Pomona Valley
ITS Project

Project Deliverable 4.1.3a

Individual City Report -
City of Claremont

Prepared by:

Kimley-Horn
and Associates, Inc.

May 1, 2002
099017000.1

Kimley-Horn and Associates, Inc.

TABLE OF CONTENTS

INDIVIDUAL CITY REPORT -
CLAREMONT

Kimley-Horn and Associates, Inc.

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 Claremont. 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 Claremont:

- 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 CLAREMONT STUDY AREA CHARACTERISTICS

The study area for Claremont was based upon the definition of roadway "significance" 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 Claremont, along with the major factors for prioritization that were utilized in the 1995 Synchronization Study. Based upon discussions with City staff during project coordination meetings, and based upon the city questionnaire, there are no additional roadways within Claremont that will be analyzed as part of this project.

The location of the regionally significant arterials and other prominent 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
Indian Hill Blvd	12,400 – 32,481	3	Yes
Towne Avenue	17,000	1	Yes
Foothill Boulevard	36,500 – 41,500	3	Yes
Arrow Highway	26,100	1	Yes
Baseline Road	17,200 – 21,600	1	Yes

Source: Kimley-Horn and Associates, Inc. , 2001

Transit Availability

Table 1 also indicates transit availability along the city study arterials. A total of six transit lines serve Claremont, with all service provided by Foothill Transit. Many of these lines serve the Claremont Transit Center on First Street, east of Indian Hill Boulevard. This Center is also served by the Metrolink San Bernardino Line commuter trains.

- Line 187 serves Foothill Boulevard throughout its extents within Claremont. The line also serves points in Claremont and Montclair to the east, and cities to the west including Pasadena.

- Line 195 provides peak-period service on Indian Hill Boulevard, from Holt Avenue in Pomona to Baseline Road on the north side of Claremont.

- Line 292/294 provides circulator service between Claremont and Pomona, serving segments of Indian Hill Boulevard, Mountain Avenue, Towne Avenue, and Foothill Boulevard.

- Line 479 provides service along Arrow Highway, on its route between Montclair, the Claremont Transit Center, Fairplex, and the Cal Poly campus.

- Line 480 provides service along Indian Hill Boulevard, south of First Street, on its route between Montclair, the Claremont Transit Center, Pomona, West Covina, and downtown Los Angeles.

- Line 690 provides limited-stop service along Foothill Boulevard and Indian Hill Boulevard on its route between Montclair, Claremont, and downtown Pasadena.

Roadway Descriptions

The following paragraphs summarize the characteristics of each of study area arterial within Claremont

Indian Hill Blvd: This four-lane roadway provides north-south access within Claremont. Between First Street and Foothill Blvd, the roadway includes only one lane in each direction. It provides access to all of the major east-west roadways in Claremont, and provides full access to the I-10.

Foothill Blvd.: This state highway (Historic Route 66) provides the main east-west access through the city study area. The roadway intersects with the study arterials of Indian Hill Blvd. at the center of the city and with Towne Avenue on the west side of the city. To the west, the roadway provides direct access to the current eastern terminus of the SR 30 (soon to be SR 210) freeway. Outside of the city study area, the roadway provides access into San Bernardino County and the Inland Empire, and to the west the roadway provides access to the foothill cities of the San Gabriel Valley.

Arrow Highway: This local highway provides major east-west access through the south side of the city study area. It intersects with Indian Hill Blvd. at its mid-points in the study area. Outside of the study area, the roadway provides full access to the I-210 freeway in San Dimas.

Baseline Road: This local highway provides east-west access through the north side of the city study area. It parallels the route of the SR 210 freeway, currently under construction.

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

1.2 Traffic Congestion

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 regionally significant arterials within Claremont and the Level of Service (LOS) at selected intersections.

Supplemental traffic counts were made at congested points within Claremont in order to update the intersection LOS. **Table 2** indicates the peak-hour LOS at selected intersections.

TABLE 2: LEVEL OF SERVICE (LOS) OF SELECTED INTERSECTIONS, CLAREMONT STUDY AREA

Intersection	AM Peak Period LOS	PM Peak Period LOS
Foothill Boulevard / Towne Avenue	C	**E**
Foothill Boulevard / Indian Hill Boulevard	F	F
Indian Hill Boulevard / Arrow Highway	C	C
Indian Hill Boulevard / I-10 eastbound ramps	D	D
Indian Hill Boulevard / I-10 westbound ramps	D	D

LOS values are based upon intersection turn movement counts conducted during the week of June 25, 2001.
Data was analyzed utilizing the 1997 Highway Capacity Manual method.

The intersections identified in Table 2 are based on June, 2001 traffic counts and supplement input from City staff. The table indicates that only the Indian Hill Boulevard/Arrow Highway intersection operates at acceptable LOS during both peak periods. **Figure 4** in Appendix A illustrates the congested areas in the city as verified by the City of Claremont during project coordination meetings. The worst-case LOS of an intersection or arterial defines its performance. Therefore, the corridors defined in Figure 4 as congested will continue to be noted as congested for the purposes of this project.

The information below provides a summary of congestion issues in Claremont as indicated by City staff during project coordination meetings and correspondence.

- The highest levels of congestion in the City are located at the Indian Hill Boulevard intersections with Foothill Boulevard, Arrow Highway, and the I-10 freeway ramps.
- The SR 30 (now SR 210) opening is anticipated to reduce traffic elsewhere in the City. The City expects that the bottleneck on Baseline will be mitigated by the SR 30 opening.
- There is an existing radius problem at the First Street/Indian Hill Boulevard, along the City's transit corridor. The intersection is planned for improvement to widen the First Street eastbound lanes and change the split phase of the traffic signal timing.
- There are seven Claremont Colleges, with a total current enrollment of over 5000 students. Parking overflow from the colleges is an issue, especially on residential streets.

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.

Claremont is primarily a developed community with established traffic patterns. No major development projects are currently planned, outside of the current redevelopment of the west side of the downtown area. This area lies to the west of Indian Hill Boulevard, north of First Street.

Figure 5 in Appendix A indicates the 24 existing traffic signal control equipment locations on the study area arterials within Claremont. **Appendix B** provides a list of the locations of these traffic signals. Issues concerning the City's existing traffic signals, and its objectives for planned (and desired but not funded) equipment, including a communications system, are provided in the following lists:

Existing System

- All current traffic signals utilize Type-170 controllers.
- The City does not have a Communication Master Plan.
- Signal coordination is done via fixed time plans at each controller.
- Signal timing efforts are contracted out.
- Arrow Highway currently has WWV equipment. There is a fiber optic conduit, owned by GST Telecom, that extends the whole length of this arterial within the City.
- Vehicle detection is done by an advanced vehicle loop detection system.
- Bicycle detection loops are installed at the intersection of Bonita Avenue / Indian Hill Boulevard
- Baseline signalized intersections are controlled by Caltrans
- Foothill Boulevard signalized intersections are controlled by Caltrans.

Recent Roadway Improvements

- The City received grant funding to design and build roundabouts in the City; but the grant will not be used after negative citizen reaction to a recent demonstration project.
- Caltrans widened Indian Hill/I-10 ramp to add stacking capacity.
- The County of Los Angeles completed the synchronization of traffic signals on Arrow Highway.
- The County proposed a lane-addition to the Arrow Highway corridor through Claremont as part of the synchronization project, but the City did not support the additional lane, and it was not constructed.
- According to the City, Caltrans proposed to re-stripe the Foothill Boulevard intersection at Indian Hill Boulevard, which operates poorly. No re-striping has been done, due to opposition from City staff and residents.
- The I-10 HOV projects are estimated to be completed within 2 years. This project included additional ramp capacity.
- Los Angeles County proposed re-striping Foothill Boulevard for three lanes. The City did not support the proposal.

Planned Improvements

- The City is planning a new traffic signal to Indian Hill Boulevard at Second Street in the future; Synchronization of this section of Indian Hill Boulevard is crucial to the City.
- Signals along Indian Hill Blvd. will be synchronized between American Avenue and Bonita Avenue as part of a previous MTA Call For Projects.
- The Indian Hill Blvd. synchronization will also need to be coordinated with Arrow Highway traffic volumes.
- The City's short-range fiber optic plan gives priority to lines to all schools and public buildings.
- The technology companies in the Business District and the Claremont Colleges would benefit from the higher bandwidth of fiber optic cable.
- The City's long-term fiber optic plan includes provisions of lines to all buildings.
- If the PVITS project installs fiber in the City of Claremont, one option is to attach it to the Edison poles above ground if available. This would save installation trenching costs
- The City's Cable TV infrastructure is likely to be upgraded, as AT&T Broadband recently purchased the City system.

Desired Improvements

- Monitoring and control of the Indian Hill/Bonita intersection.
- Monitoring and control of the Indian Hill/Arrow Highway intersection.
- Monitoring and control of Indian Hill Blvd. signals at I-10 ramps, and at American Avenue to the south
- Coordination on Indian Hill is desired with City of Pomona traffic signals to the south.
- It is desired to have improved traffic flow at Indian Hill Boulevard / Arrow Highway to facilitate movement of transit vehicles to and from the Claremont TransCenter to the north.
- The City has some knowledge of adaptive traffic signal control systems, that adapt to actual traffic conditions to optimize system performance. The City would consider implementing such a system, with more knowledge of its benefits.
- The City feels that an adaptive control system would improve traffic flow, and would automate the generation of signal timing plans.
- Closed-Circuit Television (CCTV) surveillance and video detection (VIDs) would be desirable for queue monitoring (primarily), as well as surveillance, incident verification, congestion monitoring, equipment status monitoring, and traffic counting. Red light enforcement cameras would need to go through the commission and City Council process prior to use. It is understood that the CCTV and VIDs being proposed are not for red-light enforcement. The City would like to have full video capabilities (pan/tilt/zoom) at Indian Hill/Arrow Highway.
- A CCTV system would be desirable for such functions at the Indian Hill intersections of Arrow Highway, the I-10 ramps, and signals near the downtown village area.
- Equipment location planning should consider that street lighting is spaced at 150-foot intervals.
- There is no anticipated public resistance to cameras.

Changeable Message Sign (CMS) Objectives

- The City will have concerns over the aesthetic effects of CMS on its roadways. The location and size of the sign would need to be reviewed prior to placement.
- The City is reluctant to allow or encourage freeway traffic to use local streets as alternate routes.

- The main decision-making points, ideal for CMS placement, are the intersections of Arrow Highway / Claremont Boulevard, Indian Hill Boulevard / Arrow Highway, and Indian Hill Boulevard / I-10.

Information Kiosk Objectives

- The City is currently in the process of obtaining a Foothill Transit Kiosk at the Claremont Depot (on First Street, east of Indian Hill Boulevard, within the Village). Note: This has been postponed indefinitely at this time.
- The Foothill Transit Kiosk will be linked to the Foothill Transit and City of Claremont web sites to provide transit scheduling and fare information, as well as tourism and special event information. Note: see above.
- There is an Automated Traveler Information System (ATIS) currently being developed for the Metrolink trainsets, and the Claremont Depot passenger platform.
- Foothill Transit is currently developing a real-time GPS; "next bus" information is planned to be included in information provided at several electronic kiosks on the campuses of the Claremont Colleges.
- The City Council wants to establish high-speed internet access at City Hall which could be utilized for a kiosk link.
- A kiosk may be installed in the City Hall lobby so that residents would be able to view map information and possibly video images.
- It would be very desirable to have traveler information on the web.

3.0 OPERATIONS AND MAINTENANCE ISSUES

The City of Claremont 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.

Operational Objectives

- A local city control site could be developed around the Local Area Network that currently connects City Hall with the Police Department.
- The City would like the local city control site to be located at the engineering department, with an additional workstation at the police department for viewing intersection congestion.
- Future traffic control systems would need to integrate signal operations, in order to ensure proper operation of the planned synchronization along Indian Hill Boulevard.
- Data collected from the traffic management system could be shared with Claremont planning personnel, local transit operators, emergency services agencies, and the Claremont Police Department.
- Subregional control of local signals would be acceptable to City under limited conditions, where such control makes sense to all agencies involved and when local traffic is not negatively impacted.

- The City would be willing to dedicate one-quarter of a full-time staff person's time to operate an automated traffic management system.
- Installation of equipment that requires trenching in street right-of-way is limited by two-year moratorium on pavement modification to newly paved streets.
- Placement of aerial equipment needs to be in compliance with the City's antenna height limitations.
- The City would continue to contract out troubleshooting and maintenance of problem equipment.

Desired Improvements

The current traffic control system used by the City of Claremont is not capable of the following features, but the City desires to have such functions in future system upgrades:

- Remote monitoring and control of specific traffic signals
- Remote data retrieval of phase indication, timing, traffic volume and speed
- Centralized special event management
- Centralized seasonal traffic management
- Centralized emergency management and disaster operations

Current Maintenance Issues

- Current maintenance is performed by contract only.
- The annual cost for maintenance of the city traffic control system is approximately $25,000.
- Problems with traffic control equipment are reported, in roughly equal percentages, by public call-in, police call-in, city traffic staff observations, and maintenance contractor observations.
- The City's ability to identify current traffic control equipment problems is adequate.
- The City has a signal maintenance contract with SMI at approximately $1100 per year per signal.
- The City's ability to respond to such problems is poor, as all maintenance work is contracted out. A call must be made by the City (or Police Department during non-business) hours for repair work.

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.

- The City feels that there should be improved daily communication among the Pomona Forum cities regarding traffic issues.
- The City is willing to share with other jurisdictions crucial data such as phase indication, timing, traffic volume and speed, and occupancy.
- The City would like to receive this same data, in turn, from neighboring local jurisdictions.
- The City would not support the creation of pre-determined timing strategies by a sub-regional entity, such as the project TMC.
- The only major known developments that will occur within Claremont in the next five years is a new college on Foothill of approximately 80 students and Claremont Hills.
- Councilperson Al Leiga represents the San Gabriel Valley Council of Governments on the Gold Line Construction Authority Board.

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 into tasks beyond this, such as the Concept of Operations and Alternatives Analysis.

Appendix A

Figure 1: Regionally Significant Arterials

Figure 2: Existing Truck Routes on Regionally Significant Arterials

Figure 3: Average Daily Traffic and Level of Service (LOS) at Selected Locations on Regionally Significant Arterials

Figure 4: Traffic Congestion Locations on Regionally Significant Arterials

Figure 5: Traffic Signal and Control Equipment Locations on Regionally Significant Arterials

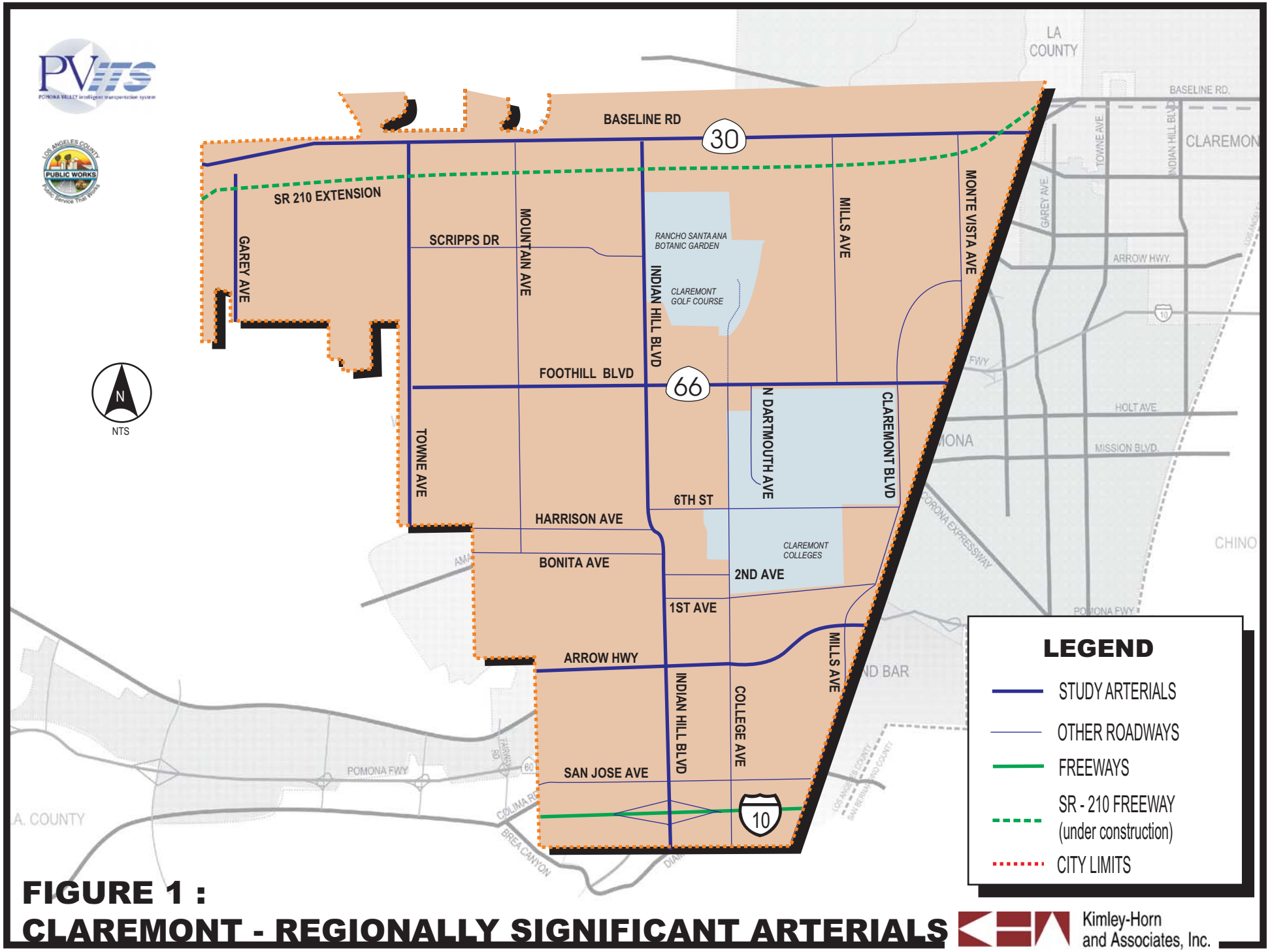

FIGURE 1 :
CLAREMONT - REGIONALLY SIGNIFICANT ARTERIALS

Kimley-Horn and Associates, Inc.

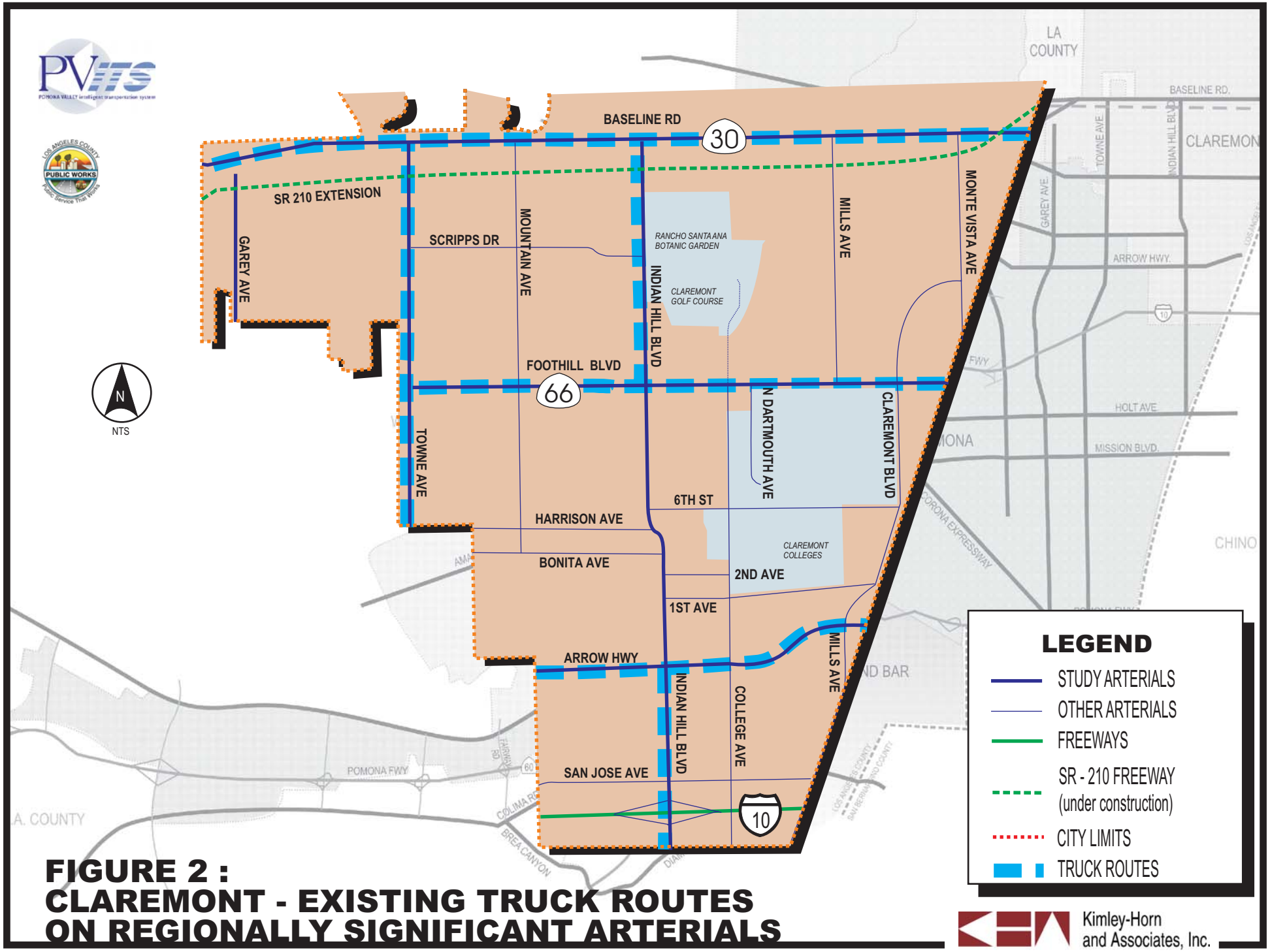

FIGURE 2 : CLAREMONT - EXISTING TRUCK ROUTES ON REGIONALLY SIGNIFICANT ARTERIALS

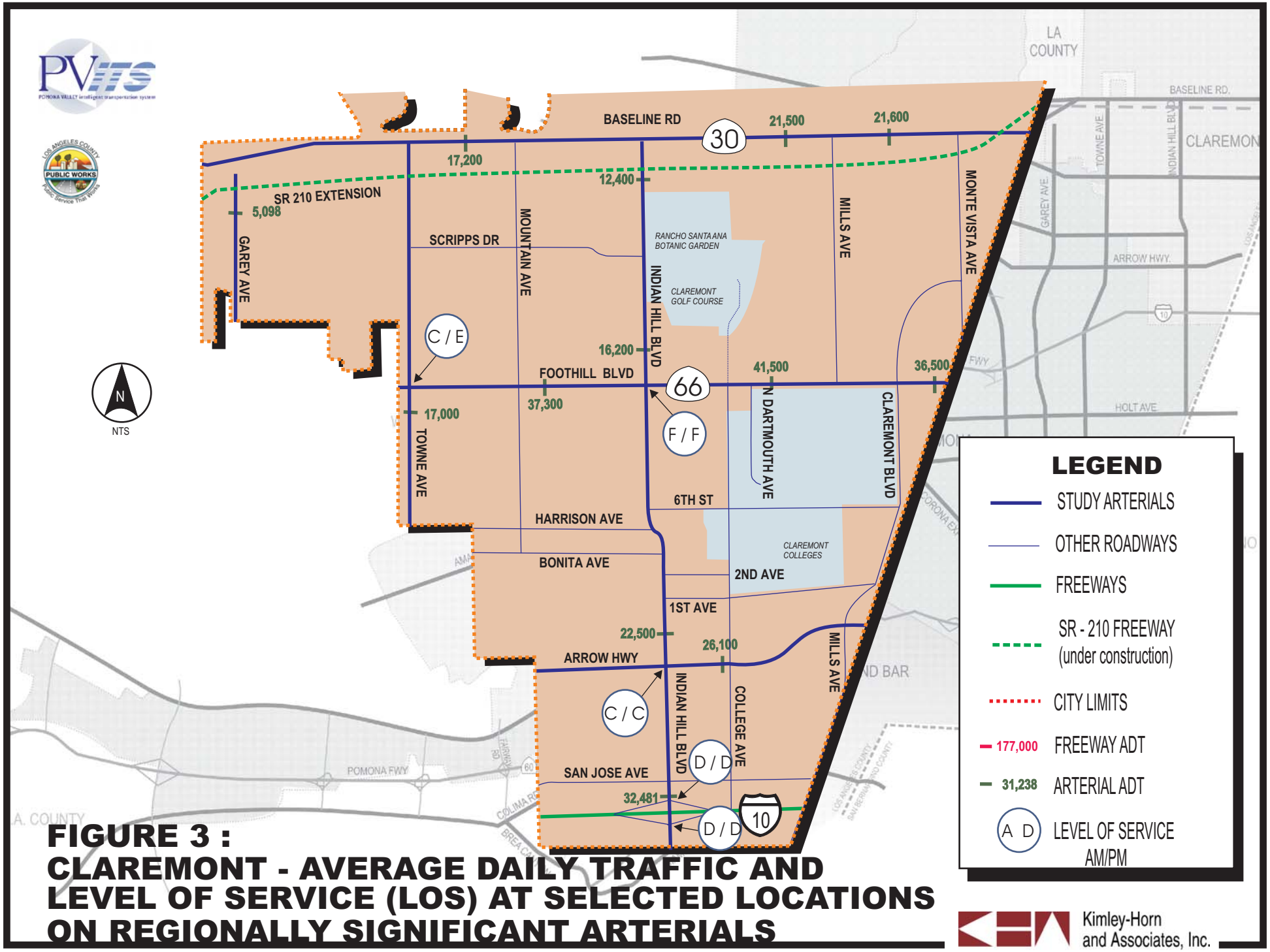

FIGURE 3 : CLAREMONT - AVERAGE DAILY TRAFFIC AND LEVEL OF SERVICE (LOS) AT SELECTED LOCATIONS ON REGIONALLY SIGNIFICANT ARTERIALS

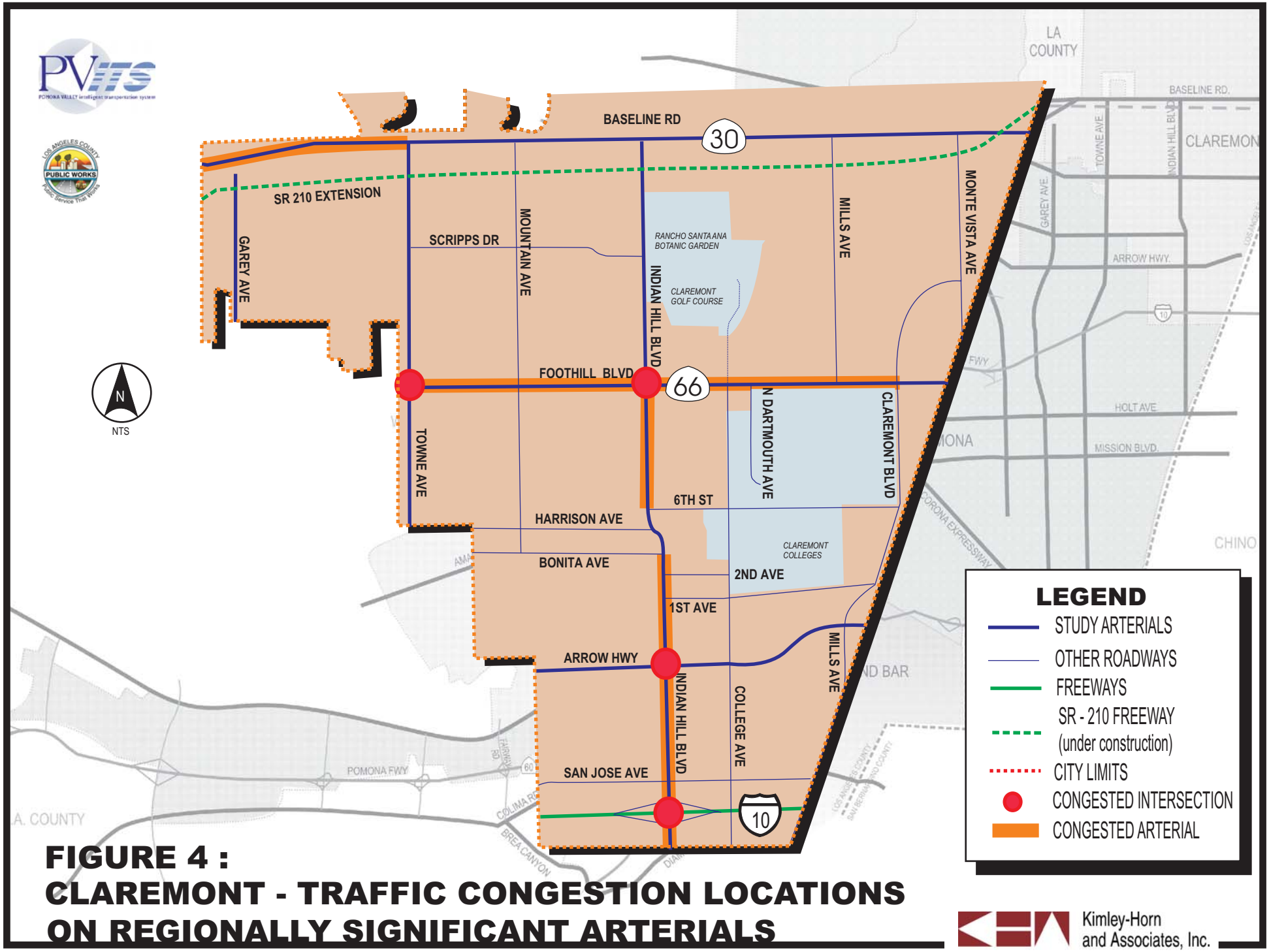

FIGURE 4 :
CLAREMONT - TRAFFIC CONGESTION LOCATIONS ON REGIONALLY SIGNIFICANT ARTERIALS

Kimley-Horn and Associates, Inc.

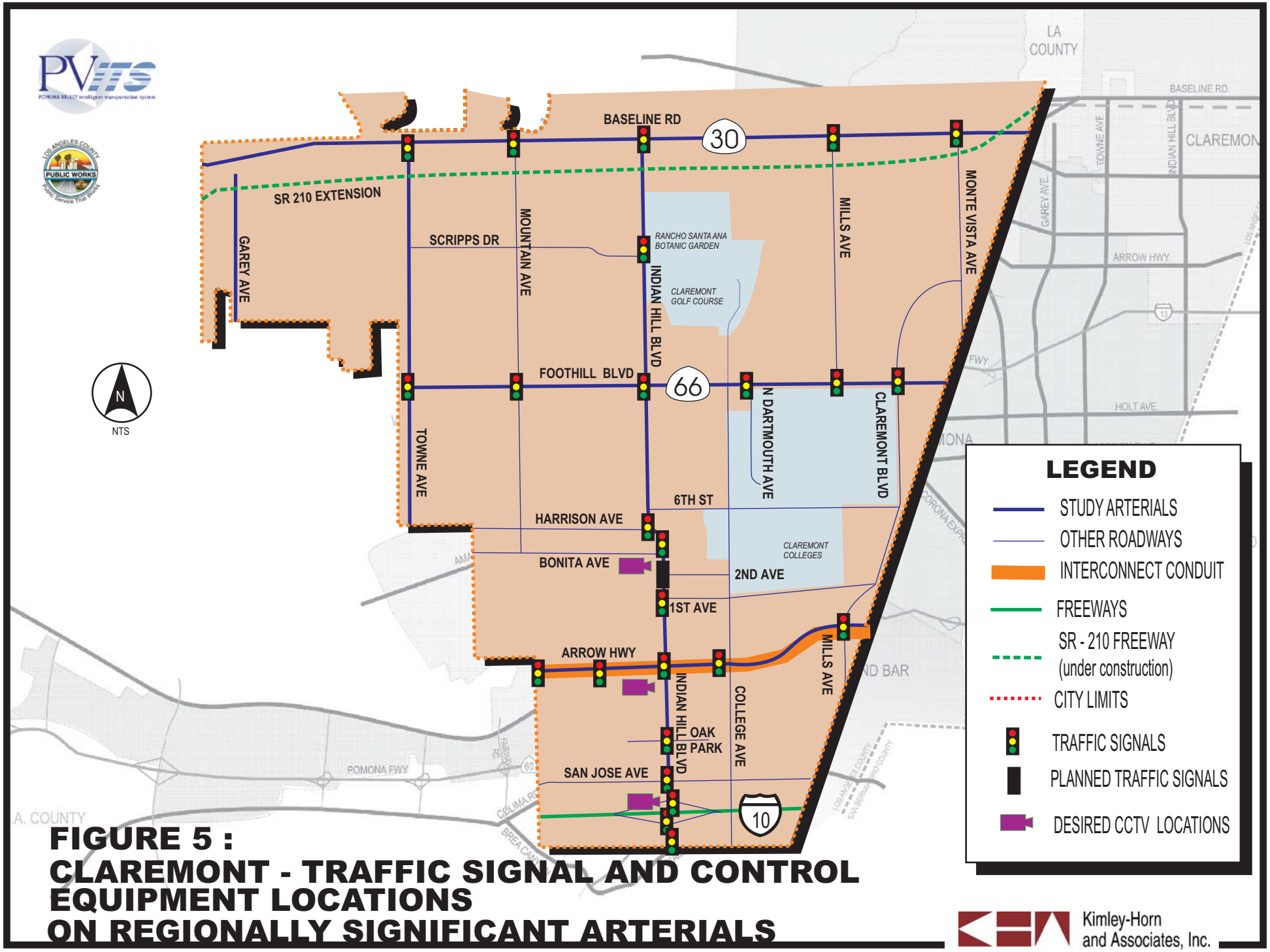

FIGURE 5 : CLAREMONT - TRAFFIC SIGNAL AND CONTROL EQUIPMENT LOCATIONS ON REGIONALLY SIGNIFICANT ARTERIALS

Kimley-Horn and Associates, Inc.

Appendix B

TRAFFIC SIGNAL EQUIPMENT ON REGIONALLY SIGNIFICANT ARTERIALS WITHIN CLAREMONT		
Signalized Intersection	**Phases**	**Ownership**
Arrow Highway / Mountain Avenue	2	Cities of Claremont & Pomona
Arrow Highway / Indian Hill Blvd.	8	City of Claremont
Arrow Highway / Cambridge Avenue	2	Cities of Claremont & Pomona
Arrow Highway / College Avenue	2	City of Claremont
Arrow Highway / Mills Avenue	3	City of Claremont
Baseline Road / Towne Avenue	5	Caltrans
Baseline Road / Mountain Avenue	4	Caltrans
Baseline Road / Indian Hill Blvd.	4	Caltrans
Baseline Road / Mills Avenue	4	Caltrans
Baseline Road / Monte Vista Avenue	6	Caltrans
Foothill Blvd. / Dartmouth Avenue	2	Caltrans
Foothill Blvd. / Towne Avenue	4	City of Claremont & Pomona
Foothill Blvd. / Mountain Avenue	4	City of Claremont
Foothill Blvd. / Indian Hill Blvd.	8	Caltrans
Foothill Blvd. / Mills Avenue	4	City of Claremont
Foothill Blvd. / Claremont Blvd.	8	Caltrans
Indian Hill Blvd./ American Avenue	4	Cities of Claremont & Pomona
Indian Hill Blvd./ Eastbound I-10 Ramps	4	Caltrans
Indian Hill Blvd./ Westbound I-10 Ramps	4	Caltrans
Indian Hill Blvd./ San Jose Avenue	6	City of Claremont
Indian Hill Blvd./ 1st Street	6	City of Claremont
Indian Hill Blvd./ Bonita Avenue	6	City of Claremont
Indian Hill Blvd./ Harrison Avenue	4	City of Claremont
Indian Hill Blvd./ Claremont High School	4	City of Claremont
Indian Hill Blvd./ Cinderella Drive – Oak Park	2	City of Claremont
Indian Hill Blvd. / 2nd St.	[PLANNED]	
NOTE: All current and planned signal equipment utilizes Type-170 controllers.		