



Pomona Valley ITS Project

Project Deliverable 4.1.3b **Individual City Report -** **City of Diamond Bar**

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PROJECT DESCRIPTION

The County of Los Angeles, in cooperation with the cities within the Pomona Valley, has determined that development of an Intelligent Transportation System (ITS) in the Pomona Valley would help to reduce congestion, enhance mobility, provide traveler information during non-recurring and event traffic congestion, and manage event traffic. The Pomona Valley Intelligent Transportation Systems (PVITS) project was conceived as a recommendation from the Pomona Valley Feasibility Study completed by the MTA in 1995. The ultimate objectives of the Project are to:

- Improve mobility by optimizing traffic management on arterials and freeways;
- Enhance Route 60 capacity by better coordinating freeway traffic with parallel arterials;
- Improve agency efficiency by coordinating management of operations and maintenance efforts among and between agencies; and
- Increase agency staff productivity by providing low-maintenance, high-quality communications and computational tools to assist in daily management and coordination activities.

PURPOSE OF REPORT

The Conceptual Design of the Pomona Valley ITS project includes the preparation of a Stakeholder Operational Objectives Report that summarizes each project stakeholder's needs, objectives, and issues to consider in the planning, design, and implementation of advanced technologies for traffic control, traffic management, and traveler information systems. This Individual City Report document provides a summary of existing, planned (already approved), and desired transportation projects and policies within the City of Diamond Bar. This summary is based upon information in the 1995 Pomona Valley Forum Signal Synchronization Study, with updates to the information based upon city input from recent surveys and coordination meetings. Separate reports of data summaries and stakeholder objectives have been created for each City within the Pomona Valley project area.

This report provides the following information for the City of Diamond Bar:

- Section 1.0: Definition and overview of the study area
- Section 2.0: Existing, planned, and desired traffic control and communications infrastructure
- Section 3.0: Current issues and desired aspects of operations and maintenance
- Section 4.0: Current issues and desired aspects of interagency coordination

Figures illustrating the locations of existing and planned traffic control equipment and congestion issues are included in Appendix A. A list of all existing and proposed signalized intersections on study arterials within the City is included in Appendix B.

The Stakeholders Operational Objectives Report (Deliverable 4.1.2) is a separate document that will be developed as part of this project. It will provide more specific detail on the ideal operational characteristics of the PVITS equipment and user interfaces.



1.0 DIAMOND BAR STUDY AREA CHARACTERISTICS

The study area for Diamond Bar utilized information from a definition of roadway "significance" that was defined in the 1995 Pomona Valley Forum Signal Synchronization Study. This determination of roadway significance utilized roadway Average Daily Traffic (ADT) levels and Level of Service (LOS) ratings, along with other factors such as roadway inclusion in the Congestion Management Program (CMP), the number of transit routes utilizing the roadway, and local agency preference.

1.1 Study Arterials

Table 1 on the next page provides a summary of the arterials considered as "regionally significant" within Diamond Bar, along with the major factors for prioritization that were utilized in the 1995 Synchronization Study. The City of Diamond Bar requested that Brea Canyon Cutoff and Pathfinder Road be included in this list, as both roadways carry 60 freeway bypass traffic between Industry and Diamond Bar Blvd. The City also requested that Lemon Avenue be added to the list of regionally significant roadways. The locations of the regionally significant arterials and other roadways in the City are illustrated in **Figure 1** of Appendix A.

TABLE 1: STUDY AREA ARTERIAL SIGNIFICANCE SUMMARY			
Street	Average Daily Traffic	Number of Transit Routes	CMP Arterial
Grand Avenue	33,034 – 36,098	0	Yes
Diamond Bar Boulevard	16,700 - 32,800	3	No
Lemon Avenue *	13,584	0	No
Golden Springs Drive	10,600 - 22,700	3	No
Brea Canyon Cutoff *	16,320	0	No
Brea Canyon Road	8,340 - 28,550	1	No
Pathfinder Road *	20,688	0	No
Source: Kimley-Horn and Associates, Inc., 2001			
<i>* The roadways of Brea Canyon Cutoff and Pathfinder Road were included as regionally significant arterials in this study, at the request of the City of Diamond Bar.</i>			



Transit Availability

Table 1 also indicates transit availability along the city study arterials. It can be seen that three transit lines serve Diamond Bar Boulevard. These are services provided by the Los Angeles County MTA and Foothill Transit:

- The Los Angeles County MTA Line 490 serves the entire extent of Diamond Bar Blvd., on its route between Brea, Pomona, and Los Angeles.
- Foothill Transit express Line 482 serves Diamond Bar Blvd. Between Temple Avenue and Golden Springs Drive, on its route between Pomona and downtown Los Angeles via the I-10 Busway.
- Foothill Transit Line 495 is an express route that has an eastern terminus at the Diamond Bar Park and Ride, north of the SR 60 freeway. The line also serves Golden Springs, and is described in more detail below.

Golden Springs Drive is served by three transit lines. Line 482 (described above) serves the roadway west of Diamond Bar Blvd. The other two routes, Foothill Transit Lines 493 and 495, operate as a joint express line, with differing eastern termini. Both lines provide service during the peak commute periods from the Diamond Bar area to Puente Hills Mall, then utilize the I-10 Busway to reach downtown Los Angeles.

- Foothill Transit Line 495 originates at the Diamond Bar Park-and-Ride, then utilizes the corridor to reach Puente Hills Mall and the remainder of the route.
- Foothill Transit Line 493 originates in Phillips Ranch, then joins the corridor at the eastern end of Golden Springs Road.

Roadway Descriptions

The following text summarizes the characteristics of each of study area arterial within Diamond Bar.

Grand Avenue: This four-lane roadway provides east-west access in Diamond Bar from the Industry city limits west of the 57 freeway, to the City of Chino Hills (San Bernardino County) on the east side of the city. It provides access to the major arterials of Diamond Bar Blvd. and Golden Springs Drive. It also has a full-access interchange with the 57 and 60 freeways, west of Golden Springs Dr.

Diamond Bar Blvd: This four-lane roadway is a major north-east arterial within Diamond Bar. It intersects with Temple Avenue at the north end of the city, where the roadway transitions to Mission Blvd. within Pomona. The other end of the roadway is at Diamond Bar Boulevard and its interchange with the 57 freeway. The roadway transitions into Brea Canyon Cutoff to the west of the freeway.

Lemon Avenue: This four-lane roadway is a minor north-south arterial within Diamond Bar. The City has requested that it be included as a regionally significant arterial in this study due to the key connection that it provides within the Route 60 Corridor. The roadway traverses from Golden Springs Drive to the north city limits and into the City of Industry.

Golden Springs Drive: This four-lane roadway roughly parallels Diamond Bar Boulevard. The roadway terminates on its east end at the intersection of Temple Avenue and Avenida Rancheros at the boundary of Phillips Ranch in Pomona. On its western end, Golden Springs Drive transitions into Colima Road at the Diamond Bar's border with the unincorporated areas of Los Angeles County to the west.

Brea Canyon Road: This four-lane roadway provides access to the Route 60 Corridor from the southwest corner of Diamond Bar. From the SR 57/ Diamond Bar Blvd. interchange, the roadway climbs over the hills west of Diamond Bar into the Industry area, where it connects with Colima Road and the Route 60 / Fairway Drive interchange.

Brea Canyon Cutoff: This two-lane road provides access from SR 57 at Diamond Bar Boulevard to Pathfinder Road in the southwestern region of the City.

Existing truck route designations within the City are illustrated in **Figure 2** of Appendix A.

1.2 Traffic Congestion and Development

This section provides an overview of congestion issues for the city study area arterials and intersections. **Figure 3** in Appendix A illustrates the Average Daily Traffic levels of the study area arterials, as well as the Level of Service (LOS) ratings provided by the City of Diamond Bar and calculated based on new count data for the key City intersections.

Table 2 indicates the LOS of these intersections.

TABLE 2: LEVEL OF SERVICE (LOS) OF SELECTED INTERSECTIONS, CITY OF DIAMOND BAR STUDY AREA		
Intersection	AM Peak Period LOS	PM Peak Period LOS
Lemon Avenue / EB SR-60 Ramps	A	C
Brea Canyon Road / Golden Springs Drive	A	D
Golden Springs Drive / Gateway Center	B	C
Grand Avenue / SR-60 WB Ramps	A	C
Diamond Bar Boulevard / SR-60 WB Ramps	C	C
Diamond Bar Boulevard / SR-60 EB Ramps	C	B
Diamond Bar Boulevard / Golder Springs Drive	A	C
Diamond Bar Boulevard / Grand Avenue	C	F
Pathfinder Road / Diamond Bar Boulevard	C	E
Diamond Bar Boulevard / SR-57 SB Ramps	F	E
Diamond Bar Boulevard / SR-57 NB Ramps	F	F
<i>LOS values are based upon input from the City of Diamond Bar and new intersection turn movement counts conducted during the week of June 25, 2001.</i>		
<i>Data was analyzed utilizing the 1997 Highway Capacity Manual method.</i>		

A summary of congestion trouble spots in Diamond Bar as indicated by City staff during project coordination meetings and correspondence is presented below. **Figure 4** in Appendix A illustrates the congested areas in the City.

- The transition from the westbound 60 freeway to the northbound 57 freeway requires the use of Diamond Bar Boulevard, as there is no direct freeway-to-freeway ramp. The same traffic routing is necessary for the opposite movement from the southbound 57 freeway to the eastbound 60 freeway.
- An Origin/Destination study for the City was performed in 1999, indicating that peak street traffic in Diamond Bar has a direct correlation to freeway commute directions: westbound and southbound in the morning peak, eastbound and northbound in afternoon peak.



Industry East, an industrial park planned in the City of Industry, near the western city limits of Diamond Bar, will add significantly to current SR 60 corridor congestion. This project consists of 18 separate industrial buildings providing 5,879,300 square foot of general industrial uses. The project is being built currently on Brea Canyon Road, south of Valley Boulevard. The project encompasses the east and west sides of Brea Canyon Road.

2.0 TRAFFIC CONTROL AND MONITORING SYSTEM

This section provides an overview of the existing and planned traffic signal equipment, and related communications and monitoring equipment. This represents the core infrastructure from which an ITS system can be conceptualized. The remaining sections of the document provide an overview of traffic operations, and system operations and institutional issues.

Diamond Bar is primarily a developed community with established traffic patterns. **Figure 5** in **Appendix A** indicates the 57 existing traffic signal locations on the study area arterials within Diamond Bar and the planned signal locations. **Appendix B** provides a list of the locations of this traffic signal equipment.

The City would like to have a traffic control system. Information regarding equipment and communications is provided in the following sections.

Existing Traffic Signals

- There are 57 traffic signals on the regionally significant arterials included in this study. 47 are owned by Diamond Bar, two jointly by Diamond Bar and LA County, two jointly by Diamond Bar and Pomona, and six by Caltrans.
- All existing traffic signals utilize type 170 controllers and WWV antennas for time-of-day coordination.
- The City has installed conduit along its major arterials. The conduit is being installed when signals or roadways are upgraded. As the conduit system is not continuous, it does not currently contain any active communication cables or fiber.

Planned Improvements

- Four additional traffic signals may be installed by 2006.

Desired Improvements

- A traffic signal is desired by the City for the SR 57 northbound on-ramp on Diamond Bar Boulevard, north of Sunset Crossing. Such a signal is not a priority for Caltrans, so the City would place the equipment entirely within the City right-of-way.
- A traffic signal is desired by the City at the SR 57 southbound ramps at Brea Canyon Cutoff. The City would like to address this issue with Caltrans.
- The City does not currently have a traffic control system, but desires to have one for all signals.
- The control system for the Pomona Valley ITS system should consider the City's small staff
- The PVITS system should be designed to accommodate peak hour bypass traffic from the 57/60 freeway interchange. Traffic tends to avoid this interchange and utilize parallel streets such as Golden Springs Drive and Diamond Bar Boulevard.



- Gaps in the current interconnect conduits would need to be eliminated to interconnect all of the signals in each arterial corridor.
- The local Los Angeles County Sheriff's office desires access to incident management systems for documentation and control of detours and major incidents.

3.0 OPERATIONS AND MAINTENANCE ISSUES

The City of Diamond Bar has identified specific system operations and maintenance issues regarding PVITS implementation within the City. The issues discussed during project coordination meetings included resources and staffing for maintenance of the current traffic control system, monitoring of traffic, and traffic data collection. Also discussed were operations and maintenance issues of an ITS system, and all of its related components.

- The City would like to see the equivalent of a city-wide communications master plan from the results of this study. The City may choose to supplement the communications planning work of this study to cover the additional roadways that are not a part of this study area.
- The City of Diamond Bar currently has 38 employees. The engineering staff is not targeted for expansion.
- There is a new city space of 10' x 10' in size at the AQMD Headquarters in Gateway Center – to be renamed the "Government Building" - that may be a good location for a sub-regional TMC or a Local City Workstation.

4.0 INTERAGENCY AND LOCAL CITY ISSUES

The following list documents issues of communication, cooperation, and agreement between internal city, and other local and regional agencies.

- Caltrans freeway/ramp signal problems are typically found via resident complaints or City employee fieldwork. Caltrans then reacts to contact from city about signal, but there is no proactive solution. The City would like to establish a new method of communication with Caltrans to identify freeway/ramp signal problems in a timely manner.
- The City feels that project meetings among Pomona Valley Forum cities should take place quarterly after the PVITS system is on-line.
- The City would like to hold informal sessions or presentations during each phase of the PVITS project to get the City Council involved as local control of signals is currently a priority of the city.
- The City of Chino Hills is located to the east of Diamond Bar, within San Bernardino County. Chino Hills utilizes NEMA controllers for its traffic signals. Future signal coordination across County lines would need to consider these differences in signal control technologies.

5.0 NEXT STEPS

The information summarized within this document will be utilized to formulate the Stakeholders and Operational Objectives Report (Deliverable 4.1.2). This document will provide a project-wide evaluation



of stakeholder needs and wishes, and provide a basis for the Requirements Analysis under Task 5 of this project. The Stakeholders and Operational Objectives Report will provide the following analyses of PVITS project implementation, from information summarized in the Individual City Reports:

- Anticipated benefits to stakeholders
- Potential cost implications to stakeholders
- Potential impacts on local agency staffing and operation
- Potential impacts on local agency management and maintenance costs

Deliverables from the Addendum Report, Route 60 Feasibility Study, and the Fairplex Traffic Management Plan efforts will also be incorporated into the Requirements Analysis task and Concept of Operations and Alternatives Analysis task documentation.



Kimley-Horn
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Appendix A

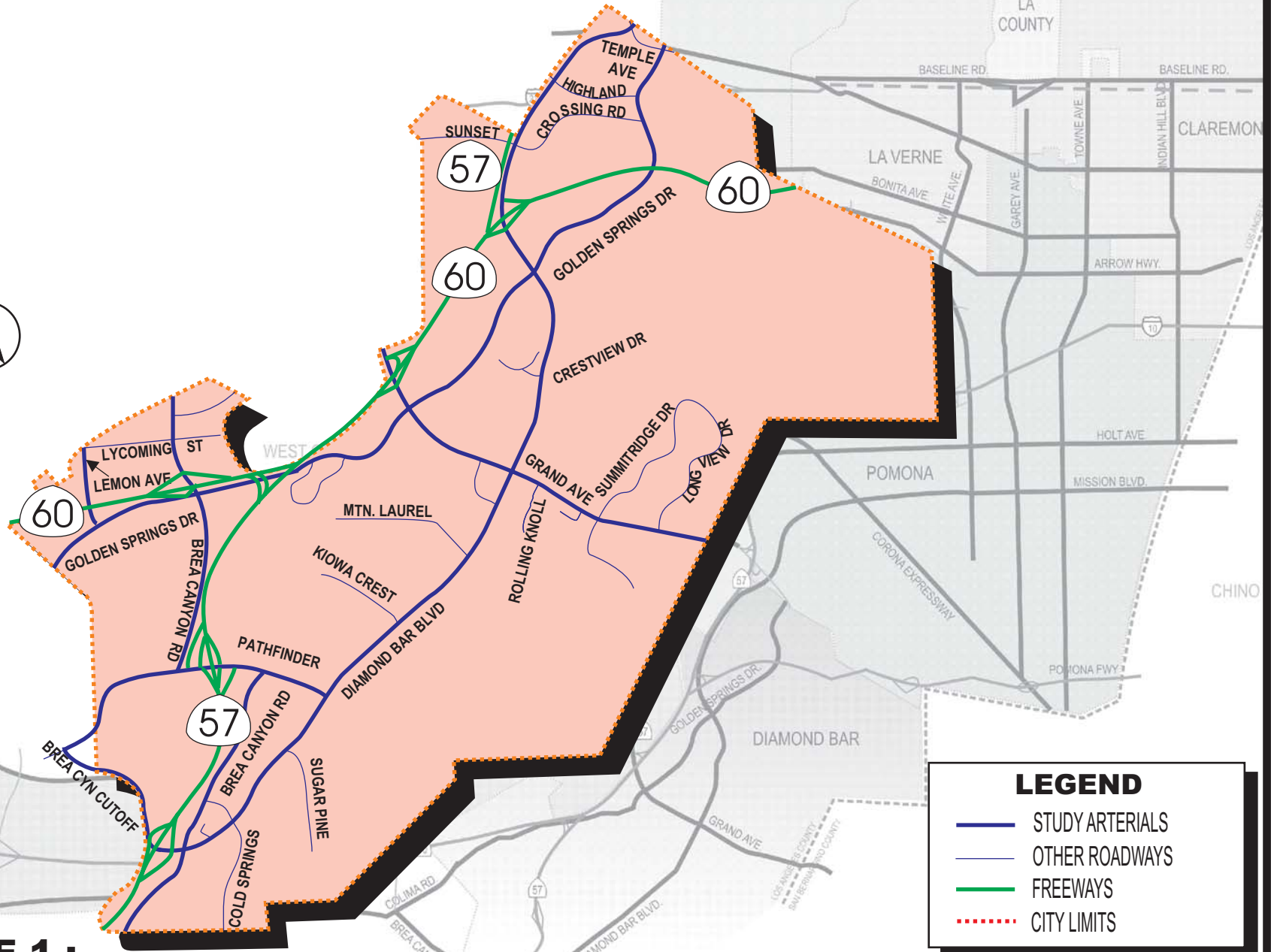
Figure 1: Regionally Significant Arterials

Figure 2: Existing Truck Routes

Figure 3: Average Daily Traffic and Level of Service (LOS)

Figure 4: Traffic Congestion Locations

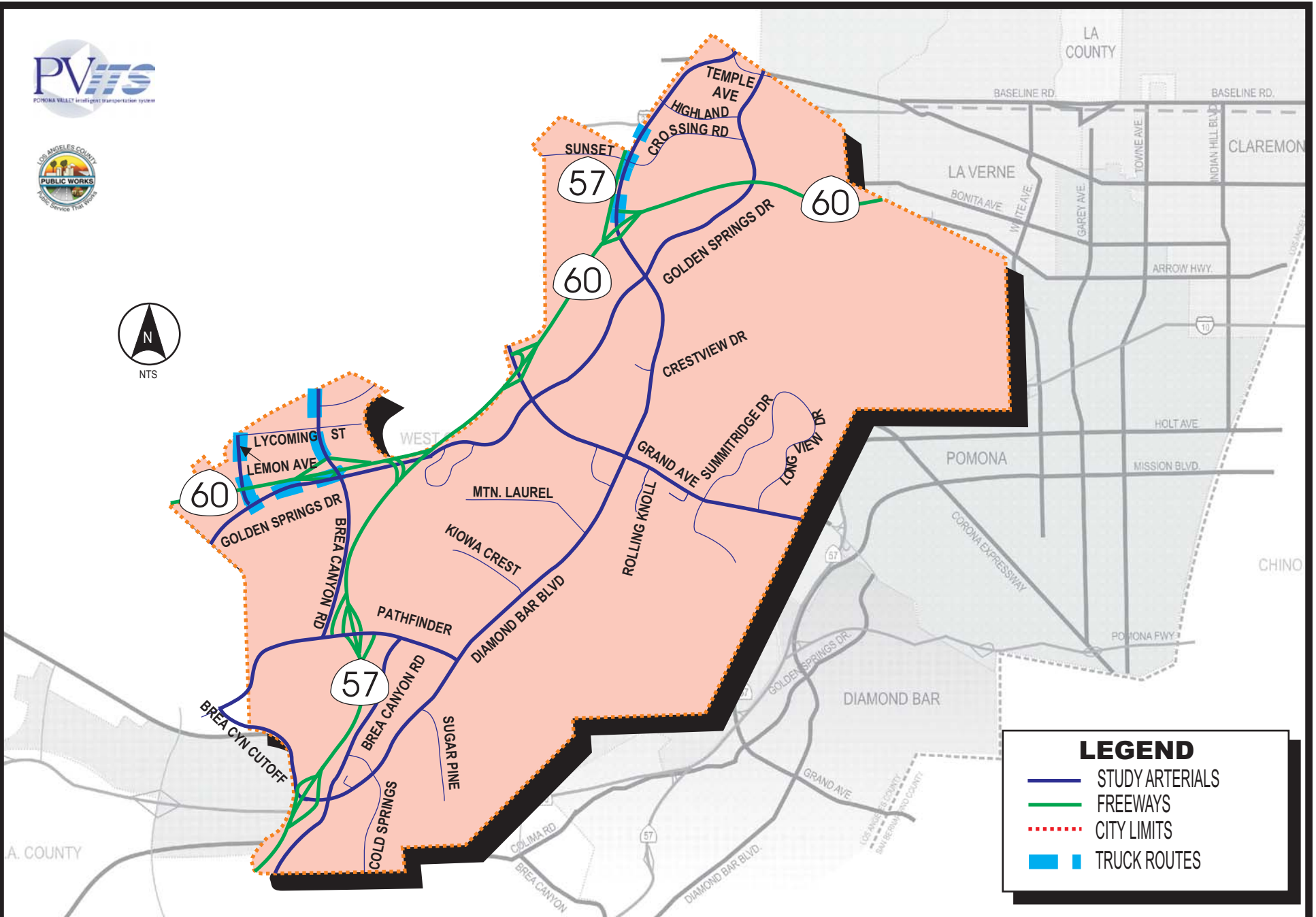
Figure 5: Traffic Signal Locations on Regionally Significant Arterials



LEGEND

- STUDY ARTERIALS
- OTHER ROADWAYS
- FREEWAYS
- CITY LIMITS

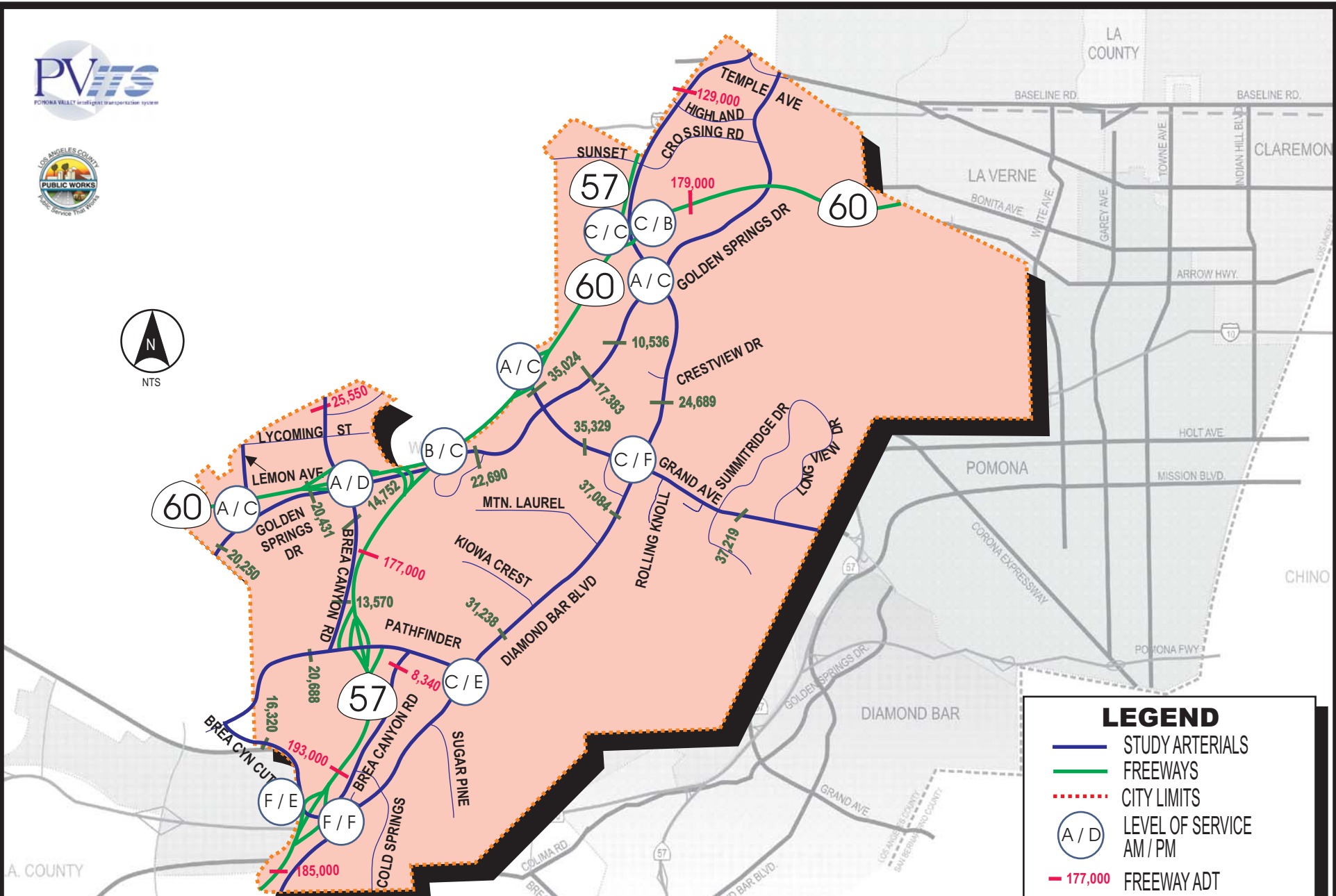
**FIGURE 1 :
DIAMOND BAR - REGIONALLY SIGNIFICANT
ARTERIALS**



LEGEND

- STUDY ARTERIALS
- FREEWAYS
- ... CITY LIMITS
- TRUCK ROUTES

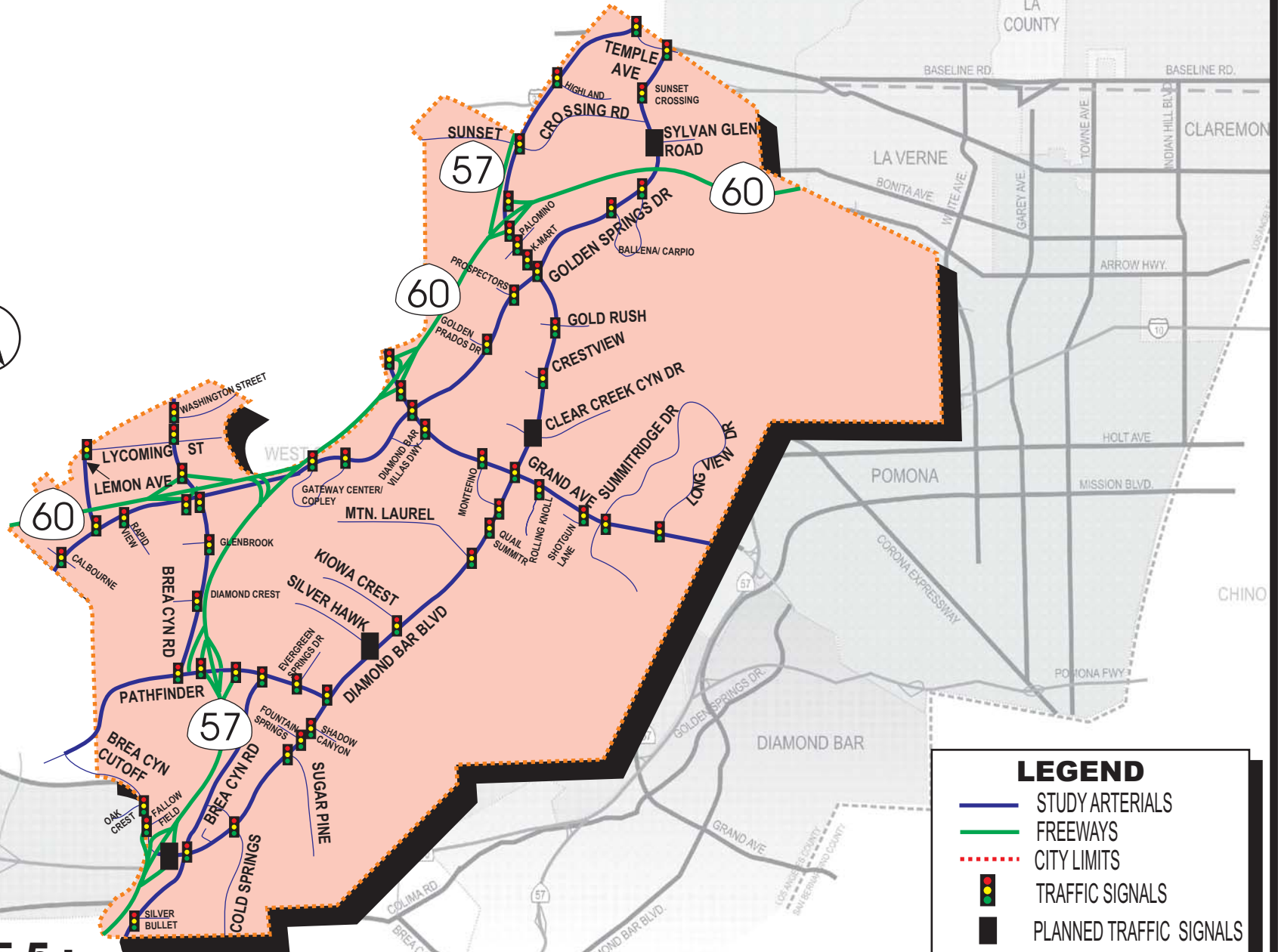
**FIGURE 2 :
DIAMOND BAR - EXISTING TRUCK ROUTES**



**FIGURE 3 :
DIAMOND BAR - AVERAGE DAILY TRAFFIC AND
LEVEL OF SERVICE (LOS)**

LEGEND

- STUDY ARTERIALS
- FREEWAYS
- - - CITY LIMITS
- A/D LEVEL OF SERVICE AM / PM
- 177,000 FREEWAY ADT
- 31,238 ARTERIAL ADT



**FIGURE 5 :
DIAMOND BAR - TRAFFIC SIGNAL LOCATIONS
ON REGIONALLY SIGNIFICANT ARTERIALS**



Appendix B

TRAFFIC SIGNAL EQUIPMENT ON REGIONALLY SIGNIFICANT ARTERIALS WITHIN DIAMOND BAR		
Signalized Intersection	Phases	Ownership
Brea Canyon Road / Diamond Bar Blvd.	8	Diamond Bar
Brea Canyon Road / Golden Springs Drive	8	Diamond Bar
Brea Canyon Road / Lycoming Street	3	Diamond Bar
Brea Canyon Road / Washington Street	3	Diamond Bar
Brea Canyon Road / Glenbrook	**	Diamond Bar
Brea Canyon Road / Diamond Crest	**	Diamond Bar
Brea Canyon Road Cutoff / Oak Crest	**	Diamond Bar/ LA County
Brea Canyon Road Cutoff / Fallow Field	**	Diamond Bar/ LA County
Brea Canyon Road / Silver Bullet	**	Diamond Bar
Diamond Bar Blvd. / K-Mart Center	5	Diamond Bar
Diamond Bar Blvd. / Cold Springs Lane	3	Diamond Bar
Diamond Bar Blvd./ Crestview Drive	*	Diamond Bar
Diamond Bar Blvd. / SR 60 eastbound ramps	3	Caltrans
Diamond Bar Blvd. / SR 60 westbound ramps	3	Caltrans
Diamond Bar Blvd. / Golden Springs Drive	8	Diamond Bar
Diamond Bar Blvd / Highland Valley	2	Diamond Bar
Diamond Bar Blvd. / Kiowa Crest Drive	3	Diamond Bar
Diamond Bar Blvd. / Mountain Laurel Way	3	Diamond Bar
Diamond Bar Blvd. / Pathfinder Road	3	Diamond Bar
Diamond Bar Blvd / Sugarpine (private)	4	Diamond Bar
Diamond Bar Blvd. / Sunset Crossing Road	2	Diamond Bar
Diamond Bar Blvd. / Temple Ave. / Mission Blvd.	8	Diamond Bar, Pomona
Diamond Bar Blvd. / Shadow Canyon	**	Diamond Bar
Diamond Bar Blvd. / Fountain Springs	**	Diamond Bar
Diamond Bar Blvd. / Gold Rush Drive	**	Diamond Bar
Diamond Bar Blvd. / Gentle Springs/ Palomino	**	Diamond Bar
Diamond Bar Blvd. / Montefino	**	Diamond Bar
Diamond Bar Blvd. / Quail Summit	**	Diamond Bar
Golden Springs / SR 60 eastbound ramps	6	Caltrans
Golden Springs Drive / Ballena Drive	2	Diamond Bar
Golden Springs Drive / Carpio	3	Diamond Bar
Golden Springs Drive / Copley Drive	4	Diamond Bar
Golden Springs Drive / Gateway Center.	4	Diamond Bar
Golden Springs Drive / Grand Avenue	8	Diamond Bar
Golden Spring Drive / Sunset Crossing Road	3	Diamond Bar
Golden Springs Drive / Temple Avenue	3	Diamond Bar/ Pomona
Golden Springs Drive / Golden Prados Drive	**	Diamond Bar
Golden Springs Drive / Prospectors	**	Diamond Bar
Golden Springs Drive / Calbourne Drive	**	Diamond Bar
Golden Springs Drive / Rapidview	**	Diamond Bar



TRAFFIC SIGNAL EQUIPMENT ON REGIONALLY SIGNIFICANT ARTERIALS WITHIN DIAMOND BAR		
Signalized Intersection	Phases	Ownership
Grand Avenue / Diamond Bar Blvd.	8	Diamond Bar
Golden Springs Drive / Lemon Avenue	2	Diamond Bar
Grand Avenue / Longview Drive	6	Diamond Bar
Grand Avenue / Montefino Avenue	4	Diamond Bar
Grand Avenue / Rolling Knoll Road	3	Diamond Bar
Grand Avenue / Shotgun Lane	3	Diamond Bar
Grand Avenue / Summitridge Drive	6	Diamond Bar
Grand Avenue / Diamond Bar Villas Way	**	Diamond Bar
Grand Avenue / SR 57 north & SR 60 east ramps	4	Diamond Bar
Grand Avenue / SR 57 south & SR 60 west ramps	6	Diamond Bar
Lycoming Street/ Lemon Avenue	**	Diamond Bar
Pathfinder Road / Brea Canyon Road (W)	6	Diamond Bar
Pathfinder Road / Brea Canyon Rd. / Fern Hollow	4	Diamond Bar
Brea Canyon Road / SR 60 westbound ramps	4	Caltrans
Pathfinder Road / Evergreen Springs Drive	3	Diamond Bar
Pathfinder Road / SR 57 northbound ramps	2	Caltrans
Pathfinder Road / SR 57 southbound ramps	3	Caltrans
<i>New signals - Phasing Information not Available.</i>		
<i>** Phasing Information not Available.</i>		
PLANNED TRAFFIC SIGNALS		
Location	Notes	
Diamond Bar Blvd. / Silver Hawk Drive		
Diamond Bar Blvd. / Clear Creek Canyon Drive		
Diamond Bar Blvd. / SR 57 northbound on-ramps (north of Sunset Crossing Road)	Signal is necessary to control ramp access, but would be installed entirely within City of Diamond Bar right-of-way.	
Golden Springs Road / Sylvan Glen Road		