality standards for six criteria pollutants: CO, O_3, PM_{10}, $PM_{2.5}$, NO_2, SO_2, and Pb, as presented in Table 2.2.6-1. O_3 and PM are generally considered regional pollutants because they or their precursors affect air quality on a regional scale. Pollutants such as CO, PM, NO_2, SO_2, and Pb are considered local pollutants because they tend to accumulate in the air locally. The Basin air quality status is summarized in Table 2.2.6-2.

[7] "Design concept" means the type of facility that is proposed, such as a freeway or arterial highway. "Design scope" refers to those aspects of the project that would clearly affect capacity and thus any regional emissions analysis, such as the number of lanes and the length of the project.

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Ozone (O_3)	1 hour	0.09 ppm[3]	--- [4]	High concentrations irritate lungs. Long-term exposure may cause lung tissue damage and cancer. Long-term exposure damages plant materials and reduces crop productivity. Precursor organic compounds include many known toxic air contaminants. Biogenic VOC may also contribute.	Low-altitude O_3 is almost entirely formed from reactive organic gases (ROG)/VOC and nitrogen oxides (NOx) in the presence of sunlight and heat. Common precursor emitters include motor vehicles and other internal combustion engines, solvent evaporation, boilers, furnaces, and industrial processes.	Nonattainment (1-hour) Nonattainment (8-hour)	Nonattainment/ Extreme (1-hour)
	8 hours	0.070 ppm	0.070 ppm (4th highest in 3 years)				
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	CO interferes with the transfer of oxygen to the blood and deprives sensitive tissues of oxygen. CO also is a minor precursor for photochemical O_3. Colorless, odorless.	Combustion sources, especially gasoline-powered engines and motor vehicles. CO is the traditional signature pollutant for on-road mobile sources at the local and neighborhood scale.	Attainment	Attainment/ Maintenance
	8 hours	9.0 ppm [1]	9 ppm				
	8 hours (Lake Tahoe)	6 ppm	---				
Respirable Particulate Matter (PM_{10})[5]	24 hours	50 µg/m^3 [6]	150 µg/m^3 (expected number of days above standard < or equal to 1)	Irritates eyes and respiratory tract. Decreases lung capacity. Associated with increased cancer and mortality. Contributes to haze and reduced visibility. Includes some toxic air contaminants. Many toxic & other aerosol and solid compounds are part of PM_{10}.	Dust- and fume-producing industrial and agricultural operations; combustion smoke & vehicle exhaust; atmospheric chemical reactions; construction and other dust-producing activities; unpaved road dust and re-entrained paved road dust; natural sources.	Nonattainment	Attainment/ Maintenance
	Annual	20 µg/m^3	--- [5]				

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Fine Particulate Matter ($PM_{2.5}$)[5]	24 hours	---	35 µg/m^3	Increases respiratory disease, lung damage, cancer, and premature death. Reduces visibility and produces surface soiling. Most diesel exhaust particulate matter – a toxic air contaminant – is in the $PM_{2.5}$ size range. Many toxic & other aerosol and solid compounds are part of $PM_{2.5}$.	Combustion including motor vehicles, other mobile sources, and industrial activities; residential and agricultural burning; also formed through atmospheric chemical and photochemical reactions involving other pollutants including NOx, sulfur oxides (SOx), ammonia, and ROG.	Nonattainment	Nonattainment
	Annual	12 µg/m^3	12.0 µg/m^3				
	24 hours (conformity process[7])	---	65 µg/m^3				
	Secondary Standard (annual; also for conformity process[5])	---	15 µg/m^3 (98th percentile over 3 years)				
Nitrogen Dioxide (NO_2)	1 hour	0.18 ppm	0.100 ppm[8]	Irritating to eyes and respiratory tract. Colors atmosphere reddish-brown. Contributes to acid rain & nitrate contamination of stormwater. Part of the "NOx" group of O_3 precursors.	Motor vehicles and other mobile or portable engines, especially diesel; refineries; industrial operations.	Attainment	Attainment/ Maintenance
	Annual	0.030 ppm	0.053 ppm				
Sulfur Dioxide (SO_2)	1 hour	0.25 ppm	0.075 ppm[9] (99th percentile over 3 years)	Irritates respiratory tract; injures lung tissue. Can yellow plant leaves. Destructive to marble, iron, steel. Contributes to acid rain. Limits visibility.	Fuel combustion (especially coal and high-sulfur oil), chemical plants, sulfur recovery plants, metal processing; some natural sources like active volcanoes. Limited contribution possible from heavy-duty diesel vehicles if ultra-low sulfur fuel not used.	Attainment	Attainment
	3 hours	---	0.5 ppm[10]				
	24 hours	0.04 ppm	0.14 ppm (for certain areas)				
	Annual	---	0.030 ppm (for certain areas)				

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status
Lead (Pb)[11]	Monthly	1.5 µg/m^3	---	Disturbs gastrointestinal system. Causes anemia, kidney disease, and neuromuscular and neurological dysfunction. Also a toxic air contaminant and water pollutant.	Lead-based industrial processes like battery production and smelters. Lead paint, leaded gasoline. Aerially deposited lead from older gasoline use may exist in soils along major roads.	Nonattainment	Nonattainment
	Calendar Quarter	---	1.5 µg/m^3 (for certain areas)				
	Rolling 3-month average	---	0.15 µg/m^3 [12]				
Sulfate	24 hours	25 µg/m^3	---	Premature mortality and respiratory effects. Contributes to acid rain. Some toxic air contaminants attach to sulfate aerosol particles.	Industrial processes, refineries and oil fields, mines, natural sources like volcanic areas, salt-covered dry lakes, and large sulfide rock areas.	Attainment	N/A
Hydrogen Sulfide (H_2S)	1 hour	0.03 ppm	---	Colorless, flammable, poisonous. Respiratory irritant. Neurological damage and premature death. Headache, nausea. Strong odor.	Industrial processes such as refineries and oil fields, asphalt plants, livestock operations, sewage treatment plants, and mines. Some natural sources such as volcanic areas and hot springs.	Unclassified	N/A
Visibility-Reducing Particles (VRP)	8 hours	Visibility of 10 miles or more (Tahoe: 30 miles) at relative humidity less than 70%	---	Reduces visibility. Produces haze. NOTE: Not directly related to the Regional Haze program under the FCAA, which is oriented primarily toward visibility issues in National Parks and other "Class I" areas. However, some issues and measurement methods are similar.	See particulate matter above. May be related more to aerosols than to solid particles.	Unclassified	N/A

Table 2.2.6-1: State and Federal Criteria Air Pollutant Standards, Effects, and Sources

Pollutant	Averaging Time	State[1] Standard	Federal[2] Standard	Principal Health and Atmospheric Effects	Typical Sources	State Project Area Attainment Status	Federal Project Area Attainment Status

Adapted from Sonoma-Marin Narrows Draft EIR and California ARB Air Quality Standards chart (http://www.arb.ca.gov/research/aaqs/aaqs2.pdf).

Greenhouse Gases and Climate Change: Greenhouse gases do not have concentration standards for that purpose. Conformity requirements do not apply to greenhouse gases.

1 State standards are "not to exceed" or "not to be equaled or exceeded" unless stated otherwise.

2 Federal standards are "not to exceed more than once a year" or as described above.

3 ppm = parts per million

4 Prior to June 2005, the 1-hour O_3 NAAQS was 0.12 ppm. Emission budgets for 1-hour O_3 are still in use in some areas where 8-hour O_3 emission budgets have not been developed, such as the San Francisco Bay Area.

5 Annual PM_{10} NAAQS revoked October 2006; was 50 µg/m^3. 24-hour. $PM_{2.5}$ NAAQS tightened October 2006; was 65 µg/m^3. Annual $PM_{2.5}$ NAAQS tightened from 15 µg/m^3 to 12 µg/m^3 December 2012 and secondary annual standard set at 15 µg/m^3.

6 µg/m^3 = micrograms per cubic meter

7 The 65 µg/m^3 $PM_{2.5}$ (24-hour) NAAQS was not revoked when the 35 µg/m^3 NAAQS was promulgated in 2006. The 15 µg/m^3 annual $PM_{2.5}$ standard was not revoked when the 12 µg/m^3 standard was promulgated in 2012. The 0.08 ppm 1997 O_3 standard is revoked FOR CONFORMITY PURPOSES ONLY when area designations for the 2008 0.75 ppm standard become effective for conformity use (July 20, 2013). Conformity requirements apply for all NAAQS, including revoked NAAQS, until emission budgets for newer NAAQS are found adequate, SIP amendments for the newer NAAQS are approved with an emission budget, EPA specifically revokes conformity requirements for an older standard, or the area becomes attainment/unclassified. SIP-approved emission budgets remain in force indefinitely unless explicitly replaced or eliminated by a subsequent approved SIP amendment. During the "Interim" period prior to availability of emission budgets, conformity tests may include some combination of build versus no build, build versus baseline, or compliance with prior emission budgets for the same pollutant.

8 Final 1-hour NO_2 NAAQS published in the *Federal Register* on February 9, 2010, effective March 9, 2010. Initial area designation for California (2012) was attainment/ unclassifiable throughout. Project-level hot spot analysis requirements do not currently exist. Near-road monitoring starting in 2013 may cause redesignation to nonattainment in some areas after 2016.

9 EPA finalized a 1-hour SO_2 standard of 75 ppb (parts per billion [thousand million]) in June 2010. Nonattainment areas have not yet been designated as of September 2012.

10 Secondary standard, set to protect public welfare rather than health. Conformity and environmental analysis address both primary and secondary NAAQS.

11 ARB has identified vinyl chloride and the PM fraction of diesel exhaust as toxic air contaminants. Diesel exhaust PM is part of PM_{10} and, in larger proportion, $PM_{2.5}$. Both ARB and EPA have identified Pb and various organic compounds that are precursors to O_3 and $PM_{2.5}$ as toxic air contaminants. There are no exposure criteria for adverse health effect due to toxic air contaminants, and control requirements may apply at ambient concentrations below any criteria levels specified above for these pollutants or the general categories of pollutants to which they belong.

12 Lead NAAQS are not considered in Transportation Conformity analysis.

Regional air quality is monitored locally by the South Coast Air Quality Management District (SCAQMD) in conjunction with ARB. These two agencies operate a network of approximately nine air quality monitoring stations throughout the Basin. SCAQMD relies on one or more monitoring stations to document local air pollutant concentration levels. EPA determines regional air quality status based on data collected from permanent monitoring stations. An area is classified as “attainment" if the primary NAAQS have been achieved and "nonattainment" if the NAAQS are not achieved. Within the project area, NO_2 and SO_2, are currently in attainment with federal and State standards. CO and PM_{10} are currently characterized as a maintenance area, while $PM_{2.5}$, O_3, and Pb are designated as nonattainment. The Basin air quality status is summarized in Table 2.2.6-2.

Table 2.2.6-2. South Coast Air Basin Attainment Status

Pollutant	Attainment Status	
	Federal Standards	State Standards
Ozone (1-hour)	No Federal Standard	Nonattainment
Ozone (8-hour)	Nonattainment/Extreme	Nonattainment
PM_{10}	Attainment/Maintenance	Nonattainment
$PM_{2.5}$	Nonattainment	Nonattainment
Carbon Monoxide	Attainment/Maintenance	Attainment
Nitrogen Dioxide	Attainment/Maintenance	Attainment
Sulfur Dioxide	Attainment	Attainment
Sulfates	N/A	Attainment
Lead	Attainment	Attainment
Hydrogen Sulfide	N/A	Unclassified
Visibility Reducing Particles	N/A	Unclassified
Vinyl	N/A	Unclassified

Source: ARB, 2013; EPA, 2016.

2.2.6.3 Environmental Consequences

An evaluation of potential air quality impacts associated with each alternative is presented below.

Regional Conformity

The Basin is in nonattainment of NAAQs for O_3 and $PM_{2.5}$; thus, the project is not exempt from conformity, nor is it exempt from regional conformity. However, the project site is located within an area that has an MPO (i.e., SCAG). The proposed project is listed in the 2012-2035 financially constrained RTP/SCS, which was found to conform by SCAG on April 4, 2012, and FHWA and FTA made a regional

conformity determination finding on July 15, 2013. The proposed project is also included in the SCAG financially constrained 2017 FTIP listed on page 6 of the San Bernardino County Project Listings. The SCAG 2015 FTIP was also determined to conform by FHWA and FTA on December 15, 2014. The design concept and scope of the proposed project are consistent with the project description in the 2012-2035 RTP, the 2015 FTIP, and the "open to traffic" assumptions of SCAG's regional emission analysis.

The proposed project would not conflict with or obstruct implementation of the SCAQMD 2016 Air Quality Management Plan (AQMP). Construction and operation of the proposed project would not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

Project-Level Conformity

Widening the Grove Avenue corridor would relieve traffic congestion and delay time at local intersections and would improve circulation to accommodate future traffic increases. These project improvements are considered to provide a minimal impact to air quality in the surrounding area. The pollutants of concern when analyzing transportation project-level impacts are CO, PM_{10}, and $PM_{2.5}$ because these pollutants have a tendency to accumulate around intersections with heavy traffic congestion where vehicles are traveling at slower speeds.

Carbon Monoxide Analysis

The project is located in a CO maintenance area; therefore, federal air quality conformity standards must demonstrate that transportation activities associated with the project would not cause new air quality violations, worsen existing violations, or delay timely attainment of the NAAQS. The proposed project is not included in the exempt projects list from Table 2 of the 40 CFR 93.126. Therefore, to determine the CO modeling requirements for a new project, the proposed project must utilize the first flow chart provided in the Caltrans' guidance document, *Transportation Project-Level Carbon Monoxide Protocol (CO Protocol)* (UCD, 1997). The results of the flow chart are provided in the *Air Quality Report* (February 2017); however, the questions relevant to the project and the answers to those questions are as follows:

- Is the project exempt from all emissions analysis? NO. This project is not exempt from all emissions analysis. This proposed project type is not listed in Table 2 of 40 CFR 93.126

- Is the project exempt from regional emissions analysis? NO. This project is not exempt from all regional emissions analysis. This proposed project type is not listed in Table 3 of 40 CFR 93.126.
- Is the project defined as regionally significant? YES. This project is defined as a regionally significant project.
- Is the project located in a federal attainment area? NO. The project alignment is located in the Basin, which is a federal attainment/maintenance area with respect to CO; however, the Basin is classified nonattainment for pollutants O_3 and $PM_{2.5}$. If a project area is not classified attainment for all transportation-related criteria pollutants, the project is subject to a regional conformity determination.
- Is there a currently conforming RTP and RTIP? YES. The 2012-2035 RTP and 2015 FTIP.
- Is the project included in the regional emissions analysis supporting the currently conforming RTP and TIP? YES. The proposed project is listed in both the SCAG 2012–2035 RTP and the SCAG 2015 FTIP Amendment 4 under project ID number 2002160. The 2012–2035 RTP was approved by FHWA on April 4, 2012. The 2015 FTIP was approved by FHWA on April 8, 2015.
- Has the project design concept and/or scope changed significantly from that in the regional analysis? NO. Neither the project design concept nor scope has changed from that in the regional analysis.

The conclusion from this flow chart of questions and answers is that the project needs to be examined for its local air quality impacts. Based on the answers to the first flow chart, a second flow chart is used to determine the level of local CO impact analysis required for the project. The second flow chart is provided in the *Air Quality Report* (February 2017). The questions applicable to the project in the second flow chart and the answers to those questions are as follows.

- Level 1: Is the project in a CO nonattainment area? NO. As shown previously in Table 2-1, the Basin is classified as an attainment/maintenance area for the federal CO standards.
- Level 1: Was the area redesignated as "attainment" after the 1990 Clean Air Act? YES. The Basin was redesignated to attainment/maintenance from serious nonattainment, effective June 11, 2007.
- Level 1: Has "continued attainment" been verified with the local Air District, if appropriate? YES. The Basin has continually met the federal ambient air quality standards for CO. (Proceed to Level 7)

- Level 7: Does the project worsen air quality? NO. There is zero percent increase in VMT from no-build and build conditions for the proposed project; however, there is a 30 and 51 percent increase from existing to future 2025 and 2045 conditions, respectively. In addition, there are signalized intersections within the project corridor that operate at LOS E or F. Therefore, to satisfy air quality conformity requirements, air quality modeling was used to demonstrate whether any new violations are likely to occur or if existing conditions would worsen as a result of the project.

No Build Alternative

No project improvements are proposed under the No Build Alternative. Therefore, the No Build Alternative was not required to address the flow chart provided in the Caltrans' guidance. However, under the Build Alternative CO hot-spot analysis, emissions generated from the Build Alternative will be compared to no-build conditions to determine project impacts.

Build Alternative (Proposed Project)

For the Build Alternative, there is zero percent increase in VMT from no-build and build conditions; however, there is a 30 and 51 percent increase from existing to future 2025 and 2045 conditions, respectively. In addition, there are signalized intersections within the project corridor that operate at LOS E or F. Therefore, to satisfy air quality conformity requirements, air quality modeling was used to demonstrate whether any new violations are likely to occur or if existing conditions would worsen as a result of the project.

Seven intersections were screened using LOS and traffic data estimates to identify their potential to create a CO hot spot. In general, the project would improve traffic flow and increase average vehicle speeds along Grove Avenue relative to the no-build condition. The project would either improve or have little to no effect on the overall performance of the screened intersections based on VMT volumes. Although one intersection (Grove Avenue/State Street-Airport Drive) would experience a slight (3.5 percent) increase in VMT, the project is anticipated to have a minimal impact on existing air quality.

The CO Protocol recommends performing further analysis at signalized intersections where the LOS is downgraded to E or F as a result of the project. Using this criterion and considering overall peak-hour volumes of traffic through the intersections, the following seven intersections were identified as areas where potential CO hot spots could occur:

- Grove Avenue/4th Street
- Grove Avenue/I Street
- Grove Avenue/G Street
- Grove Avenue/D Street
- Grove Avenue/Holt Boulevard
- Grove Avenue/State Street-Airport Drive
- Grove Avenue/Mission Boulevard

Intersection LOS and traffic delay in the AM and PM peak hour under the No Build Alternative and Build Alternative in 2045 are shown in Table 2.2.6-3.

Table 2.2.6-3. 2045 Intersections LOS and Traffic Delay

	AM Peak Hour		PM Peak Hour	
	Delay (seconds)	LOS	Delay (seconds)	LOS
No Build				
Grove Avenue/4th Street	51.2	D	117.4	F
Grove Avenue/I Street	8.0	A	7.5	A
Grove Avenue/G Street	11.1	B	20.6	C
Grove Avenue/D Street	18.3	B	14.8	B
Grove Avenue/Holt Boulevard	213.8	F	352.9	F
Grove Avenue/State Street-Airport Drive	88.3	F	83.2	F
Grove Avenue/Mission Boulevard	117.1	F	265.6	F
Build Alternative (Proposed Project)				
Grove Avenue/4th Street	49.4	D	47.8	D
Grove Avenue/I Street	5.9	A	5.0	A
Grove Avenue/G Street	11.5	B	10.9	B
Grove Avenue/D Street	7.6	A	6.9	A
Grove Avenue/Holt Boulevard	61.3	E	59.5	E
Grove Ave/State Street-Airport Drive	39.2	D	71.8	E
Grove Avenue/Mission Boulevard	95.5	F	233.7	F

Out of the seven intersections that were screened, three intersections were identified as the worst-case scenario and required hot-spot modeling analysis to determine CO concentrations. It is assumed that if these intersections show CO concentrations are below the NAAQS, then all other affected intersections would not cause hot spots.

- Grove Avenue/Holt Boulevard
- Grove Ave/State Street-Airport Drive
- Grove Avenue/Mission Boulevard

The CO hot spot modeling was performed according to the methodology outlined in the CO Protocol. The CO emission factors were calculated with ARB's EMFAC2011. CO concentrations were calculated using Caltrans' CALINE4. CO concentrations were estimated using traffic data obtained from the *Traffic Operations Analysis* prepared by Iteris (January 2015). CALINE4 models were created for existing and future no-build and build conditions (2025 and 2045). CALINE4 modeling output results are presented in Appendix A of the *Air Quality Report* prepared for this project.

Maximum 1-hour and 8-hour CO concentrations were estimated at each of the three intersections for existing year (2015) and for the No Build Alternative and Build Alternative during the year of opening 2025 and the horizon year 2045. Modeled CO concentrations were combined with current ambient CO background concentrations (obtained from SCAQMD Web site) and compared to the 1-hour and 8–hour CO NAAQS, as shown in Table 2.2.6-4.

Table 2.2.6-4. Maximum Predicted CO Concentrations with Background

Intersections	Existing	2025 No Build	2025 Build	2045 No Build	2045 Build
	1-hour CO Concentrations				
	State Standards – 20 ppm				
	Federal Standards – 35 ppm				
Grove Avenue/Holt Boulevard	3.6	3.5	3.4	3.7	3.4
Grove Avenue/State Street-Airport Drive	3.8	3.5	3.5	3.5	3.5
Grove Avenue/Mission Boulevard	3.5	3.4	3.4	3.5	3.5
Intersections	8-hour CO Concentrations				
	Federal Standards – 9 ppm				
Grove Avenue/Holt Boulevard	2.2	2.2	2.1	2.3	2.1
Grove Avenue/State Street-Airport Drive	2.4	2.2	2.2	2.2	2.2
Grove Avenue/Mission Boulevard	2.2	2.1	2.1	2.2	2.2

Results from the CO hot-spot modeling analysis demonstrate that under the No Build Alternative and Build Alternative, CO concentrations are expected to remain generally unchanged and are below the 1-hour and 8-hour NAAQS of 35 parts per million (ppm)

and 9 ppm, respectively. Because improvements from the project are not expected to noticeably change overall traffic volumes, vehicular flow near intersections is improved, which reduces the accumulation of localized concentrations of CO. It is anticipated that the project would not contribute to a violation of CO standards; therefore, local CO project-level transportation conformity requirements would be satisfied. Detailed CO hot-spot modeling files are shown in Appendix B of the *Air Quality Report;* associated emission factor output is also included in Appendix B of the *Air Quality Report.*

Particulate Matter Analysis

The project is located in San Bernardino County, which is designated as nonattainment for $PM_{2.5}$ and a maintenance area for PM_{10}; therefore, the proposed project must undergo transportation conformity requirements for PM_{10} and $PM_{2.5}$. The analysis was performed following the guidance provided by Caltrans and EPA's *Transportation Conformity Guidance for Quantitative Hot-Spot Analyses in $PM_{2.5}$ and PM_{10} Nonattainment and Maintenance Areas* (EPA, 2013) to satisfy conformity requirements. To determine if a project would require a $PM_{2.5}$ and PM_{10} hot-spot analysis, EPA specifies in 40 CFR 93.123(b)(1) that only Projects of Air Quality Concern (POAQCs) are required to undergo a $PM_{2.5}$ and PM_{10} hot-spot analysis.

No Build Alternative

No project improvements are proposed under the No Build Alternative. Therefore, the No Build Alternative was not required to undergo a $PM_{2.5}$ and PM_{10} hot-spot analysis. However, under the Build Alternative $PM_{2.5}$ and PM_{10} hot-spot analysis, emissions generated from the Build Alternative will be compared to no-build conditions to determine project impacts.

Build Alternative (Proposed Project)

A discussion of the proposed project compared to projects of air quality concern, as defined by 40 CFR 93.123(b)(1), is provided in the *Air Quality Report* (February 2017).

Upon reviewing the project's traffic data, it was determined that the average daily traffic (ADT) estimated for the future Build Alternative does not classify the project as a POAQC. However, due to the nonattainment status of $PM_{2.5}$ and maintenance status of PM_{10}, the proposed project was required to undergo interagency consultation with SCAG's Transportation Conformity Working Group (TCWG). On April 28, 2015, the TCWG provided concurrence that the project was not a POAQC based on the $PM_{2.5}$ and PM_{10} review forms that were submitted, as shown in Appendix A of the *Air Quality Report* (February 2017). Also provided in Appendix A of the *Air Quality Report* is the

TCWG's confirmation that the proposed project in not a POAQC and does not require a hot-spot analysis to be performed.

Traffic volumes at the intersections of Grove Avenue/Holt Boulevard and Grove Avenue/State Street-Airport Drive would exceed the 125,000 average daily trips criteria for a POAQC, as shown in Table 2.2.6-5; however, the total vehicles and truck average annual daily traffic (AADT) would decrease from the Build Alternative at these intersections. The total truck percentages along Grove Avenue from 4th Street to State Street-Airport Drive would not exceed the 8 percent criteria, and the total truck AADT would not exceed the 10,000-vehicle criteria for POAQC. Truck percentages are 4 percent on Grove Avenue between 4th Street and State Street-Airport Drive, as land uses within this area are primarily residential, outdoor recreational use areas, and a few commercial properties. The future traffic volumes along Grove Avenue are shown in Tables 2.2.6-5 and 2.2.6-6.

Table 2.2.6-5. 2025 Average Daily Traffic Volumes

2025 Conditions	AADT	Truck AADT	Diesel Truck Percentage
No Build			
Grove Avenue/4th Street	86,276	3,710	4
Grove Avenue/I Street	49,892	2,145	4
Grove Avenue/G Street	59,478	2,260	4
Grove Avenue/D Street	57,953	2,202	4
Grove Avenue/Holt Boulevard	120,918	4,595	4
Grove Avenue/State Street-Airport Drive	100,656	3,825	4
Build Alternative			
Grove Avenue/4th Street	93,030	4,000	4
Grove Avenue/I Street	56,428	2,426	4
Grove Avenue/G Street	62,964	2,393	4
Grove Avenue/D Street	61,003	2,318	4
Grove Avenue/Holt Boulevard	118,957	4,520	4
Grove Avenue/State Street-Airport Drive	104,142	3,957	4

Table 2.2.6-6. 2045 Average Daily Traffic Volumes

2045 Conditions	AADT	Truck AADT	Diesel Truck Percentage
No Build			
Grove Avenue/4th Street	111,332	4,787	4
Grove Avenue/I Street	64,060	2,755	4
Grove Avenue/G Street	80,830	3,072	4
Grove Avenue/D Street	78,433	2,980	4
Grove Avenue/Holt Boulevard	175,385	6,665	4
Grove Avenue/State Street-Airport Drive	134,643	5,116	4
Build Alternative			
Grove Avenue/4th Street	103,052	4,431	4
Grove Avenue/I Street	69,507	2,989	4
Grove Avenue/G Street	79,522	3,022	4
Grove Avenue/D Street	77,562	2,947	4
Grove Avenue/Holt Boulevard	168,413	6,400	4
Grove Avenue/State Street-Airport Drive	131,811	5,009	4

Even though the project is not a POAQC, the project area is designated as nonattainment for $PM_{2.5}$ and maintenance for PM_{10}; therefore, further evaluation was performed to assess the project's influence on the change in PM emissions at a localized level from existing to future no build and build. This emissions trend information will be utilized to predict whether the project would cause or contribute to any new localized PM_{10} or $PM_{2.5}$ violations, or increase the frequency or severity of any existing violations, or delay timely attainment of the PM_{10} or $PM_{2.5}$ NAAQS. Caltrans' CT-EMFAC was used to estimate $PM_{2.5}$ and PM_{10} emissions generated from operation of the project.

As shown in Table 2.2.6-7, predicted PM emission levels trend lower from existing to the future no-build years 2025 and 2045. These PM emission decreases are attributable to enhanced fuel emission control programs implemented on a federal, State, and local level. The project provides further reductions in PM emissions by enhancing traffic flow and reducing the wait time at signalized intersections minimizing brake use and tire wear under the Build Alternative. It is anticipated that the project would not worsen existing air quality, cause an exceedance, or cause any new violations of the $PM_{2.5}$ and PM_{10} standards. PM project-level transportation conformity requirements are satisfied. Detailed EMFAC2011 PM hot-spot modeling output results are shown in Appendix B of the *Air Quality Report*.

Table 2.2.6-7. Maximum $PM_{10}/PM_{2.5}$ Emissions (pounds per day)

Pollutant	Existing	2025 No Build	2025 Build	2045 No Build	2045 Build
Grove Avenue/Holt Boulevard	329	163	161	187	149
Grove Avenue/State Street-Airport Drive	297	117	121	119	117
Grove Avenue/Mission Boulevard	396	171	162	169	162

Mobile Source Air Toxics Analysis

FHWA recommends a range of options deemed appropriate for addressing and documenting the mobile source air toxics (MSAT) issue in NEPA documents. These include:

- No analysis required for projects with no potential for meaningful MSAT effects—Applicable for categorically excluded projects under CFR Chapter 23, Section 771.17(c); exempt projects under CFR Chapter 40, Section 93.126; or projects with no meaningful impacts on traffic volumes or vehicle mix.
- Qualitative analysis required for projects with low potential MSAT effects—Projects that serve to improve operations of highway, transit, or freight without adding substantial new capacity or without creating a facility that is likely to meaningfully increase emissions.
- Quantitative analysis for projects that have the potential for meaningful differences in MSAT emissions among project alternatives. To fall into this category, a project should:
  - Create or significantly alter a major intermodal freight facility that has the potential to concentrate high levels of diesel particulate matter (DPM) in a single location, involving a significant number of diesel vehicles for new projects, or accommodating with a significant increase in the number of diesel vehicles for expansion projects; or
  - Create new capacity or add significant capacity to urban highways such as interstates, urban arterials, or urban collector-distributor routes with traffic volumes where the AADT is projected to be in the range of 140,000 to 150,000 or greater by the design year; and also
  - Proposed to be located in proximity to populated areas.

Upon review of the Build Alternative and the FHWA guidance categories described above, the project is classified as a minor widening project and may have potential

MSAT effects, but it has a low potential for MSAT effects; therefore, a qualitative analysis is appropriate for assessing MSAT impacts from operation of the project.

No Build Alternative

No project improvements are proposed under the No Build Alternative. Therefore, an MSAT analysis was not required for the No Build Alternative.

Build Alternative (Proposed Project)

For the Build Alternative, the amount of MSAT emitted would be proportional to the AADT, assuming that other variables, such as fleet mix, are the same for each alternative. Because the AADT estimated for the No Build Alternative is higher than for the Build Alternative, higher levels of MSAT are not expected from the Build Alternative compared to the No Build Alternative, as previously shown in Tables 2.2.6-5 and 2.2.6-6. In addition, emissions from the Build Alternative would likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce annual MSAT emissions by more than 80 percent from 2010 to 2050. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures; however, the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions are likely to be lower in the future in virtually all locations.

In sum, under the Build Alternative in the design year, it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build Alternative, due to the reduced AADT associated with more direct routing and due to EPA's MSAT reduction programs.

CEQ Provisions (Incomplete/Unavailable Information, Project-Specific MSAT Health Impacts)

In FHWA's view, information is incomplete or unavailable to credibly predict the project-specific health impacts due to changes in MSAT emissions associated with a proposed set of highway alternatives. The outcome of such an assessment, adverse or not, would be influenced more by the uncertainty introduced into the process through assumption and speculation rather than any genuine insight into the actual health impacts directly attributable to MSAT exposure associated with a proposed action.

EPA is responsible for protecting the public health and welfare from any known or anticipated effect of an air pollutant. They are the lead authority for administering the FCAA and its amendments and have specific statutory obligations with respect to

hazardous air pollutants and MSAT. EPA is in the continual process of assessing human health effects, exposures, and risks posed by air pollutants. They maintain IRIS, which is "a compilation of electronic reports on specific substances found in the environment and their potential to cause human health effects" (EPA, http://www.epa.gov/iris/). Each report contains assessments of noncancerous and cancerous effects for individual compounds and quantitative estimates of risk levels from lifetime oral and inhalation exposures with uncertainty spanning perhaps an order of magnitude.

Other organizations are also active in the research and analyses of the human health effects of MSAT, including the Health Effects Institute (HEI). Two HEI studies are summarized in Appendix D of FHWA's *Interim Guidance Update on Mobile Source Air Toxic Analysis in NEPA Documents.* Among the adverse health effects linked to MSAT compounds at high exposures are cancer in humans in occupational settings; cancer in animals; and irritation to the respiratory tract, including the exacerbation of asthma. Less obvious is the adverse human health effects of MSAT compounds at current environmental concentrations (HEI, http://pubs.healtheffects.org/view.php?id=282) or in the future as vehicle emissions substantially decrease (HEI, http://pubs.healtheffects.org/view.php?id=306).

The methodologies for forecasting health impacts include emissions modeling; dispersion modeling; exposure modeling; and then final determination of health impacts – each step in the process building on the model predictions obtained in the previous step. All are encumbered by technical shortcomings or uncertain science that prevents a more complete differentiation of the MSAT health impacts among a set of project alternatives. These difficulties are magnified for lifetime (i.e., 70-year) assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology, which affects emissions rates, over that time frame because such information is unavailable.

It is particularly difficult to reliably forecast 70-year lifetime MSAT concentrations and exposure near roadways; to determine the portion of time that people are actually exposed at a specific location; and to establish the extent attributable to a proposed action, especially given that some of the information needed is unavailable.

There are considerable uncertainties associated with the existing estimates of toxicity of the various MSATs because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population, a concern expressed by HEI (http://pubs.healtheffects.org/view.php?id=282).

As a result, there is no national consensus on air dose-response values assumed to protect the public health and welfare for MSAT compounds and, in particular, for DPM. EPA (http://www.epa.gov/risk/basicinformation.htm#g) and HEI (http://pubs.healtheffects.org/getfile.php?u=395) have not established a basis for quantitative risk assessment of DPM in ambient settings.

There is also the lack of a national consensus on an acceptable level of risk. The current context is the process used by EPA as provided by the FCAA to determine whether more stringent controls are required to provide an ample margin of safety to protect public health or to prevent an adverse environmental effect for industrial sources subject to the maximum achievable control technology standards, such as benzene emissions from refineries. The decision framework is a two-step process. The first step requires EPA to determine an "acceptable" level of risk due to emissions from a source, which is generally no greater than approximately 100 in a million. Additional factors are considered in the second step, the goal of which is to maximize the number of people with risks less than 1 in a million due to emissions from a source. The results of this statutory two-step process do not guarantee that cancer risks from exposure to air toxics are less than 1 in a million; in some cases, the residual risk determination could result in maximum individual cancer risks that are as high as approximately 100 in a million. In a June 2008 decision, the U.S. Court of Appeals for the District of Columbia Circuit upheld EPA's approach to addressing risk in its two-step decision framework. Information is incomplete or unavailable to establish that even the largest of highway projects would result in levels of risk greater than deemed acceptable.

Because of the limitations in the methodologies for forecasting health impacts described, any predicted difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with predicting the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against project benefits, such as reducing traffic congestion, accident rates, and fatalities plus improved access for emergency response, that are better suited for quantitative analysis.

Ozone Analysis

The project is located in an area designated as nonattainment for O_3. SCAQMD has established thresholds of significance for O_3 precursors for the operation of transportation projects. In addition, regional plans, programs, and documents that have been federally approved will be utilized in identifying the Basin's proposed activities to reduce O_3 precursor emissions. Additionally, transportation conformity requirements

are satisfied through the inclusion of the project in the conforming regional Interim FTIP.

No Build Alternative

No project improvements are proposed under the No Build Alternative. Therefore, an O_3 analysis was not required for the No Build Alternative.

Build Alternative (Proposed Project)

Operation of the project would have a minimal impact on the Basin with implementation of control measures incorporated from the plans and programs discussed above. Furthermore, the project was incorporated in the conforming Interim 2015 FTIP; therefore, it is anticipated that the project would not worsen existing air quality, or cause an exceedance, or cause any new violations of the O_3 standards. Regional transportation conformity requirements are satisfied through inclusion of the project in the conforming regional Interim 2015 FTIP.

Asbestos

No Build Alternative

No project improvements are proposed under the No Build Alternative. Therefore, the No Build Alternative was not required to address naturally occurring asbestos.

Build Alternative (Proposed Project)

San Bernardino County is not among the counties listed as containing serpentine and ultramafic rock (Governor's Office of Planning and Research, October 26, 2000); therefore, the impact from naturally occurring asbestos during construction of the project would be minimal to none.

Short-Term Construction Impacts

No Build Alternative

No project improvements are proposed under the No Build Alternative. Therefore, no construction impacts were analyzed for the No Build Alternative.

Build Alternative (Proposed Project)

Construction is anticipated to begin in 2024 and last approximately 1 year. During construction, the project would generate pollutants, such as hydrocarbons, NO_X, CO, and suspended PM. A major source of PM would be windblown dust generated during excavation, grading, hauling, and various other activities. The impacts of these activities would vary each day as construction progresses.

Relocation/modification of utilities and drainage facilities within the proposed ROW would include power poles, underground utilities, and storm drains. Utility relocations are expected to be accomplished without interrupting service. Drainage improvements would include installation of operational BMPs.

Construction activities of the project would include limited excavation, grading, hauling, and various other activities needed to construct the project. These activities would generate short-term increases in PM. Dust and odors at some residences very close to the ROW could probably cause occasional annoyance and complaints. In addition, the limited construction activities would limit ROG emissions during the construction period of the project. Therefore, construction of the project is not expected to exceed the ROG thresholds of significance established by SCAQMD.

Other individual projects in the Basin may be under construction simultaneously with the project. Depending on construction schedules and implementation of other projects in the region, fugitive dust and pollutant emissions generated during construction may result in substantial short-term increases in air pollutants. This would contribute to short-term cumulative air quality impacts; however, implementation of construction Best Available Control Measures (BACMs) during site grading activities would reduce fugitive dust emissions to a level that is considered minor.

2.2.6.4 Avoidance, Minimization, and/or Mitigation Measures

Caltrans' Standard Specifications pertaining to dust control and dust palliative requirement is required to be part of all construction contracts and should effectively reduce and control emission impacts during construction. The provisions of the Caltrans' Standard Specifications, Section 7-1.0F "Air Pollution Control" and Section 10 "Dust Control" require the contractor to comply with SCAQMD rules, ordinances, and regulations. SCAQMD Rule 403 (Fugitive Dust) specifies actions or control measures to prevent, reduce, or mitigate PM emissions generated from construction, demolition, excavation, extraction, and other earth-moving activities. With implementation of these standard specifications, no additional avoidance, minimization and/or mitigation measures are required.

Because the project is included in and consistent with the 2012-2035 RTP that conforms to federal and State air quality requirements, the project would not degrade CO ambient air quality and is not a POAQC; the project would not result in substantial air quality impacts from operation of the project; and no mitigation measures are proposed.

2.2.6.5 Climate Change

Neither EPA nor FHWA have issued explicit guidance or methods to conduct project-level GHG analysis. FHWA emphasizes concepts of resilience and sustainability in highway planning, project development, design, operations, and maintenance. Because there have been requirements set forth in California legislation and EOs on climate change, the issue is addressed in Chapter 3, CEQA Evaluation, of this document. The CEQA analysis may be used to inform the NEPA determination for the project.