4.6 TRANSPORTATION AND CIRCULATION

The Applicant has submitted and the City has independently reviewed a project-specific traffic study conducted for the proposed project. That study, entitled "Traffic Impact Analysis Report, WVUSD Site D Mixed-Use Development, Diamond Bar, California" (Linscott, Law & Greenspan Engineers, April 23, 2009), is included in Appendix G (Traffic Impact Analysis) herein.

4.6.1 Environmental Setting

4.6.1.1 Regulatory Setting

California Government Code

Section 65089(a) of the CGC stipulates that a "congestion management program shall be developed, adopted, and updated biennially, consistent with the schedule for adopting and updating the regional transportation improvement program, for every county that includes an urbanized area, and shall include every city and the county." In accordance therewith, the Los Angeles County Metropolitan Transportation Authority (LACMTA) has adopted and periodically updates a "Congestion Management Program for Los Angeles County"[1] (CMP).

Under the CMP's deficiency plan, local jurisdictions are responsible for implementing transportation improvements that offset the congestion impacts of new development. Local agencies earn CMP "credits" for implementing any of the more than 50 land use, capital improvements, transportation system management (TSM), transit, transportation demand management (TDM), and other strategies contained in the CMP "toolbox" of mitigation strategies. The credits earned are then banked by local jurisdictions to offset the "debits" accrued through new development.[2]

City of Diamond Bar General Plan

The General Plan contains numerous policies that address, either directly or indirectly, transportation and circulation and that may be applicable to the proposed project. Those policies include, but are not necessarily limited to, the following:

- Require new development to pay its fair share of the public facilities and off-site improvements needed to serve the proposed use (Strategy 2.3.2, Land Use Element).
- Pursue other traffic measures to enhance circulation and transient traffic movement (Strategy 1.2.3, Circulation Element).
- Prevent the creation of new roadway connections which adversely impact existing neighborhoods (Strategy 1.3.1, Circulation Element).
- Design new developments and their access points in such a way that the capacity of local streets is not exceeded (Strategy 1.3.3, Circulation Element).
- All new development shall be required to provide mitigation measures. Such measures could include improvements or traffic impact fees (Strategy 3.2.1, Circulation Element).

[1]/ Los Angeles County Metropolitan Transportation Authority, 2004 Congestion Management Program for Los Angeles County, adopted July 22, 2004.

[2]/ Local jurisdictions must fulfill all of the above requirements to maintain CMP compliance and preserve their eligibility to receive Proposition 111 gas tax subvention funds and other State and federal funds programmed in MTA's transportation improvement program.

- Within new residential developments, encourage organizations of individual neighborhoods and discourage through traffic on local streets while maintaining pedestrian and bicycle continuity and encourage neighborhood parks, improvement programs and social events (Strategy 1.5.3, Public Services and Facilities Element).

City of Diamond Bar Municipal Code

Section 21.30.170 requires that traffic control and safety devices be installed by the subdivider during subdivision construction, as required by the review authority, in order to promote traffic control and safety both during construction, and after occupancy of the subdivision. As determined necessary, traffic control and safety devices include regulatory signs, warning signs, guide markers, construction signs, pavement markings, lane delineations, and traffic signals.

4.6.1.2 Regional Setting

Regional Setting

Southern California has some of the worst traffic congestion in the nation, estimated to be 65 percent higher than the national average.[3] Much of this travel takes place during period of congestion, particularly during the morning (AM) and evening (PM) peak-hour periods, generally defined as 6:00 AM to 9:00 AM and 3:00 PM to 7:00 PM, respectively.

Within the County, the average home-to-work trip is 11.6 miles. The corresponding average home-to-work trip duration is 20.5 minutes.[4] For the SCAG region as a whole, between 2000 and 2030, average daily vehicle miles traveled (VMT) are expected to grow by 31 percent. Similarly, for the 6-county SCAG region, total daily delay is expected to grow by 45 percent.[5]

As indicated in the "County of Los Angeles All-Hazard Mitigation Plan" and listed in Table 4.6-1 (Busiest Highway Interchanges in Los Angeles County [1999-2002]),[6] some of the busiest highway interchanges in the County are located in the Diamond Bar area.

Transportation Plans for Los Angeles County

As indicated in the LACMTA's "Draft 2008 Long-Range Transportation Plan," for planning purposes, the County is divided into nine geographic subregions. The project site is located in the "San Gabriel Valley Subregion." The subregion is located in the easternmost portion of the County and is bounded on the west by the Cities of Pasadena, South Pasadena, Alhambra, and Monterey Park, on the north by the San Gabriel Mountains, on the east by the Los Angeles County and San Bernardino County line, and on the south by the City of Diamond Bar and the communities of Hacienda Heights and Rowland Heights. This area covers approximately 355 square miles and is approximately 99 percent built-out. The subregion encompasses 31 jurisdictions and a portion of an unincorporated County area whose combined population represents about 18 percent of the total population of Los Angeles County.

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[3]/ Wachs, Martin, and Beal, Taxing our Highways, Westways Magazine, November/December 2000.

[4]/ Southern California Association of Governments, Final 2004 Regional Transportation Plan Program Environmental Impact Report, SCH No. 2003061075, April 2004, pp. 3.3-4 and 3.3-5.

[5]/ *Ibid*., pp. 3.3-22, and 3.3-23.

[6]/ County of Los Angeles (Dimensions Unlimited, Inc.), County of Los Angeles All-Hazard Mitigation Plan, Version 1.0, October 2004.

Table 4.6-1
BUSIEST HIGHWAY INTERCHANGES IN LOS ANGELES COUNTY (1999-2002)

Rank	Route	Description	AADT[1]	Peak Hour[2]
1	SR-60 Westbound	Diamond Bar, Grand Avenue	353,000	23,000
	SR-60 Eastbound	Diamond Bar, Junction SR-57 South, Orange Freeway	353,000	23,000
2	SR-60 Westbound	Diamond Bar, Junction SR-57 North, Orange Freeway; Diamond Bar Boulevard	348,000	24,400
	SR-60 Eastbound	Diamond Bar, Grand Avenue	348,000	24,400

Notes:
1. Annual Average Daily Traffic. AADT is the total volume for the year divided by 365 days. The traffic count is from October 1st through September 30th.
2. Peak-Hour Traffic. Included is an estimate of the peak-hour traffic. Peak-hour values indicate the volume in both directions. A few hours each year are higher than the peak hour, but not many. In urban and suburban areas, the peak hour normally occurs every weekday and 200 or more hours will all be about the same.

Source: County of Los Angeles, County of Los Angeles All-Hazard Mitigation Plan, Version 1.0, pp. 329-332

One of the unique transportation features of this subregion is the substantial number of freeways that traverse it, including the San Bernardino (I-10), Foothill (I-210), Pasadena (SR-110), Orange (SR-57), Pomona (SR-60), Chino Valley (SR-71), San Gabriel River (I-605), and Long Beach (I-710) Freeways.

As indicated by the LACMTA: "Mitigating the impacts of traffic generated by the movement of goods (via truck and rail) is one of the foremost mobility challenges for the subregion. More than 40% of the nation's freight traffic carrying goods from the ports of Los Angeles and Long Beach to the eastern states traverse the subregion. About 50% of the goods move via the area's freeways, specifically SR-60 and I-10, en route to neighboring counties and other major cities in the nation. Railroads carry the other 50% of the goods leaving the subregion. Blocked arterial grade crossings often create traffic delays and accidents and remain a priority for the subregion. . .A high percentage of traffic within this subregion is interregional commuter traffic from neighboring counties (i.e., San Bernardino, Riverside and Orange) destined for employment sites in downtown Los Angeles as well as other subregions of Los Angeles County. This is problematic at the SR-57 and SR-60 interchange, where the commuter traffic merges from the neighboring counties."[7]

Similar language is contained in the LACMTA's "Short Range Transportation Plan for Los Angeles County. "[8] As further therein, the "San Bernardino and Pomona Freeways (I-10 and SR-60 between I-5 and San Bernardino County Line)" are identified as one of a number of "congested corridors." The Pomona (SR-60) Freeway "serves as a major connector to downtown from the county line. Similar to I-10 [Freeway], peak traffic flow occurs in the westbound direction in the AM and eastbound direction in the PM. The freeway carries a substantial amount of truck traffic (13%), which exacerbates traffic conditions during peak and non-peak hours. In the AM peak period, stop-and-go conditions occur westbound between Azusa Avenue and Sunol Road. Eastbound, stop-and-go traffic occurs between 3rd Street and San Gabriel Boulevard and 7th Avenue and Fairway Drive. The average daily traffic on SR-60

[7]/ Los Angeles County Metropolitan Transportation Authority, Draft 2008 Long Range Transportation Plan – Technical Document, 2008, pp. 32-33.

[8]/ Los Angeles County Metropolitan Transportation Authority, Short Range Transportation Plan for Los Angeles County, Technical Document 2003, 2003, pp. 22-24.

varies from 185,000 near downtown, 300,000 near SR-57 interchange to 175,000 near the San Bernardino County Line."[9]

The westbound SR-60 Freeway approach to the SR-57 Freeway and the eastbound SR-60 Freeway approach to the SR-57 Freeway are identified as a "congestion hot spot," with reoccurring bottlenecks during AM and PM (AM/PM) peak hours, respectively.[10]

Regional Transportation Plans

In compliance with Metropolitan Planning Regulations (23 U.S.C. 134, 49 U.S.C. 5303-5305), SCAG's congestion management process[11] comprises the following regional congestion management elements: regional transportation plan (RTP), congestion management programs (CMPs), and regional transportation improvement program (RTIP).[12] The RTP establishes overall long-term mobility policies for the movement of people and goods, includes congestion relief strategies for all regionally significant facilities and activities.[13]

In February 2005, SCAG commenced preparation of growth forecast updates (Integrated Growth Forecast) which were subsequently used to provide the basis for developing the land-use strategies that encourage development patterns which increase transportation options and the use of alternative modes of transportation to reduce vehicle miles traveled (VMT). Based on those land-use assumptions, the Regional Council adopted the following set of policies: (1) Identify regional strategic areas for infill and investment (Identify strategic opportunity areas for infill development of aging and underutilized areas and increased investment in order to accommodate future growth); (2) Structure the plan on a three-tiered system of centers development (Identify strategic centers based on a 3-tiered system of existing, planned, and potential relative to transportation infrastructure); (3) Develop "complete communities" (Created mixed-use districts or "complete communities" in strategic growth areas through a concentration of activities with housing, employment, and a mix of retail and services located in close proximity to each other); (4) Develop nodes on a corridor (Intensify nodes along corridors with people-scaled mixed-use developments); (5) Plan for additional housing and jobs near transit (Pedestrian-friendly environments and more compact development patterns in close proximity to transit serve to support and improve transit use and ridership); (6) Plan for a changing demand in types of housing; (7) Continue to protect stable existing single-family areas; (8) Ensure adequate access to open space and preservation of habitat; (9) Incorporate local input and feedback on future growth; and (10) Promote land-use patterns supportive of goods movement an logistics industries (Promote growth and land-use patterns that support regional economic development).[14]

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[9]/ *Ibid*., p. 70.

[10]/ *Ibid*., pp. 70-72.

[11]/ The Federal Highway Administration defines the congestion management process as a "systematic approach required in transportation management areas (TMAs) that provides for effective management and operation, based on a cooperatively developed and implemented metropolitan-wide strategy, of new and existing transportation facilities eligible for funding under Title 23 U.S.C. and Title 49 U.S.C., through the use of operational management strategies." SCAG's congestion management process is a comprehensive strategy designed to relieve traffic congestion and maintain high levels of service on roadways within the Southern California region.

[12]/ Transportation investments in the SCAG region that receive federal transportation funds must be consistent with the RTP and must be included in the regional transportation improvement program (RTIP).

[13]/ Southern California Association of Governments, Final 2008 Regional Transportation Plan: Making the Connection, December 6, 2007, adopted May 8, 2008, pp. 190-191.

[14]/ *Ibid.*, pp. 86-88.

On May 8, 2008, SCAG adopted the "Final 2008 Regional Transportation Plan: Making the Connection"[15] (2008 RTP) and identified the following seven goals: (1) Maximize mobility and accessibility for all people and goods in the region; (2) Ensure travel safety and reliability for all people and goods in the region; (3) Preserve and ensure a sustainable regional transportation system; (4) Maximize the productivity of our transportation system; (5) Protect the environment, improve air quality, and promote energy efficiency; (6) Encourage land-use and growth patterns that complement our transportation investments and improve the cost-effectiveness of expenditures; (7) Maximize the security of our transportation system through improved system monitoring, rapid recovery planning, and coordination with other security agencies. In addition, the following policies serve to guide the development of the 2008 RTP: (1) Transportation investment shall be based on SCAG's adopted Regional Performance Indicators; (2) Ensuring safety, adequate maintenance, and efficiency of operations on the existing multi-modal transportation system will be RTP priorities and will be balanced against the need for system expansion investments; (3) RTP land-use and growth strategies that differ from currently expected trends will require a collaborative implementation program that identifies required actions and policies by all affected agencies and subregions; (4) HOV (high-occupancy vehicle) gap closures that significantly increase transit and ridership usage will be supported and encouraged, subject to Policy No. 1; and (5) Progress monitoring on all aspects of the plan, including timely implementation of projects, programs, and strategies, will be an important and integral component of the plan.[16]

Congestion Management Program

The "2004 Congestion Management Program for Los Angeles County" (CMP), as adopted by the LACMTA on July 22, 2004**,** is a result of Proposition 111, as approved by the voters in June 1990, which allowed for the imposition of a nine cent per gallon gasoline tax increase over a five-year period. Proposition 111 limited the use of new gas tax revenues for the correction of existing traffic problems and not for the promotion of new development. For a city to get its share of Proposition 111 funds, it must follow certain procedures, including the requirement to prepare a traffic impact analysis (TIA) for new development proposals. If a proposed project is below a certain size, the project is not obligated to prepare a TIA. If required, the TIA must include all monitored intersections where the project will add traffic above a specified minimum. In Los Angeles County, the monitored intersections are presented in Appendix A of the CMP.

The CMP requires local jurisdictions to: (1) assist in monitoring the CMP highway and transit system; (2) implement a transportation demand management ordinance; (3) implement a program to analyze the impacts of local land-use decisions on the regional transportation system; and (4) participate in the "Countywide Deficiency Plan."[17] CMP conformity is required

[15]/ Southern California Association of Governments, Final 2008 Regional Transportation Plan: Making the Connection, December 6, 2007, adopted May 8, 2008.

[16]/ *Op. Cit*., Final 2008 Regional Transportation Plan: Making the Connection, p. 11.

[17]/ The "Countywide Deficiency Plan" requires local agencies to submit to the LACMTA resolutions self-certifying their conformance with the CMP and documenting the deficiency plan "debits" and "credits" they have generated by the September 1 of each year. Deficiency plans are required when congestion levels exceed established standards on the CMP highway system. Given the high level of congestion in the County, deficiency plan requirements are a necessary component of the CMP.

As a result of concerns raised on the complexity and effectiveness of the CMP's credit/debit approach, in the 2003 "Short Range Transportation Plan for Los Angeles County" (LACMTA) the LACMTA directed staff to conduct a study to demonstrate the nexus between traffic impacts of new development and the need for improvements to the County's transportation system. A key aspect of the nexus study was to assess to feasibility of implementing a congestion mitigation fee to be imposed on new development for transportation improvements. The LACMTC has completed Phase I of that two phase study. Phase I described how the fee program would work and identifies

for the City to receive State gas tax and to preserve eligibility for other State and federal transportation funds. Acting as the County's congestion management agency, the LACMTA requires the City to prepare an annual CMP compliance report. The City's most recent compliance report was adopted in July 2007. As indicated therein, the City "remains in compliance with the 2004 Congestion Management Program for Los Angeles County."[18]

4.6.1.3 Local Setting

Regional Access

Regional access is provided by means of both the Orange (SR-57) Freeway and Pomona (SR-60) Freeway. The two freeways intersect in the northwest quadrant of the City. Direct access to the project site is provided from the SR-57 Freeway via an interchanges at Diamond Bar Boulevard (Brea Canyon Cutoff) and Pathfinder Road. Access to and from the SR-60 Freeway is provided via an interchange at Fairway Drive Brea Canyon Cutoff). Traffic counts for 2006, as reported by the California Department of Transportation (Caltrans) along segments of those freeways are presented in Table 4.6-2 (2006 Freeway Traffic Counts).

Street Network

Twenty (20) key study area intersections were selected for evaluation in the traffic study. These intersections, which provide both regional and local access to the study area, include: (1) Brea Canyon Road (West) at Pathfinder Road; (2) SR-57 SB Ramps at Pathfinder Road; (3) SR-57 Freeway Northbound (NB) Ramps at Pathfinder Road; (4) Fern Hollow Drive//Brea Canyon Road (East) at Pathfinder Road; (5) Diamond Bar Boulevard at Pathfinder Road; (6) Diamond Bar Boulevard at Shadow Canyon Drive; (7) Brea Canyon Road at Fountain Springs Road; (8) Diamond Bar Boulevard at Fountain Springs Road; (9) Diamond Bar Boulevard at Sugar Pine Place; (10) Brea Canyon Road at Cold Spring Lane; (11) Diamond Bar Boulevard at Cold Spring Lane; (12) Pathfinder Road at Brea Canyon Cutoff; (13) Fallow Field Drive/Diamond Canyon Road at Brea Canyon Cutoff; (14) SR-57 Freeway Southbound (SB) Ramps at Brea Canyon Cutoff; (15) SR-57 Freeway NB Ramps at Brea Canyon Cutoff; (16) Brea Canyon Road at Diamond Bar Boulevard; (17) Cherrydale Drive at Diamond Bar Boulevard; (18) Brea Canyon Road at Silver Bullet Drive; (19) Diamond Bar Boulevard at Grand Avenue; and (20) Colima Road at Fairway Drive/Brea Canyon Cutoff. Of those, Diamond Bar Boulevard at Grand Avenue is a CMP Intersection.

Figure 4.6-1 (Vicinity Map and Key Study Area Intersections) illustrates the general location of the project and depicts the key study area intersections and surrounding street system. Level of service (LOS) calculations for the AM/PM peak hours at these 20 key study area intersections were performed to evaluate the future potential traffic impacts associated with anticipated area growth, related projects, and the proposed project. Figure 4.6-2 (Existing Roadway Conditions and Intersection Controls) presents an inventory of the existing roadway conditions for the arterials and intersections evaluated herein. The number of travel lanes and intersection controls for those key study area intersections are identified. As illustrated, the local streets that

potential revenue scenarios. Phase II will include developing guidelines for the imposition of the congestion management fee.

[18]/ City of Diamond Bar, Agenda Report 7.2, Adopt Resolution No. 2007-XX: A Resolution Finding the City of Diamond Bar in Conformance with the Congestion Management Program and Adopting the CMP Local Development Report, in Accordance with California Government Code Section 65089, July 17, 2007.

services the project site primarily includes Diamond Bar Boulevard, Brea Canyon Road, and Pathfinder Road. The following description provides a brief synopsis of those streets.

Table 4.6-2
2006 FREEWAY TRAFFIC COUNTS

Route	Milepost	Location	Back Peak Hour	Back Peak Month	Back AADT
SR-57	0.912	Brea Canyon Road	16,000	217,000	213,000
	1.937	Diamond Bar Boulevard	15,100	218,000	219,000
	3.167	Pathfinder Road	15,100	224,000	199,000
	4.518	South Junction, Route 60	13,600	204,000	199,000
	4.518	North Junction, Route 60	13,800	204,000	199,000
	4.977	Sunset Crossing Road	9,500	131,000	129,000
SR-60	21.478	Fairway Drive	13,700	217,000	210,000
	22.970	Old Brea Canyon Road	13,700	222,000	211,000
	23.560	Junction Route 57 South	14,000	227,000	216,000
	24.451	Grand Avenue	22,300	345,000	383,000
	25.464	Junction Route 57 North	23,000	339,000	337,000

Notes:
1. Each profile breakpoint is identified by the milepost value corresponding to that point on the highway. The milepost values increase from the beginning of a route within a count to the next county line. The milepost values start over again at each county line. Milepost values usually increase from south to north or west to east.
2. Urban and suburban areas, the peak hour normally occurs every weekday, and 200 or more hours will all be about the same. Back AADT, Peak Month, and Peak Hour usually represents traffic South or West of the count location.
3. The peak month average daily traffic (ADT) is the average daily traffic for the month of heaviest traffic flow. This data is obtained because on many routes, high traffic volumes which occur during a certain season of the year are more representative of traffic conditions than the annual ADT. Back AADT, Peak Month, and Peak Hour usually represents traffic South or West of the count location.
4. Annual average daily traffic is the total volume for the year divided by 365 days. The traffic count year is from October 1st through September 30th.

Source: California Department of Transportation

- Diamond Bar Boulevard. Diamond Bar Boulevard is a major roadway, oriented in a north/south direction. Diamond Bar Boulevard provides two travel lanes per direction, separated by a raised median. Bicycle lanes are provided on both sides of the street. Adjacent to the project site, on-street parking is prohibited on both sides of the roadway. The posted speed limit is 45 miles per hour (mph). Within the project area, traffic signals exist along Diamond Bar Boulevard at Grand Avenue, Pathfinder Road, Shadow Canyon Road, Fountain Springs Road, Sugarpine Place, Cold Springs Lane, Brea Canyon Road, SR-57 Freeway NB Ramps, and Fallow Field Drive-Diamond Canyon Road.

- Brea Canyon Road. Brea Canyon Road is a minor arterial which parallels the Orange (SR-57) Freeway as it enters the City from the south and continues north into the City of Industry. Between Diamond Bar Boulevard and Pathfinder Road, Brea Canyon Road varies between two- and four-lane. South of Diamond Bar Boulevard, this roadway is generally a two-lane arterial. A traffic signal exists at the intersection of Brea Canyon Road and Silver Bullet Drive.

- Pathfinder Road. Pathfinder Road provides two travel lanes per direction, generally separated by a painted median. The posted speed limit is 45 mph. West of Evergreen

Springs Drive, on-street parking is prohibited along both sides of the roadway. Between Evergreen Springs Drive and Diamond Bar Boulevard, parking is permitted on both sides of the street. The SR-57 Freeway NB and SB Ramps along Pathfinder Road and Brea Canyon Cutoff at Pathfinder Road are signalized.

Existing Intersection Conditions

In accordance with City's "Guidelines for the Preparation of Traffic Impact Analysis Report"[19] and the County's CMP, existing AM/PM peak-hour operating conditions for the signalized intersections were evaluated using the Intersection Capacity Utilization (ICU) method.[20] The ICU value translates to a LOS estimate, which is a relative measure of the intersection's performance. The six qualitative categories of LOS are defined, along with the corresponding ICU value range, in Table 4.6-3 (Level of Service Criteria for Signalized Intersections). The City's TIA gidelines specify a LOS "D" as the minimum acceptable service level at intersections. Under CMP guidelines, LOS "E" is the minimum acceptable service level at CMP intersections (i.e., Diamond Bar Boulevard at Grand Avenue).

Table 4.6-3
LEVEL OF SERVICE CRITERIA FOR SIGNALIZED INTERSECTIONS

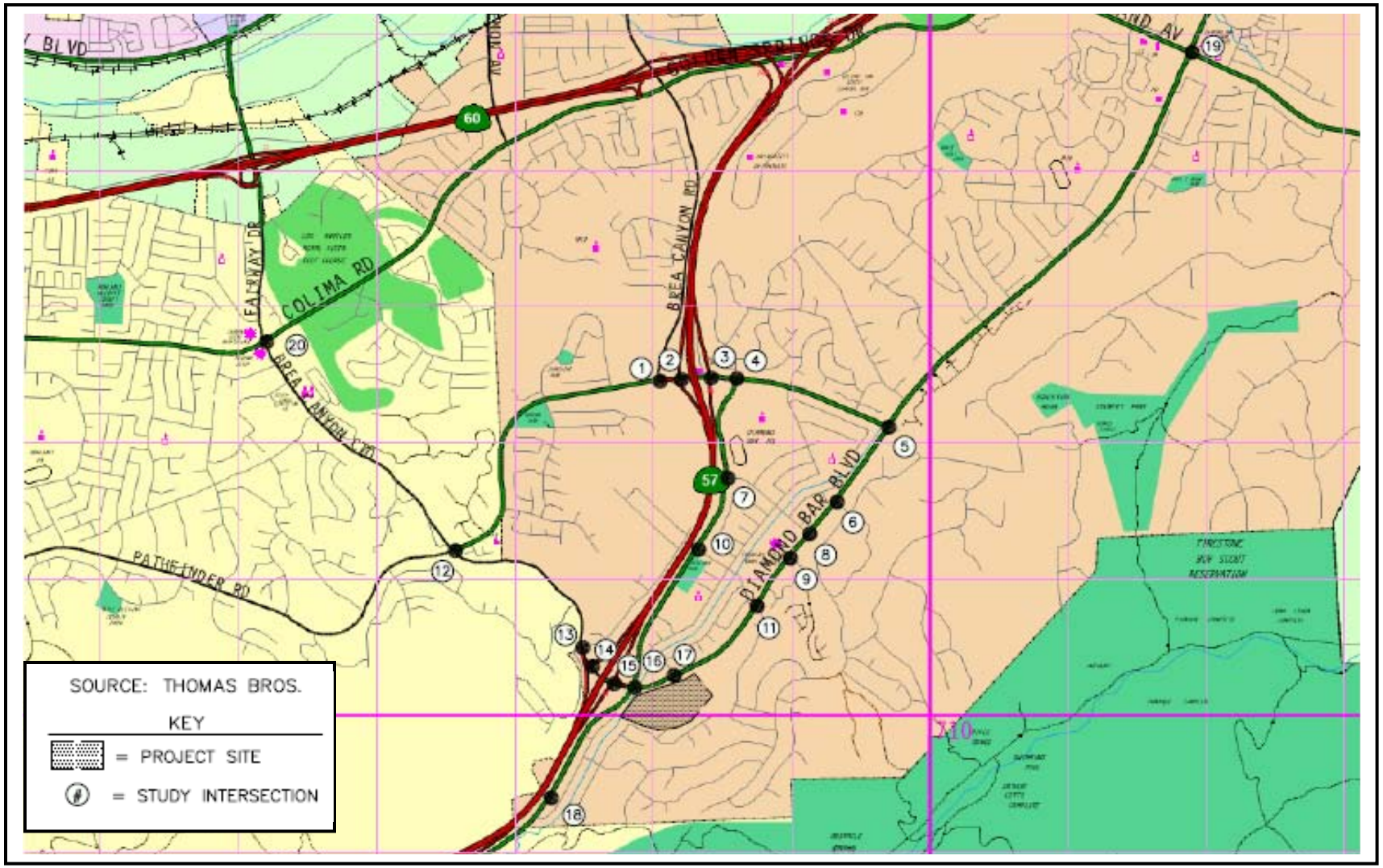
LOS	ICU Value (V/C)	LOS Description
A	0.00 - 0.60	Free Flow; Very low delay, less than 10.0 seconds per vehicle
B	0.61 - 0.70	Rural Design; Delay in the range of 10.1 to 20 seconds per vehicle
C	0.71 - 0.80	Urban Design; Delay in the range of 20.1 to 35 seconds per vehicle
D	0.81 - 0.90	Maximum Urban Design; Delay ranges from 35.1 to 55 seconds per vehicle
E	0.91 - 1.00	Capacity; Delay ranges from 55.1 to 80 seconds per vehicle
F	≥ 1.01	Forced Flow; Delay in excess of 80 seconds per vehicles
Notes: V/C – volume-to-capacity ratio		

Source: Linscott, Law & Greenspan Engineers

Table 4.6-4 (Existing Peak-Hour Levels of Service) summarizes the existing peak-hour service level calculations for the 20 key study area intersections based on those existing traffic volumes presented in Figure 4.6-3 (Existing AM Peak-Hour Traffic Volumes) and Figure 4.6-4 (Existing PM Peak-Hour Traffic Volumes), current street geometry, and intersection traffic control. Manual counts of vehicular turning movements were collected at those locations during the weekday morning (AM) and evening (PM) peak commuter periods to determine the AM peak-hour and PM peak-hour traffic volumes.

[19]/ City of Diamond Bar, General Plan Guidelines for the Preparation of Traffic Impact Analysis Report, July 2005.

[20]/ The ICU technique estimates the volume-to-capacity (V/C) relationship for an intersection based on the individual V/C ratios for key conflicting traffic movements. The ICU numerical value represents the percent signal (green) time and capacity required by existing and/or future traffic. The ICU methodology assumes uniform traffic distribution per intersection approach lane and optimal signal timing. The ICU calculations use a lane capacity of 1,600 vehicles per hour (vph) for left-turn, through, and right-turn lanes, and dual left-turn capacity of 2,880 vph. A clearance adjustment factor of 0.10 (10 percent) was added to each LOS calculation. A reduction of 7 percent (ICU "credit" of 0.07) was applied to the existing traffic signals along Golden Springs Drive and Brea Canyon Road to reflect the benefits of the Citywide traffic signal coordination system currently in place.



NOT TO SCALE

Figure 4.6-1
VICINITY MAP AND KEY STUDY INTERSECTIONS
Source: Linscott, Law and Greenspan Engineers

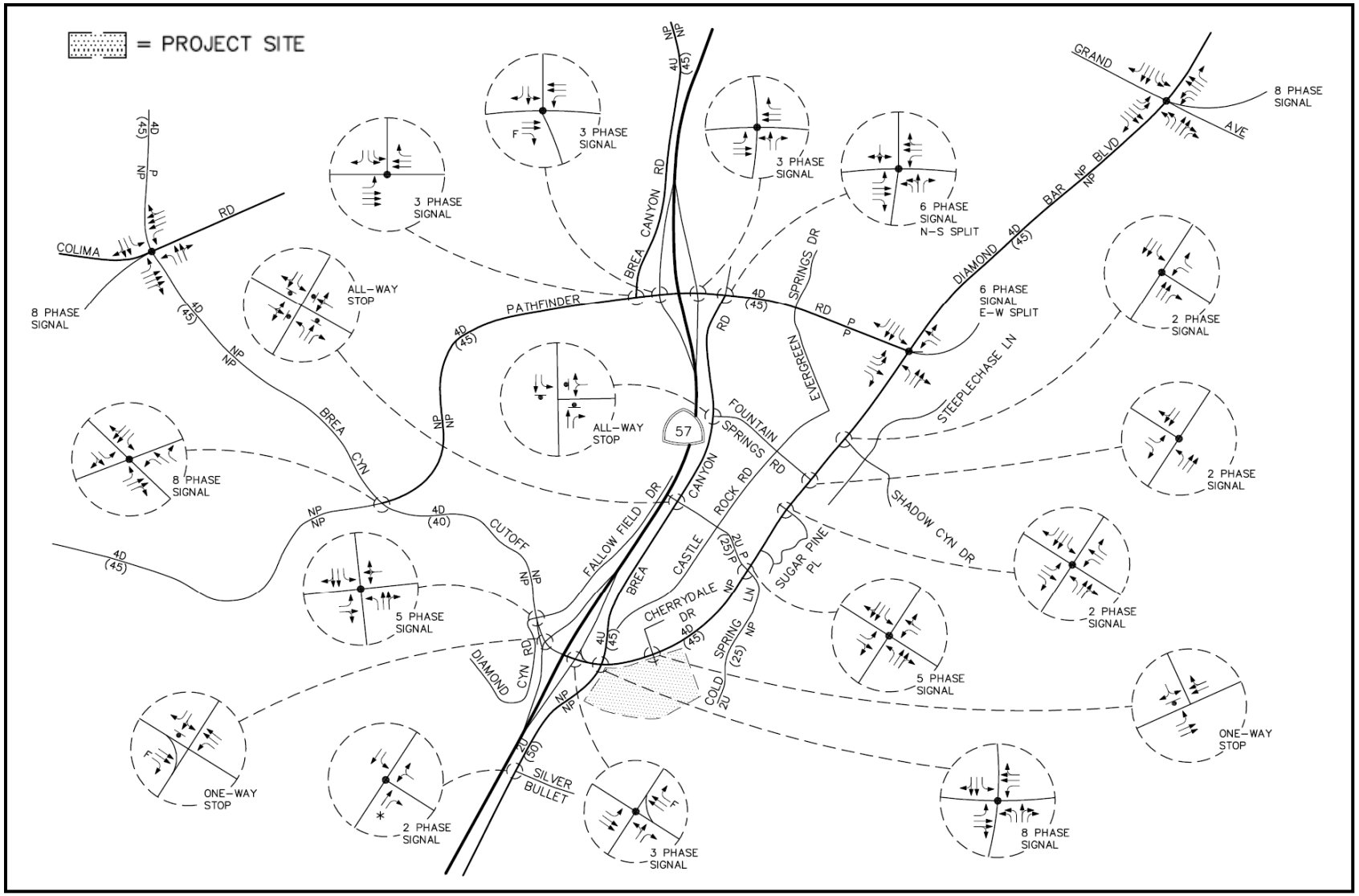


Figure 4.6-2
EXISTING ROADWAY CONDITIONS AND INTERSECTION CONTROLS
Source: Linscott, Law and Greenspan Engineers

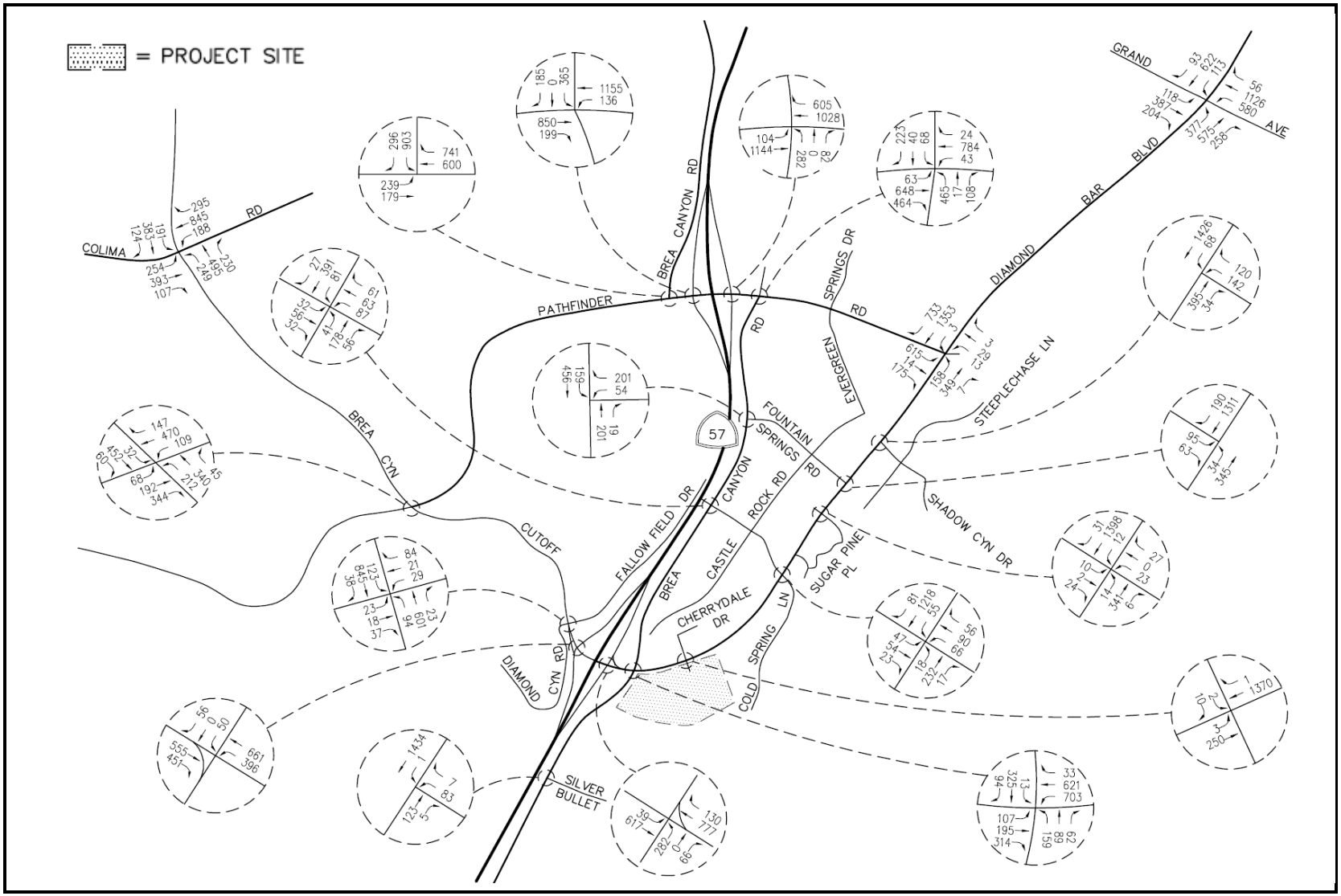


Figure 4.6-3
EXISTING AM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law and Greenspan Engineers

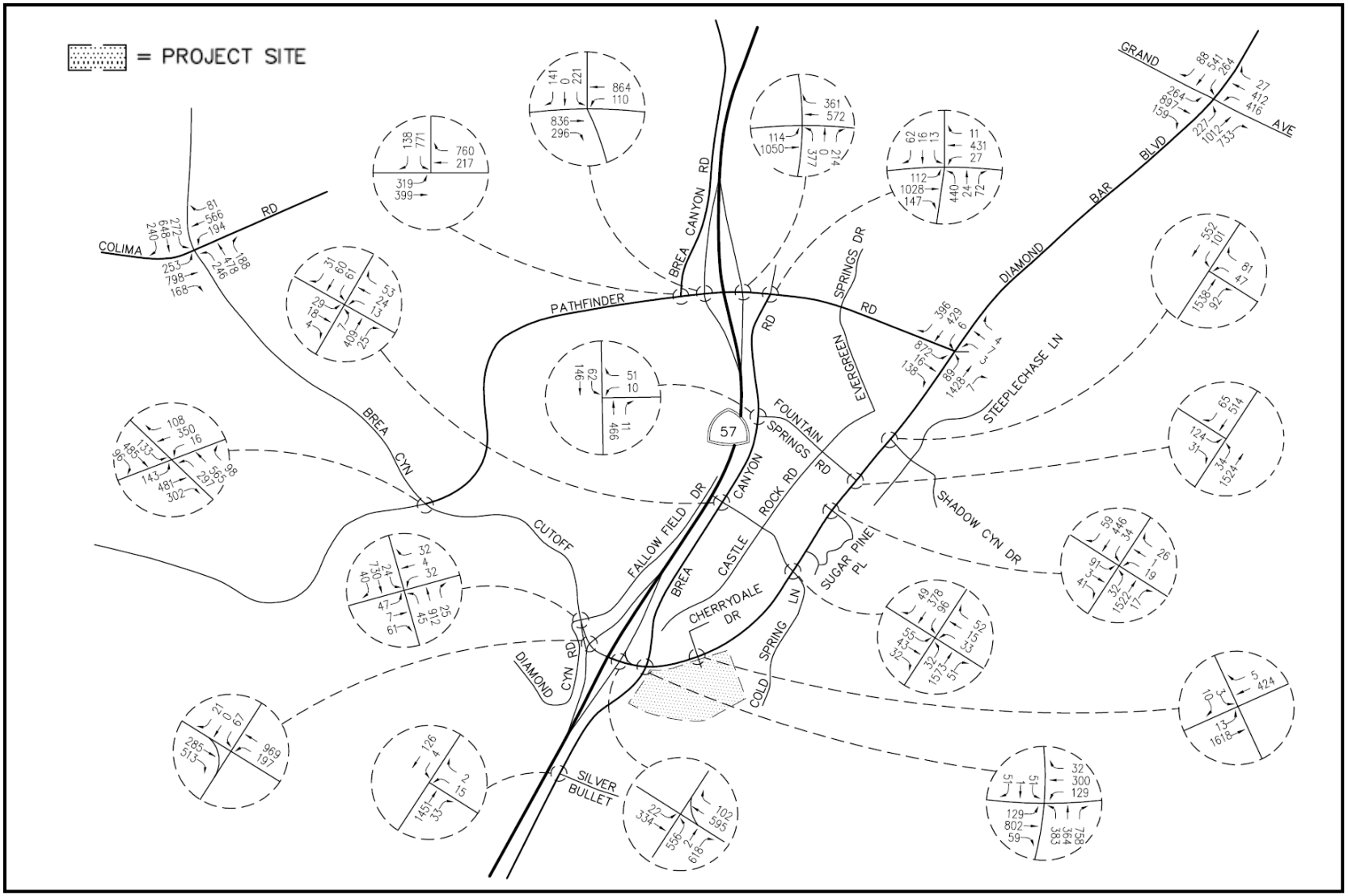


Figure 4.6-4
EXISTING PM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law and Greenspan Engineers

Table 4.6-4
EXISTING PEAK-HOUR LEVELS OF SERVICE

Intersection		Time Period	Control Type	ICU/Delay (s/v)	LOS[2]
No.	**Intersection**				
1	Brea Canyon Road (W) at Pathfinder Road	AM PM	3∅ Traffic Signal	0.751 0.774	C C
2	SR-57 SB Ramps at Pathfinder Road	AM PM	3∅ Traffic Signal	0.689 0.568	B A
3	SR-57 NB Ramps at Pathfinder Road	AM PM	3∅ Traffic Signal	0.719 0.664	C B
4	Fern Hollow/Brea Canyon Road at Pathfinder Road	AM PM	8∅ Traffic Signal	0.760 0.648	C B
5	Diamond Bar Boulevard at Pathfinder Road	AM PM	6∅ Traffic Signal	0.786 0.792	C C
6	Diamond Bar Boulevard at Shadow Canyon Drive	AM PM	2∅ Traffic Signal	0.566 0.603	A B
7	Brea Canyon Road at Fountain Springs Road[1]	AM PM	All-Way Stop	16.0 s/v 13.6 s/v	C B
8	Diamond Bar Boulevard at Fountain Springs Road	AM PM	2∅ Traffic Signal	0.579 0.584	A A
9	Diamond Bar Boulevard at Sugar Pine Place	AM PM	2∅ Traffic Signal	0.496 0.590	A A
10	Brea Canyon Road at Cold Spring Lane[1]	AM PM	All-Way Stop	15.7 s/v 12.3 s/v	C B
11	Diamond Bar Boulevard at Cold Spring Lane	AM PM	5∅ Traffic Signal	0.567 0.674	A B
12	Pathfinder Road at Brea Canyon Cutoff	AM PM	8∅ Traffic Signal	0.789 **0.904**	C **E**
13	Fallow Field/Diamond Canyon at Brea Canyon Cutoff	AM PM	5∅ Traffic Signal	0.533 0.480	A A
14	SR-57 SB Ramps at Brea Canyon Cutoff[1]	AM PM	One-Way Stop	**148.1 s/v** **101.4 s/v**	**F** **F**
15	SR-57 NB Ramps at Brea Canyon Cutoff	AM PM	8∅ Traffic Signal	0.543 0.686	A B
16	Brea Canyon Road at Diamond Bar Boulevard	AM PM	8∅ Traffic Signal	0.814 0.805	D D
17	Cherrydale Drive at Diamond Bar Boulevard[1]	AM PM	One-Way Stop	19.7 s/v 14.5 s/v	C B
18	Brea Canyon Road at Silver Bullet Drive	AM PM	2∅ Traffic Signal	**1.052** **1.021**	**F** **F**
19	Diamond Bar Boulevard at Grand Avenue	AM PM	8∅ Traffic Signal	0.748 0.862	C D
20	Colima Road at Brea Canyon Cutoff	AM PM	8∅ Traffic Signal	0.843 0.854	D D

Notes:
1. This study area intersection was analyzed using the "Highway Capacity Model" (HCM) unsignalized methodology.
2. Bold indicates adverse service levels based on City LOS standards

Source: Linscott, Law & Greenspan Engineers

Seventeen of the 20 key study area intersections currently (2007) operate at satisfactory service levels (i.e., LOS "D" or better for non-CMP intersections and LOS "E" or better at CMP intersections) during the AM/PM peak hours. The following three intersections, however, now operate at an unacceptable service level during AM and/or PM peak hours: (1) Pathfinder Road at Brea Canyon Cutoff (LOS "E" for PM peak hour); (2) SR-57 Freeway SB Ramps at Brea Canyon Cutoff (LOS "F" for AM/PM peak hour); and (3) Brea Canyon Road at Silver Bullet Drive (LOS "F" for AM/PM peak hour).

Public Transit

A number of agencies currently provide public transit services in the City. Foothill Transit operates, among others, a bus route along Brea Canyon Road and Diamond Bar Boulevard (Routes 286) and currently includes a bus stop at the intersection of Brea Canyon Rod at Diamond Bar Boulevard. In addition, Amtrak and the Southern California Regional Rail Authority (Metrolink) operate a regional rail service, including a station in the City of Industry (600 South Brea Canyon Road, Industry). The City provides "Diamond Ride," a specialized transit service for individuals 60 years of age and over and the disabled that provides curb-to-curb taxicab service to eligible residents.

4.6.2 Threshold of Significance Criteria

Presented herein is the threshold of significance criteria identified by the Lead Agency relative to this topical issue. In accordance therewith, the proposed project would normally be deemed to produce a significant transportation and/or circulation impact if the project or if project-related activities were to:

- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system (i.e., result in a substantial increase in either the number of vehicle trips, the volume-to-capacity ratio on roads, or congestion at intersections).
- Exceed, either individually or cumulatively, a level of service standard established by the County congestion management agency for designed roads or highways.
- Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment).
- Result in inadequate emergency access.
- Result in inadequate parking capacity.
- Conflict with adopted policies, plans, or programs supporting alternative transportation (e.g., bus turnouts, bicycle racks).[21]

LOS "D" is typically recognized as the minimum satisfactory level of service in urban areas. Consistent with the City's "Guidelines for the Preparation of Traffic Impact Analysis Report," LOS "D" constitutes the minimum acceptable service level at intersections and LOS "C" constitutes the minimum acceptable service level for roadway segments. In accordance with City TIA guidelines, the proposed project would normally be judged to produce a significant transportation and/or circulation impact if the project or if project-related activities were to:

- Increase traffic demand at any signalized intersection by 2 percent of capacity (ICU increase $\geq$ 0.02), causing or worsening LOS "E" or "F" (ICU > 0.91).

[21]/ *Op. Cit*., State CEQA Guidelines, Appendix G, Section XV (Transportation/Traffic).

For CMP intersections, the County's service level standard is LOS "E," except where the base-year service level is worse that LOS "E." In such cases, the base-year LOS is the standard.[22] CMP guidelines define a significant impact as occurring when the project increases traffic demand on a CMP facility by two percent of capacity (V/C $\geq$ 0.02), causing or worsening LOS "F" (V/C > 1.00). If the facility is already at LOS "F," a significant impact occurs when the project increases traffic demand on a CMP facility by two percent of capacity (V/C $\geq$ 0.02).[23] In accordance therewith, the proposed project would normally be judged to produce a significant transportation and/or circulation impact if the project or if project-related activities were to:

- For Non-CMP intersections, the ICU value under "with project" conditions are 0.91 or greater (LOS "E" or "F") and the ICU increase attributable to the proposed project is 0.02 or greater.
- For CMP intersections, the ICU value under "with project" conditions are 1.01 or greater (LOS "F") and the ICU increase attributable to the proposed project is 0.02 or greater.

For unsignalized Intersections, based on the HCM/LOS method of analysis, a significant traffic impact would occur if the project were to cause a change from LOS "D" to LOS "E" or "F" or if the project were to cause an increase in delay of two percent or more at an intersection operating LOS "E" or "F." In accordance with the City's TIA guidelines, in order to mitigate cumulative traffic impacts, "fair-share" contributions can be required, even if the project's impacts are less than significant (<0.02) at intersections operating at LOS "E" or "F" in the City.

The Lead Agency has not identified other applicable or potentially applicable standards that can appropriately be extracted from other related policy or other environmental documents and used as the basis for assessing the potential significance of project-related and cumulative transportation and circulation impacts.

4.6.3 Impact Analysis

4.6.3.1 Construction Impacts

Transportation and Circulation Impact 6.1*. Construction vehicles will transport workers, construction equipment, building materials, and construction debris along local and collector streets and along arterial highways within and adjacent to established residential areas and other sensitive receptors.*

Level of Significance before Mitigation*. Less-than-significant impact.*

The property is bordered on the north by Diamond Bar Boulevard and on the west by Brea Canyon Road. As a result, other than the SR-57 Freeway, the primary travel routes for construction-related traffic to and from the project site will be along Diamond Bar Boulevard and Brea Canyon Road. Existing single-family homes (fronting along Cold Springs Lane) back onto the eastern property line and existing single-family homes (fronting along Ambushers Street) back onto the southern property line. Castle Rock Road and Pasado Drive terminate at the site's southern boundary. Cherrydale Drive and Crooked Creek Road terminate at the west side of Diamond Bar Boulevard, across from the project site. Northwest of the project site, across from the project site, existing single-family homes back onto Diamond Bar Boulevard.

[22]/ *Op. Cit*., 2004 Congestion Management Program for Los Angeles County, p. 18.
[23]/ *Ibid*., pp. 54 and B-6.

Construction traffic, including vehicles associated with the transport of heavy equipment and building materials to and from the project site and construction workers commuting to and from work, will increase traffic volumes along Diamond Bar Boulevard and Brea Canyon Road. Both Diamond Bar Boulevard and Brea Canyon Road presently serve as commuting routes for areawide traffic, as well as routes used by local residents.

Because site access can be obtained from Castle Rock Road and Pasado Drive, construction workers may elect to park along and construction vehicles could stage at those roadways, increasing traffic along those roadways, reducing on-street parking for residents, and introducing noise and the potential for debris.

Large trucks often have reduced visibility based on the loads those vehicles carry and the generally elevated location of the drivers. Children residing in existing residential neighborhoods located along any travel routes used by construction workers and used to transport equipment may be unaware of approaching construction vehicles. Similarly, operators of trucks hauling construction equipment and building materials may be unaware of the presence of children, bicyclists, and household pets. Spilled gravel and other debris discharged from construction vehicles and any road damage resulting from construction operations may create a nuisance to residents and a hazard to pedestrians, skateboarders, and bicyclists.

Compliance with and enforcement of speed laws and other provisions of the California Vehicle Code (CVC) and the safe use and operation of vehicles by their drivers would be expected to keep public safety issues at a less-than-significant level. Although no significant impact has been identified, in order to best ensure the safety of pedestrians and residences and enhance the protection of children residing in those neighborhoods, a number of project conditions (Condition of Approval 6-1 and Condition of Approval 6-2) have been formulated requiring the Applicant's preparation and the City's acceptance of a construction workers' parking and equipment staging plan and restricting construction-term access from and along Castle Rock Road and Pasado Drive.

The exact nature of construction traffic and daily vehicle trips is, however, difficult to predict since the number of workers and the type of equipment will vary with the construction phase and because equipment allocations are generally controlled by and dependent upon the construction contractor. Although construction traffic volumes cannot be determined with certainty, the number of total daily trips and peak-hour trips associated with worker commutes would be expected to be very small in comparison to existing traffic volumes along affected roadways.

While not necessarily indicative of actual project conditions, with regard to worker's commutes, the URBEMIS2007 (Version 9.2.4) computer model, as distributed by the South Coast Air Quality Management District (SCAQMD), indicates that single-family residential construction requires about 0.72 commute trips per dwelling unit per day. As such, without consideration of any additional worker trips or with the transport of equipment and materials to and from the site, the construction of the 202-unit housing project would require approximately 145 daily worker trips. This estimate is not, however, inclusive of any haul trips, material deliveries, or export trips associated with construction activities. Regarding the proposed commercial use, the URBEMIS2007 computer model indicates that commercial construction requires about 0.32 commute trips per thousand square feet. As such, without consideration of any additional worker trips or the transport of equipment and materials to and from the site, the construction of the 153,985 square-feet of commercial use would require approximately 49 daily worker trips.

Combined, the residential and commercial components would generate approximately 194 daily worker trips.

Most workers would be expected to arrive at the construction site in automobiles and in small trucks. To the extent operated in accordance with applicable speed limits and reasonable care, since those vehicles are already common place in residential areas and easily maneuvered by their operators, those vehicles can be safely operated and do not impose any unique risks or impose any special hazards.

In order to account for the longer acceleration time and the additional time needed to conduct turning movements, truck trips can be converted to passenger car equivalents (PCEs), based on a minimum ratio of 1.5 PCEs for smaller trucks and 2.0 PCEs for larger trucks. Since these ratios can be increased in hilly terrain or to account for other site-specific conditions, a PCE factor of 2.2 has been used as a basis for estimating truck traffic. Assuming that all truck trips were large trucks and that the number of daily large truck trips was twice the number of daily worker trips, in addition to the 194 daily worker trips, an estimated 854 PCE trips could occur during the construction period.[24] Construction-related truck traffic would be divided between Diamond Bar Boulevard and Brea Canyon Road.

Existing (2007) daily traffic volumes along project area roadway segments include: (1) Brea Canyon Road (north of Diamond Bar Boulevard) – 4,896 average daily trips (ADT); (2) Brea Canyon Road (south of Diamond Bar Boulevard) – 12,696 ADT; (3) Diamond Bar Boulevard (north of Cherrydale Drive) – 20,512 ADT; and, (4) Brea Canyon Cutoff (west of Fallow Field-Diamond Canyon) – 11,003 ADT. Since the projected 854 construction trips would be substantially less than those existing capacity figures and would primarily occur during off-peak periods, construction-related traffic would not adversely affect the existing levels of service along those roadways.

A number of project conditions (Condition of Approval 6-3 and Condition of Approval 6-4) have been formulated requiring the preparation of construction traffic mitigation and traffic control plans. In accordance with those conditions, the Applicant is required to develop and obtain the City's approval of construction management plans prior to the issuance of a grading permit. Since none of the threshold criteria would be exceeded, the identified impact would be less than significant and no project conditions or mitigation measures are recommended or required.

4.6.3.2 Operational Impacts

Transportation and Circulation Impact 6-2*. The project is forecast to generate approximately 9,276 daily two-way vehicle trips, including 272 trips during the AM and 650 trips during the PM peak hours, and would increase traffic congestion on local and regional roadways.*

Level of Significance before Mitigation*. Potentially significant unless mitigation incorporated.*

The amount of traffic associated with the proposed project, other related projects, and ambient growth, can be estimated through a three-step process. In the first step (trip generation), the amount of traffic associated with the proposed land uses is estimated on a peak-hour basis. In

[24]/ Since the Applicant has not provided the City with an estimate of the number of daily trips anticipated during the project's construction, this estimated has been derived by the Lead Agency and is presented for informational purposes only. This construction traffic estimate is not intended to impose a limitation on the number or type of vehicle trips generated during construction operations.

the second step (trip distribution), the directions of those trips is estimated. In the third step (trip assignment), the trips are assigned to specific street segments and intersection turning movements.

Traffic generation is expressed in vehicle trip ends, defined as one-way vehicular movements, either entering or exiting the generating land use. Generation factors and equations used in the traffic forecasting procedure are extracted from the Institute of Transportation Engineer's (ITE) "Trip Generation, Seventh Edition"[25] and/or the San Diego Associated Governments' (SanDAG) "San Diego Traffic Generators."[26]

The approach for estimating the project's trip generation potential was based on information in the ITE's "Guidelines for Estimating Trip Generation of Trip Generation Handbook, Second Edition."[27] Table 4.6-5 (Project Traffic Equations) summarizes the trip generation equations and Table 4.6-6 (Project Traffic Forecast) summarizes the trip generation forecast. As indicated, the project is forecast to generate 9,276 daily trips, including 272 trips (126 inbound, 146 outbound) in the AM and 650 trips (332 inbound, 318 outbound) in the PM peak hours. The general, directional traffic distribution pattern for those trips is presented in Table 4.6-7 (Project Directional Distribution Pattern) and illustrated in Figure 4.6-5 (Residential Component - Project Trip Distribution Pattern), Figure 4.6-6 (Retail Component - Project Trip Distribution Pattern), Figure 4.6-7 (AM Peak-Hour Project Traffic Volumes), and Figure 4.6-8 (PM Peak-Hour Project Traffic Volumes).

Table 4.6-5
PROJECT TRAFFIC EQUATIONS

ITE Land Use Code	Time Period	Equations	Percent Entering	Percent Exiting
Code 230: Residential Condominium /Townhouse (TE/DU)	Daily	T = 5.86(X)	50	50
	AM Peak	T = 0.44(X)	17	84
	PM Peak	T = 0.52(X)	67	43
Code 820: Retail Shopping Center (TE/1000 SF)	Daily	Ln (T) = 0.65 Ln (X) + 5.83	50	50
	AM Peak	Ln (T) = 0.60 Ln (X) + 2.29	61	39
	PM Peak	Ln (T) = 0.660 Ln (X) + 3.4	48	52
Notes: TE/DU – trip ends per dwelling unit. TE/1,000 SF – trip ends per thousand square feet.				

Source: Linscott, Law & Greenspan Engineers

Future Traffic Conditions

For the horizon year, background traffic growth estimates have been calculated using an ambient growth factor. The ambient traffic growth factor is intended to include unknown and future related projects in the study area, as well as account for regional growth in traffic volumes due to the development of projects outside the study area.

[25]/ Institute of Transportation Engineers, Trip Generation, Seventh Edition, 2003.
[26]/ San Diego Associated Governments, San Diego Traffic Generators, April 2002.
[27]/ Institute of Transportation Engineers, Guidelines for Estimating Trip Generation of Trip Generation Handbook, Second Edition, June 2004.

Table 4.6-6
PROJECT TRAFFIC FORECAST

Project Description	Daily 2-Way	AM Peak Hour			PM Peak Hour		
		In	Out	Total	In	Out	Total
Condominiums/Townhouses (202 DU)	1,184	14	75	89	70	35	105
Retail Center (153,985 SF)	8,991	124	79	203	400	432	832
Total Gross Trip Generation Potential	10,175	138	154	292	470	467	937
Less Retail Pass-By Adjustment[1]	-899	-12	-8	-20	-138	-149	-287
Total Net Project Trip Generation	9,276	126	146	272	332	318	650

Notes:
1. Pass-by trips are trips made as intermediate stops on the way from an origin to a primary trip destination. Pass-by trips are attracted from traffic passing the site on adjacent streets containing direct access to the generator. The PM peak-hour pass-by percentage (T) for retail shopping center uses is calculated based on the following equation: LN (T) = -0.291 LN (X) + 5.001, where X = gross leasable area (Source: ITE, Trip Generation Handbook, June 2004). AM peak-hour and daily pass-by percentages estimated to be 10% of the retail center.

Source: Linscott, Law & Greenspan Engineers

Table 4.6-7
PROJECT DIRECTIONAL DISTRIBUTION PATTERN

Distribution Percentage		Orientation
Residential Component	Retail Component	
30	15	To/from the north via SR-57 Freeway
30	15	To/from the south via SR-57 Freeway
20	25	To/from the south on SR-57 Freeway via Diamond Bar Boulevard
5	5	To/from the north via Brea Canyon Road
5	5	To/from the south via Brea Canyon Road
10	15	To/from the west via Brea Canyon Cutoff
-	5	To/from the south via Pathfinder Road
-	15	Local streets (neighborhood origin via Cold Springs, Fountain Springs, Sugarpine Place, Shadow Canyon Road, etc.)
100	100	Total

Source: Linscott, Law & Greenspan Engineers

Background traffic in the study area is estimated to increase at a rate of about two percent per year in the near term and 0.7 percent per year in the long term. Future increases in background traffic due to regional development are expected to continue at the same rate. For 2010, the existing (2007) traffic volumes were increased by six percent to reflect regional traffic growth. For 2030, the existing (2007) traffic volumes were increased by six percent to account for regional growth to 2010 and were then increased by 14 percent from 2010 to 2030.

In order to make a realistic estimate of future traffic conditions prior to the implementation of the proposed project, the status of other known development projects (related projects) in the general project area was researched. With this information, the potential impact of the proposed project can be evaluated within the context of the cumulative impact of other ongoing development. The traffic expected to be generated by future projects under construction or proposed accounts for the second element of the 2010 and 2030 cumulative-base scenarios.

As illustrated in Figure 3-1 (Related Projects Location Map) and summarized in Table 3-4 (Related Projects Summary), six related projects were identified that have either been built but not yet fully occupied or are currently being processed by local municipalities. These cumulative projects are expected to generate vehicular traffic which may affect the operating conditions of those key study area intersections identified herein. The list of cumulative projects was developed in conjunction with the staffs of the City of Diamond Bar and City of Industry.[28]

Table 4.6-8 (Related Projects Traffic Generation Forecast) presents the projected trip generation for the six related projects.[29] As indicated therein, the four related projects included in the 2010 cumulative-base (existing, ambient growth, and related projects) conditions were estimated to generate about 4,596 daily trips, including 168 AM and 388 PM peak-hour trips. The two additional related projects included in the 2030 cumulative-base condition would generate about 112,252 daily trips, including 8,274 AM and 11,481 PM peak-hour trips.

Based on recent actions (2009) by the City of Industry, the proposed mix of uses for the Industry "Industry Business Center" (IBC) (Related Project No. 5) has been revised to include a 75,000-seat stadium (for NFL games primarily), 280,000 square feet of stadium-related uses and non-stadium uses totaling 100,000 square feet of medical office, 833,000 square feet of retail, 162,000 square feet of restaurants, a 5,000-seat live theater, a 1,200-seat movie theater, and 1,490,000 square feet of general office. As described in Table 3-3 (Related Projects Summary), the previously approved (2004) plan of development for that property consisted primarily of light industrial and office/business park uses, with retail/automobile dealership uses, was forecast to generate a greater amount of trips on a daily and AM and PM peak hour basis.

When compared against the weekday daily, AM peak hour, and PM peak-hour traffic generation of the now proposed IBC/NFL development, the prior 2004 IBC plan of development is forecast to generate 14,221 more weekday daily trips, 2,961 more AM peak hour trips, and 2,187 more PM peak hour trips.[30] In order to provide a conservative analysis, the prior 2004 IBC plan of development was included in the cumulative traffic analysis.

The AM/PM peak-hour traffic volumes associated with the four related projects considered in the 2010 cumulative-base traffic analysis are presented in Figure 4.6-9 (2010 Related Projects AM Peak-Hour Traffic Volumes) and Figure 4.6-10 (2010 Related Projects PM Peak-Hour Traffic Volumes). Figure 4.6-11 (2010 Cumulative-Base AM Peak-Hour Traffic Volumes) and Figure 4.6-12 (2010 Cumulative-Base PM Peak-Hour Traffic Volumes) present 2010 cumulative traffic volumes at the 20 key study area intersections. The cumulative traffic volumes illustrated therein represent the accumulation of existing traffic, ambient growth, and related projects traffic. Figure 4.6-13 (2010 Related Projects-Plus-Project AM Peak-Hour Traffic Volumes) and Figure 4.6-14 (2010 Related Projects-Plus-Project PM Peak-Hour Traffic Volumes with Project) illustrate 2010 cumulative forecast AM/PM peak-hour traffic volumes with the inclusion of the trips generated by the project.

[28]/ The City of Industry's proposed "Los Angeles Stadium" project was not included in this TIA because the "Notice of Preparation" for that project was published after the traffic study had been completed and accepted for processing by the Lead Agency and because the IBC project represents an approved but not yet build development.

[29]/ The information pertaining to the trip generation for the related projects was directly obtained from their respective traffic studies or derived from the Institute of Transportation Engineer's (ITE) "Trip Generation, Seventh Edition." Trip distribution and assignment information was directly taken from the respective reports or derived from engineering judgment and familiarity with the general project area.

[30] Linscott, Law & Greenspan, Traffic Impact Analysis for Industry Business Center, August 18, 2008.

Table 4.6-8
RELATED PROJECTS TRAFFIC GENERATION FORECAST

No.	Location/Address	Daily 2-Way	AM Peak Hour			PM Peak Hour		
			In	Out	Total	In	Out	Total
Related Projects included in 2010 and 2030 Cumulative-Base Conditions Only								
1	Tentative Tract 54081[1]	192	4	11	15	13	7	20
2	The Country – Tentative Tract 53430[2]	459	9	27	36	31	17	48
3	The Country – Tentative Tract 53670	48	1	3	3	3	2	5
4	Country Hills Towne Center Expansion[3]	3,897	99	14	113	124	191	315
	Subtotal (Projects 1-4)	4,546	113	55	168	171	217	388
Related Projects included in 2030 Cumulative-Base Conditions Only								
5	Industry Business Center (IBC)[4]	67,993	4,460	1,086	5,546	2,362	4,954	7,327
6	Aera Energy Planned Community[5]	44,259	856	1,872	2,728	2,448	1,706	4,154
	Subtotal (Projects 5-6)	112,252	5,316	2,958	8,274	4,810	6,671	11,481
	Total (Projects 1-6)	116,848	5,429	3,013	8,442	4,981	6,888	11,869

Notes:
1. Overland Traffic Consultants, Traffic Analysis for a Proposed Single Family Residential Subdivision, September 2003.
2. Transolutions, The Country – Tentative Tract 53430 Traffic Study Reports, December 2003.
3. Linscott, Law & Greenspan Engineers, Country Hills Towne Center Expansion Traffic Impact Analysis, April 2005.
4. Linscott, Law & Greenspan Engineers, Traffic Impact Study for Industry Business Center, March 2004; Linscott, Law & Greenspan Engineers, Traffic Impact Analysis for Industry Business Center Supplemental Environmental Impact Report, August 18, 2008.
5. Information provided by LSA Associates, Inc.

Source: Linscott, Law & Greenspan Engineers

The AM/PM peak-hour traffic volumes associated with the six related projects considered in the 2030 cumulative traffic analysis are presented in Figure 4.6-15 (2030 Related Projects AM Peak-Hour Traffic Volumes) and Figure 4.6-16 (2030 Related Projects PM Peak-Hour Traffic Volumes). The potential traffic volumes generated by the City of Industry's IBC project were assigned to the existing street system assuming that Sunset Crossing Road will not be extended between the IBC project property and the roadway's current western terminus.

Figure 4.6-17 (2030 Cumulative-Base AM Peak-Hour Traffic Volumes) and Figure 4.6-18 (2030 Cumulative Base PM Peak-Hour Traffic Volumes) present future AM/PM peak-hour cumulative traffic volumes at the 20 key study area intersections for 2030. The cumulative traffic volumes represent the accumulation of existing traffic, ambient growth, and related project traffic. Figure 4.6-19 (2030 Related Projects-Plus-Project AM Peak-Hour Traffic Volumes) and Figure 4.6-20 (2030 Related Projects-Plus-Project PM Peak-Hour Traffic Volumes) shows the 2030 forecasted AM/PM peak-hour traffic volumes with the inclusion of the trips generated by the project.

In order to assess traffic impacts, nine separate scenarios were examined: (1) 2007 existing traffic conditions; (2) 2007 existing-plus-project traffic conditions; (3) 2007 existing-plus-project traffic conditions, with Improvements (if necessary); (4) 2010 cumulative-base conditions (existing, ambient growth, and related projects); (5) 2010 cumulative-base-plus project traffic conditions; (6) 2010 cumulative-base-plus project conditions, with Improvements (if necessary); (7) 2030 cumulative-base conditions (existing, ambient growth, and related projects); (8) 2030 cumulative-base-plus-project traffic conditions; (9) 2030 cumulative-base-plus-project traffic conditions, with Improvements (if necessary).

Peak-Hour Intersection Capacity Analysis

Table 4.6-9 (2007 Peak-Hour Intersection Capacity Analysis) summarizes the peak-hour LOS results at the 20 key study area intersections for existing and existing-plus-project traffic conditions.[31] As indicated in Table 4.6-4 (Existing Peak-Hour Levels of Service), 17 of the 20 key study area intersections currently operate at satisfactory service levels (i.e., LOS "D" or better at non-CMP intersections and LOS "E" or better at CMP intersections) during the AM/PM peak hours. Three intersections currently operate at an unacceptable service level during the AM and/or PM peak hours. These intersections include: Pathfinder Road at Brea Canyon Cutoff (LOS "E" for PM Peak Hour), SR-57 SB Ramps at Brea Canyon Cutoff (LOS "F" for AM/PM peak hours, Brea Canyon Road at Silver Bullet Drive (LOS "F" for AM/PM peak hours).

As indicated in Table 4.6-9 (2007 Peak-Hour Intersection Capacity Analysis), for existing and existing-plus-project traffic conditions (2007), traffic associated with the proposed project will significantly impact three (3) of the 20 key intersections when compared to the LOS standards and significant traffic impact criteria defined in this report. Review of this table indicates that the proposed project will further deteriorate the existing adverse LOS of Pathfinder Road at Brea Canyon Cutoff Road and SR-57 SB Ramps at Brea Canyon Cutoff Road, as both these intersections are forecast to continue to operate at an unacceptable LOS with the addition of project traffic. The addition of project traffic will directly impact the intersection of Cherrydale Avenue at Diamond Bar Boulevard, as the LOS at this intersection is forecast deteriorate from LOS "C" and "B" to LOS "E" and "F" during the AM and PM peak hour, respectively. With the implementation of the recommended improvements, however, these intersections are forecast to operate at LOS "D" or better.

The project ICU increment at the Brea Canyon Road/Silver Bullet Drive intersection, which is forecast to continue to operate at LOS "F," is less than the maximum allowable threshold. The project's traffic impact at this location is, therefore, less than significant. The remaining 16 study intersections are forecast to continue to operate at acceptable service levels during the weekday AM and PM peak commute hours.

Table 4.6-10 (2010 Peak-Hour Intersection Capacity Analysis) summarizes the peak-hour LOS results at the 20 key study area intersections for 2010 cumulative-base (existing, ambient growth, and related projects) traffic conditions.[32] The analysis of future (2010) cumulative traffic conditions indicates that:

[31]/ As indicated therein: (1) "Column 1" presents a summary of existing AM/PM peak-hour traffic conditions (also presented in Table 4.6-4); (2) "Column 2" lists existing-plus-project traffic conditions based on existing intersection geometry; (3) "Column 3" shows the increase in ICU or delay value due to the added peak-hour project trips and indicates whether the traffic associated with the proposed project will have a significant impact based on City LOS standards and the significance impact criteria defined herein: (4) "Column 4" indicates the anticipated service level with implementation of recommended improvements to mitigate project traffic impacts to achieve an acceptable LOS.

[32]/ As shown therein: (1) "Column 1" presents existing traffic operating conditions; (2) "Column 2" presents future (2010) cumulative traffic conditions; (3) "Column 3" reports the forecast 2010 traffic conditions with project traffic; (4) "Column 4" shows the increase in ICU value due to the added peak-hour project trips and indicates whether the traffic associated with the proposed project will have a significant traffic impact based on the identified significance impact criteria; and (5) "Column 5" indicates the anticipated level of service with implementation of recommended improvements.

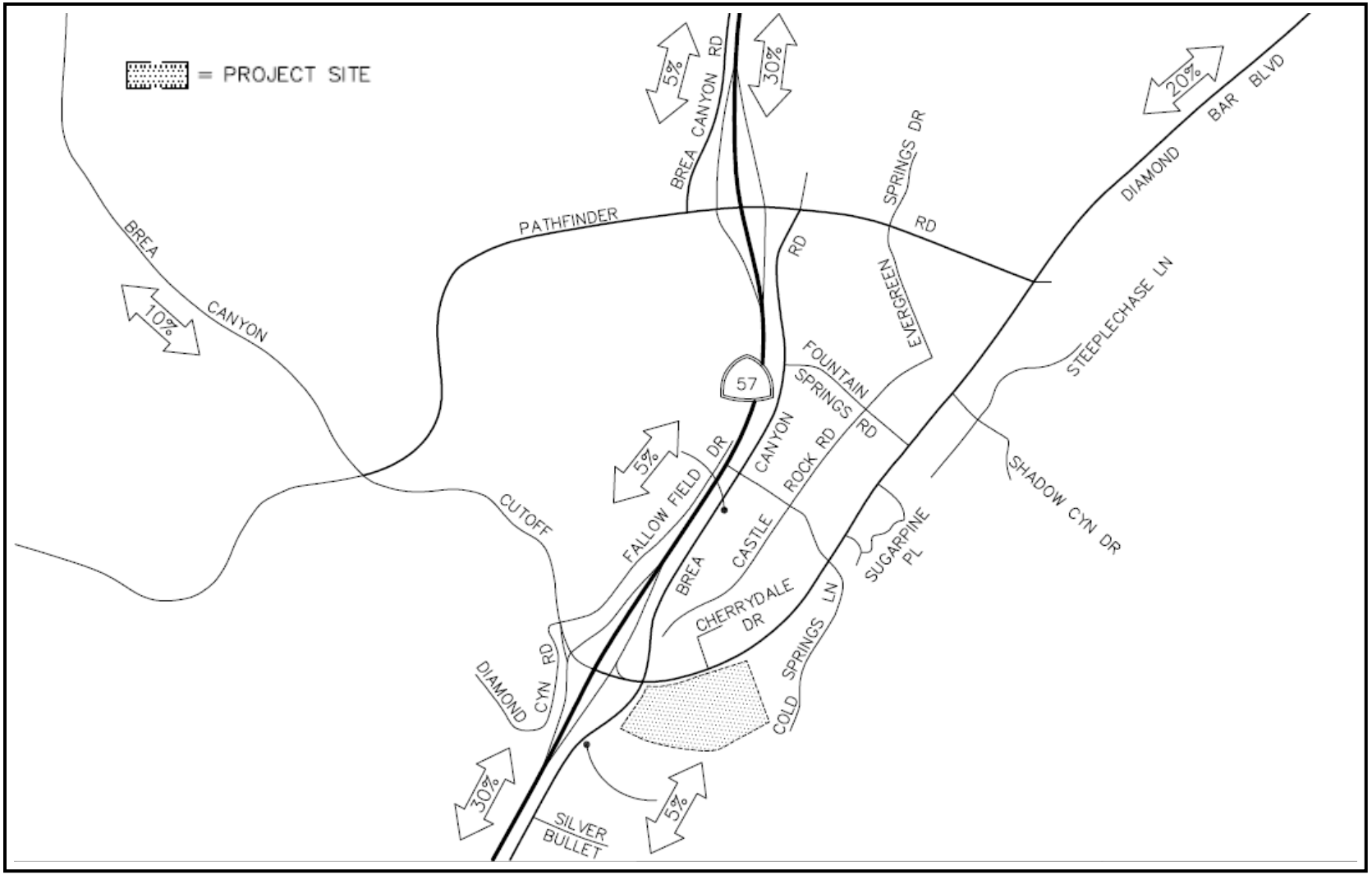


Figure 4.6-5
RESIDENTIAL COMPONENT
PROJECT TRIP DISTRIBUTION PATTERN
Source: Linscott, Law & Greenspan Engineers

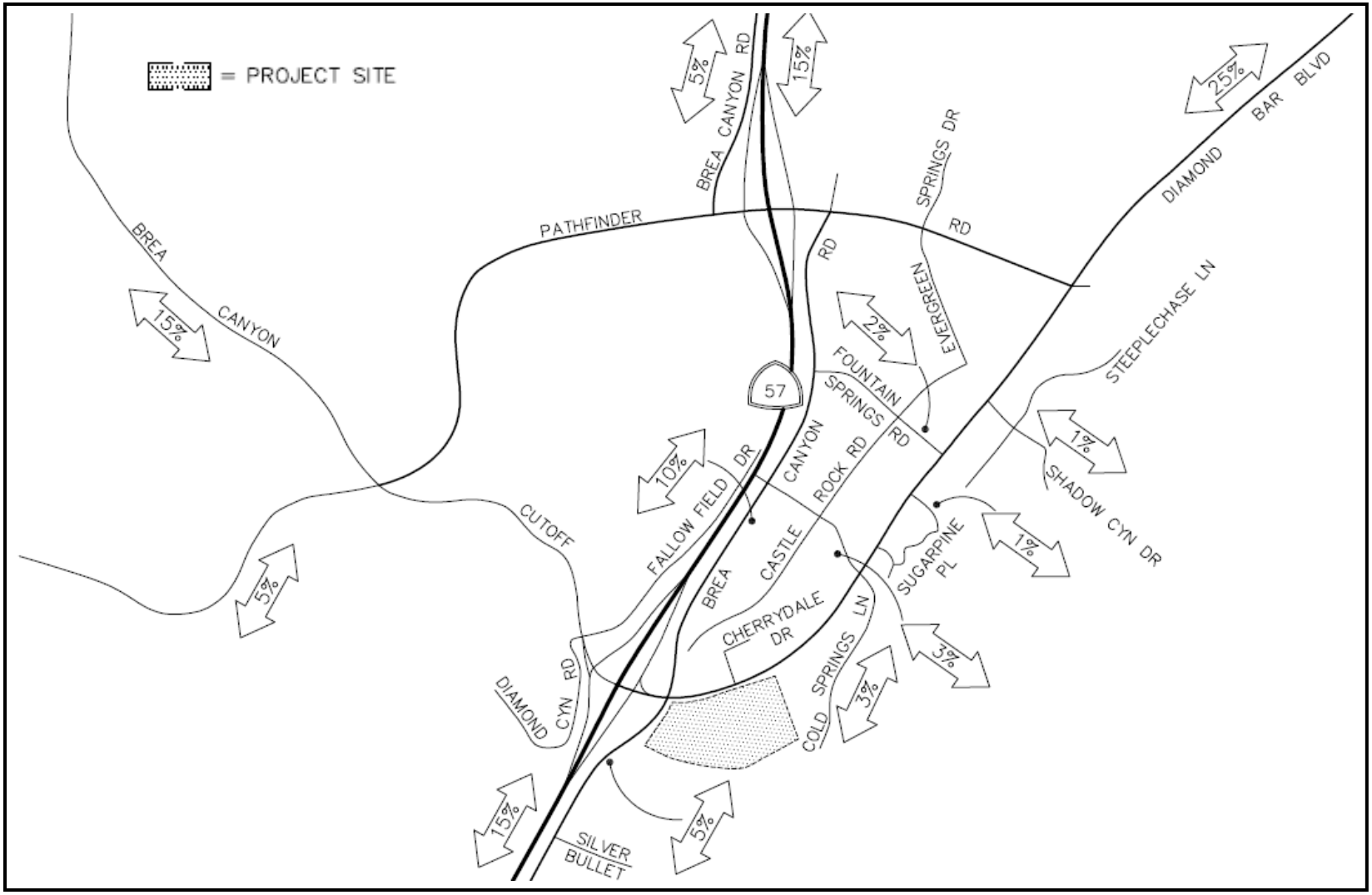


Figure 4.6-6
RETAIL COMPONENT
PROJECT TRIP DISTRIBUTION PATTERN
Source: Linscott, Law & Greenspan Engineers

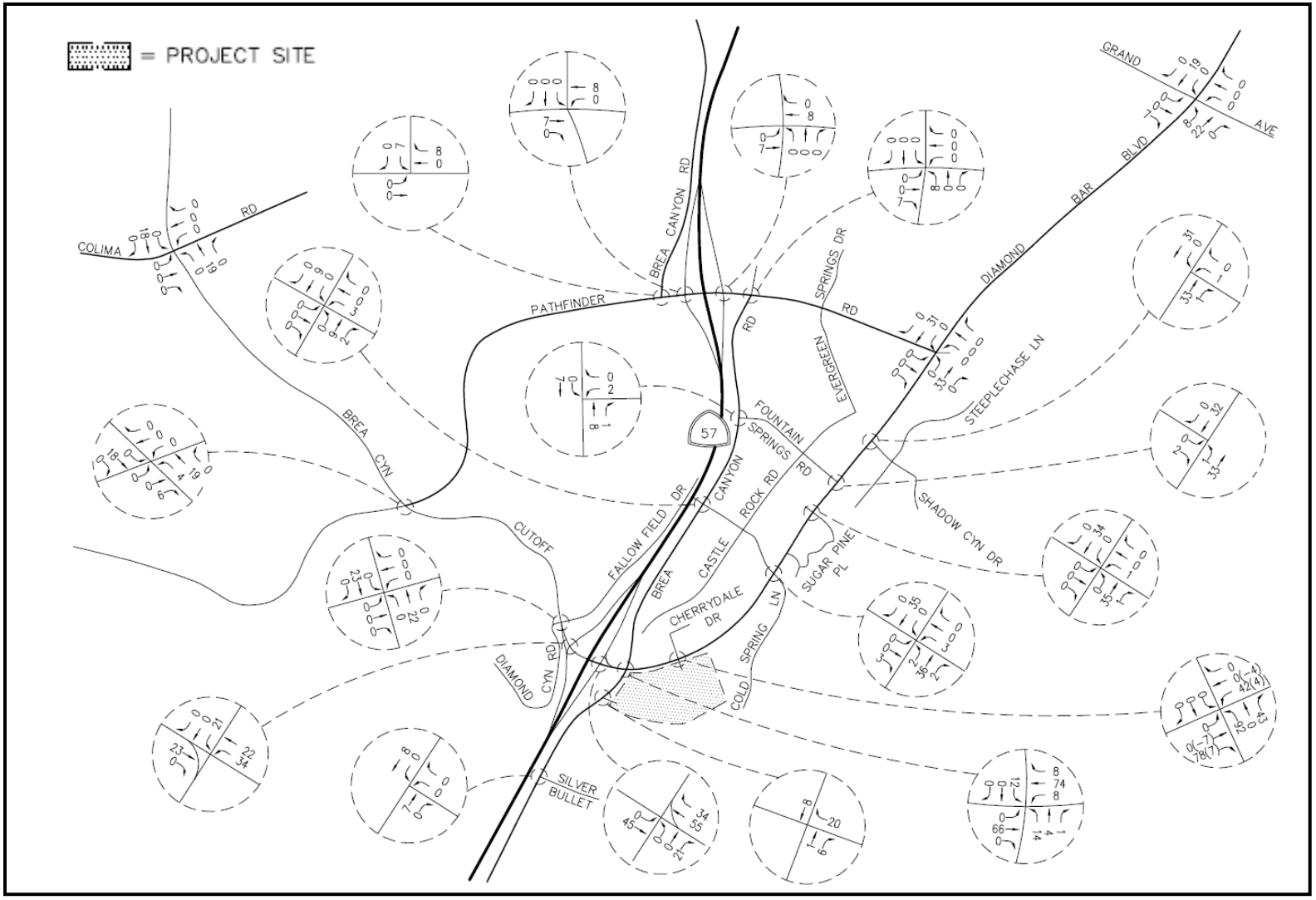


Figure 4.6-7
AM PEAK HOUR PROJECT TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

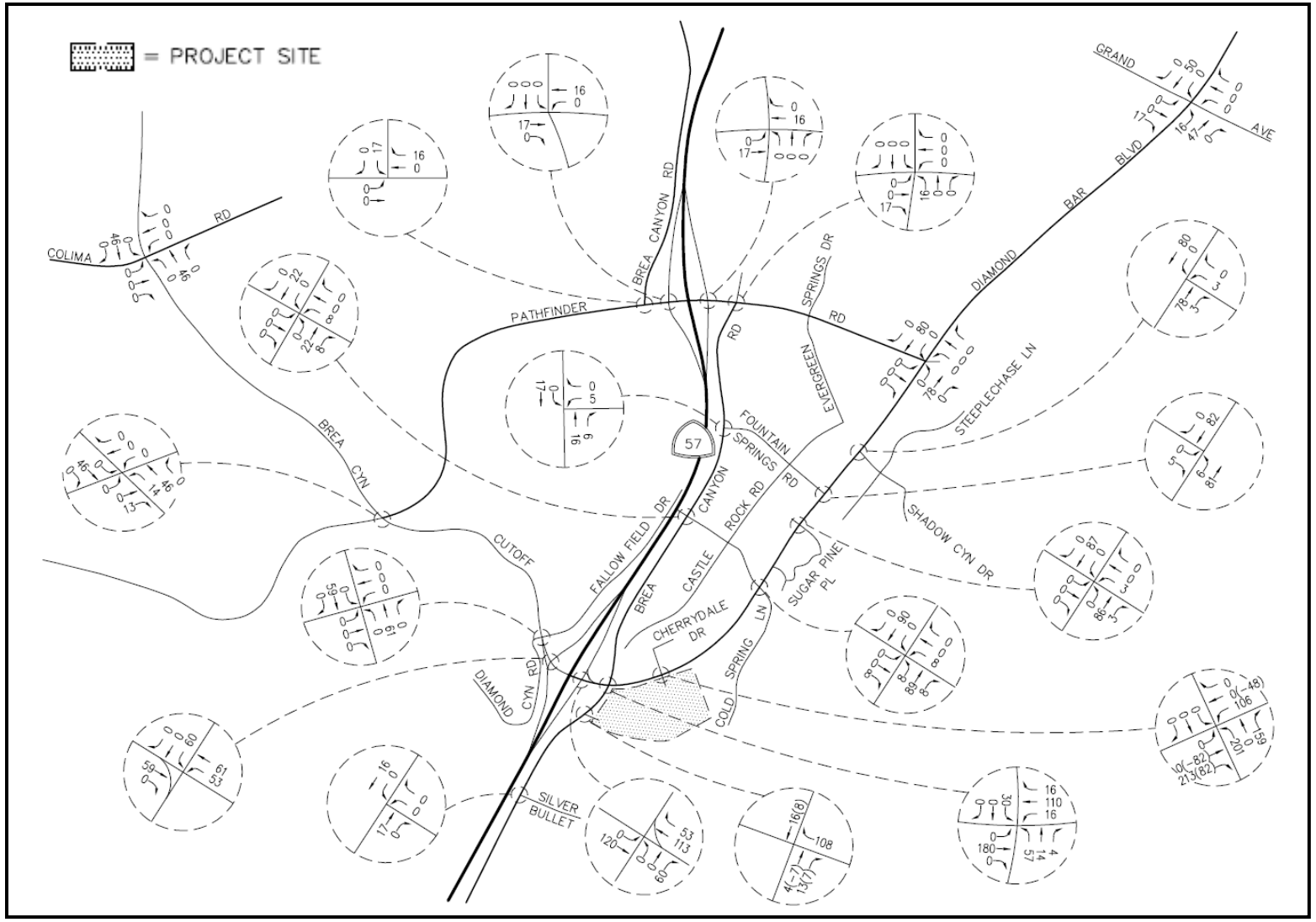


Figure 4.6-8
PM PEAK HOUR PROJECT TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

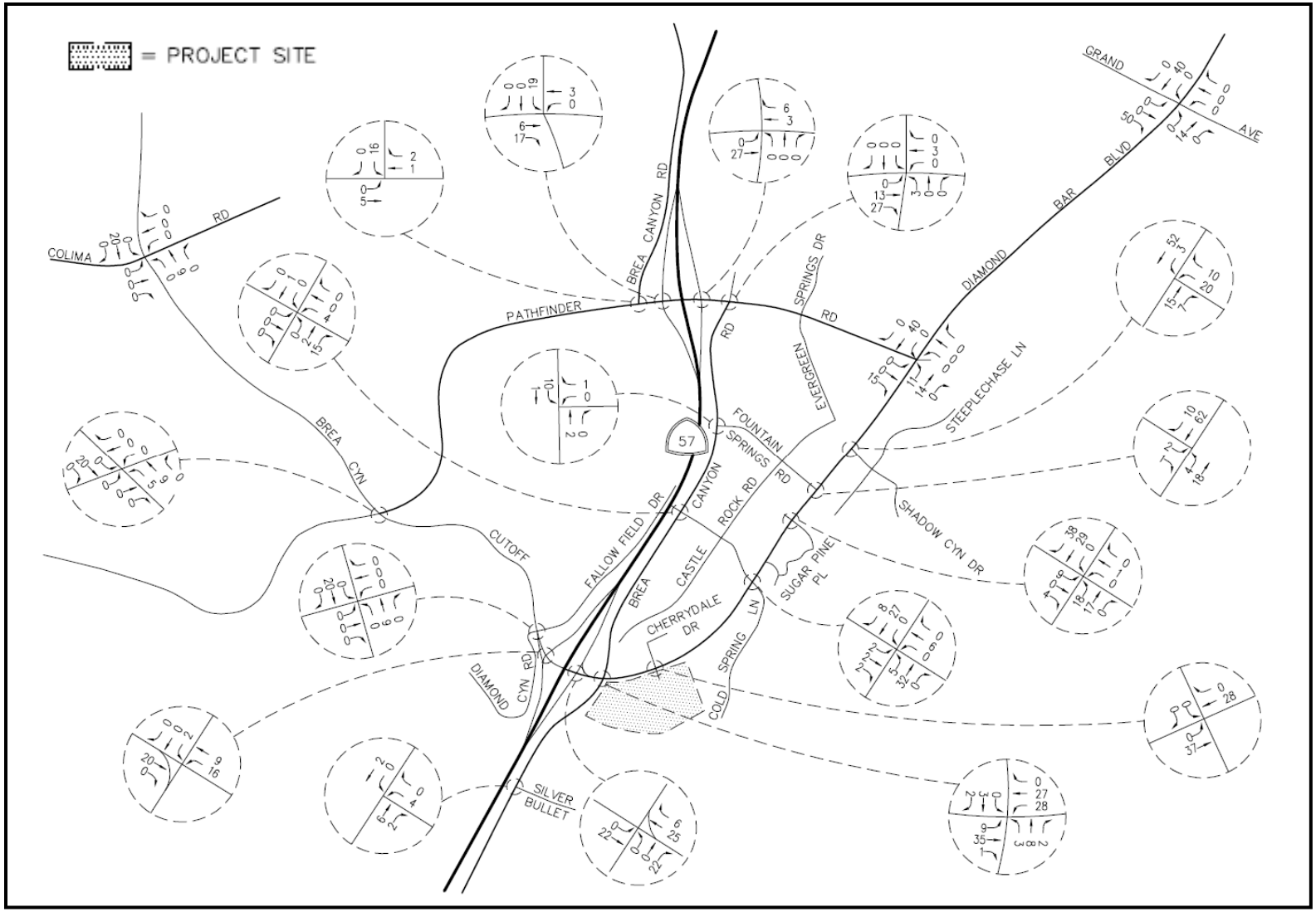


Figure 4.6-9
2010 RELATED PROJECTS - AM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

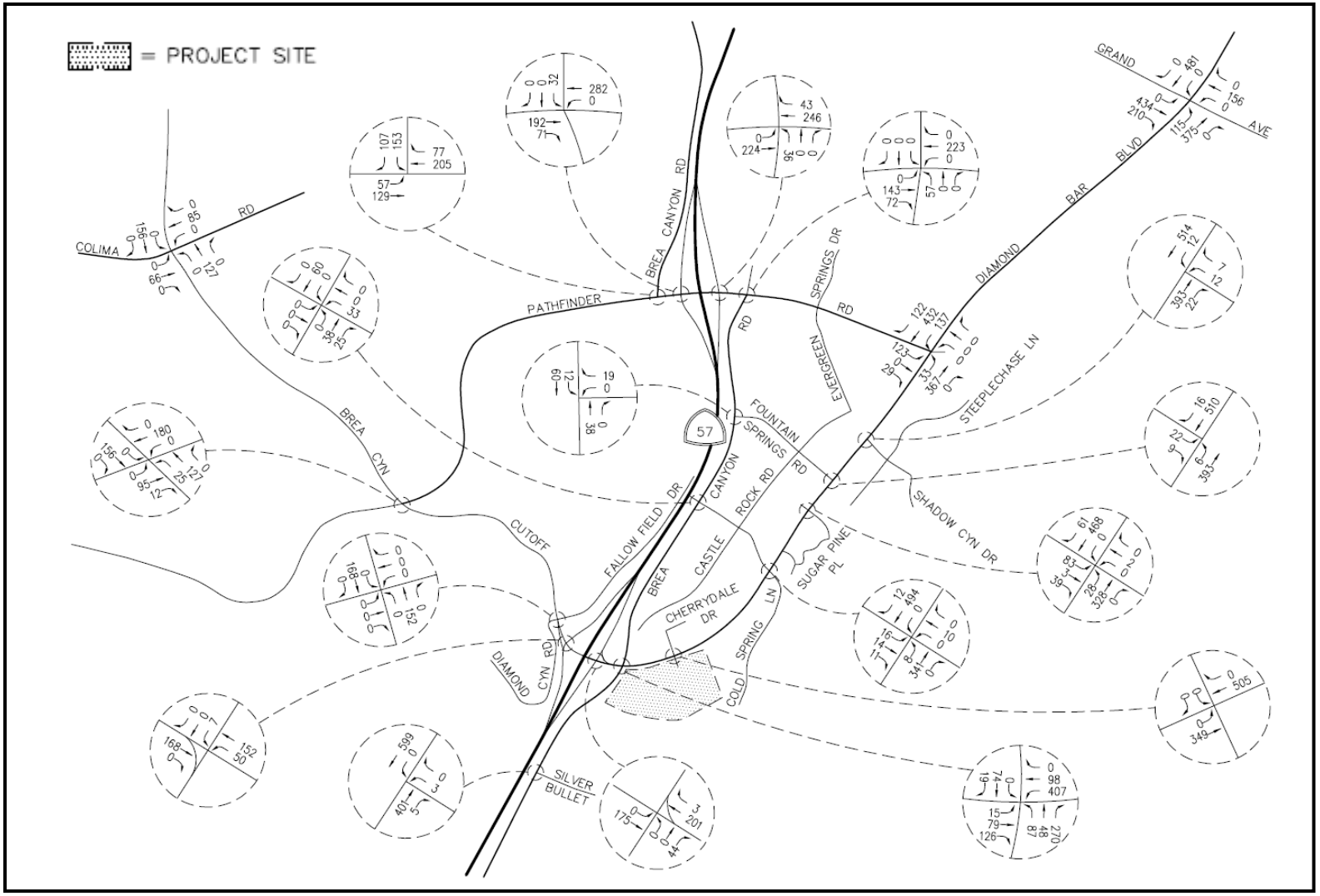


Figure 4.6-10
2010 RELATED PROJECTS - PM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

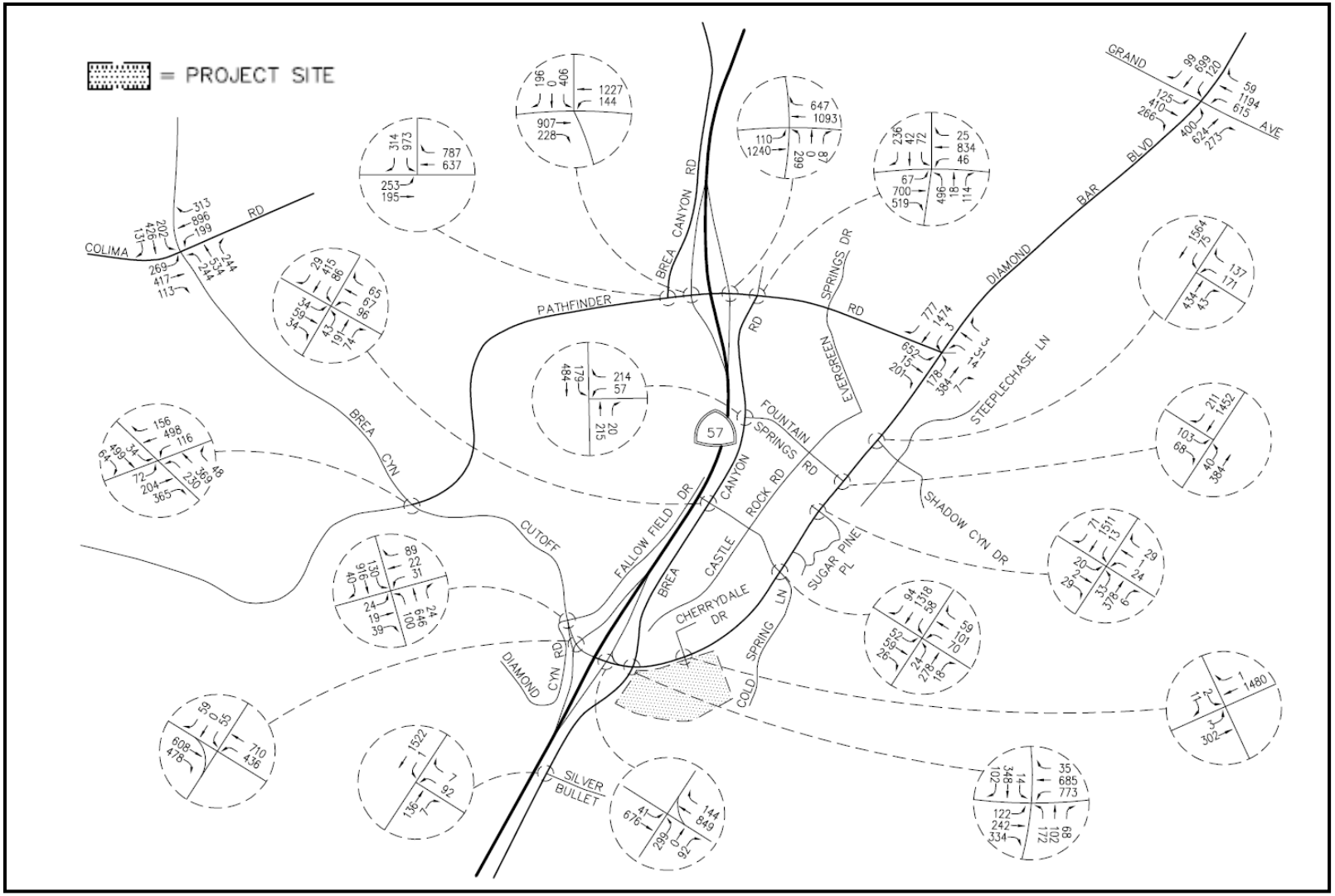


Figure 4.6-11
2010 CUMULATIVE-BASE - AM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

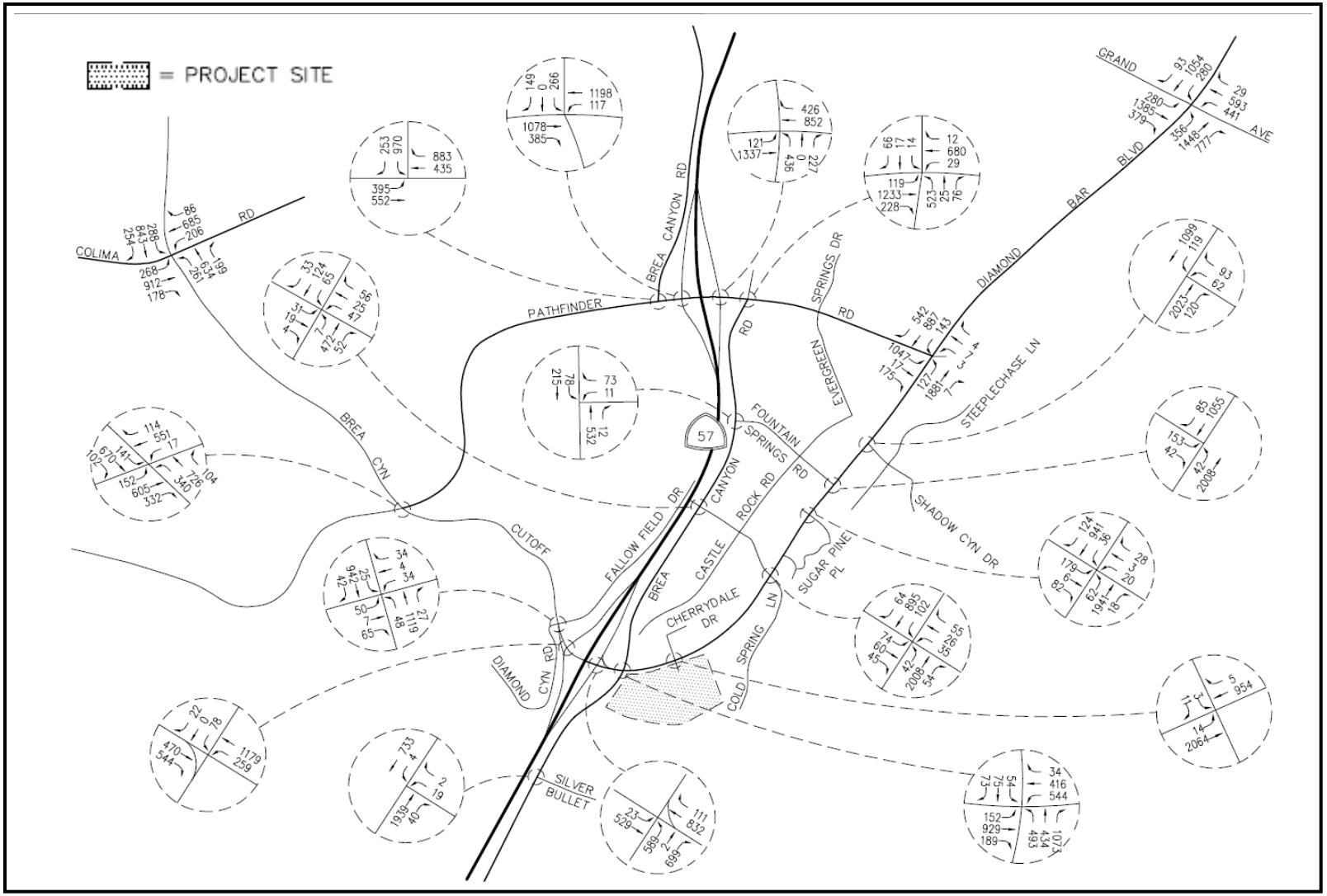


Figure 4.6-12
2010 CUMULATIVE-BASE - PM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

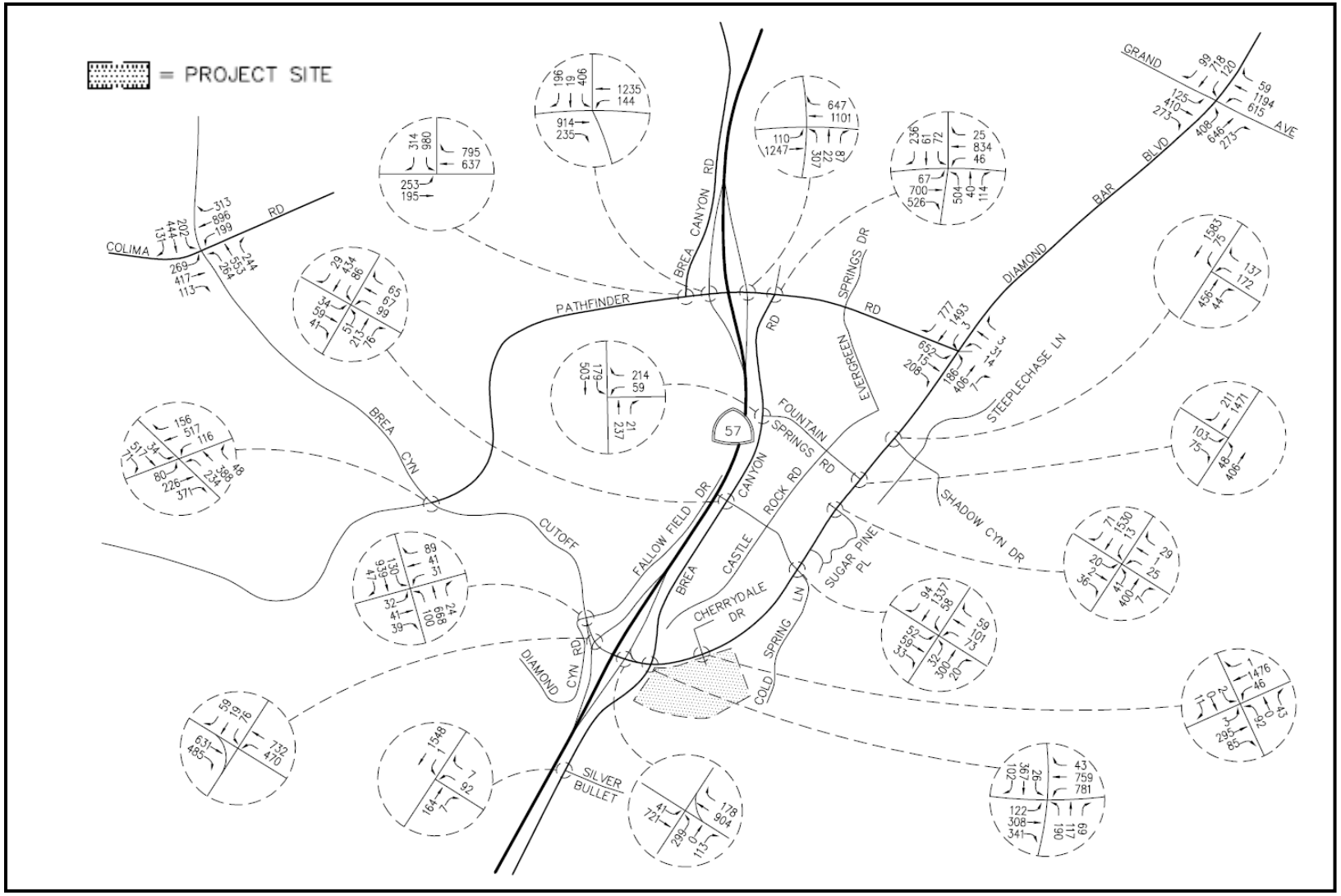


Figure 4.6-13
2010 RELATED PROJECTS-PLUS-PROJECT - AM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

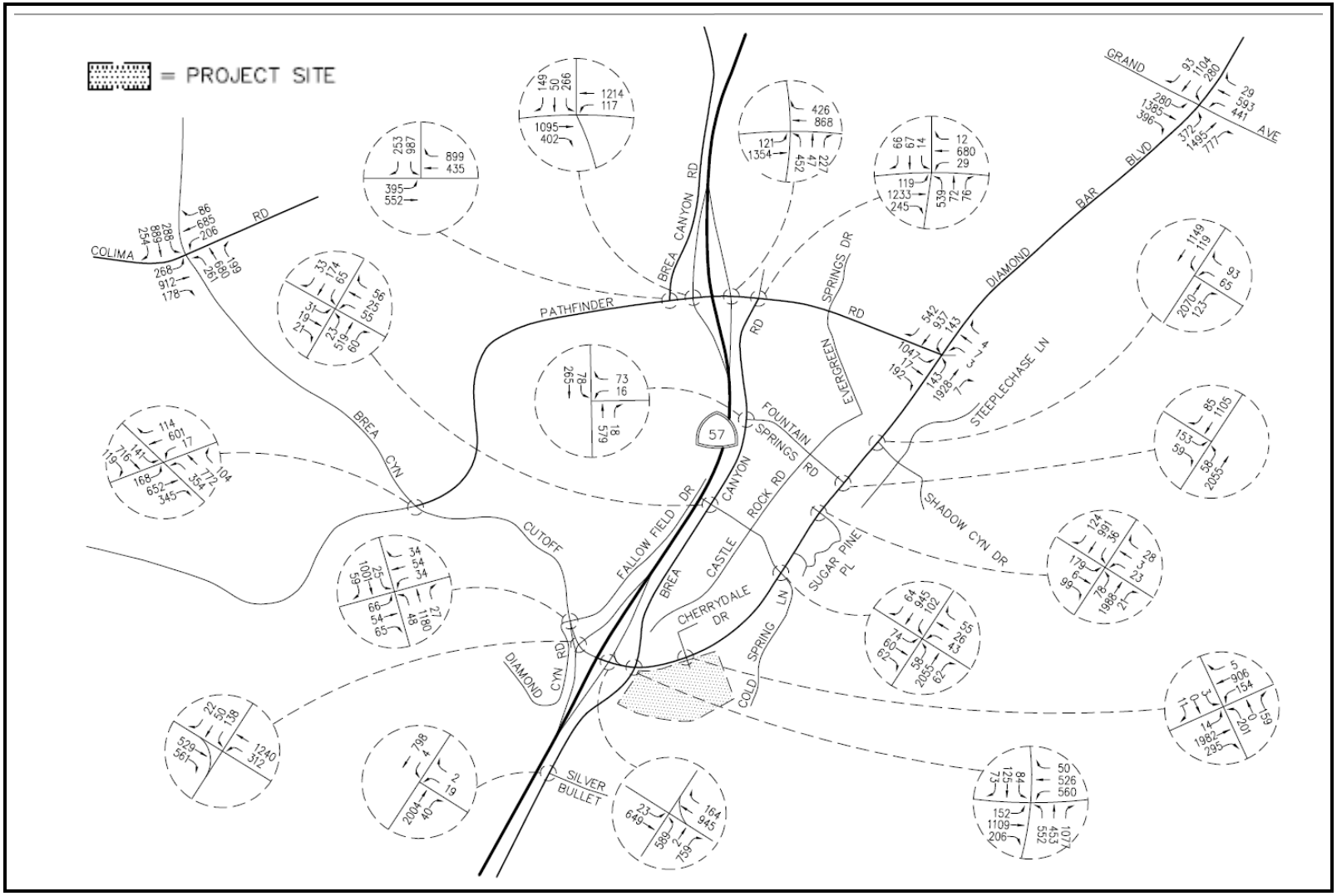


Figure 4.6-14
2010 RELATED PROJECTS-PLUS-PROJECT - PM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

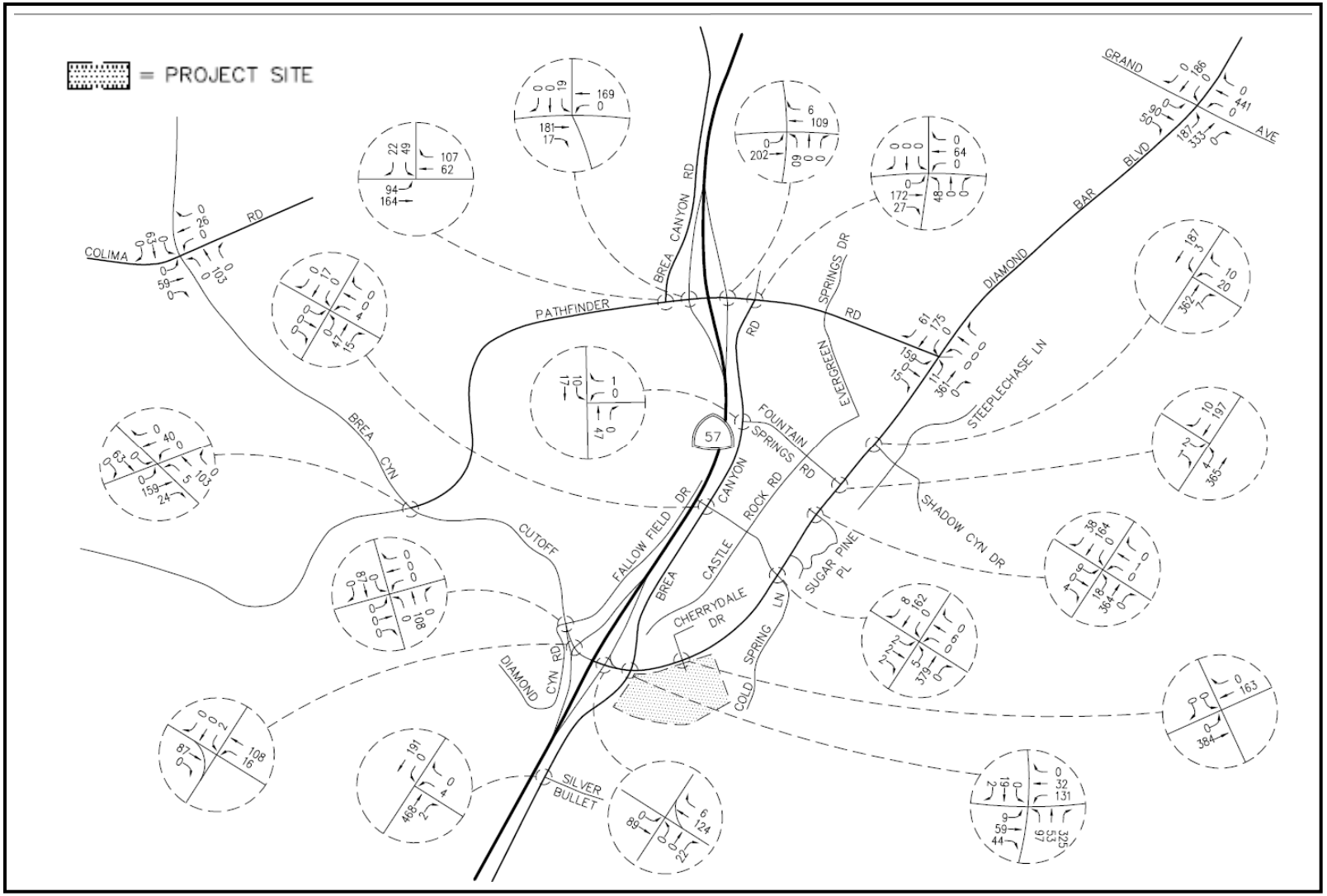


Figure 4.6-15
2030 RELATED PROJECTS - AM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

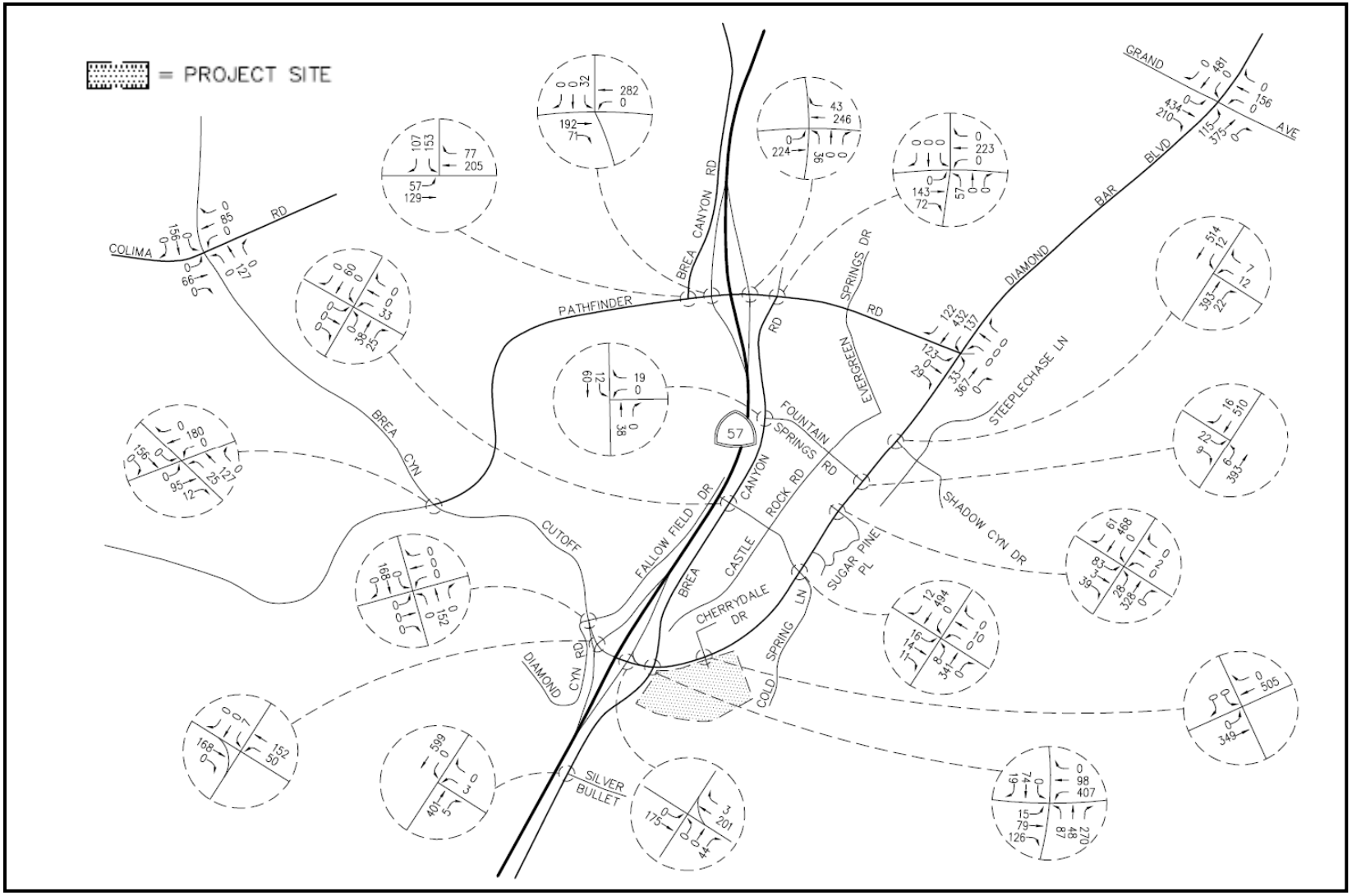


Figure 4.6-16
2030 RELATED PROJECTS - PM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

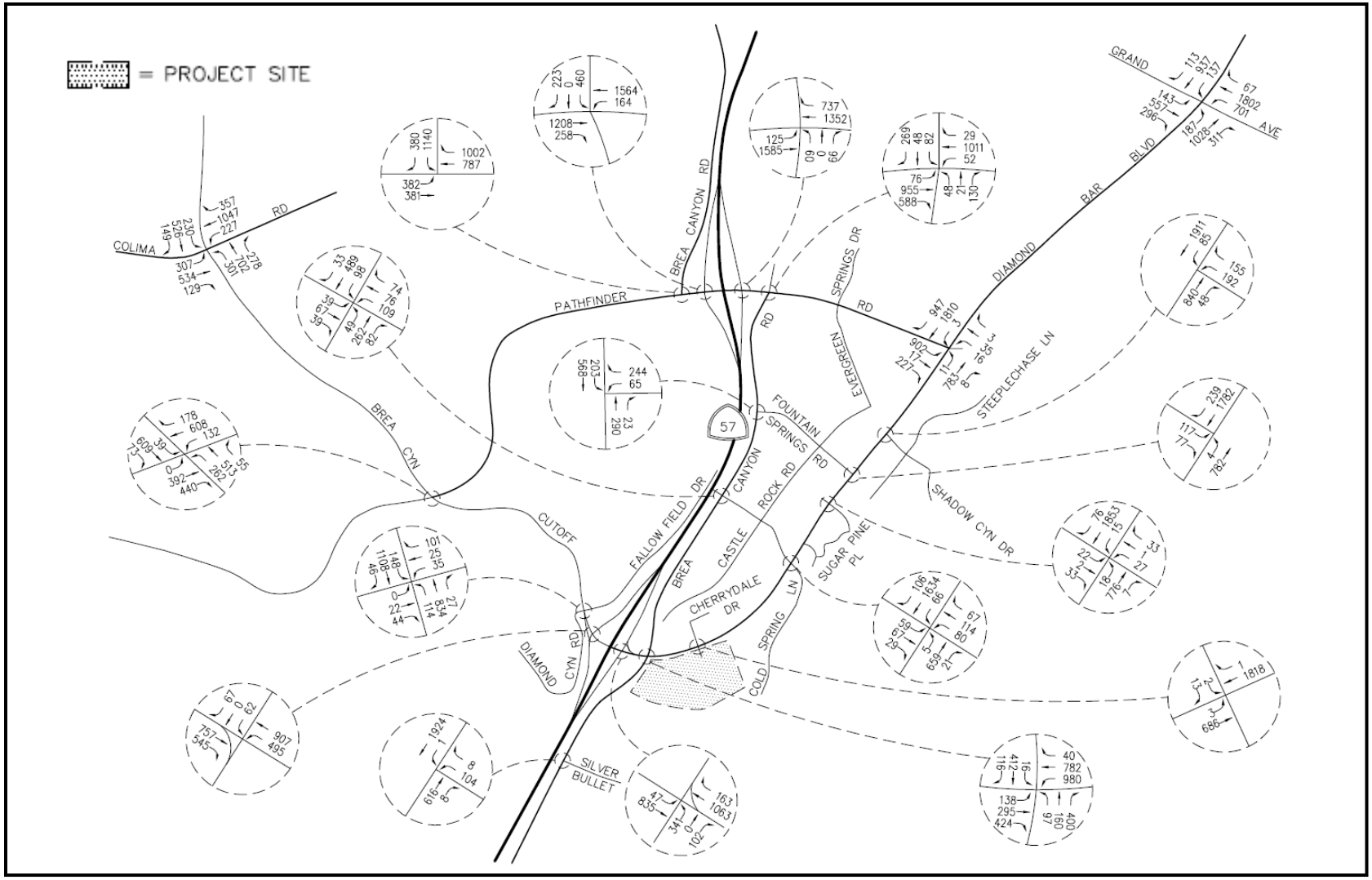


Figure 4.6-17
2030 CUMULATIVE-BASE - AM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

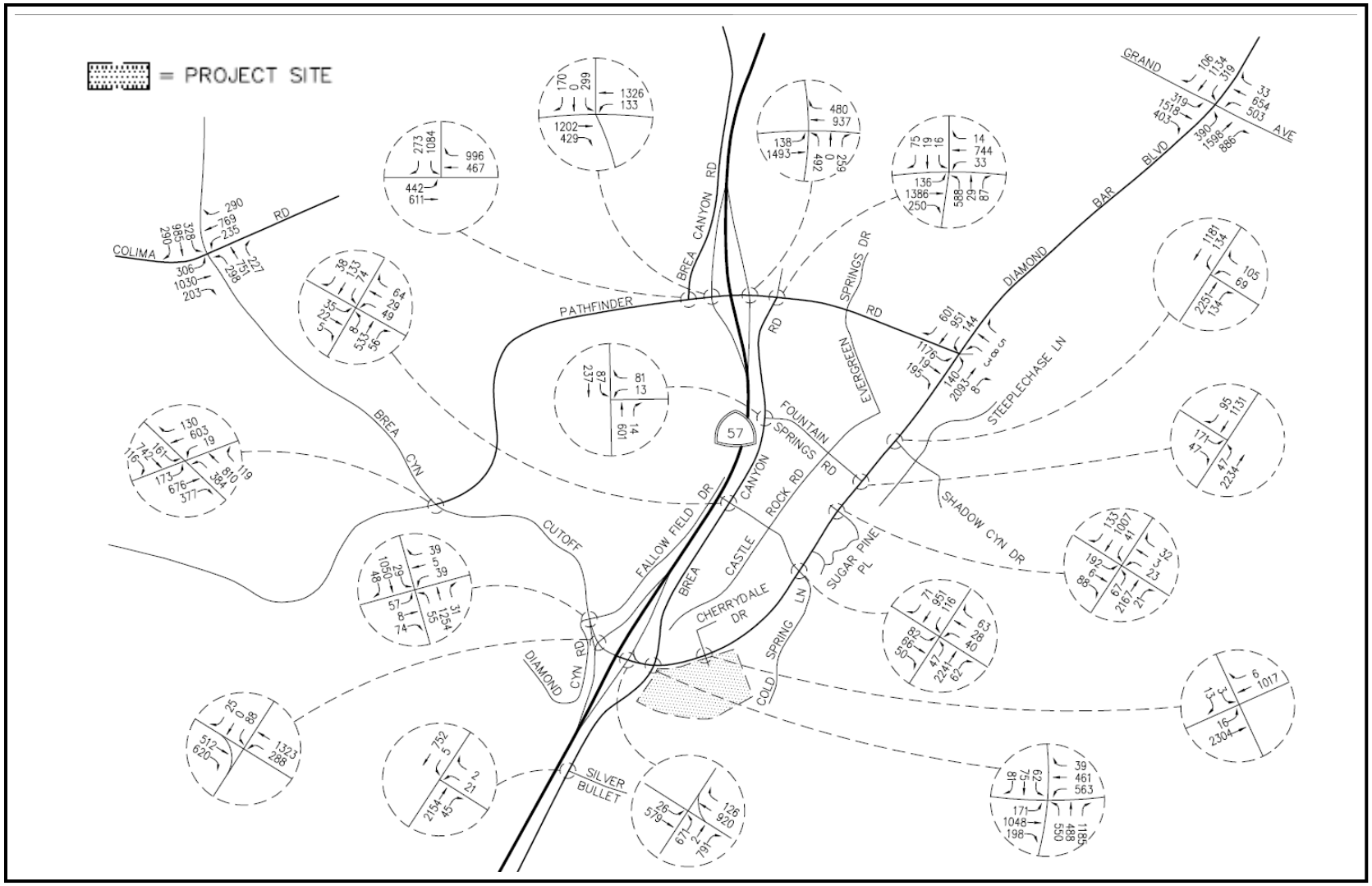


Figure 4.6-18
2030 CUMULATIVE-BASE - PM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

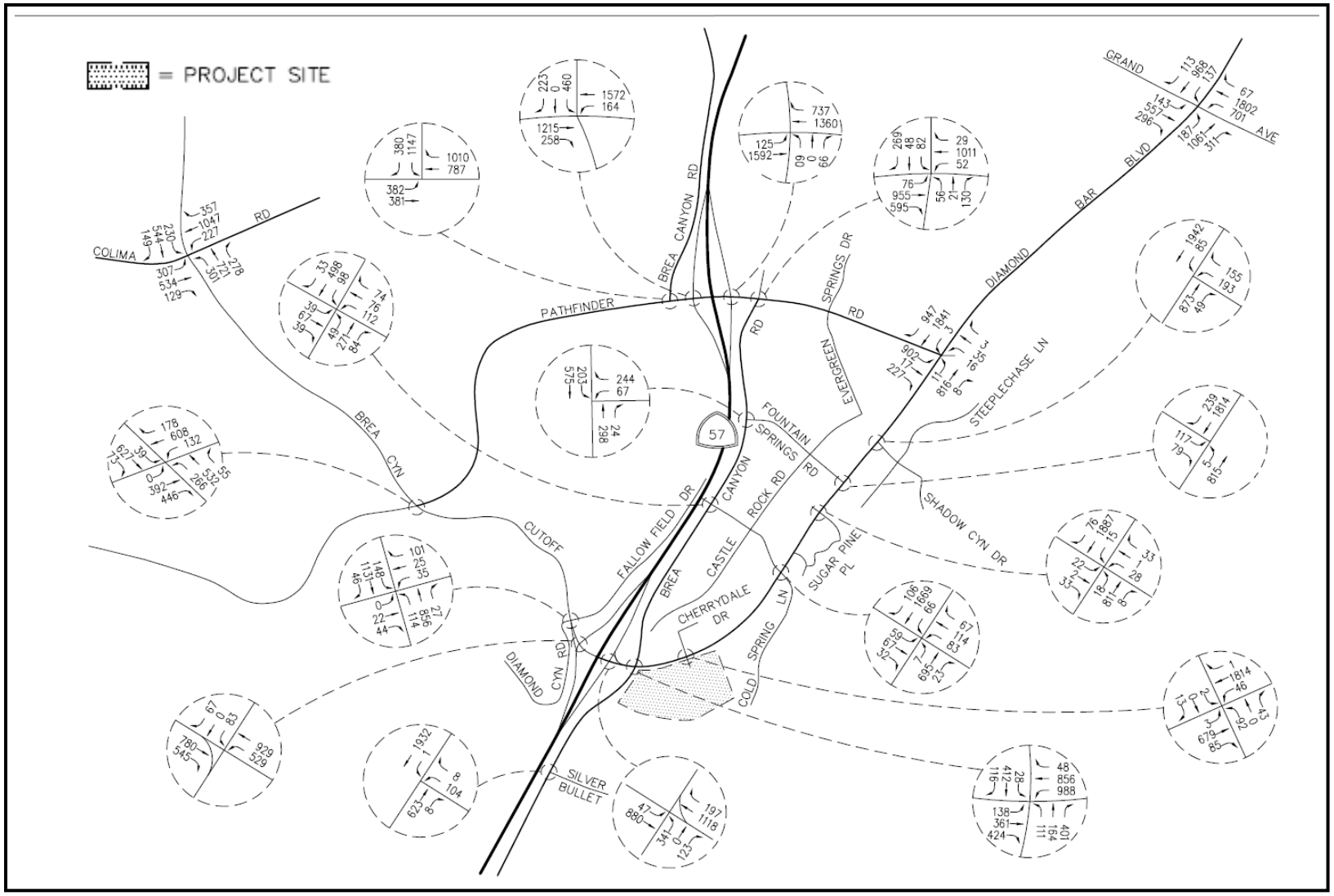


Figure 4.6-19
2030 RELATED PROJECTS-PLUS-PROJECT - AM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

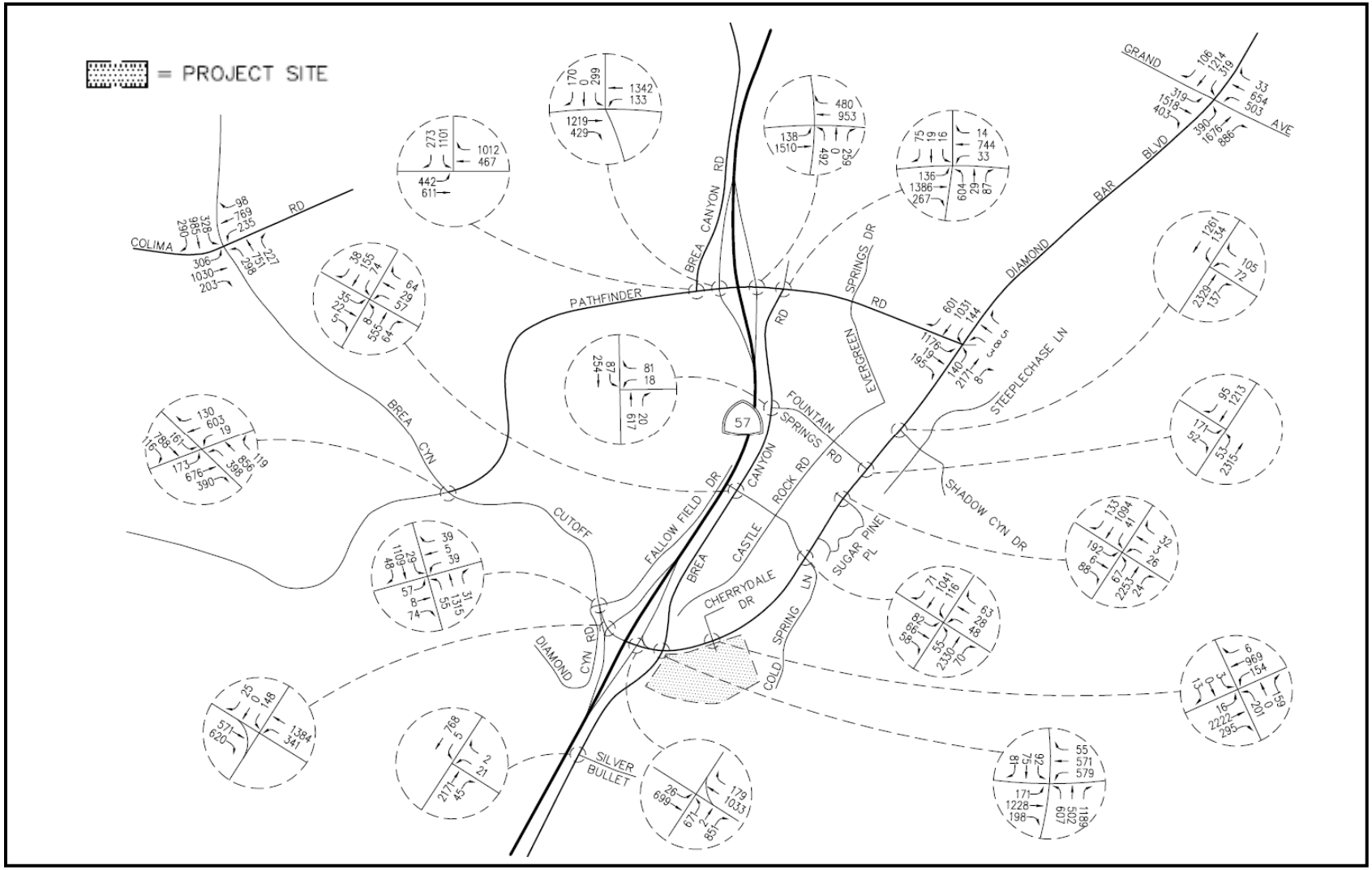


Figure 4.6-20
2030 RELATED PROJECTS-PLUS-PROJECT - PM PEAK-HOUR TRAFFIC VOLUMES
Source: Linscott, Law & Greenspan Engineers

Table 4.6-9
2007 PEAK-HOUR INTERSECTION CAPACITY ANALYSIS[1]

Intersection		Time Period	(1) 2007 Existing Traffic		(2) 2007 Existing-Plus-Project Traffic		(3) Significant Impact[2]		(4) 2007 with Recommended Improvements	
No.	Intersection		ICU	LOS	ICU	LOS	Increase	Y/N	ICU	LOS
1	Brea Canyon Road (W)	AM	0.751	C	0.753	C	0.002	No	--	--
	at Pathfinder Road	PM	0.774	C	0.784	C	0.010	No	--	--
2	SR-57 SB Ramps	AM	0.689	B	0.691	B	0.002	No	--	--
	at Pathfinder Road	PM	0.568	A	0.574	A	0.006	No	--	--
3	SR-57 NB Ramps	AM	0.719	C	0.719	C	0.000	No	--	--
	at Pathfinder Road	PM	0.664	B	0.669	B	0.005	No	--	--
4	Fern Hollow/Brea Canyon	AM	0.760	C	0.763	C	0.003	No	--	--
	at Pathfinder Road	PM	0.648	B	0.653	B	0.005	No	--	--
5	Diamond Bar Boulevard	AM	0.786	C	0.796	C	0.010	No	--	--
	at Pathfinder Road	PM	0.792	C	0.817	D	0.025	No	--	--
6	Diamond Bar Boulevard	AM	0.565	A	0.574	A	0.009	No	--	--
	at Shadow Canyon Drive	PM	0.603	B	0.629	B	0.026	No	--	--
7	Brea Canyon Road	AM	16.0 s/v	C	16.5 s/v	C	0.5 s/v	No	--	--
	at Fountain Springs Road[3]	PM	13.6 s/v	B	14.3 s/v	B	0.7 s/v	No	--	--
8	Diamond Bar Boulevard	AM	0.579	A	0.590	A	0.011	No	--	--
	at Fountain Springs Road	PM	0.584	A	0.610	B	0.026	No	--	--
9	Diamond Bar Boulevard	AM	0.496	A	0.508	A	0.012	No	--	--
	at Sugar Pine Place	PM	0.590	A	0.618	B	0.028	No	--	--
10	Brea Canyon Road	AM	15.2 s/v	C	16.3 s/v	C	0.6 s/v	No	--	--
	at Cold Spring Lane[3]	PM	12.3 s/v	B	13.1 s/v	B	0.8 s/v	No	--	--
11	Diamond Bar Boulevard	AM	0.567	A	0.580	A	0.013	No	--	--
	at Cold Spring Lane	PM	0.674	B	0.706	C	0.032	Yes	--	--
12	Pathfinder Road	AM	0.789	C	0.803	D	0.014	No	0.638	B
	at Brea Canyon Cutoff	PM	**0.904**	**E**	**0.945**	**E**	**0.041**	**Yes**	0.824	D
13	Fallow Field/Diamond Canyon	AM	0.533	A	0.540	A	0.007	No	--	--
	at Brea Canyon Cutoff	PM	0.480	A	0.499	A	0.019	No	--	--
14	SR-57 SB Ramps	AM	**148.1 s/v**	**F**	**384.1 s/v**	**F**	**236.0 s/v**	**Yes**	0.695	B
	at Brea Canyon Cutoff[3]	PM	**101.4 s/v**	**F**	**591.8 s/v**	**F**	**490.4 s/v**	**Yes**	0.656	B

Table 4.6-9 (Continued)
2007 PEAK-HOUR INTERSECTION CAPACITY ANALYSIS[1]

Intersection		Time Period	(1) 2007 Existing Traffic		(2) 2007 Existing-Plus-Project Traffic		(3) Significant Impact		(4) 2007 with Recommended Improvements	
No.	**Intersection**		**ICU**	**LOS**	**ICU**	**LOS**	**Increase**	**Y/N**	**ICU**	**LOS**
15	SR-57 NB Ramps at Brea Canyon Cutoff	AM PM	0.543 0.686	A B	0.560 0.759	A C	0.017 0.073	No No	-- --	-- --
16	Brea Canyon Road at Diamond Bar Boulevard	AM PM	0.814 0.805	D D	0.845 0.882	D D	0.031 0.077	No No	-- --	-- --
17	Cherrydale Drive at Diamond Bar Boulevard[3]	AM PM	19.7 s/v 14.5 s/v	C B	**39.7 s/v** **2,952.8 s/v**	**F** **F**	**20.0 s/v** **2,938.3 s/v**	**Yes** **Yes**	0.525 0.692	A B
18	Brea Canyon Road at Silver Bullet Drive	AM PM	**1.052** **1.021**	**F** **F**	**1.057** **1.032**	**F** **F**	0.005 0.011	No No	-- --	-- --
19	Diamond Bar Boulevard at Grand Avenue	AM PM	0.748 0.862	C D	0.759 0.882	C D	0.011 0.020	No No	-- --	-- --
20	Colima Road at Brea Canyon Cutoff	AM PM	0.843 0.854	D D	0.849 0.868	D D	0.006 0.014	No No	-- --	-- --

Notes:
1. Bold ICU/LOS values indicate adverse service levels based on City LOS standards.
2. Significant project impact is defined as a 0.02 or greater increase in ICU value of a signalized intersection where the final service level is LOS "E" or "F."
3. This key intersection was analyzed using the "Highway Capacity Manual" (HCM) unsignalized methodology. LOS is based upon average delay, in seconds per vehicle (s/v).

Source: Linscott, Law & Greenspan Engineers

Table 4.6-10
2010 PEAK-HOUR INTERSECTION CAPACITY ANALYSIS[1]

Intersection		Time Period	(1) 2007 Existing Traffic		(2) 2010 Cumulative Traffic		(3) 2010 Cumulative-Plus-Project Traffic		(4) Significant Impact[2]		(5) 2010 with Recommended Improvements	
No.	**Intersection**		**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**Increase**	**Y/N**	**ICU**	**LOS**
1	Brea Canyon Road (W)	AM	0.751	C	0.795	C	0.797	C	0.002	No	0.727	C
	at Pathfinder Road	PM	0.774	C	0.899	D	**0.909**	**E**	0.010	No	0.716	C
2	SR-57 SB Ramps	AM	0.689	B	0.737	C	0.740	C	0.003	No	--	--
	at Pathfinder Road	PM	0.568	A	0.676	B	0.681	B	0.003	No	--	--
3	SR-57 NB Ramps	AM	0.719	C	0.760	C	0.760	C	0.000	No	--	--
	at Pathfinder Road	PM	0.664	B	0.791	C	0.796	D	0.005	No	--	--
4	Fern Hollow/Brea Canyon	AM	0.760	C	0.801	D	0.804	D	0.003	No	--	--
	Road at Pathfinder Road	PM	0.648	B	0.746	C	0.751	C	0.005	No	--	--
5	Diamond Bar Boulevard	AM	0.786	C	0.849	D	0.858	D	0.009	No	0.702	C
	at Pathfinder Road	PM	0.792	C	**1.080**	**F**	**1.104**	**F**	**0.024**	**Yes**	0.900	D
6	Diamond Bar Boulevard	AM	0.565	A	0.626	B	0.636	B	0.010	No	--	--
	at Shadow Canyon Drive	PM	0.603	B	0.775	C	0.802	D	0.027	No	--	--
7	Brea Canyon Road at	AM	16.0 s/v	C	18.2 s/v	C	18.9 s/v	C	0.7 s/v	No	--	--
	Fountain Springs Road[3]	PM	13.6 s/v	B	17.6 s/v	C	19.0 s/v	D	1.4 s/v	No	--	--
8	Diamond Bar Boulevard	AM	0.579	A	0.639	B	0.650	B	0.011	No	--	--
	at Fountain Springs Road	PM	0.584	A	0.754	C	0.779	C	0.025	No	--	--
9	Diamond Bar Boulevard	AM	0.496	A	0.546	A	0.557	A	0.011	No	--	--
	at Sugar Pine Place	PM	0.590	A	0.779	C	0.807	D	0.028	No	--	--
10	Brea Canyon Road	AM	15.2 s/v	C	18.1 s/v	C	19.1 s/v	C	1.0 s/v	No	--	--
	at Cold Spring Lane[3]	PM	12.3 s/v	B	15.5 s/v	C	17.1 s/v	C	0.0 s/v	No	--	--
11	Diamond Bar Boulevard	AM	0.567	A	0.619	B	0.631	C	0.012	No	--	--
	at Cold Spring Lane	PM	0.674	B	0.835	C	0.867	D	0.032	No	--	--
12	Pathfinder Road	AM	0.789	C	0.847	C	0.862	D	0.015	No	0.609	B
	at Brea Canyon Cutoff	PM	**0.904**	**E**	**1.100**	**F**	**1.140**	**F**	**0.040**	**Yes**	0.812	D
13	Fallow Field/Diamond Cyn.	AM	0.533	A	0.566	A	0.573	A	0.007	No	--	--
	at Brea Canyon Cutoff	PM	0.480	A	0.550	A	0.569	A	0.019	No	--	--
14	SR-57 SB Ramps	AM	**148.1 s/v**	**F**	**293.2 s/v**	**F**	**670.0 s/v**	**F**	**384.8 s/v**	**Yes**	0.741	C
	at Brea Canyon Cutoff[3]	PM	**101.4 s/v**	**F**	**536.8 s/v**	**F**	**1,904.8 s/v**	**F**	**1,368 s/v**	**Yes**	0.721	C

Table 4.6-10 (Continued)
2010 PEAK-HOUR INTERSECTION CAPACITY ANALYSIS[1]

Intersection		Time Period	(1) 2007 Existing Traffic		(2) 2010 Cumulative Traffic		(3) 2010 Cumulative-Plus-Project Traffic		(4) Significant Impact[2]		(5) 2010 with Recommended Improvements	
No.	**Intersection**		**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**Increase**	**Y/N**	**ICU**	**LOS**
15	SR-57 NB Ramps	AM	0.543	A	0.578	A	0.596	A	0.018	No	--	--
	at Brea Canyon Cutoff	PM	0.686	B	0.811	D	0.883	D	0.072	No	--	--
16	Brea Canyon Road	AM	0.814	D	0.894	D	**0.934**	**E**	**0.040**	**Yes**	0.649	B
	at Diamond Bar Blvd.	PM	0.805	D	**1.084**	**F**	**1.167**	**F**	**0.083**	**Yes**	0.845	D
17	Cherrydale Drive	AM	19.7 s/v	C	21.7 s/v	C	**67.0 s/v**	**F**	**45.3 s/v**	**Yes**	0.574	A
	at Diamond Bar Blvd.[3]	PM	14.5 s/v	B	30.7 s/v	D	**--**	**F**	--	**Yes**	0.784	C
18	Brea Canyon Road	AM	**1.052**	**F**	**1.113**	**F**	**1.130**	**F**	0.017	No	0.646	B
	at Silver Bullet Drive	PM	**1.021**	**F**	**1.328**	**F**	**1.379**	**F**	**0.051**	**Yes**	0.747	C
19	Diamond Bar Boulevard	AM	0.748	C	0.873	D	0.882	D	0.009	No	0.691	B
	at Grand Avenue	PM	0.862	D	**1.236**	**F**	**1.250**	**F**	0.014	No	0.972	E
20	Colima Road	AM	0.843	D	0.839	D	**0.895**	**D**	0.006	No	0.824	D
	at Brea Canyon Cutoff	PM	0.854	D	**0.962**	**E**	**0.976**	**E**	0.014	No	0.897	D

Notes:
1. Bold ICU/LOS values indicate adverse service levels based on City LOS standards.
2. Significant project impact is defined as a 0.02 or greater increase in ICU value of a signalized intersection where the final service level is LOS "E" or "F."
3. This key intersection was analyzed using the "Highway Capacity Manual" (HCM) unsignalized methodology. LOS is based upon average delay, in seconds per vehicle (s/v).

Source: Linscott, Law & Greenspan Engineers

Table 4.6-11
2030 PEAK-HOUR INTERSECTION CAPACITY ANALYSIS[1]

Intersection		Time Period	(1) 2007 Existing Traffic		(2) 2030 Cumulative Traffic		(3) 2030 Cumulative-Plus-Project Traffic		(4) Significant Impact[2]		(5) 2030 with Recommended Improvements	
No.	**Intersection**		**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**Increase**	**Y/N**	**ICU**	**LOS**
1	Brea Canyon Road (W)	AM	0.751	C	**0.981**	**E**	**0.983**	**E**	0.002	No	0.877	D
	at Pathfinder Road	PM	0.774	C	**0.999**	**E**	**1.009**	**F**	0.010	No	0.781	C
2	SR-57 SB Ramps	AM	0.689	B	0.877	D	0.879	D	0.002	No	--	--
	at Pathfinder Road	PM	0.568	A	0.746	C	0.751	C	0.005	No	--	--
3	SR-57 NB Ramps	AM	0.719	C	0.071	C	0.701	C	0.000	No	--	--
	at Pathfinder Road	PM	0.664	B	0.875	D	0.880	D	0.005	No	--	--
4	Fern Hollow/Brea	AM	0.760	C	0.750	C	0.754	C	0.004	No	--	--
	Canyon	PM	0.648	B	0.827	D	0.833	D	0.006	No	--	--
5	Diamond Bar Boulevard	AM	0.786	C	**0.940**	**E**	**0.949**	**E**	0.009	No	0.677	B
	at Pathfinder Road	PM	0.792	C	**1.193**	**F**	**1.217**	**F**	**0.024**	**Yes**	0.884	D
6	Diamond Bar Boulevard	AM	0.565	A	0.747	C	0.758	C	0.011	No	--	--
	at Shadow Canyon Drive	PM	0.603	B	0.860	D	0.887	D	0.027	No	--	--
7	Brea Canyon Road at	AM	16.0 s/v	C	32.6 s/v	D	34.6 s/v	D	2.0 s/v	No	--	--
	Fountain Springs Road[3]	PM	13.6 s/v	B	25.1 s/v	D	28.1 s/v	D	3.0 s/v	No	--	--
8	Diamond Bar Boulevard	AM	0.579	A	0.738	C	0.748	C	0.010	No	--	--
	at Fountain Springs Road	PM	0.584	A	0.835	D	0.860	D	0.025	No	--	--
9	Diamond Bar Boulevard	AM	0.496	A	0.647	B	0.659	B	0.012	No	--	--
	at Sugar Pine Place	PM	0.590	A	0.860	D	0.888	D	0.028	No	--	--
10	Brea Canyon Road	AM	15.2 s/v	C	34.2 s/v	D	**36.9 s/v**	**E**	**2.7 s/v**	**Yes**	30.2 s/v	D
	at Cold Spring Lane[3]	PM	12.3 s/v	B	20.9 s/v	C	24.3 s/v	C	3.4 s/v	No	24.0 s/v	C
11	Diamond Bar Boulevard	AM	0.567	A	0.727	C	0.739	C	0.012	No	0.554	A
	at Cold Spring Lane	PM	0.674	B	**0.931**	**E**	**0.961**	**E**	**0.030**	**Yes**	0.711	C
12	Pathfinder Road	AM	0.789	C	**1.033**	**F**	**1.049**	**F**	0.016	No	0.703	C
	at Brea Canyon Cutoff	PM	**0.904**	**E**	**1.217**	**F**	**1.259**	**F**	**0.042**	**Yes**	0.891	D
13	Fallow Field/Diamond	AM	0.533	A	0.633	B	0.640	B	0.007	No	--	--
	Cny. at Brea Cyn. Cutoff	PM	0.480	A	0.608	B	0.627	B	0.019	No	--	--
14	SR-57 SB Ramps	AM	**148.1 s/v**	**F**	**1,020.0 s/v**	**F**	**2,121.1 s/v**	**F**	**384.8 s/v**	**Yes**	0.824	D
	at Brea Canyon Cutoff[3]	PM	**101.4 s/v**	**F**	**1,080.2 s/v**	**F**	**3,270.4 s/v**	**F**	**1,368 s/v**	**Yes**	0.794	C

Table 4.6-11 (Continued)
2030 PEAK-HOUR INTERSECTION CAPACITY ANALYSIS[1]

Intersection		Time Period	(1) 2007 Existing Traffic		(2) 2030 Cumulative Traffic		(3) 2030 Cumulative-Plus-Project Traffic		(4) Significant Impact[2]		(5) 2030 with Recommended Improvements	
No.	**Intersection**		**ICU**	**LOS**	**ICU**	**LOS**	**ICU**	**LOS**	**Increase**	**Y/N**	**ICU**	**LOS**
15	SR-57 NB Ramps	AM	0.543	A	0.674	A	0.691	B	0.017	No	0.575	A
	at Brea Canyon Cutoff	PM	0.686	B	0.898	D	0.971	**E**	**0.073**	**Yes**	0.757	C
16	Brea Canyon Road	AM	0.814	D	**1.067**	**F**	1.097	**F**	**0.030**	**Yes**	0.741	C
	at Diamond Bar Blvd.	PM	0.805	D	**1.199**	**F**	1.277	**F**	**0.078**	**Yes**	0.900	D
17	Cherrydale Drive	AM	19.7 s/v	C	34.3 s/v	D	**446.6 s/v**	**F**	**412.3 s/v**	**Yes**	0.666	B
	at Diamond Bar Blvd.[3]	PM	14.5 s/v	B	**36.1 s/v**	**E**	**--**	**F**	--	**Yes**	0.677	B
18	Brea Canyon Road	AM	**1.052**	**F**	**1.373**	**F**	**1.378**	**F**	0.005	No	0.774	C
	at Silver Bullet Drive	PM	**1.021**	**F**	**1,463**	**F**	**1.474**	**F**	0.011	No	0.795	C
19	Diamond Bar Boulevard	AM	0.748	C	**1.082**	**F**	**1.090**	**F**	0.007	No	0.793	C
	at Grand Avenue	PM	0.862	D	**1.359**	**F**	**1.379**	**F**	**0.020**	Yes	0.969	E
20	Colima Road	AM	0.843	D	**1.035**	**F**	**1.041**	**F**	0.006	No	0.730	C
	at Brea Canyon Cutoff	PM	0.854	D	**1.074**	**F**	**1.088**	**F**	0.014	No	0.808	D

Notes:
1 Bold ICU/LOS values indicate adverse service levels based on City LOS standards.
2 A significant project impact is defined as a 0.02 or greater increase in ICU value of a signalized intersection where the final service level is LOS "E" or "F."
3 This key intersection was analyzed using the "Highway Capacity Manual" (HCM) unsignalized methodology. LOS is based upon average delay, in seconds per vehicle (s/v).

Source: Linscott, Law & Greenspan Engineers

Seven of the 20 key study area intersections are projected to operate at an unacceptable operating condition during the AM and/or PM peak hours with the addition of ambient traffic growth and related projects traffic, including: (1) Diamond Bar Boulevard at Pathfinder Road (LOS "F" for the PM peak hour); (2) Pathfinder Road at Brea Canyon Cutoff (LOS "F" for the PM peak hour); (3) SR-57 SB Ramps at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours); (4) Brea Canyon Road at Diamond Bar Boulevard (LOS "F" for the PM peak hour); (5) Brea Canyon Road at Silver Bullet Drive (LOS "F" for the AM/PM peak hours); (6) Diamond Bar Boulevard at Grand Avenue (LOS "F" for the PM peak hour); and (7) Colima Road at Brea Canyon Cutoff (LOS "E" for the AM/PM peak hours).

- The remaining 13 key study area intersections are expected to operate at LOS "D" or better during the weekday AM/PM peak hours.

Traffic associated with the proposed project will significantly impact five of the 20 key study area intersections in 2010. On a cumulative basis, the proposed project will contribute to the adverse service levels at the four other intersections forecast to operate at an unsatisfactory LOS in 2010. The remaining 11 key study area intersections are forecast to continue to operate at an acceptable LOS with the addition of project-generated traffic in 2010.

The locations projected to operate at an adverse service level in 2010, prior to implementation of recommended improvements, include: (1) Brea Canyon Road (W) at Pathfinder Road (LOS "E" for the PM peak hour); (2) Diamond Bar Boulevard at Pathfinder Road (LOS "F" for the PM peak hour); (3) Pathfinder Road at Brea Canyon Cutoff (LOS "F" for the PM peak hour); (4) SR-57 SB Ramps at Brea Canyon Cutoff (LOS "F") for the AM/PM peak hours; (5) Brea Canyon Road at Diamond Bar Boulevard (LOS "E" for the AM peak hour and LOS "F" for the PM peak hour); (6) Cherrydale Drive at Diamond Bar Boulevard (LOS "F" for the AM/PM peak hours); (7) Brea Canyon Road at Silver Bullet Drive Road (LOS "F" for the AM/PM peak hours); (8) Diamond Bar Boulevard at Grand Avenue (LOS "F" for the PM peak hour); (9) Colima Road at Brea Canyon Cutoff (LOS "E" for the PM peak hour).

Street improvements have been identified and the proposed project's obligations toward those improvements identified as a mitigation measure (Mitigation Measure 6-1) herein. Implementation of the recommended improvements at those nine intersections which are forecast to operate at a poor LOS will completely offsets the impact of the proposed project, as well as near-term (2010) background traffic. In accordance with City TIA requirements, the Applicant's provision or payment of a "fair share" of the construction costs to implement the recommended improvements will reduce traffic impacts to a less-than-significant level.

Table 4.6-11 (2030 Peak-Hour Intersection Capacity Analysis) summarizes the peak-hour service levels at the 20 key study area intersections for 2030 cumulative traffic conditions.[33] The analysis of future (2030) cumulative traffic conditions indicates that:

- Ten of the 20 study intersections are projected to operate poorly under 2030 cumulative traffic conditions. These intersections forecast to operate at a poor LOS during the peak hour indicated, include: (1) Brea Canyon Road (W) at Pathfinder Road (LOS "E" for the AM/PM peak hours); (2) Diamond Bar Boulevard at Pathfinder Road (LOS "E" for the AM

[33]/ As indicated therein: (1) "Column 1" presents existing traffic operating conditions; (2) "Column 2" presents future (2030) cumulative traffic conditions; (3) "Column 3" reports the forecast 2030 traffic conditions with the addition of project traffic; (4) "Column 4" shows the increase in ICU value due to the added peak-hour project trips and indicates whether the traffic associated with the proposed project will have a significant traffic impact; and (5) "Column 5" indicates the anticipated level of service with implementation of recommended improvements.

peak hour and at LOS "F" for the PM peak hour); (3) Diamond Bar Boulevard at Cold Spring Lane (LOS "E" for the PM peak hour); (4) Pathfinder Road at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours); (5) SR-57 SB Ramps at Brea Canyon Cutoff Road (LOS "F" for the AM/PM peak hours); (6) Brea Canyon Road at Diamond Bar Boulevard (LOS "F" for the AM/PM peak hours); (7) Cherrydale Drive at Diamond Bar Boulevard (LOS "E" for the PM peak hour); (8) Brea Canyon Road at Silver Bullet Drive (LOS "F" for the AM/PM peak hours); (9) Diamond Bar Boulevard at Grand Avenue (LOS "F" for the AM/PM peak hours); and (10) Colima Road at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours).

- The remaining 10 key study area intersections are forecast to operate at LOS "D" or better during the peak hours.

Traffic associated with the proposed project will significantly impact nine of the 20 key study area intersections in 2030. On a cumulative basis, the proposed project will contribute to adverse service levels at the three other intersections forecast to operate at an unsatisfactory LOS in 2030. The remaining eight key study area intersections are forecast to continue to operate at an acceptable LOS with the addition of project-generated traffic in 2030.

The locations projected to operate at an adverse LOS in 2030, prior to implementation of recommended improvements, include: (1) Brea Canyon Road (W) at Pathfinder Road (LOS "E" for the PM peak hour); (2) Diamond Bar Boulevard at Pathfinder Road (LOS "F" for the PM peak hour); (3) Brea Canyon Road at Cold Springs Lane (LOS "E" for the AM peak hour); (4) Cold Springs Lane at Diamond Bar Boulevard (LOS "E" for the PM peak hour); (5) Pathfinder Road at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours); (6) SR-57 SB Ramps at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours); (7) SR-57 NB Ramps at Brea Canyon Cutoff (LOS "E" for the PM peak hour); (8) Brea Canyon Road at Diamond Bar Boulevard (LOS "F" for the AM/PM peak hours); (9) Cherrydale Drive at Diamond Bar Boulevard (LOS "F" for the AM/PM peak hours); (10) Brea Canyon Road at Silver Bullet Drive (LOS "F" for the AM/PM peak hours); (11) Diamond Bar Boulevard at Grand Avenue (LOS "F" for the AM/PM peak hours); and (12) Colima Road at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours).

Street improvements have been identified and the proposed project's obligations toward those improvements have been identified as a mitigation measure (Mitigation Measure 6-1) herein. Implementation of the recommended improvements at those twelve intersections which are forecast to operate at a poor LOS will completely offsets the impact of the proposed project, as well as long-term (2030) background traffic. In accordance with City TIA requirements, the Applicant's provision or payment of a "fair share" of the construction costs to implement the recommended improvements will reduce traffic impacts to a less-than-significant level.

Traffic Signal Warrant Analysis

The level of service analysis at unsignalized intersections is supplemented with an assessment of the need for signalization of the intersection. This assessment is made on the basis of signal warrant criteria adopted by Caltrans. For this study, the need for signalization is assessed on the basis of the peak-hour traffic signal warrant (Warrant No. 3), as described in Caltrans' "California Manual on Uniform Traffic Control Devices"[34] (MUTCD). Warrant No. 3 has two

[34]/ California Department of Transportation, California Manual on Uniform Traffic Control Devices for Streets and Highways (FHWA's MUTCD 2003 Edition, as amended for use in California), September 26, 2006.

parts: (1) Part A evaluates peak-hour vehicle delay for traffic on the minor street approach with the highest delay; and (2) Part B evaluates peak-hour traffic volumes on the major and minor streets. This method provides an indication of whether peak-hour traffic conditions or peak-hour traffic volume levels are or would be sufficient to justify installation of a traffic signal. Other traffic signal warrants are available, however, they cannot be checked under future conditions (cumulative without and with project) because they rely on data for which forecasts are not available (such as accidents, pedestrian volume, and four-hour or eight-hour vehicle volumes).

The decision to install a traffic signal should not be based purely on the warrants alone. Instead, the installation of a signal should be considered and further analysis performed when one or more of the warrants are met. Additionally, engineering judgment is exercised on a case-by-case basis to evaluate the effect a traffic signal will have on certain types of accidents and traffic conditions at the subject intersection and adjacent intersections.

The results of the peak-hour traffic signal warrant analysis for 2007, 2010, and 2030 cumulative-plus-project conditions is summarized in Table 4.6-12 (Traffic Signal Warrant Analysis Summary). The results indicate that the four key unsignalized study area intersections have future traffic conditions that would exceed the volume thresholds of Warrant No. 3. These intersections include: (1) Brea Canyon Road at Fountain Springs Road; (2) Brea Canyon Road at Cold Springs Lane; (3) SR-57 SB Ramps at Brea Canyon Cutoff; and (4) Cherrydale Avenue at Diamond Bar Boulevard.

As shown in Tables 4.6-9 (2007 Peak-Hour Intersection Capacity Analysis), Table 4.6-10 (2010 Peak-Hour Intersection Capacity Analysis), and Table 4.6-11 (2030 Peak-Hour Intersection Capacity Analysis), SR-57 SB Ramps at Brea Canyon Cutoff and Cherrydale Avenue at Diamond Bar Boulevard are forecast to operate at an unsatisfactory service level (LOS "E" or "F"). With the installation of traffic signals, these intersections are forecast to operate at LOS "D" or better.

With regards to Brea Canyon Road at Fountain Springs Road, the results of the intersection analysis indicates that this all-way stop controlled unsignalized study intersections is forecast to continue to operate at an acceptable LOS during the weekday AM and PM peak hours. With implementation of the recommended re-striping improvements, Brea Canyon Road at Cold Springs Lane is forecast to operate at an acceptable LOS under all-way stop control.

The need for and the projected cost of traffic signals at both the SR-57 SB Ramps at Brea Canyon Cutoff and at Cherrydale Avenue at Diamond Bar Boulevard have been included in Table 4.6-13 (2007 Summary of Recommended Improvements and Cost Estimates), Table 4.6-14 (2010 Summary of Recommended Improvements and Cost Estimates) and Table 4.6-15 (2030 Summary of Recommended Improvements and Cost Estimates).

Areawide Traffic Improvements

For those intersections where future traffic volumes are expected to result in poor operating conditions, roadway improvements are planned or recommended that change the intersection geometry in order to increase capacity. These capacity improvements involve roadway restriping to reconfigure (add lanes) to specific approaches of a key study area intersection. The identified improvements are expected to mitigate the impact of areawide deficiencies and/or improve levels of service to an acceptable range.

Table 4.6-12
TRAFFIC SIGNAL WARRANT ANALYSIS SUMMARY[1]

Intersection		Peak Hour	(1) 2007 Existing-Plus-Project		(2) 2010 Cumulative-Plus-Project		(3) 2030 Cumulative-Plus-Project	
No.	**Intersection**		**Part A of Warrant 3 Satisfied?**	**Part B of Warrant 3 Satisfied?**	**Part A of Warrant 3 Satisfied?**	**Part B of Warrant 3 Satisfied?**	**Part A of Warrant 3 Satisfied?**	**Part B of Warrant 3 Satisfied?**
7	Brea Canyon Road at Fountain Springs Road	AM PM	No No	**Yes** No	No No	**Yes** **Yes**	**Yes** No	**Yes** **Yes**
10	Brea Canyon Road at Cold Spring Lane	AM PM	No No	**Yes** No	No No	**Yes** **Yes**	No No	**Yes** **Yes**
14	SR-57 SB Ramps at Brea Canyon	AM PM	No No	**Yes** **Yes**	No **Yes**	**Yes** **Yes**	**Yes** **Yes**	**Yes** **Yes**
17	Cherrydale Drive at Diamond Bar Boulevard[3]	AM PM	No **Yes**	**Yes** **Yes**	No **Yes**	**Yes** **Yes**	No **Yes**	**Yes** **Yes**

Notes:
1. Signal warrant checks based on Warrant No. 3, Part A (Peak-Hour Delay Warrant) and Part B (Peak-Hour Volume Warrant) contained in the California MUTCD.

Source: Linscott, Law & Greenspan Engineers

Table 4.6-13
2007 SUMMARY OF RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

No.	Intersection	Improvement Description	Cost Estimate
12	Pathfinder Road at Brea Canyon Cutoff	Widen and/or re-stripe EB Brea Canyon Cutoff to provide one left-turn lane, two through lanes and a separate right-turn lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller).	$357,813.00
14	SR-57 SB Ramps at Brea Canyon Cutoff/ Diamond Bar Blvd.	Install traffic signal. The implementation of this improvement may require some modification to existing signing and striping on Brea Canyon Cutoff or SR-57 SB ramps.	$228,125.00
17	Cherrydale Drive at Diamond Bar Boulevard	Provide an option left/through lane and a separate right-turn lane on the NB approach; re-stripe SB approach to provide an option left/through/right-turn lane on Cherrydale Drive. Widen EB approach to provide a separate right-turn lane. Modify median and restripe Diamond Bar Boulevard to provide dual WB left-turn lanes. Install traffic signal. The implementation of this improvement may require some modification to existing signing and striping on Cherrydale Drive or Diamond Bar Boulevard.	$302,250.00
		Total Estimated Costs of 2007 Improvements	$894,188.00

Source: Linscott, Law & Greenspan Engineers

Planned improvements to Diamond Bar Boulevard at Sugar Pine Place include re-stripe the EB and WB approaches on Sugar Pine Place to provide a shared left-through lane and a right-turn lane. This improvement, which has been completed, is included in 2010 and 2030 conditions.

Table 4.6-14
2010 SUMMARY OF RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

No.	Intersection	Improvement Description	Preliminary Cost Estimate
1	Brea Canyon Road (West) at Pathfinder Road	Widen and/or re-stripe Pathfinder to provide a second EB left-turn lane and a second WB right-turn lane. The implementation of this improvement may require some modification to the existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller.	$280,750.00
5	Diamond Bar Boulevard at Pathfinder Road	Re-stripe NB approach and departure on Diamond Bar Boulevard to provide a third through lane, and re-stripe existing bike lane as necessary. Widen and re-stripe SB approach and departure on Diamond Bar Boulevard to provide a second right-turn lane and a third through lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller), as well as the termination of the existing bike lane.	$572,575.00
12	Pathfinder Road at Brea Canyon Cutoff	Widen and/or re-stripe Pathfinder Road to provide separate NB and SB right-turn lanes. Widen and/or re-stripe Brea Canyon Cutoff to provide two EB and WB through lanes and a separate EB right-turn lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller).	$729,688.00
14	SR-57 SB Ramps at Brea Canyon Cutoff/Diamond Bar Boulevard	Same at 2007 improvements. Install traffic signal. The implementation of this improvement may require some modification to existing signing and striping on Brea Canyon Cutoff or SR-57 SB ramps.	$228,125.00
16	Brea Canyon Road at Diamond Bar Boulevard	Widen and/or re-stripe NB approach on Brea Canyon Road to provide a second right-turn lane. Widen and/or re-stripe EB approach and departure on Diamond Bar Boulevard to a third through lane. Re-stripe WB approach on Diamond Bar Boulevard to provide a second left-turn lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller), as well as the termination of the existing bike lane.	$684,125.00
17	Cherrydale Drive at Diamond Bar Boulevard	Same at 2007 improvements. Provide an option left/through lane and a separate right-turn lane on the NB approach; re-stripe SB approach to provide an option left/through/right-turn lane on Cherrydale. Widen EB approach to provide a separate right-turn lane. Modify median and restripe Diamond Bar Boulevard to provide dual WB left-turn lanes. Install traffic signal. The implementation of this improvement may require some modification to existing signing and striping on Cherrydale Drive or Diamond Bar Boulevard.	$302,250.00
18	Brea Canyon Road at Silver Bullet Drive	Re-stripe NB approach/departure and SB approach/departure on Brea Canyon Road to provide a second through lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller).	$37,500.00
19	Diamond Bar Boulevard at Grand Avenue	Widen and re-stripe NB, SB, EB, and WB approaches to provide 2 left-turn lanes, 3 through lanes, and 1 right-turn lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller).	$1,509,625.00

Table 4.6-14 (Continued)
2010 SUMMARY OF RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

No.	Intersection	Improvement Description	Preliminary Cost Estimate
20	Colima Road at Brea Canyon Cutoff	Widen and/or re-stripe Brea Canyon Cutoff to provide separate right-turn lanes. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller).	$500,000.00
		Total Estimated Costs of 2010 Improvements	$4,850,638.00

Source: Linscott, Law & Greenspan Engineers

Table 4.6-15
2030 SUMMARY OF RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

No.	Intersection	Improvement Description	Preliminary Cost Estimate
1	Brea Canyon Road (West) at Pathfinder Road	Similar to 2010 improvements, widen and/or re-stripe Pathfinder Road to provide a second EB left-turn lane and a second WB right-turn lane. The implementation of this improvement may require some modification to the existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller.	$280,750.00
5	Diamond Bar Boulevard at Pathfinder Road	Re-stripe EB through lane on Pathfinder Road to provide an option left/through lane. Similar to 2010 Improvements, re-stripe NB approach and departure on Diamond Bar Boulevard to provide a third through lane, and re-stripe existing bike lane as necessary. Widen and re-stripe SB approach and departure on Diamond Bar Boulevard to provide a second right-turn lane and a third through lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller), as well as the termination of the existing bike lane.	$591,325.00
10	Brea Canyon Road at Cold Spring Lane	Re-stripe SB approach to provide one left-turn lane, one through lane and one right-turn lane.	$9,375.00
11	Diamond Bar Boulevard at Cold Spring Lane	Re-stripe NB approach and departure and SB approach and departure on Diamond Bar Boulevard to provide a third through lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., recut/install new vehicle loop detectors, modification to traffic signal controller).	$18,750.00
12	Pathfinder Road at Brea Canyon Cutoff	Similar to 2010 Improvements, widen and/or re-stripe Pathfinder Road to provide separate NB and SB right-turn lanes. Widen and/ or re-stripe Brea Canyon Cutoff Road to provide two EB and WB through lanes and a separate EB right turn lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller).	$729,688.00
14	SR-57 SB Ramps at Brea Canyon Cutoff/Diamond Bar Boulevard	Same at 2007 improvements. Install traffic signal. The implementation of this improvement may require some modification to existing signing and striping on Brea Canyon Cutoff or SR-57 SB ramps.	$228,125.00

Table 4.6-15 (Continued)
2030 SUMMARY OF RECOMMENDED IMPROVEMENTS AND COST ESTIMATES

No.	Intersection	Improvement Description	Preliminary Cost Estimate
15	SR-57 NB Ramps at Brea Canyon Cutoff/Diamond Bar Boulevard	Widen NB off-ramp to provide a third approach lane and stripe off-ramp to provide a NB left-turn lane, and option left-through-right lane, and a right-turn lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., recut/install new vehicle loop detectors, modification to traffic signal controller).	$355,000.00
16	Brea Canyon Road at Diamond Bar Boulevard	Similar to 2010 Improvements, widen and/or re-stripe NB approach on Brea Canyon Road to provide a second right-turn lane. Widen and/or re-stripe EB approach and departure on Diamond Bar Boulevard to a third through lane. Re-stripe WB approach on Diamond Bar Boulevard to provide a second left-turn lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., recut/install new vehicle loop detectors, modification to traffic signal controller), as well as the termination of the existing bike lane.	$684,125.00
17	Cherrydale Drive at Diamond Bar Boulevard	Same at 2007 improvements. Provide an option left/through lane and a separate right-turn lane on the NB approach; re-stripe SB approach to provide an option left/through/right-turn lane on Cherrydale Drive. Widen and/or restripe EB approach and departure on Diamond Bar Boulevard to a third through lane and provide a separate right-turn lane. Modify median and restripe Diamond Bar Boulevard to provide dual WB left-turn lanes. Install traffic signal. The implementation of this improvement may require some modification to existing signing and striping on Cherrydale Drive or Diamond Bar Boulevard.	$454,875.00
18	Brea Canyon Road at Silver Bullet Drive	Similar to 2010 improvements, re-stripe NB approach/departure and SB approach/departure on Brea Canyon Road to provide a second through lane. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., recut/install new vehicle loop detectors, modification to traffic signal controller).	$37,500.00
19	Diamond Bar Boulevard at Grand Avenue	Widen and/or re-stripe SB and EB approaches to provide 2 left-turn lanes, 3 through lanes and 1 right-turn lane. Widen and re-stripe EB approach to provide 2 left-turn lanes, 4 through lanes and 1 right-turn lane. Restripe NB approach to provide 2 left-turn lanes, 3 through lanes, and 1 free-flow right-turn lane. Widen the EB departure to accommodate the NB freeflow right-turn lane; additional ROW (11 feet) is required from the existing parking lot on the south side of Grand Avenue. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., recut/install new vehicle loop detectors, modification to traffic signal controller).	$2,216,500.00
20	Colima Road at Brea Canyon Cutoff	Widen and/or re-stripe Colima Road to provide a second left-turn lane and separate right-turn lanes. Widen and /or re-stripe Brea Canyon Cutoff to provide a second left turn lane and separate right-turn lanes. The implementation of this improvement may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller).	$1,299,375.00
		Total Estimated Costs of 2030 Improvements	$6,905,388.00

Source: Linscott, Law & Greenspan Engineers

Table 4.6-13 (2007 Summary of Recommended Improvements and Cost Estimates) summarizes the 2007 improvements necessary to mitigate existing-plus-project traffic conditions at the three intersections directly impacted by the proposed project. The recommended improvements at the intersections of Pathfinder Road at Brea Canyon Cutoff, SR-57 SB Ramps at Brea Canyon Cutoff, and Cherrydale Drive at Diamond Bar Boulevard will cost about $894,188.00 to construct and to implement. The proposed project can be expected to construct the improvements at Cherrydale Drive and Diamond Bar Boulevard and pay a "fair share" of the construction costs to implement the recommended improvements at the other two intersections.

The improvements that are summarized in Table 4.6-14 (2010 Summary of Recommended Improvements and Cost Estimates) are recommended to mitigate the cumulative traffic impacts of existing traffic, future non-project (ambient growth and cumulative projects) traffic, and project traffic for 2010. The improvements necessary for the near-term (2010) at the following intersections will cost about $4,850,638.00 to construct and to implement: (1) Brea Canyon Road (W) at Pathfinder Road; (2) Diamond Bar Boulevard at Pathfinder Road; (3) Pathfinder Road at Brea Canyon Cutoff; (4) SR-57 SB Ramps at Brea Canyon Cutoff; (5) Brea Canyon Road at Diamond Bar Boulevard; (6) Cherrydale Drive at Diamond Bar Boulevard; (7) Brea Canyon Road at Silver Bullet Drive; (8) Diamond Bar Boulevard at Grand Avenue; and, (9) Colima Road at Brea Canyon Cutoff. The proposed project can be expected to pay a "fair share" of the construction costs to implement these mitigation measures.

Those improvements summarized in Table 4.6-15 (2030 Summary of Recommended Improvements and Cost Estimates) are recommended to mitigate the cumulative traffic impact of existing traffic, future non-project (ambient growth and cumulative projects) traffic, and project traffic for 2030. Improvements necessary for the long-term (2030) at the following intersections will cost about $6,905,388.00 to construct and to implement: (1) Brea Canyon Road (W) at Pathfinder Road; (2) Diamond Bar Boulevard at Pathfinder Road; (3) Brea Canyon Road at Cold Spring Lane; (4) Diamond Bar Boulevard at Cold Spring Lane; (5) Pathfinder Road at Brea Canyon Cutoff; (6) SR-57 SB Ramps at Brea Canyon Cutoff; (7) SR-57 NB Ramps at Brea Canyon Cutoff/Diamond Bar Boulevard; (8) Brea Canyon Road at Diamond Bar Boulevard; (9) Cherrydale Drive at Diamond Bar Boulevard; (10) Brea Canyon Road at Silver Bullet Drive; (11) Diamond Bar Boulevard at Grand Avenue; and, (12) Colima Road at Brea Canyon Cutoff.

Street improvements have been identified and the proposed project's obligations toward the fulfillment of those improvements identified as a mitigation measure (Mitigation Measure 6-1) herein. Implementation of the recommended improvements at those twelve intersections which are forecast to operate at a poor LOS will completely offsets the impact of the proposed project, as well as future (2010) background traffic. In accordance with City TIA requirements, the Applicant's provision or payment of a "fair share" of the construction costs to implement the recommended improvements will reduce traffic impacts to a less-than-significant level.

Project "Fair-Share" Contribution

The transportation impacts associated with the proposed project were determined based on an evaluation of existing-plus-project traffic conditions and both a near-term (2010) and long-term (2030) traffic analysis. As summarized in Tables 4.6-9 (Peak-Hour Intersection Capacity Analysis), Table 4.6-10 (2010 Peak-Hour Intersection Capacity Analysis), and Table 4.6-11 (2030 Peak-Hour Intersection Capacity Analysis), the proposed project will significantly impact three, five, and nine of the 20 study intersections under existing-plus-project and 2010 and 2030 horizon years, respectively. In addition, the proposed project will contribute, on a cumulative

basis, to the forecast poor service levels at four and three additional intersections in 2010 and 2030, respectively. As such, the proposed project can be expected to pay a proportional "fair share" of the improvement costs at intersections where improvements have been recommended in order to mitigate areawide deficiencies.

Table 4.6-16 (2030 Project "Fair-Share" Contribution) presents the project's "fair-share" contribution of the cost to construct the recommended improvements at the key study area intersections projected to operate at LOS "E" or LOS "F" in 2030. These "fair-share" calculations are based on the recommended methodology contained in the City TIA guidelines.[35] For the unsignalized study area intersections, the project's "fair share" is based on peak-hour traffic volumes. With regards to Cherrydale Drive at Diamond Bar Boulevard, the proposed project will be 100 percent responsible for the improvements associated with the installation of a traffic signal at this location to provide access to the project site from Diamond Bar Boulevard.

Table 4.6-16 (2030 Project "Fair-Share" Contribution) shows that the proposed project's "fair-share" contribution towards the recommended 2030 intersections improvements totals $973,970.37, which equates to roughly 14.1 percent of the total estimated construction cost of $6,905,388.00. The project's "fair-share" contribution for the 2030 improvements includes both the 2007 improvements and the 2010 improvements. With regards to that "fair-share" contribution, a mitigation measure (Mitigation Measure 6-1) has been formulated specifying the Applicant's obligation for the payment of a "fair-share" contribution toward the identified improvements. In addition, a mitigation measure (Mitigation Measure 6-2) has been formulated to provide additional review of the final site plan by the City Engineer. Implementation of the recommended mitigation measures will reduce traffic impacts to a less-than-significant level.

Utilization of City Property

Brea Canyon Road at Diamond Bar Boulevard currently (2007) operate at a satisfactory service levels (i.e., LOS "D" or better) during the AM/PM peak hours. As indicated in the traffic analysis, by 2010, prior to implementation of recommended improvements, Brea Canyon Road at Diamond Bar Boulevard is projected to operate at an unsatisfactory level of service (i.e., LOS "E" for the AM peak hour and LOS "F" for the PM peak hour). Similarly, under 2030 cumulative traffic conditions and prior to the implementation of recommended improvements, the Brea Canyon Road at Diamond Bar Boulevard intersections forecast to operate at a poor LOS during both the AM and PM peak hours (i.e., LOS "F" for the AM/PM peak hours).

For 2010 traffic conditions, recommended improvements to Brea Canyon Road at Diamond Bar Boulevard include: (1) widen and/or re-stripe the NB approach on Brea Canyon Road to provide a second right-turn lane; (2) widen and/or re-stripe the EB approach and departure on Diamond Bar Boulevard to a third through lane; (3) re-stripe WB approach on Diamond Bar Boulevard to provide a second left-turn lane. The implementation of these improvements may require some modification to existing traffic signal equipment (i.e., re-cut/install new vehicle loop detectors, modification to traffic signal controller), as well as the termination of the existing bike lane. For 2030 cumulative traffic conditions, recommended improvements to Brea Canyon Road at Diamond Bar Boulevard are similar to those identified for 2010 improvements.

[35]/ As presented in this table: (1) "Column 1" presents the project (ICU) impact, except for Brea Canyon Road at Cold Spring Lane and SR-57 SB Ramps at Brea Canyon Cutoff, which are currently unsignalized; (2) "Column 2" presents total (ICU) benefit of the improvement; (3) "Column 3" represents what percentage of ICU benefit is the project-related impact; (4) "Column 4" identifies the jurisdiction; and (5) "Column 5" and "Column 6" present the cost of the planned and/or recommended improvements, and the project's "fair-share" contribution.

Table 4.6-16
2030 PROJECT "FAIR-SHARE" CONTRIBUTION

No.	Intersection	Time Period	(1) Project Impact	(2) Benefit of Improvements	(3) Project "Fair-Share" Percentage[1]	(4) Jurisdiction	(5) Cost of Improvement	(6) Project "Fair-Share" Contribution
1	Brea Canyon Road (W) at Pathfinder Road	AM PM	0.002 0.010	0.104 0.218	3.60%	City of Diamond Bar	$280,750.00	$10,107.00
5	Diamond Bar Boulevard at Pathfinder Road	AM PM	0.009 0.024	0.263 0.309	5.50%	City of Diamond Bar	$591,325.00	$32,522.88
10	Brea Canyon Road at Cold Spring Lane[2]	AM PM	23 60	83 156	25.80%	City of Diamond Bar	$9,375.00	$2,418.75
11	Diamond Bar Boulevard at Cold Spring Lane	AM PM	0.012 0.030	0.173 0.220	9.70%	City of Diamond Bar	$18,750.00	$1,818.75
12	Pathfinder Road at Brea Canyon Cutoff	AM PM	0.016 0.042	0.330 0.326	8.10%	Los Angeles County	$729,688.00	$59,104.73
14	SR-57 SB Ramps at Brea Canyon Cutoff[2]	AM PM	100 233	213 377	36.1%	Caltrans/City of Diamond Bar	$228,125.00	$82,353.13
15	SR-57 NB Ramps at Brea Canyon Cutoff	AM PM	0.017 0.073	0.099 0.141	27.3%	Caltrans/City of Diamond Bar	$355,000.00	$96,915.00
16	Brea Canyon Road at Diamond Bar Boulevard	AM PM	0.030 0.078	0.326 0.299	14.7%	City of Diamond Bar	$684,125.00	$100,566.38
17	Cherrydale Drive at Diamond Bar Boulevard	AM PM	-- --	-- --	100%	City of Diamond Bar	$289,500.00	$289,500.00
18	Brea Canyon Road at Silver Bullet Drive	AM PM	0.005 0.011	0.599 0.668	1.20%	City of Diamond Bar	$37, 500.00	$450.00
19	Diamond Bar Boulevard at Grand Avenue	AM PM	0.008 0.020	0.289 0.390-	4.00%	City of Diamond Bar	$2,216,500.00	$88,660.00
20	Colima Road at Brea Canyon Cutoff	AM PM	0.006 0.014	0.305 0.266	3.40%	City of Diamond Bar	$1,299,375.00	$44,178.75
						Totals	$6,905,388.00	$973,970.37

Notes:
1. Project "fair-share" percent (Column 3) = Project ICU Impact (Column 1) ÷ ICU Benefit of Improvement (Column 2). Source: City of Diamond, Guidelines for the Preparation of Traffic Impact Analysis Report, July 2005.
2. For this intersection, project "fair-share" percentage calculated based on the following equation: Project "fair-share" percentage (Column 3) = Project Traffic (Column 1) ÷ (Project Traffic [Column 1] + Related Projects Traffic [Column 2])

Source: Linscott, Law & Greenspan Engineers

Based on these identified improvements, there exists sufficient nexus between the original purpose of the City's acquisition of the City Property (e.g., to address future traffic impacts as well as the existing traffic issues in this area) to justify its inclusion as part of the SDSP.

Internal Circulation and On-Site Parking

In recognition that commercial parking demands may vary between uses and that parking requirements in a commercial center may not be additive, a condition of approval (Condition of Approval 6-5) has been formulated requiring the preparation of a shared parking plan.

Congestion Management Program Compliance

The CMP was created Statewide as a result of Proposition 111 and has been implemented locally by the LACMTA. The County CMP requires that the traffic impact of individual development projects of potential regional significance be analyzed. A specific system of arterial roadways and all freeways comprise the CMP system.

As required by the CMP, a review has been made of designated monitoring locations on the CMP system for potential impact analysis. In accordance with the CMP's criteria, the geographic area examined in the TIA must include, at a minimum, the following: (1) all CMP arterial monitoring intersections (including freeway on-ramp and off-ramp intersections) where the project will add 50 or more trips during either the AM or PM weekday peak hours; and (2) mainline freeway-monitoring stations where the project will add 150 or more trips (in either direction) during the AM or PM weekday peak hours.

The CMP freeway mainline monitoring stations in the vicinity of the study area include: (1) SR-57 Freeway south of Pathfinder Road; (2) SR-60 Freeway east of Nogales Street; (3) SR-60 at Brea Canyon Road; and (4) SR-60 Freeway east of the SR-57 Freeway. The proposed project will not add 150 or more trips (in either direction) during the weekday AM/PM peak hours at CMP mainline freeway monitoring locations. A CMP freeway traffic impact analysis is, therefore, not required and has not been performed herein.

The CMP guidelines require that arterial monitoring intersection locations must be examined if the proposed project will add 50 or more trips during either the AM or PM weekday peak hours (of adjacent street traffic) at CMP monitoring intersections. The CMP arterial intersection in the vicinity of the study area includes the intersection of Diamond Bar Boulevard at Grand Avenue. Based on the proposed project's trip generation potential, trip distribution, and trip assignment, the number of AM/PM peak-hour project trips which are added to the adjacent street system require the performance of an arterial intersection analysis.

A review of the intersection capacity analyses provided in Tables 4.6-9 (2007 Peak-Hour Intersection Capacity Analysis), Table 4.6-10 (2010 Peak-Hour Intersection Capacity Analysis), and Table 4.6-11 (2030 Peak-Hour Intersection Capacity Analysis) indicate that the proposed project will not impact the intersection of Diamond Bar Boulevard at Grand Avenue in 2030. However, with implementation of the recommended improvements and payment of fair-share fees, the impact of the proposed project is offset.

4.6.3.3 Cumulative Impacts

Transportation and Circulation Impact 6-3*. The implementation of the proposed project, in combination with other related projects, will collectively contribute to existing traffic congestion in the general project area and exacerbate the need for localized areawide traffic improvements.*

Level of Significance before Mitigation*. Potentially significant unless mitigation incorporated.*

For the purpose of this traffic impact analysis, the discussion of potential cumulative traffic impacts has been incorporated into the analysis of project-plus-ambient growth-plus related project impacts. As indicated in Table 4.6-11 (2030 Peak-Hour Intersection Capacity Analysis), nine intersections are projected to operate at LOS "E" or "F" under 2030 cumulative conditions. The proposed project will contribute cumulatively to the adverse service level at the three other intersections forecast to operate at an unsatisfactory level of service in 2030. The remaining eight key study area intersections are forecast to continue to operate at an acceptable level of service during peak periods with the addition of project-generated traffic in 2030.

The locations projected to operate at an adverse LOS in 2030, prior to implementation of recommended intersection improvements, include: (1) Brea Canyon Road (W) at Pathfinder Road (LOS "E" for the PM peak hour); (2) Diamond Bar Boulevard at Pathfinder Road (LOS "F" for the PM peak hour); (3) Brea Canyon Road at Cold Springs Lane (LOS "E" for the AM peak hour); (4) Cold Springs Lane at Diamond Bar Boulevard (LOS "E" for the PM peak hour); (5) Pathfinder Road at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours); (6) SR-57 SB Ramps at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours); (7) SR-57 NB Ramps at Brea Canyon Cutoff (LOS "E" for the PM peak hour); (8) Brea Canyon Road at Diamond Bar Boulevard (LOS "F" for the AM/PM peak hours); (9) Cherrydale Drive at Diamond Bar Boulevard (LOS "F" for the AM/PM peak hours); (10) Brea Canyon Road at Silver Bullet Drive (LOS "F" for the AM/PM peak hours); (11) Diamond Bar Boulevard at Grand Avenue (LOS "F" for the AM/PM peak hours); (12) Colima Road at Brea Canyon Cutoff (LOS "F" for the AM/PM peak hours).

Based on 2030 cumulative conditions, a number of planned and/or recommended improvements have been identified and are outlined in Table 4.6-15 (2030 Summary of Recommended Improvements and Cost Estimates). Each related project's payment of a "fair-share" contribution toward those improvements or, as appropriate, the implementation of the identified intersection improvements themselves, provides a mechanism for later projects to contribute toward improvements to the areawide roadway network in proportion to each related project's identified impacts.

The proposed project's implementation of identified street improvements and payment of applicable fair-share obligations (Mitigation Measure 6-1) serve to effectively reduce the project's potential contribution to significant traffic impacts to a less-than-significant level.

As with the proposed project, other related projects would be subject to the provision of or "fair-share" contribution toward street improvements, as required based on the findings of each projects' traffic impact analysis. Implementation of those improvements and/or payment of those fees, as would be reasonably expected for those related projects, constitute full mitigation for the anticipated impacts upon those intersections. Since none of the threshold of significance criteria would be exceeded, cumulative traffic impacts would be less than significant and no further mitigation is recommended or required.

4.6.4 Project Conditions and Mitigation Measures

Conditions of Approval

- **Condition of Approval 6-1**. Construction Worker Parking and Equipment Staging Plan. Prior to the issuance of a grading permit, the Applicant shall submit and, when deemed acceptable, the City Engineer shall approve a construction worker parking and equipment staging plan (P&ESP) designed to minimize disturbance to the surrounding residences to the greatest extent feasible. Unless otherwise authorized therein, contractors and other construction personnel performing construction activities in proximity to the project site shall be prohibited from parking and/or operating construction equipment, dumpsters, trailers, or other material within a public right-of-way or other public property. The P&ESP can be combined with or become a part of the construction traffic safety plan and/or any other construction management plan as may be required by the City.

- **Condition of Approval 6-2**. Unless previously approved by the City Engineer, no construction access shall be authorized from and no construction traffic shall be permitted along Castle Rock Road and Pasado Drive, except as may be required to construct and maintain any project-related street and other improvements within and adjacent to those rights-of-way.

- **Condition of Approval 6-3**. Construction Traffic Safety Plan. Prior to the issuance of a grading permit, the Applicant shall submit and, when deemed acceptable, the City Engineer shall approve a construction traffic mitigation plan (CTMP). The CTMP shall identify the travel and haul routes to be used by construction vehicles; the points of ingress and egress for all construction vehicles; temporary street or lane closures, temporary signage, and temporary striping; location of materials and equipment staging areas; maintenance plans to remove spilled debris from roadway surfaces; and the hours during which large construction equipment may be brought on/off the project site.

  The Applicant shall keep all haul routes clean and free of debris including but not limited to gravel and dirt as a result of its operations. The Applicant shall clean adjacent streets, as directed by the City Engineer, of any material which may have been spilled, tracked, or blown onto adjacent streets or areas. Hauling or transport of oversize loads will be allowed between the hours of 9:00 AM and 3:00 PM only, Monday through Friday, unless otherwise approved by the City Engineer. No hauling or transport will be allowed during nighttime hours, weekends, or federal holidays. The use of local streets shall be limited only to those that provide direct access to the destination. Haul trucks entering or exiting public streets shall at all times yield to public traffic. If hauling operations cause any damage to existing pavement, street, curb, and/or gutter along the haul route, the Applicant will be fully responsible for repairs. The repairs shall be completed to the satisfaction of the City Engineer.

- **Condition of Approval 6-4**. Traffic Control Plan. Prior to the issuance of a grading permit, the Applicant shall submit and, when deemed acceptable, the City shall approve a traffic control plan (TCP). The TCP shall be consistent with the Southern California Chapter of the American Public Works Association's "Work Area Traffic Control Handbook" (WATCH), the California Department of Transportation's "Manual of Traffic Controls for Construction and Maintenance Work Zones," or such alternative as may be

deemed acceptable by the City. The TCP shall describe the Applicant's plans to safely and efficiently maintain vehicular and non-vehicular access along local roadways throughout the construction period. If any temporary access restrictions or lane closures are proposed by the Applicant, the TCP shall delineate detour routes, the hours, duration and frequency of such restrictions, and the emergency access and safety measures that will be implemented during those closures or restrictions. The TCP can be combined with or become a part of the construction traffic safety plan and/or any other construction management plan as may be required by the City.

- **Condition of Project Approval 6-5**. Shared Parking Plan. Prior to the issuance of building permits for any on-site commercial use, the Applicant shall submit and, when deemed acceptable, the Community Development Director and the City Engineer shall approve a shared parking study. The study, conducted using the Urban Land Institute's "Shared Parking" (Second Edition, 2005) unless otherwise approved by the City, shall present a quantification of on-site commercial parking needs, quantify the number of on-site parking spaces required under existing City regulations, discuss and evaluate opportunities for shared parking between on-site commercial uses, and quantify the number and type of parking spaces that need to be provided to support those commercial uses to be developed on the project site. The number, type, and location of on-site parking shall be determined by the City based, in whole or in part, by the findings of that shared parking study.

Mitigation Measures

- **Mitigation Measure 6-1**. Prior to the recordation of the final tract map, the Applicant shall provide, to the satisfaction of the City Engineer, the intersection improvements identified in the traffic impact analysis or provide a "fair-share" contribution toward the cost of the improvements to the following intersections: (1) Brea Canyon Road (W) at Pathfinder Road; (2) Diamond Bar Boulevard at Pathfinder Road; (3) Brea Canyon Road at Cold Spring Lane; (4) Diamond Bar Boulevard at Cold Spring Lane; (5) Pathfinder Road at Brea Canyon Cutoff; (6) SR-57 SB Ramps at Brea Canyon Cutoff Road; (7) SR-57 NB Ramps at Brea Canyon Cutoff/Diamond Bar Boulevard; (8) Brea Canyon Road at Diamond Bar Boulevard; (9) Cherrydale Drive at Diamond Bar Boulevard; (10) Brea Canyon Road at Silver Bullet Drive; (11) Diamond Bar Boulevard at Grand Avenue; and (12) Colima Road at Brea Canyon Cutoff.

- **Mitigation Measure 6-2**. The final site plan shall include and accommodate those traffic measures, improvements, and such other pertinent factors and/or facilities as may be identified by the City Engineer to ensure the safe and efficient movement of project-related traffic.

4.6.5 Significant Unavoidable Adverse Effects

As conditioned, the approval, construction, occupancy, use, and habitation of the proposed project will not result in any significant unavoidable adverse project-related or cumulative transportation or circulation impacts.

4.7 AIR QUALITY

The impact analysis contained in this section was prepared in accordance with the methodologies provided by the South Coast Air Quality Management District (SCAQMD), as included in the SCAQMD's "CEQA Air Quality Handbook" (Handbook) and updates included on the SCAQMD Internet web site. The analysis makes use of the URBEMIS2007 urban emissions model (Version 9.4.2) for determination of daily construction and operational emissions, guidance included in the SCAQMD's "Final Localized Significance Threshold Methodology" and the USEPA's SCEEN3 Dispersion model for localized construction impacts, and the provisions of the Caltrans' "Transportation Project-Level Carbon Monoxide Protocol" and CALINE4 computer model of on-road carbon monoxide (CO) dispersion modeling.

Mobile-source emissions associated with the occupation of the site are based on the traffic-projections provided in "Final Traffic Impact Report, WVUSD Site D Mixed-Use Development," (LLG, January 17, 2008). In accordance with the traffic study, the project would add 9,276 average daily trips.

4.7.1 Environmental Setting

4.7.1.1 Regulatory Setting

Federal Clean Air Act

The Federal Clean Air Act of 1970 (42 U.S.C. Section 7401 *et seq*.) (CAA) requires any new major stationary sources of air pollution and any major modifications to major stationary sources to obtain an air pollution permit before commencing construction. New Source Review (NSR) requirements (42 U.S.C. 7411) differ depending on the attainment status of the area where the major facility is to be located. Prevention of Significant Deterioration (PSD) requirements (42 U.S.C. 7470-7491) apply in areas that are in attainment of the National Ambient Air Quality Standards (NAAQS). Non-attainment area NSR requirements apply to areas that have not been able to demonstrate compliance with the NAAQS.

Section 108 of the CAA directs the United States Environmental Protection Agency (USEPA) to list pollutants that may reasonably be anticipated to endanger public health and welfare and to issue air quality criteria for those pollutants. The USEPA has set NAAQS for the following pollutants: carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone (O_3), particulate matter (PM), and sulfur dioxide (SO_2). The NAAQS for those primary pollutants are listed in Table 4.7-1 (Ambient Air Quality Standards for Criteria Pollutants). Section 176(c) prohibits federal agencies from taking actions in NAAQS non-attainment or maintenance areas that do not conform to the State Implementation Plan (SIP) for the attainment and maintenance of NAAQS pursuant to Section 110(a).[1]

Executive Order S-3-05

Under Executive Order S-3-05, as signed by Governor Arnold Schwarzenegger on June 1, 2005, the following greenhouse gas (GHG) emission reduction targets were established for California: (1) by 2010, reduce GHG emissions to 2000 levels; (2) by 2020, reduce GHG

[1]/ The purpose of conformity is to ensure federal activities do not interfere with the budgets in the SIPs, ensure actions do not cause or contribute to new violations, and ensure attainment and maintenance of the NAAQS.

emissions to 1990 levels; and (3) by 2050, reduce GHG emissions to 80 percent below 1990 levels. In response, in March 2006, the California Environmental Protection Agency (CalEPA) published a Climate Action Team (CAT) report detailing how State agencies could implement a series of policies to meet the 2010 and 2020 goals. As indicated therein, among the policy actions that are cited are "smart land use and intelligent transportation." The CAT states that smart land use is an umbrella term for strategies that integrate transportation and land-use decisions. Such strategies generally encourage jobs/housing proximity, promote transit-oriented development, and encourage high-density residential/commercial development along transit corridors. These strategies develop more efficient land-use patterns within each jurisdiction or region to match population increases, workforce, and socioeconomic needs for the full spectrum of the population. Intelligent transportation systems (ITS) is the application of advanced technology systems and management strategies to improve operational efficiency of transportation systems and movement of people, goods, and service.[2]

California Health and Safety Code

Section 41700 of the H&SC requires that "no person shall discharge from any source whatsoever such quantities of air contaminants or other material which causes injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, response, health, or safety of any such person or the public, or which causes, or have a natural tendency to cause, injury or damage to business or property." Section 39606(b) of the H&SC authorizes the California Air Resources Board (CARB) to adopt standards for ambient air quality "in consideration of public health and safety, and welfare, including but not limited to health, illness, irritation to the senses, aesthetic value, interference with visibility, and the effects of air pollution on the economy." The objective of ambient air quality standards (AAQS) is to provide a basis for preventing or abating adverse health or welfare effects of air pollution (17 CCR 70101).

Section 39607(e) requires that the CARB establish and periodically review area designation criteria. The CARB makes area designations for the following nine criteria pollutants: ozone (O_3), carbon monoxide (CO), nitrogen dioxide (NO_2), sulfur dioxide (SO_2), particulate matter less than 10 microns (PM_{10}), sulfates (SO_4), lead (Pb), hydrogen sulfide (H_2S), and visibility-reducing particles. Assembly Bill 2595, known as the California Clean Air Act (CCAA), divided non-attainment areas into categories with progressively more stringent requirements (Sections 40918-40920.5, H&SC). As specified, it is the responsibility of each air pollution control district (APCD) and air quality management district (AQMD) within the State to attain and maintain California Ambient Air Quality Standards (CAAQS).[3] The CCAA requires that an attainment plan be developed by all non-attainment districts for O_3, CO, sulfur oxides (SO_X), and nitrogen oxides (NO_X) that are either receptors or contributors of transported air pollutants. The CAAQS are listed in Table 4.7-1 (Ambient Air Quality Standards for Criteria Pollutants).[4] Areas meeting CAAQS are classified as attainment; areas not meeting CAAQS are classified as non-attainment.

[2]/ California Environmental Protection Agency, Climate Action Team Report to Governor Schwarzenegger and the Legislature, March 2006, p. 58.

[3]/ The CARB considers an area to be non-attainment of a CAAQS for a particular pollutant if the standards for O_3, CO (except Lake Tahoe), SO_2 (1 hour and 24 hour), NO_2, PM_{10}, and visibility-reducing particles are exceeded.

[4]/ These standards are designed to protect the health and welfare of the populace with a reasonable margin of safety. In addition to primary and secondary ambient air quality standards, the State has established a set of episode criteria for ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide, and particulate matter. These criteria refer to episode levels representing periods of short-term exposure to air pollutants which threaten public health.

Table 4.7-1
AMBIENT AIR QUALITY STANDARDS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Time	California Standard	Federal Primary Standard	Major Pollutant Sources
Ozone (O_3)	1 hour	0.09 ppm	*	Motor vehicles, paints, coatings, and solvents.
	8 hours	0.070	0.075 ppm	
Carbon Monoxide (CO)	1 hour	20 ppm	35 ppm	Internal combustion engines, primarily gasoline-powered motor vehicles.
	8 hours	9.0 ppm	9 ppm	
Nitrogen Dioxide (NO_2)	Annual Average	0.030 ppm	0.053 ppm	Motor vehicles, petroleum-refining operations, industrial sources, aircraft, ships, and railroads.
	1 hour	0.18 ppm	*	
Sulfur Dioxide (SO_2)	Annual Average	*	0.03 ppm	Fuel combustion, chemical plants, sulfur recovery plants, and metal processing.
	1 hour	0.25 ppm	*	
	24 hours	0.04 ppm	0.14 ppm	
Suspended Particulate Matter (PM_{10})	Annual Arithmetic Mean	20 $\mu g/m^3$	*	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	50 $\mu g/m^3$	150 $\mu g/m^3$	
Suspended Particulate Matter ($PM_{2.5}$)	Annual Arithmetic Mean	12 $\mu g/m^3$	15 $\mu g/m^3$	Dust and fume-producing construction, industrial, and agricultural operations, combustion, atmospheric photochemical reactions, and natural activities (e.g. wind-raised dust and ocean sprays).
	24 hours	*	35 $\mu g/m^3$	
Lead (Pb)	Monthly	1.5 $\mu g/m^3$	*	Present source: lead smelters, battery manufacturing & recycling facilities. Past source: combustion of leaded gasoline.
	Quarterly	*	1.5 $\mu g/m^3$	
Sulfates (SO_4)	24 hours	25 $\mu g/m^3$	*	Industrial processes.

Notes:
ppm: parts per million; $\mu g/m^3$: micrograms per cubic meter
* = standard is not applicable for this pollutant/duration by this entity.

Source: California Air Resources Board

Assembly Bill 32 (California Global Warming Solutions Act of 2006), codified in Section 38500 *et seq*. of the H&SC, established a comprehensive program to reduce GHG by 2020 and identifies several major requirements that CARB is required to implement, including: (1) adoption and implementation of a list of discrete and early action GHG reduction measures; (2) approval of a Statewide1990 emission level that becomes the Statewide 2020 emissions limits; (3) adoption of mandatory GHG reporting rules for significant GHG sources; and (4) adoption of regulations to achieve the maximum technologically feasible and cost-effective reductions. As defined in Section 38505 of the H&SC, greenhouse gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF_6).

City of Diamond Bar General Plan

The City General Plan contains numerous policies that relate, either directly or indirectly, to air quality and the reduction of air emissions. Those policies include, but are not necessarily limited to, the following: (1) Ensure that site designs facilitate rather than discourage pedestrian

movement between nearby uses (Strategy 1.9.5, Public Health and Safety Element); and (2) Require grading plans to include appropriate and feasible measures to minimize fugitive dust (Strategy 1.9.6, Public Health and Safety Element).

City of Diamond Bar Municipal Code

Section 22.16.030 (Air Emissions) in Chapter 22.16 (General Property Development and Use Standards) in Title 22 (Development Code) of the Municipal Code: "The South Coast Air Quality Management District (SCAQMD) has established daily and quarterly significance thresholds for construction exhaust emissions, as identified in the California Environmental Quality Act (CEQA) Air Quality Handbook. All land use activities shall be conducted in a manner consistent with the provisions of the South Coast Air Quality Management Plan."

Section 22.16.030 includes specific standards regarding air emissions. As required, those land-use activities that have the potential to create fugitive dust emissions shall be conducted in a manner so as to create as little dust or dirt emission beyond the boundary line of the parcel as possible. Standards applicable to those projects include, but not limited to: (1) Scheduling - Grading activities shall be scheduled to ensure that repeated grading will not be required, and that implementation of the proposed land use will occur as soon as possible after grading; (2) Operations during high winds - Clearing, earth-moving, excavation operations, or grading activities shall cease in high wind conditions when dust blows and control methods are no longer effective; (3) Area of disturbance - The area disturbed by clearing, demolition, earth-moving, excavation operations, or grading shall be the minimum required to implement the allowed use; (4) Dust control - During clearing, demolition, earth-moving, excavation operations, or grading, dust emissions shall be controlled by regular watering, paving of construction roads or other dust-preventive measures (e.g., hydroseeding), subject to the approval of the building official and city engineer; (5) On-site roads - On-site roads shall be paved as soon as feasible, watered periodically with reclaimed water, whenever possible, or stabilized in an environmentally safe manner; (6) Revegetation - Graded areas shall be revegetated as soon as possible in compliance with the approved landscape plan and any conditions of approval; and (7) Fencing - Appropriate fences or other means may be required by the director to contain dust and dirt within the parcel.

The Municipal Code further acknowledges that the SCAQMD has established daily and quarterly significance thresholds for construction exhaust emissions, as identified in the SCAQMD's "CEQA Air Quality Handbook." All land-use activities shall be conducted in a manner consistent with the provisions of the Air Quality Management Plan (AQMP). Exhaust emissions shall be calculated for each stage of grading and construction proposed. If exhaust emissions from construction activities, including fugitive dust, exceed daily or quarterly significance thresholds, the project proponent shall coordinate with the SCAQMD to determine the appropriate mitigation measures to minimize exhaust emissions, including prohibiting truck idling in excess of two minutes, and shall be subject to compliance with the SCAQMD rules and regulations pertaining to construction emissions (Section 22.16.030[c], Municipal Code).

4.7.1.2 Regional Setting

The project area lies in the South Coast Air Basin (SCAB or Basin). The SCAB includes all of Orange County as well as the non-desert portions of Los Angeles, Riverside, and San Bernardino Counties. The Basin is located in a coastal plain with connecting broad valleys and low hills, bounded by the Pacific Ocean in the southwest quadrant with high mountains forming

the remainder of the perimeter. The general region lies in the semi-permanent high-pressure zone of the eastern Pacific. As a result, the climate is mild, tempered by cool sea breezes. This usually mild climatological pattern is infrequently interrupted by periods of extremely hot weather, winter storms, or Santa Ana winds.

The annual average temperature varies little throughout the Basin, ranging from the low to middle 60s, measured in degrees Fahrenheit (F). With a more pronounced oceanic influence, coastal areas show less variability in annual minimum and maximum temperatures than inland areas. The National Weather Service's climatological station located nearest to the site (located in the City of Pomona) reports an annual average of 62°F. The average low is reported at 38°F in January while the average high is 91°F in both July and August. All areas in the Basin have recorded temperatures above 100°F in recent years and temperatures as high as 114°F have been recorded at the Pomona station. January is typically the coldest month in this area of the Basin, with minimum temperatures in the 30s.

In contrast to a very steady pattern of temperature, rainfall is seasonally and annually highly variable. Almost all rain falls from November through April. Summer rainfall is normally restricted to widely scattered thundershowers near the coast with slightly heavier shower activity in the east and over the mountains. Rainfall averages around 14.4 inches per year in the project area as measured in Pomona.

Although the Basin has a semi-arid climate, the air near the surface is typically moist because of the presence of a shallow marine layer. Except for infrequent periods when dry, continental air is brought into the Basin by off-shore winds, the ocean effect is dominant. Periods of heavy fog, especially along the coast, are frequent; and low stratus clouds are a characteristic climatic feature. Annual average humidity is 70 percent at the coast and 57 percent in the east portions of the Basin.

Wind patterns across the region are characterized by westerly and southwesterly on-shore winds during the day and easterly or northeasterly breezes at night. Wind speed is somewhat greater during the dry summer months than during the rainy winter season. Annually, typical winds in the project area average about 5-8 mph during the day and 2-5 mph during the night.

Between the periods of dominant air flow, periods of air stagnation may occur, both in the morning and evening hours. Whether such a period of stagnation occurs is one of the critical determinants of air quality conditions on any given day. During the winter and fall months, surface high pressure systems over the Basin, combined with other meteorological conditions, can result in very strong, downslope Santa Ana winds. These winds normally have a duration of a few days before predominant meteorological conditions are reestablished.

In conjunction with the two characteristic wind patterns that affect the rate and orientation of horizontal pollutant transport, there are two similarly distinct types of temperature inversions that control the vertical depth through which pollutants are mixed: marine/subsidence inversion and the radiation inversion. The height of the base of the inversion at any given time is known as the "mixing height." This mixing height can change under conditions when the top of the inversion does not change. In the project area, the combination of winds and inversions are critical determinants in leading to the highly degraded air quality in summer and the generally good air quality in the winter.

Ambient Air Quality

The following characterization of the baseline atmospheric environment includes an evaluation of the ambient air quality and applicable rules, regulations, and standards for the area. Because the project has the ability to release gaseous emissions of criteria pollutants and dust into the ambient air, it falls under the ambient air quality standards promulgated on the local, State, and federal levels.

- Affected Environment. Topographical features that affect the transport and diffusion of pollutants in the project area include the mountain ranges to the northeast that prevent the transport of pollutants. Air quality in the SCAB generally ranges from fair to poor and is similar to air quality in most of coastal southern California. The entire region experiences heavy concentrations of air pollutants during prolonged periods of stable atmospheric conditions.

  The quality of the ambient air is affected by pollutants emitted into the air from stationary and mobile sources. Stationary sources can be divided into two major subcategories: point sources and area sources. Point sources consist of one or more emission sources at a facility with an identified location and are usually associated with manufacturing and industrial processing plants. Area sources are widely distributed and produce many small emissions.

  Mobile sources refer to emissions from motor vehicles (including tailpipe and evaporative emissions) and are classified as either on-road or off-road. On-road sources are a combination of emissions from automobiles, trucks, and indirect sources. Indirect sources are sources that, by themselves, may not emit air contaminants; however, they indirectly cause the generation of air pollutants by attracting vehicle trips or consuming energy. Examples of indirect sources include a commercial center that generates vehicle trips and consumes energy resources through the use of natural gas for space and water heating. Indirect sources also include actions proposed by local governments, such as public and private development projects. In addition, indirect sources include those emissions created by the distance vehicles travel. Off-road sources include aircraft, ships, trains, and self-propelled construction equipment.

- Criteria Air Pollutants. The air pollutants emitted into the ambient air by stationary and mobile sources are regulated by State and federal law. These regulated air pollutants are known as "criteria air pollutants" and are categorized as primary and secondary pollutants. Primary air pollutants are those that are emitted directly from sources. Carbon monoxide (CO), reactive organic gases (ROG), nitrogen oxides (NO_X), sulfur dioxide (SO_2), and most fine particulate matter (PM_{10} and $PM_{2.5}$) including lead (Pb) and fugitive dust are primary air pollutants. Of these CO, SO_2, PM_{10}, and $PM_{2.5}$ are criteria pollutants. ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reaction in the atmosphere. Ozone (O_3) and nitrogen dioxide (NO_2) are the principal secondary pollutants.

  Presented below is a description of each of these primary and secondary criteria air pollutants and their known health effects. Other pollutants, such as carbon dioxide (CO_2), a natural by-product of animal respiration that is also produced in the combustion process, have been linked to such phenomena as global warming. These emissions are

only starting to be regulated and there are no thresholds for their release. These pollutants also do not jeopardize the attainment status of the SCAB.

◊ Carbon monoxide (CO) is a colorless, odorless, toxic gas produced by incomplete combustion of carbon substances (e.g., gasoline or diesel fuel). The primary adverse health effect associated with CO is the interference of normal oxygen transfer to the blood, which may result in tissue oxygen deprivation.

◊ Reactive organic gases (ROGs) are compounds comprised primarily of atoms of hydrogen and carbon. Internal combustion, associated with motor vehicle usage, is the major source of hydrocarbons. Other sources of ROG include the evaporative emissions associated with the use of paints and solvents, the application of asphalt paving, and the use of household consumer products such as aerosols. Adverse effects on human health are not caused directly by ROG but rather by reactions of ROG to form secondary pollutants.

◊ Nitrogen oxides (NO_X) serve as integral participants in the process of photochemical smog production. The two major forms of NO_X are nitric oxide (NO) and nitrogen dioxide (NO_2). NO is a colorless, odorless gas formed from atmospheric nitrogen and oxygen when combustion takes place under high temperature and/or high pressure. NO_2 is a reddish-brown irritating gas formed by the combination of NO and oxygen (O). NO_X acts as an acute respiratory irritant and increases susceptibility to respiratory pathogens.

◊ Nitrogen dioxide (NO_2) is a byproduct of fuel combustion. The principal form of NO_2 produced by combustion is nitric oxide (NO). NO reacts to form NO_2, creating the mixture of NO and NO_2 commonly called NOx. NO_2 acts as an acute irritant and, in equal concentrations, is more injurious than NO. At atmospheric concentrations, however, NO_2 is only potentially irritating. There is some indication of a relationship between NO_2 and chronic pulmonary fibrosis. Some increase in bronchitis in children (2-3 years old) has been observed at concentrations below 0.3 ppm. NO_2 absorbs blue light, resulting in a brownish-red cast to the atmosphere and reduced visibility. NO_2 also contributes to the formation of PM_{10} (particulates having an aerodynamic diameter of 10 microns or 0.0004 inch or less in diameter).

◊ Sulfur dioxide (SO_2) is a colorless, pungent, irritating gas formed by the combustion of sulfurous fossil fuels. Fuel combustion is the primary source of SO_2. At sufficiently high concentrations, SO_2 may irritate the upper respiratory tract. At lower concentrations, when combined with particulates, SO_2 may injure lung tissue.

◊ Particulate matter (PM) consists of finely divided solids or liquids, such as soot, dust, aerosols, fumes, and mists. Two forms of fine particulate are now recognized. Course particles (PM_{10}) include that portion of the particulate matter with an aerodynamic diameter of 10 microns (i.e., ten one-millionths of a meter or 0.0004 inch) or less. Fine particles ($PM_{2.5}$) have an aerodynamic diameter of 2.5

microns (i.e., 2.5 one-millionths of a meter or 0.0001 inch) or less.[5] Particulate discharge into the atmosphere results primarily from industrial, agricultural, construction, and transportation activities. Wind action on the arid landscape also contributes substantially to the local particulate loading. Both PM_{10} and $PM_{2.5}$ may adversely affect the human respiratory system, especially in those people who are naturally sensitive or susceptible to breathing problems.

◊ Fugitive dust poses primarily two public health and safety concerns. The first concern is that of respiratory problems attributable to the suspended particulates in the air. The second concern is that of motor vehicle accidents caused by reduced visibility during severe wind conditions. Fugitive dust may also cause significant property damage during strong windstorms by acting as an abrasive material agent. Fugitive dust can also result in a nuisance factor due to the soiling of proximate structures and vehicles.

◊ Ozone (O_3) is one of a number of substances called photochemical oxidants that are formed when reactive organic compounds (ROC) and NO_X (both byproducts of the internal combustion engine) react with sunlight. O_3 is present in relatively high concentrations in the SCAB and the damaging effects of photochemical smog are generally related to the concentrations of O_3. O_3 may pose a health threat to those who already suffer from respiratory diseases as well as healthy people. O_3 has been tied to crop damage (typically in the form of stunted growth and pre-mature death) and acts as a corrosive (resulting in property damage such as the embitterment of rubber products).

- Toxic Air Contaminants. The public's exposure to toxic air contaminants (TACs) is an environmental health issue in California. In 1983, the California Legislature enacted a program to identify the health effects of TACs and to reduce exposure to these contaminants to protect the public health. The H&SC defines a TAC as "an air pollutant which may cause or contribute to an increase in mortality or in serious illness, or which may pose a present or potential hazard to human health." A substance that is listed as a hazardous air pollutant (HAP), pursuant to Section 112(b) of the CAA (42 U.S.C. 7412[b]) is a TAC.

  Under State law, the California Environmental Protection Agency (CalEPA), acting through the CARB, is authorized to identify a substance as a TAC if it determines the substance is an air pollutant which may cause or contribute to an increase in mortality or serious illness or which may pose a present or potential hazard to human health.

  California regulates TACs primarily through Assembly Bills 1807 (Tanner Air Toxics Act) and 2588 (Air Toxics "Hot Spot" Information and Assessment Act of 1987). The Tanner Air Toxics Act sets forth a formal procedure for CARB to designate substances as TACs. Once a TAC is identified, CARB adopts an "airborne toxics control measure" for sources that emit designated TACs. If there is a safe threshold for a substance at which there is no toxic effect, the control measure must reduce exposure to below that threshold. If there is no safe threshold, the measure must incorporate toxics best available control technology (T-BACT) to minimize emissions.

[5]/ The SCAQMD recently promulgated regional and localized emissions thresholds for $PM_{2.5}$ based on the proposed USEPA standard of 10 tons per year, as included in the Federal Register (September 8, 2005).

Air toxics from stationary sources are regulated in California under the Air Toxics "Hot Spot" Information and Assessment Act of 1987. Under AB 2588, TAC emissions from individual facilities are quantified and prioritized by the AQMD or APCD. High priority facilities are required to perform a health risk assessment and, if specific thresholds are exceeded, required to communicate the results to the public in the form of notices and public meetings. To date, the CARB has designated nearly 200 compounds as TACs. Additionally, the CARB has implemented control measures for a number of compounds that pose high risks and show potential for effective control. The majority of the estimated health risks from TACs can be attributed to a relatively few compounds, the most important being particulate matter from diesel-fueled engines (diesel PM).

In 2000, the SCAQMD conducted a study on ambient concentrations of TACs and estimated the potential health risks from air toxics. The results showed that the overall risk for excess cancer from a lifetime exposure to ambient levels of air toxics was about 1,400 in a million. The largest contributor to this risk was diesel exhaust, accounting for 71 percent of the air toxics risk.

- Greenhouse Gas Emissions. It is commonly understood today that certain gases can accumulate in the atmosphere and decrease the amount of solar radiation that is reflected back into space, potentially contributing to the warming of the earth's climate much like the interior of a greenhouse.

  As indicated by the California Attorney General (CAG): "The Intergovernmental Panel on Climate Change of the United Nations found overwhelming evidence that global warming is occurring and is caused by human activity. The California Climate Change Center reports that temperatures in the State are expected to rise 4.7 to 10.5°F by the end of the century. These increases would have serious consequences, including substantial loss of snowpack, and increase of as much as 55% in the risk of large wildfires, reductions in the quality and quantity of agricultural products, exacerbation of California's air quality problems, and adverse impacts on human health from increased heat stress and heat related deaths, and increases in asthma, respiratory and other health problems. According to NASA's James Hansen, proceeding at the greenhouse gas emissions rate of the past decade will result in 'disasterous effects, including increasingly rapid sea level rise, increased frequency of droughts and floods, and increased stress on wildlife and plants due to rapidly shifting climate zones.' And, the experts tell us, we have less than a decade to take decisive action. If we continue our business-as-usual emissions trajectory, dangerous climate change will become unavoidable. To avoid this scenario, it is imperative to address GHG emissions form the transportation sector, which is the single largest source of GHG emissions in California. According to the California Energy Commission, transportation accounts for 41.2% of GHG emissions in the State in 2002."[6]

  Over time, increases in the earth's temperature could result in significant climate change effects such as raising sea levels, altering precipitation patterns, and changing water supplies and crop yields. Global warming could also affect human health, wildlife, and

[6]/ Correspondence from Edmund G. Brown, Jr., California Attorney General, State of California Department of Justice to Jessica Kirchner, Southern California Association of Governments (Re: Comments on the Notice of Preparation for Draft Environmental Impact Report for the 2008 Regional Transportation Plan and 2008 Regional Comprehensive Plan [SCH Number 2007061126]), October 19, 2007, included in the "Draft 2008 Regional Transportation Plan Program Environmental Impact Report, SCH No. 2007061126" (SCAG, January 2008).

ecosystems. The general scientific consensus is that increased concentrations of GHG in the atmosphere can contribute to global warming, although there is disagreement and uncertainty concerning either the likely magnitude of the GHG contribution or the degree of potential warming that would be due to GHG rather than from natural forces. Higher atmospheric temperatures could also result in more emissions of certain pollutants, increased smog levels, and the associated health impacts. While the possible outcomes and feedback mechanisms involved are not fully understood and much more research remains to be done, many members of the scientific community believe there is a potential for significant environmental, social, and economic consequences from world-wide, cumulative GHG emissions contributing to global warming over the long term.

California has undertaken a role in addressing global warming and GHG emissions. In June 2005, the Governor signed Executive Order S-3-05 which established the following greenhouse gas reduction targets: (1) by 2010, reduce GHG emissions Statewide to 2000 emission levels; (2) by 2020, reduce GHG emissions Statewide to 1990 emission levels; and (3) by 2050, reduce GHG emissions Statewide to 80% below 1990 levels.

The target for 2020 was recently codified into the State law through the adoption of Assembly Bill 32. The emission levels in California were estimated to be 426 million metric tons CO_2 equivalent for 1990, 473 million metric tons CO_2 equivalent for 2000, 532 million metric tons CO_2 equivalent for 2010, and 600 million metric tons CO_2 equivalent for 2020. According to the 2007 "Air Quality Management Plan" (2007 AQMP), these goals for emission reductions were estimated to be approximately 59 and 174 million tons CO_2 equivalent by 2010 and 2020, respectively. Achieving AB 32's targets would require significant development and implementation of energy efficiency technologies and extensive shifting of energy production to renewable sources. In addition to reducing GHG emissions, such strategies would concurrently reduce emissions of criteria pollutants associated with fossil fuel combustion.

The CAG has prepared a list of mitigation measures, included in Appendix H (California Environmental Quality Act – Addressing Global Warming Impacts at the Local Agency Level), that local agencies may consider under CEQA to offset or reduce global warming impacts.

Air Quality Management Planning

- Local Planning Requirements. The SCAQMD and SCAG are the agencies responsible for preparing the AQMP for the SCAB. Since 1979, a number of AQMPs have been prepared. The 1997 AQMP (as updated in 1999 and replaced in 2003) was based on the 1994 AQMP and the 1991 AQMP and was designed to comply with State and federal requirements, reduce the high level of pollutant emissions in the SCAB, and ensure clean air for the region through various control measures. To accomplish its task, the 1991 AQMP relied on a multi-level partnership of governmental agencies at the federal, State, regional, and local levels. These agencies (USEPA, CARB, local governments, SCAG, and SCAQMD) are the cornerstones that implement the AQMP programs.

  The most recent comprehensive plan is the 2007 AQMP, as adopted on June 1, 2007. The 2007 AQMP employs up-to-date science and analytical tools and incorporates a comprehensive strategy aimed at controlling pollution from all sources, including

stationary sources, on-road and off-road mobile sources, and area sources. The 2007 AQMP proposes attainment demonstration of the federal $PM_{2.5}$ standards through a more focused control of SOx, directly emitted $PM_{2.5}$, and NOx supplemented with volatile organic compounds (VOC) by 2014. The 8-hour O_3 control strategy builds upon the $PM_{2.5}$ strategy, augmented with additional VOC reductions to meet the standard by 2020. An extended attainment date (i.e., additional 3 years) is allowed under the CAA if a "bump-up" request is made by the State showing the need for such extension.

The 2007 AQMP proposes policies and measures currently contemplated by responsible agencies to achieve federal standards for healthful air quality in the Basin and those portions of the Salton Sea Air Basin (formerly named the Southeast Desert Air Basin) that are under the SCAQMD's jurisdiction (Coachella Valley). The plan also addresses several federal planning requirements and incorporates significant new scientific data, primarily in the form of updated emissions inventories, ambient measurements, new meteorological episodes, and new air quality modeling tools. The 2007 AQMP builds upon the approaches taken in the 2003 AQMP for the SCAB for the attainment of the federal O_3 air quality standard. This plan, however, highlights the significant amount of reductions needed and the urgent need to identify additional strategies, especially in the area of mobile sources, to meet all federal criteria pollutant standards within the timeframes allowed under CAA.

The 2007 AQMP updates the attainment demonstration for the federal standards for O_3 and particulate matter (PM_{10}), replaces the 1997 attainment demonstration for the federal CO standard, provides a basis for a maintenance plan for CO for the future, and updates the maintenance plan for the federal nitrogen dioxide (NO_2) standard that the Basin has met since 1992.

Areas that meet the ambient air quality standards are classified as "attainment" areas while areas that do not meet these standards are classified as "non-attainment" areas. The severity of the classifications for O_3 non-attainment include and range in magnitude from marginal, moderate, serious, severe, and extreme. The attainment status for the SCAB is included in Table 4.7-2 (Attainment Status for the South Coast Air Basin).

Table 4.7-2
ATTAINMENT STATUS FOR THE SOUTH COAST AIR BASIN

Pollutant	State Status	Federal Status
Ozone (1-hour)	Extreme Non-attainment	Extreme Non-attainment (under the prior standard)
Ozone (8-hour)	Extreme Non-Attainment	Severe-17 (may petition for Extreme)
PM_{10}	Serious Non-attainment	Serious Non-attainment
$PM_{2.5}$	Non-attainment	Non-attainment
CO	Attainment	Attainment/Maintenance
NO_2	Attainment	Attainment/Maintenance

Source: California Air Resources Board

The Basin is also designated as attainment of the CAAQS for SO_2, lead, and sulfates. Areas that are designated as Severe-17 for the O_3 standard must meet attainment of the 8-hour standard by 2021 (2024 if reclassified to Extreme). Areas considered as serious non-attainment of the PM_{10} standards must have reached attainment by the end of 2006,

or as expeditiously as possible. To date, the Basin still does not meet this standard. The $PM_{2.5}$ attainment date is to be met in 2015.

- Federal Clean Air Act Requirements. The CAA requires plans to provide for the implementation of all reasonably available control measures, including the adoption of reasonably available control technology for reducing emissions from existing sources. Emission control innovations in the form of market-based approaches are explicitly encouraged by the CAA. The SCAQMD is the first local agency in the country to adopt a market-based approach for controlling stationary source emissions of oxides of nitrogen and sulfur. Other federal requirements addressed include mechanisms to track plan implementation and milestone compliance for O_3 and CO.

  The USEPA has recently phased out the federal 1-hour ozone standard and replaced it with a new 8-hour standard to protect against longer exposure periods.[7] The SCAB, however, still experiences O_3 levels over the prior federal 1-hour standard on more than 20 days per year. The 2007 AQMP shows that, by 2010, the Basin will still exceed the federal 1-hour ozone standard by 20 percent despite the implementation of existing air quality programs. The new 8-hour ozone standard is set at a concentration of 0.08 parts per million (ppm) and represents a tightening of the existing 1-hour ozone standard (0.12 ppm). Under the form of the standard adopted by the USEPA, areas are allowed to disregard their three worst measurements every year and average their fourth highest measurements over three years to determine if they meet the standard.

  For particulate matter, the USEPA established new annual and 24-hour standards for $PM_{2.5}$ to complement the existing PM_{10} standards. The new annual $PM_{2.5}$ standard is set at 15 micrograms per cubic meter (15 $\mu g/m^3$) and the new 24-hour $PM_{2.5}$ standard is set at 35 $\mu g/m^3$. The annual component of the standard was set to provide protection against typical day-to-day exposures as well as longer-term exposures, while the daily component protects against more extreme short-term events. For the new 24-hour $PM_{2.5}$ standard, the form of the standard is based on the 98th percentile of 24-hour $PM_{2.5}$ concentrations measured in a year (averaged over three years) at the monitoring site with the highest measured values in an area. This form of the standard will reduce the impact of a single high exposure event that may be due to unusual meteorological conditions and thus provide a more stable basis for effective control programs.

  With respect to PM_{10}, the USEPA recently dropped the annual PM_{10} standard of 50 $\mu g/m^3$ and has modified the form of the 24-hour PM_{10} standard set at 150 $\mu g/m^3$. More specifically, USEPA revised the one-expected exceedance form of the current standard with a 99th percentile form, averaged over three years.

  The State Implementation Plans (SIP) that will incorporate attainment demonstrations with the new 8-hour and $PM_{2.5}$ standards are expected to be required within 3 years of the air quality designations or by 2007. Therefore, the current regulatory control strategies will continue to focus on attaining the 1-hour ozone standard with the recognition that these controls will have benefits toward attaining the 8-hour ozone and $PM_{2.5}$ standards. The USEPA is considering several options in transitioning from the 1-hour to the 8-hour standard, while ensuring that no backsliding will occur. Based on the recent consent decree guidance, it is most likely that the Basin will have to meet the

[7]/ The SCAQMD and a number of environmental organizations have litigated USEPA's revocation of the 1-hour standard with the case still pending.

federal $PM_{2.5}$ standards by 2015 and the 8-hour ozone standard by 2021 or 2024 if the area is redesignated as "extreme."

4.7.1.3 Local Setting

Baseline Air Quality

Existing levels of ambient air quality and historical trends and projections in the project area are best documented by measurements made by the SCAQMD. The project is located within the southeastern portion of Source Receptor Area (SRA) 10 (Pomona/Walnut Valley Monitoring Station). This station does not, however, monitor particulate matter and these data are as monitored at the Southwest San Bernardino Valley Monitoring Station (SRA 33) located to the east of the project area. Data from these monitoring stations are summarized in Table 4.7-3 (Ambient Air Quality Monitoring Summary).

The data show recurring violations of both the State and federal O_3 standards and no clear trend is apparent, though the recent years show reductions from historic levels. The data also indicate that the area regularly exceeds the PM_{10} standards. Additionally, $PM_{2.5}$ has exceeded the federal standard six times in the last five years that it has been monitored. Neither the CO nor the NO_2 standards have been violated in the last five years at this station.

Standard Conditions and Uniform Codes

All projects constructed in the SCAB are subject to standard conditions and uniform codes. Compliance with these provisions is mandatory and as such, does not constitute mitigation under CEQA. Those conditions specific to air quality are included below.

- Adherence to SCAQMD Rule 403, which sets requirements for dust control associated with grading and construction activities.
- Adherence to SCAQMD Rules 431.1 and 431.2, which require the use of low sulfur fuel for stationary construction equipment.
- Adherence to SCAQMD Rule 1108, which sets limitations on ROG content in asphalt.
- Adherence to SCAQMD Rule 1113, which sets limitations on ROG content in architectural coatings.
- The project shall comply with Title 24 energy-efficient design requirements as well as the provision of window glazing, wall insulation, and efficient ventilation methods in accordance with the requirements of the Uniform Building Code (UBC).

During construction, the project would be subject to SCAQMD Rule 403 (Fugitive Dust). SCAQMD Rule 403 does not require a permit for construction activities but sets forth general and specific requirements for all construction sites (as well as other fugitive dust sources) in the Basin. The general requirement prohibits a person from causing or allowing emissions of fugitive dust from construction (or other fugitive dust source) such that the presence of such dust remains visible in the atmosphere beyond the property line of the emissions source. SCAQMD Rule 403 also prohibits a construction site from causing an incremental PM_{10} concentration impact at the property line of more than 50 $\mu g/m^3$ as determined through PM_{10} high-volume sampling. The concentration standard and associated PM_{10} sampling do not apply if specific measures identified in the rule are implemented and appropriately documented.

Table 4.7-3
AMBIENT AIR QUALITY MONITORING SUMMARY
(Pomona/Walnut Valley and Southwest San Bernardino Valley Monitoring Stations)

Pollutant/Standard	Number of Days Threshold Were Exceeded and Maximum Levels During Such Violations				
	2002	2003	2004	2005	2006
Ozone					
State 1-Hour ≥ 0.09 ppm	28	39	31	26	32
State 8-Hour ≥ 0.07 ppm	NS[2]	NS	25	18	30
Federal 1-Hour > 0.12 ppm	5	13	4	4	6
Federal 8-Hour > 0.08 ppm	15	24	13	11	16
Maximum 1-Hour Concentration (ppm)	0.150	0.161	0.131	0.140	0.15
Maximum 8-Hour Concentration (ppm)	0.112	0.123	0.102	0.112	0.128
Carbon Monoxide					
State 8-Hour > 9.0 ppm	0	0	0	0	0
Federal 8-Hour ≥ 9.5 ppm	0	0	0	0	0
Maximum 1-Hour Concentration (ppm)	6	6	4	4	3
Maximum 8-Hour Concentration (ppm)	3.3	4.4	3.1	2.5	2.1
Nitrogen Dioxide					
State 1-Hour ≥ 0.25 ppm	0	0	0	0	0
Maximum 1-Hour Concentration (ppm)	0.11	0.12	0.11	0.08	0.10
Inhalable Particulates (PM_{10})[3]					
State 24-Hour > 50 µg/m^3	41.0	29.0	29.3	31.7	27.4
Federal 24-Hour > 150 µg/m^3	0	0	0	0	0
Maximum 24-Hour Concentration (µg/m^3)	91	149	93	74	78
Inhalable Particulates ($PM_{2.5}$)[3]					
Federal 24-Hour > 65 µg/m^3	0	2.5	1.8	0.9	0
Federal 24-Hour > 35 µg/m^3	NS	NS	NS	NS	6.5
Maximum 24-Hour Concentration (µg/m^3)	64.8	88.9	86.1	87.8	53.7

Notes:
1. Ozone, carbon monoxide, and nitrogen dioxide are as measured at the Walnut/Pomona Valley Monitoring Station. PM_{10} and $PM_{2.5}$ particulates are monitored at the Southwest San Bernardino Valley Monitoring Station.
2. NS – No standard
3. Percent of samples exceeding standard

ppm: parts per million; µg/m^3: micrograms per cubic meter

Source: South Coast Air Quality Management District

In accordance with Rule 403, the SCAQMD requires that contractors implement Best Available Control Technology (BACT) for construction activities. Rule 403 identifies two sets of specific measures, one for projects less than 50 acres and another set of conditions for projects that exceed 50 acres. The requirements applicable to the project are included in Table 4.7-4 (SCAQMD Required Best Available Control Measures). Note that these measures are regulatory requirements and as such, do not constitute mitigation under CEQA.

Table 4.7-4
SCAQMD REQUIRED BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measures	Guidance
Backfilling	Stabilize backfill material when not actively handling; and Stabilize backfill material during handling; and Stabilize soil at completion of activity	Mix backfill soil with water prior to moving; and Dedicate water truck or high capacity hose to backfilling equipment; and Empty loader bucket slowly so that no dust plumes are generated; and Minimize drop height from loader bucket.
Clearing and Grubbing	Maintain stability of soil through prewatering of site prior to clearing and grubbing; and Stabilize soil during clearing and grubbing activities; and Stabilize soil immediately after clearing and grubbing activities.	Maintain live perennial vegetation where possible; and Apply water in sufficient quantity to prevent generation of dust plumes.
Clearing Forms	Use water spray to clear forms; or Use sweeping and water spray to clear forms; or Use vacuum system to clear forms.	Use of high pressure air to clear forms may cause exceedance of Rule requirements.
Crushing	Stabilize surface soils prior to operation of support equipment; and Stabilize material after crushing.	Follow permit conditions for crushing equipment; and Pre-water material prior to loading into crusher; and Monitor crusher emissions opacity; and Apply water to crushed material to prevent dust plumes.
Cut and Fill	Pre-water soils prior to cut and fill activities; and Stabilize soil during and after cut and fill activities.	For large sites, pre-water with sprinklers or water trucks and allow time for penetration; and Use water trucks/pulls to water soils to depth of cut prior to subsequent cuts.
Demolition Mechanical/Manual	Stabilize wind erodible surfaces to reduce dust; and Stabilize surface soil where support equipment and vehicles will operate; and Stabilize loose soil and demolition debris; and Comply with Rule 1403.	Apply water in sufficient quantities to prevent the generation of visible dust plumes.
Disturbed Soil	Stabilize disturbed soil throughout the construction site; and Stabilize disturbed soil between structures	Limit vehicular traffic and disturbances on soils where possible; and If interior block walls are planned, install as early as possible; and Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes.
Earth-Moving Activities	Pre-apply water to depth of proposed cuts; and Re-apply water as necessary to maintain soils in a damp condition and to ensure that visible emissions do not exceed 100 feet in any direction; and Stabilize soils once earth-moving activities are complete.	Grade each project phase separately, timed to coincide with construction phase; and Upwind fencing can prevent material movement on site; and Apply water or a stabilizing agent in sufficient quantities to prevent the generation of visible dust plumes.
Importing/Exporting of Bulk Materials	Stabilize material while loading to reduce fugitive dust emissions; and Maintain at least six inches of freeboard on haul vehicles; and Stabilize material while transporting to reduce fugitive dust emissions; and Stabilize material while unloading to reduce fugitive dust emissions; and Comply with CVC Section 23114.	Use tarps or other suitable enclosures on haul trucks; and Check belly-dump truck seals regularly and remove any trapped rocks to prevent spillage; and Comply with track-out prevention/mitigation requirements; and Provide water while loading and unloading to reduce visible dust plumes.

Table 4.7-4 (Continued)
SCAQMD REQUIRED BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measures	Guidance
Landscaping	Stabilize soils, materials, slopes	Apply water to materials to stabilize; and Maintain materials in a crusted condition; and Maintain effective cover over materials; and Stabilize sloping surfaces using soil binders until vegetation or ground cover can effectively stabilize the slopes; and Hydroseed prior to rain season.
Road Shoulder Maintenance	Apply water to unpaved shoulders prior to clearing; and Apply chemical dust suppressants and/or washed gravel to maintain a stabilized surface after completing road shoulder maintenance.	Installation of curbing and/or paving of road shoulders can reduce recurring maintenance costs; and Use of chemical dust suppressants can inhibit vegetation growth and reduce future road shoulder maintenance costs.
Screening	Pre-water material prior to screening; and Limit fugitive dust emissions to opacity and plume length standards; and Stabilize material immediately after screening.	Dedicate water truck or high capacity hose to screening operation; and Drop material through the screen slowly and minimize drop height; and Install wind barrier with a porosity of no more than 50% upwind of screen to the height of the drop point.
Staging Areas	Stabilize staging areas during use; and Stabilize staging area soils at project completion.	Limit size of staging area; and Limit vehicle speeds to 15 miles per hour; and Limit number and size of staging area entrances/exits.
Stockpiles/Bulk Material Handling	Stabilize stockpiled materials, and tockpiles within 100 yards of off-site occupied buildings must not be greater than eight feet in height; or must have a road bladed to the top to allow water truck access or must have an operational water irrigation system that is capable of complete stockpile coverage.	Add or remove material from the downwind portion of the storage pile; and Maintain storage piles to avoid steep sides or faces.
Traffic Areas for Construction Activities	Stabilize all off-road traffic and parking areas; and Stabilize all haul routes; and Direct construction traffic over established haul routes.	Apply gravel/paving to all haul routes as soon as possible to all future roadway areas; and Barriers can be used to ensure vehicles are only used on established parking areas/haul routes.
Trenching	Stabilize surface soils where trencher or excavator and support equipment will operate; and Stabilize soils at the completion of trenching activities.	Pre-watering of soils prior to trenching is an effective preventive measure. For deep trenching activities, pre-trench to 18 inches soak soils via the pre-trench and resuming trenching; and Washing mud and soils from equipment at the conclusion of trenching activities can prevent crusting and drying of soil on equipment.
Truck Loading	Pre-water material prior to loading; and Ensure that freeboard exceeds six inches (CVC 23114)	Empty loader bucket such that no visible dust plumes are created; and Ensure that the loader bucket is close to the truck to minimize drop height while loading.
Turf Overseeding	Apply sufficient water immediately prior to conducting turf vacuuming activities to meet opacity and plume length standards; and Cover haul vehicles prior to exiting the site.	Haul waste material immediately off-site.

Table 4.7-4 (Continued)
SCAQMD REQUIRED BEST AVAILABLE CONTROL MEASURES
(Applicable to All Construction Activity Sources)

Source Category	Control Measures	Guidance
Unpaved Roads/Parking Lots	Stabilize soils to meet the applicable performance standards; and Limit vehicular travel to established unpaved roads (haul routes) and unpaved parking lots.	Restricting vehicular access to established unpaved travel paths and parking lots can reduce stabilization requirements.
Vacant Land	In instances where vacant lots are 0.10 acre or larger and have a cumulative area of 500 square feet or more that are driven over and/or used by motor vehicles and/or off-road vehicles, prevent motor vehicle and/or off-road vehicle trespassing, parking and/or access by installing barriers, curbs, fences, gates, posts, signs, shrubs, trees or other effective control measures.	

Source: South Coast Air Quality Management District

Sensitive Receptors

Some land uses are considered more sensitive to air pollution than others due to the types of population groups or activities involved. Sensitive population groups include children, the elderly, the acutely ill, and the chronically ill, especially those with cardio-respiratory diseases.

Residential areas are considered to be sensitive to air pollution because residents (including children and the elderly) tend to be at home for extended periods of time, resulting in sustained exposure to any pollutants present. Schools are also considered as sensitive since children are present for extended durations and engage in regular outdoor activities. Recreational land uses are considered moderately sensitive to air pollution. Although exposure periods are generally short, exercise places a high demand on respiratory functions, which can be impaired by air pollution. In addition, noticeable air pollution can detract from the enjoyment of recreation. Industrial and commercial areas are considered the least sensitive to air pollution since exposure periods are relatively short and intermittent, as the majority of the workers tend to stay indoors most of the time. In addition, the working population is generally the healthiest segment of the public.

4.7.2 Threshold of Significance Criteria

Presented below is the threshold of significance criteria identified by the Lead Agency relative to this topical issue. In accordance therewith, the proposed project would normally be deemed to produce a significant land use impact if the project or if project-related activities were to:

- Conflict with or obstruct implementation of the applicable air quality plan.
- Violate any air quality standard or contribute substantially to an existing or projected air quality violation.
- Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or State ambient air quality standards.
- Expose sensitive receptors to substantial air pollutant concentrations.
- Create objectionable odors affecting a substantial number of people.

As indicated in Section 15064(i)(1) of the State CEQA Guidelines, "cumulatively considerable" is defined to mean "that the incremental effects of an individual project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects."

In order to determine whether or not the proposed project would cause a significant effect on the environment, the impact of the project must be determined by examining the types and levels of emissions generated and its impacts on factors that affect air quality. To accomplish this determination of significance, the SCAQMD has established air pollution thresholds against which a proposed project can be evaluated and assist lead agencies in determining whether or not the proposed project is significant. If the thresholds are exceeded by a proposed project, then it should be considered significant.

While the final determination of whether or not a project is significant is within the purview of the lead agency, the SCAQMD recommends that the following air pollution thresholds be used in determining whether the construction or operational phase of a proposed project is significant. As recommended by the SCAQMD, if the lead agency finds that the proposed project has the potential to exceed any of these air pollution thresholds, the project should be considered significant.

The following significance thresholds for air quality have been formulated by the SCAQMD on a daily basis for construction emissions: (1) 75 pounds per day for ROG; (2) 100 pounds per day for NOx; (3) 550 pounds per day for CO; (4) 150 pounds per day for PM_{10}; (5) 55 pounds per day for $PM_{2.5}$; and (6) 150 pounds per day of SOx. During construction, if any of the identified daily air pollutant thresholds are exceeded, then the project's air quality impacts may be considered significant.

Specific criteria air pollutants have been identified by the SCAQMD as pollutants of special regional concern. Based upon this categorization, the following significance thresholds have been formulated by the SCAQMD for project operations: (1) 55 pounds per day of ROG; (2) 55 pounds per day of NOx; (3) 550 pounds per day of CO; (4) 150 pounds per day of PM_{10}; (5) 55 pounds per day for $PM_{2.5}$; and (6) 150 pounds per day of SOx. Projects within the SCAB with daily operation-related emissions that exceed any of the above emission thresholds may be considered significant. The SCAQMD indicates hat they consider a project to be mitigated to a level of insignificance if its primary effects are mitigated below these thresholds.

The significance of localized project impacts depends on whether ambient levels in the vicinity of the project are above or below State and federal standards. If ambient levels are below the standards, a project is considered to have significant impacts if project emissions result in an exceedance of one or more of the following standards: (1) California State 1-hour CO standard of 20.0 ppm; (2) California State 8-hour CO standard of 9.0 ppm; (3) California State 1-hour NO_2 standard of 0.18 ppm; and (4) SCAQMD 24-hour construction PM_{10} and $PM_{2.5}$ standards of 10.4 $\mu g/m^3$. If ambient levels already exceed a State or federal standard, then project emissions are considered significant if they increase ambient concentrations by a measurable amount. In the case of CO, the SCAQMD defines a measurable amount as 1.0 ppm or more for the 1-hour CO concentration or 0.45 ppm or more for the 8-hour CO concentrations. The SCAQMD indicates that they consider a project to be mitigated to a level of insignificance if its secondary effects are mitigated below these thresholds.

4.7.3 Impact Analysis

This analysis considers the construction of 202 multi-family residential units and 153,985 square feet of commercial uses on an approximately 20.2-acre portion of the project site. The remainder of the project site (approximately 9.5 acres) is to include infrastructure and open space and is assumed to be included in the overall grading effort.

To best calculate construction emissions and stationary source emissions associated with site occupancy, it is necessary to delineate the work effort used in the analysis. Projected air emissions are calculated using the Urban Emissions model (URBEMIS2007, Version 9.2.4). The URBEMIS model uses EMFAC2007 emissions factors for vehicle traffic. For the purposes of this analysis, construction is estimated to begin in March 2009 and end May 2010, phased in accordance with the URBEMIS model timeframe. Equipment use and timing for the construction effort are based on model default values, except where noted.

The subsequent occupation of the site is also based on the URBEMIS model using traffic-projections from the traffic study. In accordance therewith, the project would add 9,276 ADT. The project's calculated emissions are compared to thresholds of significance for individual projects using the SCAQMD Handbook and Internet web site updates.

Air Quality Impact 7-1*. Because the project involves a General Plan amendment and zone change, it has the potential to be inconsistent with the applicable air quality management plan.*

Level of Significance before Mitigation*. Less-than-significant impact.*

CEQA requires that projects be consistent with the AQMP. A consistency determination plays an essential role in local agency project review by linking local planning and unique individual projects to the AQMP in the following ways: (1) it fulfills the CEQA goal of fully informing local agency decision-makers of the environmental costs of the project under consideration at a stage early enough to ensure that air quality concerns are fully addressed; and (2) it provides the local agency with ongoing information assuring local decision-makers that they are making real contributions to clean air goals contained in the AQMP.

Only new or amended general plan elements, specific plans, and regionally significant projects need to undergo a consistency review. This is because the AQMP strategy is based on projections from local general plans. Projects that are consistent with the local general plan are, therefore, considered consistent with the air quality management plan.

As specified in Section 22.10.020 (Purpose of Commercial/Industrial Zoning Districts) in Chapter 22.10 (Commercial/Industrial Zoning Districts) of the Development Code, the allowable FAR for non-residential development in the "Community Commercial (C-2)" zoning district shall be from 0.25 to 1.00. Accordingly, a range of between 109,880 and 439,520 square feet of commercial use could be developed on the 10.1 acres of the project site slated for commercial development. The 153,985 square feet of commercial use, as proposed under the "'Site D' Specific Plan," falls near the lower end (0.35 FAR) of the allowable FAR range.

In accordance with the transportation analysis, the 153,985 square feet associated with the commercial aspect of the project would generate 8,991 ADT or about 58.39 trips per 1,000 square feet. At an FAR of 1.00, under the existing City General Plan this value could be increased to as many as 25,660 ADT.

Similarly, as proposed, the Applicant seeks approval for 202 dwelling units on an approximately 10.1-acre building pad, representing a residential density of about 20.06 dwelling units per gross acre. Based on a residential area of 20.2 acres and the application of the highest applicable density standards authorized in the "Low Medium Density Residential" zone (i.e., five dwellings per acre), a total of 98 single-family dwelling units could be constructed on the project site. In accordance with the Institute of Traffic Engineers (ITE), single-family residential units generate more trips per unit than multi-family units. The transportation analysis assumes that the 202 multi-family units would result in 1,184 ADT or about 5.86 trips per unit. Based on an ITE trip rate of 9.57 trips per single-family dwelling, the 101 single-family residential units could result in approximately 967 ADT or just 217 ADT fewer than the 202 proposed multi-family units.

As such, under the existing City General Plan, full occupation of the site could result in as many as 26,627 ADT (i.e., 25,660 commercial trips and 967 residential trips). At just 9,276 ADT, the project represents about 35 percent of the trips that could be generated from the site under build-out in accordance with the existing City General Plan. Because vehicle emissions are the primary source of emissions associated with site occupancy, and the project results in just 35 percent of the trips that could be generated under the existing City General Plan, the project is consistent with the emissions projections that would be expected under the existing City General Plan. In this case, the project does not present a significant air quality impact.

Furthermore, even if the commercial aspect were to use a conservative FAR of 0.5, these uses would result in 12,830 ADT. When combined with the 967 ADT for the residential aspect, the resultant value is 13,797 ADT and remains considerably higher than the 9,276 ADT projected for the proposed project. Additionally, as indicated in Table 4.7-7 (Localized Construction Emissions Concentrations), the project would not result in significant localized air quality impacts. As such, the project is consistent with the goals of 2007 AQMP and, in that respect, does not present a significant air quality impact.

4.7.3.1 Construction Impacts

Air Quality Impact 7-2*. Construction of the proposed project has the potential to violate or add to a violation of air quality standards.*

Level of Significance before Mitigation*. Significant.*

The potential air quality impacts associated with and attributable to site construction and operation are separately addressed below.

Air quality impacts may occur during site preparation and construction activities required to implement the proposed land uses. Major sources of emissions during construction include exhaust emissions, fugitive dust generated as a result of soil and material disturbance during grading activities, and the emission of ROCs during site paving and painting of the structures.

As noted, the project involves the construction of 202 multi-family units on approximately 10.1 acres of land and 153,985 square feet of commercial uses also on 10.1 acres. The remainder of the site (approximately 9.49 acres) is to include infrastructure and open space and was combined in the acreage calculations by assuming that the residential and commercial component each occupy an area of 14.85 acres.

SCAQMD's Rule 403 governs fugitive dust emissions from construction projects. This rule sets forth a list of control measures that must be undertaken for all construction projects to ensure that no dust emissions from the project are visible beyond the property boundaries. Adherence to Rule 403 is mandatory and as such, does not denote mitigation under CEQA. The following analysis assumes the use of the minimal measures specified in Rule 403 that overlap between the rule and the URBEMIS model. These include: (1) soil stabilizers shall be applied to all disturbed, inactive areas; (2) ground cover shall be quickly applied in all disturbed areas; (3) the active construction site shall be watered twice daily; (4) stockpiles shall be covered with tarps; and (5) unpaved haul roads shall be watered twice daily. In actuality, Rule 403 specifies several measures that the URBEMIS model does not consider so the modeled PM_{10} and $PM_{2.5}$ emissions associated with fugitive dust are considered conservative.

Table 4.7-5 (Comparison of Projected Construction Emissions and Daily Criteria Values) includes the daily emissions projected for site construction. As indicated therein, ROG emissions associated with the application of paints and coatings could result in a potentially significant impact. Because the construction phase could create significant ROG emissions, primarily associated with the application of paints and coatings, the Lead Agency has formulated a number of mitigation measures (Mitigation Measure 7-1 and Mitigation Measure 7-2) to reduce that impact to the extent as feasible.

The 240.19 pounds-per-day value presented in Table 4.7-5 (Comparison of Projected Construction Emissions and Daily Criteria Values) is based on the model default value with the residential portion of the project using a value of 100 grams/liter for exterior surface coatings and 50 grams/liter for interior surface coatings. The non-residential portion is assumed by the model at 250 grams/liter for both interior and exterior coatings. These values are the maximum allowable under SCAQMD Rule 1113. The URBEMIS model shows the residential portion of the proposed project will produce 66.39 pounds per day for ROG from paints and coatings and the non-residential portion of the proposed project will produces 173.62 pounds per day.

The requirement for no more than 100 gram/liter paints over the non-residential portion of the project would reduce these emissions to 69.45 pounds per day (i.e., 100 grams/liter/250 grams/liter x 173.62 pounds/day = 69.45 pounds/day). When combined with the ROG from the residential component (i.e., 66.39 pounds per day) and that from vehicle emissions (i.e., 0.18 pound per day), the combined emissions are estimated at 136.02 pounds/day. This value would continue to exceed the 75-pound/day threshold and the impact remains significant.

4.7.3.2 Operational Impacts

Air Quality Impact 7-3*. Operation of the proposed project has the potential to violate or add to a violation of air quality standards.*

Level of Significance before Mitigation*. Significant.*

Since stationary sources add only minimally, the major source of long-term air quality impacts is that associated with the emissions produced from project-generated vehicle trips. With regards to mobile source emissions, at completion and based on the findings of the traffic analysis, the proposed project is estimated to produce 9,276 ADT.

Table 4.7-5
COMPARISON OF PROJECTED CONSTRUCTION EMISSIONS AND DAILY CRITERIA VALUES
(pounds/day)

Source	ROG	NOx	CO	SO_2	PM_{10} Dust	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2
Mass Grading (64 Days)											
Mass Grading Dust	0.00	0.00	0.00	0.00	16.51	0.00	16.51	3.45	0.00	3.45	0.00
Mass Grading Off Road Diesel	4.42	35.65	18.16	0.00	0.00	1.92	1.92	0.00	1.77	1.77	3,007.48
Mass Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mass Grading Worker Trips	0.05	0.09	1.45	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.48
Mass Grading Totals	4.47	35.74	19.61	0.00	16.52	1.92	18.44	3.45	1.77	5.23	3,162.96
Fine Grading (29 Days)											
Fine Grading Dust	0.00	0.00	0.00	0.00	16.51	0.00	16.51	3.45	0.00	3.45	0.00
Fine Grading Off Road Diesel	4.42	35.65	18.16	0.00	0.00	1.92	1.92	0.00	1.77	1.77	3,007.48
Fine Grading On Road Diesel	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Fine Grading Worker Trips	0.05	0.09	1.45	0.00	0.01	0.00	0.01	0.00	0.00	0.01	155.48
Fine Grading Totals	4.47	35.74	19.61	0.00	16.52	1.92	18.44	3.45	1.77	5.23	3,162.96
Trenching (9 Days)											
Trenching Off Road Diesel	2.18	18.90	8.32	0.00	0.00	0.93	0.93	0.00	0.86	0.86	1,714.64
Trenching Worker Trips	0.04	0.07	1.16	0.00	0.01	0.00	0.01	0.00	0.00	0.00	124.39
Trenching Totals	2.22	18.97	9.48	0.00	0.01	0.93	0.94	0.00	0.86	0.86	1,839.03
Asphalt Paving (9 Days)											
Paving Off-Gas	2.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Paving Off Road Diesel	2.62	15.62	8.36	0.00	0.00	1.33	1.33	0.00	1.22	1.22	1,131.92
Paving On Road Diesel	0.81	10.29	4.16	0.01	0.04	0.45	0.49	0.01	0.41	0.43	1,254.35
Paving Worker Trips	0.08	0.14	2.32	0.00	0.01	0.01	0.02	0.00	0.01	0.01	248.77
Asphalt Totals	5.67	26.05	14.84	0.01	0.05	1.79	1.84	0.01	1.64	1.66	2,635.04

Table 4.7-5 (Continued)
COMPARISON OF PROJECTED CONSTRUCTION EMISSIONS AND DAILY CRITERIA VALUES
(pounds/day)

Source	ROG	NOx	CO	SO_2	PM_{10} Dust	PM_{10} Exhaust	PM_{10} Total	$PM_{2.5}$ Dust	$PM_{2.5}$ Exhaust	$PM_{2.5}$ Total	CO_2
Building Construction (169 Days)											
Building Off Road Diesel	3.87	17.35	11.50	0.00	0.00	1.28	1.28	0.00	1.17	1.17	1,621.20
Building Vendor Trips	0.68	7.59	5.96	0.01	0.04	0.33	0.38	0.02	0.30	0.32	1,265.07
Building Worker Trips	0.93	1.72	28.34	0.03	0.14	0.08	0.23	0.05	0.07	0.12	3,034.92
Building Totals	5.48	26.66	45.8	0.01	0.18	1.69	1.89	0.07	1.54	1.61	5,921.19
Coating (19 Days)											
Architectural Coating	240.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Coating Worker Trips	0.18	0.33	5.52	0.01	0.03	0.02	0.05	0.01	0.01	0.03	631.18
Coating Totals	240.19[1]	0.33	5.52	0.01	0.03	0.02	0.05	0.01	0.01	0.02	631.18
Daily Threshold	75	100	550	150	→	→	150	→	→	55	NT[2]
Exceeds Threshold?	Yes	No	No	No	→	→	No	→	→	No	No

Notes:
1. Bold values denote a potentially significant impact.
2. NT – No Threshold.

Source: Environmental Impact Sciences

Emissions associated with project-related trips are based on the URBEMIS2007 computer model and assume occupancy in 2009. It is, however, reasonable to assume that the proposed project would not be complete until after that time period (2010). Since emissions per vehicle are reduced each year due to tightening emissions restrictions and the replacement of older vehicles from the road, the use of 2009 emission factors presents a worst-case analysis with regards to operational air quality impacts.

Both summer and winter scenarios were modeled and the higher of the two values are included in Table 4.7-6 (Daily Operational Emissions). As noted therein, operational ROG, NOx, and CO emissions are projected to exceed their respective threshold values and the impact is potentially significant.

With regards to stationary source emissions, in addition to vehicle trips, the facility would produce emissions from on-site sources, including the combustion of natural gas for space and water heating. Landscaping would be maintained, thus requiring the use of gardening equipment and its attendant emissions. Additionally, the structures would be maintained and this requires repainting over time, thus resulting in the release of additional VOC emissions. Also, the use of consumer aerosol products is associated primarily, but not exclusively, with the residential component of the project. The resultant emissions are projected by the URBEMIS2007 computer model and included in Table 4.7-6 (Daily Operational Emissions).

Table 4.7-6
DAILY OPERATIONAL EMISSIONS
(pounds/day)

Source	ROG	NOx	CO	SO_2	PM_{10}	$PM_{2.5}$	CO_2
Mobile Sources	82.31	128.44	928.56	0.89	146.20	28.51	82,746.65[1]
Natural Gas	0.26	3.47	2.09	0.00	0.01	0.01	4,314.49
Landscape Maintenance	0.26	0.04	3.21	0.00	0.01	0.01	5.50
Structural Maintenance	1.25	---	---	---	---	---	---
Consumer Products	10.36	---	---	---	---	---	---
Operational Total	94.44[2]	131.95	933.86	0.89	146.22	28.53	87,066.64
Threshold	55	55	550	150	150	55	NT[3]
Exceeds Threshold?	Yes	Yes	Yes	No	No	No	No

Notes:
1. Averaged from the summer and winter emissions.
2. Bold values denote a potentially significant impact.
3. NT – No Threshold

Source: Environmental Impact Sciences

As noted therein, project occupancy is projected to create ROG, NO_X, and CO emissions in excess of the SCAQMD suggested daily criteria and mitigation is warranted to reduce these emissions to the maximum extent feasible. The majority of these emissions are, however, created from mobile sources over which the Applicant has no control. To the extent feasible, the Applicant can implement on-site measures to reduce traffic and incorporate those measures into the project's design. As now proposed, the project is a mixed-use development and, as a result of the inclusion of both residential and commercial components, will promote a reduction in vehicle travel through the use of "internal trip capture." In addition, a number of mitigation measures have been formulated (Mitigation Measure 7-3 through Mitigation Measure 7-5) which will reduce operational mobile source emissions to the maximum extend feasible.

While mobile source emissions present the greatest source, all emissions add incrementally to the cumulative and further mitigation is warranted in order to reduce stationary source emissions. The Lead Agency has formulated a number of additional mitigation measures (Mitigation Measure 7-6 and Mitigation Measure 7-7) to reduce stationary source emissions. With the implementation of the above mitigation measures, as well as those described for traffic congestion management, impacts for all emissions will be reduced. Any reductions would be on the order of only a few percent and ROG, NO_X, and CO associated with site occupancy would be expected to remain significant.

Air Quality Impact 7-4*. The proposed project has the potential to expose sensitive receptors to substantial pollutant concentrations.*

Level of Significance before Mitigation*. Less-than-significant impact.*

In addition to the mass daily threshold standards discussed above, project construction has the potential to raise localized ambient pollutant concentrations. This could present a significant impact if these concentrations were to exceed the ambient air quality standards included in Table 4.7-1 (Ambient Air Quality Standards for Criteria Pollutants) at receptor locations.

The potential for this impact is demonstrated through dispersion modeling. In accordance with the SCAQMD criteria, peak daily emissions for CO, NO_X, PM_{10}, and $PM_{2.5}$ were modeled to determine their concentration and contribution to the ambient concentrations within the project vicinity. The analysis makes use of methodology included in the SCAQMD "Final Localized Significance Threshold Methodology" (Methodology). In accordance with the Methodology, dispersion modeling is only to include exhaust and dust emissions associated with those pieces of equipment that actually operate on the site and omits vehicle trips that are distributed over a large area.

In the Methodology, the SCAQMD notes receptor locations as "off-site locations where persons may be exposed to the emissions from project activities. Receptor locations include residential, commercial, and industrial land use areas and any other areas where persons can be situated for an hour or longer at a time." In accordance with the Methodology, receptor locations are to consider the actual location of the receptors. If these locations are unknown, or varied, they may be assumed to be located at distances of 25, 50, 100, 200, and 500 meters. In cases where proximate receptors may be closer than 25 meters, as per the Methodology, a value of 25 meters is to be used in the analysis as a worst-case scenario. Because the project area is urbanized with numerous nearby receptors, the recommended SCAQMD default distances were used for this analysis.

In the cases of CO and NO_2, the projected concentration is then added to an assumed ambient concentration in order to determine if the CAAQS would be exceeded. This ambient concentration is source-area dependant and is based on the peak value observed over the last three years of accumulated data at the nearest air monitoring station, as indicated in Table 4.7-3 (Ambient Air Quality Monitoring Summary). Because PM_{10} and $PM_{2.5}$ are non-attainment pollutants, no ambient concentration is added. Instead, in both cases, a short-term construction standard, defined as a measurable increase of 10.4 $\mu g/m^3$, is to be applied at the proximate sensitive receptor locations.

Table 4.7-7 (Localized Construction Emissions Concentrations) presents the peak daily projected emissions from on-site construction as well as the projected concentrations at the various receptor distances. As noted, all emissions concentrations are within their respective threshold values and the impact is less than significant.

Long-term effects of the proposed project could also be significant if they exceed the CAAQS. As noted for construction, these criteria only apply to CO, NO_2, PM_{10}, and $PM_{2.5}$. CO and NO_2 would be significant if the project were to raise existing levels above those values included in the CAAQS. Because the Basin is a non-attainment area for particulate matter, the operational thresholds for both PM_{10} and $PM_{2.5}$ are set at a measurable increase of 2.5 $\mu g/m^3$.

Unlike construction equipment that generates exhaust and dust in a set area, the primary source of emissions from project operations is due to the addition of vehicles on the roadway system. These emissions are then spread over a vast area and do not result in localized concentrations in proximity to the project site. As such, localized modeling for the project operations is not prepared for residential, limited commercial, or light industrial development that does not include a truck terminal.

Because CO is the criteria pollutant that is produced in greatest quantities from vehicle combustion and does not readily disperse into the atmosphere, long-term adherence to AAQS is typically demonstrated through an analysis of localized CO concentrations. Areas of vehicle

congestion have the potential to create "pockets" of CO called "hot spots." These hot spots typically occur at intersections where vehicle speeds are reduced and idle time is increased. These pockets of CO have the potential to exceed the State ambient air quality 1-hour standard of 20 ppm or the 8-hour standard of 9.0 ppm.

Table 4.7-7
LOCALIZED CONSTRUCTION EMISSIONS CONCENTRATIONS[1]

Distance	CO (1-Hr Conc.)[2]	CO (8-Hr Conc.)[3]	NO_2 (1-Hr Conc.)[4]	PM_{10} (24-Hr Conc.)	$PM_{2.5}$ (24-Hr Conc.)
Peak Daily On-site Emissions (lb/day)	18.16	18.16	35.65	18.43	5.22
Concentration (25 meters)	4.02	3.11	0.11	10.11	2.84
Concentration (50 meters)	4.02	3.11	0.11	9.32	2.62
Concentration (100 meters)	4.02	3.11	0.11	7.69	2.16
Concentration (200 meters)	4.01	3.11	0.11	5.67	1.59
Concentration (500 meters)	4.01	3.10	0.11	3.24	0.91
CAAQS	20 ppm	9.0 ppm	0.18 ppm	10.4 $\mu g/m^3$	10.4 $\mu g/m^3$
Exceeds Standard?	No	No	No	No	No

Notes:
1. CO and NO_2 are in ppm, PM_{10} and $PM_{2.5}$ are in $\mu g/m^3$.
2. Includes a background concentration of 4 ppm.
3. Includes a background concentration of 3.1 ppm.
4. Includes a background concentration of 0.11 ppm.

Source: Environmental Impact Sciences

Typically, for an intersection to exhibit a significant CO concentration, it would operate at LOS "D" or worse. Table 4.7-8 (CO Microscale Analysis) presents those intersections in the project area that meet or exceed LOS "D" and would receive project-related traffic.

To demonstrate the potential for CO "hot spots," CALINE4 modeling was performed using the procedures outlined in the Caltrans' "Transportation Project-Level Carbon Monoxide Protocol." Intersection movements are based on data included in the traffic study and include ambient growth, the project, and other related projects. Modeling was performed for 2010 and 2030 traffic volumes. As a reasonable worst-case, the analysis assumes the retention of the existing intersection alignments and does not consider those measures outlined in the traffic analysis to improve traffic flow through the project area.

All predicted values are well below the State's 1-hour and 8-hour standards and any potential impact is less than significant. The project would, therefore, not have a long-term significant impact on local air quality or result in exposure of sensitive receptors to unhealthful concentrations of CO. Modeling methodology is included in Appendix I (Air Quality).

While residential and most commercial development is not associated with the release of toxic air contaminants, various types of commercial operations (e.g., dry cleaners) have been identified with the use of toxic substances and release of toxic emissions. Vehicle emissions, primarily associated with the use of heavy trucks, including refuse collection, also release minor amounts of diesel PM.

Table 4.7-8
CO MICROSCALE ANALYSIS[1]

Intersection	Level of Service	Peak Hour Volume	1-Hr Conc. (ppm)	8-Hr Conc. (ppm)
Cumulative With Project, Year 2010				
Brea Canyon @ Pathfinder (PM)	E	3,293	6.5	4.9
Fern Hollow @ Pathfinder (AM)	D	3,225	6.7	5.0
Diamond Bar @ Pathfinder (AM)	D	3,795	6.8	5.1
Diamond Bar @ Pathfinder (PM)	F	4,970	7.8	5.8
Brea Canyon @ Fountain Springs (PM)	D	1,129	4.9	3.7
Diamond Bar @ Cold Spring (PM)	F	3,606	7.0	5.2
Pathfinder @ Brea Canyon Cutoff (AM)	D	2,758	6.2	4.6
Pathfinder @ Brea Canyon Cutoff (PM)	F	4,103	6.9	5.1
Brea Canyon @ Diamond Bar (AM)	E	3,225	6.6	4.9
Brea Canyon @ Diamond Bar (PM)	F	4,967	7.9	5.8
Cherrydale @ Diamond Bar (AM)	F	2,099	6.2	4.6
Cherrydale @ Diamond Bar (PM)	F	3,730	7.4	5.5
Brea Canyon @ Silver Bullet (AM)	F	1,819	6.2	4.6
Brea Canyon @ Silver Bullet (PM)	F	2,867	6.9	5.1
Diamond Bar @ Grand (AM)	D	4,940	6.7	5.0
Diamond Bar @ Grand (PM)	F	7.245	8.0	5.9
Colima @ Brea Canyon Cutoff (AM)	D	4,045	6.3	4.7
Colima @ Brea Canyon Cutoff (PM)	E	4,906	6.8	5.1
Cumulative With Project, Year 2030				
Brea Canyon @ Pathfinder (AM)	E	4,087	5.0	3.8
Brea Canyon @ Pathfinder (PM)	F	3,906	4.9	3.7
Fern Hollow @ Pathfinder (PM)	D	3,410	4.7	3.6
Diamond Bar @ Pathfinder (AM)	E	4,826	5.1	3.9
Diamond Bar @ Pathfinder (PM)	F	5,501	5.0	3.8
Diamond Bar @ Shadow Canyon (PM)	D	4,038	4.8	3.7
Brea Canyon @ Fountain Springs (AM)	D	1,411	4.3	3.3
Brea Canyon @ Fountain Springs (PM)	D	1,077	4.3	3.3
Diamond Bar @ Fountain Spring (PM)	D	3,899	4.8	3.7
Diamond Bar @ Sugar Pine (PM)	D	3,959	4.8	3.7
Diamond Bar @ Cold Spring (AM)	E	2,988	4.6	3.5
Diamond Bar @ Cold Spring (PM)	E	4,028	4.8	3.7
Pathfinder @ Brea Canyon Cutoff (AM)	F	3,348	4.7	3.6
Pathfinder @ Brea Canyon Cutoff (PM)	F	4,409	4.8	3.7
Brea Canyon @ Diamond Bar (AM)	F	4,047	4.8	3.7
Brea Canyon @ Diamond Bar (PM)	F	5,348	5.0	3.8
Cherrydale @ Diamond Bar (A.)	F	2,778	4.7	3.6
Cherrydale @ Diamond Bar (PM)	F	4,038	4.9	3.7
Brea Canyon @ Silver Bullet (AM)	F	2,676	4.7	3.6

Table 4.7-8 (Continued)
CO MICROSCALE ANALYSIS[1]

Intersection	Level of Service	Peak Hour Volume	1-Hr Conc. (ppm)	8-Hr Conc. (ppm)
Brea Canyon @ Silver Bullet (PM)	F	3,012	4.7	3.6
Diamond Bar @ Grand (AM)	F	6,343	4.9	3.7
Diamond Bar @ Grand (PM)	F	8,021	5.1	3.9
Colima @ Brea Canyon Cutoff (AM)	F	4,824	4.7	3.6
Colima @ Brea Canyon Cutoff (PM)	F	5,520	4.8	3.7

Notes:
1. As measured at a distance of 10 feet from the corner of the intersection predicting the highest value. CO values include background concentrations of 4 and 3.1 ppm for 1- and 8-hour concentrations. Eight-hour concentrations are based on a persistence factor of 0.7 of the 1-hour concentration.

Source: Environmental Impact Sciences

As noted in the URBEMIS model, however, use of these trucks (medium-heavy duty and heavy-heavy duty) during site occupation (e.g., refuse collection) is limited to about 1.4 percent of the vehicle population. These emissions are distributed over a vast area due to vehicle travel. As such, vehicle travel is not typically associated with prolonged exposure to toxic emissions.

Under SCAQMD Rule 1401 (New Source Review of Carcinogenic Air Contaminants), the SCAQMD enforces emission limits when a new facility applies for permits for new construction, modifications, or relocation of equipment that emits any of the TACs listed therein. Permits are granted if the increase in cancer risk from the new, modified, or relocated source does not exceed one in a million or 10 in a million cancer cases, if the proposed controls are the best available and the equipment is supplied with T-BACT. SCAQMD Rule 402 prohibits emissions of air pollutants that "cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property." Mandatory adherence to the SCAQMD rules would ensure that any impact from TAC associated with the operation of the project remains less than significant.

Since none of the threshold criteria would be exceeded, the identified impact would be less than significant and no mitigation measures are recommended or required. However, because new on-site residential development may be constructed prior to any commercial uses being constructed on the project site, a condition of approval (Condition of Approval 7-1) has been formulating requiring that future residential purchasers be notified of the presence or potential presence of proximal commercial uses on the subject property.

Air Quality Impact 7-5*. The proposed project has the potential to create objectionable odors.*

Level of Significance before Mitigation*. Less-than-significant impact.*

Project construction would involve the use of heavy equipment creating exhaust pollutants from on-site earth movement and from equipment bringing concrete and other building materials to the site. With regards to nuisance odors, any air quality impacts will be confined to the immediate vicinity of the equipment itself. By the time such emissions reach any sensitive receptor sites away from the project site, they will be diluted to well below any level of air quality

concern. An occasional "whiff" of diesel exhaust from passing equipment and trucks accessing the site from public roadways may result. Such brief exhaust odors are an adverse but less-than-significant, air quality impact. Additionally, some odor would be produced from the application of asphalt, paints, and coatings. Any exposure to these common odors would be of short-term duration and, while potentially adverse, are less than significant.

Operational odors could be produced from on-site food preparation and from diesel-fueled vehicles operating on the project site. These odors are common in the environment and would not constitute a significant impact. Nuisance odors would be subject to SCAQMD Rule 402 (Nuisance) and will be minimized through the application of project conditions and mitigations.

4.7.3.3 Cumulative Impacts

Air Quality Impact 7-6*. The proposed project, in combination with other related projects, has the potential to result in a cumulatively considerable increase in criteria pollutants.*

Level of Significance before Mitigation*. Significant.*

In accordance with SCAQMD methodology, projects that does not exceed or can be mitigated to less than the daily threshold values do not add significantly to a cumulative impact. The proposed construction-related mitigation would ensure that short-term air quality impacts are reduced as reasonably feasible. ROG emissions associated with the application of paints and coatings are, however, expected to remain significant. Furthermore, the project is of a size that, even with the recommended mitigation, its operation would result in significant ROG, NO_X, and CO impacts. As such, the project adds incrementally to the cumulative air quality impact produced by other related projects.

ROG and NO_X are criteria pollutant precursors and go on to form secondary criteria pollutants through chemical and photochemical reaction in the atmosphere. Ozone is one of a number of substances (photochemical oxidants) that are formed when reactive organic compounds and NO_X react with sunlight. As indicated in Table 4.7-2 (Attainment Status for the South Coast Air Basin), the SCAB is classified by the State as "extreme non-attainment" for ozone.

Mitigation for the cumulative impact is as specified for construction and operational impacts, above. Even with the adoption of the recommended measures, air quality impacts will remain cumulatively significant.

Air Quality Impact 7-7*. The construction and operation of the proposed project will contribute to the generation of greenhouse gas emissions. GHG have been linked to climate change.*

Level of Significance before Mitigation*. Less-than-significant impact.*

At this time, greenhouse gases (primarily CO_2) are not regulated as a criteria pollutant and there are no significance criteria for these emissions. The Final 2007 AQMP does not set CEQA targets that can be used to determine any potential threshold values. In order to provide decision-makers with as much information as possible regarding the potential impacts of the proposed project, this analysis quantifies, to the extent feasible, potential GHG emissions associated with the proposed development.

Construction activities would consume fuel and result in the generation of GHG emissions. Construction CO_2 emissions are as projected using the URBEMIS2007 computer model and are included in Table 4.7-5 (Comparison of Projected Construction Emissions and Daily Criteria Values). In accordance with the projected URBEMIS construction schedule, approximately 1,347,095.44 pounds (673.55 tons) of CO_2 would be produced over the approximate 299 days of active construction.

In the case of site operations, the majority of GHG emissions, and specifically CO_2, are due to vehicle travel and energy consumption. Results of the URBEMIS2007 model included in Table 4.6-6 (Daily Operational Emissions) indicate that on average 87,066.64 pounds (43.53 tons) of CO_2 would be produced daily or about 31,779,323.60 pounds (15,889.66 tons) per year.

In accordance with the 2007 AQMP, the emission levels in California are estimated to be 473 million metric tons (521.4 million short tons) CO_2 equivalent for 2000 and 532 million metric tons (568.4 short tons) CO_2 equivalent for 2010. Year 2009 (the worst-case scenario year that the emissions are based on) is then extrapolated to 526.1 million metric tons (579.9 short tons). At approximately 15,889.66 tons per year, the project operations represent less than 0.003 percent of this State's annual CO_2 emissions' budget.

4.7.4 Project Conditions and Mitigation Measures

Project Conditions

- **Condition of Approval 7-1**. The Applicant shall include as part of the real estate disclosure documentation, as required by the California Department of Real Estate for purchasers of those residential units to be constructed on the project site, the disclosure that commercial activities are proposed on the adjacent property and that the operational characteristics of those activities may include trucking, delivery, and maintenance operations involving diesel-fueled vehicles.

Mitigation Measures

- **Mitigation Measure 7-1**. All non-residential paints shall contain no more than 0.22 pound/gallon (100 gram/liter) of volatile organic compound (VOC).

- **Mitigation Measure 7-2**. The Applicant shall abide by any other air pollution reduction measures as may be approved by the City of Diamond Bar and/or by the South Coast Air Quality Management District.

- **Mitigation Measure 7-3**. Traffic lane improvements and signalization, as outlined in the traffic study, shall be implemented and will generally improve local traffic flow, thereby reducing emissions created in the project area.

- **Mitigation Measure 7-4**. To encourage the use of mass transportation, the Applicant shall place bus stop shelters at any bus stops situated or to be situated along any site frontage routes if not already so equipped.

- **Mitigation Measure 7-5**. To encourage the use of localized commercial facilities and reduce the need for vehicle travel, the Applicant shall include both bike lanes (where feasible) and bike paths between the residential and commercial development areas.

Additionally, the Applicant shall provide sidewalks and walking paths to the proposed commercial areas.

- **Mitigation Measure 7-6**. The Applicant shall specify the installation of energy efficient lighting, air conditioning, water heaters, and appliances for all residential and commercial uses.

- **Mitigation Measure 7-7**. The Applicant shall specify the installation of energy efficient street lighting.

4.7.5 Significant Unavoidable Adverse Effects

The approval, construction, operation, occupancy, use, and habitation of the proposed project will result in the creation of significant, unmitigated construction, operational, and cumulative air quality impacts. Based on the continuing presence of significant, unmitigated environmental effects, a Statement of Overriding Considerations would be required should the City elect to approve the project as now proposed and based on the recommended mitigation measures.

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4.8 NOISE

Characteristics of Sound

Sound is a pressure wave transmitted through the air. It is described in terms of loudness or amplitude (measured in decibels), frequency or pitch (measured in Hertz [Hz] or cycles per second), and duration (measured in seconds or minutes). The standard unit of measurement of the loudness of sound is the decibel (dB). Typical human hearing can detect changes in sound levels of approximately 3 dB under normal conditions. Changes of between 1-3 dB are detectable under quiet, controlled conditions and changes of less than 1 dB are usually indiscernible. A change of 5 dB is typically noticeable to most people in an exterior environment whereas a change of 10 dB is perceived as a doubling (or halving) of the noise.

The human ear is not equally sensitive to all frequencies. Sound waves below 16 Hz are not heard at all and are "felt" more as a vibration. Similarly, while people with extremely sensitive hearing can hear sounds as high as 20,000 Hz, most people cannot hear above 15,000 Hz. In all cases, hearing acuity falls off rapidly above about 10,000 Hz and below about 200 Hz. Since the human ear is not equally sensitive to sound at all frequencies, a special frequency dependent rating scale is usually used to relate noise to human sensitivity. The A-weighted decibel scale (dBA) performs this compensation by discriminating against frequencies in a manner approximating the sensitivity of the human ear.

Noise may be generated from a point source (such as a piece of construction equipment) or from a line source (such as a road containing moving vehicles). Because noise spreads in an ever-widening pattern, the given amount of noise striking an object (such as an eardrum) is reduced with distance from the source. This is known as "spreading loss." The typical spreading loss for point source noise is 6 dBA per doubling of the distance.

A line source of noise (such as vehicles proceeding down a roadway) will also be reduced with distance but the rate of reduction is a function of both distance and the type of terrain over which the noise passes. Hard sites (such as developed areas with paving) reduce noise at a rate of 3 dBA per doubling of the distance. Soft sites (such as undeveloped areas, open space, and vegetated areas) reduce noise at a rate of 4.5 dBA per doubling of the distance. These represent the extremes and most areas will actually contain a combination of hard and soft elements with the noise reduction placed somewhere in between these two factors.

Objects that block the line-of-sight attenuate the noise source if the receptor is located within the "shadow" of the blockage (such as behind a sound wall). If a receptor is located behind the wall but has a view of the source, the wall will do little to reduce the noise. Additionally, a receptor located on the same side of the wall as the noise source may experience an increase in the perceived noise level, as the wall may reflect noise back to the receptor compounding the noise.

Several rating scales or noise "metrics" exist to analyze adverse effects of noise on a community. These scales include the equivalent noise level (Leq), the community noise equivalent level (CNEL), and the day/night noise level (Ldn or DNL). Leq is a measurement of the sound energy level averaged over a specified time period (usually 1-hour). Leq represents the amount of variable sound energy received by a receptor over a time interval in a single numerical value. For example, a 1-hour Leq noise level measurement represents the average amount of acoustic energy that occurred in that hour.

Time variation in noise exposure may also be expressed in terms of a statistical description of the sound level that is exceeded over some fraction of a given observation period. For example, the L_{50} noise level represents the noise level that is exceeded 50 percent of the time. Half the time the noise level exceeds this level and half the time the noise level is less than this level. This level is also representative of the level that is exceeded 30 minutes in an hour. Similarly, the L_{02}, L_{08}, and L_{25} values represent the noise levels that are exceeded 2, 8, and 25 percent of the time or 1, 5, and 15 minutes per hour. These "L" values are typically used to demonstrate compliance for stationary noise sources with the applicable noise ordinance. Other values typically noted during a noise survey are the Lmin and Lmax. These values represent the minimum and maximum root-mean-square noise levels obtained over the measurement period.

Unlike the Leq metric, the CNEL noise metric is based on 24 hours of measurement. CNEL also differs from Leq in that it applies a time-weighted factor designed to emphasize noise events that occur during the evening and nighttime hours (when quiet time and sleep disturbance is of particular concern). Noise occurring during the daytime period (7:00 AM to 7:00 PM) receives no penalty. Noise produced during the evening time period (7:00 PM to 10:00 PM) is penalized by 5 dBA, while nighttime noise (10:00 PM to 7:00 AM) is penalized by 10 dBA. The Ldn (or DNL) noise metric is similar to the CNEL metric except that the period from 7:00 PM to 10:00 PM receives no penalty. Both the CNEL and Ldn metrics yield approximately the same 24-hour value (within 1 dBA) with the CNEL being the more restrictive (higher) of the two.

Psychological and Physiological Effects of Noise

Physical damage to human hearing begins at prolonged exposure to noise levels higher than 85 dBA. Exposure to high noise levels affects our entire system, with prolonged noise exposure in excess of 75 dBA increasing body tensions and thereby affecting blood pressure, functions of the heart, and the nervous system. In comparison, extended periods of noise exposure above 90 dBA could result in permanent cell damage. When the noise level reaches 120 dBA, a tickling sensation occurs in the human ear even with short-term exposure. This level of noise is called the threshold of feeling. As the sound reaches 140 dBA, the tickling sensation is replaced by the feeling of pain in the ear. This is called the threshold of pain. A sound level of 190 dBA will rupture the eardrum and permanently damage the inner ear.

Vibration Fundamentals

Vibration is a trembling, quivering, or oscillating motion of the earth. Like noise, vibration is transmitted in waves but, in this case, through the earth or solid objects. Unlike noise, vibration is typically of a frequency that is "felt" rather than heard. Vibration can be either natural (as in the form of earthquakes, volcanic eruptions, sea waves, landslides) or man-made (as from explosions, the action of heavy machinery, or heavy vehicles and trains). Both natural and man-made vibration may be continuous (such as from operating machinery) or transient (as from an explosion).

As with noise, vibration can be described by both its amplitude and frequency. Amplitude may be characterized in three ways: displacement, velocity, and acceleration. Particle displacement is a measure of the distance that a vibrated particle travels from its original position and, for the purposes of soil displacement, is typically measured in inches or millimeters. Particle velocity is the rate of speed at which soil particles move in inches per second or millimeters per second.

Particle acceleration is the rate of change in velocity with respect to time and is measured in inches per second per second or millimeters per second per second. Typically, particle velocity (measured in inches or millimeters per second) and/or acceleration (measured in gravities) are used to describe vibration.

Vibrations vary in frequency and this affects perception. Typical construction vibration falls in the 10-30 Hz range and usually occur around 15 Hz. Traffic vibrations exhibit a similar range of frequencies. Due to their suspension systems, transit buses often generate frequencies around 3 Hz at high-vehicle speeds. Although uncommon, traffic frequencies above 30 Hz can occur.

The way in which vibration is transmitted through the earth is called propagation. Propagation of earth-borne vibrations is complicated and difficult to predict because of the endless variations in the soil through which waves travel. There are three main types of vibration propagation: surface, compression, and shear waves. Surface waves (Rayleigh waves) travel along the ground's surface. These waves carry most of their energy along an expanding circular wave front, similar to ripples produced by throwing a rock into a pool of water. P-waves (compression waves) are body waves that carry their energy along an expanding spherical wave front. The particle motion in these waves is longitudinal in a "push-pull" fashion. P-waves are analogous to air-borne sound waves. S-waves (shear waves) are also body waves that carry energy along an expanding spherical wave front. Unlike P-waves, the particle motion is transverse or "side-to-side and perpendicular to the direction of propagation."

As vibration waves propagate from a source, the energy is spread over an ever-increasing area such that the energy level striking a given point is reduced with the distance from the energy source. This geometric spreading loss is inversely proportional to the square of the distance. Wave energy is also reduced with distance as a result of material damping in the form of internal friction, soil layering, and void spaces. The amount of attenuation provides by material damping varies with soil type and condition as well as the frequency of the wave.

4.8.1 Environmental Setting

4.8.1.1 Regulatory Setting

Noise is defined as unwanted sound, and is known to have several adverse effects on people, including hearing loss, speech and sleep interference, physiological responses, and annoyance. Based on these known adverse effects of noise, the federal government, the State of California and many local governments have established criteria to protect public health and safety and to prevent disruption of certain human activities.

Federal Standards

The federal government regulates occupational noise exposure common in the workplace through the Occupational Health and Safety Administration (OSHA) under the USEPA. Noise exposure of this type is dependent on work conditions and is addressed through a facility's Health and Safety Plan.

The United States Department of Housing and Urban Development (HUD) has set a goal of 65 dBA Ldn as a desirable maximum exterior standard for residential units developed under HUD funding. While HUD does not specify acceptable interior noise levels, standard construction of residential dwellings under California's Title 24 standards typically provides 20 dBA of

attenuation with the windows closed. Based on this premise, HUD's interior noise standards can assumed to reflect an interior Ldn not exceeding 45 dBA.

California Noise Standards

Most jurisdictions in California utilize the weighted 24-hour Community Noise Equivalent Level (CNEL) noise exposure criterion not only as a planning tool but require actual verification of the ability to meet these standards as part of building plan approval process. These criteria are based on compatibility standards established by DHS' Office of Noise Control and HUD.

CNEL-based noise standards generally apply to those sources preempted from local control, such as on-road vehicles, airplanes, and trains.[1] Since municipalities cannot regulate the noise level generated by such sources, except through the enforcement of the CVC,[2] local agencies typically regulate those land use that the preempted noise sources may impact. Conversely, non-preempted sources may be controlled by local ordinance. The municipal noise ordinance in many jurisdictions contains numerical performance standards on noise propagation from one property onto another. Specific prohibitions on allowable hours of activities, audibility of amplified music or speech, or similar nuisances may be enumerated.

As represented in Figure 4.8-1 (California Department of Health Services Noise/Land Use Compatibility Standards), the DHS has established land use compatibility criteria that constitute guidelines for assessing the compatibility of different types of land uses based upon the existing community noise level.[3] These guidelines include specific exterior noise exposure standards for residential, commercial, industrial, office, professional, and public recreation land uses.[4] As shown therein, single-family residences are normally acceptable in exterior noise environments up to 60 dBA CNEL and conditionally acceptable in areas up to 70 dBA CNEL. Multi-family residential uses are normally acceptable in exterior environments up to 65 dBA CNEL and conditionally acceptable in those up to 70 dBA CNEL. Schools, libraries, churches, offices, and business, commercial, and professional uses are normally acceptable in exterior noise environments up to 70 dBA CNEL.

City of Diamond Bar General Plan

The General Plan contains numerous policies that may, either directly or indirectly, be applicable to the assessment of noise. Those policies include, but are not necessarily limited to, the following:

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[1]/ The Federal Noise Control Act of 1972 require the federal government (acting through the USEPA and Federal Aviation Administration) to set and enforce uniform noise control standards for, among other things, aircraft and airports, interstate motor carriers and railroads, workplace activities, medium and heavy-duty trucks, motorcycles and mopeds, portable air compressors, and federally assisted housing projects.

[2]/ Noise limits for motor vehicles registered in California, by vehicle type, are defined in Sections 27204-27206 of the California Vehicle Code.

[3]/ Governor's Office of Planning and Research, General Plan Guidelines, Appendix C (Guidelines for the Preparation and Content of the Noise Element of the General Plan, October 2003, Figure 2, p. 250.

[4]/ The designation of a land use as "normally acceptable" implies that the highest noise level in that band is the maximum desirable for existing or conventional construction which does not incorporate any special acoustical treatment. In general, evaluation of land uses that fall into the "normally acceptable" or "normally unacceptable" noise environments should include consideration of the type of noise sources, the sensitivity of the noise receptor, the noise reduction likely to be provided by structures, and the degree to which the noise source may interfere with speech, sleep, or other activities characteristic of land use.

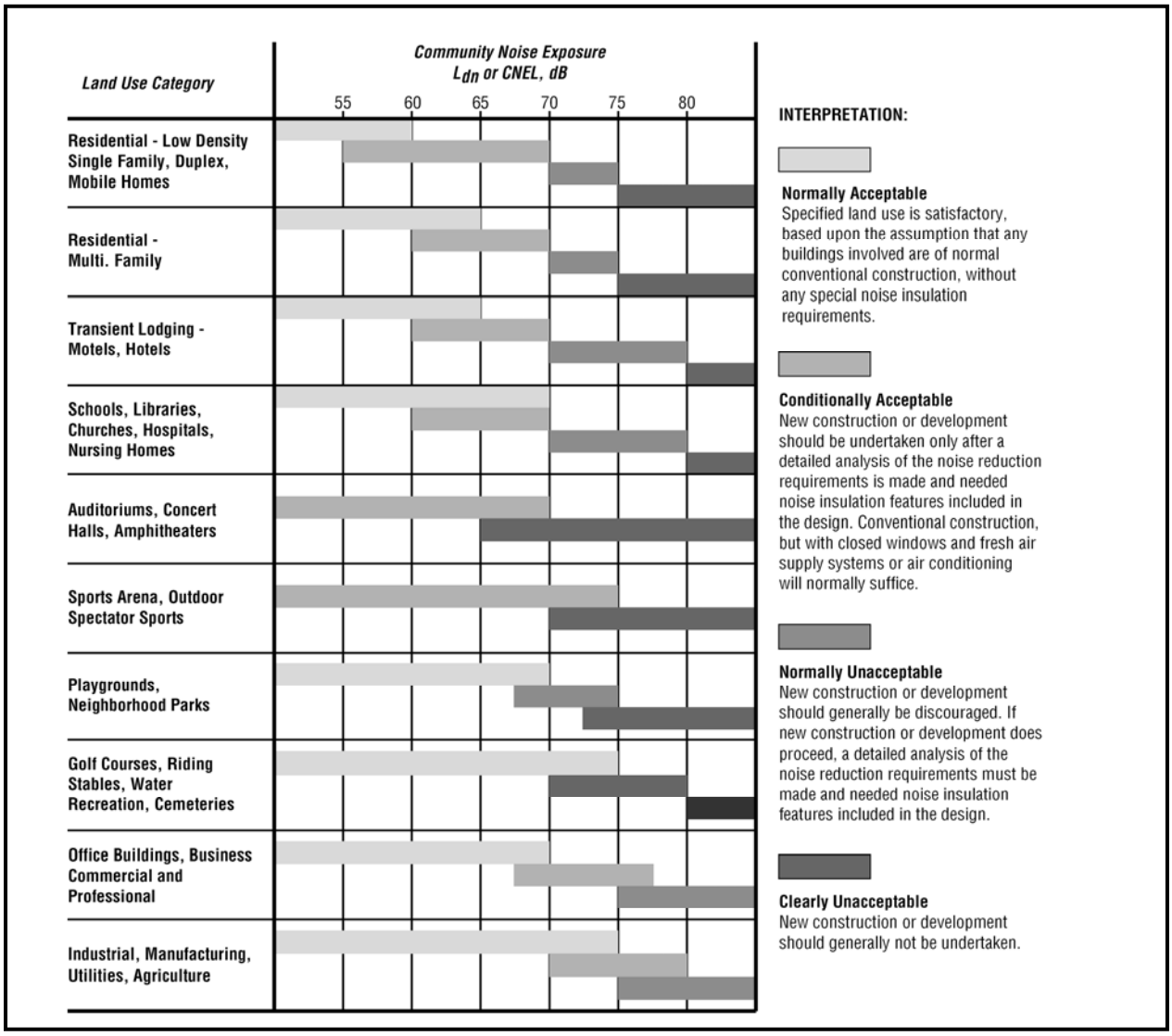


Figure 4.8-1
CALIFORNIA DEPARTMENT OF HEALTH SERVICES NOISE/LAND USE COMPATIBILITY STANDARDS
Source: California Department of Health Services

- Prohibit the development of adjacent land uses with significantly different intensities or that have operational characteristics which could create nuisances along a common boundary, unless an effective buffer can be created (Strategy 2.2.2, Land Use Element).
- Consider noise issues in land use planning and development permit processing to require that noise generated by one use or facility does not adversely affect adjacent uses or facilities (Objective 1.10, Public Health and Safety Element).
- Within identified 65 dB CNEL noise contours, require that site-specific noise studies be prepared to verify site-specific noise conditions and to ensure that noise considerations are included in project review (Strategy 1.10.1, Public Health and Safety Element).

- Within identified 65 dB CNEL noise corridors, ensure that necessary reduction measures are applied to meet adopted interior and exterior noise standards (Strategy 1.10.2, Public Health and Safety Element).
- Through the CEQA process, analyze new projects which might have a significant impact on noise sensitive land uses (projects are defined as actions having the potential to unreasonably increase projected CNEL noise levels). Require demonstrated empirical mitigation measures to ensure that adopted noise standards within sensitive land use areas are not exceeded as the result of the proposed project. Mitigation measures shall be verified by field measurements after construction. Prior to occupancy, if the required level of mitigation is not achieved, further corrective action will be required (Strategy 1.10.5, Public Health and Safety Element).
- Apply mitigation measures as needed to noise generators and receptors to ensure that adopted noise standards are met and to protect land uses from excessive noise impacts (Strategy 1.10.9, Public Health and Safety Element).

The General Plan promotes the consideration of noise controls in the planning and decision making process to reduce identifiable risks. The General Plan serves as a tool for local planners to achieve and maintain land-uses compatible with environmental noise levels. As specified therein, where new development exceeds the standards outlined in Figure 4.8-2 (City of Diamond Bar - Land-Use Noise Compatibility), a detailed analysis of noise reduction requirements must be made and needed noise insulation features included in design (Public Health and Safety Element, Strategy 10.10.12). It is further the City's policy to ensure that land uses are located so as to meet those standards (Public Health and Safety Element, Strategy 10.10.11).

City of Diamond Bar Municipal Code

As indicated in Section 22.28.070 (Noise Zones Designated) in Chapter 22.28 (Noise Control) in the Municipal Code, all "noise sensitive areas" are designated to be within "Noise Zone I" and all "residential properties" are designated to be within "Noise Zone II." Unless otherwise specified, the exterior noise standards presented in Table 4.8-1 (Exterior Noise Standards) apply to all receptor properties within those designated noise zone.

Table 4.8-1
EXTERIOR NOISE STANDARDS[1]

Noise Zone	**Designated Noise Zone Land Use** (Receptor Property)	**Time Interval**	**Exterior Noise Level** (dB)
I	Noise-Sensitive Area	Anytime	45
II	Residential Properties	10:00PM to 7:00AM (Nighttime) 7:00AM to 10:00PM (Daytime)	45 50

Notes:
1. Section 22.28.080 (Exterior Noise Standards), Municipal Code

Source: City of Diamond Bar

As specified in Section 22.28.080(b), no person shall operate or cause to be operated a source of sound location within the City or allow the creation of a noise on property owned, leased, occupied, or otherwise controlled by a person that causes the noise level, when measured on any other property to exceed the following exterior noise standards:

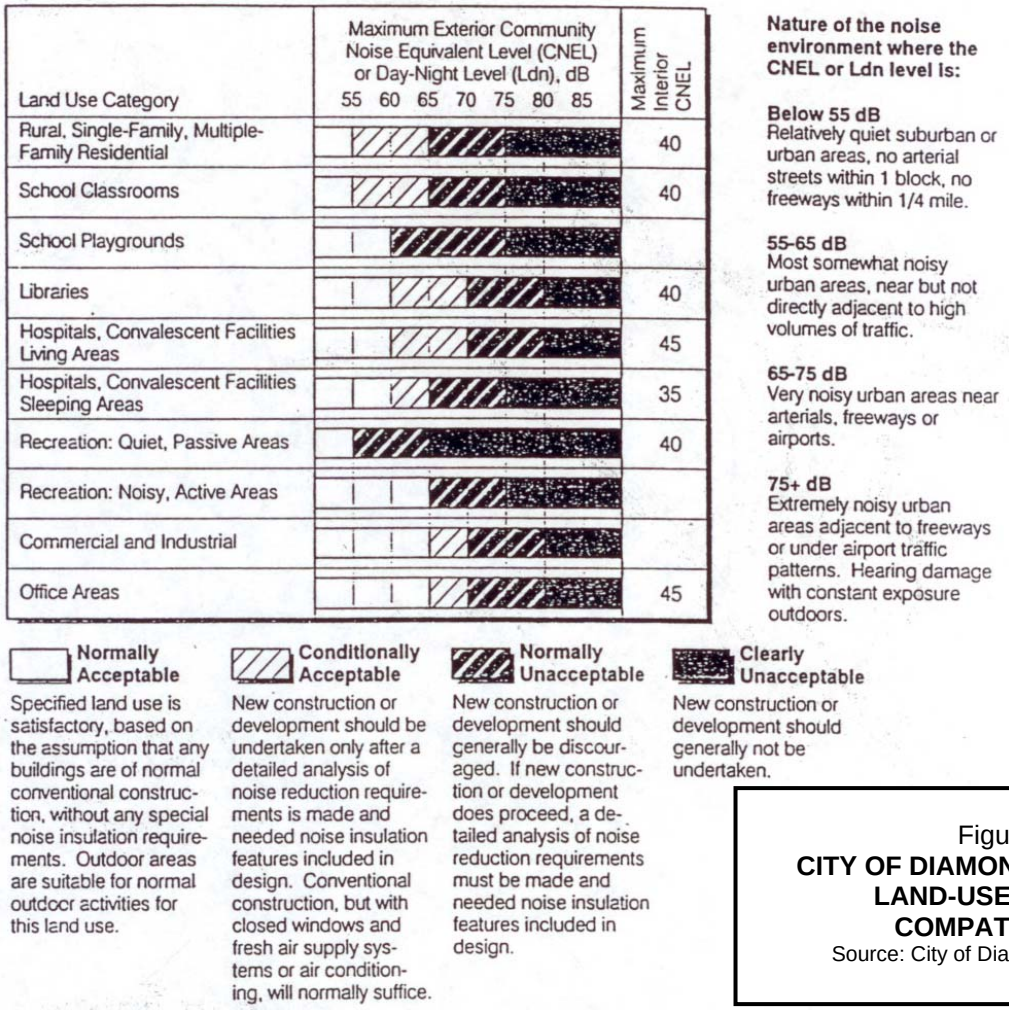


Figure 4.8-2
CITY OF DIAMOND BAR LAND-USE NOISE COMPATIBILITY
Source: City of Diamond Bar

(1) Standard No. 1 (exterior noise level that may not be exceeded for a cumulative period of more than 30 minutes in any hour) shall be the applicable noise level in Section 22.28.080(a) or, if the ambient L_{50} exceeds the foregoing level, then the ambient L_{50} becomes the exterior noise level for Standard No. 1;

(2) Standard No. 2 (exterior noise level that may not be exceeded for a cumulative period of more than 15 minutes in any hour) shall be the applicable noise level in Section 22.28.080(a) plus 5 dB or, if the ambient L_{25} exceeds the foregoing level, then the ambient L_{25} becomes the exterior noise level for Standard No.2;

(3) Standard No. 3 (exterior noise level that may not be exceeded for a cumulative period of more than five minutes in any hour) shall be the applicable noise level in Section 22.28.080(a) plus ten dB or, if the ambient $L_{8.3}$ exceeds the foregoing level, then the ambient $L_{8.3}$ becomes exterior noise level for Standard No. 3;

(4) Standard No. 4 (exterior noise level that may not be exceeded for a cumulative period of more than one minute in any hour) shall be the applicable noise level in Section 22.28.080(a) plus 15 dB or, if the ambient $L_{1.7}$ exceeds the foregoing level, then the ambient $L_{1.7}$ becomes the exterior noise level for Standard No. 4;

(5) Standard No. 5 (exterior noise level that may not be exceeded for any period of time) shall be the applicable noise level in Section 22.28.080(a) plus 20 dB or, if the ambient

L_0 exceeds the foregoing level then the ambient L_0 becomes the exterior noise level for Standard No. 5.

As indicated in Section 22.28.090(b) of the Municipal Code, the allowable interior noise levels for designated residential land uses in all noise zones is 40 dB. As specified in Section 22.28.090(a), no person shall operate or cause to be operated within a residential unit any source of sound or allow the creation of any noise that causes the noise level when measured inside a neighboring receiving residential unit to exceed the following standards:

(1) The applicable interior noise level from Section 22.28.090(b) for a cumulative period of more than five minutes in any hour;
(2) The applicable interior noise level from Section 22.28.090(b) plus five dB for a cumulative period of more than one minute in any hour; or
(3) The applicable interior noise level from Section 22.28.090(b) plus ten dB or the maximum measured ambient noise level for any period of time. Whenever a residential project is to be developed on a site where the existing exterior ambient noise level exceeds 65 dBA, a detailed analysis of noise reduction requirements shall be made and the developer shall incorporate noise mitigation features into the design of the structure(s) that will ensure interior noise levels at or below 40 dBA.

The Municipal Code recognizes that the control of construction noise is difficult to control and provides days and hours when these activities are permissible. Specifically, Section 22.28.120 of the Municipal Code notes "Operating or causing the operation of any tools or equipment used in construction, drilling, repair, alteration, or demolition work between weekday hours of 7:00 PM and 7:00 AM, or at any time on Sundays or holidays, so that the sound creates a noise disturbance across a residential or commercial property line, except for emergency work of public service utilities is prohibited." The Municipal Code also notes that construction activities shall be conducted in a manner that the maximum noise levels at affected structures will not exceed those listed in Table 4.8-2 (Construction Noise Levels). The Municipal Code also requires all mobile or stationary internal combustion engines to be equipped with suitable exhaust and air-intake silencers in proper working order. The City has not adopted any additional noise performance standards for construction.

Table 4.8-2
CONSTRUCTION NOISE LEVELS[1]

Time Interval	Single-Family Residential	Multi-Family Residential	Semi-Residential/Commercial
Mobile Equipment			
Daily, Except Sundays and Legal Holidays (7:00 AM to 8:00 PM)	75 dBA	80 dBA	85 dBA
Daily, 8:00 PM to 7:00 AM, and All Day Sunday and Legal Holidays	60 dBA	65 dBA	70 dBA
Stationary Equipment[2]			
Daily, Except Sundays and Legal Holidays (7:00 AM to 8:00 PM)	60 dBA	65 dBA	70 dBA
Daily, 8:00 PM to 7:00 AM, and All Day Sunday and Legal Holidays	50 dBA	55 dBA	60 dBA

Notes:
1. Section 22.28.120 (Acts Deemed Violation of Chapter), Municipal Code.
2. Maximum noise level for repetitively scheduled and relatively long-term operation (period of 10 days or more).

Source: City of Diamond Bar

4.8.1.2 Regional Setting

The project site is located in the southwestern portion of the City. Since the project site is presently vacant, no substantial noise is generated from existing on-site activities. Noise generators located in the general project area include traffic along local roadways and noise typically associated with proximal residential and commercial land uses. The SR-57 (Orange) Freeway is located less than 0.5 mile west of the project site.

4.8.1.3 Local Setting

Noise Readings

The primary sources of noise in the project area are transportation facilities. Road noise from traffic traveling along the SR-57 Freeway and Diamond Bar Boulevard are the dominant noise sources at the project site.

To determine on-site and local noise in the project area, on-site noise measurements were obtained on March 19, 2008 (Wednesday). The field study included four sets of readings all obtained at or adjacent to the project site. Noise monitoring was performed using a Quest Technologies Model 2900 Type 2 Integrating/logging Sound Level Meter. The unit meets the American National Standards Institute (ANSI) Standard S1.4-1983 for Type 2, International Electrotechnical Commission (IEC) Standard 651 - 1979 for Type 2, and IEC Standard 651 - 1979 for Type 2 sound level meters. The unit was first field calibrated at 10:22 AM using a Quest Technologies QC-10 calibrator immediately prior to the readings. The calibration was then rechecked at 12:08 AM after the first three readings and no meter "drift" was noted. The meter was again field calibrated upon returning to the site at 1:13 PM and rechecked after the final measurement at 1:57 PM. No meter drift was observed. The accuracy of the calibrator and meter are maintained through a program established through the manufacturer and are traceable to the National Bureau of Standards. The calibration unit meets the requirements of ANSI Standard S1.4-1984 and IEC Standard 942: 1988 for Class 1 equipment.

The Leq, Lmin, Lmax, L_{02}, L_{08}, L_{25}, and L_{50} values were recorded to document the ambient noise. As discussed above, the Leq value is representative of the equivalent noise level or logarithmic average noise level obtained over the measurement period. The Lmin and Lmax represent the minimum and maximum root-mean-square noise levels obtained over a period of 1 second. The L_{02}, L_{08}, L_{25}, and L_{50} represent the values that are exceeded 2, 8, 25, and 50 percent of the time or 1, 5, 15, and 30 minutes per hour if the readings were extrapolated out to an hour's duration. The approximate noise reading locations are shown in Figure 4.8-3 (Noise Monitoring Locations). The noise readings (NR) are summarized below and results of the field study are included in Table 4.8-3 (Noise Level Measurements).

- NR-1. To characterize ambient noise on the project site and in the adjoining residential area to the south, this reading was obtained along Brea Canyon Road south of Diamond Bar Boulevard. Specifically, the meter was placed 50 feet east of the centerline of travel of Brea Canyon Road's near, northbound lane, and approximately 330 feet south of Diamond Bar Boulevard. The 15-minute reading began at 10:33 AM. The most prevalent source of noise was from traffic traveling along SR-57 Freeway. Northbound traffic along Brea Canyon Road included 42 automobiles and one medium truck. Southbound traffic included 39 automobiles. At this location, the posted speed limit along Brea Canyon Road Avenue is 45 mph.

- NR-2. This reading was also obtained on the project site, but this time along Diamond Bar Boulevard west of Brea Canyon Road. The meter was placed 50 feet south of the centerline of travel of Diamond Bar Boulevard's near, eastbound lane and about 120 feet east Brea Canyon Road. The 15-minute reading began at 11:14 AM. The most prevalent source of noise was from traffic traveling along Diamond Bar Boulevard but freeway traffic noise was also notable. Eastbound traffic along Diamond Bar Boulevard included 83 automobiles and two medium trucks. Westbound traffic included 118 automobiles and two medium trucks.

- NR-3. This reading was obtained on the project site approximately 25 feet northeast of the Pasado Drive cul-de-sac. The reading is representative of the noise levels that would be observed in the rear yards for those homes that border the site on the east overlooking the existing ridgeline. The 15-minute reading began at 11:50 AM. The most prevalent source of noise was from traffic traveling along the freeway but, in this location, the noise from aircraft overflights was also audible as was the short-term noise from both a chain saw and leaf blower in the background. As the reading was not obtained along a roadway, no vehicle counts were obtained.

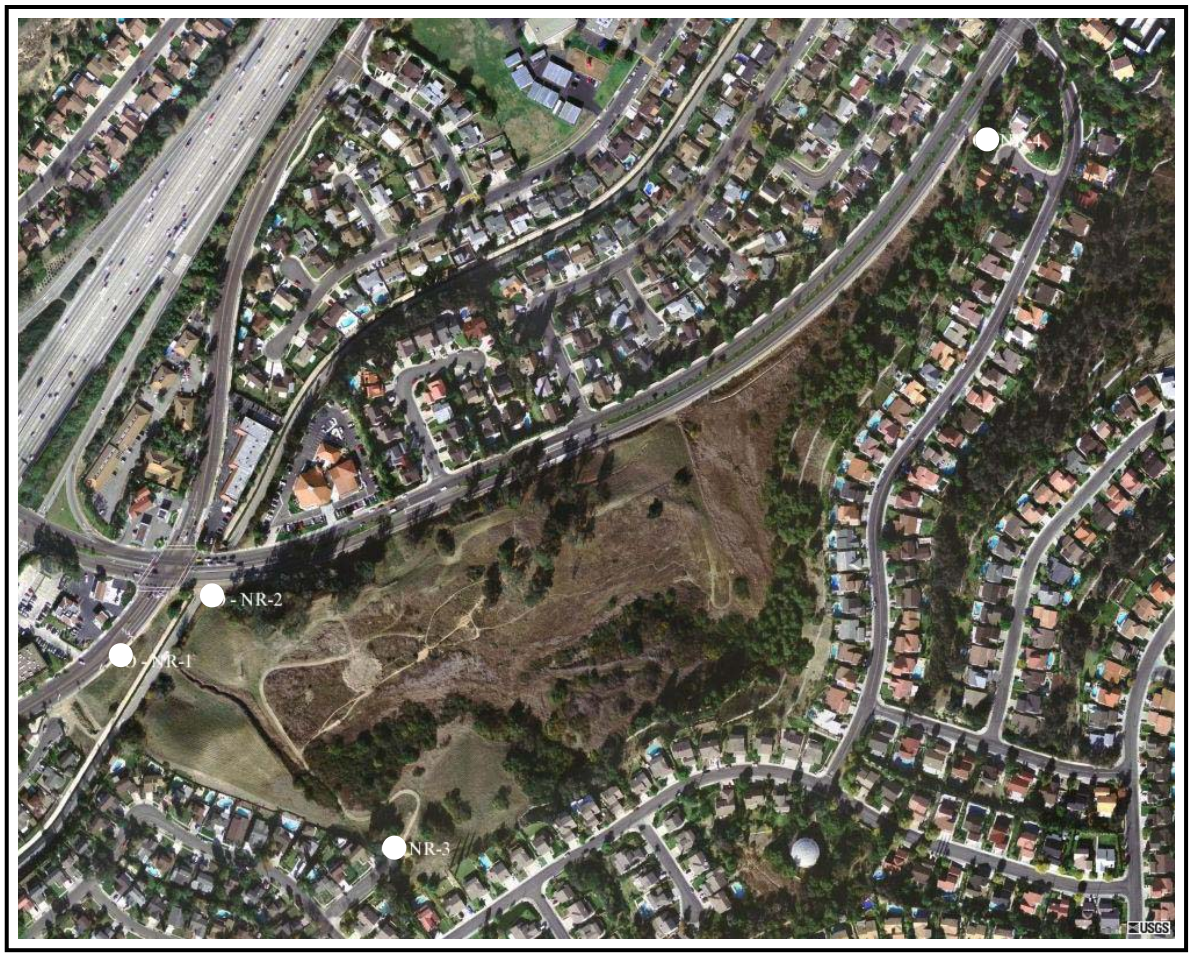
- NR-4. This reading was also obtained along Diamond Bar Boulevard just northeast of the project site. The meter was placed 50 feet east of the centerline of travel of Diamond Bar Boulevard's near, northbound lane and about 332 feet south of Cold Spring Lane. A 15-minute reading was obtained from 1:24 PM. In this location, the most prevalent source of noise was from traffic traveling along Diamond Bar Boulevard but freeway traffic noise was also notable in the background. Northbound traffic along Diamond Bar Boulevard included 111 automobiles, four medium trucks, and one heavy truck. Southbound traffic included 113 automobiles and two medium trucks.

Mobile Source Noise Level Modeling

Noise from motor vehicles is generated by engine vibrations, the interaction between tires and the road, and the exhaust system. Reducing the average motor vehicle speed reduces the noise exposure of receptors adjacent to the road. Each reduction of 5 mph reduces noise by about 1-2 dBA.

The Caltrans Sound32 (Release 7/30/91) version of the Federal Highway Administration (FHWA) traffic noise prediction model (FHWA RD-77-108) was used to evaluate traffic-related noise conditions at the project site. The model uses various parameters including the traffic volume, vehicle mix, vehicle speed, and roadway geometry to compute typical equivalent 1-hour noise level. The model is based on vehicles being at steady state speeds. To verify the accuracy of the Sound32 Noise Prediction Model (CALVENO Curves), the observed volumes of vehicles along with roadway logistics for Brea Canyon Road and Diamond Bar Boulevard noted in field measurements NR-1, NR-2, and NR-4 were modeled and the results included in Table 4.8-4 (Noise Level Measurements Versus Predicted Model Results).

While the roads are posted at 45 mph, in the cases of NR-1 and NR-2, the traffic was observed to go slower and queue at the intersection, thus resulting in somewhat lower noise levels from the road under measurement. The background noise associated with freeway traffic, however, also added to the ambient levels.



NOT TO SCALE

Figure 4.8-3
NOISE MONITORING LOCATIONS
Source: Environmental Impact Sciences

Table 4.8-3
NOISE LEVEL MEASUREMENTS[1]

Monitoring Location	Leq (dBA)	L_{02} (dBA)	L_{08} (dBA)	L_{25} (dBA)	L_{90} (dBA)	Lmin (dBA)	Lmax (dBA)
NR-1	63.8	67.6	66.0	64.5	63.4	58.5	70.5
NR-2	64.3	70.0	67.1	64.6	63.0	59.3	75.6
NR-3	56.8	60.6	58.8	57.5	56.4	51.9	65.6
NR-4	65.1	71.2	69.1	66.4	63.4	52.4	75.3

Notes:
1. The Leq represents the equivalent sound level and is the numeric value of a constant level that over the given period of time transmits the same amount of acoustic energy as the actual time-varying sound level. The L_{02}, L_{08}, L_{25}, and L_{50} are the levels that are exceeded 2, 8, 25, and 50 percent of the time, respectively. Alternatively, these values represent the noise level that would be exceeded for 1, 5, 15, and 30 minutes during a 1-hour period. The Lmin and Lmax represent the minimum and maximum root-mean-square noise levels obtained over a period of 1 second.

Source: Environmental Impact Sciences

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Table 4.8-4
NOISE LEVEL MEASUREMENTS VERSUS PREDICTED MODEL RESULTS

Monitoring Location	Measured Leq (dBA)	Modeled Leq (dBA) (Hard/Soft-Site)	Difference (dBA) (Hard/Soft-Site)
NR-1	63.8	61.4/59.9	2.4/3.9
NR-2	64.3	65.3/63.6	1.0/0.7
NR-4	65.1	66.4/64.9	1.3/0.2

Source: Environmental Impact Science

The modeling exercise for NR-1 shows lower values than was measured in the field. As noted, most of this noise was due to vehicles traveling along the freeway. Modeling the data for vehicles associated only with Brea Canyon Road would not be expected to show a good correlation. In the case of NR-2 and NR-4, the field data do correlate well with the model results. Because background noise associated with the freeway added to the ambient readings and is not accounted for in the model, soft site modeling actually shows the better correlation to the field data. The model is typically accurate to within 1 to 2 dBA of measured values for steady-state traffic.

Modeling of Existing Traffic Noise Levels

Noise within the project area is primarily created by local traffic. In order to gauge the potential for project-generated impacts, it is necessary to quantify the existing traffic-generated noise. The Caltrans Sound32 version of the FHWA traffic noise prediction model (Sound32 – Release 07/30/91) was used to evaluate traffic-related noise conditions in the vicinity of the project site. The model predicts 1-hour Leq noise levels and, as discussed below, is adjusted by vehicle percentage and time of day to ascertain the CNEL noise levels.

Average daily traffic (ADT) volumes were based on the existing daily traffic volumes provided by Linscott, Law, & Greenspan. To determine the CNEL noise level produced by this traffic, the percentage contribution from each hour of traffic was determined from a Los Angeles County, Year 2008 run of the EMFAC2007 (BURDEN2007 module) computer model distributed by the CARB. The EMFAC2007 model is typically used in air quality analyses but provides projected vehicle counts and mileage, by vehicle type, for each hour of the day, for each county in California. The ratio of each hour of traffic to the total daily traffic volume was then calculated. Traffic between the hours of 7:00 PM and 10:00 PM was assigned a 5-dBA penalty whereas the traffic predicted between 10:00 PM and 7:00 AM was assigned a 10-dBA penalty. The resultant noise associated with each hour was then logarithmically summed and averaged so that a CNEL associated with the total County volume, calculated in thousands of trip miles per day (i.e., 218,858) could be determined. The traffic volumes on the local routes were then compared with this total volume and its noise determined proportionally.

The Sound32 Noise Model considers four main parameters in its calculations. These include the speed of the vehicles, the ratio of the vehicles (i.e., automobiles, medium trucks, and heavy trucks), the roadway logistics (e.g., distance that traffic is observed as it approaches/leaves, curvature of the road), and the volume of vehicles. A reasonable worst-case assumes a straight road and the model has shown that after about 750 feet, more distant vehicles do not add measurably to the modeled noise levels. As such, a distance of 1,500 feet (i.e., 750 feet in either direction) was used in the modeling effort.

Actual projected roadway noise levels are then calculated in a spreadsheet and referenced to this 218,858 vehicle "standard" at a distance of 50 feet. For example, if a 45 mph route is projected to included 12,696 vehicles per day, the spreadsheet compares this volume with that for a 45 mph route that includes the 218,858 vehicle standard and reduces the CNEL by 12.4 dBA accordingly using the formula: Resultant Noise = 10 log(Projected Volume / 218,858). The spreadsheet then calculates the distances to the 70, 65, and 60 dBA CNEL contours using soft site modeling as predicted by the formula: Resultant Noise = 15 log(Contour Distance / 50 feet).

Table 4.8-5 (Existing Noise Levels along Site Access Roads) presents the projected existing traffic-generated noise levels along site access roads in the project area as well as the distances to the 70, 65, and 60 dBA CNEL noise contours. As noted, the noise contours are based soft site modeling that may actually show the better fit with the field data. Roads are modeled at their posted speeds. The analysis assumes a clear, unobstructed view of the traffic and does not consider any noise reduction due to intervening structures. The analysis considers only traffic noise on the noted roadway and omits other regional sources (e.g., freeway, aircraft overflights) that add to the ambient levels.

Table 4.8-5
EXISTING NOISE LEVELS ALONG SITE ACCESS ROADS

Location	**Speed** (mph)	**Existing ADT**	**Existing CNEL** (dBA @ 50 feet)	**Distance to 70 CNEL** (feet)	**Distance to 65 CNEL** (feet)	**Distance to 60 CNEL** (feet)
Brea Canyon Road						
N/O Diamond Bar	45	4,896	66.3	28	61	130
S/O Diamond Bar	45	12,696	70.4	53	114	246
Diamond Bar Boulevard						
N/O Cherrydale	45	20,512	72.5	73	157	339
Brea Canyon Cutoff						
W/O Fallow Field	40	11,003	68.8	41	89	193

Source: Environmental Impact Sciences

In total, the noise readings obtained in the field study included 506 automobiles (97.68 percent), 11 medium trucks (2.12 percent), and one heavy truck (0.19 percent). The County average over the 24 hours of the day (used in the generation of Table 4.8-5) is projected at 93.08 percent automobiles, 4.67 percent medium trucks, and 2.25 percent heavy trucks. The ratios obtained during the field counts are representative of that point in time when they were obtained. Additional heavy trucks were observed along Diamond Bar Boulevard, just not during the noise readings (or vehicle counts). Because higher noise levels are associated with trucks than cars, use of the County ratio provides a conservative (high) estimate of actual noise levels through the project area.

As noted, the existing CNEL along Brea Canyon Road south of Diamond Bar Boulevard is projected at 70.4 dBA at the project site (south of Diamond Bar Boulevard), while that along Diamond Bar Boulevard is projected at 72.5 dBA (north of Cherrydale), both as measured at a distance of 50 feet from the centerline of the road.

Modeling of Existing On-Site Noise Levels

As noted in the field study, the primary source of on-site noise is from vehicles traveling along the SR-57 Freeway and the adjacent roadways. While it was not feasible to count freeway traffic during the field study, it is possible to approximate existing on-site CNEL levels based on the field data.

NR-1 and NR-2 were obtained during the 10:00 AM and 11:00 AM hours, respectively. NR-3 straddled the 11:00 AM and 12:00 PM hours while reading NR-4 was obtained during the 1:00 PM hour. Using data included in the EMFAC2007 model, the 10:00 AM, 11:00 AM, 12:00 PM, and 1:00 PM hours include 4.71, 5.91, 6.13, and 6.04 percent of the County ADT, respectively. Based on the total County volume in thousands of vehicle-miles per day (i.e., 218,858), these hours include 10,307, 12,937, 13,416, and 13,215 thousand vehicle-miles per hour, respectively. Accounting for the percentage of trucks associated with each hour of the daily traffic as predicted by the EMFAC2007 model, the 1-hour Leq values for each of these hours is 79.4, 80.0, 79.7, and 79.8 dBA Leq, respectively, based on an average speed of 45 mph as measured at a distance of 50 feet from the centerline of the road. The overall CNEL for the 218,858 vehicle-miles results in a level of 82.8 dBA based on an average speed of 45 mph as measured at a distance of 50 feet from the centerline of the road. Assuming that the daily noise profile follows the daily traffic patterns, the daily CNEL for the entirety of vehicles traveling in the County may be inferred as being approximately 3.1, 2.5, 2.8, and 2.7 dBA louder that these respective hourly traffic volumes, as based on an average speed of 45 mph as posted through the project area.

Table 4.8-6 (Existing On-Site Noise Levels Based on Field Data) presents the results of this on-site CNEL analysis based on the field readings. Note that the portions of the project site exceed 70 dBA CNEL.

Table 4.8-6
EXISTING ON-SITE NOISE LEVELS BASED ON FIELD DATA

Noise Level Measurement	**Measured Leq** (dBA)	**Hourly Correction Factor** (dBA)	**CNEL** (dBA)
NR-1	63.8	3.1	66.9
NR-2	64.3	2.5	66.8
NR-3	56.8	2.6[1]	59.4
NR-4	65.1	2.7	67.8

Notes:
1. Based on 10 minutes in the 11:00 AM hour and 5 minutes in the 12:00 PM hour.

Source: Environmental Impact Sciences

4.8.2 Threshold of Significance Criteria

Presented below is the threshold of significance criteria identified by the Lead Agency relative to this topical issue. In accordance therewith, the proposed project would normally be deemed to produce a significant noise impact if the project or if project-related activities were to:

- Expose persons to or generate noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies.

- Expose persons to or generate excessive ground-borne vibration or ground-borne noise levels.
- Produce a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.
- Produce a substantial temporary or periodic increase in ambient noise levels in the project vicinity above levels existing without the project.[5]

With respect to off-site receptors, noise would represent a significant impact if existing noise levels exceed the objectives of the General Plan and the project were to increase this noise level by 3 dBA or if the project adds 5 dBA and the resultant noise level remains under the objectives of the General Plan.

4.8.3 Impact Analysis

Projected noise levels are calculated using the Caltrans' SOUND32 Noise Model. Modeling parameters were selected in accordance with CARB's EMFAC2007 computer model (BURDEN2007 Module) and are presented in Appendix J (Noise). Both existing and with-project traffic volumes are based on data provided by Linscott Law & Greenspan Engineers, as included in "Final Traffic Impact Report, WVUSD Site D Mixed-Use Development, January 17, 2008" (Traffic Study). In accordance with the Traffic Study, the project would add 9,276 average daily trips.

Projected on-site noise levels are based on data obtained in the field study. Ambient noise levels along project access routes are calculated using the Sound32 Noise Model distributed by Caltrans. Noise associated with site construction is based on construction noise values provided by the USEPA for use in noise assessments. Noise associated with site occupancy is primarily from mobile sources and most notably traffic traveling along the SR-57 Freeway, Diamond Bar Boulevard, and Brea Canyon Road.

4.8.3.1 Construction Impacts

Noise Impact 8-1*. Construction activities could result in a substantial temporary increase in ambient noise levels in the project vicinity above levels existing without the project.*

Level of Significance before Mitigation*. Potentially significant unless mitigation incorporated.*

Noise levels associated with construction activities would be higher than the existing ambient noise levels in the project area but would subside once construction of the project is completed. Two types of noise impacts could occur during the construction phase. First, the transport of workers and equipment to the construction site would incrementally increase noise levels along site access roadways. Even though there could be a relatively high single event noise exposure potential with passing trucks (a maximum noise level of 86 dBA at 50 feet), the increase in noise would be less than 1 dBA when averaged over a 24-hour period and would, therefore, have a less-than-significant impact on noise receptors along the project's construction truck routes.

The second type of impact is related to noise generated by on-site construction operations. Local residents would be subject to elevated noise levels due to the operation of construction equipment. Construction activities are carried out in discrete steps, each of which has its own

[5]/ *Op. Cit*., State CEQA Guidelines, Appendix G, Section XI (Noise).

mix of equipment and noise characteristics. These various sequential phases would change the character of the noise levels surrounding the construction site as work progresses. Despite the variety in the type and size of construction equipment, similarities in the dominant noise sources and patterns of operation allow noise ranges to be categorized by work phase. Table 4.8-7 (Noise Levels Generated by Typical Construction Equipment) lists typical construction equipment noise levels recommended for noise impact assessment at a distance of 50 feet.

Table 4.8-7
NOISE LEVELS GENERATED BY TYPICAL CONSTRUCTION EQUIPMENT

Type of Equipment	**Range of Sound Levels Measured** (dBA at 50 feet)	**Suggested Sound Levels for Analysis** (dBA at 50 feet)
Pile Drivers, 12,000 to 18,000 ft-lb/blow	81 to 96	93
Rock Drills	83 to 99	96
Jack Hammers	75 to 85	82
Pneumatic Tools	78 to 88	85
Pumps	68 to 80	77
Dozers	85 to 90	88
Tractor	77 to 82	80
Front-End Loaders	86 to 90	88
Hydraulic Backhoe	81 to 90	86
Hydraulic Excavators	81 to 90	86
Graders	79 to 89	86
Air Compressors	76 to 86	86
Trucks	81 to 87	86

Source: Noise Control for Buildings and Manufacturing Plants, BBN 1987.

Noise ranges have been found to be similar during all phases of construction, although the actual construction of the structures is typically reduced from the grading efforts. The grading and site preparation phase tends to create the highest noise levels because the noisiest construction equipment is found in the earthmoving equipment category. This category includes excavating machinery (such as backfillers, bulldozers, draglines, and front loaders) and earthmoving and compacting equipment (such as compactors, scrapers, and graders). Typical operating cycles may involve one or two minutes of full power operation followed by three to four minutes at lower power settings. Noise levels at 50 feet from earthmoving equipment range from 73-96 dBA while Leq noise levels range up to about 88 dBA and 89 dBA for residential and commercial development, respectively. The later construction of structure is somewhat reduced from this value since the physical presence of the structure itself may break up line-of-sight noise propagation.

The most proximate residential structures include the existing single-family homes located to the immediate south and east of the project site. The nearest of these homes could be on the order of 50 feet from on-site construction activities. At that distance, the Leq noise levels would be projected to be as high as 89 dBA. Interior levels at off-site residents would be reduced by over 20 dBA (with windows closed) from these values.

During the vast majority of the construction period, however, both exterior and interior noise levels would be 20 to 30 dBA lower due to lower power settings and sound attenuation provided

by longer distances and partial blocking both from the structures under construction and off-site structures. Ambient noise levels in the project vicinity would increase during construction phase, but would drop considerably after construction of the proposed uses is completed. Based on the projected noise levels, the short-term impact is considered as significant.

The City recognizes that control of construction noise is limited and, therefore, places special provisions on this noise. Section 22.28.120 of the Municipal Code exempts noise sources associated with construction provided that mobile source activities associated with the construction of the physical structures does not exceed 75 dBA, as measured at any single-family residential units, between the hours of 7:00 AM and 8:00 PM or 60 dBA between the hours of 8:00 PM and 7:00 AM on weekdays and on Saturday. Stationary source activities associated with the construction of the physical structures shall not exceed 60 dBA, as measured at any single-family residential units, between the hours of 7:00 AM and 8:00 PM or 50 dBA between the hours of 8:00 PM and 7:00 AM on weekdays and on Saturday. Mobile source noise associated with site clearing, grading, and later construction phases may not exceed 85 dBA at any receptor locations.

In recognition of the presence of construction noise and the proximity of existing residential receptors, the Lead Agency has formulated a number of mitigation measures (Mitigation Measure 8-1 through Mitigation Measure 8-6) to reduce short-term noise impacts to the maximum extend feasible. Inclusion of the recommended mitigation measures would reduce construction noise impacts to a less-than-significant level.

Caltrans notes that ground-borne vibration is typically associated with blasting operations, the use of pile drivers, and large-scale demolition activities, none of which are anticipated for the construction or operation of the project. None of these activities are anticipated as a result of the proposed project. As such, no excessive ground-borne vibrations would be created by the proposed project and any potential vibration-related impacts would be less than significant.

4.8.3.2 Operational Impacts

Noise Impact 8-2*. Project implementation may result in an exceedance of noise standards established in the General Plan and/or Municipal Code or applicable standards formulated by other agencies.*

Level of Significance before Mitigation*. Potentially significant unless mitigation incorporated.*

The Municipal Code sets a goal level of 55 dBA for mobile-source noise intrusion on sensitive, multi-family land uses. The General Plan (Noise Element) allows for a conditionally acceptable exterior noise level of up to 65 dBA CNEL for residential uses as long as the dwelling units are fitted with forced air ventilation or air conditioning. Assuming the inclusion of forced air ventilation, commercial uses have an exterior goal of 65 dBA CNEL and a conditionally acceptable level of 70 dBA CNEL. Under special cases, however, this maximum may be increased to 80 dBA CNEL (e.g., adjacent to freeways) as long as the interior levels do not exceed 45 dBA CNEL.

As proposed, the project would result in the siting of commercial uses toward the southwest portion of the site, in that portion of the property more proximate to the freeway. As further proposed, the residential uses would be sited in the east and northeastern portion of the project site, in that portion of the property situated away from the freeway. Since residential uses would

be considered a sensitive land use, an impact upon those uses would be considered significant if the exterior noise were to exceed 50 dBA during the day or 45 dBA at night at any proposed residential units from local stationary sources under City control or 65 dBA CNEL from mobile sources. For the purpose of this analysis, this latter value was applied to exterior habitable areas and assumes the use of forced air ventilation sized and installed in compliance with Title 24 requirements, thereby allowing the residents to leave their windows closed.

For the purpose of this analysis, the commercial uses on the project site would be considered significant if the exterior noise levels were to exceed 60 dBA during the day or 55 dBA at night at any proposed commercial structures from local stationary sources under City control or 70 dBA CNEL from mobile sources. This latter value assumes the use of forced air ventilation sized and installed in compliance with Title 24 requirements, allowing the occupants to leave their windows closed.

There are no stationary sources of noise located in the immediate project area and all noise is from mobile sources, including vehicle traffic and aircraft overflights. Table 4.8-6 (Existing On-Site Noise Levels Based on Field Data) includes the projected on-site CNEL values based on the field readings and are considered representative of the existing setting. The projections are based on the year 2008 hourly traffic mix within Los Angeles County, as projected by the EMFAC2007 model.

The CNEL values presented in Table 4.8-6 (Existing On-Site Noise Levels Based on Field Data) reflect current conditions. Site occupants would, however, be subject to augmented noise associated with increased traffic volumes over time. Based on data provided by Linscott, Law, & Greenspan, by 2030, cumulative traffic volumes are projected to increase by approximately 21 percent. A 21 percent increase in traffic would raise ambient noise levels by 0.8 dBA CNEL.

The noise associated with NR-1 was primarily associated with freeway traffic. In this location the freeway was about 550 feet from the measurement location. Assuming that, over time, the ambient noise increases by 0.8 dBA CNEL, this portion of the site would be at about 67.7 dBA CNEL. The value exceeds the normally acceptable level of 65 dBA CNEL but remains under the 70 dBA CNEL deemed conditionally acceptable by the City for commercial uses (assuming conventional construction but with closed windows and requiring the use of forced air ventilation or air conditioning).

NR-3 (obtained toward the east side of the site away from the freeway) has a projected existing CNEL of 59.4 dBA and is estimated at 60.2 dBA CNEL in 2030. This value exceeds the normally acceptable level of 55 dBA CNEL for residential uses. The normally acceptable exterior 55 dBA CNEL for residential development is calculated at a distance of 3,864 feet from the freeway and would encompass the entire project site. The 65 dBA CNEL deemed suitable for residential development, equipped with forced air ventilation, would fall at a distance of about 830 feet from the freeway.

Some commercial uses would be sited along Diamond Bar Boulevard. Assuming that future traffic volumes raise noise levels by 0.8 dBA CNEL, NR-2 and NR-4 equate to future CNEL values of 67.6 and 68.6 dBA CNEL, respectively. Both readings were obtained at a distance of 50 feet from the centerline of the near lane or about 75 feet from the centerline of the road. Using NR-4 as the worse of the two cases, if the entirety of the noise was produced from traffic traveling along Diamond Bar Boulevard, the 70 dBA CNEL would fall at distances of about 60

feet from the centerline of the roadway. The placement of any commercial structures within 60 feet of the roadway centerline could, therefore, result in a potentially significant impact.

The 65 dBA CNEL, suitable for residential development with forced air ventilation, would fall at a distance of about 130 feet from the centerline of the road. The placement of any residential units within this distance could then expose future residents to excessive noise levels and result in a potentially significant impact. Since any commercial structures that would lie between the residential units and Diamond Bar Boulevard could serve as an effective sound wall if they were to shield the residents from a view of the road traffic, the 130-foot distance is considered as conservative (i.e., high).

Based on the potential presence of significant noise impacts, the Lead Agency has formulated a number of mitigation measures (Mitigation Measure 8-7 through Mitigation Measures 8-9) to reduce impacts upon on-site receptors. The requirement for forced air ventilation, identified herein as a condition of approval (Condition of Approval 8-1) since it is otherwise required in accordance with Title 24 standards, would allow site occupants to leave windows closed, thus reducing interior levels by in excess of 20 dBA. Implementation of the recommended mitigation measures, in combination with required forced air ventilation requirements, would be mitigated to less than significant.

Noise Impact 8-3*. Project implementation may result in a substantial permanent increase in ambient noise levels in the project vicinity above levels existing without the project.*

Level of Significance before Mitigation*. Less-than-significant impact.*

Following the completion of construction activities, the project's primary contribution to the ambient noise levels would be the result of the addition of vehicles upon local roadways. The Traffic Study indicates that the project would add 9,276 ADT to the roadway network. The vehicle mix, day/evening/night split, and average speeds are as indicated in the analysis of the existing noise levels. As indicated in Table 4.8-8 (Existing Versus with Project Noise Levels along Site Access Roads), the modeling indicates that the noise increase along all access roads would not exceed 0.7 dBA CNEL. The project's contribution to ambient noise levels would, therefore, be less than significant.

Table 4.8-8
EXISTING VERSUS WITH PROJECT NOISE LEVELS ALONG SITE ACCESS ROAD

Location	**Speed (mph)**	**Existing ADT**	**Existing CNEL** (dBA @ 50 feet)	**Existing with Project ADT**	**With Project CNEL** (dBA @ 50 feet)	**Difference** (dBA CNEL)
Brea Canyon Road						
N/O Diamond Bar	45	4,896	66.2	5,764	67.0	0.7
S/O Diamond Bar	45	12,696	70.4	13,971	70.8	0.4
Diamond Bar Boulevard						
N/O Cherrydale	45	20,512	72.5	23,581	73.1	0.6
Brea Canyon Cutoff						
W/O Fallow Field	40	11,003	68.8	12,738	69.4	0.6

Source: Environmental Impact Sciences

As noted in the field study, the dominant sources of noise through the project area are from freeway traffic and traffic along Diamond Bar Boulevard. The structures associated with the proposed development would serve as a partial sound wall reducing this noise at the existing residential location. The introduction of intervening structures could benefit adjacent residents by further reducing line-of-sight propagation of mobile source noise along adjoining roadways.

4.8.3.3 Cumulative Impacts

Noise Impact 8-4*. Short-term construction and long-term operational noise associated with the proposed project, in combination with other related projects, will contribute to both a localized and an areawide increase in ambient noise levels in proximity to those projects and along those roadways utilized by project-related traffic.*

Level of Significance before Mitigation*: Less-than-significant impact.*

As indicated in Table 3-4 (Related Projects Summary) and illustrated in Figure 3-1 (Related Projects Location Map), a number of other, independent development activities are anticipated within the general project area that, in combination with the proposed project, could contribute to ambient noise levels in the general vicinity of the proposed project.

Development projects located in the general project area will generate short-term noise impacts during their respective construction stages. Those impacts will, however, cease upon completion of the building stage of each related project and will be replaced, over time, by the respective operational noise impacts generated by each related land use. Construction noise impacts are generally localized and limited to each related project site and those areas proximal to those construction operations. Related projects that may be relatively close to one another and involve simultaneously construction operations could create cumulative noise impacts. In most cases, since noise attenuates with distance and intervening objects and obstacles serve to further impede the transmittal of sound energy, construction noise impacts will be generally localized to each such project and the roadway network along which construction traffic travels.

As traffic volumes in the general project area increase over time, those areas located in proximity to the area's arterial highway system will experience increased traffic noise. Existing roadway volumes would, however, need to double in order to produce a perceptible noise increase. Large-scale projects that contribute substantially to traffic volumes along the area's arterial highway system are subject to CEQA compliance. Similarly, the noise element of each agency's general plan specifies those roadways that are subject to excessive noise levels. As deemed appropriate, beyond those requirements already imposed by each agency's noise ordinance, land-use entities have the ability to impose additional mitigation measures and/or conditions of approval on each project in order to reduce potential short-term and long-term traffic noise impacts. Also, those projects containing sensitive receptors which are located along major roadways are typically designed in recognition of intrusive noise impacts.

Cumulative traffic-related noise impacts would, therefore, be less than significant. Since none of the threshold of significance criteria would be exceeded, the identified impact would be less than significant and no further mitigation is recommended or required.

4.8.4 Project Conditions and Mitigation Measures

Project Conditions

- **Condition of Approval 8-1**. All residential and commercial units shall include forced air ventilation designed and installed in accordance with Title 24 of the California Building Code standards.

Mitigation Measures

- **Mitigation Measure 8-1**. In accordance with the Development Code, construction shall be restricted to between the hours of 7:00 AM and 8:00 PM on weekdays and Saturdays. No construction shall occur at any time on Sundays or on federal holidays. These days and hours shall also apply any servicing of equipment and to the delivery of materials to or from the site.

- **Mitigation Measure 8-2**. All construction equipment shall be properly maintained and tuned to minimize noise emissions.

- **Mitigation Measure 8-3**. All equipment shall be fitted with properly operating mufflers, air intake silencers, and engine shrouds no less effective than originally equipped.

- **Mitigation Measure 8-4**. The construction contractor shall place temporary noise barriers along the site perimeter when doing any work within 100 feet of any residential units. Such barriers shall attempt to block the line of sight between the residents and construction equipment.

- **Mitigation Measure 8-5**. The construction contractor shall specify the use of electric stationary equipment (e.g., compressors) that can operate off the power grid where feasible. Where infeasible, stationary noise sources (e.g., generators and compressors) shall be located as far from residential receptor locations as is feasible.

- **Mitigation Measure 8-6**. Construction shall be subject to any and all provisions set forth by the City of Diamond Bar Planning Department.

- **Mitigation Measure 8-7**. No residential units shall be located within 830 feet of the SR-57 Freeway's nearest travel lane unless additional sound attention is provided to the satisfaction of the Community Development Director.

- **Mitigation Measure 8-8**. No commercial units shall be located within 60 feet of the centerline of Diamond Bar Boulevard.

- **Mitigation Measure 8-9**. No residential units shall be located within 130 feet of the centerline of Diamond Bar Boulevard unless additional sound attention is provided to the satisfaction of the Community Development Director.

4.8.5 Significant Unavoidable Adverse Effects

The approval, construction, occupancy, use, and habitation of the proposed project will not result in any significant unavoidable adverse project-related or cumulative noise impacts.

4.9 PUBLIC SERVICES

As indicated in the State CEQA Guidelines, public services include fire protection, police protection, schools, parks, and other public facilities. Based on the preliminary analysis presented in the Initial Study and the responses to the NOP (Appendix A), in combination with the Lead Agency's subsequent analysis, as addressed herein, public services includes police and fire protection and paramedic services, school facilities,[1] libraries, and parks.

4.9.1 Environmental Setting

4.9.1.1 Regulatory Setting

Mitigation Fee Act

In 1987, the California Legislature enacted AB 1600 (Mitigation Fee Act), codified in Section 66000 *et seq*. of the CGC. The legislation was enacted in response to developer concerns that local public agencies were requiring developers to pay for infrastructure improvement costs that developers contended should have been borne by the public as a whole. As enacted, the act, which applies to both fees imposed on a broad class of projects by legislation of general applicability and fees imposed on a project-specific basis, closely regulates the adoption, levy, collection, and challenge to development fees imposed by local public agencies.[2]

The Mitigation Fee Act applies to development impact fees imposed by local agencies to finance all or part of the cost of public facilities (such as streets, traffic signals, bridges and major thoroughfares, drainage and flood control facilities, water and sewer systems, and government buildings). Whenever establishing, imposing, or increasing a fee as a condition of development, the local public agency imposing the fee must identify the purpose of the fee and the use to which the fee will be put. The public agency must justify a reasonable relationship (nexus) between the fee and the development upon which the fee is predicated. Fees must not exceed the estimated reasonable cost of providing the service for which the fee was collected.

School Impact Fees

In 1986, the State Legislature approved AB 2926 (School Facilities Act of 1986) authorizing school districts to charge development fees to fund the construction and reconstruction of schools. When noticed of a school facility exaction, a city or county may not issue a building

[1]/ Public education in California consists of two distinct systems. One system includes local school districts that provide elementary and secondary education. The other system, commonly referred to as "higher education," includes California community colleges, the California State University system, and the University of California. California's system of public higher education, which includes 140 campuses in three distinct segments, serves about 2.3-million students. California community colleges provide instruction to about 1.7-million students at 108 campuses operated by 72 locally governed districts throughout the State. The community colleges grant associate degrees and also offer a variety of vocational skill courses. The California State University system includes 23 campuses, with an enrollment of about 395,000 students. The system grants bachelor and master degrees, and a small number of joint doctoral degrees in combination with the University of California. The University of California includes 8 general campuses and one health sciences campus, serving about 184,000 students. This system offers bachelor, master, and doctoral degrees, and is the primary State-supported agency for research. In the context of this EIR, education relates only to public schools providing kindergarten (K) through 12th grade (K-12) schooling. Pre-kindergarten-level schools, community colleges, State colleges, and universities, and private schools are not addressed herein.

[2]/ The act does not regulate the application of taxes or special assessments, Quimby Act fees, processing fees, fees collected under a development agreement, or certain fees collected by redevelopment agencies.

permit to an affected development project until the school district has certified that the project has either complied with the school board's resolution or is not subject to the exaction.

Local school districts are authorized to impose and collect school "impact fees" for all residential and non-residential development activities that occur within their jurisdiction to off-set the additional costs associated with the new students that result directly from the construction of new homes and indirectly from the creation of new employment opportunities. The governing board of any school district is authorized to levy a fee, charge, dedication, or other requirement against any construction within the boundaries of the district for the purpose of funding the construction or reconstruction of school facilities. The fee that can be imposed by the affected school district can vary based on the type of use proposed. Under the enabling legislation, for residential construction, an initial fee pf $1.93 per square foot of assessable space was established. In the case of any commercial or industrial construction, an initial fee of $0.31 per square foot of chargeable covered and enclosed space was established. The State legislature further authorized local school districts to adjust that fee for inflation every two years, as determined by the State Allocation Board (SAB) at its January meeting.

At its January 30, 2008 meeting, the SAB increased the amount of the statutory maximum Level I[3] school fees, which may be levied by a school district on new development. The maximum Level I school fees were increased from $2.63 to $2.97 per assessable square foot of residential construction and from $0.42 to $0.47 per square foot of enclosed and covered space for commercial/industrial development.

Section 17620 of the California Education Code (CEC) authorizes school districts to assess development fees within district boundaries to fund the construction or reconstruction of school facilities, subject to the limitations set forth in Chapter 4.9 (commencing with Section 65995) of the CGC. Section 65995(h) of the CGC provides that "[t]he payment or satisfaction of a fee, charge, or other requirement levied or imposed pursuant to Section 17620 of the Education Code in the amount specified in Section 65995 and, if applicable, any amounts specified in Section 65995.5 or 65995.7 are hereby deemed to be full and complete mitigation of the impacts of any legislative or adjudicative act, or both, involving, but not limited to, the planning, use, or development of real property, or any change in governmental organization or reorganization as defined in Section 56021 or 56073, on the provision of adequate school facilities."

Very High Fire Hazard Severity Zones

Under AB 337, passed in 1992, the California Department of Forestry and Fire Protection (CDF or CALFIRE) was required to identify and classify fire hazards in "Local Responsibility Areas" (LRA). The law mandated fire hazard assessments and zoning and included related minimum fire hazard standards to be adopted at the local level. As required under Sections 51175-51188 of the CGC, the CDF, acting in cooperation with local fire authorities, shall identify areas in the

[3]/ There are three levels that may be levied for developer's fees. The Level I fee is assessed if the district conducts a justification study that establishes the connection between the development coming into the district and the assessment of fees to pay for the cost of the facilities needed to house future students. The Level II fee is assessed if a district makes a timely application to the State Allocation Board (SAB) for new construction funding, conducts a school facility needs analysis pursuant to Section 65995.6 of the CGC, and satisfies at least two of the requirements listed in Section 65995.5(b)(3) of the CGC. The Level III fee is assessed when State bond funds are exhausted; the district may impose a developer's fee up to 100 percent of the school facilities program new construction project costs.

State as "very high fire hazard severity zones"[4] (VHFHSZ) within designated State Responsibility Areas (SRAs),[5] based on consistent Statewide criteria addressing the severity of fire hazards expected to prevail in those areas. Very high fire hazard severity zones shall be based on fuel loading, slope, fire weather, and other relevant factors.[6]

Those VHFHSZs located in the general project area, as determined by the CDF, are illustrated in Figure 4.9-1 (Natural Hazard Disclosure Map for a Portion Eastern Los Angeles County). This map identifies the two types of fire hazard areas referred to in legislation as disclosure items in real estate transactions, namely "Wildland Areas that may contain Substantial Forest Fire Risks and Hazards" and "Very High Fire Hazard Severity Zones." Presented in Figure 4.9-2 (Draft Revised Fire Hazard Severity Zones [September 2007]), dated September 2007, are draft revisions to both LRA and SRA.

The County has identified "Very High Fire Hazard Severity Zones" throughout the County. As defined in Section 223-V of Title 32 of the County Code, the "Very High Fire Hazard Severity Zone" (formally Fire Zone 4) is defined to mean those "areas that are highly vulnerable to wildfire. The designation of such zones shall be made by the Board of Supervisors and shall be based on fuel loading, slope, fire weather and other relevant factors in accordance with Chapter 6.8 of Title 5 of the California Government Code commencing with Section 51175."

Section 51182(a) of the CGC states that any person who owns, leases, controls, operates, or maintains any occupied dwelling or occupied structure in, upon, or adjoining any mountainous area, forest-covered land, brush-covered land, grass-covered land, or any land that is covered with flammable material, which area or land is within a VHFHSZ designated by the local agency pursuant to Section 51179, shall at all times do all of the following:

(1) Maintain around and adjacent to the dwelling or structure a firebreak made by removing and clearing away, for a distance of not less than 30 feet on each side thereof or to the property line, whichever is nearer, all flammable vegetation or other combustible growth. This paragraph does not apply to single specimens of trees, ornamental shrubbery, or similar plants that are used as ground cover, if they do not form a means of rapidly transmitting fire from the native growth to any dwelling or structure.

(2) Maintain around and adjacent to the occupied dwelling or occupied structure additional fire protection or firebreaks made by removing all brush, flammable vegetation, or combustible growth that is located from 30 feet to 100 feet from the occupied dwelling or occupied structure or to the property line, whichever is nearer, as may be required by the local agency if the local agency finds that, because of extra hazardous conditions, a firebreak of only 30 feet around the occupied dwelling or occupied structure is not sufficient to provide reasonable fire safety. Grass and other vegetation located more than 30 feet from the dwelling or structure and less than 18 inches in height above the ground may be maintained where necessary to stabilize the soil and prevent erosion.

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[4]/ "Fire hazard severity zones" are geographic areas designed pursuant to Sections 4201-4204 of the PRC in State Responsibility Areas or as local agency "very high fire hazard severity zones" designated pursuant to Sections 51175-51189 of the CGC. Section 1280 of the CCR entitles the maps of these geographic areas as "maps of the fire hazard severity zones in the State Responsibility Areas of California."

[5]/ As defined in Section 4102 of the PRC, SRAs are "areas of the state in which the financial responsibility of preventing and suppressing fires has been determined. . .to be primarily the responsibility of the state."

[6]/ Pursuant to Section 51179 of the CGC, local agencies can accept or reject the CDF VHFHSZ assessment and delineation and can alter and update VHFHSZ boundaries as deemed necessary. Approximately 51 jurisdictions throughout the State with areas that otherwise would have been identified with a VHFHSZ claimed to meet or exceed AB337 requirements and were not required to designate VHFHSZ.

(3) Remove that portion of any tree that extends within 10 feet of the outlet of any chimney or stovepipe.
(4) Maintain any tree adjacent to or overhanging any building free of dead or dying wood.
(5) Maintain the roof of any structure free of leaves, needles, or other dead vegetative growth.
(6) Provide and maintain at all times a screen over the outlet of every chimney or stovepipe that is attached to any fireplace, stove, or other device that burns any solid or liquid fuel. The screen shall be constructed and installed in accordance with the California Building Standards Code.

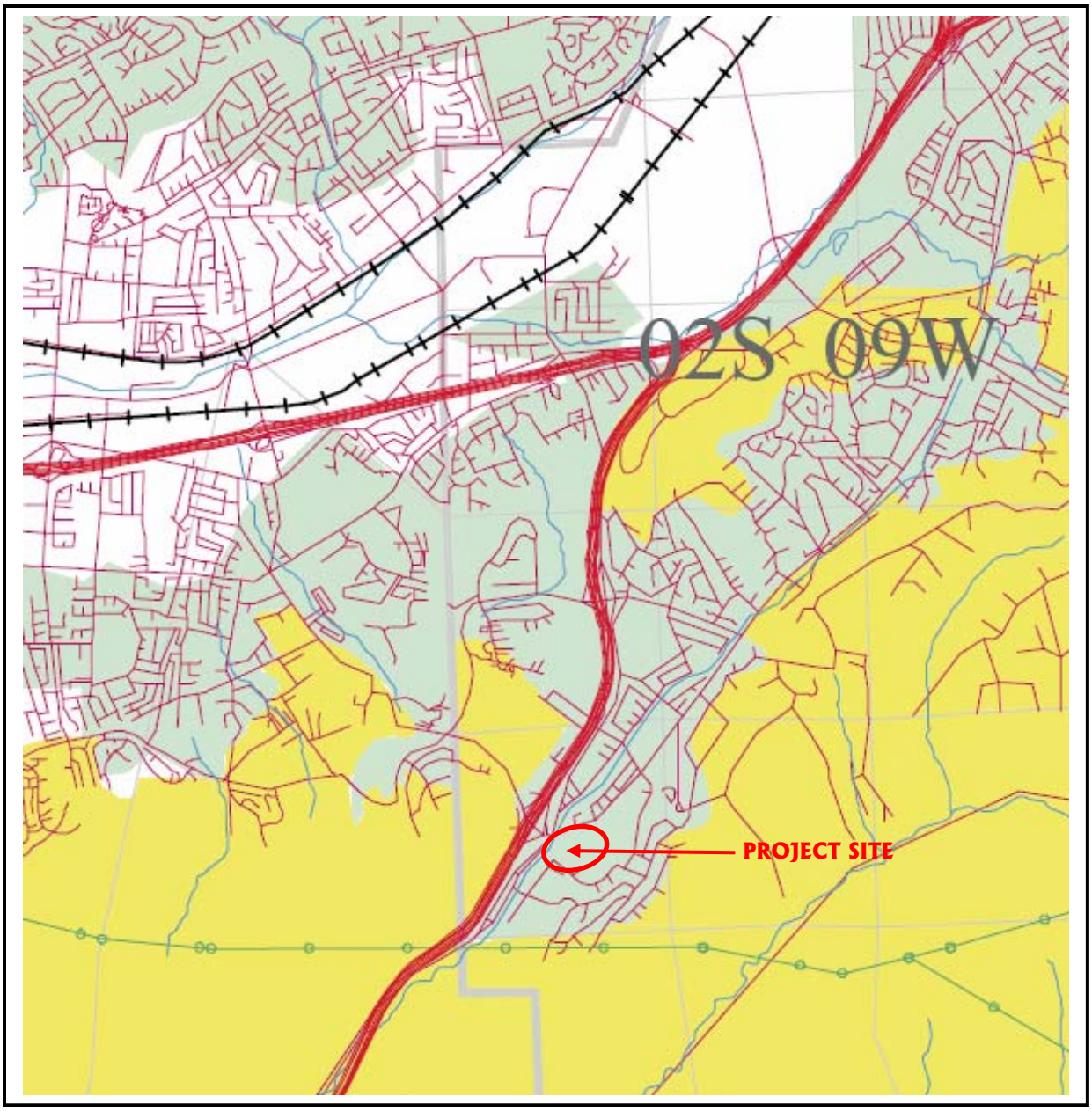
Section 51182(b) of the CGC, however, stipulates that a person is not required under this section to maintain any clearing on any land if that person does not have the legal right to maintain the clearing, nor is any person required to enter upon or to damage property that is owned by any other person without the consent of the owner of the property.

The LACFD's "Fuel Modification Plan Guidelines for Projects Located in Fire Zone 4 or Very High Fire Hazard Severity Zones"[7] provide a set of procedures and standards designed to implement the requirements of the "Los Angeles County Fire Code" (Fire Code), codified in Title 32 of the "Los Angeles County Code" (County Code). As specified therein, fuel modification plans are required for all projects and/or structures receiving tentative map approval or building permits on or after January 7, 1996. A "fuel modification plan" identifies specific zones within a property that are subject to fuel modification. A "fuel modification zone" is a strip of land where combustible native or ornamental vegetation has been modified and/or partially or totally replaced with drought tolerant, fire resistant plants.[8] Current code requirements for subdivisions, including access, fire flow, fire sprinklers, water storage, and fire resistive construction techniques, are considered and credited, where appropriate, by the LACFD in establishing the final fuel modification requirements. The size and type of the fuel modification zone(s) will be determined by the LACFD upon review of preliminary development plans.[9]

As indicated in the LACFD's "Pre-Fire Management Plan": "The Fuel Modification Program objectives is to create the defensible space necessary for effective fire protection in newly constructed and/or remodeled homes within the Department's Very High Fire Hazard Severity Zones. Fuel modification reduces the radiant and convective heat, and provides valuable defensible space for firefighters to make an effective stand against an approaching fire front.

The following standards have been established by the LACFD for single-family dwellings located in a VHFHSZ (Fire Zone 4): (1) the water system is capable of delivering 1,250 gallons per minute (gpm) at 20 pounds per square inch (psi) for a two-hour duration; (2) the distance from the structure to the fire hydrant does not exceed 450 feet via vehicular access; and (3) the proposed construction must be within 150 feet of a vehicular access roadway that is a minimum of 20 feet wide, paved with concrete or asphalt and does not exceed 15 percent grade.[10]

[7]/ Los Angeles County Fire Department, Prevention Bureau, Forestry Division, Brush Clearance Section, Fuel Modification Plan Guidelines for Projects Located in Fire Zone 4 or Very High Fire Hazard Severity Zones, January 1998.
[8]/ *Ibid*., p. 1.
[9]/ *Ibid*., pp. 2-3.
[10]/ Los Angeles County Fire Department, Prevention Bureau, Information on Fire Flow Availability for Building Permit, Form 195, January 2002.



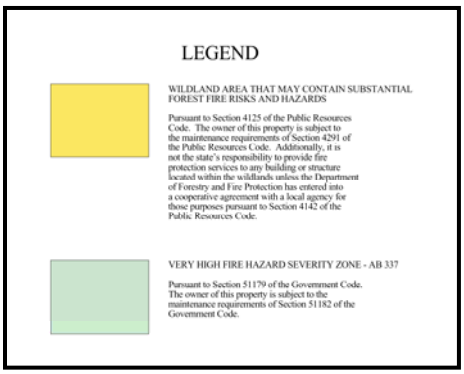


Figure 4.9-1
NATURAL HAZARD DISCLOSURE MAP FOR A PORTION OF EASTERN LOS ANGELES COUNTY
Source: California Department of Forestry and Fire Protection

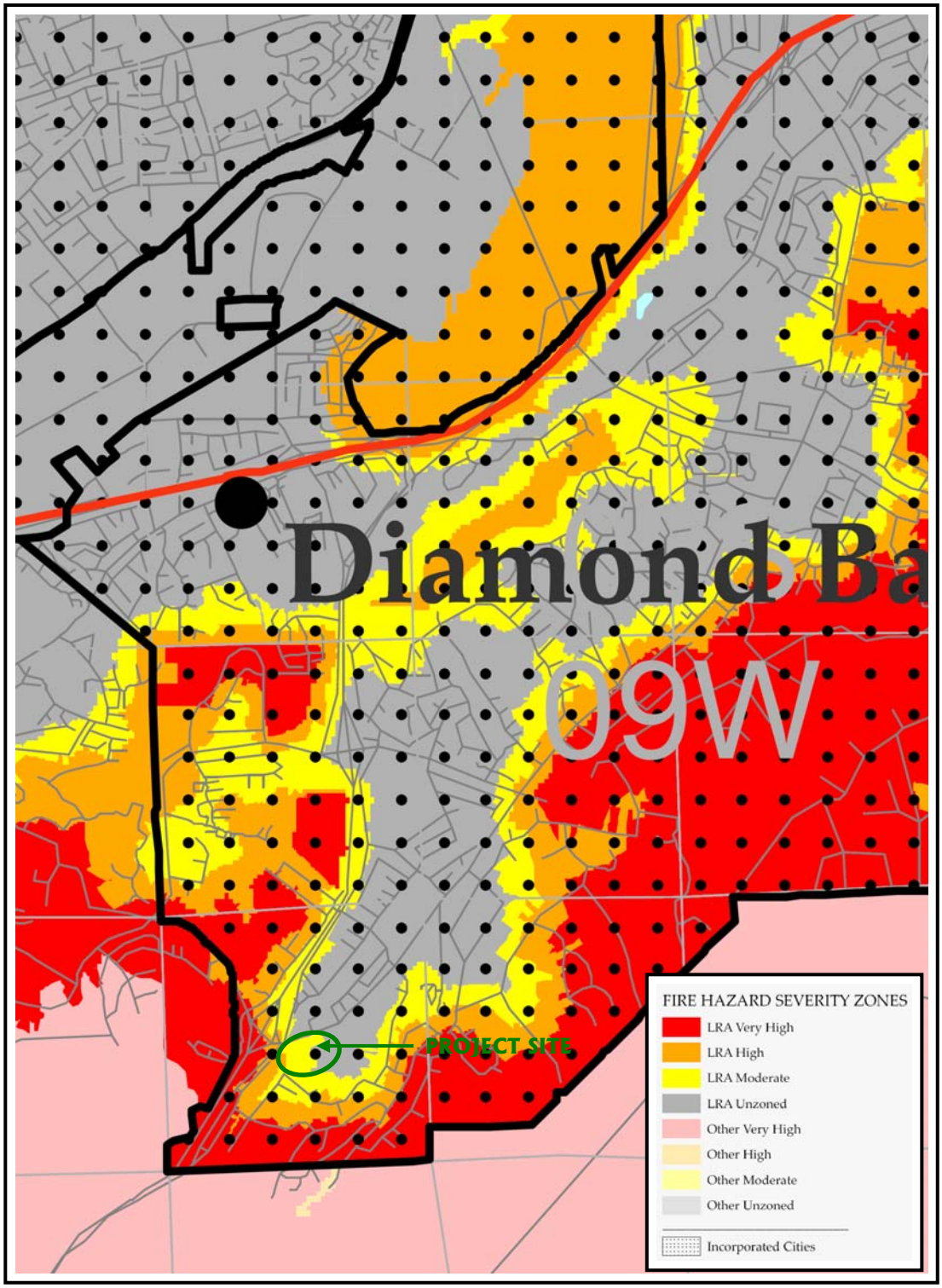


Figure 4.9-2
DRAFT REVISED FIRE HAZARD SEVERITY ZONES
(September 2007)
Source: California Department of Forestry and Fire Protection

On September 20, 2005, the California Building Standards Commission approved the Office of the State Fire Marshal's emergency regulations amending Part 2 of the twelve parts of the State's building regulations codified in Title 24 of the CCR, known as the California Building Code. As specified in Section 701A.3.2 therein, new buildings located in any fire hazard severity zone within a State Responsibility Area (SRA), any local agency very-high fire hazard severity zone, or any wildland-urban interface fire area designated by the enforcing agency for which an application for a building permit is submitted on or after January 1, 2008, shall comply with all sections of this chapter. New buildings located in any fire hazard severity zone shall comply with one of the following: (1) new buildings located in any fire hazard severity zone within SRAs shall comply with all sections of this chapter; (2) new buildings located in any local agency very high fire hazard severity zone shall comply with all sections of this chapter; and (3) new buildings located in any wildland-urban interface fire area designated by the enforcing agency shall comply with all sections of this chapter.

City of Diamond Bar General Plan

The General Plan contains numerous policies that relate, either directly or indirectly, to public services and facilities. Those policies include, but are not necessarily limited to, the following:

- Through the environmental and development review processes, ensure that adequate services, facilities, and infrastructure are available to support each development (Strategy 2.3.1, Land Use Element).
- Protect existing residents and businesses from the cost of financing infrastructure aimed at supporting new development or the intensification of development (Strategy 1.1.2, Public Services and Facilities Element).
- Require the construction of water, sewer, drainage and other necessary public facilities prior to or concurrent with each new development (Strategy 1.1.3, Public Services and Facilities Element).
- Require the project sponsor to provide all necessary infrastructure improvements (including the pro rata share of system-wide improvements) (Strategy 1.1.4, Public Services and Facilities Element).
- Require all new housing subdivisions be connected to a public sewerage system (Strategy 1.1.6, Public Services and Facilities Element).

City of Diamond Bar Municipal Code

As stipulated in Section 22.22.140 (Fire Protection Standards) in Title 22 (Development Code) of the Municipal Code, development shall be constructed to reduce the potential for spread of brushfire and be constructed with adequate water supply and pressure for all proposed development in compliance with standards established by the Fire Marshal. A permanent fuel modification area shall be required around development projects or portions thereof that are adjacent or exposed to hazardous fire areas for the purpose of fire protection. The required width of the fuel modification area shall be based on applicable building and fire codes. Fuel modification areas shall incorporate soil erosion and sediment control measures to alleviate permanent scarring and accelerated erosion.

4.9.1.2 Regional Setting

Police Protection Services

The Los Angeles County Sheriff's Department (LACSD) administers the police functions of the County and is responsible for enforcing all laws and regulations as required by statute. The LACSD operates County detention facilities, participates in rehabilitation programs, crime prevention programs, and programs to suppress delinquency, assists in the functions of the superior and municipal courts, maintains security, and directs and coordinates emergency services. The LACSD provides police services to all unincorporated County areas and to 41 of the 88 municipalities within the County with police service contracts. The LACSD also provides policing for nine community colleges and for significant portions of the Metro Rail and Metrolink transit systems.

Contract cities pay for the services that are provided at the level the contract designates. Police protection services in the City are provided by the LACSD under specified contract provisions. The project site is located within the patrol area of Walnut/Diamond Bar Sheriff's Station (21695 East Valley Boulevard, Walnut) and the Diamond Bar Community Service Center Substation (21345 Cold Springs Lane, Diamond Bar).

The California Highway Patrol (CHP) responds to traffic accidents on State highways, components of the interstate highway system, and traffic accidents on all streets located in unincorporated areas. The CHP provides law enforcement assistance to the LACSD and to municipal law enforcement agencies through an informal mutual aid agreement. CHP General Order 0.1 specifies that one of the missions of the CHP is that it "supports local law enforcement and stands ready to assist in emergencies exceeding local capabilities." The project site is located in the CHP's Baldwin Park Division (14039 Francisquito Avenue, Baldwin Park).

Fire Protection and Paramedic Services

Fire protection and paramedic services within County unincorporated areas and contract cities, including the City, are provided by the Los Angeles County Fire Department (LACFD). Other statutory responsibilities of the LACFD include erosion control, watershed management, rare and endangered species, vegetation, fuel modification for high fire severity areas, archeological and cultural resources, and the County's Oak Tree Ordinance (Section 22.56.2050 *et seq*., County Code). Funding for fire protection and emergency medical services is through a portion of the ad valorem tax and special tax assessment of property owners.

The LACFD provides emergency and non-emergency services, either directly or through mutual aid agreements, to County unincorporated areas and to contract cities. Fire protection services in the City are provided by the LACFD under specified contract provisions.

Organizationally, the LACFD operates from nine divisions and twenty battalions. The project site is located in Division VIII (Battalions 19). Within the general project area, LACFD Division VIII facilities include: (1) Fire Station 119 (20480 E. Pathfinder Road, Walnut); (2) Fire Station 120 – Battalion Headquarters (1051 S. Grand Avenue, Diamond Bar); (3) Fire Station 121 (346 Armitos Place, Diamond Bar); (4) Fire Station 61 (20011 La Puente Road, Walnut); and (5) Fire Station 187 (3325 Temple Avenue, Pomona).

The Insurance Service Organization (ISO) is an independent private insurance research group that rates fire departments on their ability to provide protection. The ISO uses a rating scale of 1 (best) to 10 (least) to rate municipal fire department on a national basis. Although ratings vary according to location, the City generally has a Class 4 ISO rating, which is considered good-adequate for an urban area.

National Fire Protection Association

The National Fire Protection Association (NFPA) is an international non-profit organization which establishes guidelines followed by many fire departments. In 2001, the NFPA adopted NFPA 1710 (Standards for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments), setting forth recommended staffing and deployment standards and minimum criteria for the staffing of fire fighter crews and how they will respond and operate during emergency operations. The purpose of the NFPA standard is to specify the minimum criteria addressing the effectiveness and efficiency of the career public fire suppression operations, emergency medical service, and special operations delivery in protecting the citizens of the jurisdiction and the occupational safety and health of the fire department employees.[11]

As indicated in NFPA 1710, fire departments shall establish the following time objectives: (1) one minute (60 seconds) for turnout time; (2) four minutes (240 seconds) or less for the arrival of the first arriving engine company at a fire suppression incident and/or eight minutes (480 seconds) or less for the deployment of a full first alarm assignment at a fire suppression incident; (3) four minutes (240 seconds) or less for the arrival of a unit with first responder or higher level capability at an emergency medical incident; and (4) eight minutes (480 seconds) or less for the arrival of an advanced life support unit at an emergency medical incident, where this service is provided by the fire department.[12] The fire department's fire suppression resources shall be deployed to provide for the arrival of an engine company within a 4-minute response time and/or the initial full alarm assignment within an 8-minute response time to 90 percent of the incidents.[13] Engine companies shall be staffed with a minimum of four on-duty personnel.[14] This service delivery requirement is intended to have a fire department plan and situate its resources to consistently meet a 4-minute initial company fire suppression response and an 8-minute full alarm fire response assignment. It is recognized that, while on some occasions the initial company response may not be met in the 4-minute requirement, the 8-minute criterion must always be met.[15] The correct number of fully staffed and strategically located fire stations must exist to accomplish these standards.

NFPA 1710 has not been formally adopted by the State Legislature or by the County Board of Supervisors. On June 15, 2004, the City Council adopted a resolution stating that the NFPA 1710 standards was not supported by the City and would be virtually impossible to meet.

[11]/ National Fire Protection Association, NFPA 1710 - Standards for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments, 2001 Edition, Section 1.2.1.

[12]/ *Ibid*., Section 4.1.2.1.1.

[13]/ *Ibid*., Section 5.2.3.1.1.

[14]/ *Ibid*., Section 5.2.2.1.1.

[15]/ *Ibid*., Annex A, Section 4.1.2.1.1(2).

School Facilities

As indicated in the California Commission on Building for the 21st Century "Final Report of the Commission on Building for the 21st Century: Invest for California - Strategic Planning for California's Future Prosperity and Quality of Life," one out of every two Californians live in the Los Angeles Region. Within that region, by 2015, the percentage of children under the age of 18 will grow to levels not seen since the 1970's, thus increasing the demand for new schools, recreation, and child-serving facilities.[16]

As indicated in the "Governor's Environmental Goals and Policy Report" (2003 EGPR), as mandated under AB 857 (amending Section 65041 of the CGC), "the age structure of California's current population is an important component in understanding the future direction and demand on State services and infrastructure, including housing. California's population is growing rapidly at both ends of the age spectrum. Numerically, the largest segment of California' population is under 20 years of age. This trend will continue, straining our schools and related services."[17] The 2003 EGPR noted that the State needs to build seven new classrooms per day for five years to keep pace with the projected K-12 demand.[18] The report concluded: "When school construction lags behind student enrollment, the most popular answers to overcrowding are the use of multi-track, year-round calendars, portable classrooms, and forced busing. Each of these comes with educational, environmental, and health concerns."[19]

Library Services

County libraries are organized under the County Free Library Law (Section 19100 *et seq*., CEC). The County Service Area (CSA) Law allows for the creation of a separate legal entity for library services. Under the Municipal Library Law (Section 18900 *et seq*., CEC), a city council can create a city library system by adopting an ordinance. If 25 percent of the city's voters petition to create a city library, council members must establish a library system. A city cannot withdraw from a county library system to form its own municipal library before giving notice to the county board of supervisors, negotiating a division of property tax revenues, and publishing notice of its intent to withdraw. County library systems are divided into two separate categories for purposes of local operating funds: county general fund libraries (rely primarily on allocations from the county general fund) and county dedicated property tax libraries (impose a separate property tax). Because a substantial portion of their revenues are guaranteed and cannot be spent on other county activities, county dedicated property tax libraries enjoy a greater degree of financial independence and certainty.[20]

The County of Los Angeles Public Library (County Library) is a special fund department under the jurisdiction of the County Board of Supervisors. A 20-member Library Commission acts as an advisory board to the County Library. The County Library is financed primarily by a dedicated share of property tax from the service area, with other revenues including a general

[16]/ California Commission on Building for the 21st Century "Final Report of the Commission on Building for the 21st Century: Invest for California - Strategic Planning for California's Future Prosperity and Quality of Life, February 27, 2002, p. 13.
[17]/ Governor's Office of Planning and Research, Governor's Environmental Goals and Policy Report, November 2003, p. 13.
[18]/ *Ibid*., p. 44.
[19]/ *Ibid.*, p. 45.
[20]/ California State Library, California Public Library Organization, September 2007.

fund contribution, a parcel tax, grants, and fees. Budgeted expenditures are $28.36 per capita for Fiscal Year 2006-2007. Supplemental funds are raised by the Los Angeles County Public Library Foundation. The County Library serves 51 of the 88 cities and most unincorporated areas in the County.

The City is served by the County Library. On October 27, 1998, the County Board of Supervisors approved a "Library Facilities Mitigation Fee Program," establishing a fee structure that fully mitigates the impacts of new residential development projects on library facilities in unincorporated areas served by the Library. As established under Section 22.72.030 (Establishment of Library Facilities Mitigation Fee) of the County Code, the amount of the fee to be imposed on a residential development project is based upon the findings and conclusions of the County Librarian, as set forth in the "Report on Proposed Developer Fee Program for Library Facilities"[21] and shall not exceed the estimated reasonable cost of providing library facilities for such residential development project.

Applicable only to County unincorporated areas, the library facilities mitigation fee is a uniform fee within each library planning area based on the estimated cost of providing the projected library facility needs in each library planning area. As indicated in Section 22.72.030 (Establishment of Library Facilities Mitigation Fee) in Chapter 22.72 (Library Facilities Mitigation Fee) in the County Code, for Planning Area 4 (East San Gabriel Valley), the current library facilities mitigation fee is set at $763 per dwelling unit. As determined by the Library, the payment of the applicable fee "will result in the mitigation of new residential development on the County's ability to provide needed library facilities to serve population increases in the unincorporated areas of the County."[22] The City has neither adopted a corresponding fee program nor established or previously applied a fee assessment for a project's incremental impacts upon County Library services.

The project site is situated within the service area of the Diamond Bar Library (1061 S. Grand Avenue, Diamond Bar). The Diamond Bar Library is 9,935 gross square feet in size and houses a collection consisting of 89,446 books and other library materials.

Parks and Recreational Facilities

As indicated in the Local Agency Formation Commission for Los Angeles County's (LAFCO) "East San Gabriel Valley Municipal Service Review,"[23] there are adequate amounts of regional open space recreational areas in the Municipal Service Region (MSR) area which encompasses the project site.[24] Within the MSR, the County maintains most of the large regional parks in the MSR area including:

- **Schabarum Regional Park (Unincorporated)**. This 640-acre wilderness park, located just south of the City of Industry, is comprised of open space and natural areas and

[21]/ County of Los Angeles Public Library, Report on Proposed Developer Fee Program for Library Facilities, October 1998.

[22]/ Reuben, Sandra F., County Librarian, Board Letter: Developer Fee Program for Library Facilities (All Districts), July 24, 1998, p. 4.

[23]/ Local Agency Formation Commission of Los Angeles County (Burr Consulting), East San Gabriel Valley Municipal Service Review, July 13, 2005.

[24]/ The Municipal Service Review (MSR) area is a built-up urban environment in the San Gabriel watershed below the San Gabriel Mountains. The area had a resident population of 1,015,626 persons and an employment base of 366,727 jobs in 2005. The MSR area includes 13 cities and 16 special districts under LAFCO's jurisdiction, including the City of Diamond Bar.

contains canyons and hills suitable for hiking, biking, and horseback riding. Facilities include an eighteen-station fitness trail, an equestrian center, picnic areas, soccer fields, and playgrounds.

- **Frank G. Bonelli Regional Park (San Dimas)**. This 1,980-acre park has a 250-acre lake for swimming, water skiing, wind surfing, and sailing. The lake is routinely stocked with trout, bluegill, catfish, and largemouth bass. "Raging Waters" (a water theme commercial-recreational facility) is located at the south end of the lake. The park provides boat rentals, hot tubs, an equestrian center, a wedding chapel, recreational vehicle camp sites, trails, play equipment, gazebos, and picnic areas.

- **San Dimas Canyon Nature Center (San Dimas)**. This 125-acre park is located near the Angeles National Forest (ANF or National Forest). This park offers visitors a variety of nature trails traversing over one thousand acres of chaparral and riparian vegetation. Within the nature center there is a natural history museum and a zoo. The park sponsors wildlife fairs that include animal exhibits, crafts, native Indian dance programs, and food booths.

- **Whittier Narrows Recreation Area (Unincorporated)**. This 1,400-acre park provides fishing lakes, picnic areas, playgrounds, equestrian facility, trails, a multi-purpose athletic complex, a military museum, soccer fields, volleyball courts, and archery, skeet, pistol, and trap ranges. The park includes the Whittier Narrows Nature Center which comprises over 200 acres of natural woodland and four lakes.

The Angeles National Forest, which is partly located within the MSR area, is maintained by the United States National Park Service (NPS). The ANF contains about 650,000 acres of open space and accounts for 72 percent of the open space in Los Angeles County. The National Forest provide 557 miles of trails, 66 campgrounds, 36 picnic areas, boating and fishing on three lakes (allowing fishing on two additional lakes), day use at three major recreation areas, four ski areas, managed target shooting areas, five visitor centers, and several off-highway vehicle (OHV) areas, as well as hunting, stream fishing, and sight-seeing opportunities.

In 1983, the National Recreation and Park Association (NRPA) developed guidelines for municipal park space standards. While the NRPA standards were set at 10 acres of park space per 1,000 inhabitants, the NRPA has since determined that it is not possible to set the same standards for all localities. Municipalities must determine their own set of standards, taking into consideration the more general standards set by the NRPA. The NRPA's revised minimum standards (1996) for park acres per 1,000 people, park site size, and service area are presented in Table 4.9-1 (National Recreation and Park Association Minimum Park Standards).[25]

Table 4.9-1
NATIONAL RECREATION AND PARK ASSOCIATION MINIMUM PARK STANDARDS

Type of Facility	Minimum Acres Per 1,000 People	Ideal Site Size	Radius of Area Served
Mini Parks	0.25 acres	0.5 – 1.0 acres	0.25 miles
Neighborhood Parks	1.00 acres	5.0 – 10.0 acres	0.25 – 0.5 miles
Community Parks	5.00 acres	30 – 50 acres	0.5 – 3 miles

Source: Local Agency Formation Commission of Los Angles County (Burr Consulting)

[25]/ *Op. Cit*., East San Gabriel Valley Municipal Service Review, p. 79.

With the exception of the City of Industry, all of the cities within the MSR maintain neighborhood and community parks. All cities with parks meet or exceed the NPRA's minimum neighborhood parks standard of one acre of park space per 1,000 residents. The breakdown of existing park facilities by city is shown in Table 4.9-2 (San Gabriel Valley Municipal Park Acres per 1,000 Residents [2005]).[26] As indicated therein, the City of Diamond Bar provides 2.4 acres of parkland for each 1,000 residents.

Table 4.9-2
MUNICIPAL PARK ACRES PER 1,000 RESIDENTS (2005)

City	Total Park Acres	Park Acreage per 1,000 Population	Population Density
Azusa	68	1.4	4,921
Baldwin Park	200	2.4	10,339
Claremont	1,610	43.9	2,944
Covina	76	1.5	7,911
Diamond Bar	143	2.4	3,533
Glendora	1,610	29.8	2,861
Industry	0	0.0	5,221
La Puente	62	1.4	9,914
La Verne	141	4.9	3,637
Pomona	205	1.3	6,500
San Dimas	2,437	61.6	2,447
Walnut	95	2.9	3,074
West Covina	180	1.6	6,129
Total MSR Area	6,587	6.8	2.074

Source: Local Agency Formation Commission of Los Angeles County (Burr Consulting)

All of the MSR cities (except the City of Industry) provide a recreation center or some sort of recreational facility. Recreational programs available at these facilities include youth, family, and senior activities. Eleven of the thirteen cities operate a senior center. Additional recreational facilities include skate parks, municipal pools, fitness centers, sport fields, and playgrounds.

For most of the cities, park maintenance services are directly provided. The City of Diamond Bar provides services directly and contracts with private providers for some services.

4.9.1.3 Local Setting

Los Angeles County Sheriff's Department

Operating under specified contract provisions, the City contracts with the LACSD for law enforcement services. The project site is located within the patrol area of Walnut/Diamond Bar Sheriff's Station (21695 East Valley Boulevard, Walnut) and the Diamond Bar Community Service Center Substation (321345 Cold Springs Lane, Diamond Bar). Total reported incidents, as reported by the LACSD for the Walnut/Diamond Bar Station for calendar year 2007 are presented in Table 4.9-4 (Walnut/Diamond Bar Station Crime and Arrest Statistics [2007]).[27] As

[26]/ *Ibid*.
[27]/ In contrast to the California Department of Justice which bases its statistics on the number of reported crimes per 100,000 residents, the LACSD's rate is based on the number of reported crimes per 10,000 residents.

reported by the LACSD, the number of reported incidents at the Walnut/Diamond Bar Station dropped over the prior reporting period in most categories, with the exception of burglaries, grand theft auto, and arson.

The LACSD's recommended officer to population ratio is one deputy per each 1,000 residents. Based on an existing staffing level of 137 deputies at the Walnut/Diamond Bar Sheriff's Station[28] and the population level specified in Table 4.9-3 (Walnut/Diamond Bar Station Crime and Arrest Statistics [2007]),[29] the officer to population ratio (137:148,266) equates to about one deputy per each 1,082 residents. Current deputized staffing levels are, therefore, slightly less than that recommended by the LACSD. The identified officer-to-population ratio does not specifically consider the relationship between added population and the number of non-sworn and other administrative personnel, equipment needs, and/or facility requirements.

Los Angeles County Fire Department

Los Angeles County Fire Station 119 (Engine 119, Squad 119) (20480 E. Pathfinder Road, Walnut), located approximately one-mile from the subject property, is the jurisdictional engine company and would provide first response to the project site. Fire Station 119 is presently staffed with a 3-person engine company and a 2-person paramedic squad. The second closet fire station is Fire Station 145 – Battalion Headquarters (1525 S. Nogales Avenue, Rowland Heights). Fire Station 145 is presently staffed with a 3-person engine company and a 2-person emergency support team that provides manpower augmentation in major incidents.

The estimated distance and approximate response times between existing County fire stations and 3300 Diamond Bar Boulevard, located near the intersection of Diamond Bar Boulevard and Brea Canyon Road, are presented in Table 4.9-4 (Existing County Fire Stations Located Near the Project Site). Statistical information for the jurisdiction engine company (Station 119) is presented in Table 4.9-5 (Fire Station 119 Statistical Summary [2007]).

The LACFD has not established a formal standard for emergency response but has set a goal of a 5-minute response in urban areas. The State's Emergency Medical Services Authority (EMSA) has, however, formulated standards and guidelines for the purpose of guiding local emergency medical service (EMS) agencies in the planning, organization, management, and evaluation of local EMS systems.[30] The LACFD strives to maintain the EMSA standards for EMS.[31] For Fiscal Year 2002-2003, the Countywide median response times were 4.5 minutes for "urban" areas, 5.6 minutes for "Suburban" areas, and 7.3 minutes for "Rural" areas.

[28]/ *Op. Cit*., County of Los Angeles All-Hazard Mitigation Plan, Section 3A, p. 100.

[29]/ Los Angeles County Sheriff's Department, 2008 Crime and Arrest Statistics, 2007.

[30]/ California Emergency Medical Services Authority, EMS System Standards and Guidelines, EMSA #101, June 1993, Section 4.05, p. 26.

[31]/ The EMSA's guidelines regarding "response/transportation" state: "Emergency medical service areas (response zones) shall be designated so that, for ninety percent of emergency responses: (a) the response time for a basic life support and CPR capable first responder does not exceed: Metro/Urban – 5 minutes, Suburban/Rural – 15 minutes, Wilderness – as quickly as possible; (b) the response time for an early defibrillation-capable responder does not exceed: Metro/urban – 5 minutes, Suburban/Rural – as quickly as possible, Wilderness – as quickly as possible; (c) the response time for an advanced life support capable responder (not functioning as the first responder) does not exceed: Metro/Urban – 8 minutes, Suburban/rural – 20 minutes, Wilderness – as quickly as possible; (d) the response time for an EMS transportation unit (not functioning as the first responder) does not exceed: Metro/Urban – 8 minutes, Suburban/Rural – 20 minutes, Wilderness – as quickly as possible" (Source: California Emergency Medical Services Authority, EMS System Standards and Guidelines, EMSA #101, June 1993, Section 4.05, p. 23).

Table 4.9-3
WALNUT/DIAMOND BAR STATION CRIME AND ARREST STATISTICS (2007)

Total Reported Incidents	Calendar Year 2006	Calendar Year 2007	Percent Change	Crime Rate Per 10,000 Population	
				2006	2007
Total Reported Incidents	9,525	8,334	-13	-	-
Part I Crimes[1]	3,093	2,888	-3	208.66	198.36
Criminal Homicide	3	9	200	0.20	0.60
Forcible Rape	14	14	0	0.94	0.93
Robbery	170	174	2	11.47	11.51
Aggravated Assault	149	199	34	10.05	13.16
Burglary	806	862	7	54.38	57.01
Larceny Theft	1,566	1,416	-10	105.65	93.65
Grand Theft Auto	368	309	-16	24.83	20.44
Arson	17	16	-6	1.15	1.06
Part II Crimes[1]	2,453	2,278	-7	165.49	150.66
Non-Criminal Incidents	3,979	3,057	-23	-	-
Total Arrests	1,632	2,042	25	-	-
Adult Arrests	1,416	1,740	23	-	-
Juvenile Arrests	216	302	40	-	-
	Area in Square Miles 2007	**Population 2007**	**Crime Rate Per 10,000 Population Part 1 Crimes**		**Percent Change**
			2006	**2007**	
Total Area	45.1	151,206	208.66	198.36	-5
Unincorporated	21.4	58,457	232.55	203.57	-12
City of Diamond Bar	14.6	60,353	189.82	198.53	5
City of Walnut	9.0	32,406	202.12	188.55	-7

Notes:
1. Part I offenses are used by law enforcement agencies throughout the United States to reveal the extent and trend in criminal activity. Any significant change from the anticipated pattern of the figures alerts law enforcement administrators to possible problem areas. Part I offenses include criminal homicide, forcible rape, robbery, aggravated assault, burglary, larceny theft, grant theft auto, and arson. In addition, statistics regarding Part II crimes (e.g., forgery, fraud and not-sufficient-funds checks, sex offenses, non-aggravated assaults, weapon laws, offenses against family, narcotics, liquor laws, drunk/alcohol/drugs, disorderly conduct, vagrancy, gambling, drunk driving, vehicle laws, vandalism, receiving stolen property, federal offenses without money, federal offenses with money, miscellaneous felonies and misdemeanors) and other non-criminal incidents (e.g., persons missing, non-criminal juvenile, non-criminal miscellaneous, suicides and attempts, mentally ill, traffic accidents, miscellaneous accidents, deaths) are reported.

Source: Los Angeles County Sheriff's Department

Table 4.9-4
EXISTING COUNTY FIRE STATIONS LOCATED NEAR THE PROJECT SITE

County Fire Station	Approximate Distance to Site[1] (miles)	Approximate Response Time[1] (minutes)	Station Type[2]	Size[3] (square feet)
Station 119 20480 E. Pathfinder Road Walnut, California 91789	1.08	4[4]	Engine 119 Squad 119	3,865
Station 145 (Battalion Headquarters) 1525 S. Nogales Avenue Rowland Heights, California 91748	3.25	7	Engine 145 EST 145	5,134
Station 120 (Battalion Headquarters) 1051 S. Grand Avenue Diamond Bar, California 91765	4.23	7[5]	Engine 120 Patrol 120	5,665
Station 61 20011 La Puente Road Walnut, California 91789	4.95	10[6]	Engine 61 Squad 61	4,200
Station 121 346 Armitos Place Diamond Bar, California 91765	6.04	10	Engine 121	4,000
Station 146 20604 E. Loyalton Driive Walnut, California 91789	6.77	11	Engine 146	1,643
Station 187 3325 Temple Avenue Pomona, California 91768	7.04	11	Quint 187	5,460

Notes:
1. Time and distance to 3300 Diamond Bar Boulevard, as per Map Quest driving time and distance searches. Two (2) minutes has been added to the Map Quest time estimate for responders to ready and leave the station. Response time is based on normal driving without Code 3 emergency (lights and sirens) situation. Code 3 would quicken response times (see Note 4 below).
2. A quint is a fire department emergency vehicle with a permanently mounted fire pump, a water tank, a hose storage area, an aerial device with a permanently mounted waterway, and a complement of ground ladders. Fire companies whose primary functions are to pump and deliver water and perform basic fire fighting at fires, including search and rescue, are known as engine companies. An EST (Emergency Support Team) is a 2-person unit that provides first-alarm firefighting support to a specific area.
3. County of Los Angeles, County of Los Angeles All-Hazard Mitigation Plan, June 2005. Version 1.1, Section 3, pp. 286-300.
4. Personal Communication with Battalion Chief James Gandee (confirmation of distance and driving time). Code 3 response time from FS 119 to the site would be 1 to 2 minutes.
5. Personal Communication with Captain Castillejo (confirmation of distance and driving time).
6. Personal Communication with Captain Meddles (confirmation of distance and driving time).

Source: Environmental Impact Sciences

Table 4.9-5
FIRE STATION 119 STATISTICAL SUMMARY (2007)

Unit	Totals	Fires	EMS	Hazard Material	Service	False	Other
Station 119	1,147	31	802	20	34	154	106
Engine 119	1,490	104	834	35	54	230	233
Squad 119	2,794	39	2,227	30	39	281	178

Source: Los Angeles County Fire Department, Debra A. Aguirre, Chief, Planning Division, May 2008.

Although not specific to the proposed project, in response to other development proposals within the City, the LACFD has previously noted: "Fire protection serving the area appears to be adequate for the existing development/land use; however, each additional development creates greater demands on existing resources. Consequently, the impact that this project will have on the adequacy of the Fire Department's level of services remains uncertain."[32]

Walnut Valley Unified School District

The project site is located within the boundaries of the Walnut Valley Unified School District (WVUSD). The current (2008) enrollment in the WVUSD is about 15,500 students.[33] In 2006, the WVUSD's Board of Directors adopted the findings presented in the 2006 "Justification Report for the Walnut Valley Unified School District – This Study Established the Justification for the Imposition of Developer Fees Pursuant to Applicable Law as of March 2006."[34] As indicated therein, based on an analysis of actual costs, the WVUSD is justified in imposing a fee of $11.43 per square foot for residential development.

The WVUSD operates nine elementary, three middle, and three high schools. Public school students residing in the general project area would likely attend those schools listed in Table 4.9-6 (Capacity and Enrollment at Existing Public Schools in the General Project Area). Of those schools, Castle Rock Elementary is closest elementary school, South Pointe Middle School is the nearest middle school, and Diamond Bar High School is the closest high school to the project site. Of the schools listed, with the exception of Diamond Bar High School, all schools are currently operating (2007-2008) and are projected to continue to operate (2009-2010) at less their maximum design capacity (i.e., readily able to accept more students).

As authorized under Section 39800(a) of the CEC, the governing board of any school district may provide for the transportation of pupils to and from school when, in the board's judgment, the transportation is advisable and good reasons exist. The WVUSD provides bus transportation for students on a fee basis in accordance with the applicable provisions of the CEC.

[32]/ Correspondence from David R. Leininger, Chief, Forestry Division, County of Los Angeles Fire Department to Nancy Fong, Interim Community Development Director, City of Diamond Bar (Re: Notice of Preparation, South Pointe West, General Plan Amendment #2005-01/Specific Plan #2005-01/Vesting TTM 3063623/Tree Permit #2005-06/CUP #2005-05/Development Review #2005-06 Development Agreement #2005-01/Lot Line Adjustment 2005-003 [Diamond Bar], FFER #200600005), dated May 15, 2006.

[33]/ Walnut Valley School District website (http://www.walnutvalley.k12.ca.us/about.asp).

[34]/ Calwell Flores Winters, Inc., Justification Report for the Walnut Valley Unified School District – This Study Established the Justification for the Imposition of Developer Fees Pursuant to Applicable Law as of March 2006, March 2006.

Table 4.9-6
CAPACITY AND ENROLLMENT AT EXISTING PUBLIC SCHOOLS IN THE GENERAL PROJECT AREA

School	Grades	Design Capacity	Portables	2007-2008		2009-2010	
				Current Enrollment	Available Capacity	Projected Enrollment	Available Capacity
Castle Rock Elementary School 2975 Castle Rock Road Diamond Bar 91765	K-5	790	18	547	243	459	331
Evergreen Elementary School 2450 Evergreen Springs Diamond Bar 91765	K-5	780	18	663	117	593	187
South Pointe Middle School 20671 Larkstone Drive Diamond Bar 91765	6-8	1,213	0	1,151	62	1,165	48
Diamond Bar High School 21400 Pathfinder Road Diamond Bar 91765	9-12	3,210	4	3,259	0	3,300	0

Source: Jack LeBrun, Assistant Superintendent, Walnut Valley Unified School District, May 27, 2008

County of Los Angeles Public Library

The County Library's current service level guidelines for planning purposes area a minimum of 0.50 gross square feet of library facility space per capita and 2.75 items (books and other library materials) per capita. Based on its service area population of 56,233 persons, the Diamond Bar Library does not currently meet County Library guidelines in providing library services to the residents it serves.

City of Diamond Bar Parks Department

The City operates and maintains nine parks, five recreational trails, and a number of other recreations facilities. The more than 160 acres of developed parklands include playgrounds, barbeque areas, athletic field, a skate park, and meeting rooms. Admission to parks is free and open to the public everyday from one-half hour before sunrise until one-half hour after sunset (until 10:00 PM for the lighted facilities). The closes parks to the project site include Heritage Park (2900 S. Brea Canyon Road, Diamond Bar), and Ronald Regan Park (2201 S. Peaceful Hills Road, Diamond Bar). Located within 3.4-acre Heritage Park are barbeques and picnic tables, a lighted baseball field, an unlighted basketball court, meeting facilities, restrooms, and a tot lot on about 3.4 acres. Located within 6-acre Ronald Regan Park are barbeques and picnic tables, a lighted basketball court, tennis courts, a tot lot, and restrooms.

The project site is also located close to the Tonner Canyon open space area. Tonner Canyon is comprised of 5,700 acre of undeveloped canyon area that extends in a crescent shape from the SR-60 Freeway on the north to the SR-57 Freeway on the south near Brea in Orange County. The land is within the Sphere of Influence of the Cities of Diamond Bar and Brea and is located at the juncture of the Counties of Los Angeles, San Bernardino, and Orange.

4.9.2 Threshold of Significance Criteria

Presented herein is the threshold of significance criteria identified by the Lead Agency relative to this topical issue. Each of the environmental effects identified herein has been evaluated relative to these criteria to determine whether that impact, prior to the imposition of any mitigation measures, exceeds the identified threshold. In accordance therewith, the proposed project would normally be deemed to produce a significant or potentially significant public services impact if the project or if project-related activities were to:

- Expose people or structures to a significant[35] risk of loss, injury, or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands.[36]
- Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the following public services: fire protection, police protection, schools, parks, and/or other public facilities.[37]
- Increase the use of existing neighborhood parks, regional parks, or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated.[38]

The Lead Agency has not identified other applicable or potentially applicable standards that can appropriately be extracted from other related policy or environmental documents and used as the basis for assessing the potential significance of project-related and cumulative public service impacts.

4.9.3 Impact Analysis

4.9.3.1 Construction Impacts

Public Services Impact 9-1*. During construction, heavy equipment, materials, and other items of value will be brought to the project site. As buildings are erected, prior to site occupancy, structures may remain unsecured and susceptible to unauthorized entry. The presence of an unsecured site and items of value could result in theft and vandalism that could increase demands upon law enforcement agencies.*

Level of Significance before Mitigation*. Less-than-significant impact.*

Since the project site is presently vacant and since no public use is authorized thereupon, the property presently places little, if any, demand upon existing police protection services. An increased demand for police service will, however, occur during the construction phases. Such services include consultation during plan check, routine surveillance of the construction site by regular patrol units, potential investigations of theft of construction equipment and materials, and

[35]/ Certain terms, such as "significant" and "substantial adverse effect" and "substantial," are neither defined in CEQA nor in the State CEQA Guidelines and require a local determination whether a proposed action would meet or exceed the stated standard.

[36]/ *Op. Cit*., State CEQA Guidelines, Appendix G, Section VII (Hazards and Hazardous Materials).

[37]/ *Ibid*., Section XIII (Public Services).

[38]/ *Ibid*., Section XIV (Recreation).

enforcement of local speed limits and haul vehicle coverage requirements. If construction activities result in the discharge of dirt or other debris along local roadways, drivers causing that discharge can be cited. Provision of such services would not require construction of any new LACSD or CHP facilities or necessitate the physical alteration of any existing facilities.

No significant impacts to police protection services or facilities would occur during project construction. A number of project conditions (Condition of Approval 9-1 and Condition of Approval 9-2) have, however, been formulated to minimize the potential for criminal incidents during project construction, minimize short-term demands on LACSD resources, and to ensure that the LACSD has the opportunity to review final development plans prior to the City's approval in order to reduce potential operational demands upon police services. Since none of the threshold criteria would be exceeded, the identified impact would be less than significant and no further mitigation is recommended or required.

Public Services Impact 9-2*. Project implementation will result in the introduction of equipment, materials, and manpower into a County-designated fire hazard area prior to the provision of water system improvements designated to respond to on-site and near-site fire hazards.*

Level of Significance before Mitigation*. Less-than-significant impact.*

LACFD response times to the project site presently conform to the County's overall goal of five minutes or less for urban areas. Response times to the project site from Fire Station 119 are within the NFPA 1710 standard for first engine company arrival (within a 4-minute response time) and the initial full alarm assignment (within an 8-minute response time).

Grubbing, grading, and construction activities would introduce a number of elements and activities that represent potential fire hazards and that could increase the likelihood of wildland fires affecting on-site and near-site areas. Sparks from vehicle and equipment exhaust and welding torches could ignite vegetation or flammable construction materials located in proximity to those construction activities. Fuels, paints, lubricants, sealants, and other flammable or hazardous materials would be stored, in limited quantities, on the project site (in compliance with regulatory federal, State, and local standards). Vehicle parking, equipment staging, and equipment service areas could contribute to existing fire hazards due to potential ignition from equipment and vehicle exhausts, the potential leakage or accidental spillage of oil, gasoline, or other petroleum products during fueling and maintenance operations, and the impedance to emergency access. Smoking by workers could also result in the accidental ignition of brush.

While in-tract and near-site fire hazards would be likely to temporarily increase, fire suppression-related infrastructure and emergency response capabilities will remain at pre-project levels during the initial construction period. During that time period, available water resources would be limited to those that are brought to the project site by the Applicant, by the LACFD or obtained from off-site County-maintained fire hydrants.

In recognition of existing fire hazards and the presence of near-site housing units and vegetation, a project condition (Condition of Approval 9-3) has been formulating recommending that the Applicant submit a fire protection program and workplace standards for fire safety to the LACFD for that agency's review and comment.

The LACFD typically specifies that: (1) all required fire hydrants shall be installed, tested, and accepted by the LACFD prior to the commencement of building construction activities; (2) adequate fire flow capacity shall be available to all properties, at a volume and duration

consistent with the type, scale, and use of the facility being served; (3) fire hydrants shall be installed and charged prior to the delivery of any substantial quantity of flammable materials onto the project site; and (4) vehicular access shall be provided and maintained serviceable throughout the construction period to all required fire hydrants. The proposed project must also fully comply with all applicable provisions of the UBC, Fire Code, and other applicable provisions of the Municipal Code and the County Code which have been established to address fire protection and public safety.

Based on their application to other projects within the City, it can be reasonably assumed that a number of LACFD conditions will be imposed on the proposed development. Although not directly incorporated as conditions of approval herein, through their incorporation under the existing permit process, project-related conditions will likely include the following:

- The proposed development will be required to incorporate multiple points of ingress and egress.
- Project development shall comply with all applicable code and ordinance requirements for construction, access, water mains, fire flows, and fire hydrants.
- Specific fire and life safety requirements for the construction phase will be addressed at the building fire plan check.
- Every building constructed shall be accessible to LACFD apparatus by way of access roadways, with an all-weather surface of not less than the prescribed width. The roadway shall be extended to within 150 feet of all portions of the exterior walls when measured by an unobstructed route around the exterior of the building.
- Access roads shall be maintained with a minimum of ten feet of brush clearance on each side. Fire access roads shall have an unobstructed vertical clearance clear-to-sky with the exception of protected tree species. Protected tree species overhanging fire access roads shall be maintained to provide a vertical clearance of 13 feet, 6 inches.
- LACFD requirements for access, fire flow, and hydrants will be addressed during the subdivision tentative map stage.
- Fire sprinkler systems are required in some residential and most commercial occupancies and are recommended for those occupancies where fire sprinkler systems are not required.
- For commercial development, fire flows up to 5,000 gpm at 20 psi residual pressure for up to a 5-hour duration may be required. Final fire flows will be based on the size of the buildings, their relationship to other structures, property lines, and types of construction used.
- Fire hydrant spacing shall be 300 feet and shall meet the following requirements: (1) No portion of lot frontage shall be more than 200 feet via vehicular access from a public fire hydrant; (2) No portion of a building shall exceed 400 feet via vehicular access from a properly spaced fire hydrant; (3) When cul-de-sac depth exceeds 200 feet, hydrants will be required at the corner and mid block; and (4) Additional hydrants will be required if the hydrant spacing exceeds specified distances.
- Turning radii shall not be less than 32 feet. This measurement shall be determined at the centerline of the road. A LACFD-approved turning area shall be provided for all driveways exceeding 150 feet in length and at the end of all cul-de-sacs.
- All on-site driveways shall provide a minimum unobstructed width of 28 feet, clear-to-sky. The 28-foot minimum width does not allow for parking and shall be designated as a "fire lane" and have appropriate signage. The 28-foot width shall be increased to: (1) 34 feet in width when parallel parking is allowed on one side of the access way; and (2) 36 feet in width when parallel parking is allowed on both sides of the access way. Any

access way less than 34 feet in width shall be labeled "fire lane" on the final recording map and final building plans. For streets or driveways with parking restrictions: (1) The entrance to the street/driveway and intermittent spacing distances of 150 feet shall be posted with LACFD-approved signs stating "no parking – fire lane" in three-inch high letters; and (2) Driveway labeling is necessary to ensure access for LACFD use.

- When serving land zoned for residential use having a density of more than four units per net acre: (1) A cul-de-sac shall be a minimum of 34 feet in width and shall not be more than 700 feet in length; (2) The length of the cul-de-sac may be increased to 1,000 feet if a minimum of 36 feet in width is provided; and (3) A LACFD-approved turning area shall be provided at the end of a cul-de-sac.
- All access devices and gates shall meet the following requirements: (1) Any single gated opening used for ingress and egress shall be a minimum of 26 feet in width, clear-to-sky; (2) Any divided gate opening (when each gate is used for a single direction of travel (i.e., ingress or egress) shall be a minimum width of 20 feet clear-to-sky; (3) Gates and/or control devices shall be positioned a minimum of 50 feet from a public right-of-way and shall be provided with a turnaround having a minimum of 32 feet of turning radius (if an intercom system is used, the 50 feet shall be measured from the right-of-way to the intercom control device); (4) All limited access devices shall be a type approved by the LACFD; and (5) Gate plans shall be submitted to the LACFD prior to installation and shall show all locations, widths, and details of the proposed gates.
- All proposals for traffic calming measures shall be submitted to the LACFD for review, prior to implementation.

In accordance with the LACFD's "Fuel Modification Plan Guidelines for Projects Located in Fire Zone 4 or Very High Fire Hazard Severity Zones," in response to identified fire-related hazards, the proposed project is required to include, and submit for LACFD review, fuel modification, landscape, and irrigation plans and brush clearance activities in those areas adjacent to the proposed dwelling units.[39] A standard condition (Condition of Approval 9-4) has been formulated requiring the Applicant's submittal and the LACFD's approval of fuel modification, landscape plans prior to the issuance of a grading permit.

Prior to the commencement of any construction activities on the project site, the LACFD must formally review those plans and the project's final development plans to evaluate and ensure the adequacy of existing and proposed water supply, the location of fire hydrants, access requirements, brush clearance and fuel modification plans, and related fire protection considerations. The purpose of the plan check process is not only to ensure compliance with minimum LACFD standards and applicable Municipal Code, County Code, and Fire Code requirements but to also identify other possible actions that can be taken, either by the Applicant or by others, to minimize identified hazards and to effectuate an appropriate emergency response. Plan check services can be adequately provided by existing LACFD staff and performed at available County facilities. Although LACFD plan check review will occur in accordance with established City and County procedures, a project condition (Condition of Approval 9-5) has been formulated requiring LACFD approval of the project's final development plans.

Since none of the threshold criteria would be exceeded, the identified impact would be less than significant and no further mitigation is recommended or required.

[39]/ *Op. Cit.*, Brush Clearance Section, Fuel Modification Plan Guidelines for Projects Located in Fire Zone 4 or Very High Fire Hazard Severity Zones, January 1998.

Public Services Impact 9-3*. The public school located closest to the project site is Castle Rock Elementary School (2975 Castle Rock Road). Construction activities could constitute an attractive nuisance to children located near or passing by the project site and construction traffic could impose a safety hazard to children and/or become disruptive to school activities and operations.*

Level of Significance before Mitigation*. Less-than-significant impact.*

The work force required for the project's construction is assumed to already exist within the general project area. No substantial in-migration of workers is anticipated to complete those construction activities. As a result, no substantial project-related increase in the regional labor force will occur during the construction phase. Since no substantial increase in the number of new households within the general project area is anticipated in order to accommodate the project's construction workers, no direct impacts on either WVUSD facilities are predicted during the construction phase.

Construction traffic accessing the site from Cold Springs Road will cross Castle Rock Road in the vicinity of Castle Rock Elementary School. Construction vehicles will transport equipment, building materials, and construction debris along streets adjacent to established residential areas, including the school. As indicated in Section 4.6 (Transportation and Circulation), in order to best ensure the safety of pedestrians and residences and enhance the protection of children residing in existing residential areas, two project conditions (Condition of Approval 6-2 and Condition of Approval 6-3) have been formulated restricting construction traffic along Castle Rock Road and Pasado Drive and requiring the preparation of a construction traffic safety plan.

Construction activities may present an attractive nuisance, defined as any condition which is unsafe or unprotected and, thereby, dangerous to children and which may reasonably be expected to attract children to the property and risk injury by playing with, in, or on it. In order to minimize the creation of an attractive nuisance, a project condition (Condition of Approval 9-6) has been formulated requiring the fencing and signage of the construction site. Fencing and increased law enforcement surveillance will also serve to deter criminal acts, such as graffiti, theft, and property vandalism. Implementation of the recommended project conditions will reduce construction-term impacts to a less-than-significant level.

4.9.3.2 Operational Impacts

Public Services Impact 9-4*. With a resident population of approximately 662 persons and an existing LACSD staffing ratio of one sworn officer for each 1,082 residents, in order to maintain existing staffing levels, the LACSD would need an additional 0.61 sworn deputies.*

Level of Significance before Mitigation*. Less-than-significant impact.*

Actual LACSD personnel needs would be determined over time, based on that department's experience with the project's residential and commercial components, areawide incident trends, and other factors, and not derived purely through a projection of the number of on-site residents. To some regard, new residential and non-residential projects incrementally contribute to existing demands on LACSD resources.

Assuming that the annual crime rate per 10,000 residents, as reported in Table 4.9-4 (Walnut/ Diamond Bar Station Crime and Arrest Statistics [2007]), can be universally applied to any new

residential development, the project's estimated 662 residents would translate into about 13.6 Part I and 10.0 Part II criminal incidents per year. Because these estimates are solely population derived and do not include considerations associated with commercial uses or other area-specific factors, those projections do not address the potential for criminal occurrence, emergency response needs, and other reported incidents that might be directly associated with the proposed project, including both the residential and commercial uses.

There presently exists no direct mechanism to equate crime propensity to local land-use decisions. Neither the LACSD nor the CHP have established a functional mechanism for the County to collect LACSD impact fees or for the State to collect CHP impact fees generally in proportion to the impacts generated by new residential and non-residential development. As such, there is no formal basis to quantify project-related law enforcement impacts, no established nexus allowing for the collection of developer impact fees for police protection services, and no direct linkage between approved development and the expansion of police resources, the purchase and new or the replacement of existing equipment, and the hiring of new sworn and non-sworn personnel. Similarly, it is impractical for all development projects to either dedicate real property for new LACSD facilities (since facility siting must occur on an areawide basis and subject to specific criteria) or to add dedicated, private security personnel.

Funding for LACSD personnel, equipment, and facilities is typically derived through ad valorum taxation and based on yearly allocations by the County Board of Supervisor that occur through the County's annual budget process. Increased property valuation provides a mechanism whereby the County, at its discretion, has the ability to augment existing LACSD resources to accommodate reasonably anticipated County and local law enforcement demands.

One factor that could potentially affect the number of service calls is the configuration of both the project itself, each individual dwelling unit's design within the neighborhood, as well as the configuration of the project's commercial structures. Homes with reduced surveillance opportunities or where there may exist opportunities for concealment, might have an increased propensity to be targeted by a criminal element. Areas with limited opportunities for surveillance might, therefore, become locations with increased potential for crime over other locations with increased visibility.

Oscar Newman, in "Defensible Space – Crime Prevention through Urban Design," noted that "[i]mprovements in surveillance capacity – the ability to observe the public areas of one's residential environment and to feel continually that one is under observation by other residents while on the grounds of projects and within the public areas of building interiors – can have a pronounced effect in securing the environment for peaceful activities."[40]

For the security and safety of residents, the LACSD routinely identifies crime prevention measures that could be implemented during site and building layout design. Those measures include, but may not be limited to: (1) provide lighting in open areas and parking lots; (2) ensure the visibility of doors and windows from the street and between buildings; and (3) ensure that the required building address numbers are lighted and readily apparent from the street for emergency response agencies. Although no significant operational impacts have been identified, a project condition (Condition of Approval 9-2) has been formulated providing the LACSD, prior to the issuance of building permits, the opportunity to review the project's development plans in order to reduce the potential demand upon police services.

[40]/ Newman, Oscar, Defensible Space – Crime Prevention through Urban Design, 1973, p. 78.

Additional project-induced traffic on the area's major arterial highways will incrementally increase service demands on LACSD and CHP personnel. In the context of overall traffic volumes, the project's potential contribution to traffic is expected to be relatively minor. Since project-related demands on the LACSD and CHP would be expected to be reasonably proportional to the project size and nature of the proposed use, operational impacts upon the LACSD and CHP are projected to be minimal.

Since none of the threshold of significance criteria would be exceeded, the identified impact would be less than significant and no further mitigation is recommended or required.

Public Services Impact 9-5*. The introduction of 202 new residential dwellings and 153,985 square feet of new commercial use will increase existing demands on LACFD facilities, equipment, and personnel, predicating an incremental need for facility expansion, the purchase of new and/or replacement equipment, and contributing to the need for addition LACFD personnel.*

Level of Significance before Mitigation*. Less-than-significant impact.*

Water service to the project site will be provided by the Walnut Valley Water District (WVWD), via existing water mains. With regards to single-family dwellings located in a VHFHSZ (Fire Zone 4), the LACFD requires a minimum fire flow of 1,250 gpm at 20 psi for a two-hour duration. existing water mains are capable of delivering those minimum flows to the project site. On-site improvements to the existing water supply and street system are proposed and will be required in order to ensure that the distance from proposed structures to a fire hydrant does not exceed 450 feet via vehicular access and that the proposed construction will be within 150 feet of a vehicular access roadway that is a minimum of 20 feet wide, paved with concrete or asphalt and not exceeding 15 percent grade.

With regards to commercial projects, the LACFD stipulates that the minimum fire flow and fire hydrant requirements shall be determined by the fire chief or fire marshal.[41] The computation of the available fire flow is based upon a minimum of 20 pounds per square in gauge (psig) residual operating pressure remaining in the street main from which the fire flow is being measured at the time of measurement of the fire flow. The fire chief or fire marshal may adjust the quantities set forth in the LACFD's regulations on the basis of local conditions, exposure, congestion, and construction of buildings.

Where buildings are constructed of fire-resistive materials (such as concrete or brick) and/or are provided with automatic fire-sprinkler systems, fire flows requirements may be reduced. All such reductions shall be predicated on recognized standards and recommendations of the public fire protection grading and rating agencies providing that service.

Required fire flows up to and including 2,000 gpm must be available from any accessible single public street hydrant within the required distance of the proposed structure. Where required fire flows exceed 2,000 gpm, the total required fire flow must be available from no more than the two closest public street fire hydrants to the proposed structure. If fire flow in excess of 5,000 gpm is required, approval is first required by the water appeals board.

[41]/ Section 20.16.060 (Minimum Fire Flow and Fire Hydrant Requirements), County Code.

Because of its location, the proposed project is not subject to compliance with the payment provisions of the Consolidated Fire Protection Districts developer fee program.[42] As such, other than through the improvement of the existing water delivery system, the project will not make any direct contribution to the LACFD. The project's satisfaction of design and development standards imposed by the LACFD will, however, ensure that the project does not adversely affect LACFD resources.

During the plan check process, the LACFD will review proposed development plans to ensure compliance with applicable Fire Code requirements, including fire flow requirements and building separation distances, and will impose any specific conditions as may be required to ensure compliance therewith. Although not specifically required based on current procedures, a project condition (Condition of Approval 9-5) has, nonetheless been formulated in order to ensure the LACFD's review of the project's proposed water supply and access improvement plans and the project's compliance with applicable LACFD standards.

Since none of the threshold criteria would be exceeded, the identified impact would be less than significant and no further mitigation is recommended or required.

Public Services Impact 9-6*. Project implementation will increase enrollment within the Walnut Valley Unified School District by an estimated 31 new students, including approximately 11 new elementary school students (Grades K-6), 8 new junior high school students (Grades 7-9), and 12 new high school students (Grades 9-12).*

Level of Significance before Mitigation*. Less-than-significant impact.*

As indicated in Table 4.9-7 (Capacity and Enrollment at Existing Public Schools in the General Project Area), for the 2009-2010 school year, Castle Rock Elementary, Evergreen Elementary Schools, and South Pointe Middle School have the available capacity to accommodate 103, 117, and 62 additional students, respectively. Although no available capacity has been identified at Diamond Bar High School (a shortfall of 80 students is projected), any excess pupil enrollment at that facility will be temporarily housed in leased portable classrooms (in space made available by reducing existing programs and in space reconstructed on existing sites) until more permanent measures can be taken.

Overall WVUSD student enrollment is projected to decrease from 15,485 students in 2008 to an estimated 15,414 students in 2011 (a decrease of 71 students).

With regards to the proposed project, the WVUSD reports that, although there is projected capacity in the District's existing schools to accommodate the school-aged children expected to be generated from the proposed residential development, the District will still require the payment of developer fees which will be used for minor new construction and modernization

[42]/ Funding of fire protection and emergency medical services is through a portion of the ad valorem tax and special tax assessment of property owners. In addition, developer mitigation fees finance the construction of new facilities. On July 12, 1990, the County adopted a developer fee program for the benefit of the Consolidated Fire Protection District of Los Angeles County (CFPD), which included the following three designed areas of benefit: Area of Benefit 1 (Malibu/Santa Monica Mountains), Area of Benefit 2 (Santa Clarita Valley), and Area of Benefit 3 (Antelope Valley). The fee program was established to fund the acquisition, construction, improvement, and equipping of fire stations in the high-growth, urban-expansion areas of the District. On August 28, 2001, the Board authorized the CFPD to approve agreements with developers within those areas for acceptance of in-kind contributions for impact mitigation.

projects to meet the needs of the District's existing students and the students to be generated from the proposed development.

As indicated in the WVUSD's "Justification Report for the Walnut Valley Unified School District,"[43] the WVUSD has determined that, on average: (1) each new single-family dwelling unit constructed within the District's boundaries will generate 0.768 new students; (2) each new multi-family dwelling unit constructed within the District's boundaries will generate 0.152 new students; and (3) each new apartment constructed within the District's boundaries will generate 0.120 new students. Under the multi-family category, each new dwelling unit would generate 0.053 new Grade K-5 students, 0.039 Grade 6-8 students, and 0.059 Grade 9-12 students. Based on that student generation rate, the proposed 202-unit housing project (assuming the multi-family rate of 0.152 students per unit) will add around 31 students, including 11 new elementary school students (Grades K-6), 8 new junior high school students (Grades 7-9), and 12 new high school students (Grades 9-12).

Under existing law the WVUSD is authorized to impose only a fee of $2.97 per square foot for residential development and $0.47 per square foot of enclosed and covered space for commercial/industrial development. Assuming that each of the proposed dwelling units were to average 1,500 square feet in size, an estimated $899,910 in school impact fees would be generated from the project's residential component. An additional $72,373 in school impact fees would be generated from the project's commercial component. If building permits were to be issued after January 2010, the SAB-authorized fee would likely be higher.

Payment of applicable fees to the WVUSD or execution of an AB 2926 mitigation agreement acceptable to the District constitutes full and complete mitigation of project-related impacts on the provision of school facilities from the proposed development. A project condition (Condition of Approval 9-7) herein, has been formulated to reinforce the already existing requirement that evidence of the Applicant's compliance with statutory obligations regarding the payment of applicable school impact fees be provided to the City prior to the issuance of building permits. Since none of the threshold of significance criteria would be exceeded, the identified impact would be less than significant and no further mitigation is recommended or required.

Public Services Impact 9-7*. Project implementation will increase the resident population of the City, including the number of school-age children, incremental increasing existing spatial and resource demands placed on the Diamond Bar Public Library.*

Level of Significance before Mitigation*. Less-than-significant impact.*

The County Library's current service level guidelines for planning purposes are a minimum of 0.50 gross square foot of library facility space per capita and 2.75 items (books and other library materials) per capita. Based on an estimated service area population of 56,233 persons, as derived from Census data, the Diamond Bar Library would need a 28,115 square foot facility and 154,640 items in order to meet that standard. In comparison, the Diamond Bar Library is only 9,935 gross square feet in size and houses a collection consisting of only 89,446 books and other library materials. Absent any consideration of project-related impacts, based on County Library standards, the City requires an additional 18,180 square feet of library space

[43]/ Calwell Flores Winters, Inc., Justification Report for the Walnut Valley Unified School District - This Study Established the Justification for the Imposition of Developer Fees Pursuant to Applicable Law as of March 2006, March 2006.

and an additional 65,194 items. It is, therefore, apparent that new or expanded library facilities and services are needed to adequately serve the general project area.

On August 1, 2006, the City Council approved Resolution No. 2006-67 (Resolution of the City Council of the City of Diamond Bar Establishing Community Facilities District No. 2006-01 of the City of Diamond Bar [Diamond Bar Library], Authorizing the Levy of Special Taxes and Calling Elections). Under that resolution, the City declared its intention to establish Community Facilities District (CFD) 2006-01 to: (1) finance the purchase, construction, modification, expansion, improvement or rehabilitation of certain public facilities, consisting of a municipal library, including all furnishings, equipment, and supplies related therto; (2) finance library services; and (3) to finance the incidental expenses to be incurred in connection with the forming and administering of the CFD and the financing the services and facilities. The CFD would be created and authorized to issue $13.1 million in bonds to secure a net amount of $11 million to be used for the construction of a new 24,500 square foot library located adjacent to the Diamond Bar Center. The City would contribute $4 million for a total construction budget of $15 million. Diamond Bar property owners would be required to pay their portion of the bond payments for 30 years after which the bond would be retired and only the special tax for the additional operating expenses would remain. In November 2006, a 71 percent majority rejected a $15-million bond that would have nearly tripled the size of County Library's Diamond Bar branch.

The proposed project is projected to add about 662 new residents to the City. That population increase would create additional demand for library service and would further affect the County Library's ability to adequately serve the existing and future residents of the Diamond Bar Library's service area. Based on the service level guidelines noted above, the Diamond Bar Library would require an additional 331 gross square feet of facility space and an additional 1,820 new items (books and other library materials). In addition, the project's proposed commercial component (153,985 gross leasable square feet) could have an indeterminable impact on local library services since people who work on the project site, but who do not live in the service area, may avail themselves of local library services during their work day and while commuting to and from on-site employment.

Although the County imposes a library mitigation fee on new residential projects in those unincorporated County areas served by the County Library (Chapter 22.72, County Code), that mitigation fee program neither applies to residential development projects located within incorporated areas nor to commercial uses. As such, project implementation will create additional unmet incremental demands for library services. That demand equates to an additional 331 gross square feet of library space and 1,820 new items. While adverse, based on the threshold criteria, this impact does not elevate to a level of significance.

Public Services Impact 9-8*. Project implementation will increase the resident population of the City of Diamond Bar and generate a projected need for 2.12 acres (approximately 92,390 square feet) of additional parkland within the City.*

Level of Significance before Mitigation*. Less-than-significant impact.*

As a condition of the approval of a tentative map, Section 21.32.040 (Park Land Dedications and Fees) in Chapter 21.32 (Subdivisions) of the Municipal Code provides for the dedication of real property and/or the payment of in-lieu fees to the City for park and recreational purposes.

This section, authorized by the provisions of Article 3, Chapter 4 of the Subdivision Map Act, is commonly referred to as "Quimby Act" requirements.

Project-specific park demands can be calculated in accordance with the formula provided in Section 21.32.040 (Park Land Dedications and Fees) of the Municipal Code as follows:

> X = 0.005(UP), where "X' is the amount of parkland required in acres, "U" is the total number of approved dwelling units, and "P" is 2.1 for attached multi-family dwellings.

In accordance therewith, the proposed 202 dwelling units (assuming the classification of those units as multi-family dwellings) would generate a need for 2.12 acres (approximately 92,390 square feet) of additional parkland within the City.

As further indicated in Section 21.32.040(e)(2), only the payment of fees shall be required in subdivisions of 50 parcels or less, except that when a condominium project, stock cooperative, or community apartment project exceeds 50 dwelling units, dedication of land may be required even though the number of actual parcels may be less than 50. Although the proposed development plan does not include a public recreational component, the City is authorized to require that the Applicant alter development plan so as to include real property dedication rather than fulfill Quimby Act requirements merely through the payment of park fees, as now proposed.

The payment of applicable fees and/or the dedication of real property for park purposes constitutes full and complete mitigation of project-related impacts on City park facilities from the proposed residential development. A project condition (Condition of Approval 9-8) has been formulated to reinforce the existing requirement that evidence of payment of applicable Quimby Act fees, real property dedication acceptable to the City, or a combination of dedication and fee payment be provided to the City prior to the approval of the final subdivision map. Since none of the threshold of significance criteria would be exceeded, the identified impact would be less than significant and no further mitigation is recommended or required.

4.9.3.3 Cumulative Impacts

Public Services Impact 9-9*. The approval of other reasonably foreseeable future development projects within the general project area will increase existing demands on the Los Angeles County Sheriff's Department and on the Los Angeles County Fire Department, increase the number of school-aged children served by the Walnut Valley Unified School District, and increase the demand for park and recreational facilities within the City.*

Level of Significance before Mitigation*. Less-than-significant impact.*

Areawide development will increase the number of individuals residing in the general project area, result in the conversion of vacant and underutilized lands to more intensive uses, introduce new businesses, increase the use of products and materials those businesses utilize, and increase the inventory of products, merchandise, and other material goods. As population levels increase, so to does the demand for public services and facilities.

Based on a Statewide, regional, areawide, or local assessment of need, public agencies have the ability to construct new facilities, purchase new equipment, and add personnel in response to identified demand. Local agencies have the ability to deny or condition individual

development applications based on their assessment of potential project-related impacts upon law enforcement and fire protection agencies, facilities, and personnel. Public agencies have the ability to respond to those changes through increases or decreases in annual budgetary allocations provided to police and fire protection agencies, including the LACSD and LACFD.

As indicated in the WVUSD fee justification study, based on the application of the State-approved cohort survival method, it is estimated that student enrollment within the WVUSD will decrease from 15,485 Grade K-12 students in the fall of the 2008 school year to 15,414 students in the 2011 school year, representing an increase of 75 Grade K-6 students and a decrease of 79 Grade 7-12 students. Alternatively, based on the application of the pupil per dwelling unit multiplier method, it is estimated that student enrollment will increase from 15,485 Grade K-12 students in the fall of the 2008 school year to 15,599 students in the 2016 school year, representing an increase of 49 Grade K-6 students and an increase of 50 Grade 7-12 students. Under either methodology, due to the small overall change in student numbers, until more permanent measures can be taken, any excess pupil enrollment could be temporarily housed in leased portable classrooms, in space made available by reducing existing programs, and in space reconstructed on existing sites.[44]

Table 4.9-7 (Cumulative Classroom and School Facilities Needed – Walnut Valley Unified School District)[45] shows the estimated number of District-wide classrooms and school facilities needed to house the increased number of students annually by grade-level grouping. The study indicated that no new school sites would need to be acquired and no new school facilities would need to be constructed to accommodate projected student population projections through at least 2023. The fee justification study, however, concluded that the projected cost to finance projected K-12 school facility needs was over $23.5 million (2006 dollars). These cost projections were based on the 2006 residential construction schedule, 2006 pupil/dwelling unit yield ratios, and School Facilities Program construction standards. Since residential developer fee revenues are projected to be only $5,377,035 for the WVUSD, a shortfall of $18,129,069 was identified.[46] Although projected student growth was not anticipated to be substantial, the WVUSD presently lacks sufficient direct fee-based contributions to cover the cost for facility expansion. Even with increased fees, a continuing revenues shortfall can be anticipated.

In November 2007, the area's voters approved General Obligation Bond Measure S ($64.6 million Academic Facilities Measure) and Measure Y ($15.2 million Physical Education Facilities Measure). As a result of those ballot measures, WVUSD schools will receive needed repairs and upgrades. Outdated classrooms will be modernized with new roofing, heating, ventilation, electrical wiring, and advanced technologies will continue to be sustained on every campus. School playgrounds, athletic fields, and performing arts facilities will be improved and a swimming pool will be added at Diamond Bar High.

It is the WVUSD's intent to convey to a subsequent developer or master builder that portion of the project site presently owned by the District, declared by the WVUSD to be surplus property. Existing law requires the District use the funds derived from the sale of surplus property for capital outlay or for costs of maintenance of school property that the governing board of the District determines will not recur within a five-year period. The funds derived from the sale of the District Property can, therefore, be used by the WVUSD to fund, in part, the construction of new classrooms or can be used for other eligible costs.

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[44]/ *Op. Cit*., Justification Report for the Walnut Valley Unified School District, Appendix II, Table 8.
[45]/ *Ibid*., Appendix II, Tables 13 and 14.
[46]/ *Ibid*., p. 3.

Table 4.9-7
CUMULATIVE CLASSROOMS AND SCHOOL FACILITIES NEEDED
WALNUT VALLEY UNIFIED SCHOOL DISTRICT

	School Year								
	2008	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**2015**	**2019**
Cumulative Classrooms Needed									
K-6	3	4	4	6	6	6	7	9	11
7-8	2	2	2	3	3	4	4	5	6
9-12	3	3	4	5	5	6	7	7	10
School Site to be Purchased[1]									
K-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
School Facilities to be Constructed[2]									
K-6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7-8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9-12	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

Notes:
1. Site trigger factors: (1) K-6: 0.400; (2) 7-8: 0.450; and (3) 9-12: 0.300.
2. Construction trigger factors: (1) K-6: 0.500; (2) 7-8: 0.450; and (3) 9-12: 0.400

Source: Walnut Valley Unified School District

All qualifying residential and non-residential development projects located within the WVUSD's district boundaries are required to pay school impact fees. Notwithstanding the findings of the WVUSD's fee justification analysis, the payment of applicable school impact fees or the execution of an AB 2926 mitigation agreement constitutes full and complete mitigation for project-related impacts on WVUSD facilities. Since none of the threshold criteria would be exceeded, the identified impact would be less than significant and no cumulative project conditions or mitigation measures are recommended or required.

4.9.4 Project Conditions and Mitigation Measures

Project Conditions

- **Condition of Approval 9-1**. Prior to the commencement of grading activities, the Applicant shall prepare and submit for review by the Los Angeles County Sheriff's Department (LACSD) a draft construction security plan outlining the activities that will be instituted by the Applicant to secure the construction site and the equipment and materials located thereupon from potential criminal incidents. The Applicant shall incorporate the recommendations of the LACSD, if any, into a final construction security plan and shall implement that plan during the construction period.

- **Condition of Approval 9-2**. Prior to the issuance of building permits, the LACSD shall be provided the opportunity to review and comment upon building plans and the configuration of the development in order to: (1) facilitate opportunities for improved emergency access and response; (2) ensure the consideration of design strategies that facilitate public safety and police surveillance; and (3) offer specific design recommendations to enhance public safety and reduce potential demands upon police protection services.

- **Condition of Approval 9-3**. Prior to the commencement of grading or grubbing activities, the Applicant shall prepare and submit and the Los Angeles County Fire Department (LACFD) shall review and, when deemed acceptable, approve a fire protection program and workplace standards for fire safety outlining those activities to be undertaken by the Applicant during the construction period. The Applicant shall abide by specific project-level permit conditions identified by the LACFD.

- **Condition of Approval 9-4**. Prior to the issuance of a grading permit, the Applicant shall submit and the Los Angeles County Fire Department shall review and, when deemed acceptable, approve a fuel modification, landscape, and irrigation plan in compliance with County Very High Fire Hazard Severity Zone (Fire Zone 4) standards.

- **Condition of Approval 9-5**. Prior to the issuance of building permits, the Los Angeles County Fire Department (LACFD) will review and, when deemed acceptable, approve (1) final water improvement plans including, but not limited to, the location, sizing, design, and fire flow capacity of the proposed water mains and fire hydrants and proposed access improvements to ensure compliance with applicable Fire Code requirements; and (2) building plans. The project's water system shall be designed in response to final fire flow requirements identified by the LACFD.

- **Condition of Approval 9-6**. Prior to the issuance of a grading permit, the Applicant shall submit to the Building Official for review and approval a temporary fencing and signage plan designed to discourage access to any active construction areas by children and other unauthorized parties.

- **Condition of Approval 9-7**. Prior to the issuance of building permits, the Applicant shall present the City with a certificate of compliance or other documentation demonstrating that the Applicant has complied with the Walnut Valley Unified School District's School Board resolutions governing the payment of school impact fees or has entered into an Assembly Bill 2926 authorized school fee mitigation agreement or is not subject to the school impact fee exaction.

- **Condition of Approval 9-8**. Prior to the approval of the final subdivision map, unless an alternative milestone event or other manner of fulfillment of the Applicant's obligations under Section 21.32.040 (Park Land Dedications and Fees) in Chapter 21.32 (Subdivisions) of the Municipal Code is first approved by the City Council, the Applicant shall provide the City with an in-lieu park fee payment in the manner and in the amount authorized thereunder.

Mitigation Measures

- No mitigation measures have been identified herein.

4.9.5 Significant Unavoidable Adverse Effects

The approval, construction, occupancy, use, and habitation of the proposed project will not result in any significant unavoidable adverse project-related or cumulative impacts on police services, fire protection, school facilities, library facilities, and park and recreational facilities.