Appendix D

Focused Traffic Analysis

November 16, 2020

Mr. Greg Martin, Senior Planner/Project Manager
RINCON CONSULTANTS, INC.
250 East 1st Street, Suite 1400
Los Angeles, CA 90012

RE: 1600 & 1616 West Cameron Residential Project Focused Traffic Analysis
Project No. 19322

Dear Mr. Martin:

INTRODUCTION

Ganddini Group, Inc. is pleased to provide this focused traffic analysis for the proposed 1600 & 1616 West Cameron Residential project in the City of West Covina. The purpose of this focused traffic analysis is to evaluate the traffic operations for the proposed 1600 & 1616 West Cameron Residential project.

Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with technical terms related to transportation engineering.

City of West Covina Public Works Department staff provided a review and requirements for this analysis on October 23, 2020. These City comments are provided in Appendix B.

This focused traffic analysis has been conducted in accordance with the *City of West Covina Transportation Study Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (September 2020).

PROJECT DESCRIPTION

Figure 1 shows the project location map. The project site is located at 1600 & 1616 West Cameron Avenue in the City of West Covina, California.

The site plan is illustrated on Figure 2. The 3.25-acre project site is currently occupied by 35,102 square feet of general office land use. The 14,157 square foot building at 1600 West Cameron Avenue is currently occupied by the Aspen Village Community Association and GE Monogram Expert. The 20,945 square foot building at 1616 West Cameron Avenue is currently occupied by the First Financial Corporate Center building. The proposed project involves construction of 84 multifamily residential (mid-rise) dwelling units.

The project proposes one full access driveway at West Cameron Avenue. The project access will not be gated. The project opening year is 2022.

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for existing conditions based on a field survey of the study area. Regional access to the project site is provided by the I-10 Freeway located

approximately 0.2 miles north of the project site. Key roadways providing local circulation include West Cameron Avenue and Toluca Avenue.

EXISTING TRAFFIC VOLUMES

Existing peak hour volumes are based upon AM peak period and PM peak period intersection turning movement counts. The AM peak period was counted between 7:00 AM and 9:00 AM and the PM peak period was counted between 4:00 PM and 6:00 PM. The actual peak hour within the peak period is the four consecutive 15-minute periods with the highest total volume. Thus, the weekday PM peak hour at one intersection may be 4:45 PM to 5:45 PM if those four consecutive 15-minute periods have the highest combined volume. Intersection turning movement count worksheets are provided in Appendix C.

The current COVID-19 pandemic and related stay-at-home orders imposed by state and local municipalities have resulted in a substantial decrease in traffic volumes. In addition to the current public health restrictions, it is anticipated that the pandemic may have a lasting effect on travel behaviors, such as increased telecommuting. To provide a conservative analysis, the Existing conditions traffic volumes used in this analysis are based on historic counts with adjustments applied with the intent to represent pre-pandemic conditions for the current year. This approach is likely to overestimate actual volumes for the near future since many commuters are expected to continue working from home even as stay-at-home orders are eased.

Historical intersection turning movement counts conducted in March 2018 were obtained for the study intersection from the Tract Map No. 77133 and Precise Plan No. 17-04 Traffic Impact Analysis (Revised) (Kunzman Associates, Inc., April 27, 2018). This project is located adjacent to the project site to the southeast. The AM and PM peak hour traffic volumes based on these historical counts were adjusted by a growth rate of one percent per year over a two-year period to reflect existing year 2020 conditions prior to issuance of statewide stay-at-home orders.

The west leg of the West Cameron Avenue at Toluca Avenue intersection was open and operational when the March 2018 traffic counts were obtained. A northbound left turn lane was also striped at this time. This northbound left turn lane and the west leg of the intersection has been removed. Therefore, the traffic volumes were manually adjusted to reflect existing lane geometry at this intersection.

Figure 4 and Figure 5 show the Existing AM peak hour and PM peak hour intersection turning movement volumes. Peak hour volumes shown in the figures and Level of Service calculations throughout this report are based on the measured count data with adjustments described above.

INTERSECTION ANALYSIS METHODOLOGY

Intersection Capacity Utilization

In accordance with City of West Covina requirements, analysis of signalized intersections is based on the Intersection Capacity Utilization (ICU) methodology. The ICU methodology compares the volume of traffic using the intersection to the capacity of the intersection. The resulting volume-to-capacity (V/C) ratio represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. The volume-to-capacity ratio is then correlated to a performance measure known as Level of Service based on the following thresholds:

Level of Service	Volume/Capacity Ratio
A	≤ 0.600
B	0.601 to 0.700
C	0.701 to 0.800
D	0.801 to 0.900
E	0.901 to 1.000
F	> 1.000

Source: Transportation Research Board, Interim Materials on Highway Capacity, Transportation Research Circular No. 212, January 1980.

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). ICU analysis was performed using the Vistro software. Consistent with City of West Covina guidelines, this analysis uses the following input parameters for the ICU analysis: 1,800 vehicles per hour per lane for through and turn lanes, 3,240 vehicles per hour for dual left-turn lanes, and a total clearance time of 10 percent.

Intersection Delay Method

The technique used to assess the performance of unsignalized intersections is known as the intersection delay methodology based on the procedures contained in the Highway Capacity Manual (Transportation Research Board, 6th Edition). The methodology considers the traffic volume and distribution of movements, traffic composition, geometric characteristics, and signalization details to calculate the average control delay per vehicle and corresponding Level of Service. Control delay is defined as the portion of delay attributed to the intersection traffic control (such as a traffic signal or stop sign) and includes initial deceleration, queue move-up time, stopped delay, and final acceleration delay. The intersection control delay is then correlated to Level of Service based on the following thresholds:

Level of Service	Intersection Control Delay (Seconds / Vehicle)	
	Signalized Intersection	Unsignalized Intersection
A	≤ 10.0	≤ 10.0
B	> 10.0 to ≤ 20.0	> 10.0 to ≤ 15.0
C	> 20.0 to ≤ 35.0	> 15.0 to ≤ 25.0
D	> 35.0 to ≤ 55.0	> 25.0 to ≤ 35.0
E	> 55.0 to ≤ 80.0	> 35.0 to ≤ 50.0
F	> 80.0	> 50.0

Source: Transportation Research Board, Highway Capacity Manual (6th Edition).

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). At intersections with traffic signal or all way stop control, Level of Service is determined by the average control delay for the overall intersection. At intersections with cross street stop control (i.e., one- or two-way stop control), Level of Service is determined by the average control delay for the worst individual movement (or movements sharing a single lane). Intersection delay analysis was performed using the Vistro software.

PERFORMANCE STANDARDS

The City of West Covina has established minimum acceptable Level of Service standards during peak hour conditions of Level of Service (LOS) E or better. Therefore, LOS E or better is considered acceptable and LOS F is considered unacceptable.

NEED FOR IMPROVEMENTS

To address operational impacts associated with a project at signalized study intersections within the City of West Covina, a project may be required to provide improvements at the discretion of the City to reduce LOS to an acceptable level if:

- The addition of project generated trips is forecast to cause an increase in volume-to-capacity of 0.02 or greater when the intersection degrades from acceptable LOS (LOS E or better) to unacceptable LOS (LOS F).

To address operational impacts associated with a project at unsignalized study intersections within the City of West Covina, a project may be required to provide improvements at the discretion of the City to reduce LOS to an acceptable level if both of the following conditions are met:

- The addition of project generated trips degrades an intersection from acceptable LOS (LOS E or better) to unacceptable LOS (LOS F).

- The project related increase in traffic contributes 10 percent or more to the total peak hour volume at an intersection that is already operating at LOS F.

EXISTING INTERSECTION LEVEL OF SERVICE

The intersection Levels of Service for Existing conditions have been calculated and are shown in Table 1. Existing intersection Level of Service worksheets are provided in Appendix D.

As shown in Table 1, the existing study intersection of West Cameron Avenue at Toluca Avenue currently operates at Levels of Service F during the peak hours for Existing conditions.

EXISTING TRAFFIC SIGNAL WARRANT ANALYSIS

The unsignalized study intersection of West Cameron Avenue at Toluca Avenue currently satisfies the *California Manual on Uniform Traffic Controls* (CA MUTCD) peak hour volume warrant for Existing conditions. Traffic signal warrant worksheets are provided in Appendix E.

GENERAL PLAN CONTEXT

Figure 6 shows the City of West Covina General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan.

As shown on Figure 6, West Cameron Avenue is classified as a Commercial/Mixed-Use Main. Toluca Avenue is not classified.

TRANSIT SERVICE

Figure 7 shows existing public transit facilities and routes in the project vicinity provided by Foothill Transit. As shown on Figure 7, the study area is currently served by Foothill Transit bus service Route 272 along West Cameron Avenue.

Figure 8 shows existing public transit facilities and routes in the project vicinity provided by Go West Shuttle. As shown on Figure 8, the study area is currently not served by Go West Shuttle Red Route along West Cameron Avenue, but is served by Sunset Avenue south of the project site, Orange Avenue north of the project site, and West Covina Parkway east of the project site. All three of these roadways are within 0.2 miles of the project site.

BICYCLE FACILITIES

The City of West Covina bike paths are illustrated on Figure 9. There are currently no existing bicycle lanes along West Cameron Avenue or Toluca Avenue. West Cameron Avenue is classified as a proposed bike lane and Toluca Avenue is classified as a proposed bike route.

PEDESTRIAN FACILITIES

Existing pedestrian facilities in the project vicinity are shown on Figure 10. Sidewalks are provided on West Cameron Avenue and Toluca Avenue adjacent to the project site.

PROJECT TRIP GENERATION

Table 2 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers (ITE) *Trip Generation Manual* (10th Edition, 2017). Based on review of the land use descriptions, the project trip generation is based on weekday AM peak hour, PM peak hour, and daily trip generation rates for Land Use Code 710 – General Office and Land Use Code 221 - Multifamily Housing (Mid-Rise). The number of trips forecast to be generated by the proposed project is determined by multiplying the trip generation rates by the land use quantities.

As shown in Table 2, the existing site currently is estimated to generate approximately 342 daily trips, including 41 trips during the AM peak hour and 40 trips during the PM peak hour, and the proposed land use is forecast to generate approximately 457 daily trips, including 30 trips during the AM peak hour and 37 trips during the PM peak hour. The proposed project is forecast to result in 115 net new daily trips compared to the existing project site, including 11 fewer trips during the AM peak hour and 3 fewer trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Figure 11 shows the project trip distribution of forecast travel patterns for project-generated trips. The project trip distribution patterns are based on review of existing volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Project morning and evening peak hour intersection turning movement volumes expected from the project are depicted on Figure 12 and Figure 13, respectively.

EXISTING PLUS PROJECT TRAFFIC VOLUMES

Existing Plus Project volume forecasts were developed by adding the project generated trips to Existing volumes. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figure 14 and Figure 15, respectively.

EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

The intersection Levels of Service for Existing conditions have been calculated and are shown in Table 1. Existing intersection Level of Service worksheets are provided in Appendix D.

As shown in Table 3, the study intersection of West Cameron Avenue at Toluca Avenue is projected to continue operating at Levels of Service F during the peak hours for Existing Plus Project conditions.

The study area intersection of West Cameron Avenue at Toluca Avenue is projected to operate at acceptable Levels of Service (LOS B) during the peak hours with installation of a traffic signal.

OPERATIONAL IMPACT ASSESSMENT

The unsignalized intersection of West Cameron Avenue at Toluca Avenue did not degrade from acceptable LOS to unacceptable LOS due to project generated trips since the intersection operates at unacceptable LOS during both peak hours for Existing conditions. The project related increase in traffic does not meet the 10 percent or more threshold for an unsignalized intersection already operating at LOS F; in fact, intersection operations are forecast to improve as result of the decrease in peak hour volume generation associated with the proposed project.

TRASH TRUCK TURNING TEMPLATES

Figure 16 exhibits the trash truck circulation from West Cameron Avenue through the project site. Figure 17 shows the trash truck turning templates entering West Cameron Avenue, traversing the project site, and exiting to West Cameron Avenue. As shown on these figures, trash trucks can sufficiently navigate the on-site drive aisles.

CONSTRUCTION TRAFFIC

Compared to the project trip generation, construction traffic is expected to be minor and temporary. To further lessen the impact of construction traffic, the project will be required to comply with all standard conditions pertaining to construction including work hours, traffic control plan, haul route, access, oversized-vehicle transportation permit, site security, noise, vehicle emissions, and dust control. All construction related trips should be restricted to off-peak hours, whenever possible.

A construction work site traffic control plan shall be submitted to the City for review and approval prior to the start of any construction work. The plans shall show the location of any roadway, sidewalk, bike route, bus stop or driveway closures, traffic detours, haul routes, hours of operation, protective devices, warning signs and access to abutting properties. Temporary traffic controls used around the construction area should adhere to the standards set forth in the California Manual of Uniform Traffic Control Devices and construction activities should adhere to applicable local ordinances.

Site development would require the use of haul trucks during site clearing, demolition, remediation, and excavation and the use of a variety of other construction vehicles throughout the construction work at the

site. Transportation of heavy construction equipment and or materials, which requires the use of oversized vehicles, will require the appropriate transportation permit.

PROJECT DESIGN FEATURES

The proposed project shall construct the following improvements to provide project site access:

- Construct the West Cameron Avenue (NS) at Project Driveway (EW) to provide one inbound lane and one outbound lane with eastbound stop-control and the following lane configurations:
  - Northbound: one left turn lane (two-way left turn median) and two through lanes;
  - Southbound: one though lane and one shared through/right turn lane; and
  - Eastbound: one shared left/right turn lane.

The 95th percentile queue length for the northbound left turn lane (two-way left turn median) for Existing Plus Project conditions during the AM peak hour is 0.47 feet and is 1.68 feet during the PM peak hour. Therefore, it is recommended that 25 feet of storage length is provided. The two-way left turn median currently provides over 25 feet of storage length and is sufficient as currently constructed to accommodate northbound left turns into the project site.

This analysis also assumes the project shall comply with the following conditions as part of the City of West Covina standard development review process:

- A construction work site traffic control plan shall comply with State standards set forth in the California Manual of Uniform Traffic Control Devices and shall be submitted to the City for review and approval prior to the issuance of a grading permit or start of construction. The plan shall identify any roadway, sidewalk, bike route, or bus stop closures and detours as well as haul routes and hours of operation. All construction related trips shall be restricted to off-peak hours to the extent possible.

- All on-site and off-site roadway design, traffic signing and striping, and traffic control improvements relating to the proposed project shall be constructed in accordance with applicable State/Federal engineering standards and to the satisfaction of the City of West Covina.

- Site-adjacent roadways shall be constructed or repaired at their ultimate half-section width, including landscaping and parkway improvements in conjunction with development, or as otherwise required by the City of West Covina.

- Adequate off-street parking shall be provided to the satisfaction of City of West Covina.

- Adequate emergency vehicle access shall be provided to the satisfaction of the West Covina Fire Department.

- The final grading, landscaping, and street improvement plans shall demonstrate that sight distance requirements are met in accordance with applicable City of West Covina/California Department of Transportation sight distance standards.

Mr. Greg Martin, Senior Planner/Project Manager
RINCON CONSULTANTS, INC.
November 16, 2020

VEHICLE MILES TRAVELED (VMT) ASSESSMENT

Background

California Senate Bill 743 (SB 743) directs the State Office of Planning and Research (OPR) to amend the California Environmental Quality Act (CEQA) Guidelines for evaluating transportation impacts to provide alternatives to Level of Service that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." In December 2018, the California Natural Resources Agency certified and adopted the updated CEQA Guidelines package. The amended CEQA Guidelines, specifically Section 15064.3, recommend the use of Vehicle Miles Travelled (VMT) as the primary metric for the evaluation of transportation impacts associated with land use and transportation projects. In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. All agencies and projects State-wide are required to utilize the updated CEQA guidelines recommending use of VMT for evaluating transportation impacts as of July 1, 2020.

The updated CEQA Guidelines allow for lead agency discretion in establishing methodologies and thresholds provided there is substantial evidence to demonstrate that the established procedures promote the intended goals of the legislation. Where quantitative models or methods are unavailable, Section 15064.3 allows agencies to assess VMT qualitatively using factors such as availability of transit and proximity to other destinations. The Office of Planning and Research (OPR) Technical Advisory on Evaluating Transportation Impacts in CEQA (State of California, December 2018) ["OPR Technical Advisory"] provides technical considerations regarding methodologies and thresholds with a focus on office, residential, and retail developments as these projects tend to have the greatest influence on VMT.

Screening Criteria

The City of West Covina adopted the *City of West Covina Transportation Study Guidelines for Vehicle Miles Traveled and Level of Service Assessment* (September 2020), and the City has provided this information for use in this analysis. Therefore, the project VMT impact has been assessed in accordance with the City of West Covina VMT guidelines and guidance from City staff.

Consistent with recommendations in the OPR Technical Advisory, the City of West Covina has established screening criteria for certain projects that may be presumed to have a less than significant VMT impact.

As noted by City of West Covina Public Works Department staff (included in Appendix B), the proposed project is screened out from a detailed VMT analysis because the project site is located in a Transit Priority Area (TPA) and in a low VMT area.

Foothill Transit Route 272 is still currently in operation along West Cameron Avenue. Therefore, the proposed project is reasonably expected to currently meet the requirements for being located in a TPA.

The proposed project land use (residential) is consistent with the land uses in the vicinity of the project site (also residential). A residential project is currently being constructed adjacent to the project site to the south and residential is located adjacent to the project site to the west. Therefore, the proposed project is reasonably expected to generate similar VMT as the existing land uses in this low-VMT area.

Therefore, the proposed project satisfies the TPA and low VMT area screening criteria and may be presumed to result in a less than significant VMT impact in accordance with City of West Covina VMT guidelines.

CONCLUSIONS

The existing site currently is estimated to generate approximately 342 daily trips, including 41 trips during the AM peak hour and 40 trips during the PM peak hour, and the proposed land use is forecast to generate approximately 457 daily trips, including 30 trips during the AM peak hour and 37 trips during the PM peak hour. The proposed project is forecast to result in 115 net new daily trips compared to the existing project site, including 11 fewer trips during the AM peak hour and 3 fewer trips during the PM peak hour.

The proposed project provides sufficient off-street parking spaces to satisfy the City of West Covina Municipal Code requirements.

Adequate trash truck circulation appears to be provided.

The proposed project satisfies the TPA and low VMT area screening criteria and may be presumed to result in a less than significant VMT impact in accordance with City of West Covina VMT guidelines.

Closing

It has been a pleasure to assist you with this project. Should you have any questions or if we can be of further assistance, please do not hesitate to call at (714) 795-3100.

Sincerely,

GANDDINI GROUP, INC.

Bryan Crawford | Senior Transportation Planner
Giancarlo Ganddini, TE, PTP | Principal Traffic Engineer

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Appendices

Table 1
Existing Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour [Delay][2]	AM Peak Hour LOS[3]	PM Peak Hour [Delay][2]	PM Peak Hour LOS[3]
2.	West Cameron Ave at Toluca Ave	CSS	[73.5]	F	[159.6]	F

Notes:

(1) CSS = Cross Street Stop

(2) Delay shown in [seconds/vehicle]. Per the Highway Capacity Manual, for intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

(3) LOS = Level of Service

Table 2
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			
Land Use	Source[1]	Units[2]	In	Out	Total	In	Out	Total	Daily
General Office	ITE 710	TSF	86%	14%	1.16	16%	84%	1.15	9.74
Multifamily Housing (Mid-Rise)	ITE 221	DU	26%	74%	0.36	61%	39%	0.44	5.44

Trips Generated									
			AM Peak Hour			PM Peak Hour			
Land Use	Quantity		In	Out	Total	In	Out	Total	Daily
Existing									
General Office	35.102	TSF	-35	-6	-41	-6	-34	-40	-342
Proposed									
Multifamily Housing (Mid-Rise)	84	DU	8	22	30	23	14	37	457
Difference in Trips			**-27**	**+16**	**-11**	**+17**	**-20**	**-3**	**+115**

Notes:
(1) Source: Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017, ### = Land Use Code.
(2) TSF = Thousand Square Feet; DU = Dwelling Units

Table 3
Existing Plus Project Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour ICU/[Delay][2]	AM Peak Hour LOS[3]	PM Peak Hour ICU/[Delay][2]	PM Peak Hour LOS[3]
1.	West Cameron Ave at Project Dwy	CSS	[16.3]	C	[20.8]	C
2.	West Cameron Ave at Toluca Ave	CSS	[75.7]	F	[148.4]	F
	- With Improvements	TS	0.556	A	0.564	A

Notes:

(1) CSS = Cross Street Stop; TS = Traffic Signal

(2) ICU = Intersection Capacity Utilization. Delay shown in [seconds/vehicle]. Per the Highway Capacity Manual, for intersections with cross street stop control, the delay and Level of Service for the worst individual movement (or movements sharing a single lane) are shown.

(3) LOS = Level of Service

Legend
(#) Study Intersection

Figure 1
Project Location Map

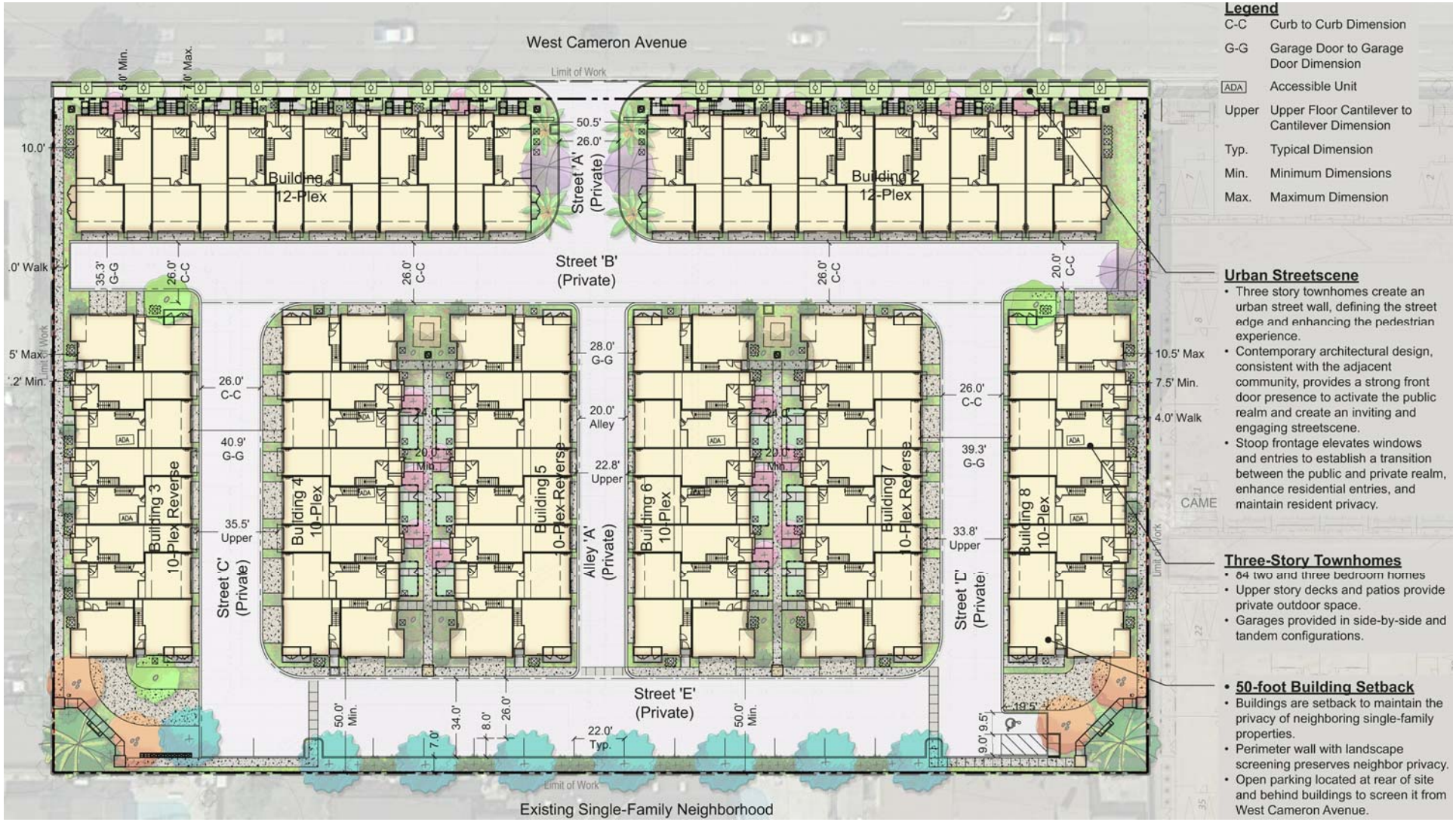
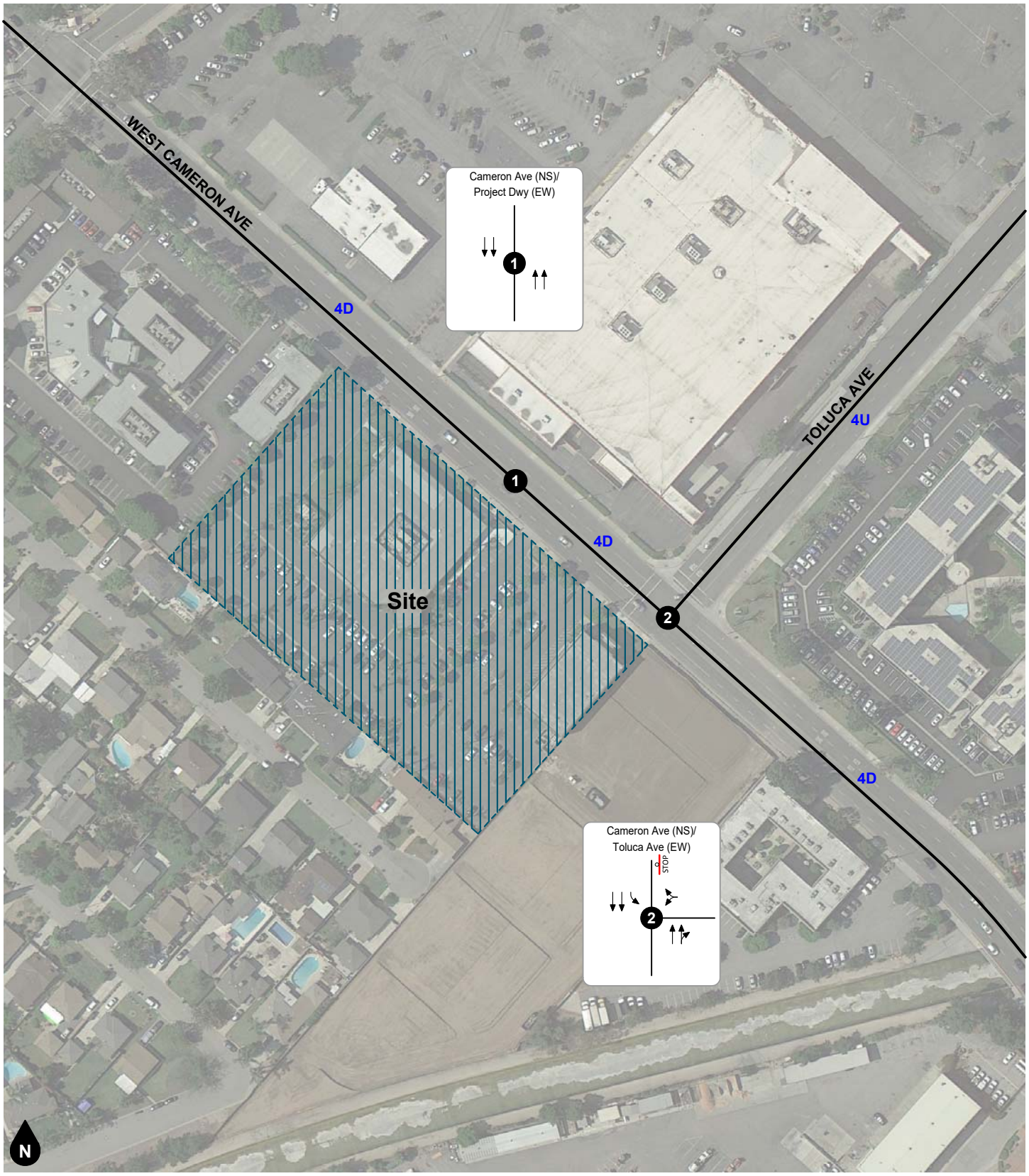


Figure 2
Site Plan



Legend

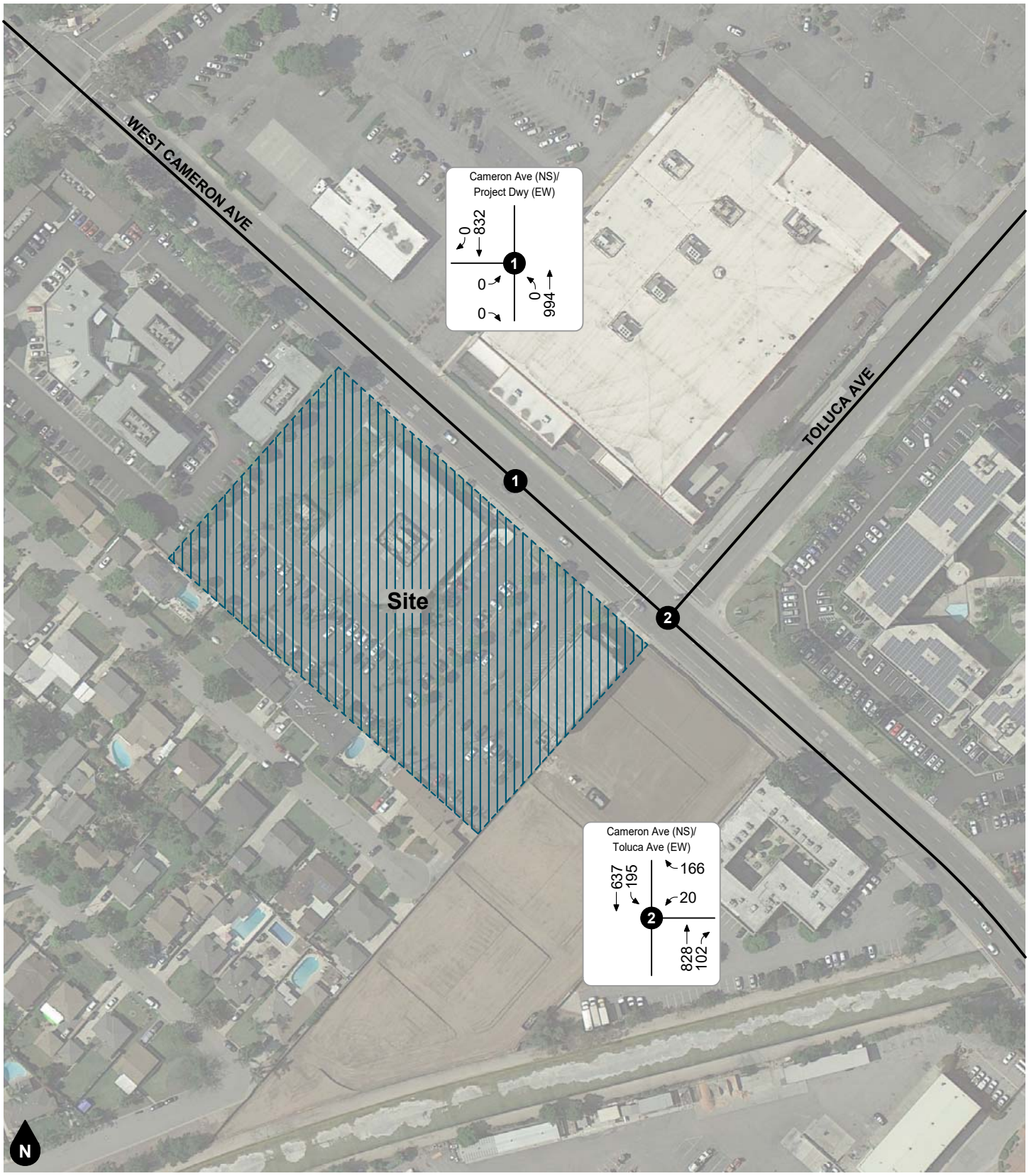
STOP Stop Sign

#D #-Lane Divided Roadway

#U #-Lane Undivided Roadway

Existing Lane

Figure 3
Existing Lane Geometry and Intersection Turning Movement Volumes



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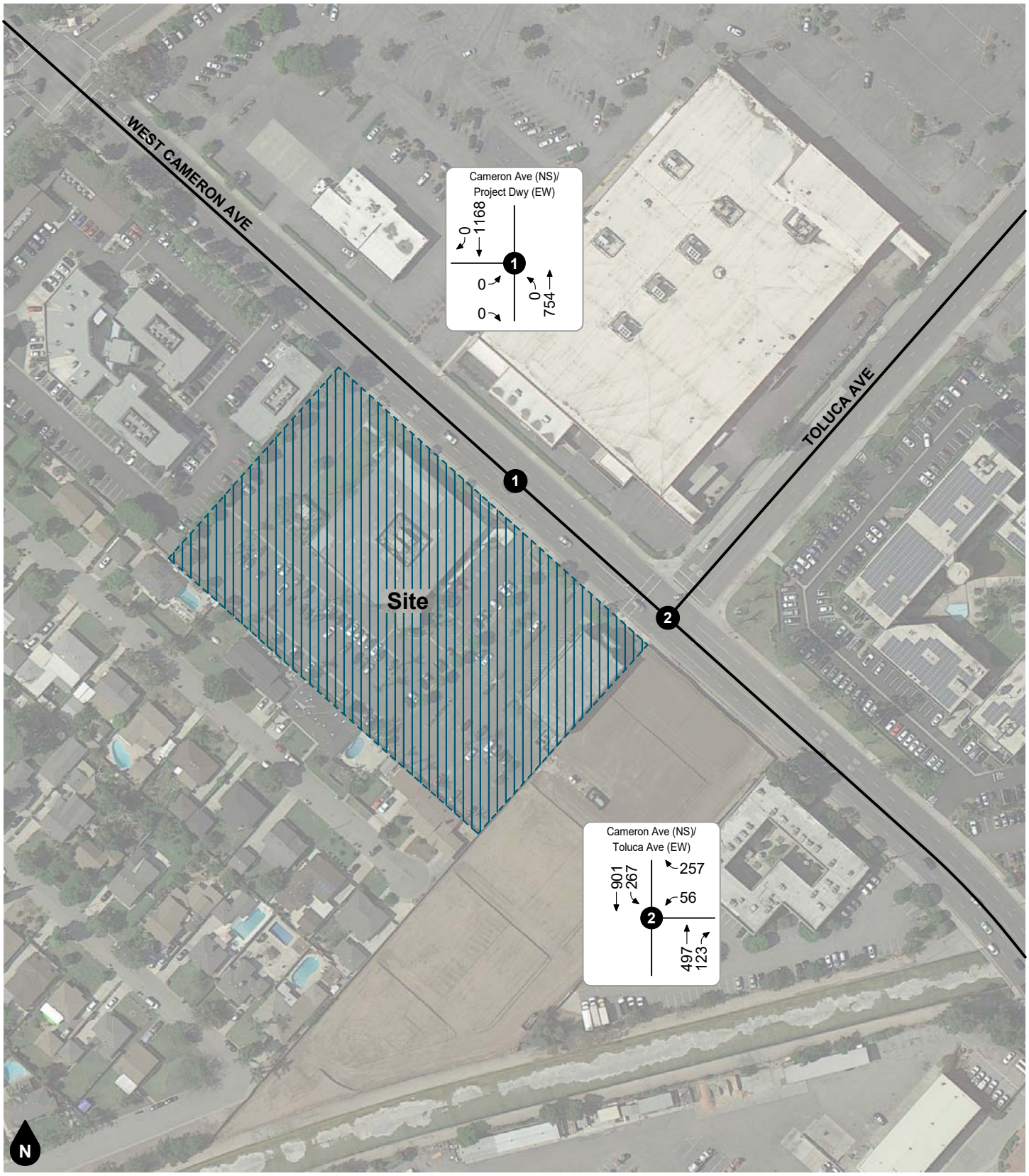
(#) Study Intersection

Figure 4
Existing AM Peak Hour Intersection Turning Movement Volumes



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(#) Study Intersection

Figure 5
Existing PM Peak Hour Intersection Turning Movement Volumes

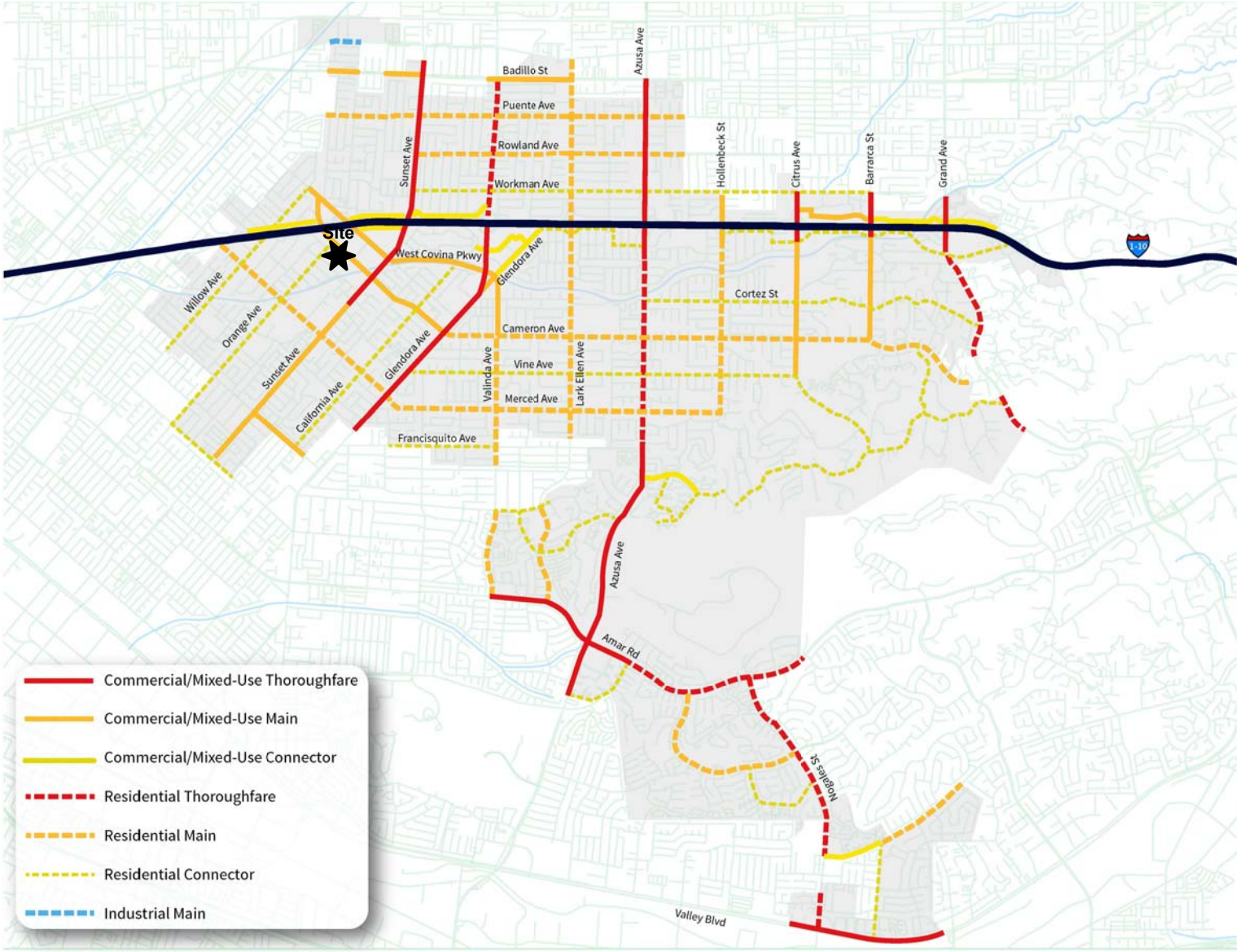


Figure 6
City of West Covina General Plan Circulation Element

Source: City of West Covina

Figure 7
Foothill Transit System Map

Source: Foothill Transit

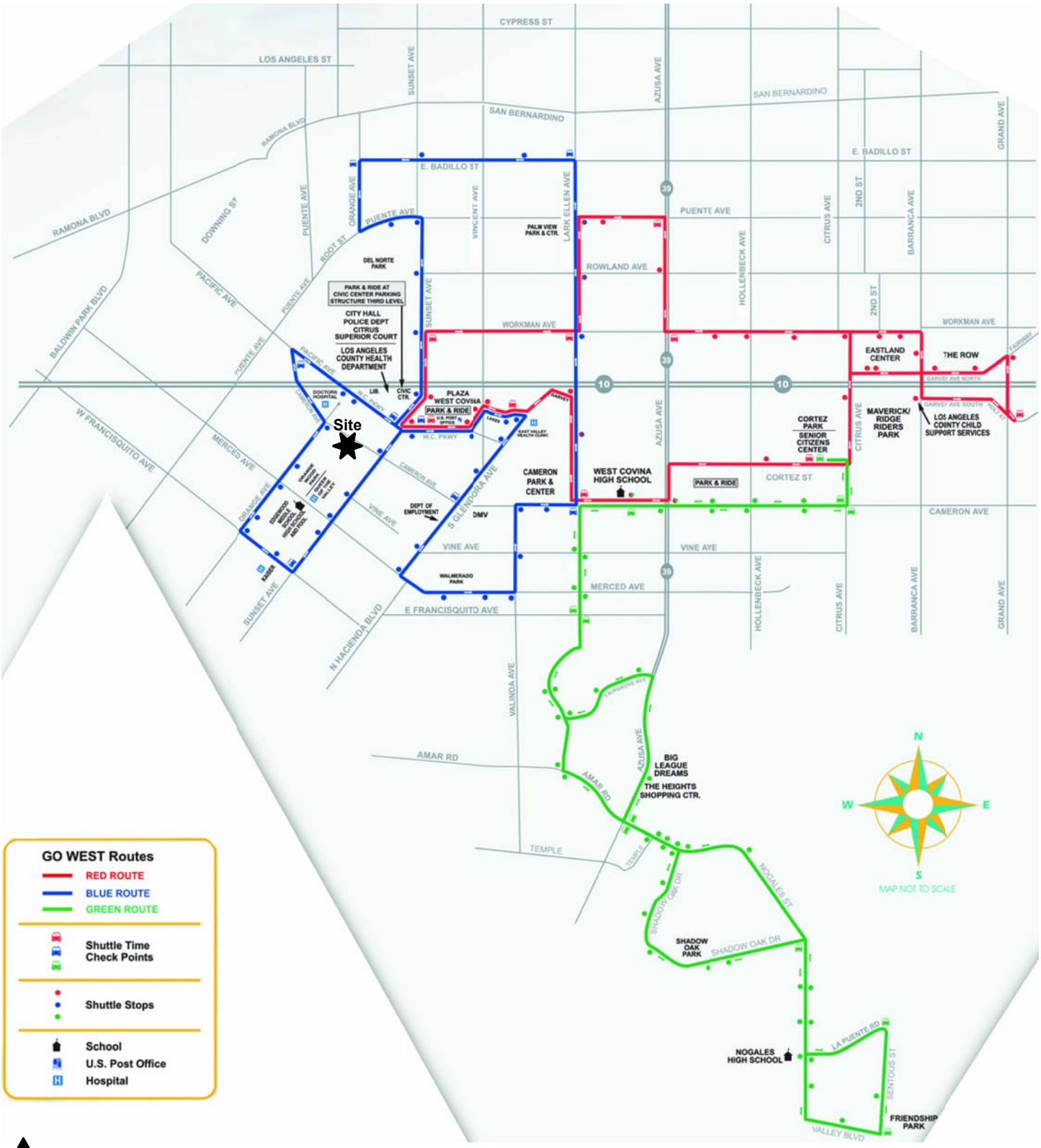


Figure 8
Go West Shuttle System Map

Source: Go West Shuttle

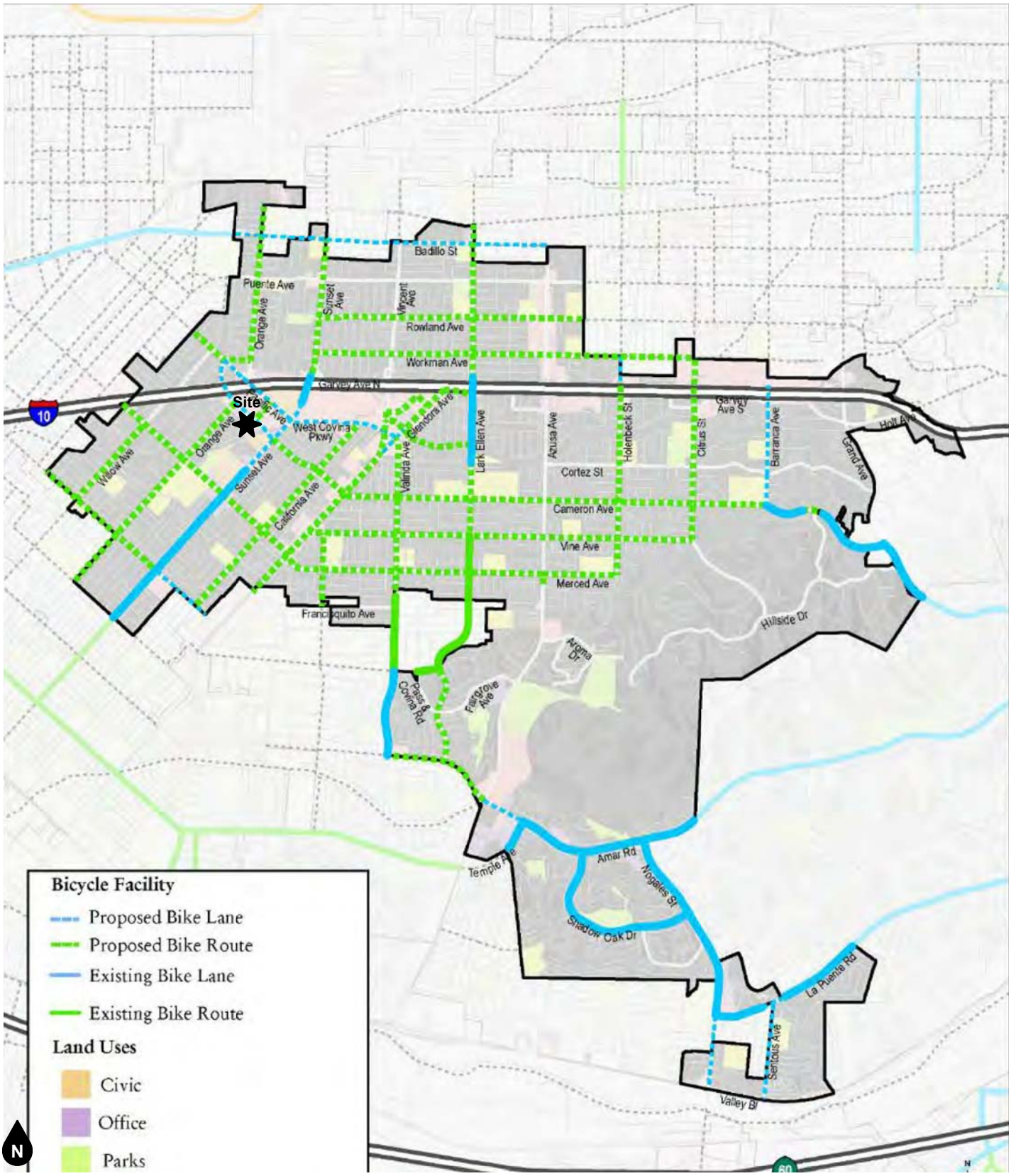
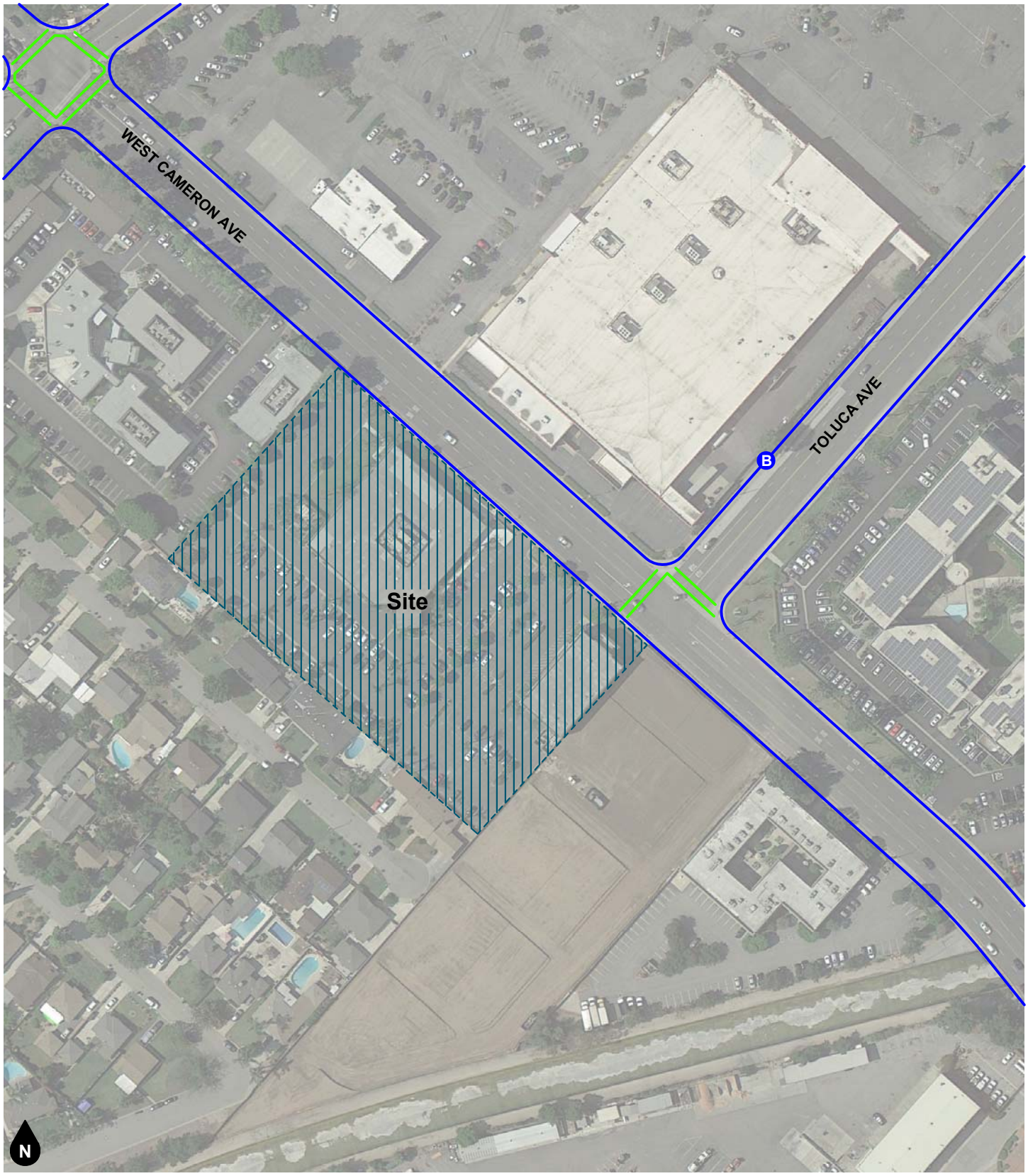


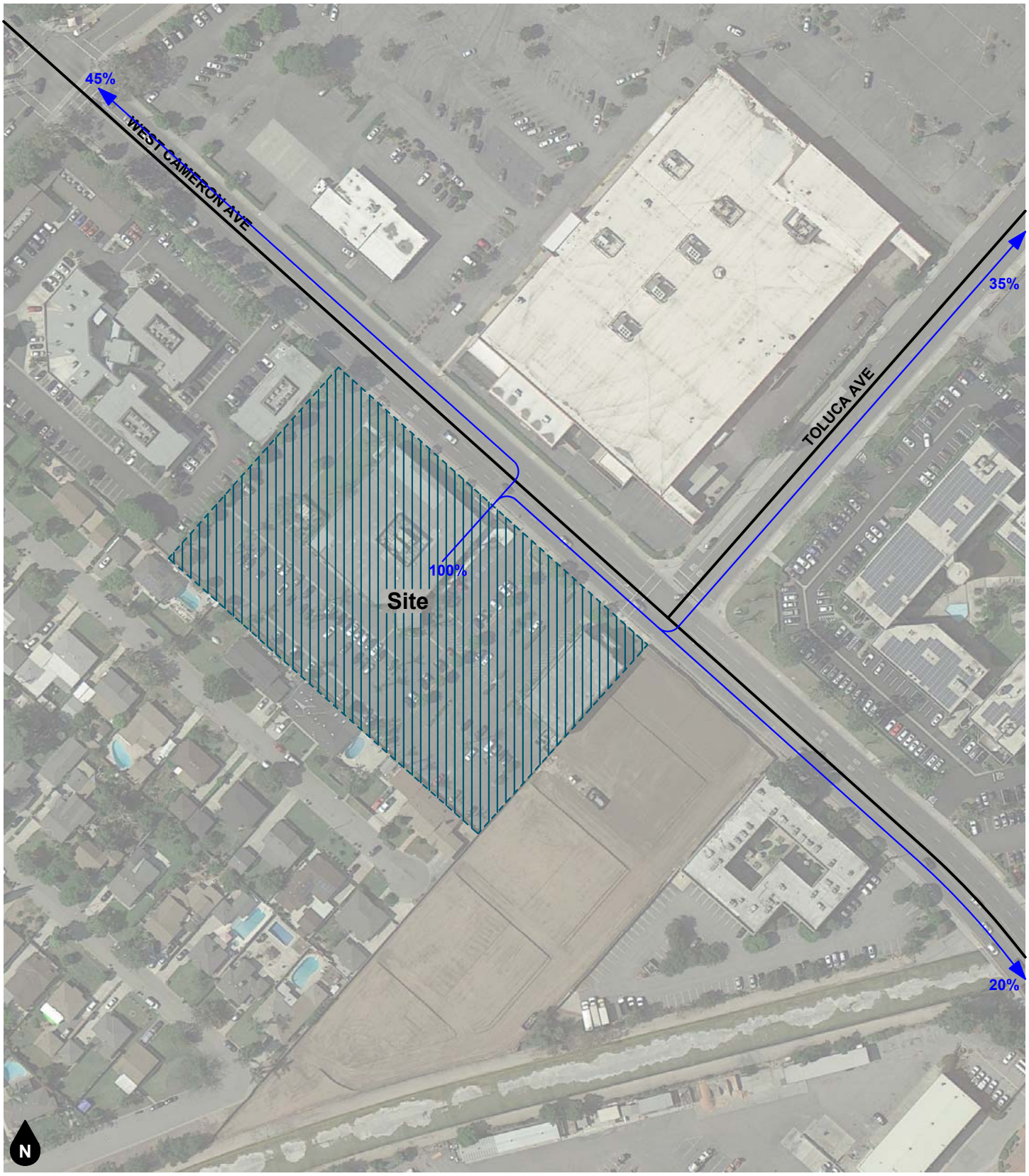
Figure 9
City of West Covina Proposed Bicycle Network

Source: City of West Covina



Legend
- Sidewalk
- Cross Walk
- B Bus Stop

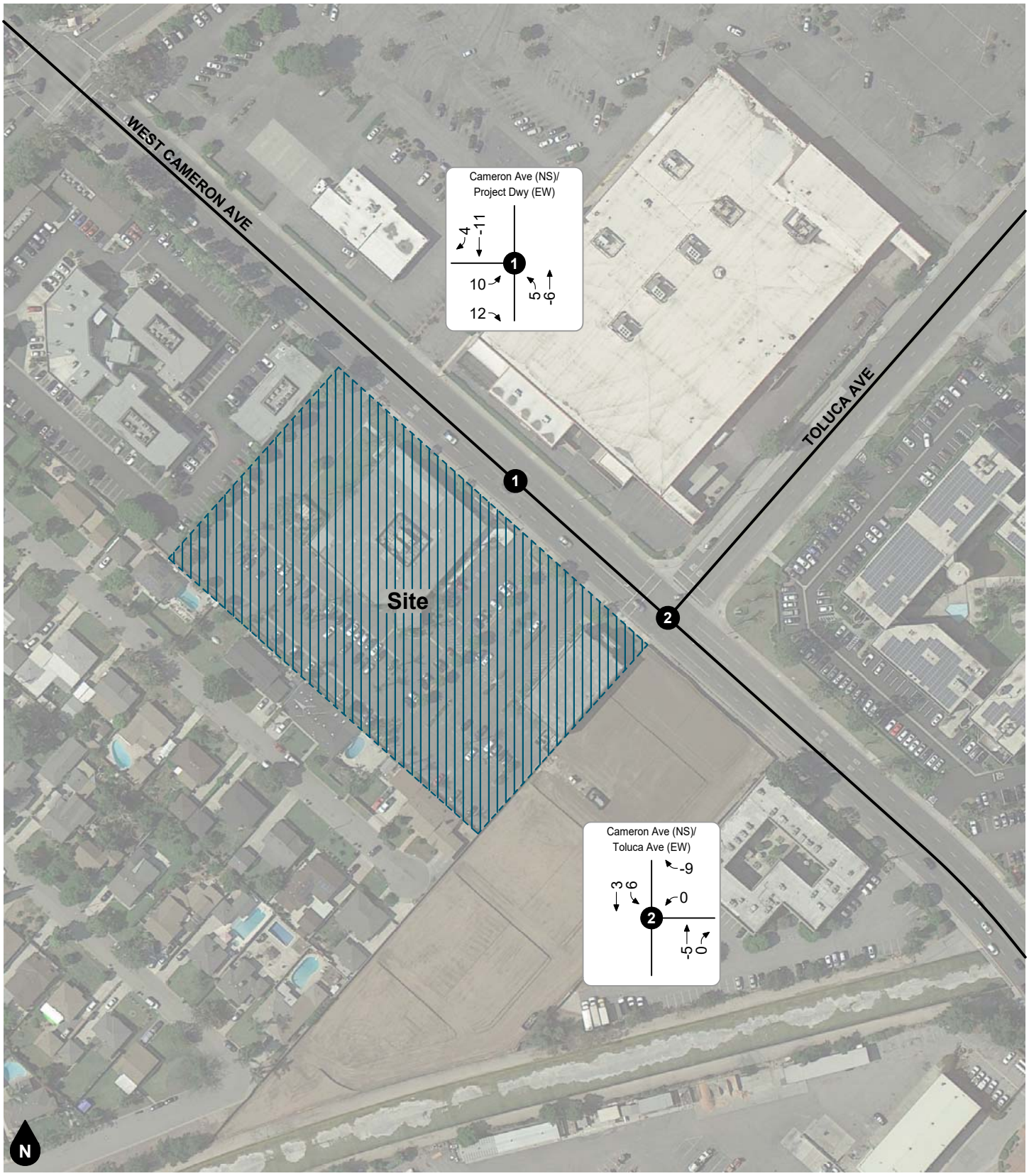
Figure 10
Existing Pedestrian Facilities



Legend

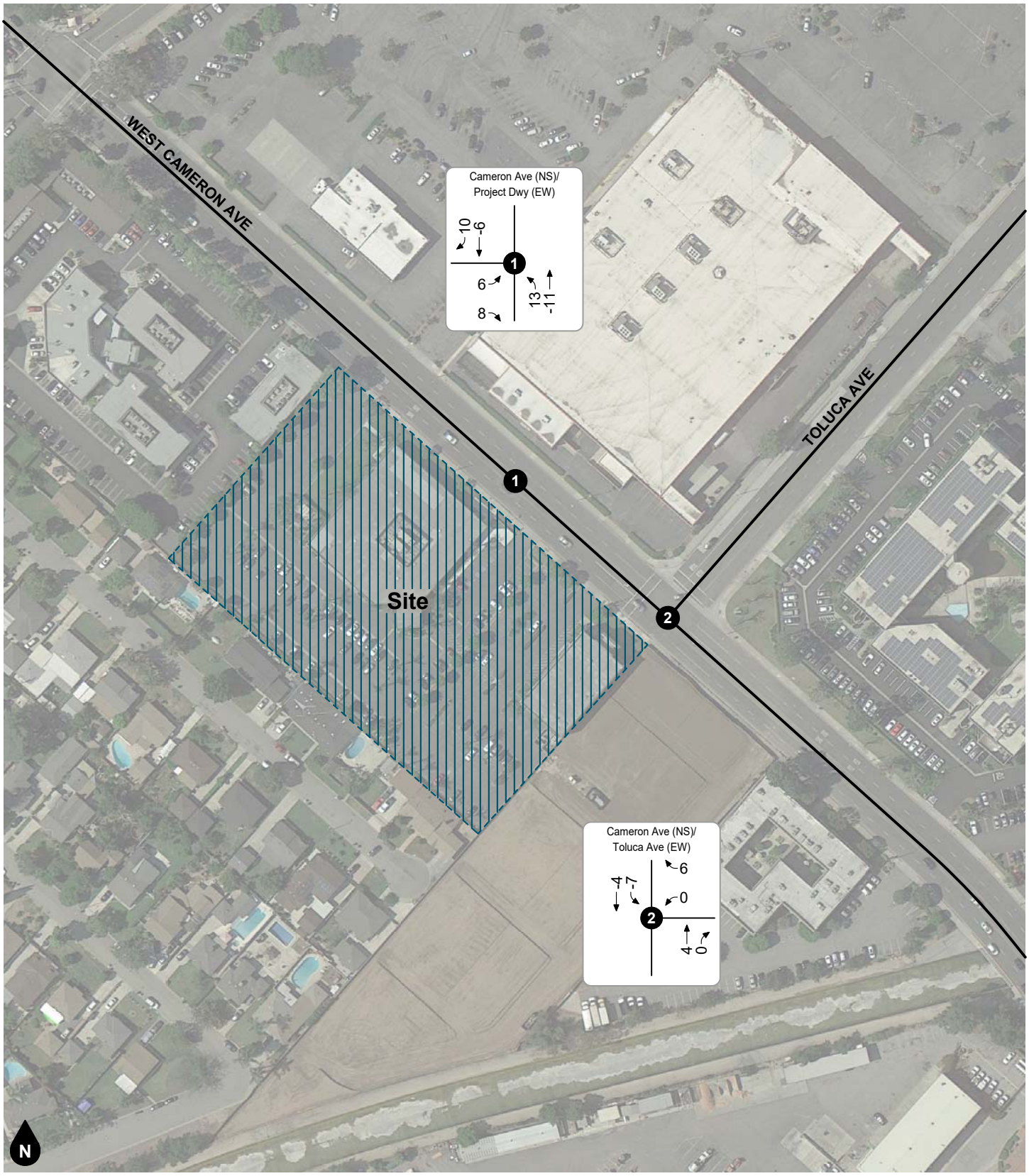
10% Percent To/From Project

Figure 11
Project Trip Distribution



Legend
Study Intersection

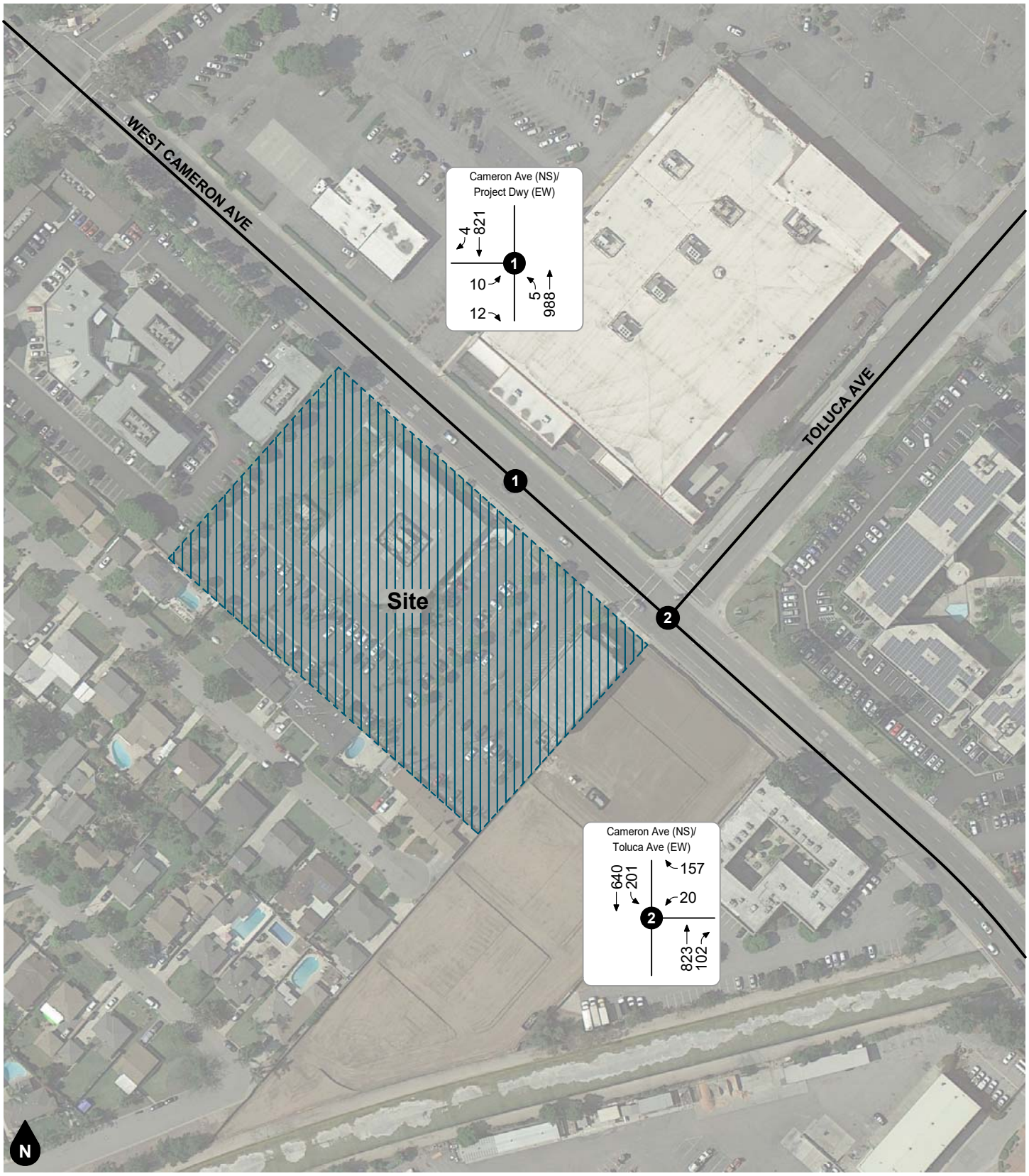
Figure 12
Project AM Peak Hour Intersection Turning Movement Volumes



Legend

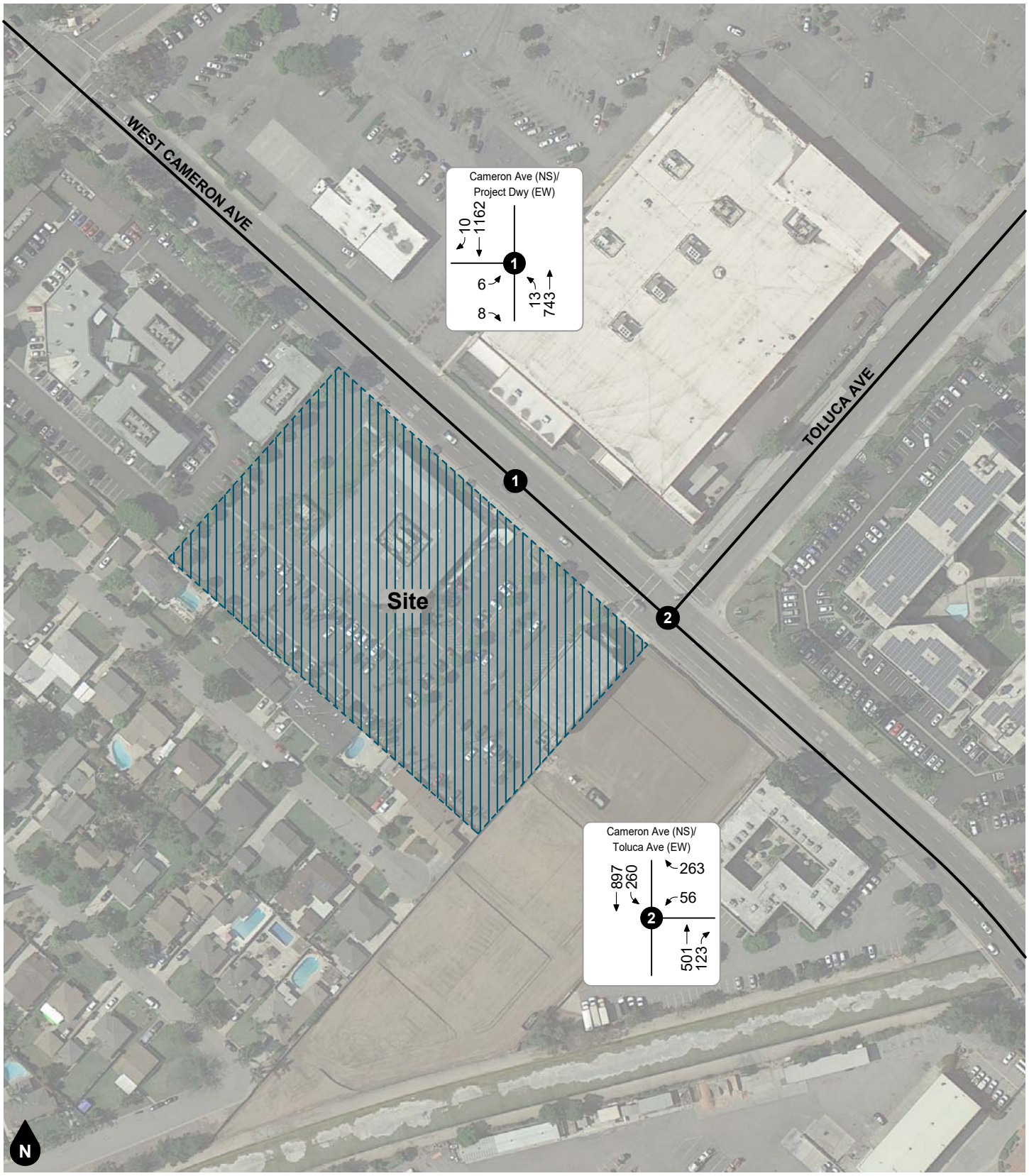
(#) Study Intersection

Figure 13
Project PM Peak Hour Intersection Turning Movement Volumes



Legend
Study Intersection

Figure 14
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

(#) Study Intersection

Figure 15
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes

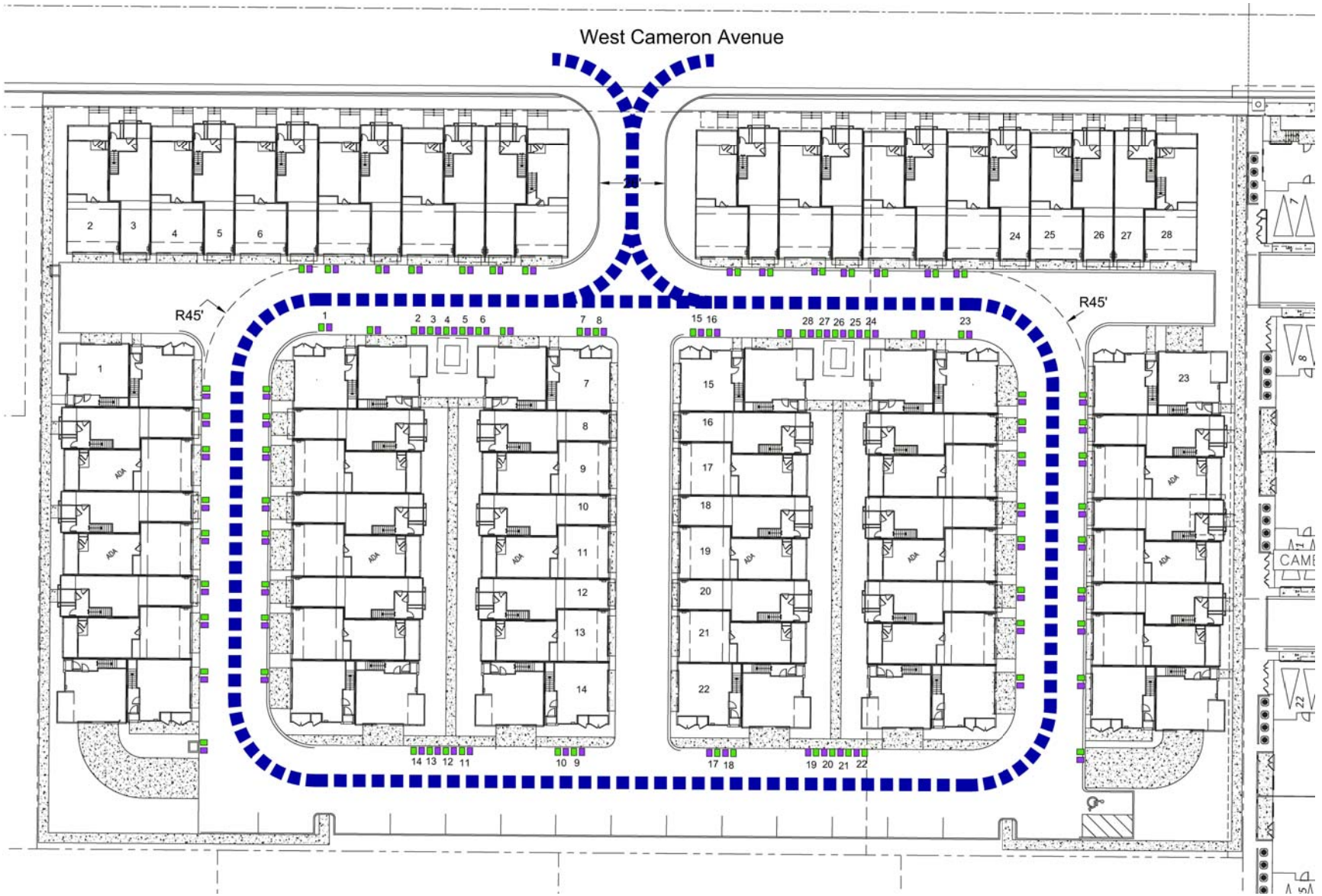


Figure 16
Trash Truck Internal Circulation

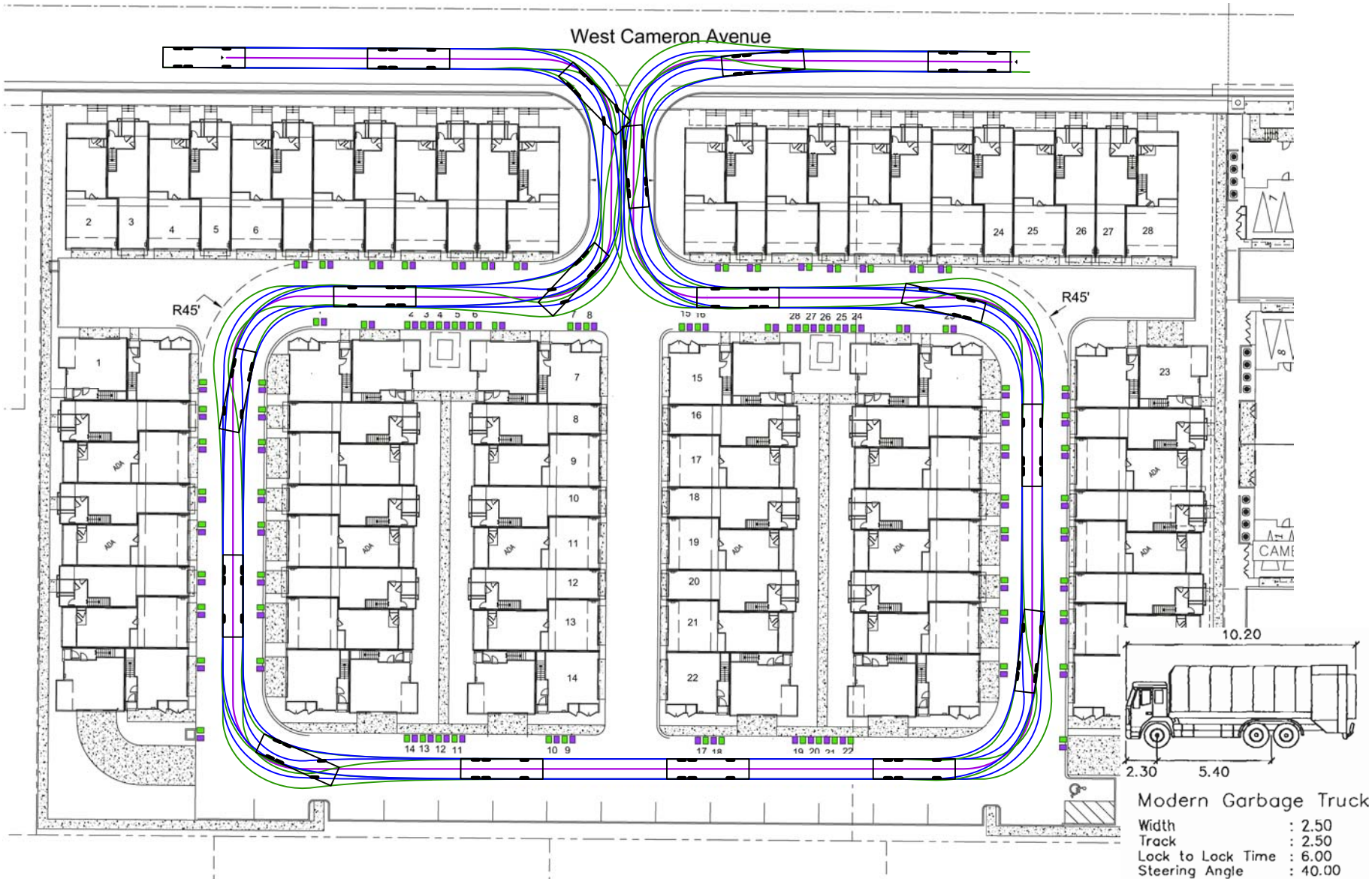


Figure 17
Trash Truck Turning Template

APPENDIX A

GLOSSARY

ACRONYMS

AC	Acres
ADT	Average Daily Traffic
Caltrans	California Department of Transportation
DU	Dwelling Unit
ICU	Intersection Capacity Utilization
LOS	Level of Service
TSF	Thousand Square Feet
V/C	Volume/Capacity
VMT	Vehicle Miles Traveled

TERMS

AVERAGE DAILY TRAFFIC: The average 24-hour volume for a stated period divided by the number of days in that period. For example, Annual Average Daily Traffic is the total volume during a year divided by 365 days.

BANDWIDTH: The number of seconds of green time available for through traffic in a signal progression.

BOTTLENECK: A point of constriction along a roadway that limits the amount of traffic that can proceed downstream from its location.

CAPACITY: The maximum number of vehicles that can be reasonably expected to pass over a given section of a lane or a roadway in a given time period.

CHANNELIZATION: The separation or regulation of conflicting traffic movements into definite paths of travel by the use of pavement markings, raised islands, or other suitable means to facilitate the safe and orderly movements of both vehicles and pedestrians.

CLEARANCE INTERVAL: Nearly same as yellow time. If there is an all red interval after the end of a yellow, then that is also added into the clearance interval.

CONTROL DELAY: The component of delay, typically expressed in seconds per vehicle, resulting from the type of traffic control at an intersection. Control delay is measured by comparison with the uncontrolled condition; it includes delay incurred by slowing down, stopping/waiting, and speeding up.

CORDON: An imaginary line around an area across which vehicles, persons, or other items are counted (in and out).

CORNER SIGHT DISTANCE: The minimum sight distance required by the driver of a vehicle to cross or enter the lanes of the major roadway without requiring approaching traffic travelling at a given speed to radically alter their speed or trajectory. Corner sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 36 inches above the pavement in the center of the nearest approach lane.

CYCLE LENGTH: The time period in seconds required for a traffic signal to complete one full cycle of indications.

CUL-DE-SAC: A local street open at one end only and with special provisions for turning around.

DAILY CAPACITY: A theoretical value representing the daily traffic volume that will typically result in a peak hour volume equal to the capacity of the roadway.

DELAY: The time consumed while traffic is impeded in its movement by some element over which it has no control, usually expressed in seconds per vehicle.

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

DENSITY: The number of vehicles occupying in a unit length of the through traffic lanes of a roadway at any given instant. Usually expressed in vehicles per mile.

DETECTOR: A device that responds to a physical stimulus and transmits a resulting impulse to the signal controller.

DESIGN SPEED: A speed selected for purposes of design. Features of a highway, such as curvature, superelevation, and sight distance (upon which the safe operation of vehicles is dependent) are correlated to design speed.

DIRECTIONAL SPLIT: The percent of traffic in the peak direction at any point in time.

DIVERSION: The rerouting of peak hour traffic to avoid congestion.

FORCED FLOW: Opposite of free flow.

FREE FLOW: Volumes are well below capacity. Vehicles can maneuver freely and travel is unimpeded by other traffic.

GAP: Time or distance between successive vehicles in a traffic stream, rear bumper to front bumper.

HEADWAY: Time or distance spacing between successive vehicles in a traffic stream, front bumper to front bumper.

INTERCONNECTED SIGNAL SYSTEM: A number of intersections that are connected to achieve signal progression.

LEVEL OF SERVICE: A qualitative measure of a number of factors, which include speed and travel time, traffic interruptions, freedom to maneuver, safety, driving comfort and convenience, and operating costs.

LOOP DETECTOR: A vehicle detector consisting of a loop of wire embedded in the roadway, energized by alternating current and producing an output circuit closure when passed over by a vehicle.

MINIMUM ACCEPTABLE GAP: Smallest time headway between successive vehicles in a traffic stream into which another vehicle is willing and able to cross or merge.

MULTI-MODAL: More than one mode; such as automobile, bus transit, rail rapid transit, and bicycle transportation modes.

OFFSET: The time interval in seconds between the beginning of green at one intersection and the beginning of green at an adjacent intersection.

PLATOON: A closely grouped component of traffic that is composed of several vehicles moving, or standing ready to move, with clear spaces ahead and behind.

PASSENGER CAR EQUIVALENT (PCE): A metric used to assess the impact of larger vehicles, such as trucks, recreational vehicles, and buses, by converting the traffic volume of larger vehicles to an equivalent number of passenger cars.

PEAK HOUR: The 60 consecutive minutes with the highest number of vehicles.

PRETIMED SIGNAL: A type of traffic signal that directs traffic to stop and go on a predetermined time schedule without regard to traffic conditions. Also, fixed time signal.

PROGRESSION: A term used to describe the progressive movement of traffic through several signalized intersections.

QUEUE: The number of vehicles waiting at a service area such as a traffic signal, stop sign, or access gate.

QUEUE LENGTH: The length of vehicle queue, typically expressed in feet, waiting at a service area such as a traffic signal, stop sign, or access gate.

SCREEN-LINE: An imaginary line or physical feature across which all trips are counted, normally to verify the validity of mathematical traffic models.

SHARED/RECIPROCAL PARKING AGREEMENT: A written binding document executed between property owners to provide a designated number of off-street parking stalls within a designated area to be available for specified businesses or land uses.

SIGHT DISTANCE: The continuous length of roadway visible to a driver or roadway user.

SIGNAL CYCLE: The time period in seconds required for one complete sequence of signal indications.

SIGNAL PHASE: The part of the signal cycle allocated to one or more traffic movements.

STACKING DISTANCE: The length of area available behind a service area, such as a traffic signal or gate, for vehicle queueing to occur.

STARTING DELAY: The delay experienced in initiating the movement of queued traffic from a stop to an average running speed through an intersection.

STOPPING SIGHT DISTANCE: The minimum distance required by the driver of a vehicle on the major roadway travelling at a given speed to bring the vehicle to a stop after an object on the road becomes visible. Stopping sight distance is measured from the driver's eye at 42 inches above the pavement to an object height of 6 inches above the pavement.

TRAFFIC-ACTUATED SIGNAL: A type of traffic signal that directs traffic to stop and go in accordance with the demands of traffic, as registered by the actuation of detectors.

TRIP: The movement of a person or vehicle from one location (origin) to another (destination). For example, from home to store to home is two trips, not one.

TRIP-END: One end of a trip at either the origin or destination (i.e., each trip has two trip-ends). A trip-end occurs when a person, object, or message is transferred to or from a vehicle.

TRIP GENERATION RATE: The quantity of trips produced and/or attracted by a specific land use stated in terms of units such as per dwelling, per acre, and per 1,000 square feet of floor space.

TRUCK: A vehicle having dual tires on one or more axles, or having more than two axles.

TURNING RADIUS: The circular arc formed by the smallest turning path radius of the front outside tire of a vehicle, such as that performed by a U-turn maneuver. This is based on the length and width of the wheel base as well as the steering mechanism of the vehicle.

UNBALANCED FLOW: Heavier traffic flow in one direction than the other. On a daily basis, most facilities have balanced flow. During the peak hours, flow is seldom balanced in an urban area.

VEHICLE MILES OF TRAVEL: A measure of the amount of usage of a section of highway, obtained by multiplying the average daily traffic by length of facility in miles.

APPENDIX B

SCOPING AGREEMENT

TRAFFIC DIVISION

ADDRESS: 1600-1616 Cameron Avenue

APPLICATION NO.: 20-09

MAP NO.: TTM 83216

PROJECT DESCRIPTION: 84 Townhouse Units

Date: October 23, 2020

To:	Jo-Anne Burns, West Covina Planning Director Jburns@westcovina.org	Pages:	3 Pages + Attachment
From:	Jana Robbins, PTP, RSP jana.robbins@transtech.org; T: 909-595-8599, 133	Job #:	TT 20988
Re:	Traffic Scoping for the Development of 1600 1616 W Cameron Avenue Townhouse Project with 84 units in the City of West Covina	Cc:	Michael Ackerman, City Engineer Jeff Hamilton, MIG On-call Planning Consultant jhamilton@migcom.com

TRAFFIC SCOPING

In June 2020 the City adopted the use of VMT Analysis Methodology for projects when evaluating Traffic Impacts for CEQA analysis to be in line with State Mandates. CEQA Guidelines identified that all lead agencies must use VMT as the new transportation metric for identifying impacts in CEQA for land use projects beginning July 1, 2020. While CEQA requirements have changed and LOS no longer constitutes CEQA impacts, the City elected to still use LOS for planning and analysis purposes.

There are three types of screening that may be applied to effectively screen projects from a detailed, project-level VMT assessment. If a project meets one of these screening tools the project will not need to provide a full VMT analysis but only need to include justification that this project can be screened out and can be considered as local serving. The screening types are summarized below:

Transit Priority Area (TPA) Screening

Projects located within a TPA[1] may be presumed to have a less than significant impact absent substantial evidence to the contrary. Additionally, the analyst should confirm with all local transit providers that no

[1] A TPA is defined as a half mile area around an existing major transit stop or an existing stop along a high-quality transit corridor per the definitions below. Public Resources Code § 21099(a)(7)

recent changes in transit service have occurred in the project area (e.g. addition or removal of transit lines, addition or removal of transit stops, or changes to service frequency

Low VMT Area Screening
Residential and office projects located within a low VMT-generating area may be presumed to have a less than significant impact absent substantial evidence to the contrary. In addition, other employment-related and mixed-use land use projects may qualify for the use of screening if the project can reasonably be expected to generate VMT per resident, per employee, or per service population that is similar to the existing land uses in the low VMT area.

Project Type Screening
Some project types have been identified as having the presumption of a less than significant absent substantial evidence to the contrary as their uses are local serving in nature.

VMT Screening – It has been determined that this project is located within a Transit Priority Location (TPA) and a LOW VMT area and can be considered as local serving. This project is exempt from a full VMT analysis. The VMT Evaluation tool output is attached to this scoping. The applicants Traffic Engineer should also request a copy of the 2020 TIA Guidelines from Planning Department that outlines additional measures that may be required in a Focused Traffic Analysis for the City of West Covina.

In addition to the VMT screening justification, the project will still need to complete a Focused Traffic Analysis detailing the elements outlined below:

The Memo should include the following:

1. Preparation of a Trip Generation table indicating what the expected New project Trips will be generated at the site. Use the Institute of Transportation Engineers (ITE) *Trip Generation* Manual, 10th Edition, 2017 for calculating project trips. If the existing office use is still in operation than trip credits may be taken in the calculation of New Trips at the site.
2. A Traffic Count at the adjacent intersection. If historical counts are not available than the count can be adjusted to account for pandemic conditions. This will require a discussion with City staff prior to initiating.
    - **Toluca Avenue at Cameron Avenue**
      This intersection is minor street stopped but has an uncontrolled striped crossing in the west leg of the intersection. As part of the project being considered as a local serving project, providing residents with the ability to walk and initiate alternative modes of travel to shopping, schools and work than the project will need to contribute to upgrading the signage and striping at this uncontrolled crossing.
    - **Project Driveway and Cameron Avenue**
      The queuing into and out of the project driveway will need to be analyzed. The applicants traffic engineer will need to determine if any changes to existing striping on Cameron Avenue will be needed for left turn traffic entering and exiting the

Pub. Resources Code, § 21064.3 - 'Major transit stop' means a site containing an existing rail transit station, a ferry terminal served by either a bus or rail transit service, or the intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.

Pub. Resources Code, § 21155 - For purposes of this section, a 'high-quality transit corridor' means a corridor with fixed route bus service with service intervals no longer than 15 minutes during peak commute hours.

driveway without affecting the EB queues waiting at the Toluca Avenue and Cameron Avenue intersection.

3. Scenarios to explore at the above intersection:
   a. Existing Conditions
   b. Existing + Project

4. General description of the use and proposed internal and external distribution of project traffic from proposed driveway and on adjacent streets.

5. Aisle widths, parking stall widths, drive aisle widths all need to be shown on the site plan.

6. The site plan should also show existing striping (lane widths) on Cameron Avenue and how the two-way left turn pocket aligns with the driveway.

7. If the project driveway is to be gated than a minimum of one car should be able to queue on-site waiting for the gate to open.

8. Truck Turning Templates showing a trash truck entering and exiting the driveway and the path on-site. The size and type of truck template used should be shown on the site plan.

9. As mentioned above full justification that this project can be considered as local serving and is located in a Transit Priority Area to be exempt from project level VMT analysis.

10. Construction Impacts – general discussion on the duration, type of work, type of vehicles, how construction vehicles will enter the site, staging areas etc.…, how construction will minimize impacts to the adjacent neighborhood.

11. The report will need to be signed and stamped by a registered engineer.

If you have any questions please do not hesitate to call or email. I look forward to working with you on your project.

APPENDIX C

VOLUME COUNT WORKSHEETS

Modified Traffic Counts to Convert Historical Traffic Counts to Pre Pandemic Conditions

Annual AM Peak Hour Growth Rate to Convert Historical Traffic Counts to Pre Pandemic Conditions:	1.00%
Annual PM Peak Hour Growth Rate to Convert Historical Traffic Counts to Pre Pandemic Conditions:	1.00%
Historical Traffic Count Year:	2018
Existing Traffic Count Year:	2020

Cameron Avenue (NS) at Toluca Avenue (EW)

Existing 2018 Traffic Count (Pandemic Conditions)												
AM Peak Hour												
Northbound			Southbound			Eastbound			Westbound			
Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Total
4	812	100	191	622	2	0	0	0	20	0	163	1,914
PM Peak Hour												
Northbound			Southbound			Eastbound			Westbound			
Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Total
9	487	121	262	879	4	0	0	0	55	0	252	2,069

Modified 2020 Traffic Count												
AM Peak Hour												
Northbound			Southbound			Eastbound			Westbound			
Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Total
4	828	102	195	635	2	0	0	0	20	0	166	1,952
PM Peak Hour												
Northbound			Southbound			Eastbound			Westbound			
Left	Through	Right	Left	Through	Right	Left	Through	Right	Left	Through	Right	Total
9	497	123	267	897	4	0	0	0	56	0	257	2,110

Counts Unlimited
PO Box 1178
Corona, CA 92878
(951) 268-6268

City of West Covina
N/S: Cameron Avenue
E/W: Toluca Avenue
Weather: Clear

File Name : 04_WCO_Cameron_Toluca AM
Site Code : 07518209
Start Date : 3/20/2018
Page No : 1

Groups Printed- Total Volume

	Cameron Avenue Southbound				Toluca Avenue Westbound				Cameron Avenue Northbound				Toluca Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
07:00 AM	17	74	0	91	0	0	17	17	0	171	13	184	0	0	0	0	292
07:15 AM	34	130	0	164	4	0	36	40	0	208	20	228	0	0	0	0	432
07:30 AM	54	189	0	243	7	0	47	54	1	199	20	220	0	0	0	0	517
07:45 AM	59	176	1	236	2	0	46	48	2	196	35	233	0	0	0	0	517
Total	164	569	1	734	13	0	146	159	3	774	88	865	0	0	0	0	1758
08:00 AM	44	127	1	172	7	0	34	41	1	209	25	235	0	0	0	0	448
08:15 AM	28	113	1	142	8	0	43	51	2	191	31	224	0	0	0	0	417
08:30 AM	24	125	1	150	9	1	37	47	1	128	17	146	0	0	0	0	343
08:45 AM	34	134	6	174	14	0	43	57	6	142	21	169	0	0	0	0	400
Total	130	499	9	638	38	1	157	196	10	670	94	774	0	0	0	0	1608
Grand Total	294	1068	10	1372	51	1	303	355	13	1444	182	1639	0	0	0	0	3366
Apprch %	21.4	77.8	0.7		14.4	0.3	85.4		0.8	88.1	11.1		0	0	0		
Total %	8.7	31.7	0.3	40.8	1.5	0	9	10.5	0.4	42.9	5.4	48.7	0	0	0	0	

	Cameron Avenue Southbound				Toluca Avenue Westbound				Cameron Avenue Northbound				Toluca Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 07:15 AM																	
07:15 AM	34	130	0	164	4	0	36	40	0	208	20	228	0	0	0	0	432
07:30 AM	54	**189**	0	**243**	**7**	0	**47**	**54**	1	199	20	220	0	0	0	0	**517**
07:45 AM	**59**	176	**1**	236	2	0	46	48	**2**	196	**35**	233	0	0	0	0	517
08:00 AM	44	127	1	172	7	0	34	41	1	**209**	25	**235**	0	0	0	0	448
Total Volume	191	622	2	815	20	0	163	183	4	812	100	916	0	0	0	0	1914
% App. Total	23.4	76.3	0.2		10.9	0	89.1		0.4	88.6	10.9		0	0	0		
PHF	.809	.823	.500	.838	.714	.000	.867	.847	.500	.971	.714	.974	.000	.000	.000	.000	.926

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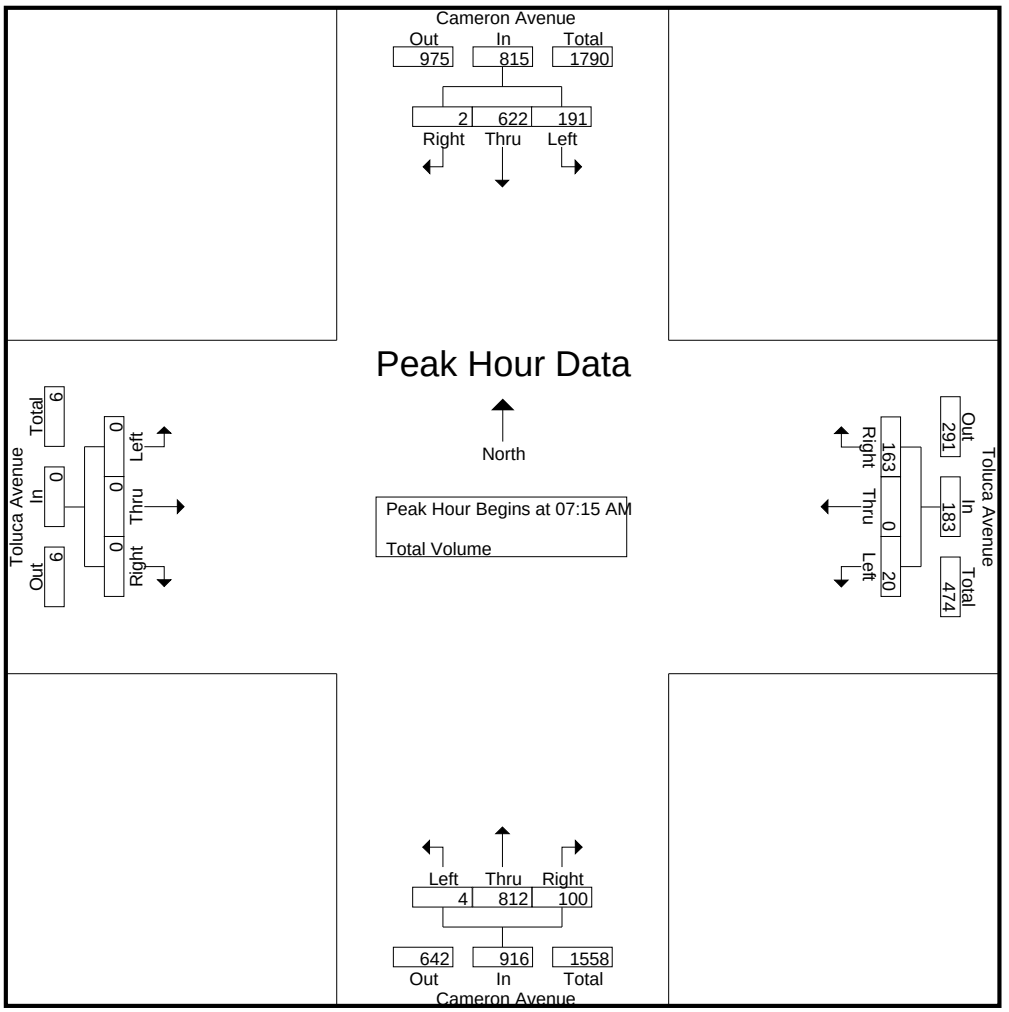
City of West Covina
N/S: Cameron Avenue
E/W: Toluca Avenue
Weather: Clear

File Name : 04_WCO_Cameron_Toluca AM
Site Code : 07518209
Start Date : 3/20/2018
Page No : 2



Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:15 AM				08:00 AM				07:15 AM				07:00 AM			
+0 mins.	34	130	0	164	7	0	34	41	0	208	20	228	0	0	0	0
+15 mins.	54	**189**	0	**243**	8	0	**43**	51	1	199	20	220	0	0	0	0
+30 mins.	**59**	176	**1**	236	9	**1**	37	47	**2**	196	**35**	233	0	0	0	0
+45 mins.	44	127	1	172	**14**	0	43	**57**	1	**209**	25	**235**	0	0	0	0
Total Volume	191	622	2	815	38	1	157	196	4	812	100	916	0	0	0	0
% App. Total	23.4	76.3	0.2		19.4	0.5	80.1		0.4	88.6	10.9		0	0	0	
PHF	.809	.823	.500	.838	.679	.250	.913	.860	.500	.971	.714	.974	.000	.000	.000	.000

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City of West Covina
N/S: Cameron Avenue
E/W: Toluca Avenue
Weather: Clear

File Name : 04_WCO_Cameron_Toluca PM
Site Code : 07518209
Start Date : 3/20/2018
Page No : 1

Groups Printed- Total Volume

	Cameron Avenue Southbound				Toluca Avenue Westbound				Cameron Avenue Northbound				Toluca Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
04:00 PM	62	202	1	265	17	0	60	77	3	121	17	141	0	0	0	0	483
04:15 PM	49	179	1	229	7	0	62	69	3	123	14	140	0	0	0	0	438
04:30 PM	75	211	1	287	19	0	74	93	3	109	27	139	0	0	0	0	519
04:45 PM	60	237	2	299	12	0	50	62	4	113	34	151	0	0	0	0	512
Total	246	829	5	1080	55	0	246	301	13	466	92	571	0	0	0	0	1952
05:00 PM	59	214	0	273	11	0	72	83	1	142	34	177	0	0	0	0	533
05:15 PM	68	217	1	286	13	0	56	69	1	123	26	150	0	0	0	0	505
05:30 PM	57	206	0	263	17	0	72	89	2	142	22	166	0	0	0	0	518
05:45 PM	54	184	2	240	7	0	49	56	0	135	22	157	0	0	0	0	453
Total	238	821	3	1062	48	0	249	297	4	542	104	650	0	0	0	0	2009
Grand Total	484	1650	8	2142	103	0	495	598	17	1008	196	1221	0	0	0	0	3961
Apprch %	22.6	77	0.4		17.2	0	82.8		1.4	82.6	16.1		0	0	0		
Total %	12.2	41.7	0.2	54.1	2.6	0	12.5	15.1	0.4	25.4	4.9	30.8	0	0	0	0	

	Cameron Avenue Southbound				Toluca Avenue Westbound				Cameron Avenue Northbound				Toluca Avenue Eastbound				
Start Time	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Left	Thru	Right	App. Total	Int. Total
Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1																	
Peak Hour for Entire Intersection Begins at 04:30 PM																	
04:30 PM	**75**	211	1	287	**19**	0	**74**	**93**	3	109	27	139	0	0	0	0	519
04:45 PM	60	**237**	**2**	**299**	12	0	50	62	**4**	113	**34**	151	0	0	0	0	512
05:00 PM	59	214	0	273	11	0	72	83	1	**142**	34	**177**	0	0	0	0	**533**
05:15 PM	68	217	1	286	13	0	56	69	1	123	26	150	0	0	0	0	505
Total Volume	262	879	4	1145	55	0	252	307	9	487	121	617	0	0	0	0	2069
% App. Total	22.9	76.8	0.3		17.9	0	82.1		1.5	78.9	19.6		0	0	0		
PHF	.873	.927	.500	.957	.724	.000	.851	.825	.563	.857	.890	.871	.000	.000	.000	.000	.970

Counts Unlimited
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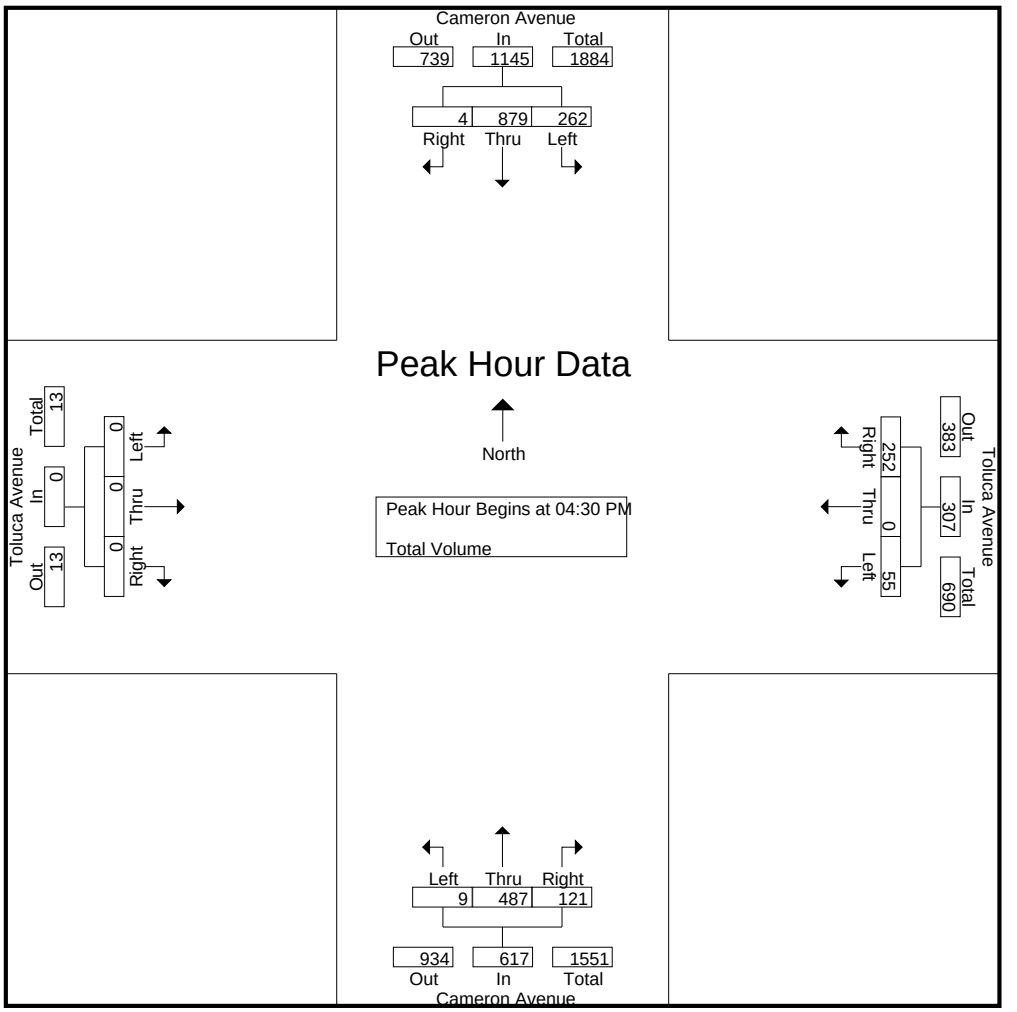
City of West Covina
N/S: Cameron Avenue
E/W: Toluca Avenue
Weather: Clear

File Name : 04_WCO_Cameron_Toluca PM
Site Code : 07518209
Start Date : 3/20/2018



Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:15 PM				05:00 PM				04:00 PM			
+0 mins.	**75**	211	1	287	7	0	62	69	1	**142**	**34**	**177**	0	0	0	0
+15 mins.	60	**237**	**2**	**299**	**19**	0	**74**	**93**	1	123	26	150	0	0	0	0
+30 mins.	59	214	0	273	12	0	50	62	**2**	142	22	166	0	0	0	0
+45 mins.	68	217	1	286	11	0	72	83	0	135	22	157	0	0	0	0
Total Volume	262	879	4	1145	49	0	258	307	4	542	104	650	0	0	0	0
% App. Total	22.9	76.8	0.3		16	0	84		0.6	83.4	16		0	0	0	
PHF	.873	.927	.500	.957	.645	.000	.872	.825	.500	.954	.765	.918	.000	.000	.000	.000

APPENDIX D

LEVEL OF SERVICE WORKSHEETS

Existing

Vistro File: C:\...\AME.vistro
Report File: C:\...\AME.pdf

Scenario 1 Existing AM Peak Hour
11/13/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Cameron Ave (NS) at Toluca Ave (EW)	Two-way stop	HCM 6th Edition	WB Left	0.276	73.5	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Cameron Ave (NS) at Toluca Ave (EW)

Control Type:	Two-way stop	Delay (sec / veh):	73.5
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.276

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	828	102	195	637	20	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	828	102	195	637	20	166
Peak Hour Factor	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	224	28	53	172	5	45
Total Analysis Volume [veh/h]	894	110	211	688	22	179
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.27	0.01	0.28	0.31
d_M, Delay for Movement [s/veh]	0.00	0.00	11.71	0.00	73.50	14.52
Movement LOS	A	A	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.09	0.00	1.10	1.31
95th-Percentile Queue Length [ft/ln]	0.00	0.00	27.16	0.00	27.50	32.70
d_A, Approach Delay [s/veh]	0.00		2.74		20.86	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.16					
Intersection LOS	F					

Vistro File: C:\...\PME.vistro
Report File: C:\...\PME.pdf

Scenario 1 Existing PM Peak Hour
11/13/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Cameron Ave (NS) at Toluca Ave (EW)	Two-way stop	HCM 6th Edition	WB Left	0.736	159.6	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Cameron Ave (NS) at Toluca Ave (EW)

Control Type:	Two-way stop	Delay (sec / veh):	159.6
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.736

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	497	123	267	901	56	257
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	497	123	267	901	56	257
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	128	32	69	232	14	66
Total Analysis Volume [veh/h]	512	127	275	929	58	265
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.28	0.01	0.74	0.37
d_M, Delay for Movement [s/veh]	0.00	0.00	10.22	0.00	159.62	13.39
Movement LOS	A	A	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.16	0.00	5.42	1.78
95th-Percentile Queue Length [ft/ln]	0.00	0.00	28.95	0.00	135.58	44.58
d_A, Approach Delay [s/veh]	0.00		2.34		39.55	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	7.19					
Intersection LOS	F					

Existing Plus Project

Vistro File: C:\...\AME.vistro
Report File: C:\...\AMEP.pdf

Scenario 2 Existing Plus Project AM Peak Hour
11/13/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cameron Ave (NS) at Project Dwy (EW)	Two-way stop	HCM 6th Edition	EB Left	0.030	16.3	C
2	Cameron Ave (NS) at Toluca Ave (EW)	Two-way stop	HCM 6th Edition	WB Left	0.283	75.7	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cameron Ave (NS) at Project Dwy (EW)

Control Type:	Two-way stop	Delay (sec / veh):	16.3
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.030

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	994	832	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	-6	-11	4	10	12
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	5	988	821	4	10	12
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	1	260	216	1	3	3
Total Analysis Volume [veh/h]	5	1040	864	4	11	13
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	9.52	0.00	0.00	0.00	16.33	11.56
Movement LOS	A	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.02	0.00	0.00	0.00	0.16	0.16
95th-Percentile Queue Length [ft/ln]	0.47	0.00	0.00	0.00	4.00	4.00
d_A, Approach Delay [s/veh]	0.05		0.00		13.73	
Approach LOS	A		A		B	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: Cameron Ave (NS) at Toluca Ave (EW)

Control Type:	Two-way stop	Delay (sec / veh):	75.7
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.283

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	828	102	195	637	20	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	-5	0	6	3	0	-9
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	823	102	201	640	20	157
Peak Hour Factor	0.9260	0.9260	0.9260	0.9260	0.9260	0.9260
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	222	28	54	173	5	42
Total Analysis Volume [veh/h]	889	110	217	691	22	170
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.27	0.01	0.28	0.29
d_M, Delay for Movement [s/veh]	0.00	0.00	11.75	0.00	75.66	14.25
Movement LOS	A	A	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.13	0.00	1.13	1.20
95th-Percentile Queue Length [ft/ln]	0.00	0.00	28.14	0.00	28.31	30.08
d_A, Approach Delay [s/veh]	0.00		2.81		21.19	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	3.15					
Intersection LOS	F					

Vistro File: C:\...\PME.vistro
Report File: C:\...\PMEP.pdf

Scenario 2 Existing Plus Project PM Peak Hour
11/13/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Cameron Ave (NS) at Project Dwy (EW)	Two-way stop	HCM 6th Edition	EB Left	0.025	20.8	C
2	Cameron Ave (NS) at Toluca Ave (EW)	Two-way stop	HCM 6th Edition	WB Left	0.716	148.4	F

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 1: Cameron Ave (NS) at Project Dwy (EW)

Control Type:	Two-way stop	Delay (sec / veh):	20.8
Analysis Method:	HCM 6th Edition	Level Of Service:	C
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.025

Intersection Setup

Name						
Approach	Northbound		Southbound		Eastbound	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	0	754	1168	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	13	-11	-6	10	6	8
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	13	743	1162	10	6	8
Peak Hour Factor	0.9500	0.9500	0.9500	0.9500	0.9500	0.9500
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	3	196	306	3	2	2
Total Analysis Volume [veh/h]	14	782	1223	11	6	8
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			No
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			Yes
Number of Storage Spaces in Median	0	0	2

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.01	0.01	0.00	0.03	0.02
d_M, Delay for Movement [s/veh]	11.22	0.00	0.00	0.00	20.78	13.44
Movement LOS	B	A	A	A	C	B
95th-Percentile Queue Length [veh/ln]	0.07	0.00	0.00	0.00	0.14	0.14
95th-Percentile Queue Length [ft/ln]	1.68	0.00	0.00	0.00	3.38	3.38
d_A, Approach Delay [s/veh]	0.19		0.00		16.58	
Approach LOS	A		A		C	
d_I, Intersection Delay [s/veh]	0.19					
Intersection LOS	C					

Intersection Level Of Service Report
Intersection 2: Cameron Ave (NS) at Toluca Ave (EW)

Control Type:	Two-way stop	Delay (sec / veh):	148.4
Analysis Method:	HCM 6th Edition	Level Of Service:	F
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.716

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	497	123	267	901	56	257
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	-7	-4	0	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	501	123	260	897	56	263
Peak Hour Factor	0.9700	0.9700	0.9700	0.9700	0.9700	0.9700
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	129	32	67	231	14	68
Total Analysis Volume [veh/h]	516	127	268	925	58	271
Pedestrian Volume [ped/h]	0		0		0	

Intersection Settings

Priority Scheme	Free	Free	Stop
Flared Lane			
Storage Area [veh]	0	0	0
Two-Stage Gap Acceptance			No
Number of Storage Spaces in Median	0	0	0

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.00	0.27	0.01	0.72	0.38
d_M, Delay for Movement [s/veh]	0.00	0.00	10.19	0.00	148.41	13.55
Movement LOS	A	A	B	A	F	B
95th-Percentile Queue Length [veh/ln]	0.00	0.00	1.12	0.00	5.16	1.86
95th-Percentile Queue Length [ft/ln]	0.00	0.00	28.04	0.00	129.03	46.46
d_A, Approach Delay [s/veh]	0.00		2.29		37.22	
Approach LOS	A		A		E	
d_I, Intersection Delay [s/veh]	6.92					
Intersection LOS	F					

Vistro File: C:\...\AME.vistro

Scenario 3 Existing Plus Project AM Peak Hour - With Improvements

Report File: C:\...\AMEPI.pdf

11/13/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Cameron Ave (NS) at Toluca Ave (EW)	Signalized	ICU 1	NB Thru	0.556	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Cameron Ave (NS) at Toluca Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.556

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	828	102	195	637	20	166
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	-5	0	6	3	0	-9
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	823	102	201	640	20	157
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	206	26	50	160	5	39
Total Analysis Volume [veh/h]	823	102	201	640	20	157
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.26	0.26	0.11	0.18	0.01	0.09
Intersection LOS	A					
Intersection V/C	0.556					

Vistro File: C:\...\PME.vistro

Report File: C:\...\PMEPI.pdf

Scenario 3 Existing Plus Project PM Peak Hour - With Improvements

11/13/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
2	Cameron Ave (NS) at Toluca Ave (EW)	Signalized	ICU 1	SB Thru	0.564	-	A

V/C, Delay, LOS: For two-way stop, these values are taken from the movement with the worst (highest) delay value. For all other control types, they are taken for the whole intersection.

Intersection Level Of Service Report
Intersection 2: Cameron Ave (NS) at Toluca Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	1 hour	Volume to Capacity (v/c):	0.564

Intersection Setup

Name						
Approach	Northbound		Southbound		Westbound	
Lane Configuration						
Turning Movement	Thru	Right	Left	Thru	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	40.00		40.00		35.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	497	123	267	901	56	257
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	4	0	-7	-4	0	6
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	501	123	260	897	56	263
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Other Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	125	31	65	224	14	66
Total Analysis Volume [veh/h]	501	123	260	897	56	263
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	10.00

Phasing & Timing

Control Type	Permissive	Permissive	Protected	Permissive	Permissive	Permissive
Signal group	2	0	1	6	7	0
Auxiliary Signal Groups						
Lead / Lag	-	-	Lead	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.17	0.17	0.14	0.25	0.03	0.15
Intersection LOS	A					
Intersection V/C	0.564					

APPENDIX E

TRAFFIC SIGNAL WARRANT WORKSHEETS

PEAK HOUR VOLUME WARRANT
(Rural Areas)

Existing AM Peak Hour

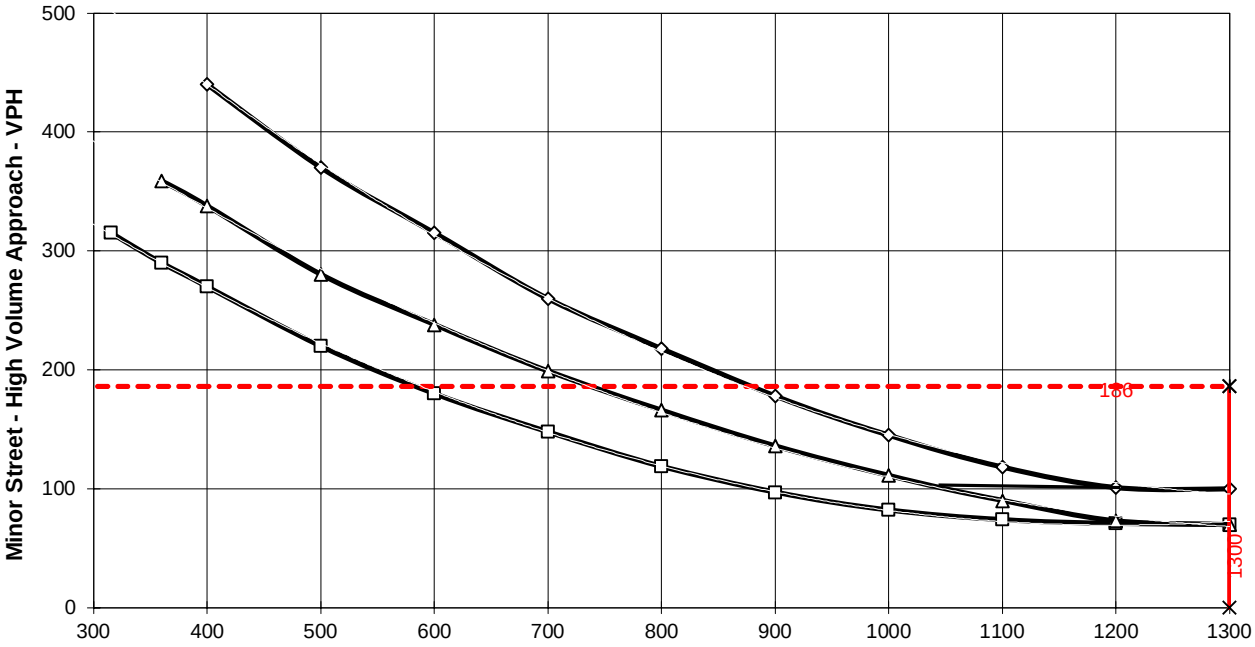
Major Street Name = **West Cameron Avenue** Total of Both Approaches (VPH) = **1762**

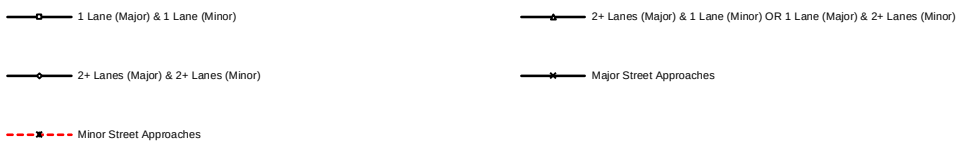
Number of Approach Lanes Major Street = **2**

Minor Street Name = **Toluca Avenue** High Volume Approach (VPH) = **186**

Number of Approach Lanes Minor Street = **2**

WARRANTED FOR A SIGNAL





* NOTE:

Warrant includes adjustments to right turning movements from the minor approach consistent with CAMUTCD procedures.

** NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.

PEAK HOUR VOLUME WARRANT
(Rural Areas)

Existing PM Peak Hour

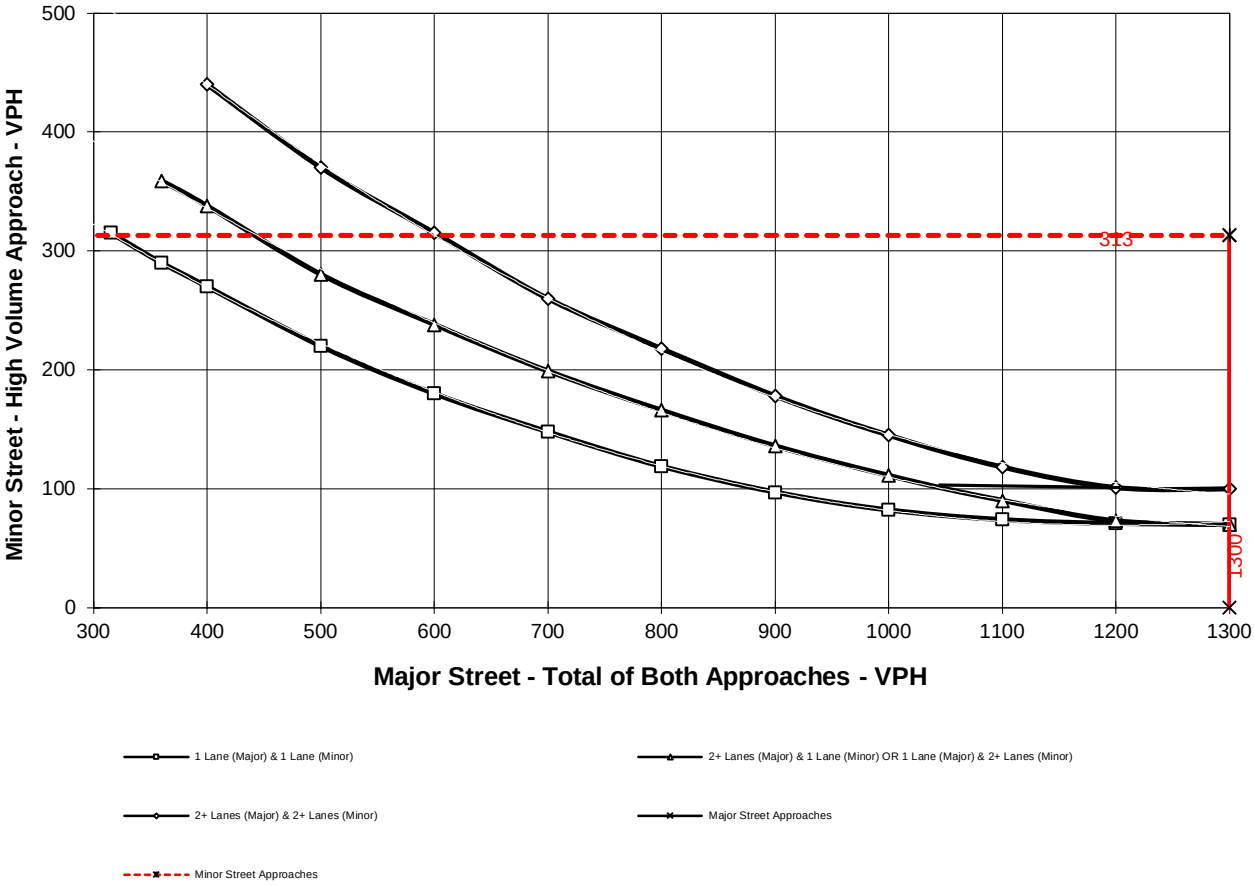
Major Street Name = **West Cameron Avenue** Total of Both Approaches (VPH) = **1788**

Number of Approach Lanes Major Street = **2**

Minor Street Name = **Toluca Avenue** High Volume Approach (VPH) = **313**

Number of Approach Lanes Minor Street = **2**

WARRANTED FOR A SIGNAL



* NOTE:

Warrant includes adjustments to right turning movements from the minor approach consistent with CAMUTCD procedures.

** NOTE:

100 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACH WITH TWO OR MORE LANES AND 75 VPH APPLIES AS THE LOWER THRESHOLD VOLUME FOR A MINOR STREET APPROACHING WITH ONE LANE.