KUNZMAN ASSOCIATES, INC.

TENTATIVE TRACT MAP NO. 18045

TRAFFIC IMPACT ANALYSIS (REVISED)

September 8, 2017

Traffic Engineering | Transportation Planning | Parking | Noise/Vibration | Expert Witness
Air Quality | Global Climate Change | Health Risk Assessment

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September 8, 2017

Prepared by:

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I. EXECUTIVE SUMMARY

The purpose of this report is to provide an assessment of the traffic impacts resulting from the development of the proposed Tentative Tract Map No. 18045 project, and to identify the traffic mitigation measures necessary to maintain the established level of service standard for the elements of the impacted roadway system. The traffic issues related to the proposed land use and development have been evaluated in the context of the California Environmental Quality Act.

The City of Anaheim is the lead agency responsible for preparation of the traffic impact analysis, in accordance with California Environmental Quality Act authorizing legislation. This report analyzes traffic impacts for the Existing, Existing Plus Project, the anticipated opening date with full occupancy of the development in Year 2018 at which time it will be generating trips at its full potential, and for General Plan Buildout traffic conditions.

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

A. Analysis Methodology

A series of scoping discussions were conducted with the City of Anaheim to define the desired analysis locations.

The analysis of the traffic impacts from the proposed development and the assessment of the required mitigation measures were based on an evaluation of the existing and forecast traffic conditions in the vicinity of the site with and without the project. The following analysis years are considered in this report:

- Existing Conditions (2017)
- Existing Plus Project[1] Conditions
- Opening Year Conditions (2018)
- General Plan Buildout Conditions (2035)

The roadway elements that must be analyzed are dependent on both the analysis year and project generated trips. The identification of the study area, and the intersections and highway segments requiring analysis, was based on an estimate of the two-way traffic volumes on the roadway segments near the project site.

B. County Congestion Management Program

The Congestion Management Program is a result of Proposition 111 which was a statewide initiative approved by the voters in June 1990. The proposition allowed for a nine cent per gallon State gasoline tax increase over a five year period.

[1] The Existing Plus Project traffic conditions have been analyzed to comply with the Sunnyvale West Neighborhood Association v. City of Sunnyvale CEQA court case. This scenario assumes the full development of the proposed project and full absorption of the proposed project trips on the circulation system at the present time.

Proposition 111 explicitly stated that the new gas tax revenues were to be used to fix existing traffic problems and was not to be used to promote future development. For a City to get its share of the Proposition 111 gas tax, it has to follow certain procedures specified by the State Legislature. The legislation requires that a traffic impact analysis be prepared for new development. The traffic impact analysis is prepared to monitor and fix traffic problems caused by new development.

The Legislature requires that adjacent jurisdictions use a standard methodology for conducting a traffic impact analysis. To assure that adjacent jurisdictions use a standard methodology in preparing traffic impact analyses, one common procedure is that all Cities within a County, and the County agency itself, adopt and use one standard methodology for conducting traffic impact analyses.

Although each County has developed standards for preparing traffic impact analyses, traffic impact analysis requirements do vary in detail from one County to another, but not in overall intent or concept. The general approach selected by each County for conducting traffic impact analyses has common elements.

The general approach for conducting a traffic impact analysis is that existing weekday peak hour traffic is counted and the percent of roadway capacity currently used is determined. Then the project traffic is added and the percent of roadway capacity used is again determined. If the new project adds traffic to an overcrowded facility, then the new project has to mitigate the traffic impact so that the facility operates at a level that is no worse than before the project traffic was added.

If the project size is below a certain minimum threshold level, then a project does not have to have a traffic impact analysis prepared, once it is shown or agreed that the project is below the minimum threshold. In Orange County a project needs a traffic impact analysis if it generates more than 200 daily trips. If a project is bigger than the minimum threshold size, then a traffic impact analysis is required.

There are no Congestion Management Program intersections or roadway segments in the project study area.

C. Definition of Deficiency and Significant Impact

The following definitions of deficiencies and significant impacts have been developed in accordance with the City of Anaheim requirements.

1. Definition of Deficiency

The definition of an intersection deficiency has been obtained from the City of Anaheim General Plan. The General Plan states that peak hour intersection operations of Level of Service D or better are generally acceptable. Therefore, any intersection operating at Level of Service E to F will be considered deficient.

The General Plan also states that arterial roadways should be maintained at Level of Service C or better. The following chart shows the roadway capacities for the roadway classifications:

Facility Type	Daily Capacity (Vehicles/Day)
8-lane Divided	75,000
6-lane Divided	56,300
4-lane Divided	37,500
4-lane Undivided	25,000
2-lane Divided	18,750

2. Definition of Significant Impact

Based on the City of Anaheim's Criteria for Preparation of Traffic Impact Studies, the impact is considered significant if the project related increase in the volume to capacity ratio equals or exceeds the thresholds shown below:

Significant Impact Threshold for Intersections	
Level of Service	Project Related Increase
C	0.05 or more
D	0.03 or more
E/F	0.01 or more

An intersection mitigation measure shall either fix the deficiency, or reduce the volume to capacity ratio so that it is below the level that occurs without the project.

A roadway segment is deemed to have a significant impact if the project results in deterioration of the daily Level of Service to an unacceptable level together with a continued deficiency under peak hour conditions. A significant impact is also determined by an increase in the daily V/C ratio of 0.10 if the segment currently operates at Level of Service E or F under daily without project conditions and the roadway segment is found to be deficient under peak hour conditions.

D. Project Description

The proposed development is located within the southeast corner of the intersection of Euclid Street and Broadway in the City of Anaheim. A vicinity map showing the project location is provided on Figure 1.

The approximately 2.35 acre project site is proposed to be developed with 39 single-family detached residential dwelling units. The project site is proposed to provide access to Euclid Street and Broadway. Figure 2 illustrates the project site plan.

E. Existing Conditions

The study area intersections currently operate at acceptable Levels of Service during the peak hours for Existing traffic conditions.

The study area roadway segments currently provide sufficient capacity for Existing traffic conditions, except for the following roadway segments:

Euclid Street:
North of Broadway
South of Broadway

F. Project Traffic

Project traffic volumes for all future projections were estimated using the manual approach. Trip generation has been estimated based on the Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012.

The proposed development is projected to generate approximately 371 daily vehicle trips, 29 of which will occur during the morning peak hour and 39 of which will occur during the evening peak hour.

Two buildings on the site are currently occupied, a 10,452 square foot office building and an 8,050 square foot commercial building. The commercial building contains various retail land uses and a restaurant. The trip generation of the existing land uses is currently estimated to be 789 daily vehicle trips, 46 of which occur during the morning peak hour and 130 of which occur during the evening peak hour.

The proposed project is projected to generate approximately 262 fewer daily vehicle trips than the existing land uses, 7 more trips will occur during the morning peak hour and 13 fewer trips would occur during the evening peak hour.

To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

G. Future Conditions

The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions.

As shown in Table 12 for Existing Plus Project traffic conditions, the project generated trips do not result in a significant impact at the study area intersections.

The study area roadway segments are projected to provide sufficient capacity for Existing Plus Project traffic conditions, except for the following roadway segments:

Euclid Street:
North of Broadway
South of Broadway

The project generated trips do not result in a significant impact at study area roadway segments for Existing Plus Project conditions.

The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Opening Year (2018) Without Project traffic conditions.

The study area roadway segments are projected to provide sufficient capacity for Opening Year (2018) Without Project traffic conditions, except for the following roadway segments:

Euclid Street:
North of Broadway
South of Broadway

The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Opening Year (2018) With Project traffic conditions.

As shown in Table 15 for Opening Year (2018) With Project traffic conditions, the project generated trips do not result in a significant impact at the study area intersections.

The study area roadway segments are projected to provide sufficient capacity for Opening Year (2018) With Project traffic conditions, except for the following roadway segments:

Euclid Street:
North of Broadway
South of Broadway

The project generated trips do not result in a significant impact at study area roadway segments for Opening Year (2018) With Project conditions.

The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for General Plan Buildout Without Project traffic conditions, with planned improvements.

The study area roadway segments are projected to provide sufficient capacity for General Plan Buildout Without Project traffic conditions, with planned improvements.

The study area intersections are projected to operate at acceptable Levels of Service during the peak hours for General Plan Buildout With Project traffic conditions, with planned improvements.

As shown in Table 18 for General Plan Buildout With Project traffic conditions, the project generated trips do not result in a significant impact at the study area intersections.

The study area roadway segments are projected to provide sufficient capacity for General Plan Buildout With Project traffic conditions, with planned improvements.

The project generated trips do not result in a significant impact at study area roadway segments for General Plan Buildout With Project conditions.

H. Recommendations

The recommendations in this section address on-site improvements, off-site improvements and the phasing of all necessary study area transportation improvements.

1. On-Site Improvements

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself (see Figure 3).

The project site should provide sufficient parking spaces to meet City of Anaheim parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project. This should include signage prohibiting left turns out of the North Project Driveway onto Euclid Street.

Sight distance at the project accesses should be reviewed with respect to California Department of Transportation/City of Anaheim standards in conjunction with the preparation of final grading, landscaping, and street improvement plans.

Figure 1
Project Location Map

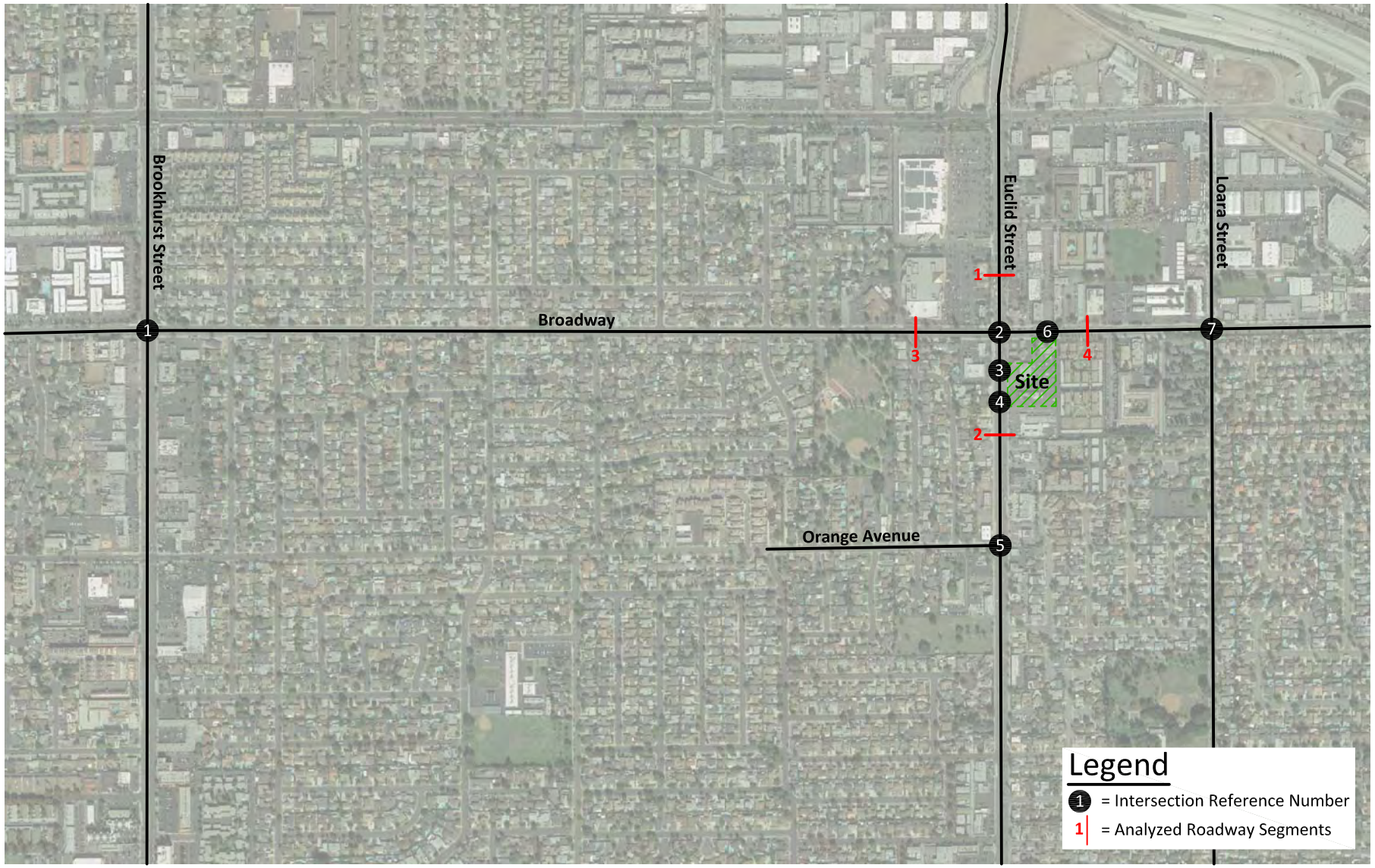

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Figure 2
Site Plan

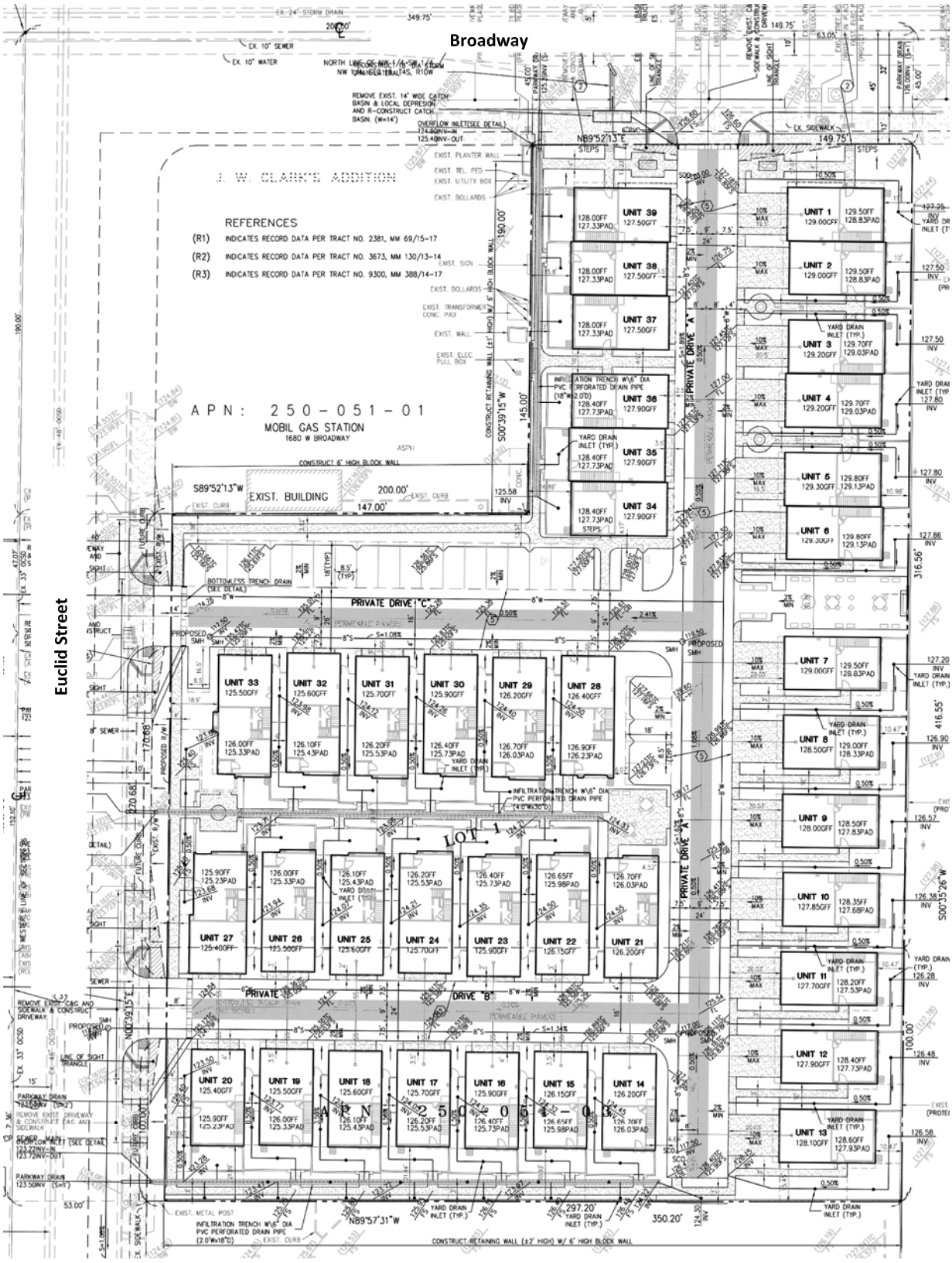
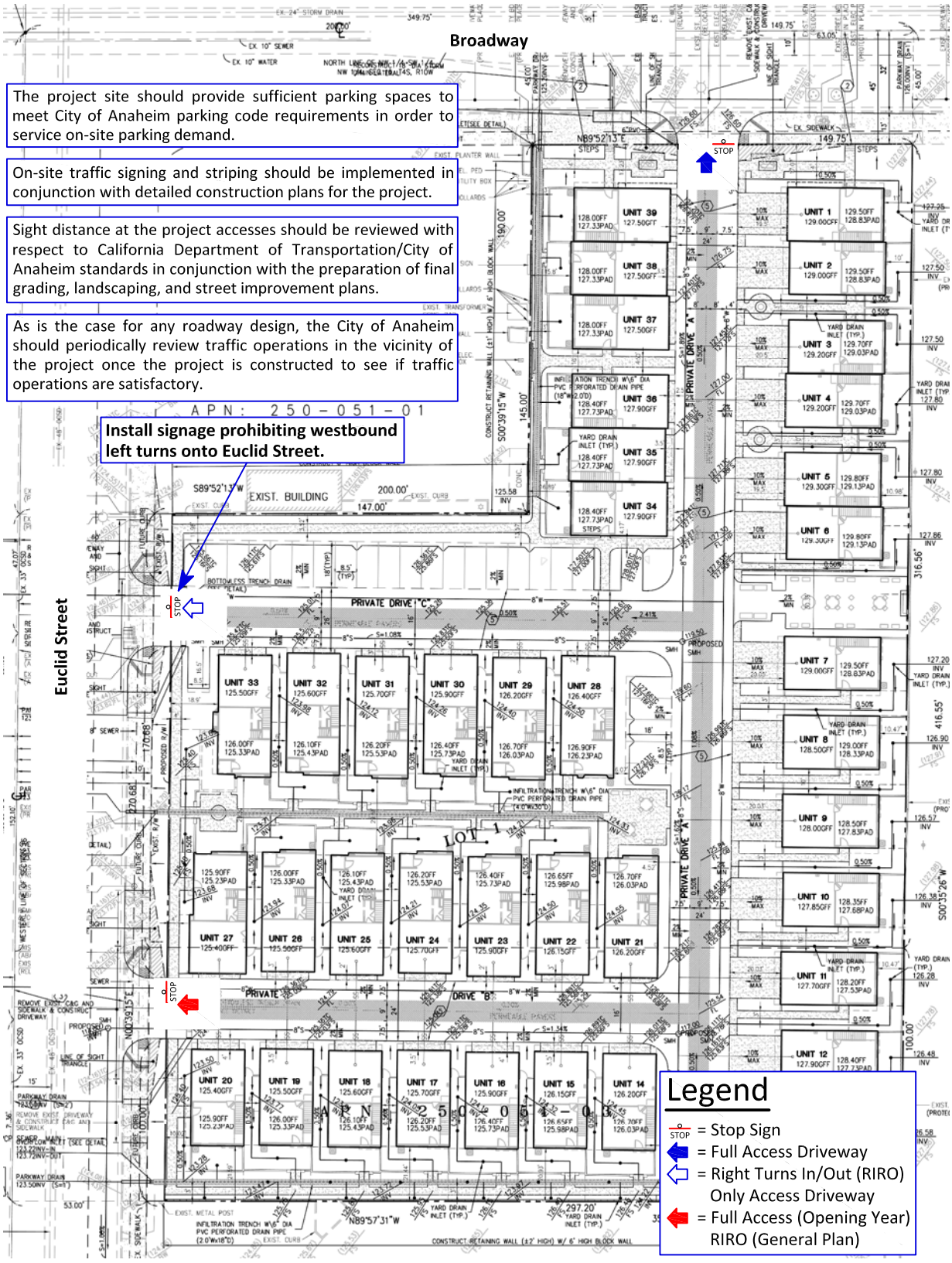


Figure 3
Circulation Recommendations



II. EXISTING CONDITIONS

A. Existing Roadway System

Local access is provided by various roadways in the vicinity of the site. The east-west roadway expected to provide local access is Broadway. North-south roadways expected to provide local access include Brookhurst Street and Euclid Street.

B. Existing Travel Lanes and Intersection Controls

Figure 4 identifies the Existing roadway conditions for study area roadways. The number of through lanes for existing roadways and the existing intersection controls are identified.

C. Existing Average Daily Traffic Volumes

Figure 5 depicts the Existing average daily traffic volumes. The Existing average daily traffic volumes were obtained directly from 24-hour counts made for Kunzman Associates, Inc.

The Existing roadway segment capacity analysis is shown in Table 1. As shown in Table 1, the study area roadway segments currently provide sufficient capacity for Existing traffic conditions, except for the following roadway segments:

Euclid Street:
- North of Broadway
- South of Broadway

D. Existing Intersection Levels of Service

The technique used to assess the operation of an intersection is known as Intersection Capacity Utilization, as described in Appendix D. To calculate an Intersection Capacity Utilization value, the volume of traffic using the intersection is compared with the capacity of the intersection. An Intersection Capacity Utilization value is usually expressed as a decimal. The decimal represents that portion of the hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity.

The Existing Levels of Service for intersections in the vicinity of the project are shown in Table 2. Existing Levels of Service are based upon manual morning and evening peak period intersection turning movement counts obtained by Kunzman Associates, Inc. in April 2017 (see Figures 6 and 7). Traffic count worksheets are provided in Appendix B.

There are two peak hours in a weekday. The morning peak period is between 7:00 AM and 9:00 AM, and the evening peak period is between 4:00 PM and 6:00 PM. The actual peak hour within the two hour interval is the four consecutive 15 minute periods with the highest total volume when all movements are added together. Thus, the evening 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.

The study area intersections currently operate within acceptable Levels of Service during the peak hours for Existing traffic conditions. Existing Level of Service worksheets are provided in Appendix D.

E. Existing General Plan Circulation Element

Figure 8 shows the current City of Anaheim General Plan Circulation Element. Both existing and future roadways are included in the Circulation Element of the General Plan and are graphically depicted on Figure 8. This figure shows the nature and extent of arterial highways that are needed to adequately serve the ultimate development depicted by the land use element of the General Plan.

F. Transit Service

Transit service is provided by the Orange County Transportation Authority Route 37 along Euclid Street. Figure 9 depicts the existing transit network in the study area.

G. Bicycle and Pedestrian Facilities

The existing pedestrian facilities adjacent to the project are shown on Figure 10. There are existing Class II Bikeways along Euclid Street in the project vicinity.

Table 1

Existing Roadway Segment Capacity Analysis

Roadway	Segment	Jurisdiction	Number of Lanes	Capacity	Average Daily Traffic Volume	Volume to Capacity Ratio	Level of Service
Euclid Street	North of Broadway	Anaheim	4D	37,500	42,321	1.13	F
	South of Broadway	Anaheim	4D	37,500	40,865	1.09	F
Broadway	West of Euclid Street	Anaheim	4D	37,500	19,247	0.51	A
	East of Euclid Street	Anaheim	4D	37,500	19,892	0.53	A

Table 2

Existing Intersection Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												V/C -LOS[2]	
			Northbound			Southbound			Eastbound			Westbound			Peak Hour	
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Brookhurst Street (NS) at:																
Broadway (EW) - #1	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.489-A	0.606-B
Euclid Street (NS) at:																
Broadway (EW) - #2	Anaheim	TS	1	2	1	1	2	1	1	1.5	0.5	1	1.5	0.5	0.649-B	0.785-C
Orange Avenue (EW) - #5	Anaheim	TS	1	1.5	0.5	1	1.5	0.5	0	1	0	0	0	0	0.503-A	0.633-B
Loara Street (NS) at:																
Broadway (EW) - #7	Anaheim	TS	1	0.5	0.5	0	1	0	1	1.5	0.5	1	1.5	0.5	0.404-A	0.513-A

[1] When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = De Facto Right Turn Lane

[2] LOS = Level of Service
Volume to capacity ratio (V/C) and Level of Service (LOS) have been calculated using the Vistro (Version 5.0-00) software.

[3] TS = Traffic Signal

Figure 4
Existing Through Travel Lanes and Intersection Controls

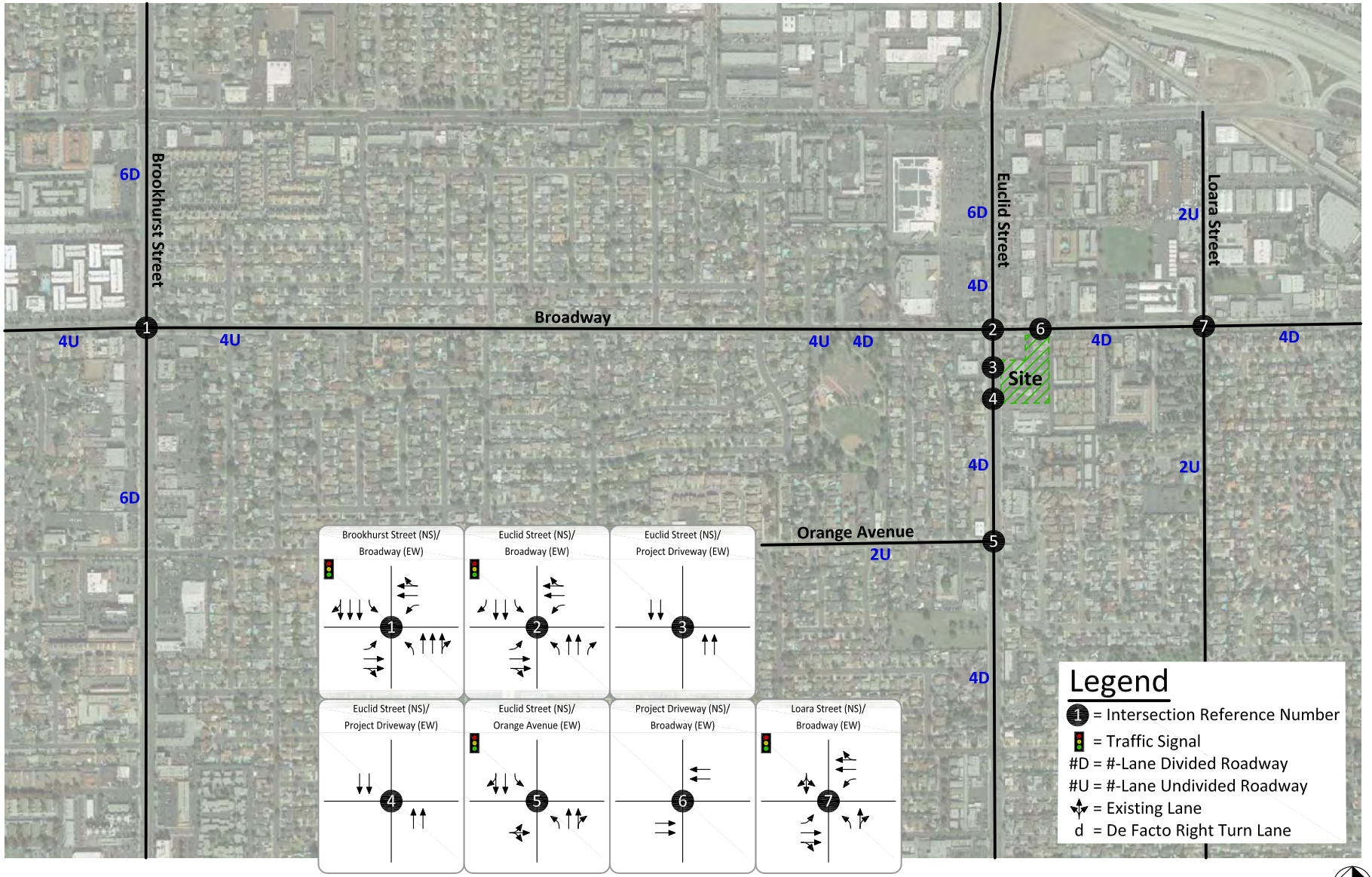


Figure 5
Existing Average Daily Traffic Volumes

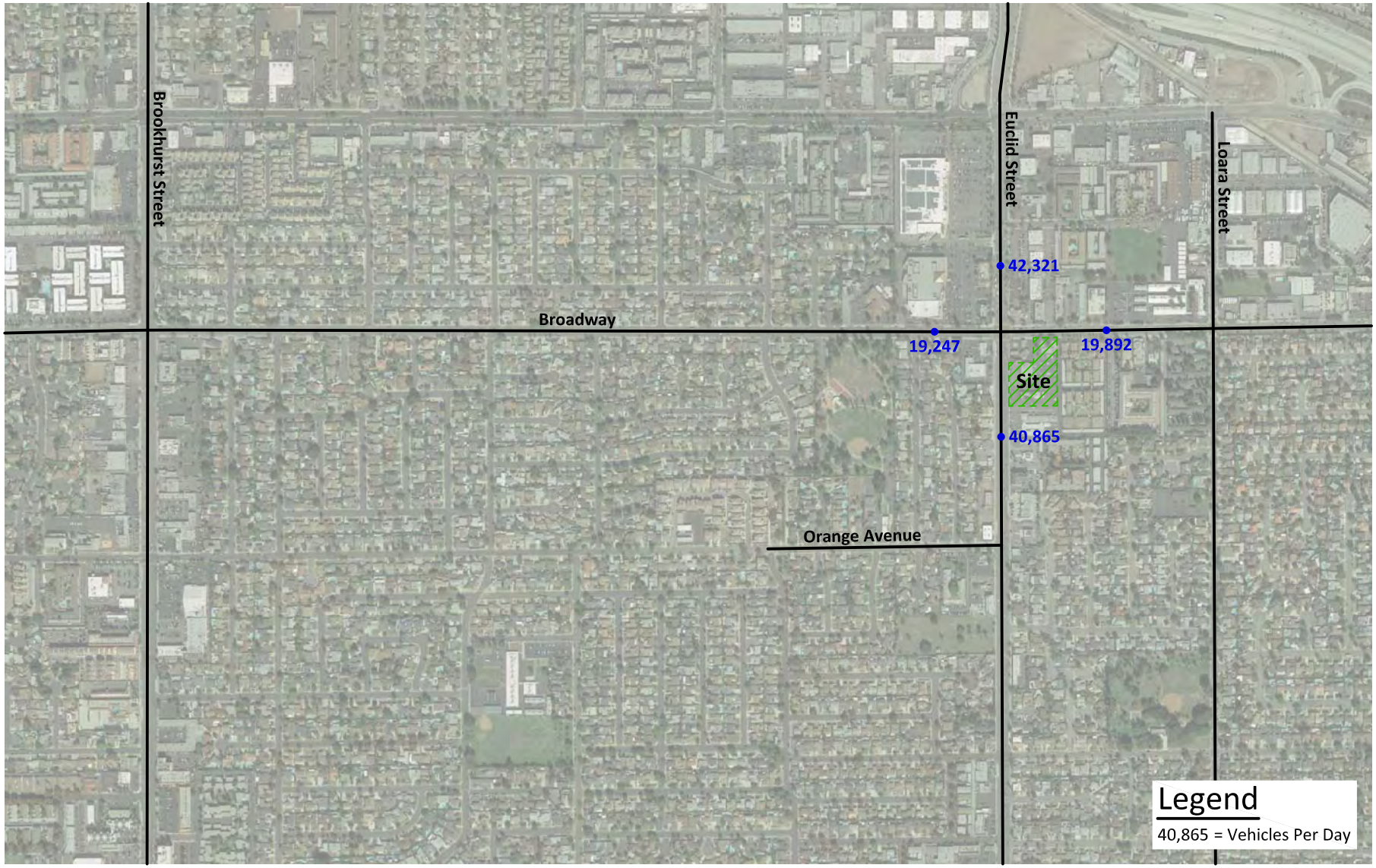


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Figure 6
Existing Morning Peak Hour Intersection Turning Movement Volumes

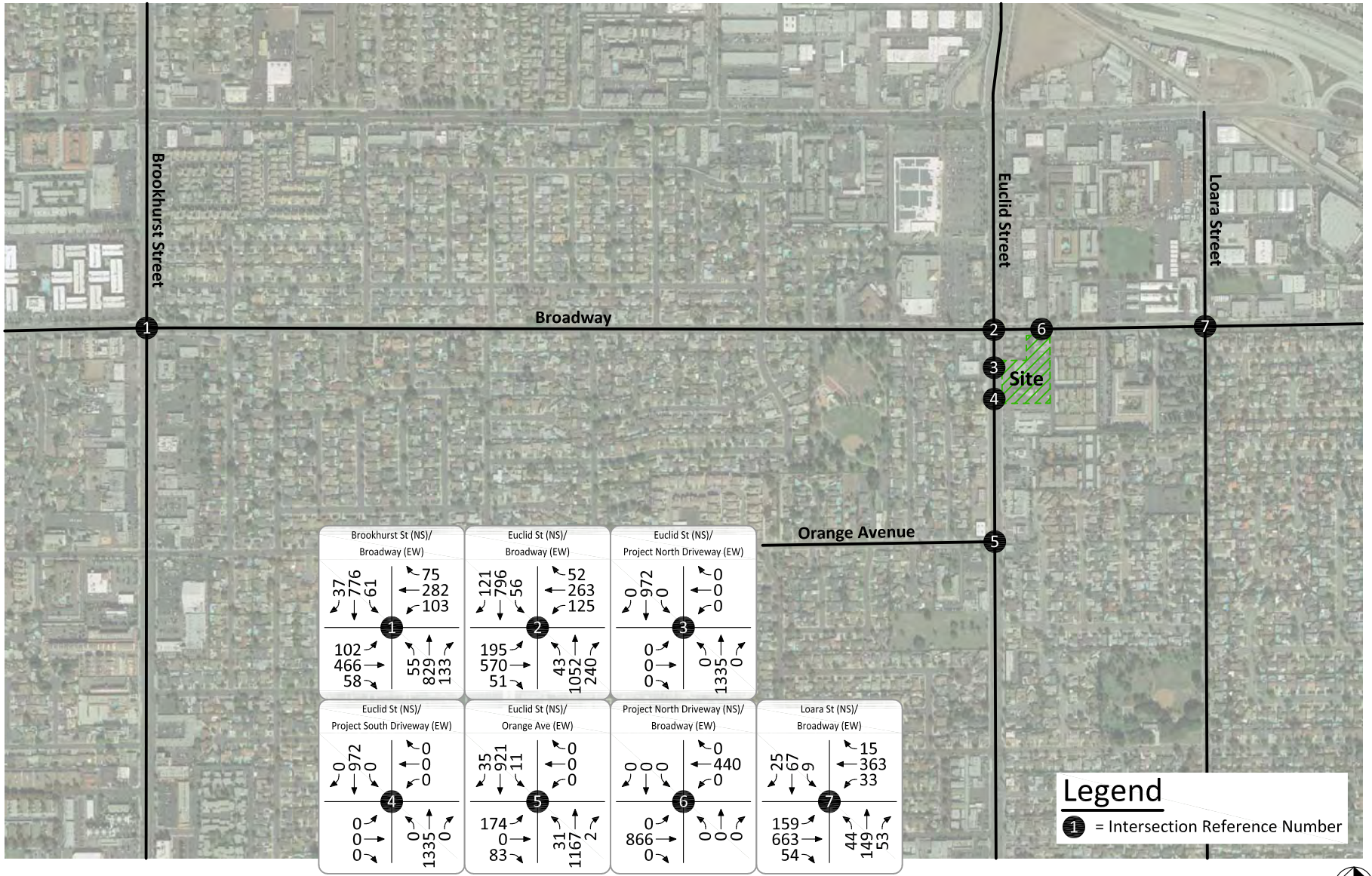

Figure 7
Existing Evening Peak Hour Intersection Turning Movement Volumes

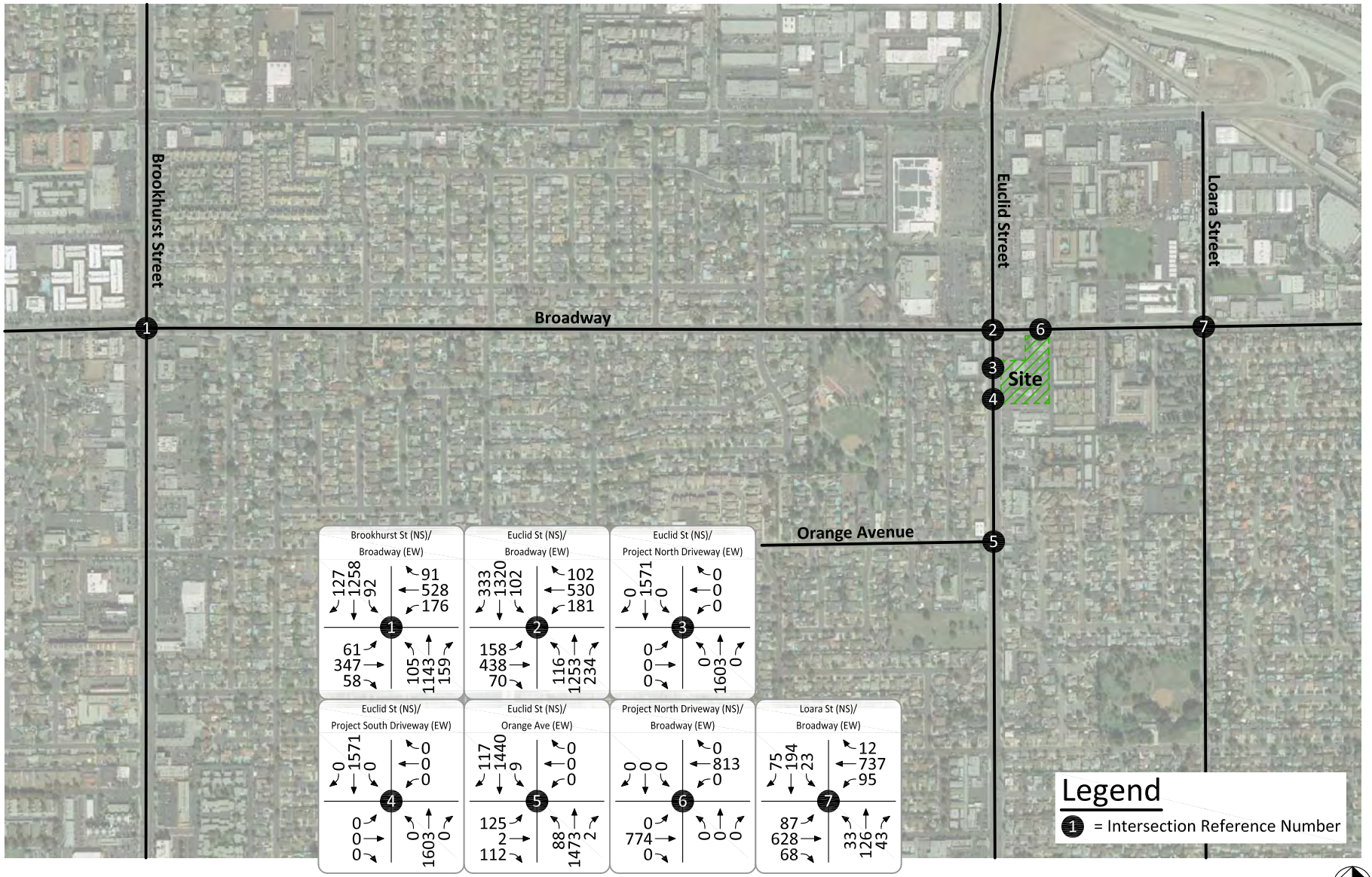

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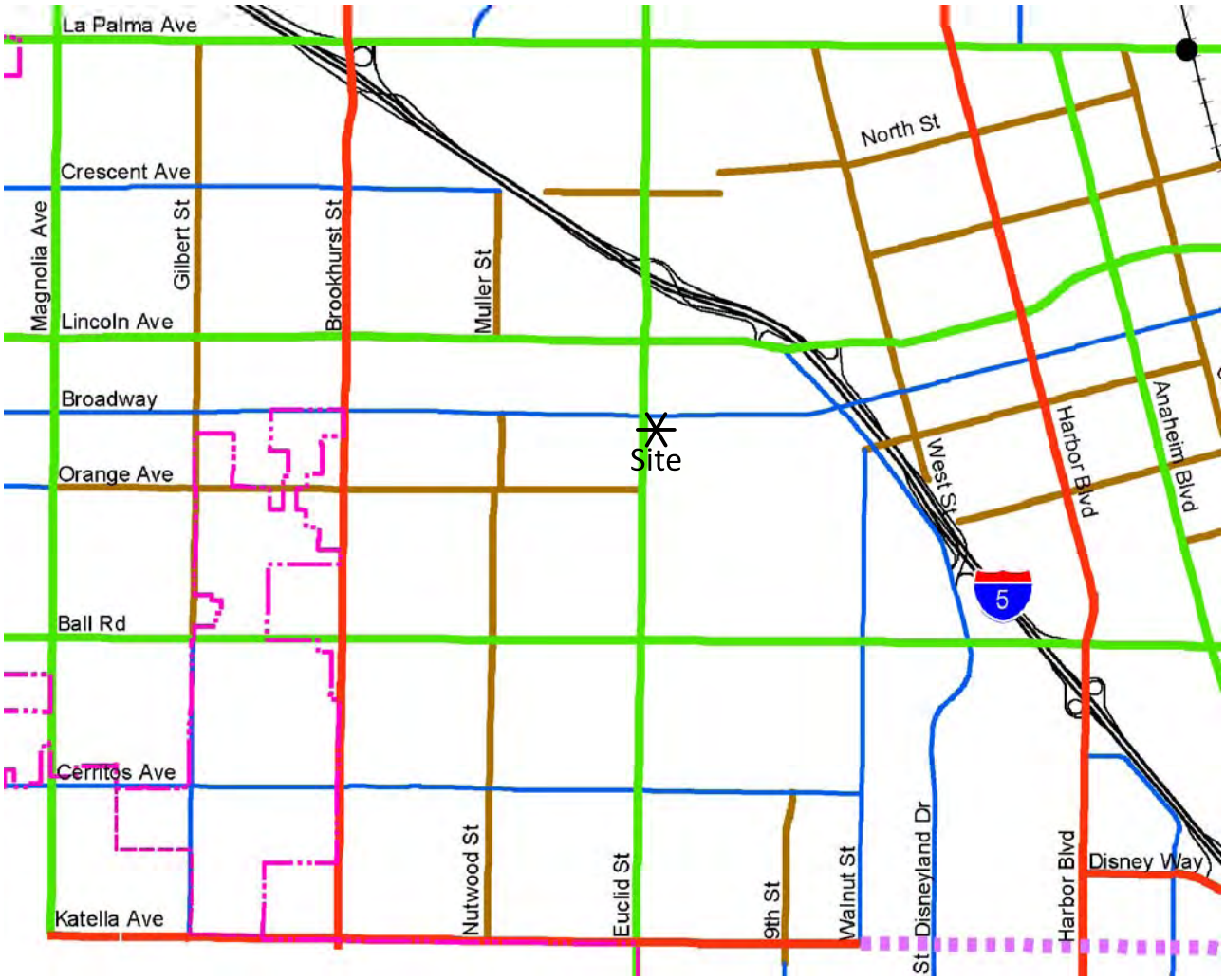
Figure 8
City of Anaheim General Plan Circulation Element

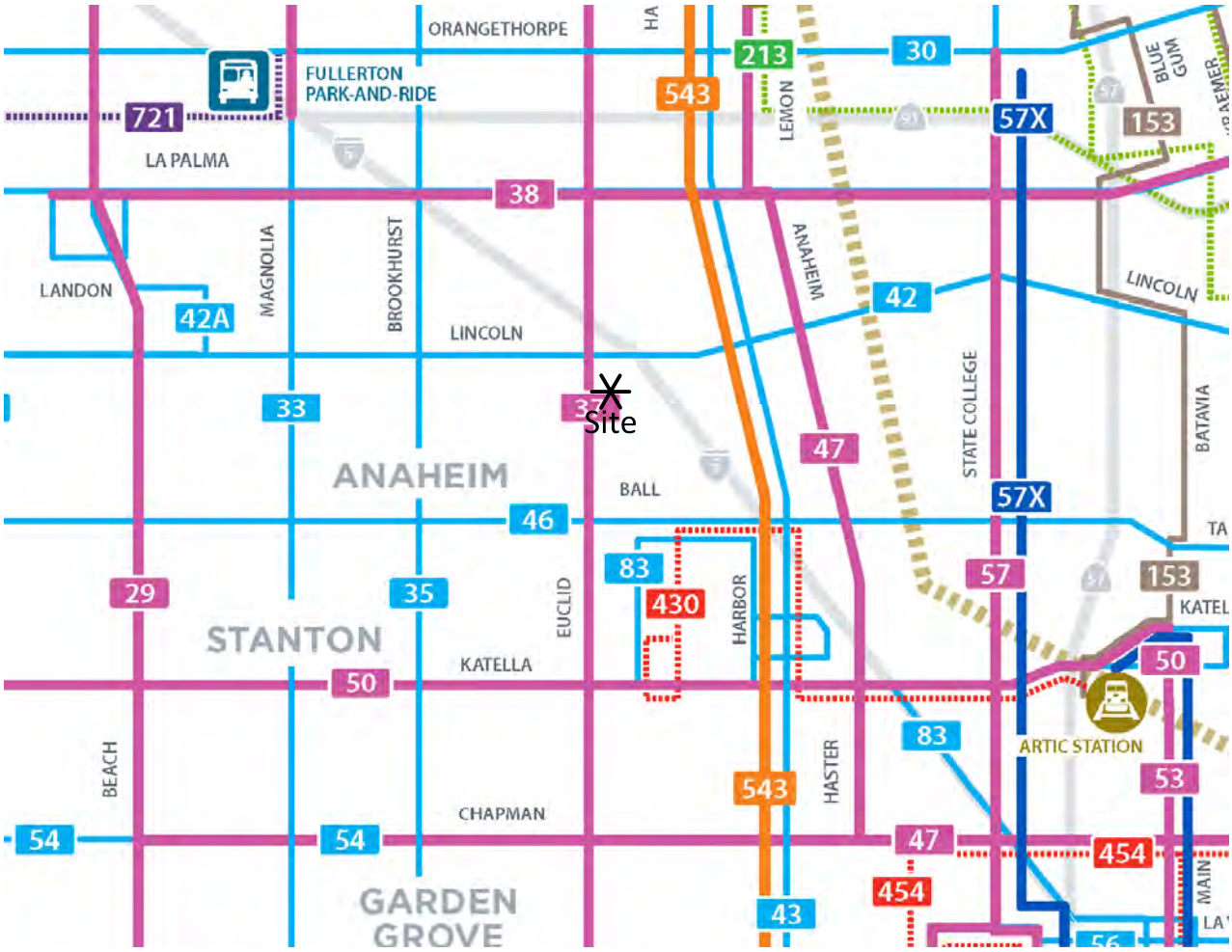


Roadway Classifications

- Complete Streets Collector
- Scenic Expressway
- Resort Smartstreet
- Stadium Area Smartstreet
- Major Arterial
- Primary Arterial
- Hillside Primary Arterial
- Collector Street
- Hillside Collector Street
- Secondary Arterial
- Hillside Secondary Arterial
- Passenger & Commuter Rail
- Right-of-Way Reserve
- Freeway/Tollroad
- Future Passenger Rail Grade Separations
- City Boundary
- Sphere-of-Influence

Source: City of Anaheim

Figure 9
City of Anaheim Existing Transit Routes



Legend

- 1 — Routes offering 15 minutes (or less) Weekday rush hour frequency
- 1 — Local Routes (1-99)
- 100 — Community Routes (100-199)
- 200 — OC Express Routes (200-299) Weekday Rush Hour Only
- 400 — Stationlink Metrolink Rail Feeder Routes (400-499) Weekday Rush Hour Only
- 543 — Bravo Limited Stop Service
- 700 — Express Service (700-799) Weekday Rush Hour Only
- Rail Stations
- OC BUS Transit Centers

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Source: Orange County Transportation Authority

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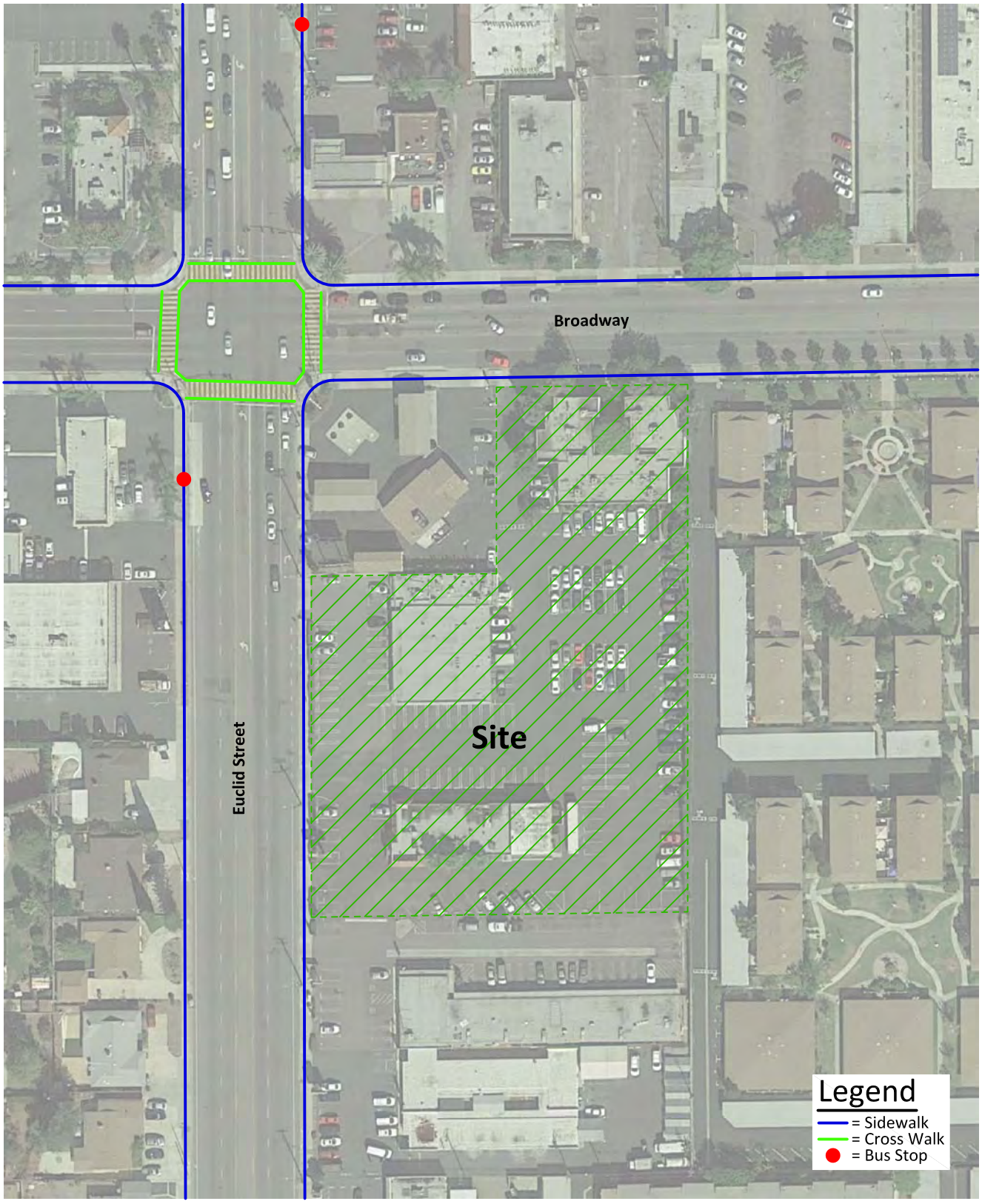
Figure 10
Existing Pedestrian Facilities



III. PROJECT TRIPS

A. Project Description

The approximately 2.35 acre project site is proposed to be developed with 39 single-family detached residential dwelling units. The project site is proposed to provide access to Euclid Street and Broadway.

The project also includes a General Plan Amendment to modify the existing land use from General Commercial and Corridor Residential to Low-Medium Density Residential. In addition, the project proposes to re-zone the site from General Commercial (C-G) to Multiple Family Residential (RM-3).

B. Trip Generation

Trip generation rates were determined for daily traffic and morning peak hour inbound and outbound traffic, and evening peak hour inbound and outbound traffic for the proposed land use. By multiplying the trip generation rates by the land use quantity, the traffic volumes are determined. Tables 3 and 4 show the trip generation based upon rates obtained from the Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012.

The trips generated by the project are determined by multiplying an appropriate trip generation rate by the quantity of land use. Trip generation rates are predicated on the assumption that energy costs, the availability of roadway capacity, the availability of vehicles to drive, and life styles remain similar to what are known today. A major change in these variables may affect trip generation rates.

1. Near-Term

As shown in Table 3, the proposed development is projected to generate approximately 371 daily vehicle trips, 29 of which will occur during the morning peak hour and 39 of which will occur during the evening peak hour.

Two buildings on the site are currently occupied, a 10,452 square foot office building and an 8,050 square foot commercial building. The commercial building contains various retail land uses and a restaurant. The trip generation of the existing land uses is currently estimated to be 633 daily vehicle trips, 22 of which occur during the morning peak hour and 52 of which occur during the evening peak hour.

The proposed project is projected to generate approximately 262 fewer daily vehicle trips than the existing land uses, 7 more trips will occur during the morning peak hour and 13 fewer trips would occur during the evening peak hour.

2. General Plan

The existing land uses identified in the City of Anaheim General Plan are General Commercial and Corridor Residential. The General Commercial land use allows a floor area ratio (FAR) of 0.50, which means 50% of the site can be occupied by buildings. To estimate the trip generation potential of this portion of the site, the specific existing land use was assumed to be Shopping Center. The area currently designated General Commercial totals 1.66 acres. The floor area ratio of 0.50 would result in a maximum building area of 36,155 square feet. The Corridor Residential land use allows a maximum of 13 dwelling units per acre. To estimate the trip generation potential, the specific land use was assumed to be Single-Family Detached Residential. The area currently designated Corridor Residential totals 0.69 acres. The maximum dwelling units of 13 per acre result in a maximum of 9 dwelling units.

As shown in Table 4, the existing land use designations have the potential to generate approximately 3,591 daily vehicle trips, 91 of which would occur during the morning peak hour and 312 of which would occur during the evening peak hour.

The proposed general plan land use zoning is Low-Medium Density Residential. This land use allows a maximum of 18 dwelling units per acre. To estimate the trip generation potential, the proposed specific land use was assumed to be Single-Family Detached Residential. The site area of 2.35 acres and the maximum dwelling units of 18 per acre result in a maximum of 42 dwelling units.

As shown in Table 4, the proposed land use zoning has the potential to generate approximately 400 daily vehicle trips, 32 of which would occur during the morning peak hour and 42 of which would occur during the evening peak hour.

As shown in Table 4, the proposed General Plan Amendment would result in approximately 3,191 fewer daily vehicle trips, 59 fewer during the morning peak hour and 270 fewer during the evening peak hour.

C. Trip Distribution

Figures 11 and 12 contain the directional distributions of the project trips for the proposed land use at project Opening Year conditions. Figures 13 and 14 contain the directional distributions of the project trips for General Plan conditions. To determine the trip distributions for the proposed project, peak hour traffic counts of the existing directional distribution of traffic for existing areas in the vicinity of the site, and other additional information on future development and traffic impacts in the area were reviewed.

D. Trip Assignment

Based on the identified trip generation and distribution, project average daily traffic volumes have been calculated and shown on Figure 15. Morning and evening peak hour intersection turning movement volumes expected from the project for opening year conditions are shown on Figures 16 and 17, respectively. Morning and evening peak hour

intersection turning movement volumes expected from the project for General Plan conditions are shown on Figures 18 and 19, respectively.

Table 3

Near-Term Project Trip Generation[1]

Land Use	Quantity	Units[2]	Peak Hour						Daily
			Morning			Evening			
			Inbound	Outbound	Total	Inbound	Outbound	Total	
Existing Trips Generated									
Offices	10.452	TSF	14	2	16	3	13	16	115
Sit-Down Restaurant	1.950	TSF	0	0	0	12	8	20	248
Specialty Retail	6.100	TSF	3	3	6	7	9	16	270
Subtotal			17	5	22	22	30	52	633
Proposed Trips Generated									
Single-Family Detached Residential	39	DU	7	22	29	25	14	39	371
Net Trips Generated			-10	17	7	3	-16	-13	-262

[1] Source: Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012, Land Use Codes 210, 710, 826, & 932. The specialty retail trip generation rates for AM peak hour and Weekday were obtained from San Diego Association of Governments (SANDAG), Traffic Generators, April 2002. No AM trip generation was assumed for th restaurant land use as it is only open during the evening.

[2] DU = Dwelling Units; TSF = Thousand Square Feet

Table 4

General Plan Buildout Trip Generation[1]

Land Use	Quantity	Units[2]	Peak Hour						Daily
			Morning			Evening			
			Inbound	Outbound	Total	Inbound	Outbound	Total	
Existing General Plan Buildout									
General Commercial (FAR = 0.50)[3]	36.155	TSF	52	32	84	145	158	303	3,505
Corridor Residential (13 DU/AC)[4]	9	DU	2	5	7	6	3	9	86
Subtotal			54	37	91	151	161	312	3,591
Proposed Project General Plan Buildout									
Low-Medium Density Residential (18 DU/AC)[5]	42	DU	8	24	32	26	16	42	400
Net Trips Generated			-46	-13	-59	-125	-145	-270	-3,191

[1] Source: Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012, Land Use Codes 210 & 820.

[3] DU = Dwelling Units; TSF = Thousand Square Feet

[3] The shopping center land use was chosen to represent the allowable land use with the most likely trip generation. Quantity was calculated by multiplying the parcel acreage (1.66 AC) by the allowable floor area ratio (0.50) for General Commercial Land Use.

[4] The Single Family Detached Residential land use was chosen to represent the allowable land use with the highest likely trip generation. Quantity was calculated by multiplying the parce acreage (0.69 AC) by the allowable units per acre (13 DU/AC) for Corridor Residential Land Use.

[5] The Single Family Detached Residential land use was chosen to represent the allowable land use with the highest likely trip generation. Quantity was calculated by multiplying the site acreage (2.35 AC) by the allowable units per acre (18 DU/AC) for Low-Medium Density Residential Land Use.

Figure 11
Project Outbound Trip Distribution - Opening Year

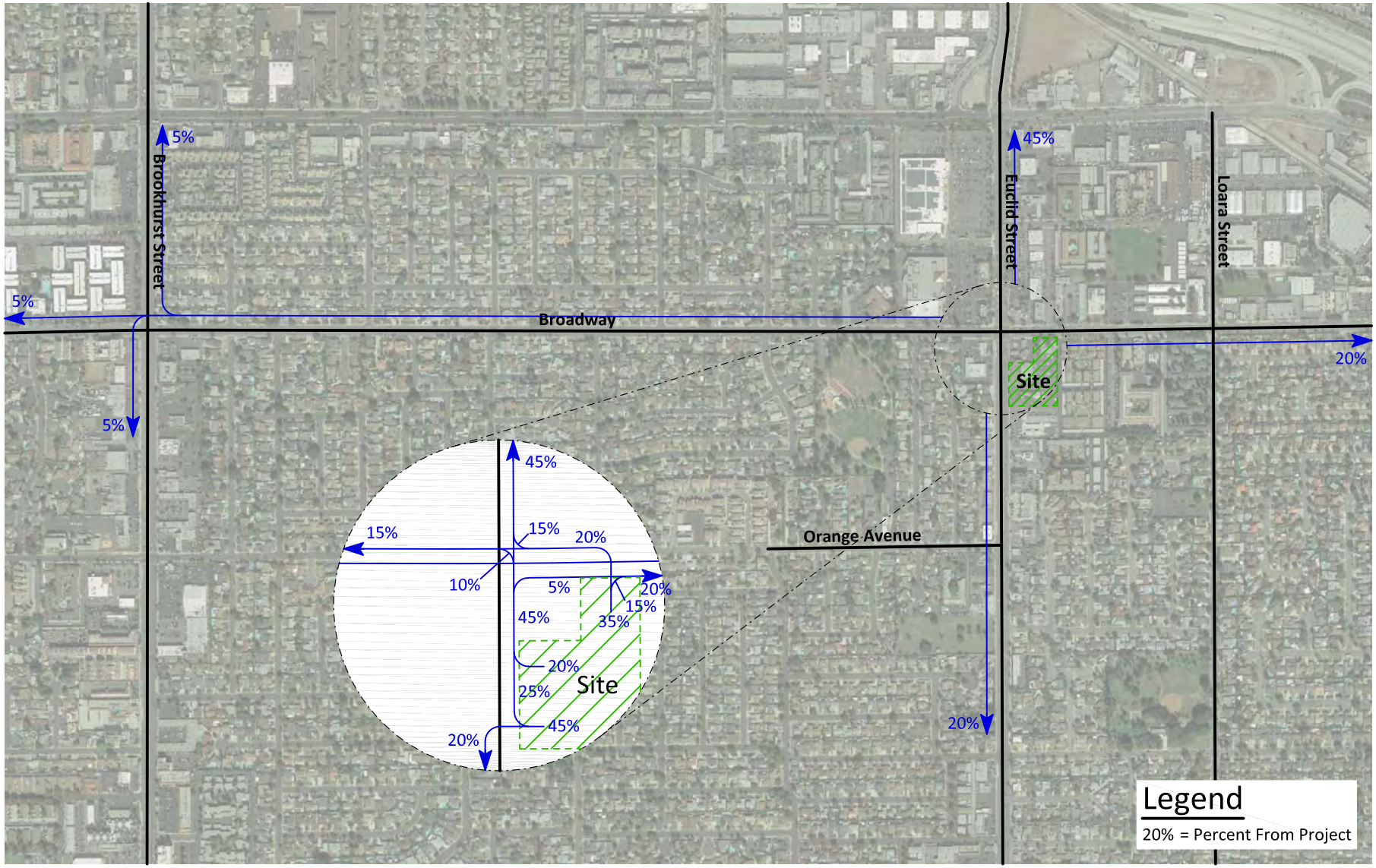


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Figure 12
Project Inbound Trip Distribution - Opening Year

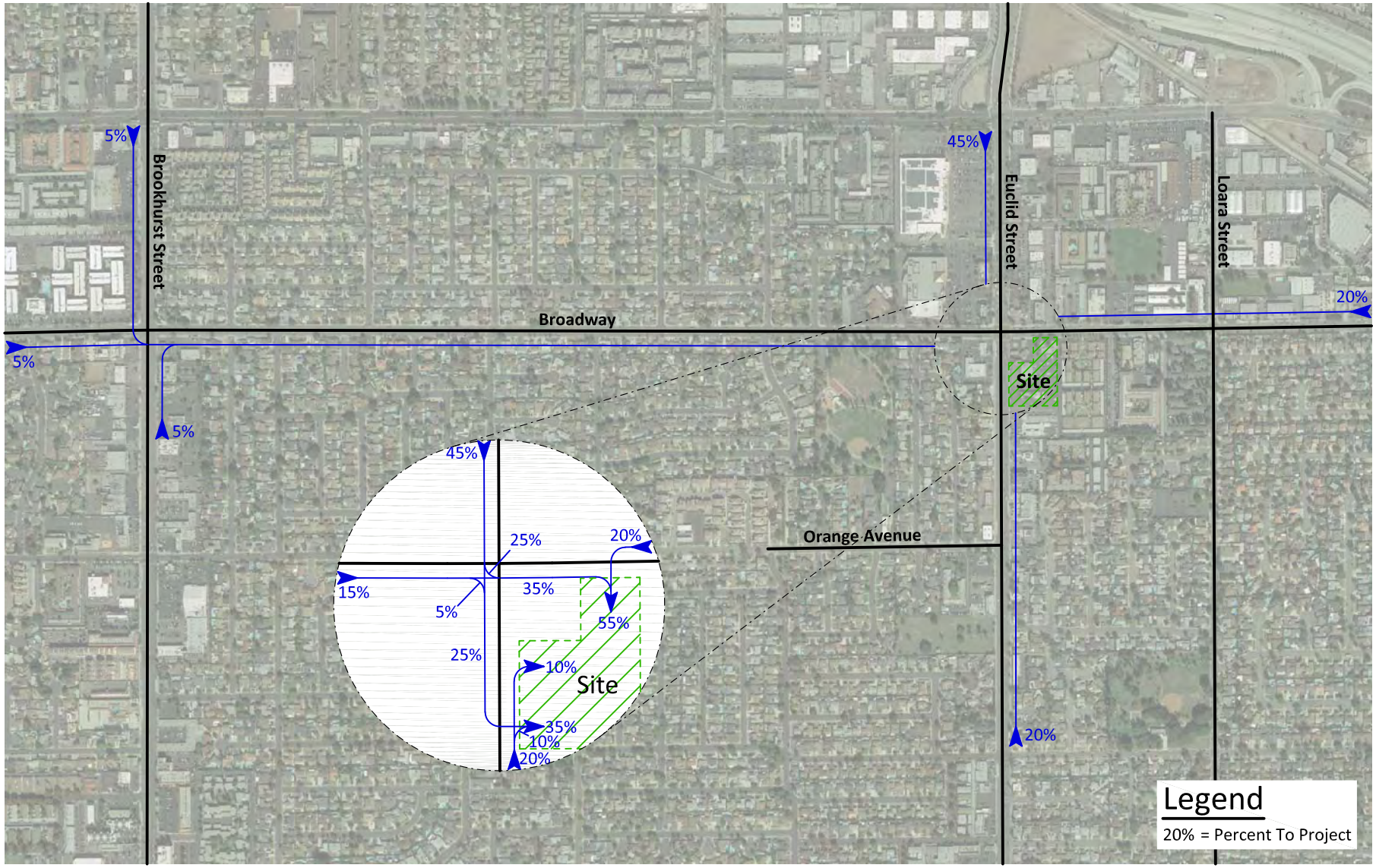

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Figure 13
Project Outbound Trip Distribution - General Plan

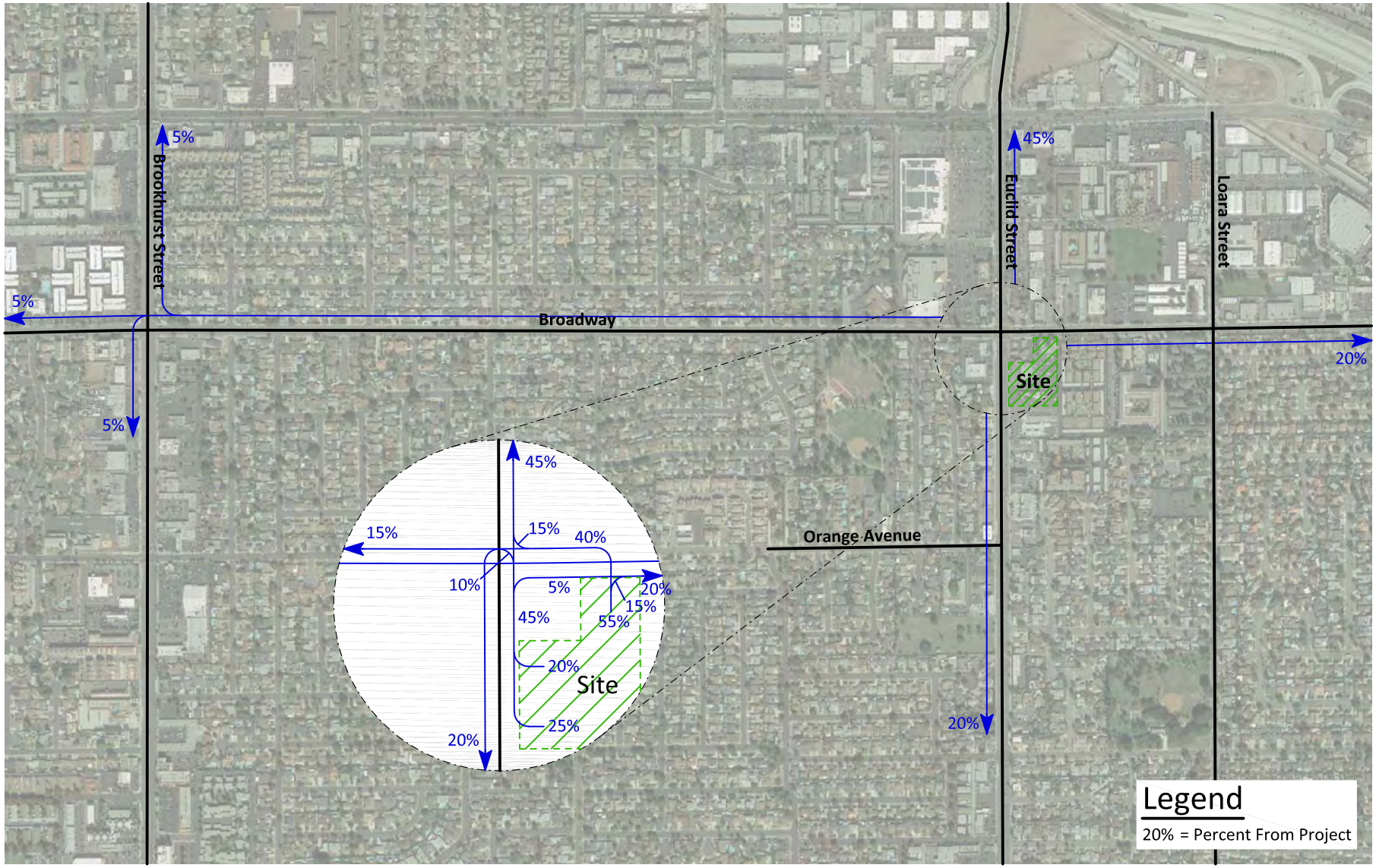


Figure 14
Project Inbound Trip Distribution - General Plan

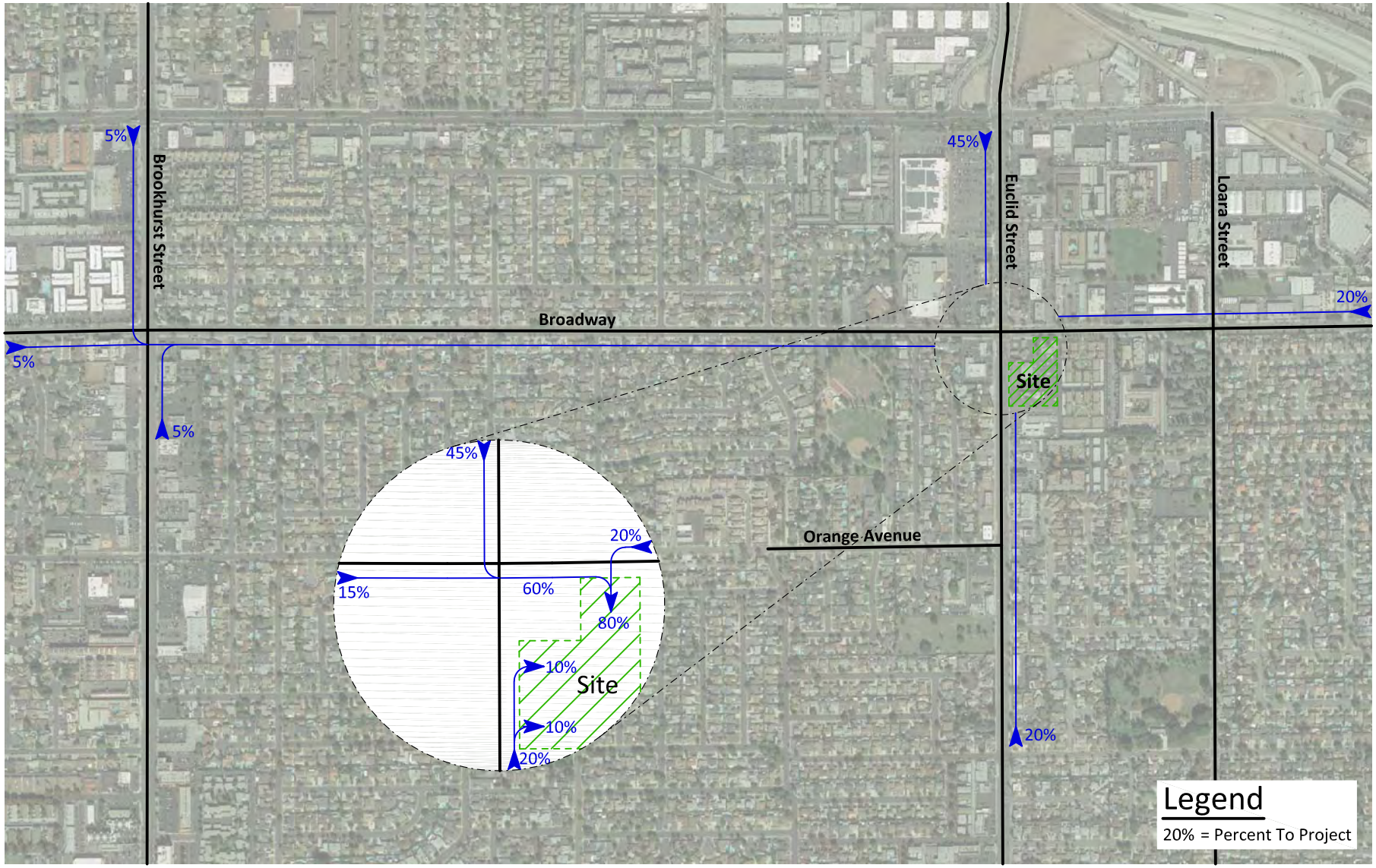
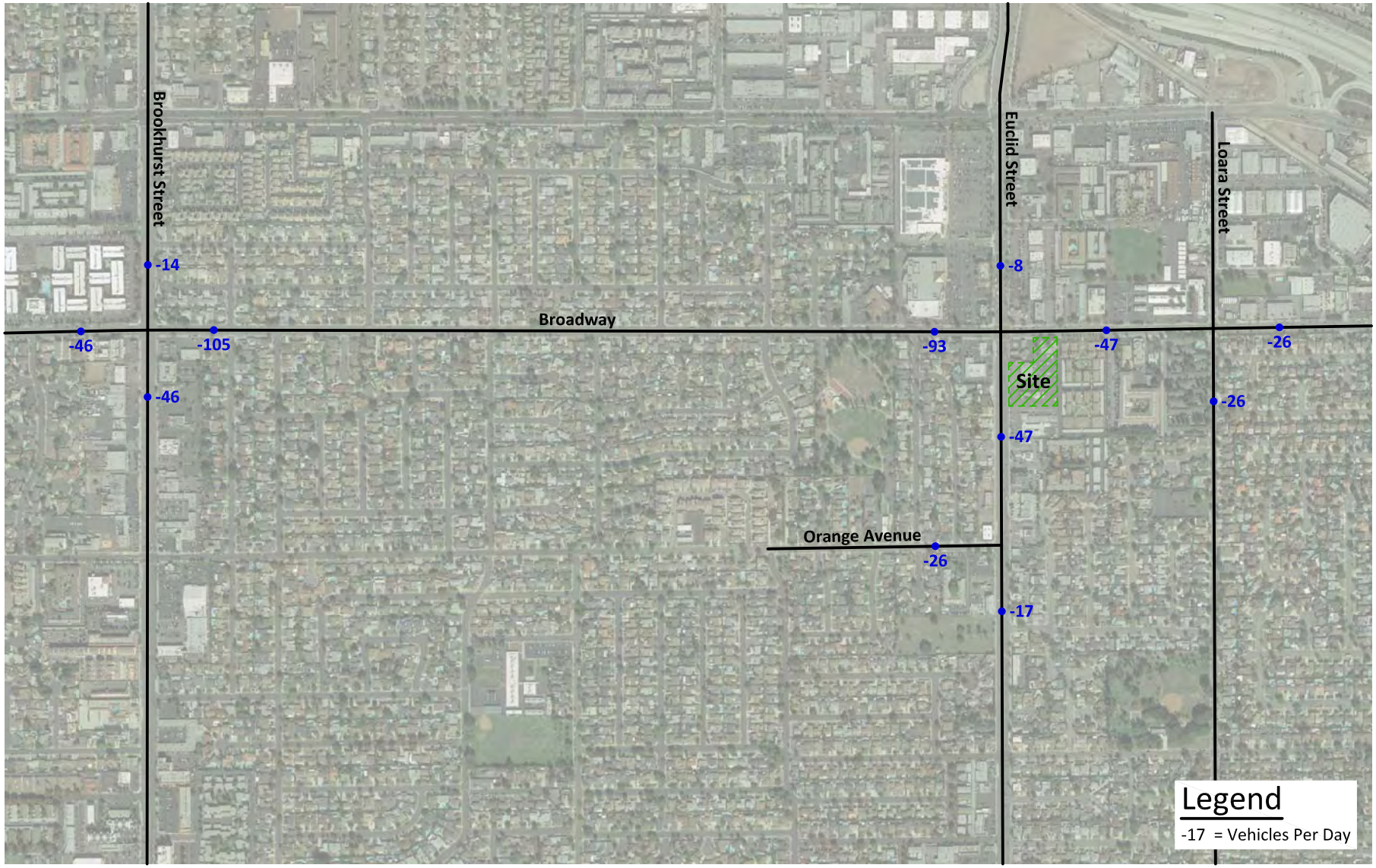


Figure 15
Project Average Daily Traffic Volumes



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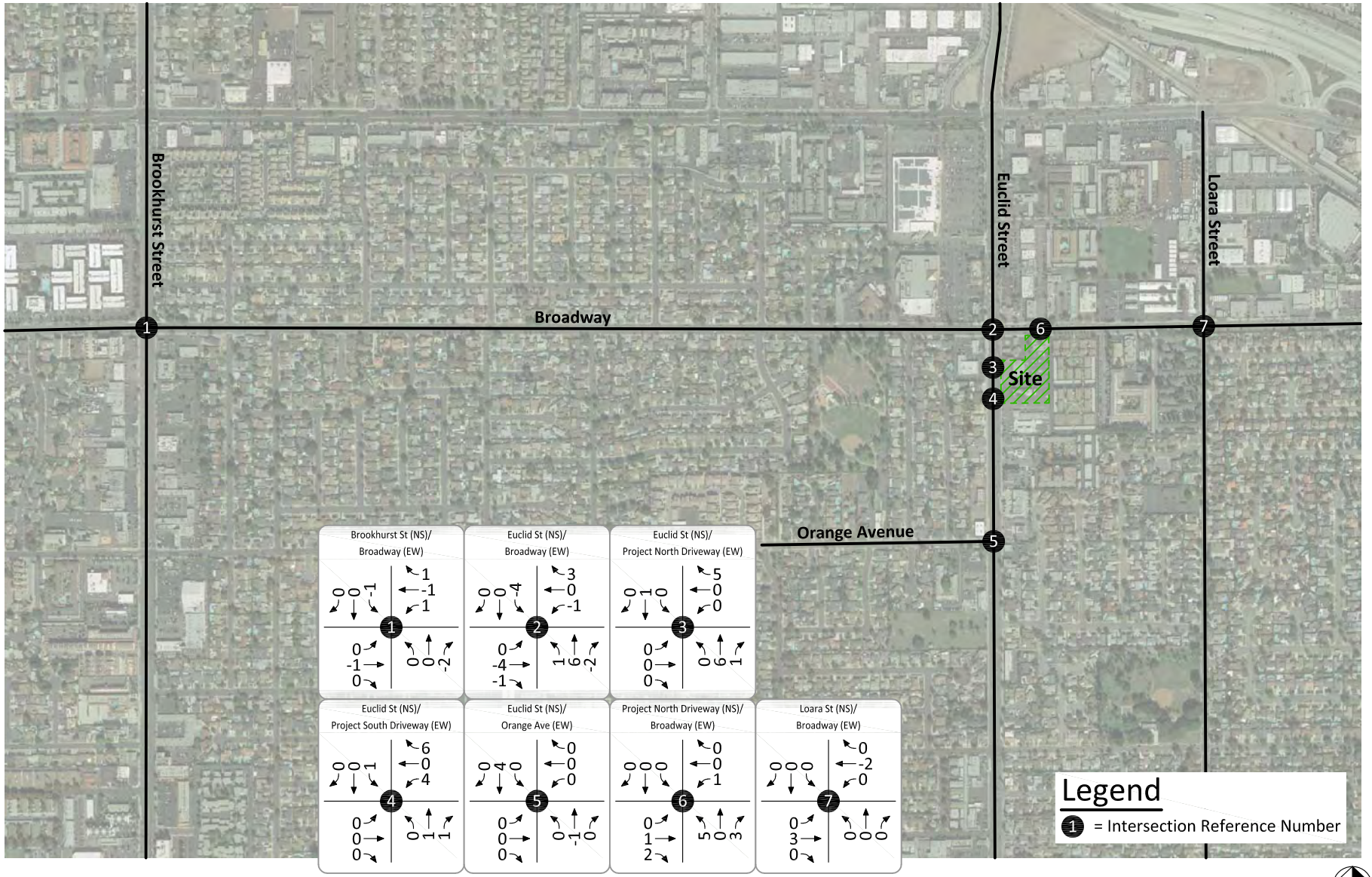
JN 6565c

Figure 16
Project Morning Peak Hour Intersection Turning Movement Volumes
- Opening Year



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OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 17
Project Evening Peak Hour Intersection Turning Movement Volumes
- Opening Year

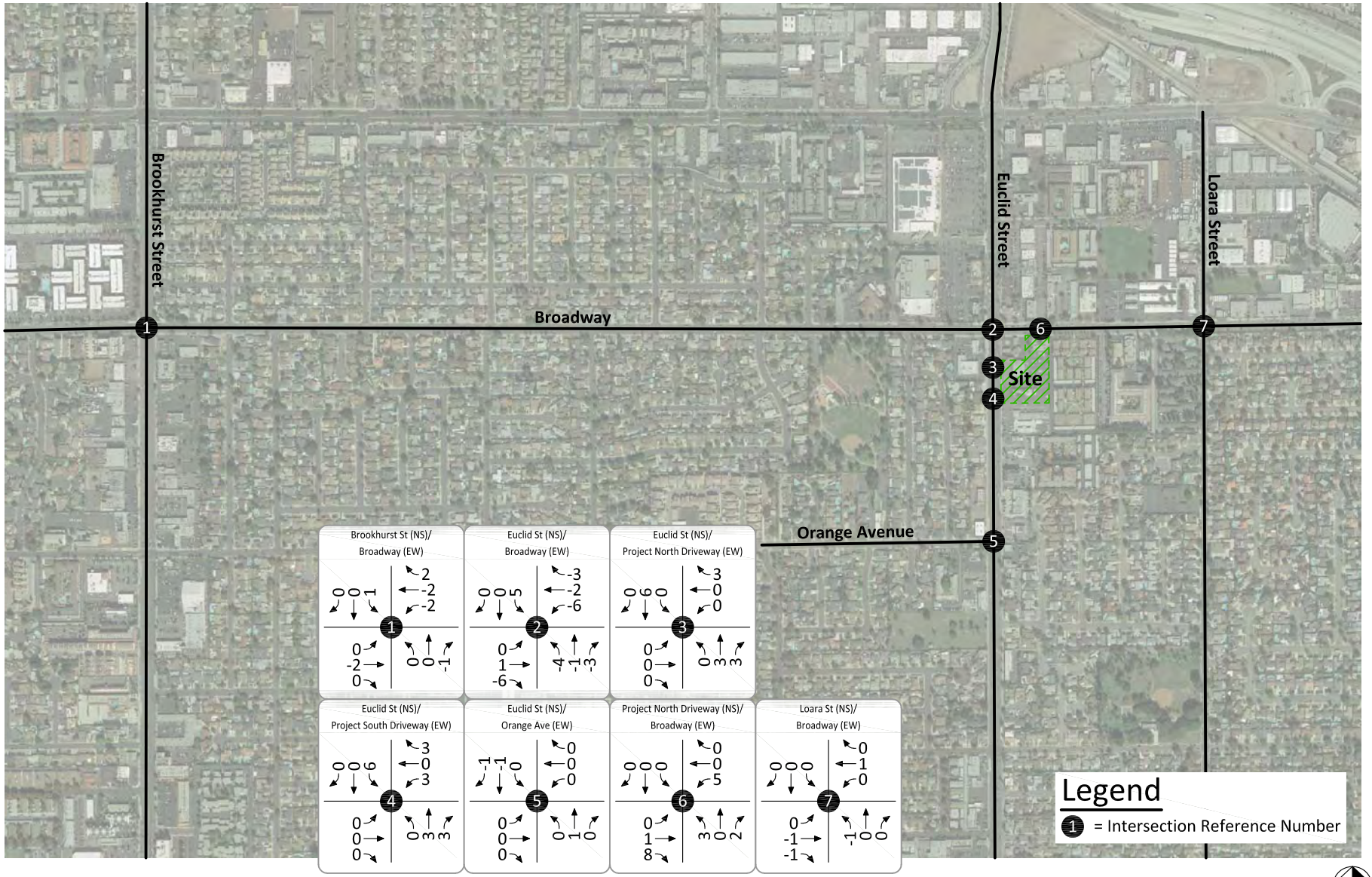

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Figure 18
Project Morning Peak Hour Intersection Turning Movement Volumes
- General Plan

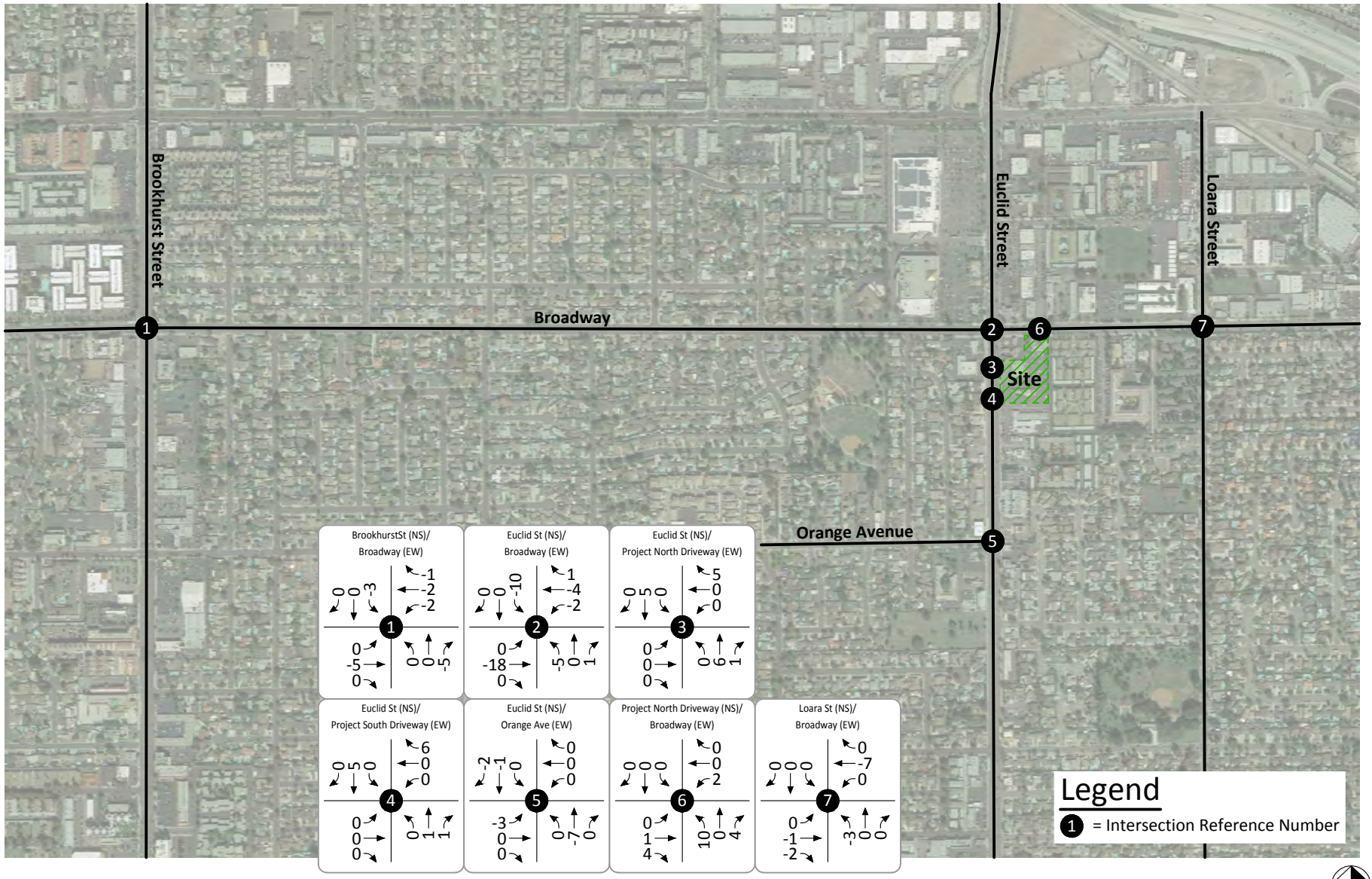

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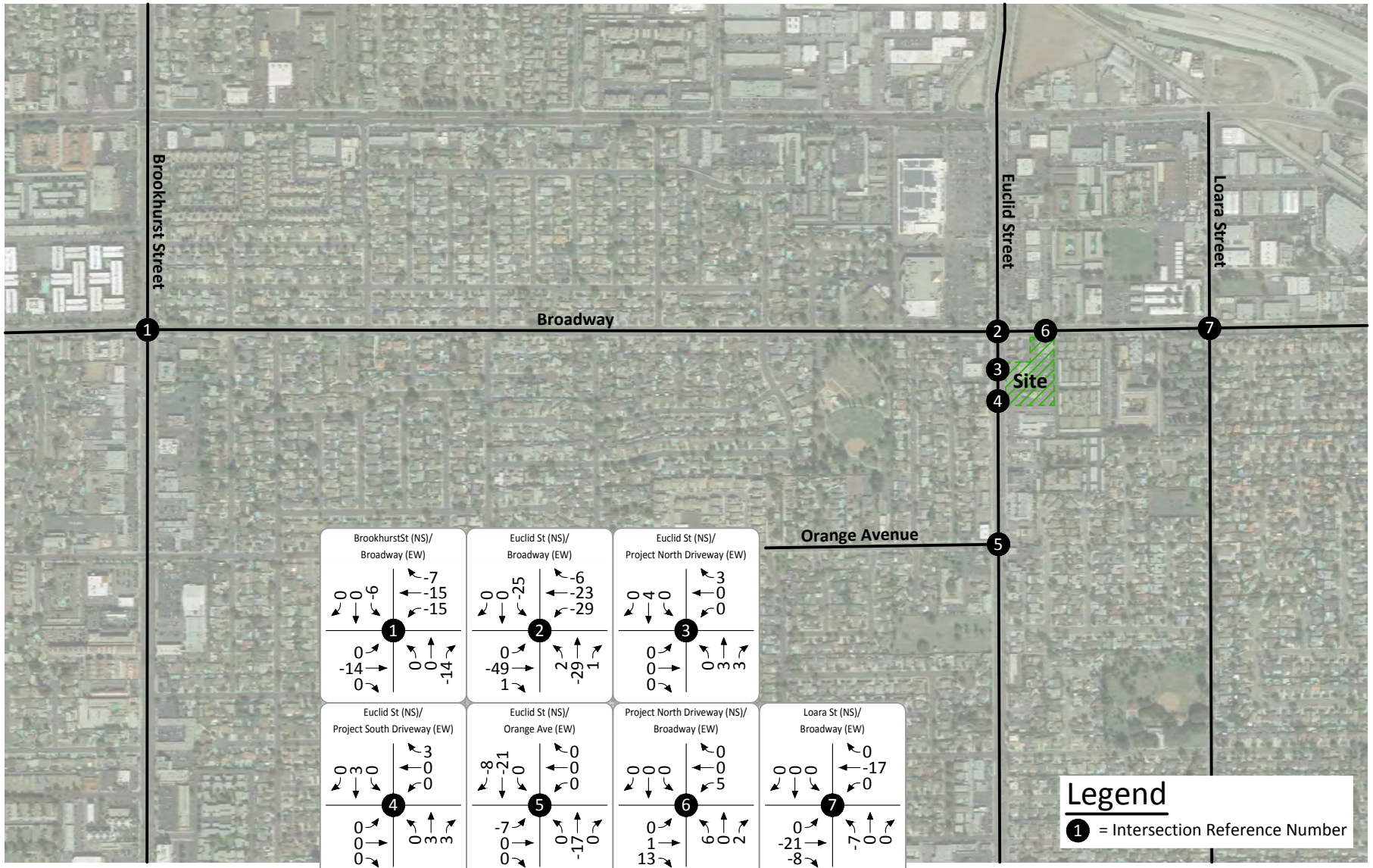
Figure 19
Project Evening Peak Hour Intersection Turning Movement Volumes
- General Pan



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JN 6565c

IV. FUTURE CONDITIONS

To assess future traffic conditions, existing traffic is combined with ambient growth, other development, and project traffic. The Opening Year for analysis purposes in this report is 2018.

A. Method of Projection

1. Ambient Growth

To account for ambient growth on roadways, Opening Year traffic volumes have been calculated based on a 1.0 percent annual growth rate of existing traffic volumes over a one year period.

2. Other Development

Information about other developments in the study area was obtained from the Cities of Anaheim and Garden Grove in May 2017. Other developments within the study area are included in the analysis if they are not currently built, are approved, their approval has not expired, and they would contribute trips to the study area intersections.

Table 5 lists the proposed land uses for the nearby development for Opening Year traffic conditions. Table 5 shows the daily and peak hour vehicle trips generated by the surrounding approved development in the study area. Figure 20 shows the average daily traffic volumes that can be expected for the other development traffic conditions. Other development morning and evening peak hour intersection turning movement volumes are shown on Figures 21 and 22, respectively.

3. General Plan Buildout

The average daily traffic and peak hour intersection turning movement volumes for General Plan Buildout conditions have been directly obtained from City of Anaheim staff (see Appendix C). It should be noted that the ultimate roadway configurations shown in the City of Anaheim General Plan Circulation Element were assumed for this scenario.

B. Average Daily Traffic Volumes

1. Existing Plus Project

The average daily traffic volumes for Existing Plus Project traffic conditions have been determined. Existing Plus Project average daily traffic volumes are shown on Figure 23.

The Existing Plus Project roadway segment capacity analysis is shown in Table 6. As shown in Table 6, the study area roadway segments are projected to provide

sufficient capacity for Existing Plus Project traffic conditions, except for the following roadway segments:

Euclid Street:
North of Broadway
South of Broadway

As shown in Table 6, the project generated trips do not result in a significant impact at study area roadway segments for Existing Plus Project traffic conditions.

2. Opening Year (2018) Without Project

The average daily traffic volumes for Opening Year (2018) Without Project traffic conditions have been determined by combining existing traffic with ambient growth and other development. Opening Year (2018) Without Project average daily traffic volumes are shown on Figure 24.

The Opening Year (2018) Without Project roadway segment capacity analysis is shown in Table 7. As shown in Table 7, the study area roadway segments are projected to provide sufficient capacity for Opening Year (2018) Without Project traffic conditions, except for the following roadway segments:

Euclid Street:
North of Broadway
South of Broadway

3. Opening Year (2018) With Project

The average daily traffic volumes for Opening Year (2018) With Project traffic conditions have been determined by adding project traffic to Opening Year (2018) Without Project traffic conditions. Opening Year (2018) With Project average daily traffic volumes are shown on Figure 25.

The Opening Year (2018) With Project roadway segment capacity analysis is shown in Table 8. As shown in Table 8, the study area roadway segments are projected to provide sufficient capacity for Opening Year (2018) With Project traffic conditions, except for the following roadway segments:

Euclid Street:
North of Broadway
South of Broadway

As shown in Table 8, the project generated trips do not result in a significant impact at study area roadway segments for Opening Year (2018) With Project traffic conditions.

4. General Plan Buildout Without Project

The average daily traffic volumes for General Plan Buildout Without Project traffic conditions have been directly obtained from the City of Anaheim. General Plan Buildout Without Project average daily traffic volumes are shown on Figure 26.

The General Plan Buildout Without Project roadway segment capacity analysis is shown in Table 9. As shown in Table 9, the study area roadway segments are projected to provide sufficient capacity for General Plan Buildout Without Project traffic conditions.

5. General Plan Buildout With Project

The average daily traffic volumes for General Plan Buildout With Project traffic conditions have been determined by adding project traffic to General Plan Buildout Without Project traffic conditions. General Plan Buildout With Project average daily traffic volumes are shown on Figure 27.

The General Plan Buildout With Project roadway segment capacity analysis is shown in Table 10. As shown in Table 10, the study area roadway segments are projected to provide sufficient capacity for General Plan Buildout With Project traffic conditions.

As shown in Table 10, the project generated trips do not result in a significant impact at study area roadway segments for General Plan Buildout With Project traffic conditions.

C. Future Level of Service

1. Existing Plus Project

The Existing Plus Project Levels of Service for the study area roadway network are shown in Table 11. Table 11 shows Level of Service values based on the geometrics at the study area intersections, without and with improvements. Existing Plus Project Level of Service worksheets are provided in Appendix D. Existing Plus Project morning and evening peak hour intersection turning movement volumes are shown on Figures 28 and 29, respectively.

As shown in Table 11, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Existing Plus Project traffic conditions.

Table 12 depicts the Existing Plus Project trip contribution at the study area intersections. As shown in Table 12 for Existing Plus Project traffic conditions, the project generated trips do not result in a significant impact at the study area intersections.

2. Opening Year (2018) Without Project

The Opening Year (2018) Levels of Service for the study area roadway network without the proposed project are shown in Table 13. Table 13 shows Level of Service values based on the geometrics at the study area intersections, without and with improvements. Opening Year (2018) Without Project Level of Service worksheets are provided in Appendix D. Opening Year (2018) Without Project morning and evening peak hour intersection turning movement volumes are shown on Figures 30 and 31, respectively.

As shown in Table 13, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Opening Year (2018) Without Project traffic conditions.

3. Opening Year (2018) With Project

The Opening Year (2018) Levels of Service for the study area roadway network with the proposed project are shown in Table 14. Table 14 shows Level of Service values based on the geometrics at the study area intersections, without and with improvements. Opening Year (2018) With Project Level of Service worksheets are provided in Appendix D. Opening Year (2018) With Project morning and evening peak hour intersection turning movement volumes are shown on Figures 32 and 33, respectively.

As shown in Table 14, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours for Opening Year (2018) With Project traffic conditions.

Table 15 depicts the Opening Year (2018) project trip contribution at the study area intersections. As shown in Table 15 for Opening Year (2018) With Project traffic conditions, the project generated trips do not result in a significant impact at the study area intersections.

4. General Plan Buildout Without Project

The General Plan Buildout Levels of Service for the study area roadway network without the proposed project are shown in Table 16. Table 16 shows Level of Service values based on the geometrics at the study area intersections, without and with improvements. General Plan Buildout Without Project Level of Service worksheets are provided in Appendix D. General Plan Buildout Without Project morning and evening peak hour intersection turning movement volumes are shown on Figures 34 and 35, respectively.

As shown in Table 16, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours for General Plan Buildout Without Project traffic conditions.

5. General Plan Buildout With Project

At the request of the City of Anaheim, The General Plan Buildout With Project analysis includes credit for the trip generation of the existing land uses. However, the credit is only taken at off-site intersections. Therefore, only new project traffic is shown entering or exiting project driveways.

The General Plan Buildout Levels of Service for the study area roadway network with the proposed project are shown in Table 17. Table 17 shows Level of Service values based on the geometrics at the study area intersections, without and with improvements. General Plan Buildout With Project Level of Service worksheets are provided in Appendix D. General Plan Buildout With Project morning and evening peak hour intersection turning movement volumes are shown on Figures 36 and 37, respectively.

As shown in Table 17, the study area intersections are projected to operate at acceptable Levels of Service during the peak hours for General Plan Buildout With Project traffic conditions.

Table 18 depicts the General Plan Buildout project trip contribution at the study area intersections. As shown in Table 18 for General Plan Buildout With Project traffic conditions, the project generated trips do not result in a significant impact at the study area intersections.

Table 5

Other Development Trip Generation[1,2]

TAZ	Project	Land Use	Quantity	Units[3]	Peak Hour						Daily
					Morning			Evening			
					Inbound	Outbound	Total	Inbound	Outbound	Total	
1	203 N Euclid Street	Car Wash	1	Site	18	18	36	55	55	110	900
2	1659 W Lincoln Avenue	Soccer Park	2	Fields	1	1	2	23	12	35	143
3	1557 W Mable Street	Preschool	32	ST	14	12	26	12	14	26	140
4	901-951 S Euclid Street	Fast Food Restaurant w/ Drive Thru	2.800	TSF	65	62	127	47	44	91	1,389
5	310 W Broadway	Preschool	40	ST	17	15	32	15	17	32	175
		Private School	60	ST	30	24	54	17	19	36	77
		Subtotal			47	39	86	32	36	68	252
6	10870 Katella Avenue Suite A	Gym	44.007	TSF	31	31	62	88	67	155	1,449
7	10870 Katella Avenue Suite G	Grocery Store	29.010	TSF	42	31	73	121	121	242	2,636
8	11162 Garden Grove Boulevard	Coffee Shop w/ Drive Thru	16	DU	15	15	30	15	15	30	694
Total (Opening Year)					233	209	442	394	363	757	7,603

[1] Source: Institute of Transportation Engineers, Trip Generation Manual, 9th Edition, 2012, Land Use Codes: 488, 492, 534, 565, 854, 934, and 937. The trip generation rates for the car wash land use were obtained from San Diego Association of Governments, Traffic Generators, April 2002.

[2] Information regarding other development in the study area was obtained from the City of Anaheim and Garden Grove staff in May 2017.

[3] DU = Dwelling Units; TSF = Thousand Square Feet; ST = Students

Table 6

Existing Plus Project Roadway Segment Capacity Analysis

Roadway	Segment	Jurisdiction	Number of Lanes	Capacity	Project Related Change in Volume	Average Daily Traffic Volume[2]	Volume to Capacity Ratio	Level of Service	Change in Volume to Capacity Ratio	Significant Impact?[1]
Euclid Street	North of Broadway	Anaheim	4D	37,500	-8	42,313	1.13	F	0.000	No
	South of Broadway	Anaheim	4D	37,500	-47	40,818	1.09	F	-0.001	No
Broadway	West of Euclid Street	Anaheim	4D	37,500	-93	19,154	0.51	A	-0.002	No
	East of Euclid Street	Anaheim	4D	37,500	-47	19,845	0.53	A	-0.001	No

[1] In the City of Anaheim, a roadway segment is deemed to have a significant impact if the project results in deterioration of the daily Level of Service to an unacceptable level together with a continued deficiency under peak hour conditions. A significant impact is also determined by an increase in the daily V/C ratio of 0.10 if the segment currently operates at Level Level of Service E or F under daily without project conditions and the roadway segment is found to be deficient under peak hour conditions.

Table 7

Opening Year (2018) Without Project Roadway Segment Capacity Analysis

Roadway	Segment	Jurisdiction	Number of Lanes	Capacity	Average Daily Traffic Volume[1]	Volume to Capacity Ratio	Level of Service
Euclid Street	North of Broadway	Anaheim	4D	37,500	43,926	1.17	F
	South of Broadway	Anaheim	4D	37,500	42,878	1.14	F
Broadway	West of Euclid Street	Anaheim	4D	37,500	19,849	0.53	A
	East of Euclid Street	Anaheim	4D	37,500	20,461	0.55	A

Table 8

Opening Year (2018) With Project Roadway Segment Capacity Analysis

Roadway	Segment	Jurisdiction	Number of Lanes	Capacity	Project Related Change in Volume	Average Daily Traffic Volume[2]	Volume to Capacity Ratio	Level of Service	Change in Volume to Capacity Ratio	Significant Impact?[1]
Euclid Street	North of Broadway	Anaheim	4D	37,500	-8	43,918	1.17	F	0.000	No
	South of Broadway	Anaheim	4D	37,500	-47	42,831	1.14	F	-0.001	No
Broadway	West of Euclid Street	Anaheim	4D	37,500	-93	19,756	0.53	A	-0.002	No
	East of Euclid Street	Anaheim	4D	37,500	-47	20,414	0.54	A	-0.001	No

[1] In the City of Anaheim, a roadway segment is deemed to have a significant impact if the project results in deterioration of the daily Level of Service to an unacceptable level together with a continued deficiency under peak hour conditions. A significant impact is also determined by an increase in the daily V/C ratio of 0.10 if the segment currently operates at Level Level of Service E or F under daily without project conditions and the roadway segment is found to be deficient under peak hour conditions.

Table 9

General Plan Buildout Without Project Roadway Segment Capacity Analysis

Roadway	Segment	Jurisdiction	Number of Lanes[1]	Capacity	Average Daily Traffic Volume[1]	Volume to Capacity Ratio	Level of Service
Euclid Street	North of Broadway	Anaheim	**6D**	56,300	45,000	0.80	C
	South of Broadway	Anaheim	**6D**	56,300	41,900	0.74	C
Broadway	West of Euclid Street	Anaheim	4D	37,500	17,900	0.48	A
	East of Euclid Street	Anaheim	4D	37,500	16,100	0.43	A

[1] **BOLD** = Improvement

Table 10

General Plan Buildout With Project Roadway Segment Capacity Analysis

Roadway	Segment	Jurisdiction	Number of Lanes[2]	Capacity	General Plan Amendment Change in Volume	Average Daily Traffic Volume	Volume to Capacity Ratio	Level of Service	Change in Volume to Capacity Ratio	Significant Impact?[1]
Euclid Street	North of Broadway	Anaheim	**6D**	56,300	-798	44,202	0.79	C	-0.015	No
	South of Broadway	Anaheim	**6D**	56,300	-638	41,262	0.73	C	-0.007	No
Broadway	West of Euclid Street	Anaheim	4D	37,500	-1,117	16,783	0.45	A	-0.032	No
	East of Euclid Street	Anaheim	4D	37,500	-638	15,462	0.41	A	-0.018	No

[1] In the City of Anaheim, a roadway segment is deemed to have a significant impact if the project results in deterioration of the daily Level of Service to an unacceptable level together with a continued deficiency under peak hour conditions. A significant impact is also determined by an increase in the daily V/C ratio of 0.10 if the segment currently operates at Level Level of Service E or F under daily without project conditions and the roadway segment is found to be deficient under peak hour conditions.

[2] **BOLD** = Improvement

Table 11

Existing Plus Project Intersection Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												V/C -LOS[2]	
			Northbound			Southbound			Eastbound			Westbound			Peak Hour	
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Brookhurst Street (NS) at:																
Broadway (EW) - #1	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.489-A	0.604-B
Euclid Street (NS) at:																
Broadway (EW) - #2	Anaheim	TS	1	2	1	1	2	1	1	1.5	0.5	1	1.5	0.5	0.646-B	0.781-C
North Project Driveway (EW) - #3	Anaheim	**CSS**	0	1.5	0.5	0	2	0	0	0	0	0	0	**1**	0.445-A	0.523-A
South Project Driveway (EW) - #4	Anaheim	**CSS**	0	1.5	0.5	1	2	0	0	0	0	**0.5**	0	**0.5**	0.446-A	0.529-A
Orange Avenue (EW) - #5	Anaheim	TS	1	1.5	0.5	1	1.5	0.5	0	1	0	0	0	0	0.502-A	0.633-B
Project North Driveway (NS) at:																
Broadway (EW) - #6	Anaheim	**CSS**	**0.5**	0	**0.5**	0	0	0	0	1.5	0.5	1	2	0	0.309-A	0.291-A
Loara Street (NS) at:																
Broadway (EW) - #7	Anaheim	TS	1	0.5	0.5	0	1	0	1	1.5	0.5	1	1.5	0.5	0.405-A	0.512-A

[1] When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; **BOLD** = Improvement

[2] LOS = Level of Service
Volume to capacity ratio (V/C) and Level of Service (LOS) have been calculated using the Vistro (Version 5.0-00) software.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 12

Existing Plus Project Traffic Contribution

Intersection	Jurisdiction	Traffic Control[1]	Peak Hour	Existing		Existing Plus Project			
				V/C[3]	LOS[2]	V/C[3]	LOS[2]	Project Impact	Significant Impact?[4]
Brookhurst Street (NS) at:									
Broadway (EW) - #1	Anaheim	TS	Morning	0.489	A	0.489	A	+0.000	No
			Evening	0.606	B	0.604	B	-0.002	No
Euclid Street (NS) at:									
Broadway (EW) - #2	Anaheim	TS	Morning	0.649	B	0.646	B	-0.003	No
			Evening	0.785	C	0.781	C	-0.004	No
Orange Avenue (EW) - #5	Anaheim	TS	Morning	0.503	A	0.502	A	-0.001	No
			Evening	0.633	A	0.633	B	+0.000	No
Loara Street (NS) at:									
Broadway (EW) - #7	Anaheim	TS	Morning	0.404	A	0.405	A	+0.001	No
			Evening	0.513	A	0.512	A	-0.001	No

[1] TS = Traffic Signal

[2] LOS = Level of Service

[3] V/C = Volume to Capacity

[4] For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals of exceeds the thresholds shown below:

Significant Impact Threshold for Intersections	
Level of Service Without Project	Incremental Increase
C	equal to or greater than 0.05 or more
D	equal to or greater than 0.03 or more
E/F	equal to or greater than 0.01 or more

Table 13

Opening Year (2018) Without Project Intersection Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												V/C -LOS[2]	
			Northbound			Southbound			Eastbound			Westbound			Peak Hour	
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Brookhurst Street (NS) at:																
Broadway (EW) - #1	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.502-A	0.619-B
Euclid Street (NS) at:																
Broadway (EW) - #2	Anaheim	TS	1	2	1	1	2	1	1	1.5	0.5	1	1.5	0.5	0.674-B	0.820-D
Orange Avenue (EW) - #5	Anaheim	TS	1	1.5	0.5	1	1.5	0.5	0	1	0	0	0	0	0.520-A	0.666-B
Loara Street (NS) at:																
Broadway (EW) - #7	Anaheim	TS	1	0.5	0.5	0	1	0	1	1.5	0.5	1	1.5	0.5	0.414-A	0.529-A

[1] When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = De Facto Right Turn Lane

[2] LOS = Level of Service
Volume to capacity ratio (V/C) and Level of Service (LOS) have been calculated using the Vistro (Version 5.0-00) software.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 14

Opening Year (2018) With Project Intersection Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												V/C -LOS[2] Peak Hour	
			Northbound			Southbound			Eastbound			Westbound				
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Brookhurst Street (NS) at:																
Broadway (EW) - #1	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.501-A	0.617-B
Euclid Street (NS) at:																
Broadway (EW) - #2	Anaheim	TS	1	2	1	1	2	1	1	1.5	0.5	1	1.5	0.5	0.672-B	0.816-D
North Project Driveway (EW) - #3	Anaheim	**CSS**	0	1.5	0.5	0	2	0	0	0	0	0	0	**1**	0.461-A	0.549-A
South Project Driveway (EW) - #4	Anaheim	**CSS**	0	1.5	0.5	1	2	0	0	0	0	**0.5**	0	**0.5**	0.463-A	0.554-A
Orange Avenue (EW) - #5	Anaheim	TS	1	1.5	0.5	1	1.5	0.5	0	1	0	0	0	0	0.520-A	0.665-B
Project North Driveway (NS) at:																
Broadway (EW) - #6	Anaheim	**CSS**	**0.5**	0	**0.5**	0	0	0	0	1.5	0.5	1	2	0	0.317-A	0.301-A
Loara Street (NS) at:																
Broadway (EW) - #7	Anaheim	TS	1	0.5	0.5	0	1	0	1	1.5	0.5	1	1.5	0.5	0.415-A	0.529-A

[1] When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; **BOLD** = Improvement

[2] LOS = Level of Service
Volume to capacity ratio (V/C) and Level of Service (LOS) have been calculated using the Vistro (Version 5.0-00) software.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 15

Opening Year (2018) Traffic Contribution

Intersection	Jurisdiction	Traffic Control[1]	Peak Hour	Opening Year (2018)					
				Without Project		With Project			
				V/C[3]	LOS[2]	V/C[3]	LOS[2]	Project Impact	Significant Impact?[4]
Brookhurst Street (NS) at:									
Broadway (EW) - #1	Anaheim	TS	Morning	0.502	A	0.501	A	-0.001	No
			Evening	0.619	B	0.617	B	-0.002	No
Euclid Street (NS) at:									
Broadway (EW) - #2	Anaheim	TS	Morning	0.674	B	0.672	B	-0.002	No
			Evening	0.820	D	0.816	D	-0.004	No
Orange Avenue (EW) - #5	Anaheim	TS	Morning	0.520	A	0.520	A	+0.000	No
			Evening	0.666	B	0.665	B	-0.001	No
Loara Street (NS) at:									
Broadway (EW) - #7	Anaheim	TS	Morning	0.414	A	0.415	A	+0.001	No
			Evening	0.529	A	0.529	A	+0.000	No

[1] TS = Traffic Signal

[2] LOS = Level of Service

[3] V/C = Volume to Capacity

[4] For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals of exceeds the thresholds shown below:

Significant Impact Threshold for Intersections	
Level of Service Without Project	Incremental Increase
C	equal to or greater than 0.05 or more
D	equal to or greater than 0.03 or more
E/F	equal to or greater than 0.01 or more

Table 16

General Plan Buildout Without Project Intersection Levels of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												V/C -LOS[2]	
			Northbound			Southbound			Eastbound			Westbound			Peak Hour	
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Brookhurst Street (NS) at:																
Broadway (EW) - #1	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.664-B	0.760-C
Euclid Street (NS) at:																
Broadway (EW) - #2	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.825-D	0.840-D
Orange Avenue (EW) - #5	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	0	1	0	0	0	0	0.481-A	0.460-A
Loara Street (NS) at:																
Broadway (EW) - #7	Anaheim	TS	1	0.5	0.5	0	1	0	1	1.5	0.5	1	1.5	0.5	0.651-B	0.645-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = De Facto Right Turn Lane

[2] LOS = Level of Service
Volume to capacity ratio (V/C) and Level of Service (LOS) have been calculated using the Vistro (Version 5.0-00) software.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 17

General Plan Buildout With Project Intersection Level of Service

Intersection	Jurisdiction	Traffic Control[3]	Intersection Approach Lanes[1]												V/C -LOS[2]	
			Northbound			Southbound			Eastbound			Westbound			Peak Hour	
			L	T	R	L	T	R	L	T	R	L	T	R	Morning	Evening
Brookhurst Street (NS) at:																
Broadway (EW) - #1	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.661-B	0.754-C
Euclid Street (NS) at:																
Broadway (EW) - #2	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	1	1.5	0.5	1	1.5	0.5	0.813-D	0.833-D
North Project Driveway (EW) - #3	Anaheim	**CSS**	0	2.5	0.5	0	3	0	0	0	0	0	0	**1**	0.368-A	0.389-A
South Project Driveway (EW) - #4	Anaheim	**CSS**	0	2.5	0.5	0	3	0	0	0	0	0	0	**1**	0.367-A	0.389-A
Orange Avenue (EW) - #5	Anaheim	TS	1	2.5	0.5	1	2.5	0.5	0	1	0	0	0	0	0.479-A	0.450-A
Project North Driveway (NS) at:																
Broadway (EW) - #6	Anaheim	**CSS**	**0.5**	0	**0.5**	0	0	0	0	1.5	0.5	1	2	0	0.431-A	0.360-A
Loara Street (NS) at:																
Broadway (EW) - #7	Anaheim	TS	1	0.5	0.5	0	1	0	1	1.5	0.5	1	1.5	0.5	0.650-B	0.636-B

[1] When a right turn lane is designated, the lane can either be striped or unstriped (i.e., de facto). To function as a right turn lane, there must be sufficient width for right turning vehicles to travel outside the through lanes.
L = Left; T = Through; R = Right; d = De Facto Right Turn Lane; **BOLD** = Improvement

[2] LOS = Level of Service
Volume to capacity ratio (V/C) and Level of Service (LOS) have been calculated using the Vistro (Version 5.0-00) software.

[3] TS = Traffic Signal; CSS = Cross Street Stop

Table 18

General Plan Buildout Traffic Contribution

Intersection	Jurisdiction	Traffic Control[1]	Peak Hour	General Plan Buildout					
				Without Project		With Project			
				V/C[3]	LOS[2]	V/C[3]	LOS[2]	Project Impact	Significant Impact?[4]
Brookhurst Street (NS) at:									
Broadway (EW) - #1	Anaheim	TS	Morning	0.664	B	0.661	B	-0.003	No
			Evening	0.760	C	0.754	C	-0.006	No
Euclid Street (NS) at:									
Broadway (EW) - #2	Anaheim	TS	Morning	0.825	D	0.813	D	-0.012	No
			Evening	0.840	D	0.833	D	-0.007	No
Orange Avenue (EW) - #5	Anaheim	TS	Morning	0.481	A	0.479	A	-0.002	No
			Evening	0.460	A	0.450	A	-0.010	No
Loara Street (NS) at:									
Broadway (EW) - #7	Anaheim	TS	Morning	0.651	B	0.65	B	-0.001	No
			Evening	0.645	B	0.636	B	-0.009	No

[1] TS = Traffic Signal

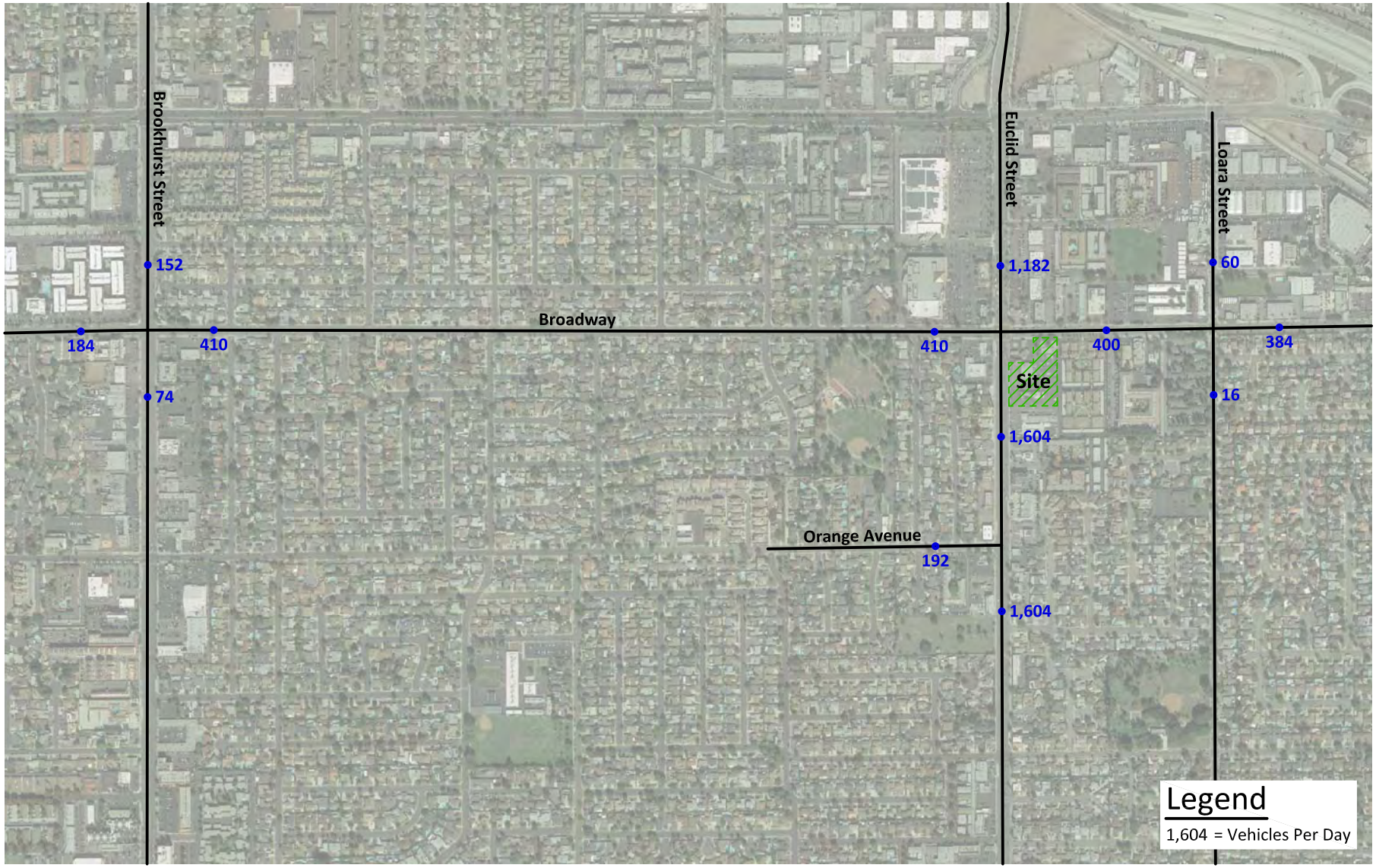
[2] LOS = Level of Service

[3] V/C = Volume to Capacity

[4] For signalized intersections, an impact is considered significant if the project related increase in the volume to capacity ratio equals of exceeds the thresholds shown below:

Significant Impact Threshold for Intersections	
Level of Service Without Project	Incremental Increase
C	equal to or greater than 0.05 or more
D	equal to or greater than 0.03 or more
E/F	equal to or greater than 0.01 or more

Figure 20
Other Development Average Daily Traffic Volumes

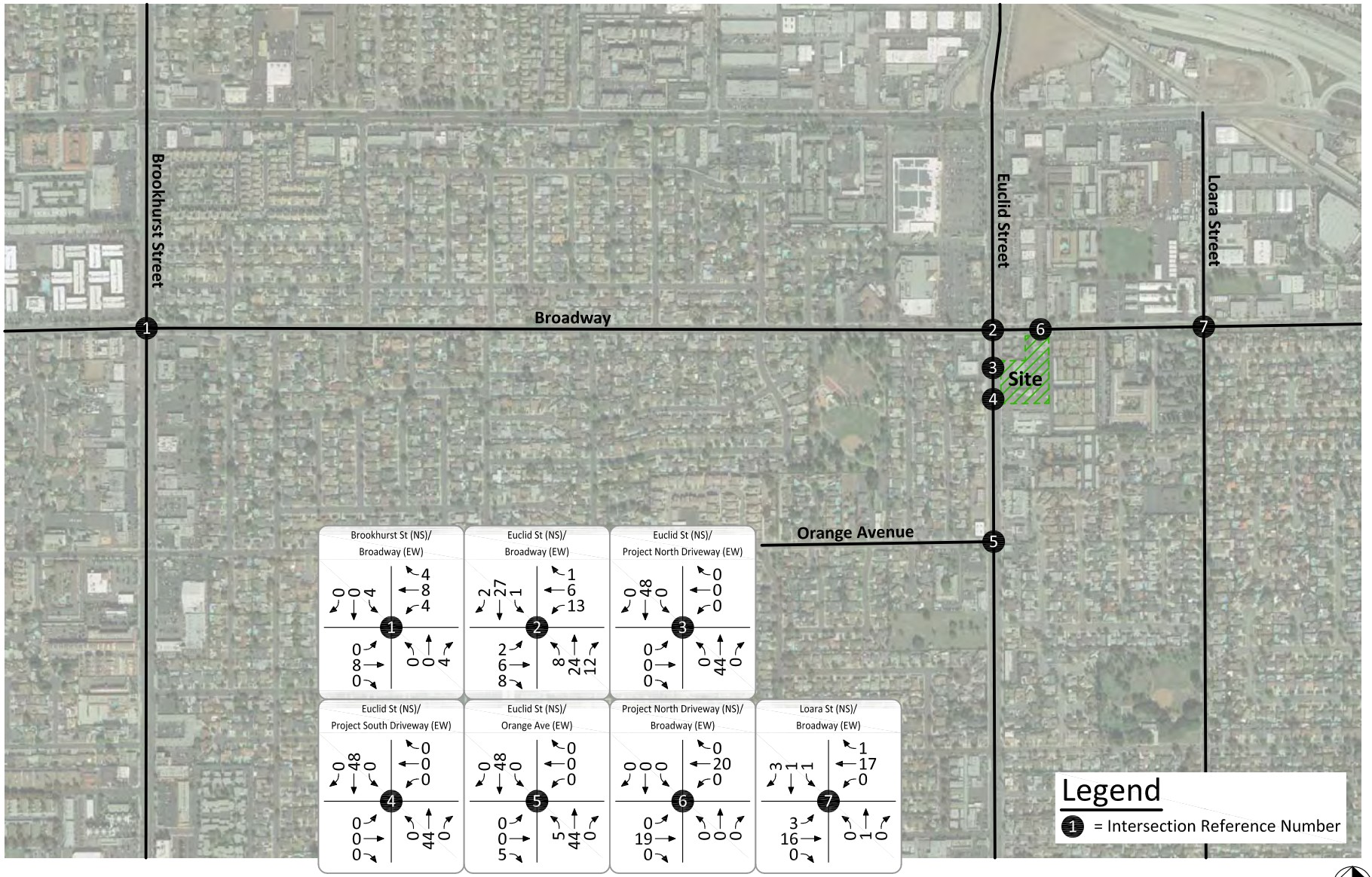


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 21
Other Development Morning Peak Hour Intersection Turning Movement Volumes



KUNZMAN ASSOCIATES, INC.

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Figure 22
Other Development Evening Peak Hour Intersection Turning Movement Volumes

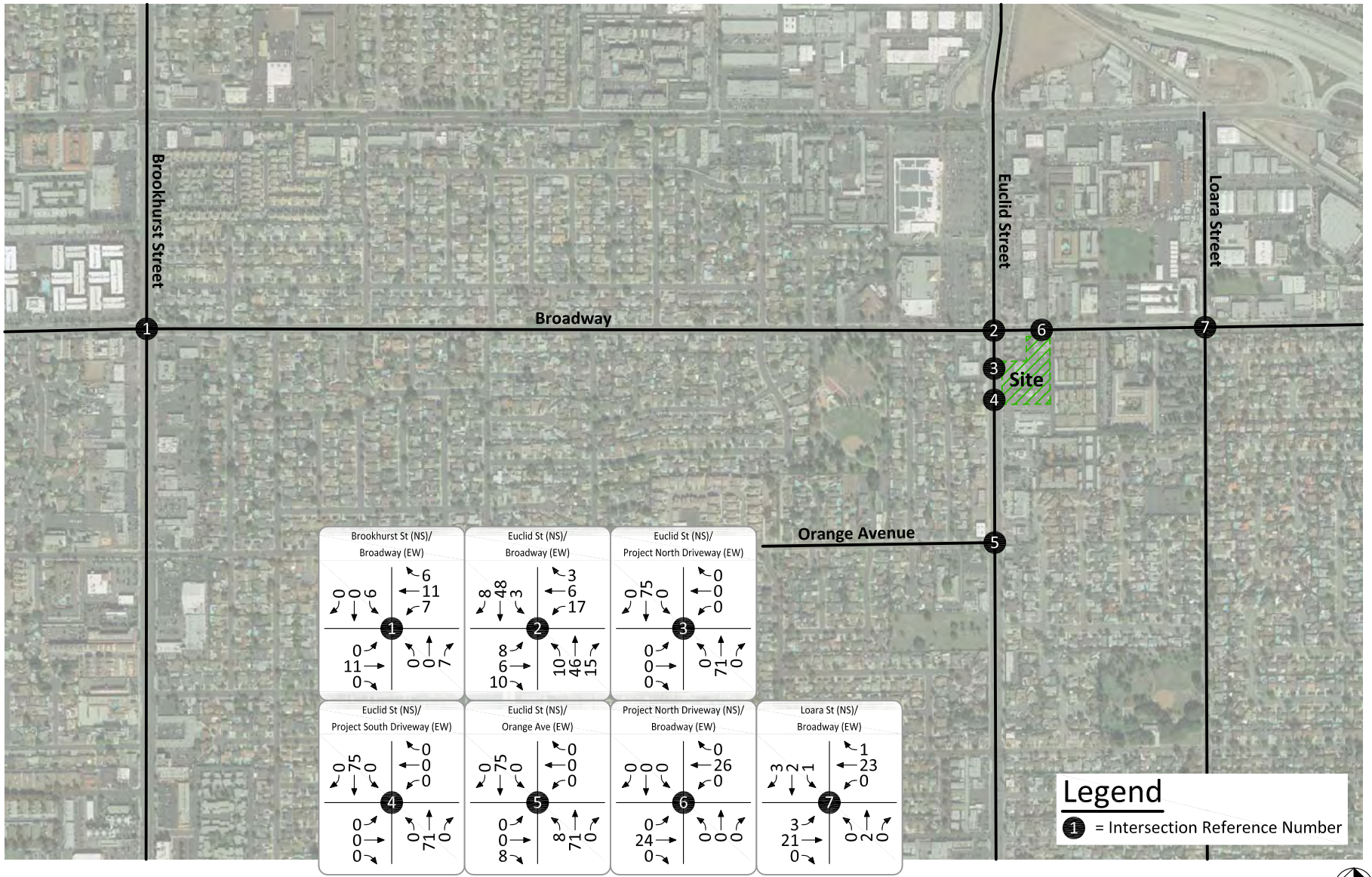
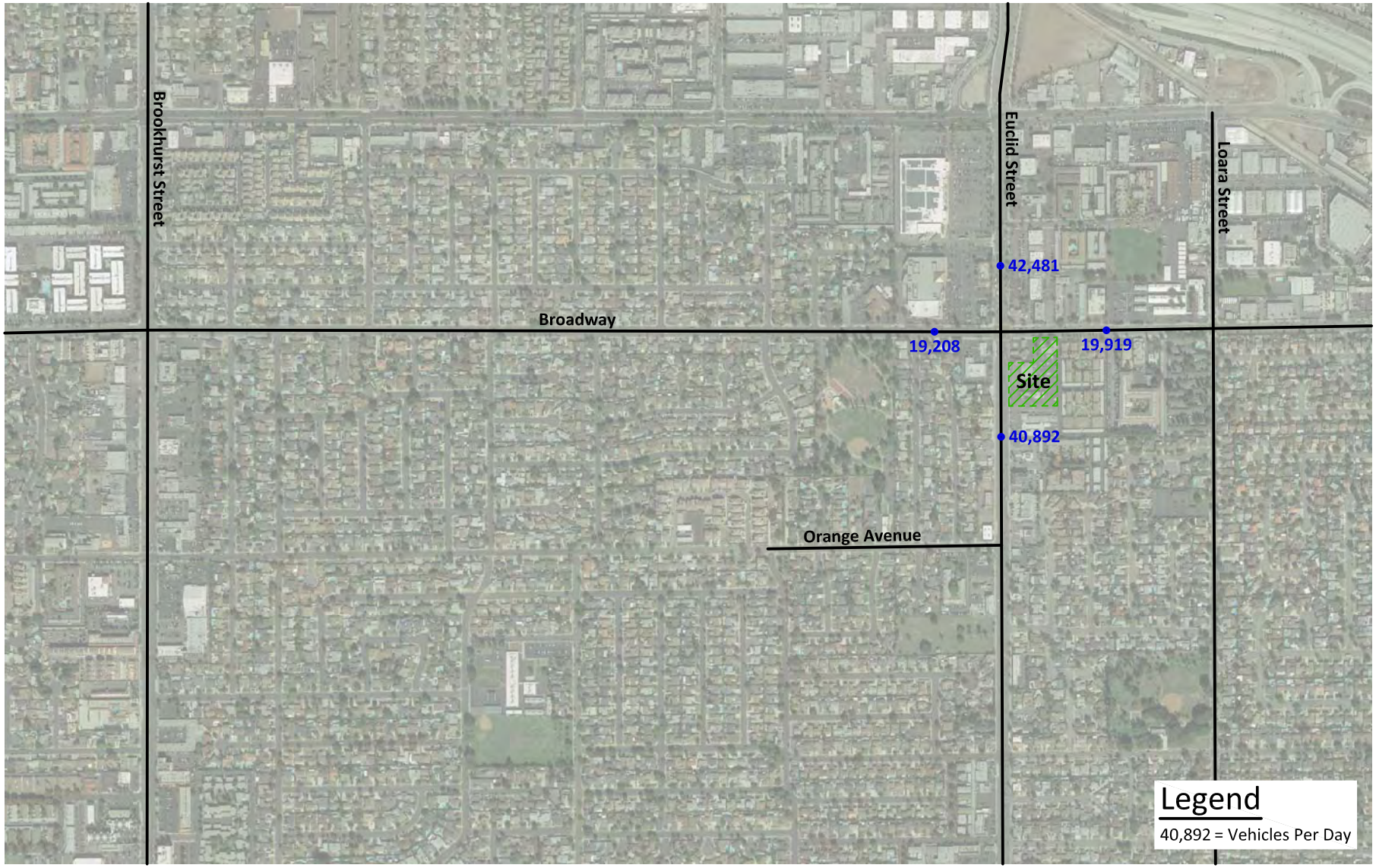


Figure 23
Existing Plus Project Average Daily Traffic Volumes

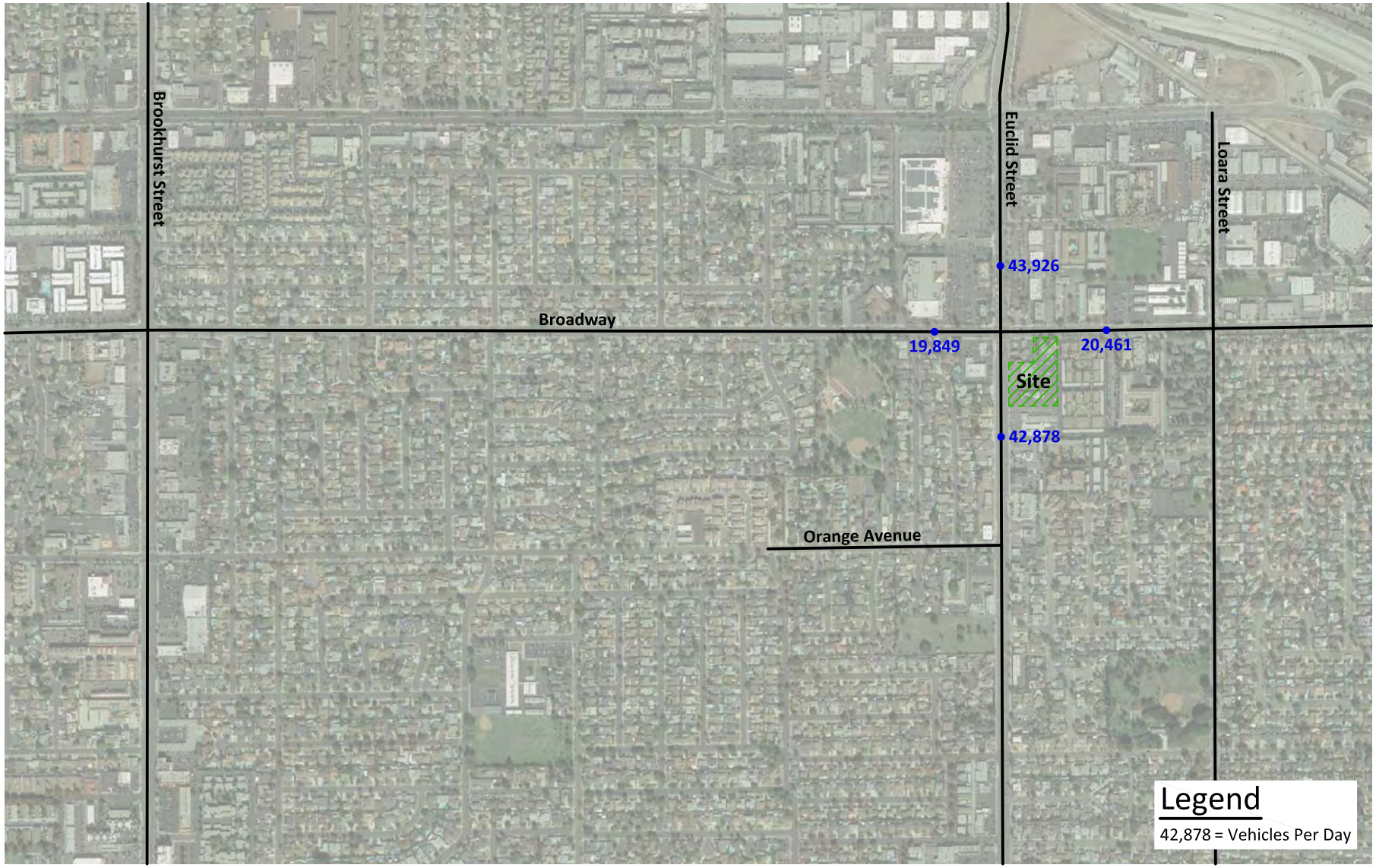


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 24
Opening Year (2018) Without Project Average Daily Traffic Volumes

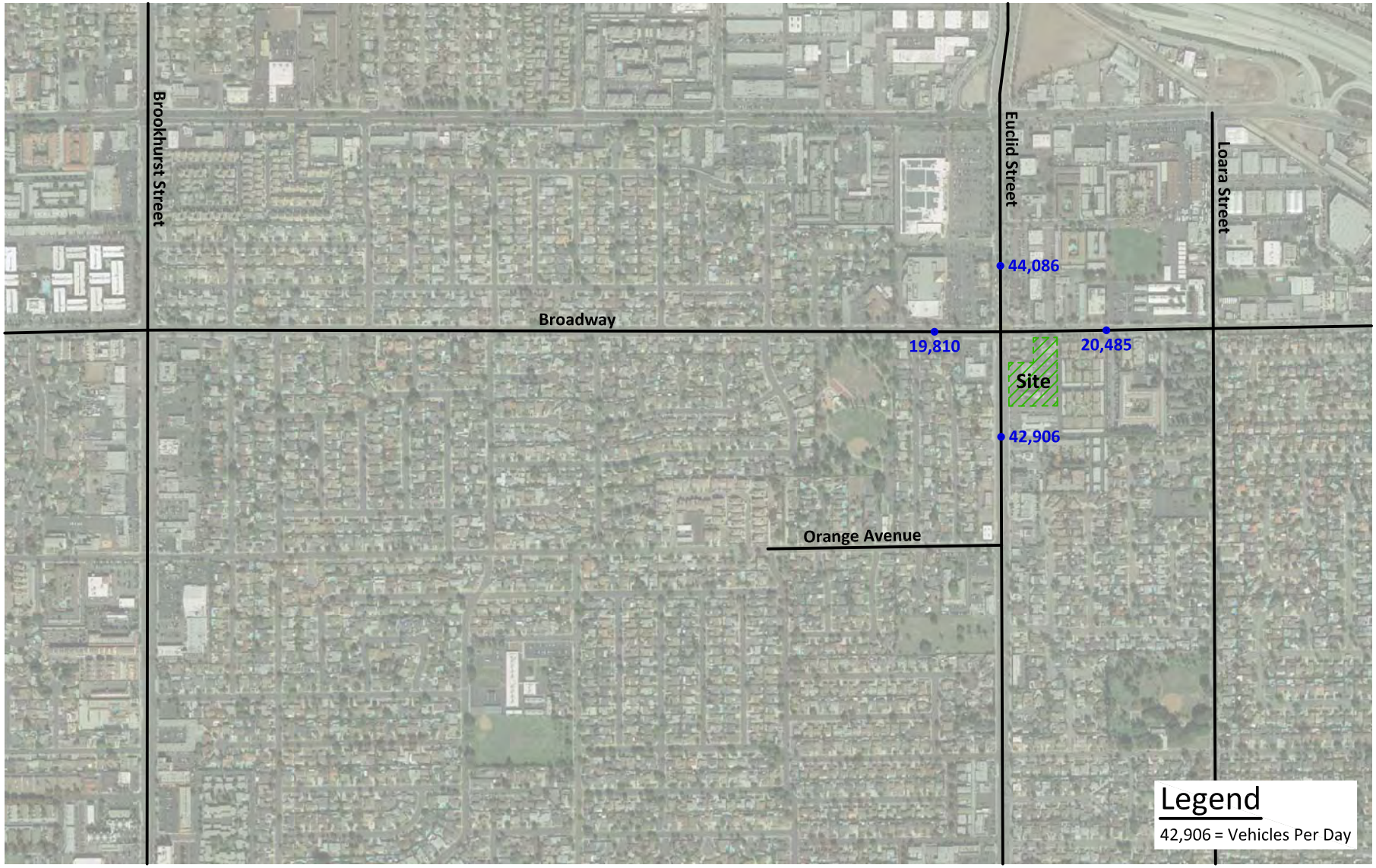


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 25
Opening Year (2018) With Project Average Daily Traffic Volumes

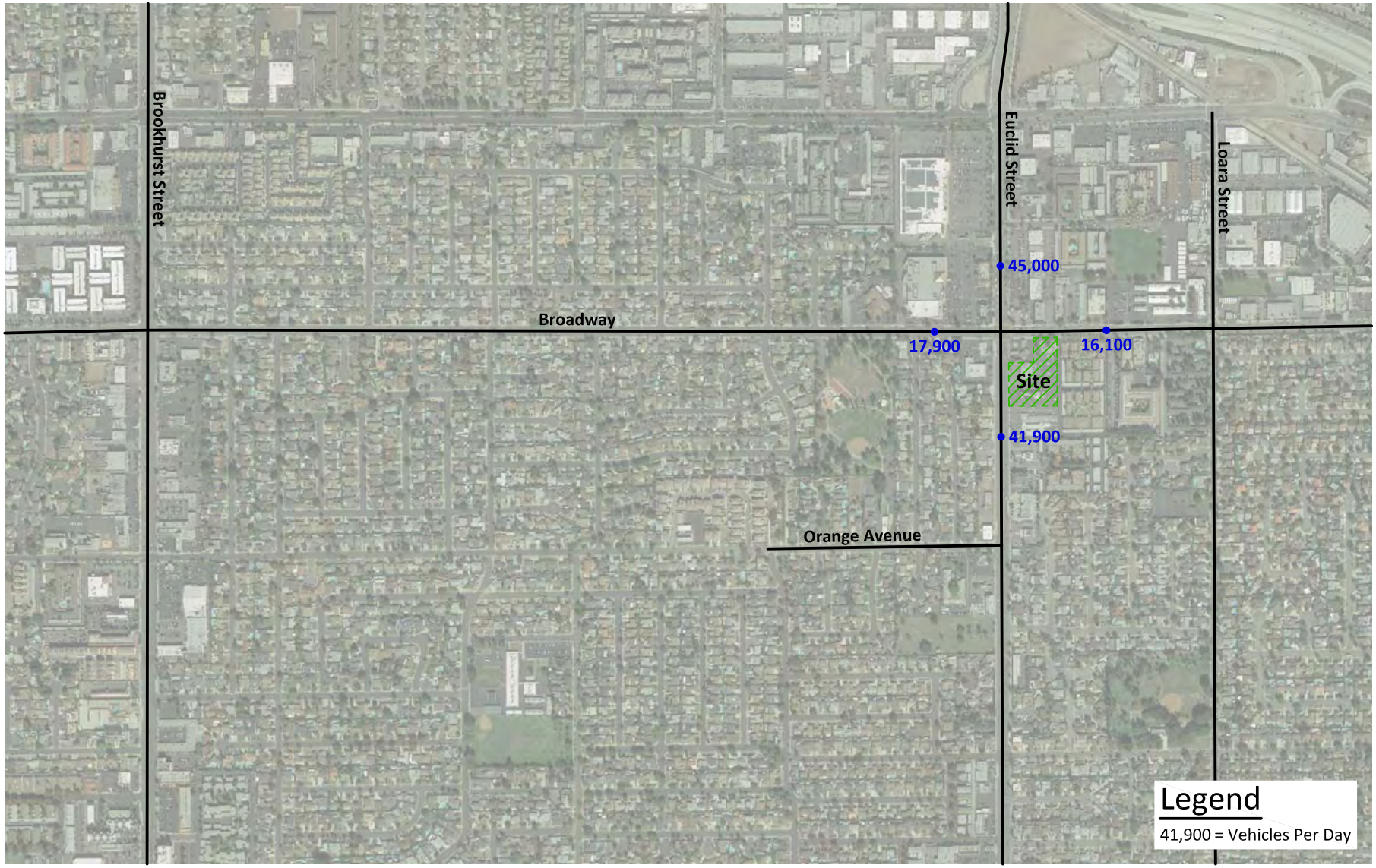


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 26
General Plan Buildout Without Project Average Daily Traffic Volumes

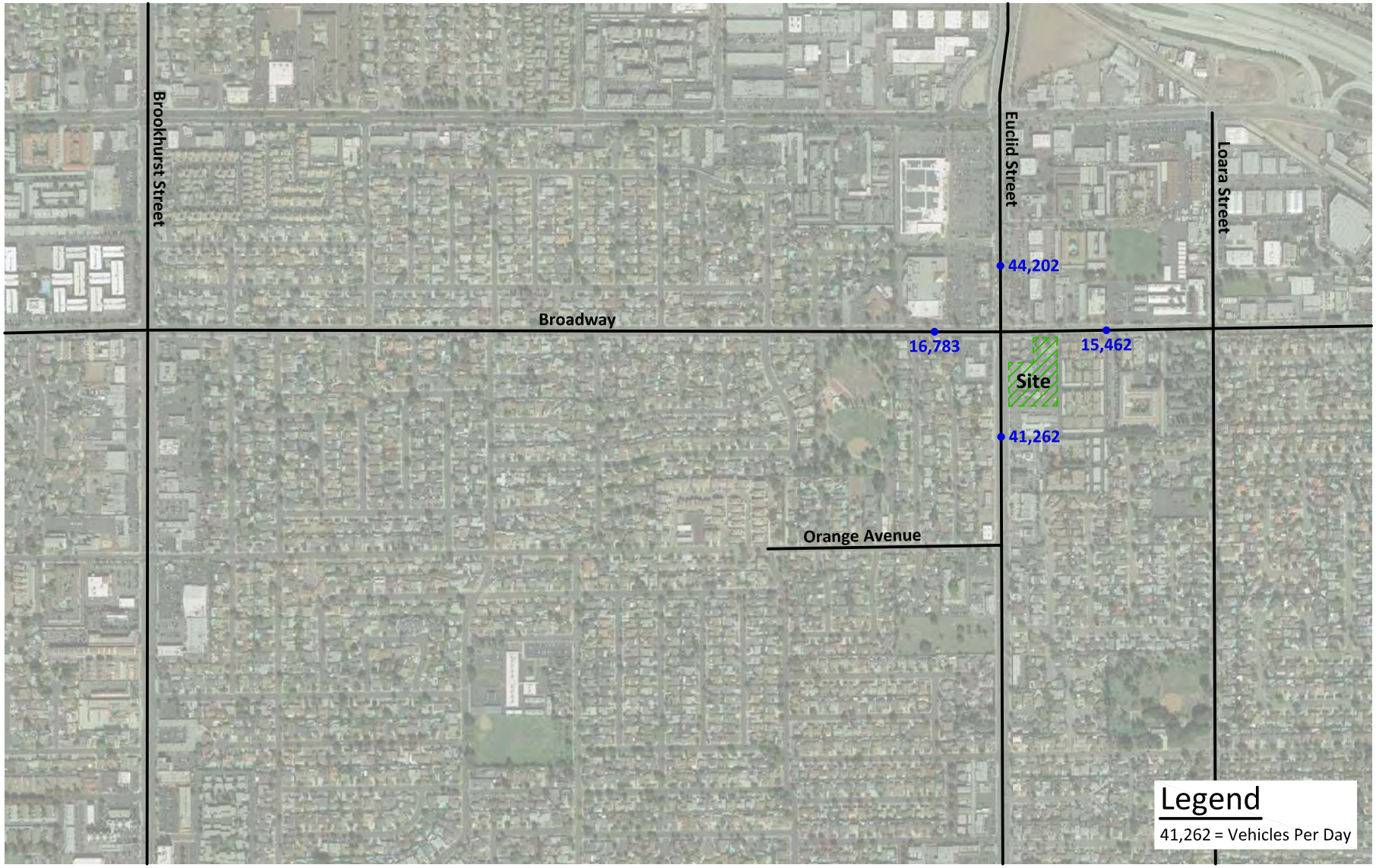


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 27
General Plan Buildout With Project Average Daily Traffic Volumes

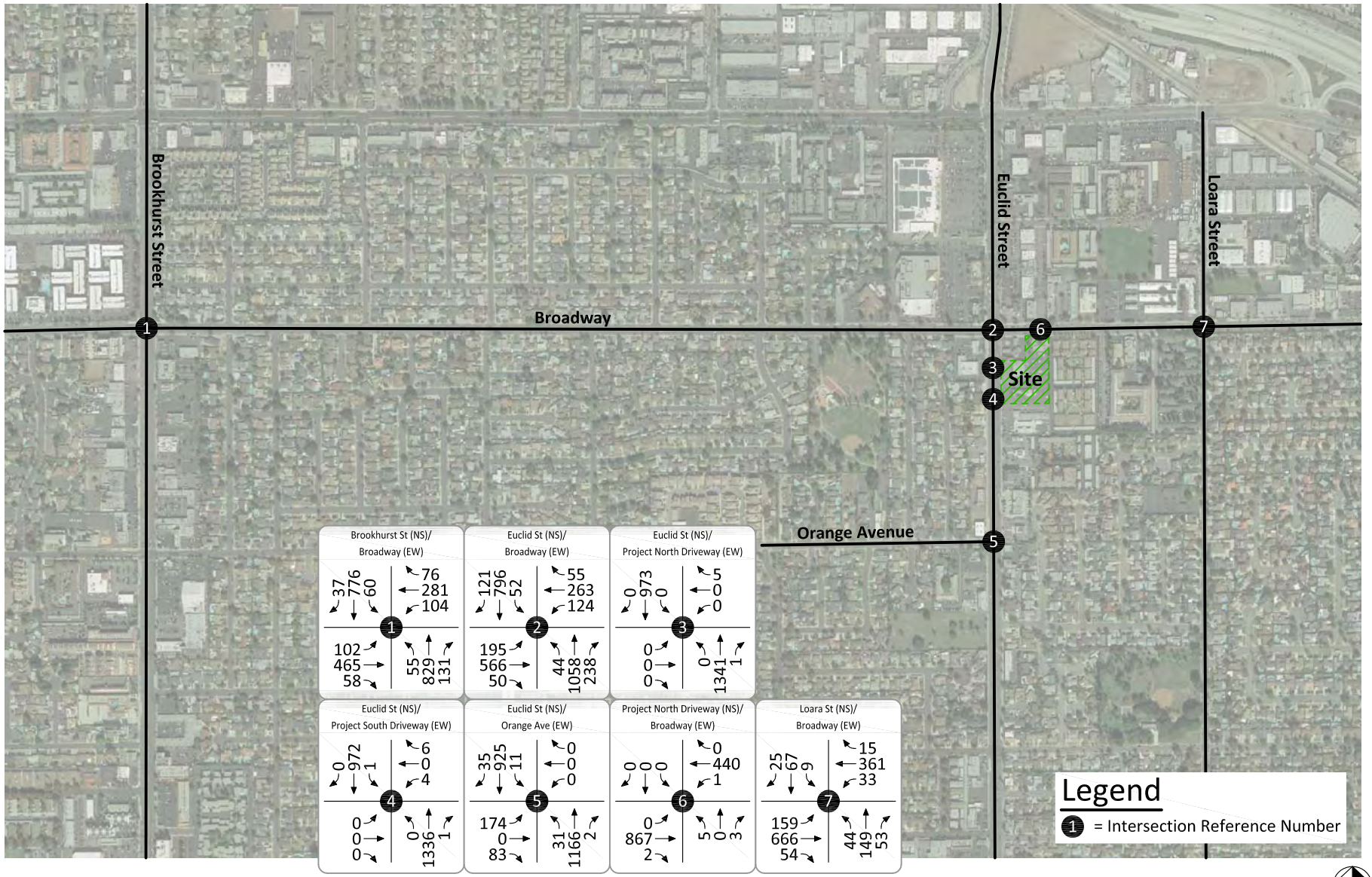


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 28
Existing Plus Project Morning Peak Hour Intersection Turning Movement Volumes

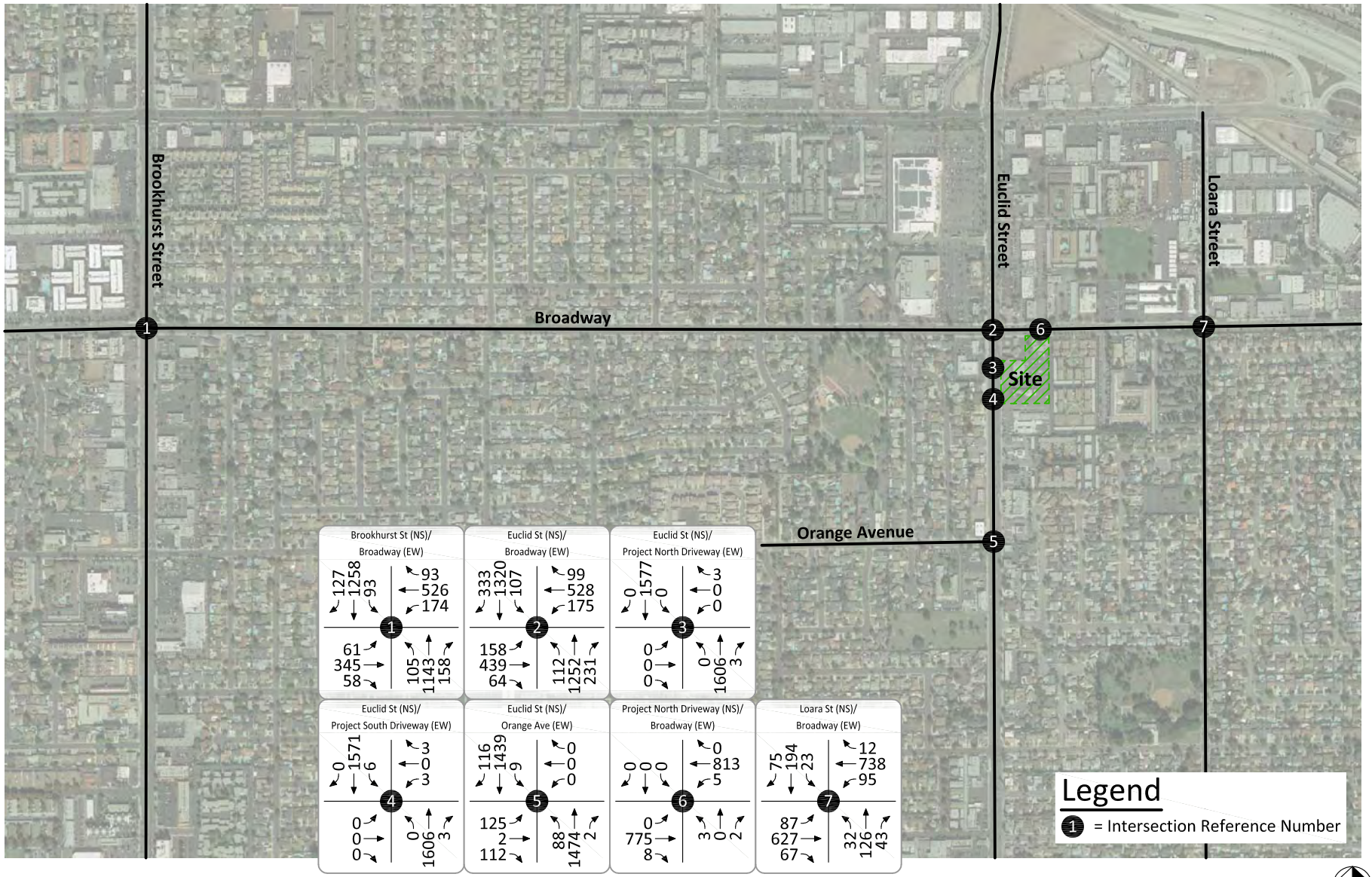


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 29
Existing Plus Project Evening Peak Hour Intersection Turning Movement Volumes



KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

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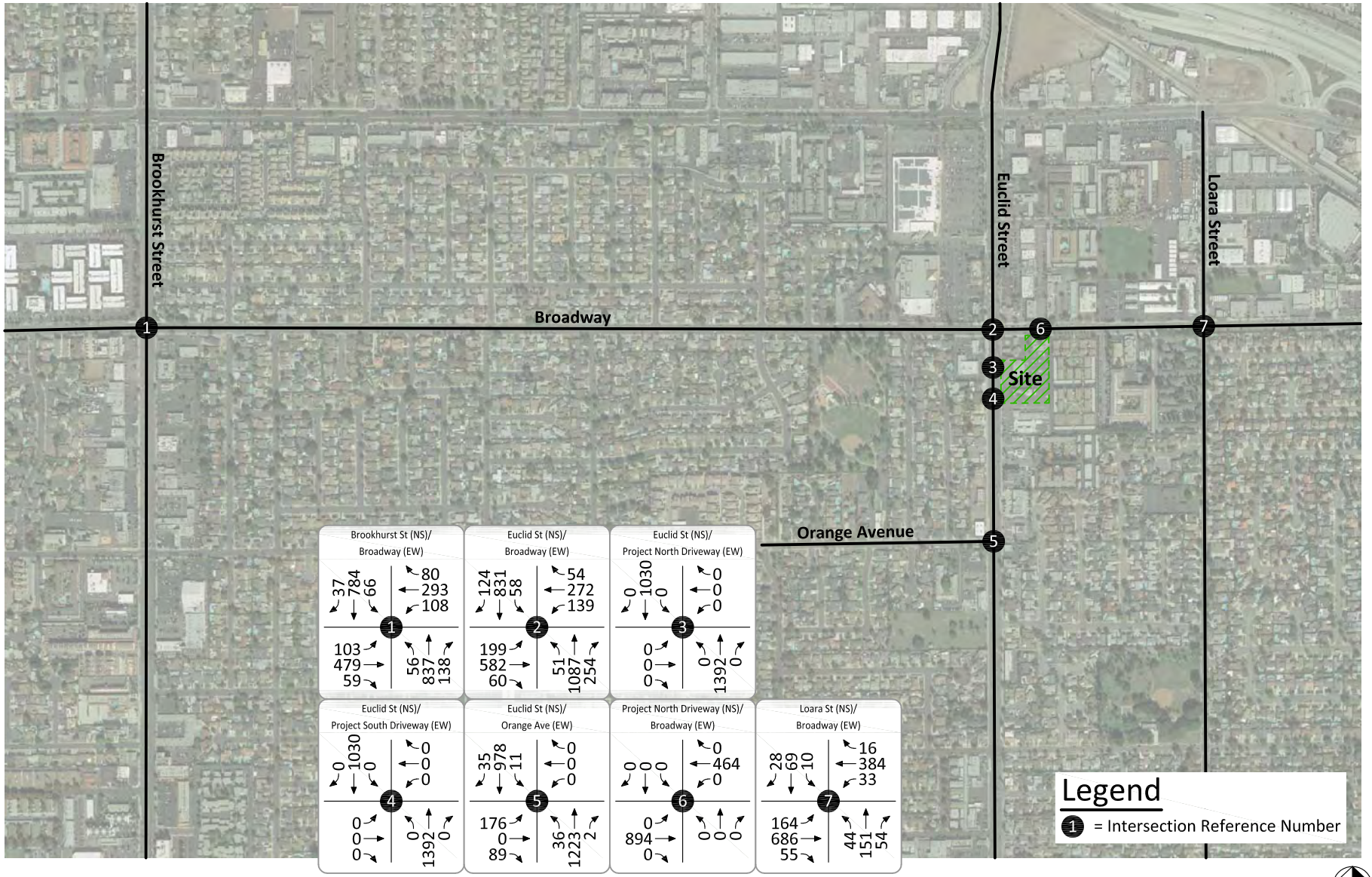
Figure 30
Opening Year (2018) Without Project
Morning Peak Hour Intersection Turning Movement Volumes

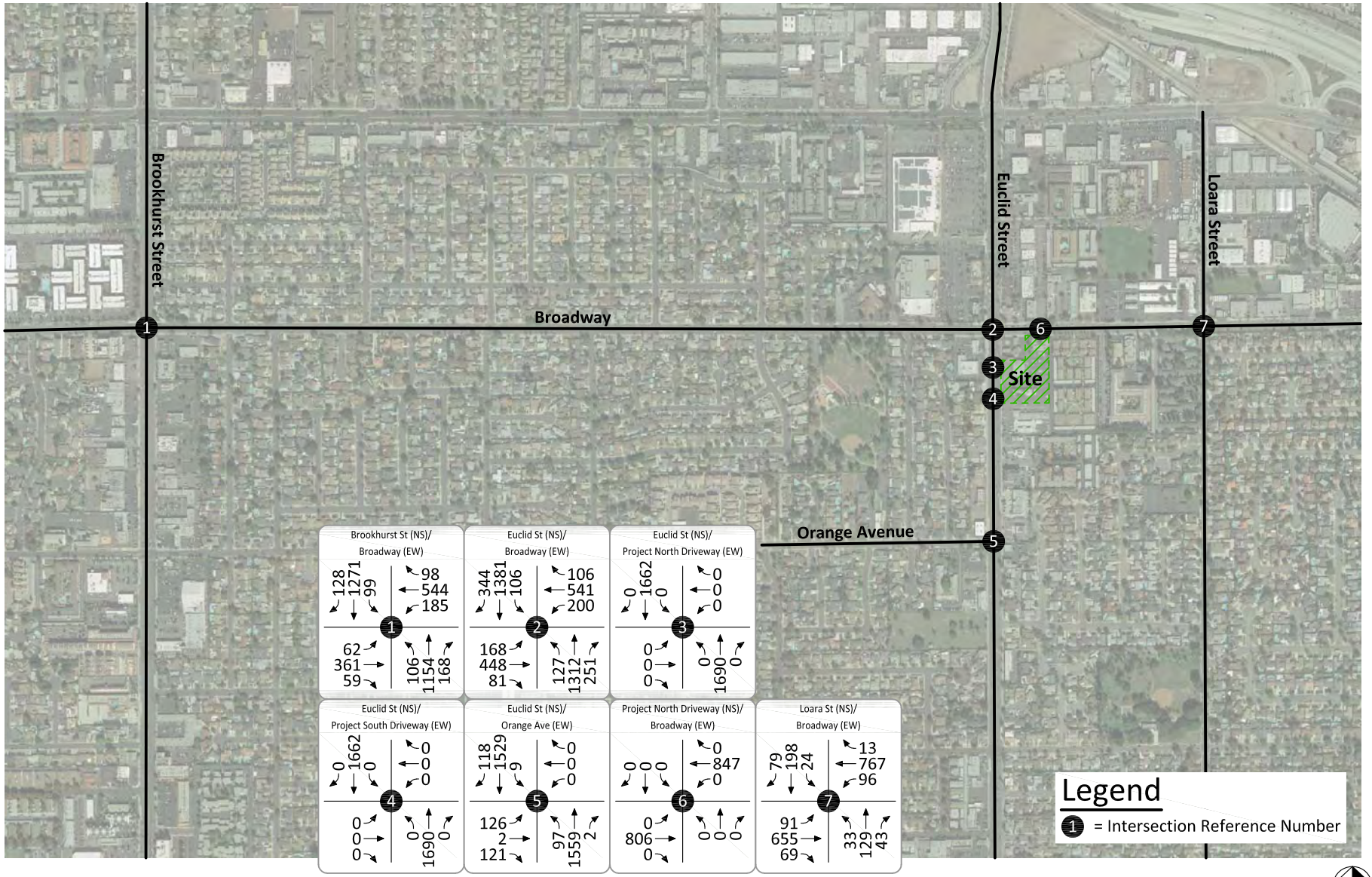


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 31
Opening Year (2018) Without Project
Evening Peak Hour Intersection Turning Movement Volumes

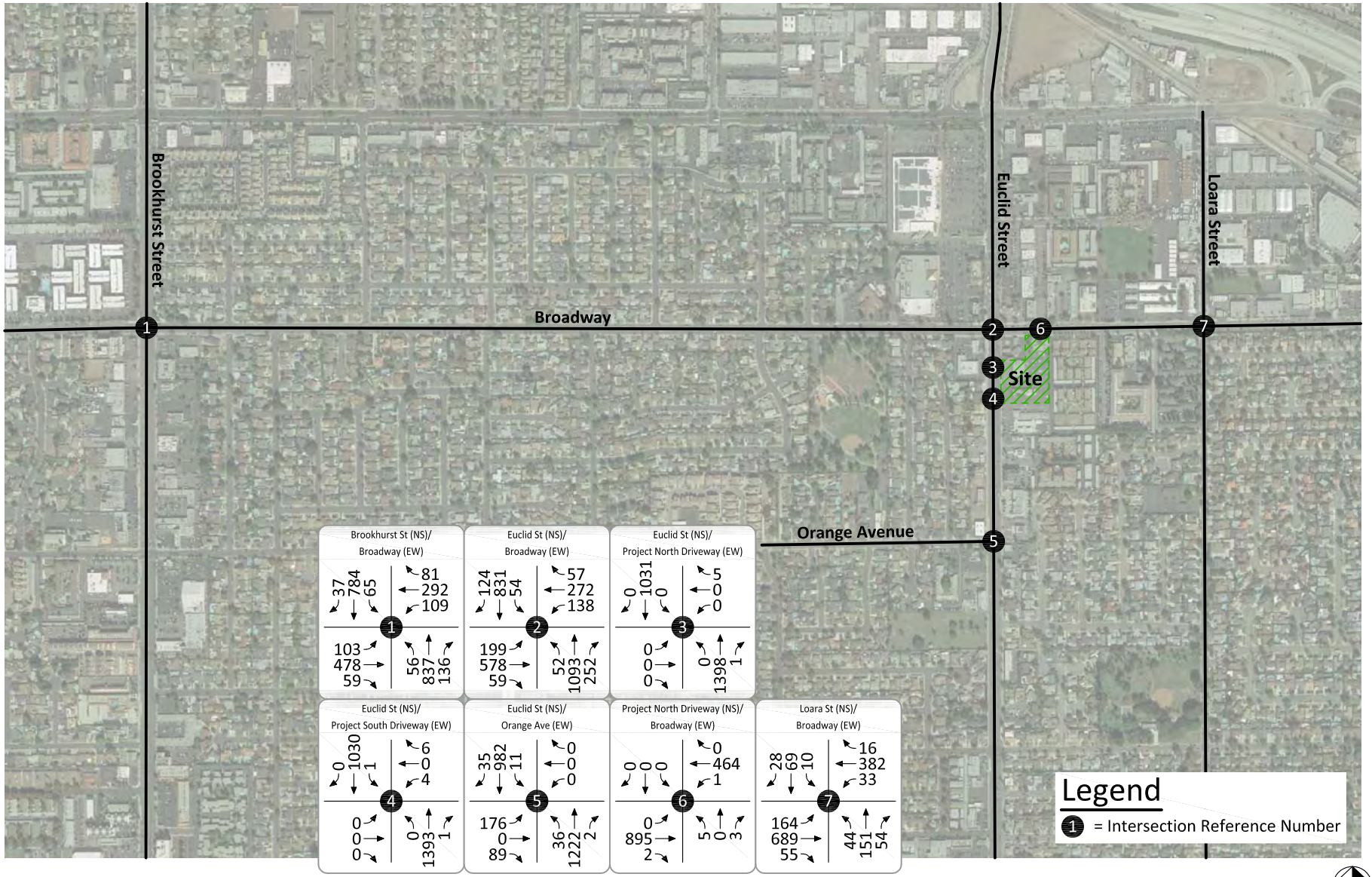


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 32
Opening Year (2018) With Project
Morning Peak Hour Intersection Turning Movement Volumes

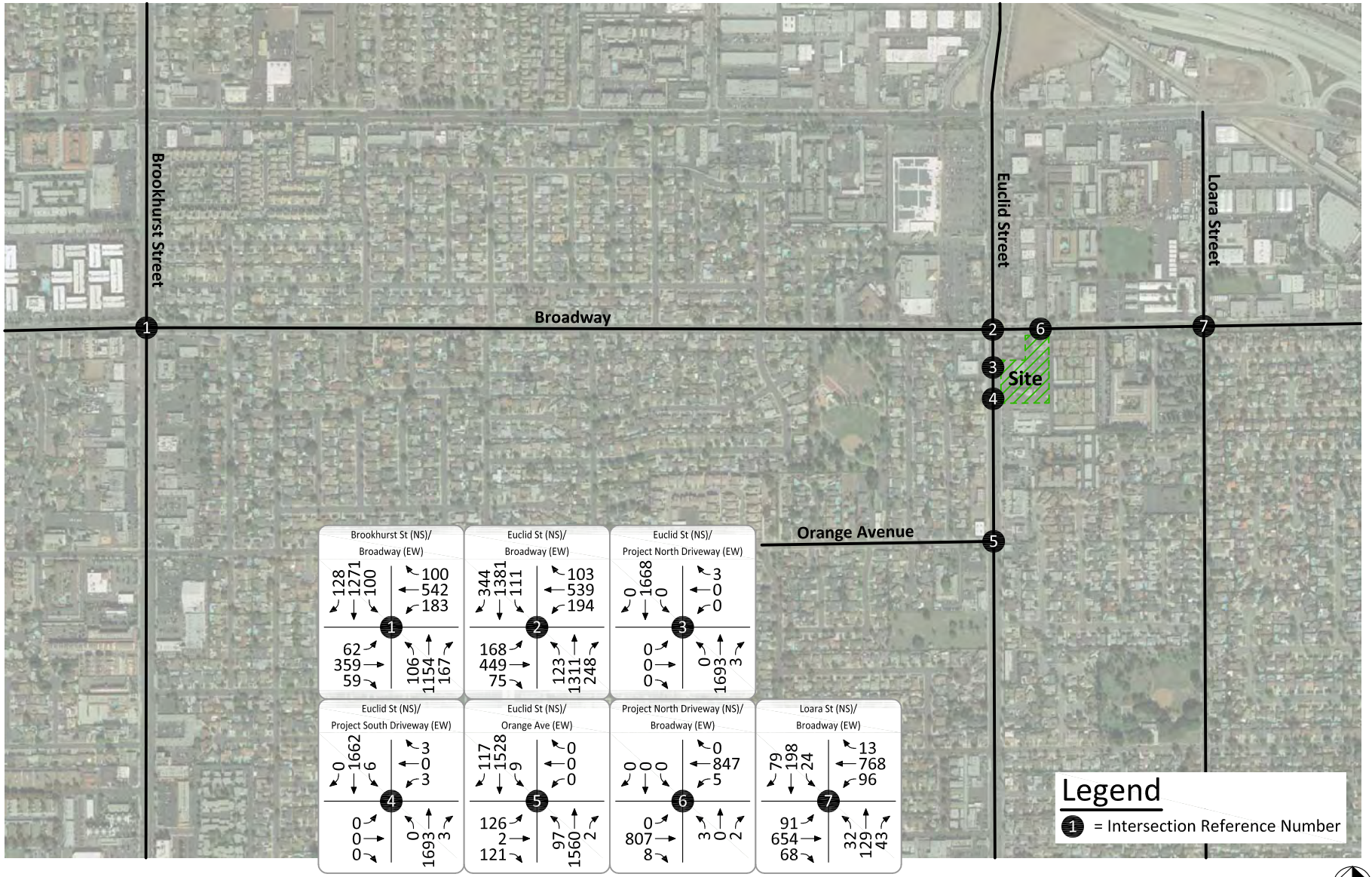


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 33
Opening Year (2018) With Project
Evening Peak Hour Intersection Turning Movement Volumes

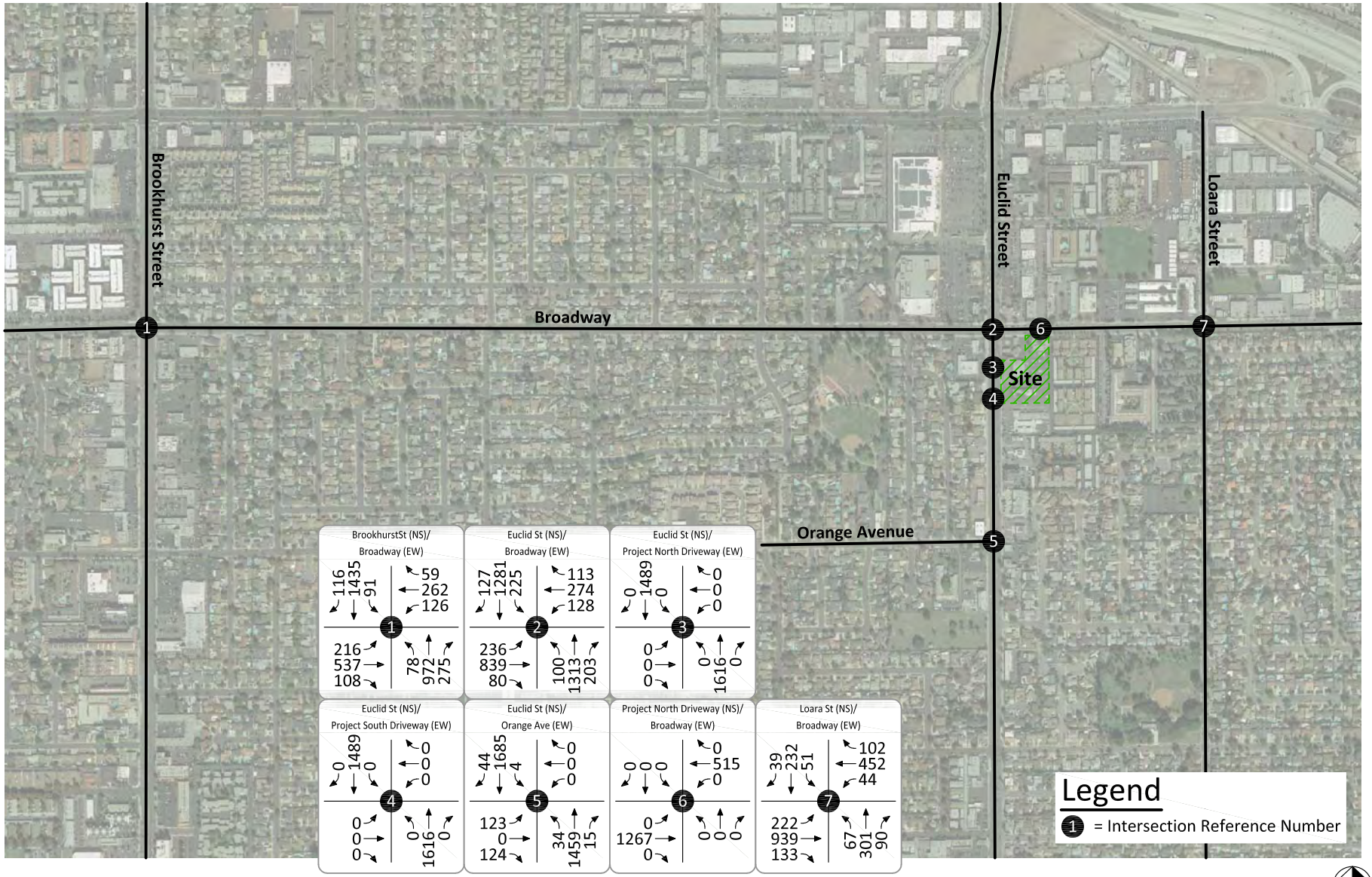


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 34
General Plan Buildout Without Project
Morning Peak Hour Intersection Turning Movement Volumes

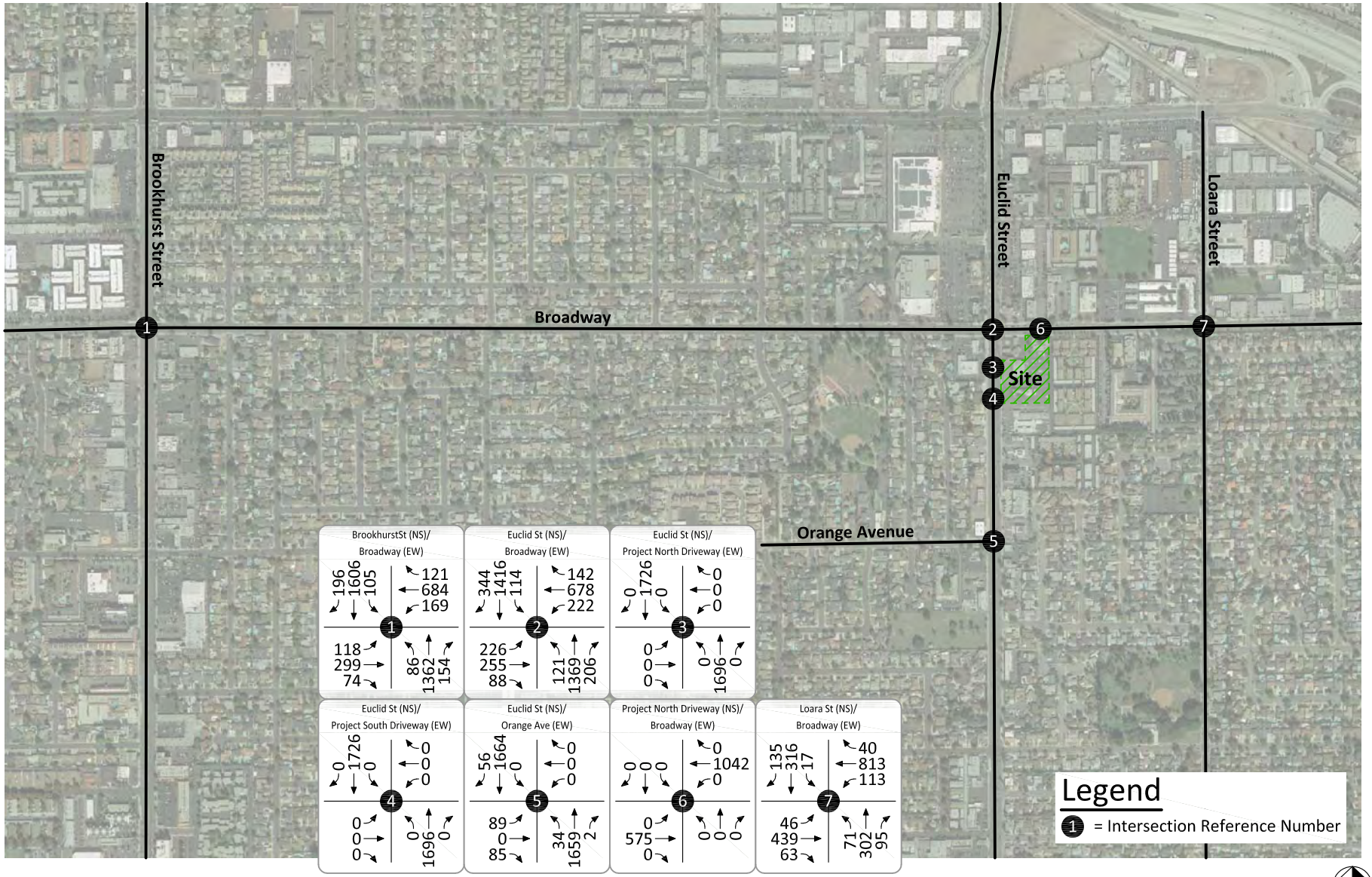


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 35
General Plan Buildout Without Project
Evening Peak Hour Intersection Turning Movement Volumes

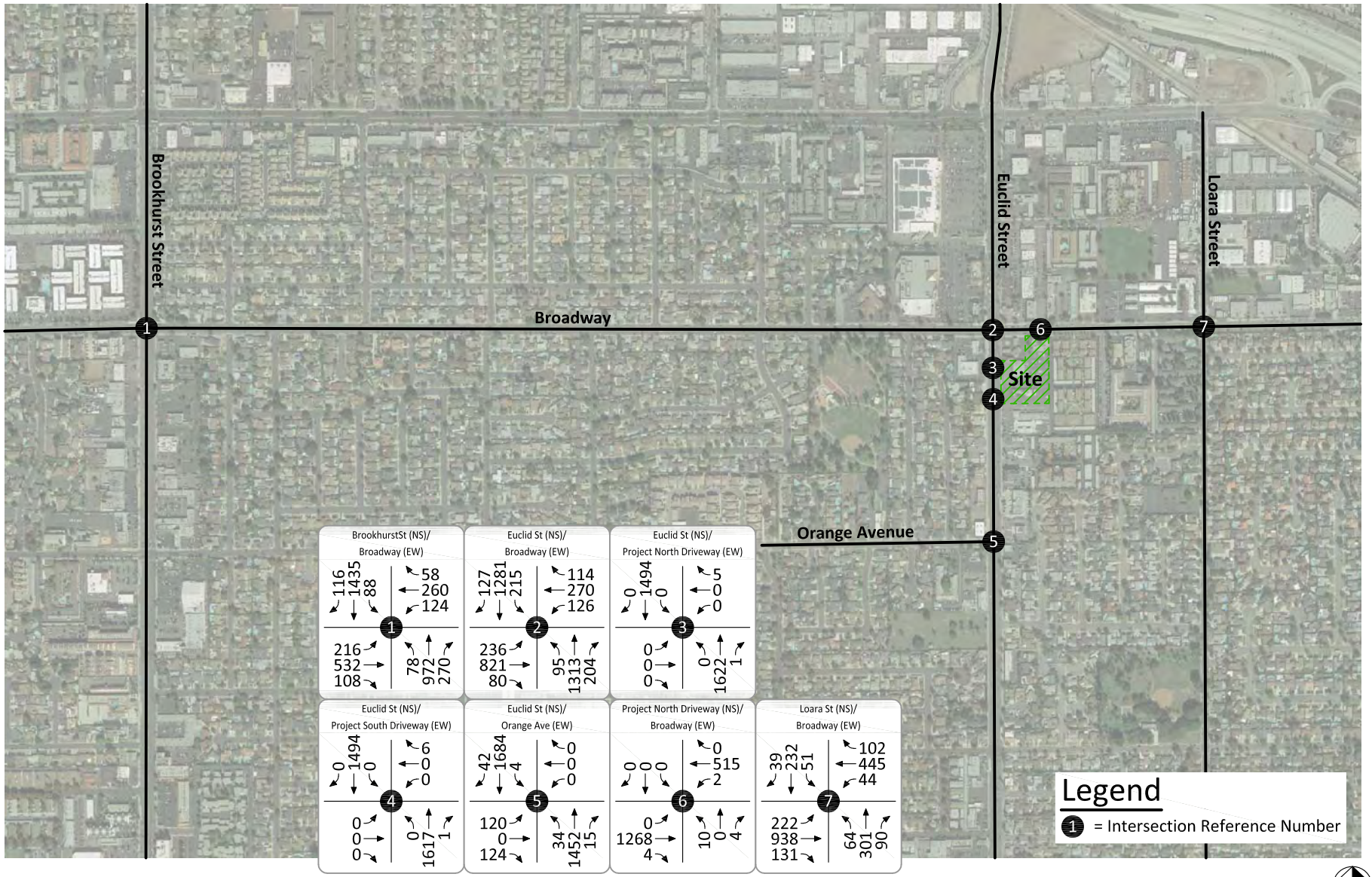


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 36
General Plan Buildout With Project
Morning Peak Hour Intersection Turning Movement Volumes

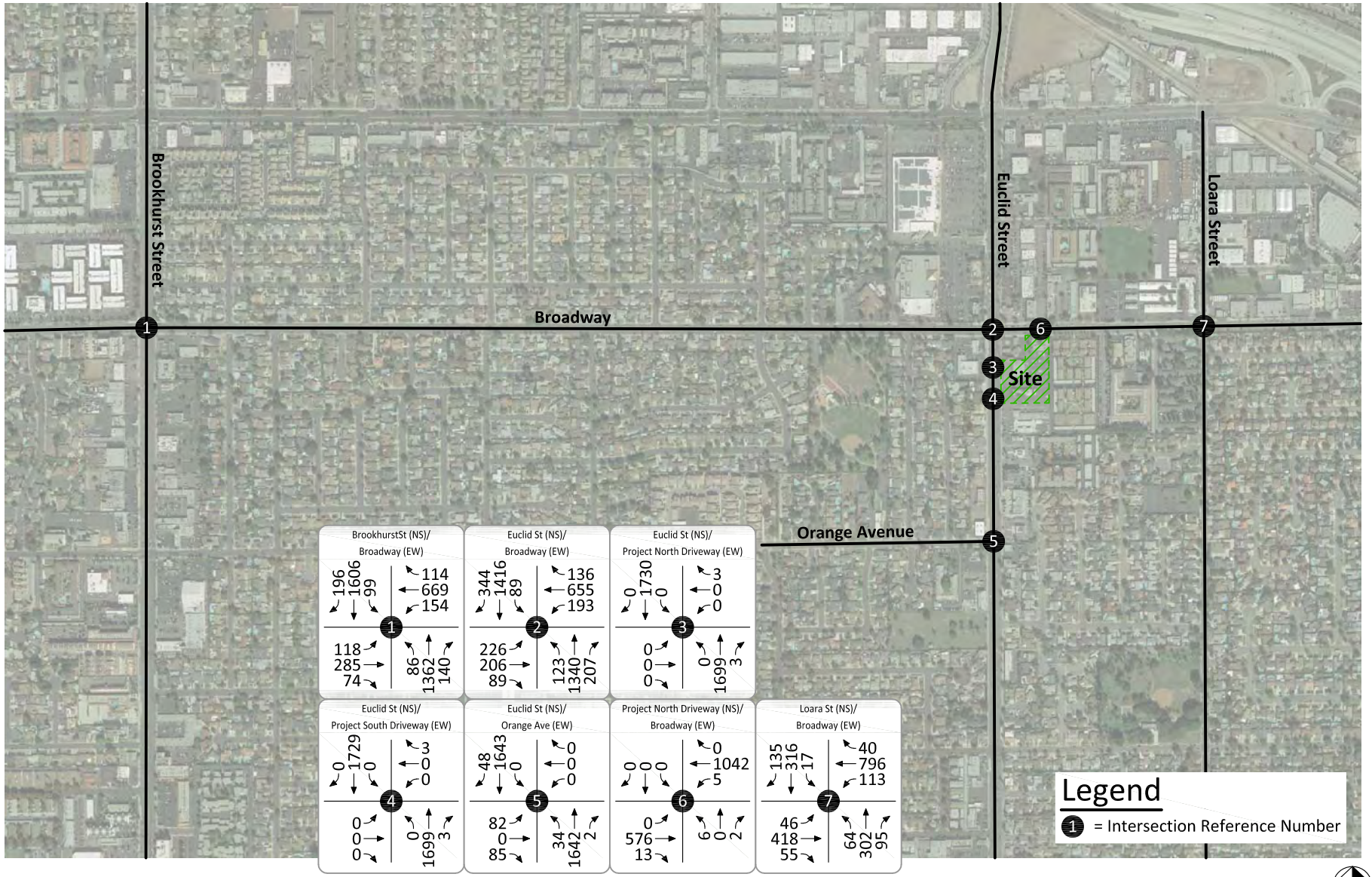


KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

Figure 37
General Plan Buildout With Project
Evening Peak Hour Intersection Turning Movement Volumes



KUNZMAN ASSOCIATES, INC.

OVER 40 YEARS OF EXCELLENT SERVICE

JN 6565c

V. RECOMMENDATIONS

A. Roadway Improvements

1. On-Site Improvements

On-site improvements and improvements adjacent to the site will be required in conjunction with the proposed development to ensure adequate circulation within the project itself (see Figure 3).

The project site should provide sufficient parking spaces to meet City of Anaheim parking code requirements in order to service on-site parking demand.

On-site traffic signing and striping should be implemented in conjunction with detailed construction plans for the project. This should include signage prohibiting left turns out of the North Project Driveway onto Euclid Street.

Sight distance at the project accesses should be reviewed with respect to California Department of Transportation/City of Anaheim standards in conjunction with the preparation of final grading, landscaping, and street improvement plans.

APPENDICES

Appendix A – Glossary of Transportation Terms

Appendix B – Traffic Count Worksheets

Appendix C – General Plan Buildout Traffic Volumes

Appendix D – Explanation and Calculation of Intersection Capacity Utilization

APPENDIX A

Glossary of Transportation Terms

GLOSSARY OF TRANSPORTATION TERMS

COMMON ABBREVIATIONS

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 total volume during a year divided by the number of days in a year. Usually only weekdays are included.

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

BOTTLENECK: A constriction along a travelway 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.

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

CYCLE LENGTH: The time period in seconds required for one complete signal cycle.

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

DAILY CAPACITY: The daily volume of traffic that will result in a volume during the peak hour 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.

ORIGIN-DESTINATION SURVEY: A survey to determine the point of origin and the point of destination for a given vehicle trip.

PASSENGER CAR EQUIVALENTS (PCE): One car is one Passenger Car Equivalent. A truck is equal to 2 or 3 Passenger Car Equivalents in that a truck requires longer to start, goes slower, and accelerates slower. Loaded trucks have a higher Passenger Car Equivalent than empty trucks.

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.

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

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.

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

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.

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

Traffic Count Worksheets

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Anaheim
Euclid Street
N/ Broadway
24 Hour Directional Volume Count

ANA003
Site Code: 075-17471

Start Time	7/20/2017 Thu	Northbound Morning	Northbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Southbound Morning	Southbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		71	290			94	293				
12:15		66	303			86	281				
12:30		50	294			74	297				
12:45		60	319	247	1206	48	293	302	1164	549	2370
01:00		38	287			63	250				
01:15		50	297			43	303				
01:30		33	292			34	279				
01:45		35	309	156	1185	40	329	180	1161	336	2346
02:00		32	328			34	309				
02:15		27	313			35	298				
02:30		29	329			24	308				
02:45		29	361	117	1331	38	300	131	1215	248	2546
03:00		31	315			27	328				
03:15		29	284			18	353				
03:30		59	345			27	334				
03:45		59	325	178	1269	31	387	103	1402	281	2671
04:00		49	328			25	345				
04:15		68	323			36	363				
04:30		106	354			43	373				
04:45		100	355	323	1360	54	345	158	1426	481	2786
05:00		117	365			52	386				
05:15		151	329			79	**376**				
05:30		175	**375**			99	**349**				
05:45		168	**357**	611	1426	104	**375**	334	1486	945	2912
06:00		182	**388**			113	**391**				
06:15		209	**333**			131	358				
06:30		237	315			186	317				
06:45		244	309	872	1345	223	372	653	1438	1525	2783
07:00		267	311			203	317				
07:15		**298**	313			234	337				
07:30		**299**	298			261	302				
07:45		**312**	287	1176	1209	266	303	964	1259	2140	2468
08:00		**303**	243			260	285				
08:15		269	250			221	287				
08:30		276	250			261	272				
08:45		285	257	1133	1000	260	244	1002	1088	2135	2088
09:00		293	214			205	275				
09:15		294	248			261	258				
09:30		280	201			272	246				
09:45		311	194	1178	857	243	242	981	1021	2159	1878
10:00		280	159			241	197				
10:15		267	159			275	194				
10:30		291	171			225	176				
10:45		287	121	1125	610	276	169	1017	736	2142	1346
11:00		277	114			**283**	128				
11:15		292	132			**264**	130				
11:30		269	96			**243**	123				
11:45		323	87	1161	429	**304**	121	1094	502	2255	931
Total		8277	13227	8277	13227	6919	13898	6919	13898	15196	27125
Combined Total		21504		21504		20817		20817		42321	
AM Peak	-	07:15	-	-	-	11:00	-	-	-	-	-
Vol.	-	1212	-	-	-	1094	-	-	-	-	-
P.H.F.		0.971				0.900					
PM Peak	-	-	05:30	-	-	-	05:15	-	-	-	-
Vol.	-	-	1453	-	-	-	1491	-	-	-	-
P.H.F.			0.936				0.953				
Percentage		38.5%	61.5%			33.2%	66.8%				
ADT/AADT		ADT 42,321		AADT 42,321							

Counts Unlimited, Inc.

PO Box 1178
Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Anaheim
Euclid Street
S/ Broadway
24 Hour Directional Volume Count

ANA004
Site Code: 075-17471

Start Time	7/20/2017 Thu	Lane 1 Morning	Lane 1 Afternoon	Hour Totals Morning	Hour Totals Afternoon	Lane 2 Morning	Lane 2 Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		80	282			72	274				
12:15		49	300			62	259				
12:30		66	303			54	285				
12:45		66	310	261	1195	45	266	233	1084	494	2279
01:00		53	300			55	260				
01:15		50	292			37	285				
01:30		42	319			27	245				
01:45		43	316	188	1227	36	305	155	1095	343	2322
02:00		33	315			28	290				
02:15		40	314			32	297				
02:30		36	343			22	278				
02:45		26	345	135	1317	27	304	109	1169	244	2486
03:00		31	302			24	307				
03:15		29	315			19	302				
03:30		44	335			25	330				
03:45		55	340	159	1292	26	341	94	1280	253	2572
04:00		42	329			28	370				
04:15		81	344			39	322				
04:30		97	371			41	370				
04:45		86	376	306	1420	43	316	151	1378	457	2798
05:00		81	386			45	367				
05:15		133	**380**			81	**347**				
05:30		179	**372**			98	**347**				
05:45		166	**389**	559	1527	102	**338**	326	1399	885	2926
06:00		165	**388**			109	**374**				
06:15		171	339			146	343				
06:30		210	335			186	322				
06:45		242	316	788	1378	204	312	645	1351	1433	2729
07:00		237	328			217	278				
07:15		260	327			**230**	308				
07:30		294	288			**269**	265				
07:45		281	271	1072	1214	**267**	281	983	1132	2055	2346
08:00		**271**	245			**257**	266				
08:15		**262**	259			220	241				
08:30		**312**	254			255	237				
08:45		**324**	240	1169	998	230	212	962	956	2131	1954
09:00		239	251			195	233				
09:15		278	246			220	230				
09:30		283	214			238	213				
09:45		286	179	1086	890	239	208	892	884	1978	1774
10:00		279	176			236	157				
10:15		279	168			271	159				
10:30		300	147			216	145				
10:45		292	133	1150	624	257	157	980	618	2130	1242
11:00		281	128			261	110				
11:15		268	122			253	111				
11:30		284	95			237	101				
11:45		328	100	1161	445	270	85	1021	407	2182	852
Total		8034	13527	8034	13527	6551	12753	6551	12753	14585	26280
Combined Total		21561		21561		19304		19304		40865	
AM Peak	-	08:00	-	-	-	07:15	-	-	-	-	-
Vol.	-	1169	-	-	-	1023	-	-	-	-	-
P.H.F.		0.902				0.951					
PM Peak	-	-	05:15	-	-	-	05:15	-	-	-	-
Vol.	-	-	1529	-	-	-	1406	-	-	-	-
P.H.F.			0.983				0.940				
Percentage		37.3%	62.7%			33.9%	66.1%				
ADT/AADT		ADT 40,865		AADT 40,865							

Counts Unlimited, Inc.

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Corona, CA 92878
Phone: (951) 268-6268
email: counts@countsunlimited.com

City of Anaheim
Broadway
W/ Euclid Street
24 Hour Directional Volume Count

ANA001
Site Code: 075-17471

Start Time	7/20/2017 Thu	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		13	119			31	125				
12:15		20	117			29	121				
12:30		20	91			26	144				
12:45		20	117	73	444	12	147	98	537	171	981
01:00		12	127			17	138				
01:15		10	129			15	130				
01:30		7	128			9	138				
01:45		10	124	39	508	9	120	50	526	89	1034
02:00		8	121			11	146				
02:15		13	129			4	142				
02:30		9	136			8	160				
02:45		11	136	41	522	8	160	31	608	72	1130
03:00		2	124			7	156				
03:15		12	129			5	175				
03:30		15	126			8	190				
03:45		15	119	44	498	4	179	24	700	68	1198
04:00		14	159			4	202				
04:15		25	148			4	223				
04:30		40	141			9	224				
04:45		37	162	116	610	19	**243**	36	892	152	1502
05:00		45	143			16	**278**				
05:15		62	**183**			17	**294**				
05:30		71	**165**			30	**249**				
05:45		80	**151**	258	642	29	224	92	1045	350	1687
06:00		85	**171**			32	258				
06:15		120	148			34	230				
06:30		139	154			67	201				
06:45		147	137	491	610	62	210	195	899	686	1509
07:00		154	139			65	172				
07:15		**173**	136			109	185				
07:30		**221**	123			91	167				
07:45		**185**	123	733	521	108	167	373	691	1106	1212
08:00		**162**	120			81	136				
08:15		156	106			99	152				
08:30		143	96			100	118				
08:45		151	62	612	384	113	133	393	539	1005	923
09:00		109	87			73	160				
09:15		132	86			107	107				
09:30		118	61			101	105				
09:45		148	78	507	312	114	115	395	487	902	799
10:00		112	60			96	101				
10:15		112	51			88	99				
10:30		122	50			85	62				
10:45		123	44	469	205	114	83	383	345	852	550
11:00		110	36			**125**	55				
11:15		105	35			**107**	47				
11:30		119	25			**128**	49				
11:45		129	27	463	123	**127**	45	487	196	950	319
Total		3846	5379	3846	5379	2557	7465	2557	7465	6403	12844
Combined Total		9225		9225		10022		10022		19247	
AM Peak	-	07:15	-	-	-	11:00	-	-	-	-	-
Vol.	-	741	-	-	-	487	-	-	-	-	-
P.H.F.		0.838				0.951					
PM Peak	-	-	05:15	-	-	-	04:45	-	-	-	-
Vol.	-	-	670	-	-	-	1064	-	-	-	-
P.H.F.			0.915				0.905				
Percentage		41.7%	58.3%			25.5%	74.5%				
ADT/AADT		ADT 19,247		AADT 19,247							

Counts Unlimited, Inc.

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City of Anaheim
Broadway
E/ Euclid Street
24 Hour Directional Volume Count

ANA002
Site Code: 075-17471

Start Time	7/20/2017 Thu	Eastbound Morning	Eastbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Westbound Morning	Westbound Afternoon	Hour Totals Morning	Hour Totals Afternoon	Combined Totals Morning	Combined Totals Afternoon
12:00		23	143			20	113				
12:15		13	110			16	123				
12:30		17	121			15	154				
12:45		17	151	70	525	8	124	59	514	129	1039
01:00		9	139			12	145				
01:15		7	149			12	134				
01:30		6	166			8	128				
01:45		5	142	27	596	8	105	40	512	67	1108
02:00		14	130			5	147				
02:15		8	143			5	152				
02:30		4	147			4	168				
02:45		8	158	34	578	4	146	18	613	52	1191
03:00		6	147			5	152				
03:15		5	142			7	151				
03:30		12	144			13	217				
03:45		10	162	33	595	12	178	37	698	70	1293
04:00		10	158			11	215				
04:15		15	194			9	220				
04:30		28	**185**			18	204				
04:45		27	**208**	80	745	19	**236**	57	875	137	1620
05:00		40	**186**			27	**250**				
05:15		41	**214**			19	**255**				
05:30		62	177			32	**226**				
05:45		78	182	221	759	34	183	112	914	333	1673
06:00		92	174			49	245				
06:15		118	168			55	185				
06:30		152	166			68	173				
06:45		147	156	509	664	77	148	249	751	758	1415
07:00		**183**	154			70	133				
07:15		**204**	149			128	158				
07:30		**256**	107			105	129				
07:45		**219**	130	862	540	117	123	420	543	1282	1083
08:00		174	128			96	112				
08:15		181	124			111	123				
08:30		168	123			94	100				
08:45		162	80	685	455	124	111	425	446	1110	901
09:00		145	101			117	124				
09:15		147	109			125	86				
09:30		133	86			131	81				
09:45		134	88	559	384	115	84	488	375	1047	759
10:00		112	70			114	69				
10:15		118	76			89	85				
10:30		115	55			107	50				
10:45		136	48	481	249	123	58	433	262	914	511
11:00		122	52			**129**	52				
11:15		133	47			**120**	44				
11:30		124	35			**145**	40				
11:45		163	31	542	165	**137**	26	531	162	1073	327
Total		4103	6255	4103	6255	2869	6665	2869	6665	6972	12920
Combined Total		10358		10358		9534		9534		19892	
AM Peak	-	07:00	-	-	-	11:00	-	-	-	-	-
Vol.	-	862	-	-	-	531	-	-	-	-	-
P.H.F.		0.842				0.916					
PM Peak	-	-	04:30	-	-	-	04:45	-	-	-	-
Vol.	-	-	793	-	-	-	967	-	-	-	-
P.H.F.			0.926				0.948				
Percentage		39.6%	60.4%			30.1%	69.9%				
ADT/AADT		ADT 19,892		AADT 19,892							

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

City of Anaheim
N/S: Euclid Street
E/W: West Broadway
Weather: Clear

File Name : ANA_Euclid_Broadway_AM
Site Code : 07517471
Start Date : 7/20/2017
Page No : 1

Groups Printed- Total Volume

	Euclid Street Southbound				West Broadway Westbound				Euclid Street Northbound				West Broadway 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	8	198	20	226	15	38	9	62	8	232	36	276	29	130	14	173	737
07:15 AM	19	187	21	227	29	81	16	126	7	226	39	272	42	149	11	202	827
07:30 AM	15	244	31	290	32	55	10	97	7	269	58	334	32	163	14	209	930
07:45 AM	16	236	31	283	32	65	13	110	13	250	47	310	57	180	7	244	947
Total	58	865	103	1026	108	239	48	395	35	977	180	1192	160	622	46	828	3441
08:00 AM	14	222	20	256	31	63	14	108	12	267	41	320	38	119	17	174	858
08:15 AM	16	212	23	251	24	65	17	106	11	194	39	244	42	156	16	214	815
08:30 AM	26	220	38	284	30	51	14	95	14	238	45	297	40	84	6	130	806
08:45 AM	12	193	34	239	24	75	21	120	13	213	39	265	46	119	13	178	802
Total	68	847	115	1030	109	254	66	429	50	912	164	1126	166	478	52	696	3281
Grand Total	126	1712	218	2056	217	493	114	824	85	1889	344	2318	326	1100	98	1524	6722
Apprch %	6.1	83.3	10.6		26.3	59.8	13.8		3.7	81.5	14.8		21.4	72.2	6.4		
Total %	1.9	25.5	3.2	30.6	3.2	7.3	1.7	12.3	1.3	28.1	5.1	34.5	4.8	16.4	1.5	22.7	

	Euclid Street Southbound				West Broadway Westbound				Euclid Street Northbound				West Broadway 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	**19**	187	21	227	29	**81**	**16**	**126**	7	226	39	272	42	149	11	202	827
07:30 AM	15	**244**	**31**	**290**	**32**	55	10	97	7	**269**	**58**	**334**	32	163	14	209	930
07:45 AM	16	236	31	283	32	65	13	110	**13**	250	47	310	**57**	**180**	7	**244**	**947**
08:00 AM	14	222	20	256	31	63	14	108	12	267	41	320	38	119	**17**	174	858
Total Volume	64	889	103	1056	124	264	53	441	39	1012	185	1236	169	611	49	829	3562
% App. Total	6.1	84.2	9.8		28.1	59.9	12		3.2	81.9	15		20.4	73.7	5.9		
PHF	.842	.911	.831	.910	.969	.815	.828	.875	.750	.941	.797	.925	.741	.849	.721	.849	.940

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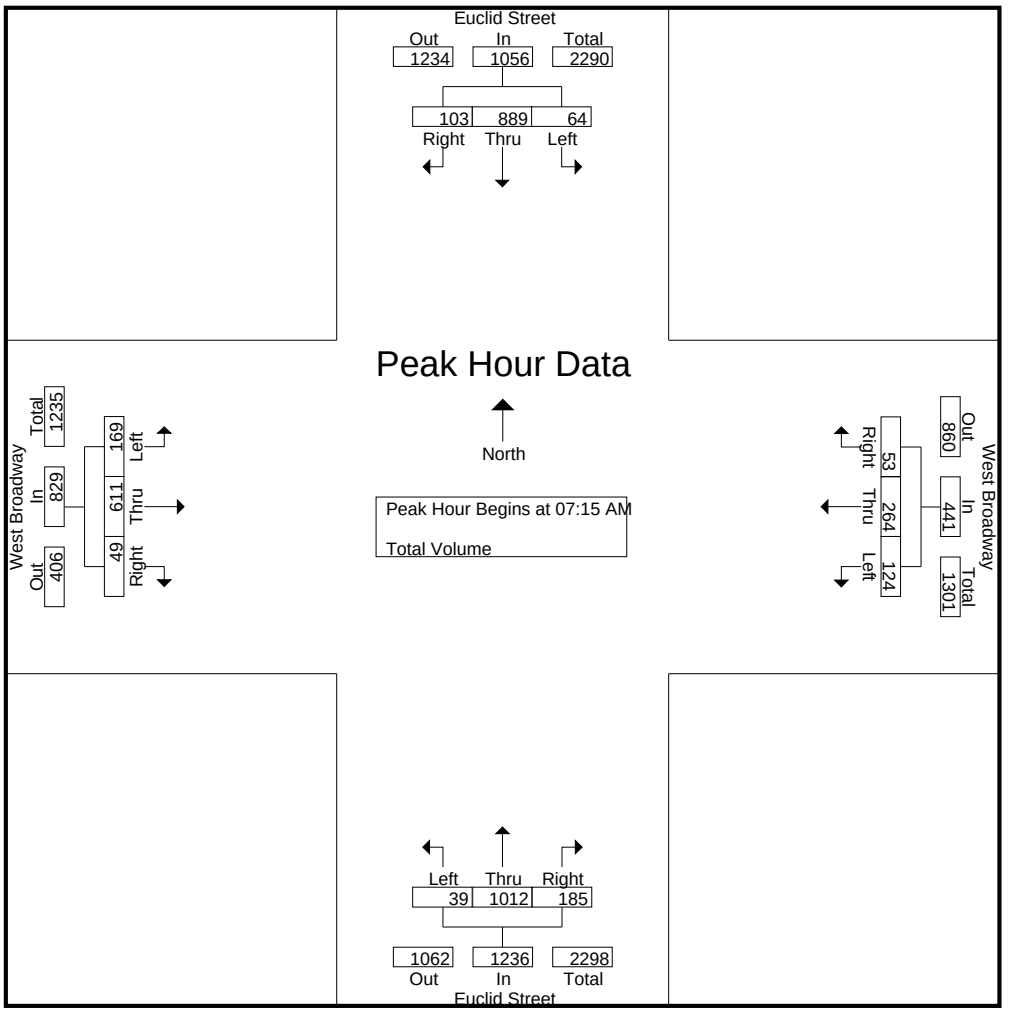
City of Anaheim
N/S: Euclid Street
E/W: West Broadway
Weather: Clear

File Name : ANA_Euclid_Broadway_AM
Site Code : 07517471
Start Date : 7/20/2017
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:

	07:30 AM				07:15 AM				07:15 AM				07:30 AM			
+0 mins.	15	**244**	**31**	**290**	29	**81**	**16**	**126**	7	226	39	272	32	163	14	209
+15 mins.	**16**	236	31	283	**32**	55	10	97	7	**269**	**58**	**334**	**57**	**180**	7	**244**
+30 mins.	14	222	20	256	32	65	13	110	**13**	250	47	310	38	119	**17**	174
+45 mins.	16	212	23	251	31	63	14	108	12	267	41	320	42	156	16	214
Total Volume	61	914	105	1080	124	264	53	441	39	1012	185	1236	169	618	54	841
% App. Total	5.6	84.6	9.7		28.1	59.9	12		3.2	81.9	15		20.1	73.5	6.4	
PHF	.953	.936	.847	.931	.969	.815	.828	.875	.750	.941	.797	.925	.741	.858	.794	.862

Counts Unlimited
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City of Anaheim
N/S: Euclid Street
E/W: West Broadway
Weather: Clear

File Name : ANA_Euclid_Broadway_PM
Site Code : 07517471
Start Date : 7/20/2017
Page No : 1

Groups Printed- Total Volume

	Euclid Street Southbound				West Broadway Westbound				Euclid Street Northbound				West Broadway 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	23	291	53	367	55	114	23	192	30	249	46	325	29	102	22	153	1037
04:15 PM	24	299	67	390	49	147	23	219	22	296	57	375	29	103	13	145	1129
04:30 PM	29	304	67	400	39	135	31	205	24	292	57	373	31	105	24	160	1138
04:45 PM	30	312	72	414	40	155	24	219	38	304	63	405	35	118	20	173	1211
Total	106	1206	259	1571	183	551	101	835	114	1141	223	1478	124	428	79	631	4515
05:00 PM	23	278	82	383	56	152	35	243	36	296	54	386	30	102	18	150	1162
05:15 PM	23	318	99	440	56	180	19	255	29	314	60	403	40	122	18	180	1278
05:30 PM	25	284	66	375	56	160	17	233	39	295	49	383	48	118	21	187	1178
05:45 PM	25	292	77	394	47	134	17	198	40	324	55	419	31	98	14	143	1154
Total	96	1172	324	1592	215	626	88	929	144	1229	218	1591	149	440	71	660	4772
Grand Total	202	2378	583	3163	398	1177	189	1764	258	2370	441	3069	273	868	150	1291	9287
Apprch %	6.4	75.2	18.4		22.6	66.7	10.7		8.4	77.2	14.4		21.1	67.2	11.6		
Total %	2.2	25.6	6.3	34.1	4.3	12.7	2	19	2.8	25.5	4.7	33	2.9	9.3	1.6	13.9	

	Euclid Street Southbound				West Broadway Westbound				Euclid Street Northbound				West Broadway 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 04:45 PM																	
04:45 PM	**30**	312	72	414	40	155	24	219	38	304	**63**	**405**	35	118	20	173	1211
05:00 PM	23	278	82	383	**56**	152	**35**	243	36	296	54	386	30	102	18	150	1162
05:15 PM	23	**318**	**99**	**440**	56	**180**	19	**255**	29	**314**	60	403	40	**122**	18	180	**1278**
05:30 PM	25	284	66	375	56	160	17	233	**39**	295	49	383	**48**	118	**21**	**187**	1178
Total Volume	101	1192	319	1612	208	647	95	950	142	1209	226	1577	153	460	77	690	4829
% App. Total	6.3	73.9	19.8		21.9	68.1	10		9	76.7	14.3		22.2	66.7	11.2		
PHF	.842	.937	.806	.916	.929	.899	.679	.931	.910	.963	.897	.973	.797	.943	.917	.922	.945

Counts Unlimited
PO Box 1178
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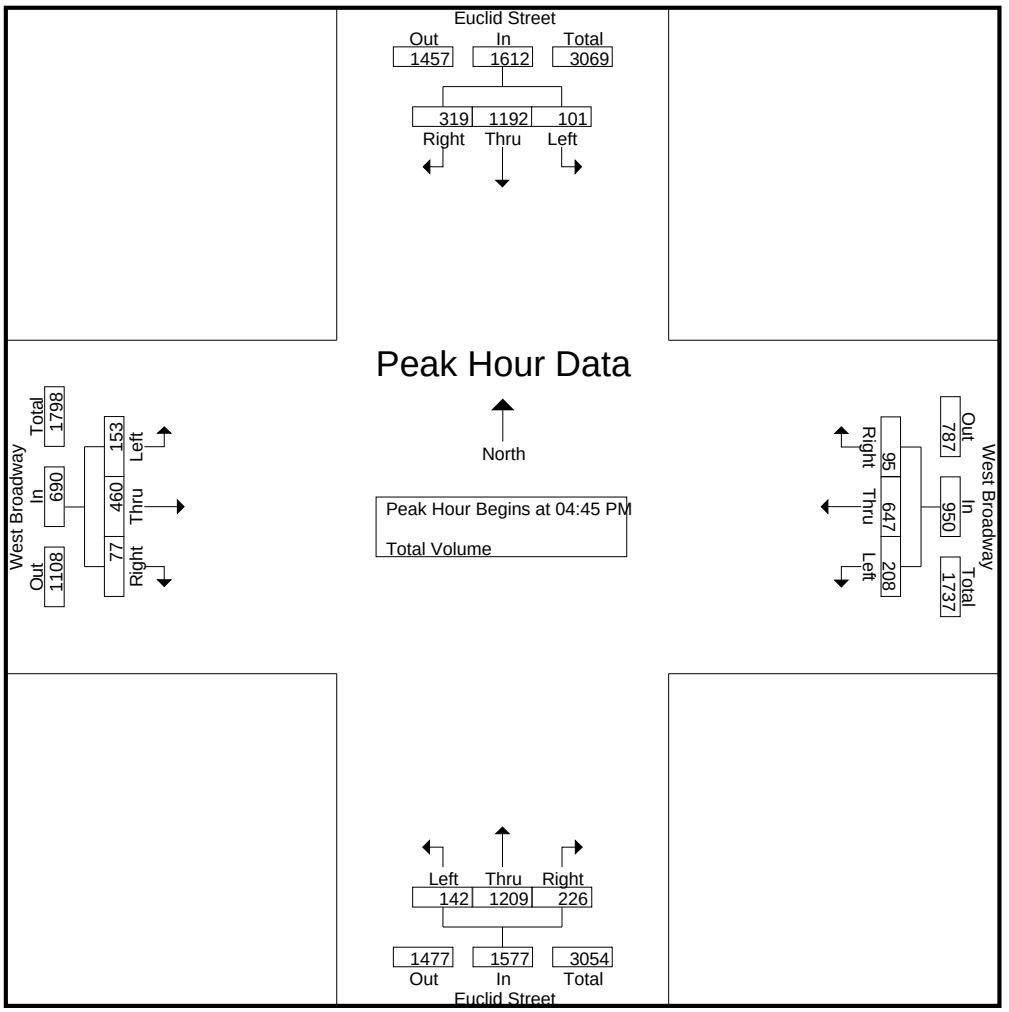
City of Anaheim
N/S: Euclid Street
E/W: West Broadway
Weather: Clear

File Name : ANA_Euclid_Broadway_PM
Site Code : 07517471
Start Date : 7/20/2017
Page No : 2



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				04:45 PM				05:00 PM				04:45 PM			
+0 mins.	29	304	67	400	40	155	24	219	36	296	54	386	35	118	20	173
+15 mins.	**30**	312	72	414	**56**	152	**35**	243	29	314	**60**	403	30	102	18	150
+30 mins.	23	278	82	383	56	**180**	19	**255**	39	295	49	383	40	**122**	18	180
+45 mins.	23	**318**	**99**	**440**	56	160	17	233	**40**	**324**	55	**419**	**48**	118	**21**	**187**
Total Volume	105	1212	320	1637	208	647	95	950	144	1229	218	1591	153	460	77	690
% App. Total	6.4	74	19.5		21.9	68.1	10		9.1	77.2	13.7		22.2	66.7	11.2	
PHF	.875	.953	.808	.930	.929	.899	.679	.931	.900	.948	.908	.949	.797	.943	.917	.922

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City of Anaheim
N/S: Brookhurst Street
E/W: Broadway
Weather: Clear

File Name : 01_ANABRBWAM
Site Code : 07517232
Start Date : 4/14/2017
Page No : 1

Groups Printed- Total Volume

	Brookhurst Street Southbound				Broadway Westbound				Brookhurst Street Northbound				Broadway 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	14	153	13	180	12	55	14	81	4	169	19	192	18	93	9	120	573
07:15 AM	11	156	9	176	26	99	24	149	13	229	23	265	28	119	14	161	751
07:30 AM	18	195	12	225	24	70	21	115	18	214	44	276	22	124	12	158	774
07:45 AM	18	214	8	240	32	78	15	125	13	206	32	251	28	136	18	182	798
Total	61	718	42	821	94	302	74	470	48	818	118	984	96	472	53	621	2896
08:00 AM	14	211	8	233	21	35	15	71	11	180	34	225	24	87	14	125	654
08:15 AM	23	198	12	233	32	60	14	106	10	195	36	241	14	94	11	119	699
08:30 AM	21	195	11	227	34	59	21	114	8	195	31	234	22	76	17	115	690
08:45 AM	7	240	9	256	30	53	19	102	8	209	23	240	23	69	4	96	694
Total	65	844	40	949	117	207	69	393	37	779	124	940	83	326	46	455	2737
Grand Total	126	1562	82	1770	211	509	143	863	85	1597	242	1924	179	798	99	1076	5633
Apprch %	7.1	88.2	4.6		24.4	59	16.6		4.4	83	12.6		16.6	74.2	9.2		
Total %	2.2	27.7	1.5	31.4	3.7	9	2.5	15.3	1.5	28.4	4.3	34.2	3.2	14.2	1.8	19.1	

	Brookhurst Street Southbound				Broadway Westbound				Brookhurst Street Northbound				Broadway 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	11	156	9	176	26	**99**	**24**	**149**	13	**229**	23	265	**28**	119	14	161	751
07:30 AM	**18**	195	**12**	225	24	70	21	115	**18**	214	**44**	**276**	22	124	12	158	774
07:45 AM	18	**214**	8	**240**	**32**	78	15	125	13	206	32	251	28	**136**	**18**	**182**	**798**
08:00 AM	14	211	8	233	21	35	15	71	11	180	34	225	24	87	14	125	654
Total Volume	61	776	37	874	103	282	75	460	55	829	133	1017	102	466	58	626	2977
% App. Total	7	88.8	4.2		22.4	61.3	16.3		5.4	81.5	13.1		16.3	74.4	9.3		
PHF	.847	.907	.771	.910	.805	.712	.781	.772	.764	.905	.756	.921	.911	.857	.806	.860	.933

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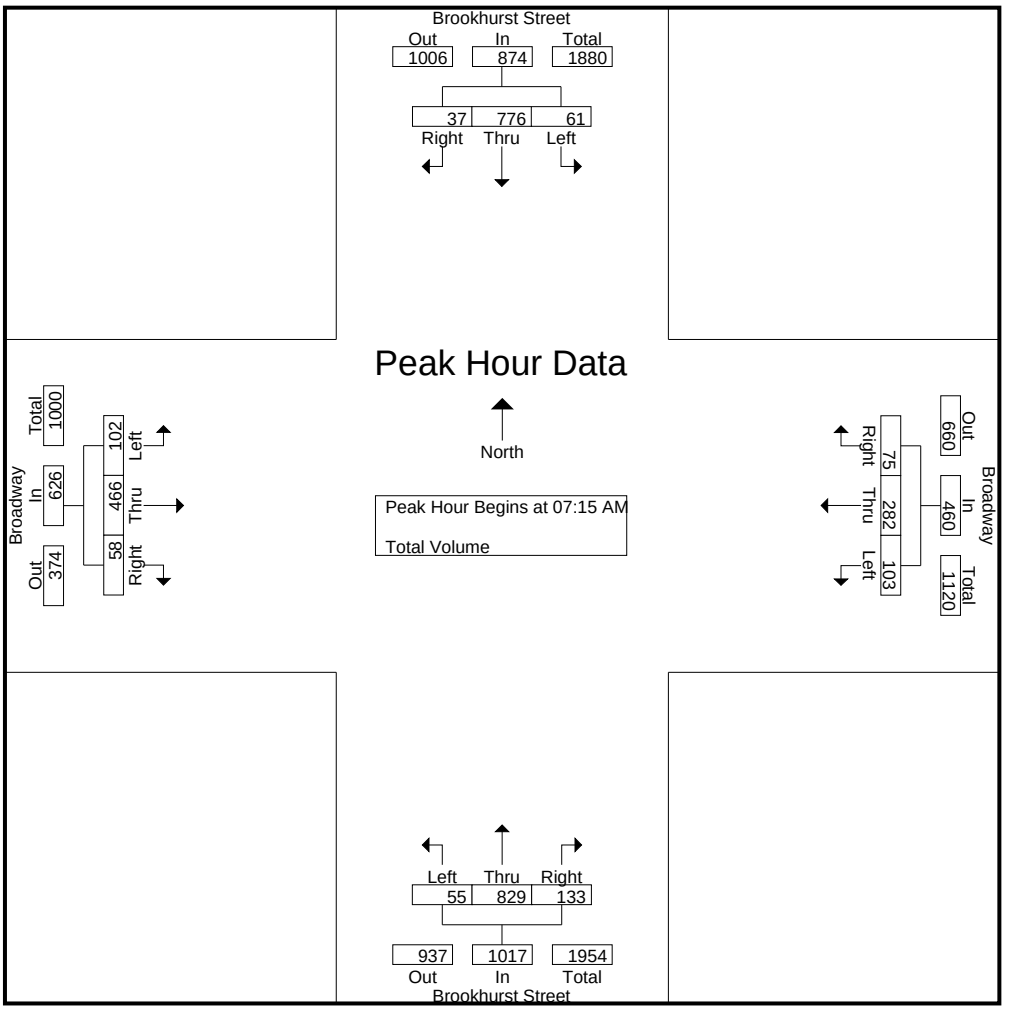
City of Anaheim
N/S: Brookhurst Street
E/W: Broadway
Weather: Clear

File Name : 01_ANABRBWAM
Site Code : 07517232
Start Date : 4/14/2017
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:

	08:00 AM				07:00 AM				07:15 AM				07:15 AM			
+0 mins.	14	211	8	233	12	55	14	81	13	**229**	23	265	**28**	119	14	161
+15 mins.	**23**	198	**12**	233	26	**99**	**24**	**149**	**18**	214	**44**	**276**	22	124	12	158
+30 mins.	21	195	11	227	24	70	21	115	13	206	32	251	28	**136**	**18**	**182**
+45 mins.	7	**240**	9	**256**	**32**	78	15	125	11	180	34	225	24	87	14	125
Total Volume	65	844	40	949	94	302	74	470	55	829	133	1017	102	466	58	626
% App. Total	6.8	88.9	4.2		20	64.3	15.7		5.4	81.5	13.1		16.3	74.4	9.3	
PHF	.707	.879	.833	.927	.734	.763	.771	.789	.764	.905	.756	.921	.911	.857	.806	.860

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City of Anaheim
N/S: Brookhurst Street
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Weather: Clear

File Name : 01_ANABRBWPM
Site Code : 07517232
Start Date : 4/14/2017
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Groups Printed- Total Volume

	Brookhurst Street Southbound				Broadway Westbound				Brookhurst Street Northbound				Broadway 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	20	292	26	338	42	104	20	166	16	285	33	334	19	72	16	107	945
04:15 PM	23	309	24	356	52	125	20	197	24	250	32	306	18	81	12	111	970
04:30 PM	21	327	20	368	44	112	21	177	28	307	35	370	11	91	13	115	1030
04:45 PM	28	287	25	340	47	144	21	212	21	255	38	314	15	85	16	116	982
Total	92	1215	95	1402	185	485	82	752	89	1097	138	1324	63	329	57	449	3927
05:00 PM	15	320	32	367	42	128	24	194	20	298	36	354	10	83	14	107	1022
05:15 PM	25	295	30	350	56	148	26	230	30	266	53	349	13	91	12	116	1045
05:30 PM	23	317	33	373	34	133	20	187	25	297	29	351	16	79	16	111	1022
05:45 PM	29	326	32	387	44	119	21	184	30	282	41	353	22	94	16	132	1056
Total	92	1258	127	1477	176	528	91	795	105	1143	159	1407	61	347	58	466	4145
Grand Total	184	2473	222	2879	361	1013	173	1547	194	2240	297	2731	124	676	115	915	8072
Apprch %	6.4	85.9	7.7		23.3	65.5	11.2		7.1	82	10.9		13.6	73.9	12.6		
Total %	2.3	30.6	2.8	35.7	4.5	12.5	2.1	19.2	2.4	27.8	3.7	33.8	1.5	8.4	1.4	11.3	

	Brookhurst Street Southbound				Broadway Westbound				Brookhurst Street Northbound				Broadway 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 05:00 PM																	
05:00 PM	15	320	32	367	42	128	24	194	20	**298**	36	**354**	10	83	14	107	1022
05:15 PM	25	295	30	350	**56**	**148**	**26**	**230**	**30**	266	**53**	349	13	91	12	116	1045
05:30 PM	23	317	**33**	373	34	133	20	187	25	297	29	351	16	79	**16**	111	1022
05:45 PM	**29**	**326**	32	**387**	44	119	21	184	30	282	41	353	**22**	**94**	16	**132**	**1056**
Total Volume	92	1258	127	1477	176	528	91	795	105	1143	159	1407	61	347	58	466	4145
% App. Total	6.2	85.2	8.6		22.1	66.4	11.4		7.5	81.2	11.3		13.1	74.5	12.4		
PHF	.793	.965	.962	.954	.786	.892	.875	.864	.875	.959	.750	.994	.693	.923	.906	.883	.981

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File Name : 01_ANABRBWPM
Site Code : 07517232
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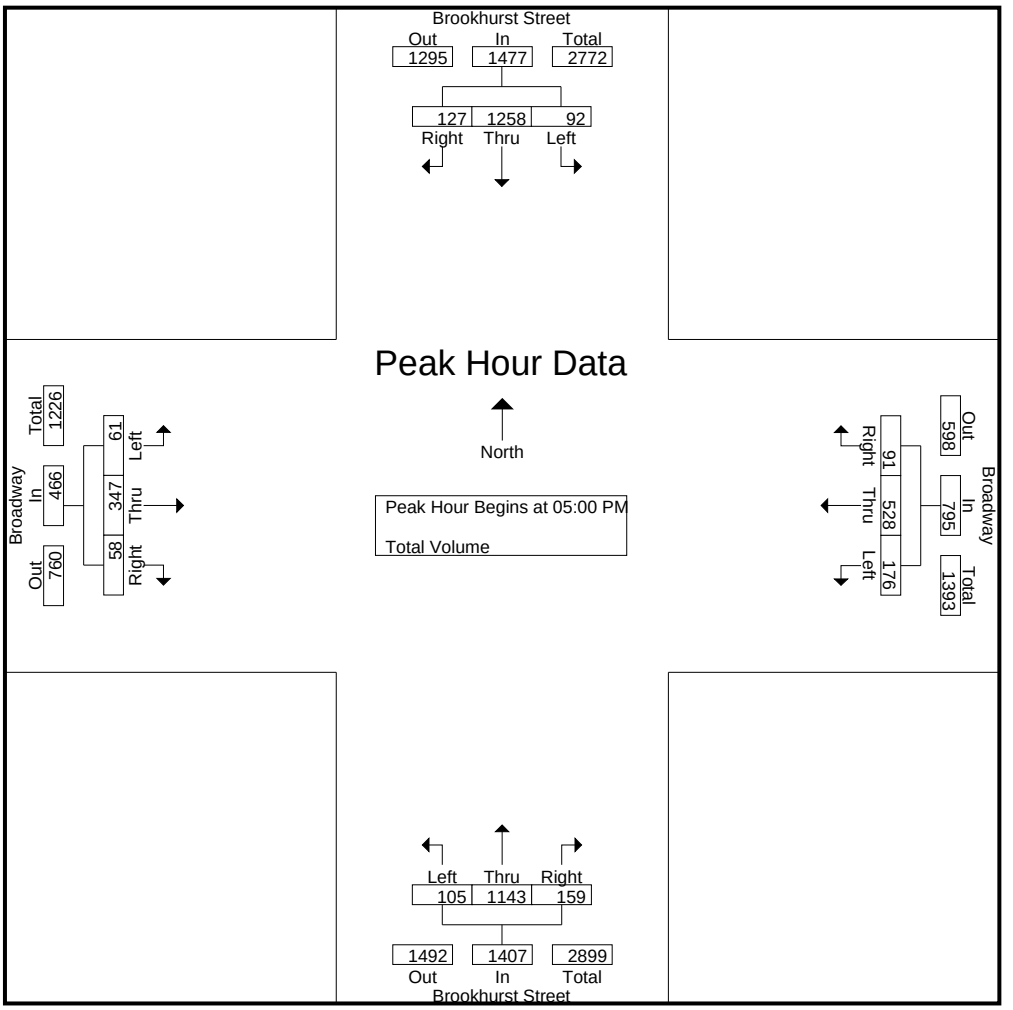

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				04:45 PM				05:00 PM				05:00 PM			
+0 mins.	15	320	32	367	47	144	21	212	20	**298**	36	**354**	10	83	14	107
+15 mins.	25	295	30	350	42	128	24	194	**30**	266	**53**	349	13	91	12	116
+30 mins.	23	317	**33**	373	**56**	**148**	**26**	**230**	25	297	29	351	16	79	**16**	111
+45 mins.	**29**	**326**	32	**387**	34	133	20	187	30	282	41	353	**22**	**94**	16	**132**
Total Volume	92	1258	127	1477	179	553	91	823	105	1143	159	1407	61	347	58	466
% App. Total	6.2	85.2	8.6		21.7	67.2	11.1		7.5	81.2	11.3		13.1	74.5	12.4	
PHF	.793	.965	.962	.954	.799	.934	.875	.895	.875	.959	.750	.994	.693	.923	.906	.883

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City of Anaheim
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Weather: Clear

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Groups Printed- Total Volume

	Euclid Street Southbound				Broadway Westbound				Euclid Street Northbound				Broadway 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	10	178	23	211	26	60	8	94	3	187	25	215	30	136	14	180	700
07:15 AM	12	207	25	244	20	78	16	114	5	268	44	317	46	121	11	178	853
07:30 AM	8	207	25	240	35	77	21	133	4	238	64	306	50	182	13	245	924
07:45 AM	22	211	39	272	31	71	7	109	22	309	83	414	52	133	13	198	993
Total	52	803	112	967	112	286	52	450	34	1002	216	1252	178	572	51	801	3470
08:00 AM	14	162	17	193	30	59	11	100	7	242	39	288	49	140	13	202	783
08:15 AM	12	216	40	268	29	56	13	98	10	263	54	327	44	115	12	171	864
08:30 AM	17	177	40	234	31	53	13	97	16	223	36	275	44	108	16	168	774
08:45 AM	15	234	24	273	26	51	16	93	21	308	42	371	34	82	11	127	864
Total	58	789	121	968	116	219	53	388	54	1036	171	1261	171	445	52	668	3285
Grand Total	110	1592	233	1935	228	505	105	838	88	2038	387	2513	349	1017	103	1469	6755
Apprch %	5.7	82.3	12		27.2	60.3	12.5		3.5	81.1	15.4		23.8	69.2	7		
Total %	1.6	23.6	3.4	28.6	3.4	7.5	1.6	12.4	1.3	30.2	5.7	37.2	5.2	15.1	1.5	21.7	

	Euclid Street Southbound				Broadway Westbound				Euclid Street Northbound				Broadway 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 07:30 AM																	
07:30 AM	8	207	25	240	**35**	**77**	**21**	**133**	4	238	64	306	50	**182**	**13**	**245**	924
07:45 AM	**22**	211	39	**272**	31	71	7	109	**22**	**309**	**83**	**414**	**52**	133	13	198	**993**
08:00 AM	14	162	17	193	30	59	11	100	7	242	39	288	49	140	13	202	783
08:15 AM	12	**216**	**40**	268	29	56	13	98	10	263	54	327	44	115	12	171	864
Total Volume	56	796	121	973	125	263	52	440	43	1052	240	1335	195	570	51	816	3564
% App. Total	5.8	81.8	12.4		28.4	59.8	11.8		3.2	78.8	18		23.9	69.9	6.2		
PHF	.636	.921	.756	.894	.893	.854	.619	.827	.489	.851	.723	.806	.938	.783	.981	.833	.897

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Weather: Clear

File Name : 02_ANAEUBWAM
Site Code : 07517232
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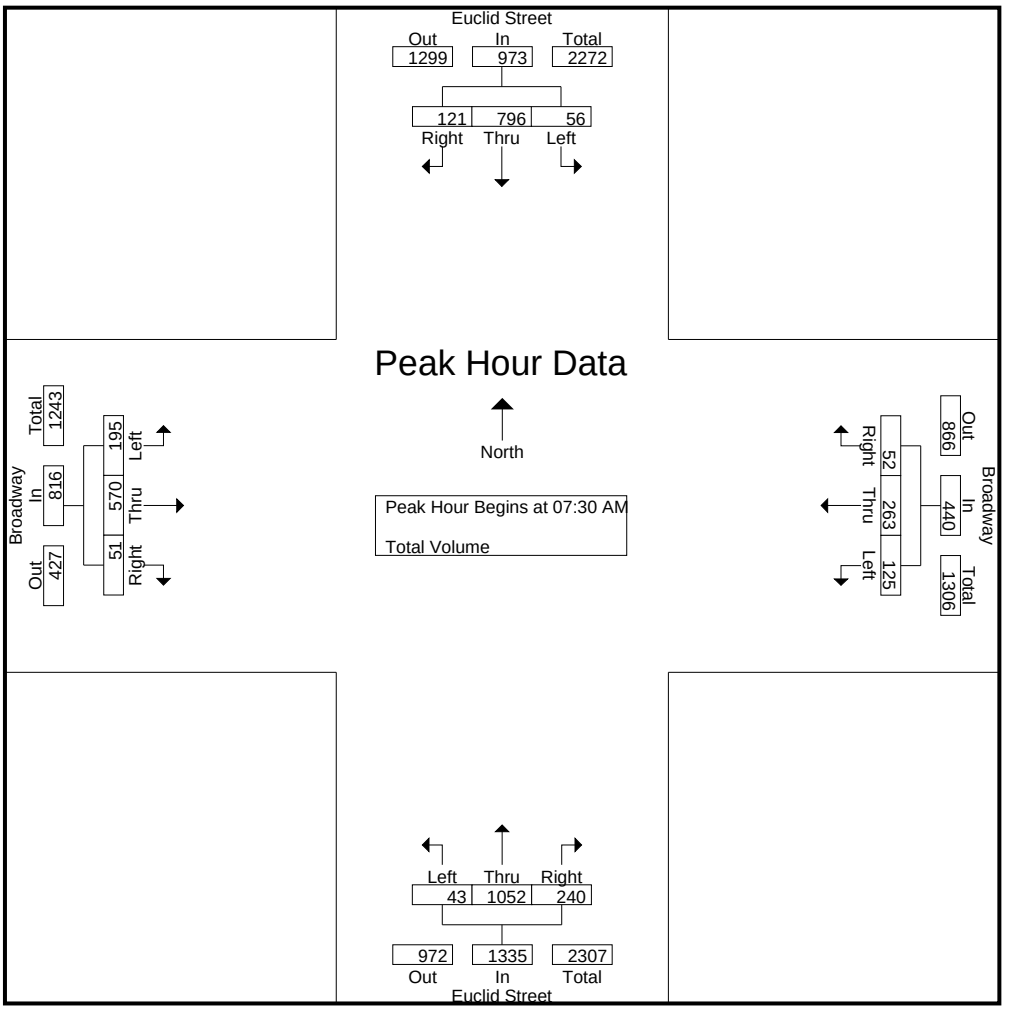

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:30 AM				07:15 AM				07:30 AM				07:15 AM			
+0 mins.	8	207	25	240	20	**78**	16	114	4	238	64	306	46	121	11	178
+15 mins.	**22**	211	39	**272**	**35**	77	**21**	**133**	**22**	**309**	**83**	**414**	50	**182**	**13**	**245**
+30 mins.	14	162	17	193	31	71	7	109	7	242	39	288	**52**	133	13	198
+45 mins.	12	**216**	**40**	268	30	59	11	100	10	263	54	327	49	140	13	202
Total Volume	56	796	121	973	116	285	55	456	43	1052	240	1335	197	576	50	823
% App. Total	5.8	81.8	12.4		25.4	62.5	12.1		3.2	78.8	18		23.9	70	6.1	
PHF	.636	.921	.756	.894	.829	.913	.655	.857	.489	.851	.723	.806	.947	.791	.962	.840

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City of Anaheim
N/S: Euclid Street
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Weather: Clear

File Name : 02_ANAEUBWPM
Site Code : 07517232
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Groups Printed- Total Volume

	Euclid Street Southbound				Broadway Westbound				Euclid Street Northbound				Broadway 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	22	320	69	411	41	117	28	186	27	283	43	353	36	72	22	130	1080
04:15 PM	29	257	72	358	34	140	20	194	24	255	76	355	39	94	18	151	1058
04:30 PM	29	357	92	478	39	114	26	179	30	323	77	430	35	104	18	157	1244
04:45 PM	24	330	81	435	49	138	24	211	26	315	41	382	43	98	17	158	1186
Total	104	1264	314	1682	163	509	98	770	107	1176	237	1520	153	368	75	596	4568
05:00 PM	23	310	81	414	45	136	24	205	34	322	55	411	37	99	15	151	1181
05:15 PM	26	323	79	428	48	142	28	218	26	293	61	380	43	137	20	200	1226
05:30 PM	32	355	77	464	46	125	23	194	36	314	56	406	44	97	12	153	1217
05:45 PM	27	312	75	414	59	136	22	217	37	278	60	375	55	116	12	183	1189
Total	108	1300	312	1720	198	539	97	834	133	1207	232	1572	179	449	59	687	4813
Grand Total	212	2564	626	3402	361	1048	195	1604	240	2383	469	3092	332	817	134	1283	9381
Apprch %	6.2	75.4	18.4		22.5	65.3	12.2		7.8	77.1	15.2		25.9	63.7	10.4		
Total %	2.3	27.3	6.7	36.3	3.8	11.2	2.1	17.1	2.6	25.4	5	33	3.5	8.7	1.4	13.7	

	Euclid Street Southbound				Broadway Westbound				Euclid Street Northbound				Broadway 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	**29**	**357**	**92**	**478**	39	114	26	179	30	**323**	**77**	**430**	35	104	18	157	**1244**
04:45 PM	24	330	81	435	**49**	138	24	211	26	315	41	382	**43**	98	17	158	1186
05:00 PM	23	310	81	414	45	136	24	205	**34**	322	55	411	37	99	15	151	1181
05:15 PM	26	323	79	428	48	**142**	**28**	**218**	26	293	61	380	43	**137**	**20**	**200**	1226
Total Volume	102	1320	333	1755	181	530	102	813	116	1253	234	1603	158	438	70	666	4837
% App. Total	5.8	75.2	19		22.3	65.2	12.5		7.2	78.2	14.6		23.7	65.8	10.5		
PHF	.879	.924	.905	.918	.923	.933	.911	.932	.853	.970	.760	.932	.919	.799	.875	.833	.972

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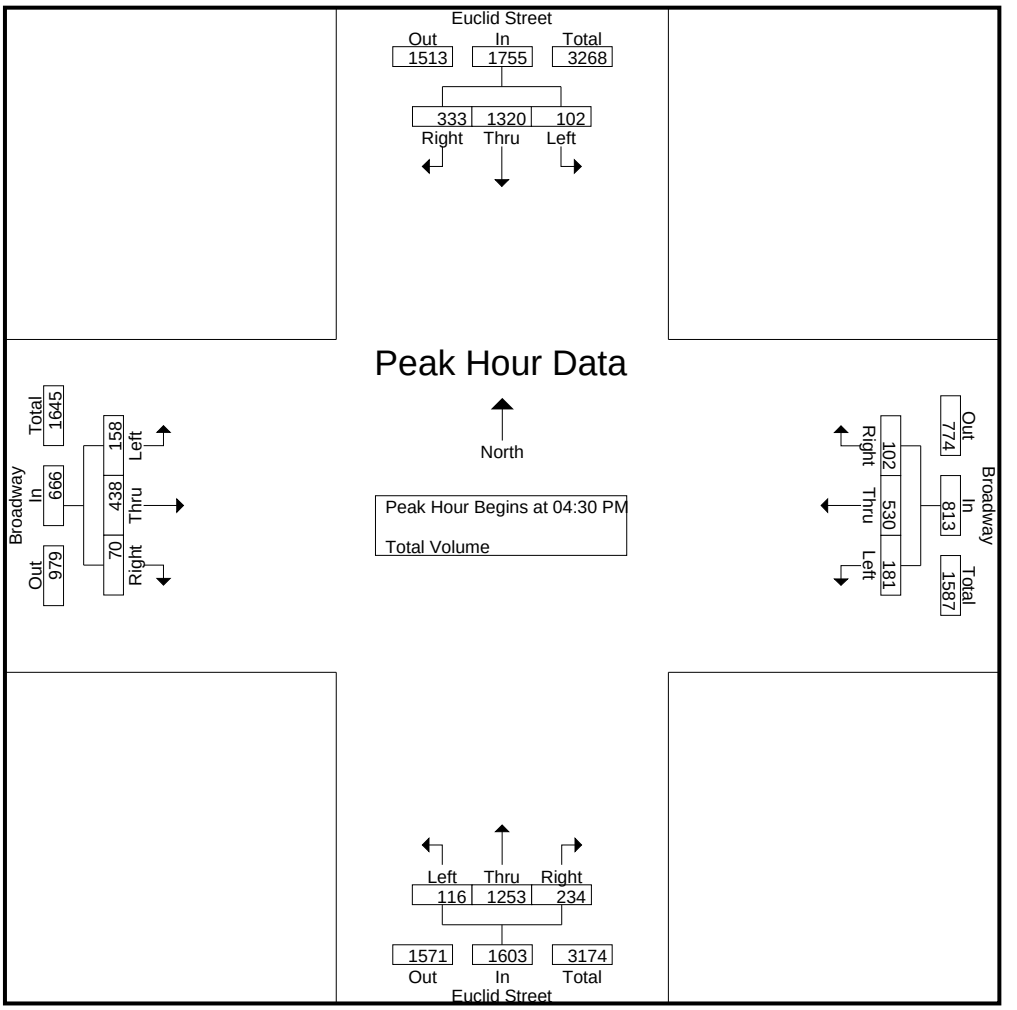

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				05:00 PM				04:30 PM				05:00 PM			
+0 mins.	**29**	**357**	**92**	**478**	45	136	24	205	30	**323**	**77**	**430**	37	99	15	151
+15 mins.	24	330	81	435	48	**142**	**28**	**218**	26	315	41	382	43	**137**	**20**	**200**
+30 mins.	23	310	81	414	46	125	23	194	**34**	322	55	411	44	97	12	153
+45 mins.	26	323	79	428	**59**	136	22	217	26	293	61	380	**55**	116	12	183
Total Volume	102	1320	333	1755	198	539	97	834	116	1253	234	1603	179	449	59	687
% App. Total	5.8	75.2	19		23.7	64.6	11.6		7.2	78.2	14.6		26.1	65.4	8.6	
PHF	.879	.924	.905	.918	.839	.949	.866	.956	.853	.970	.760	.932	.814	.819	.738	.859

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City of Anaheim
N/S: Euclid Street
E/W: Orange Avenue/Smile Brite Dental DW
Weather: Clear

File Name : 03_ANAEUORAM
Site Code : 07517232
Start Date : 4/14/2017
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Groups Printed- Total Volume

	Euclid Street Southbound				Smile Brite Dental Driveway Westbound				Euclid Street Northbound				Orange 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	1	220	7	228	0	0	0	0	5	202	2	209	17	0	21	38	475
07:15 AM	3	231	9	243	0	0	0	0	9	279	0	288	36	0	23	59	590
07:30 AM	3	251	9	263	0	0	0	0	7	283	0	290	47	0	32	79	632
07:45 AM	2	242	9	253	0	0	0	0	8	341	2	351	56	0	16	72	676
Total	9	944	34	987	0	0	0	0	29	1105	4	1138	156	0	92	248	2373
08:00 AM	3	197	8	208	0	0	0	0	7	264	0	271	35	0	12	47	526
08:15 AM	4	226	11	241	0	0	0	0	3	293	0	296	32	1	19	52	589
08:30 AM	0	213	10	223	0	0	0	0	5	276	0	281	26	0	15	41	545
08:45 AM	2	249	15	266	0	0	0	0	13	312	0	325	29	0	10	39	630
Total	9	885	44	938	0	0	0	0	28	1145	0	1173	122	1	56	179	2290
Grand Total	18	1829	78	1925	0	0	0	0	57	2250	4	2311	278	1	148	427	4663
Apprch %	0.9	95	4.1		0	0	0		2.5	97.4	0.2		65.1	0.2	34.7		
Total %	0.4	39.2	1.7	41.3	0	0	0	0	1.2	48.3	0.1	49.6	6	0	3.2	9.2	

	Euclid Street Southbound				Smile Brite Dental Driveway Westbound				Euclid Street Northbound				Orange 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	**3**	231	**9**	243	0	0	0	0	**9**	279	0	288	36	0	23	59	590
07:30 AM	3	**251**	9	**263**	0	0	0	0	7	283	0	290	47	0	**32**	**79**	632
07:45 AM	2	242	9	253	0	0	0	0	8	**341**	**2**	**351**	**56**	0	16	72	**676**
08:00 AM	3	197	8	208	0	0	0	0	7	264	0	271	35	0	12	47	526
Total Volume	11	921	35	967	0	0	0	0	31	1167	2	1200	174	0	83	257	2424
% App. Total	1.1	95.2	3.6		0	0	0		2.6	97.2	0.2		67.7	0	32.3		
PHF	.917	.917	.972	.919	.000	.000	.000	.000	.861	.856	.250	.855	.777	.000	.648	.813	.896

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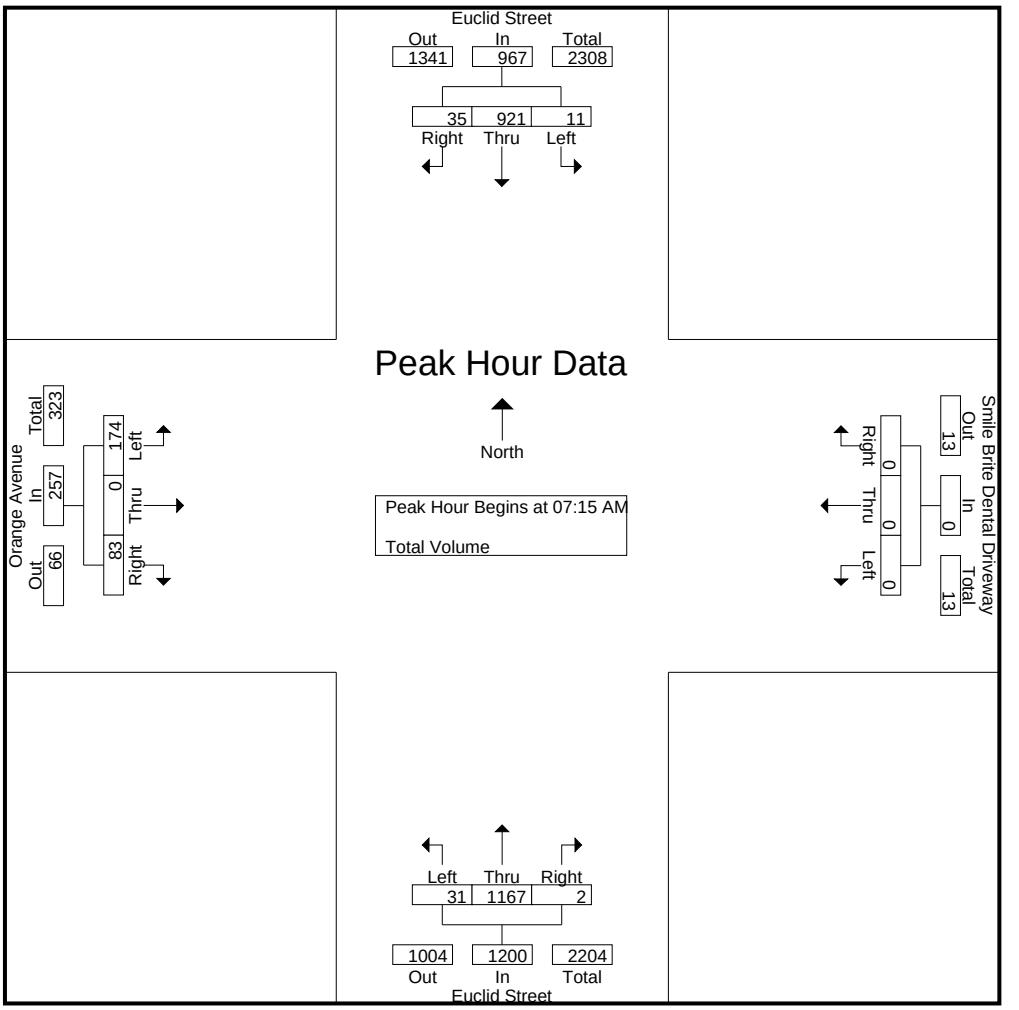

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:00 AM				07:30 AM				07:15 AM			
+0 mins.	1	220	7	228	0	0	0	0	7	283	0	290	36	0	23	59
+15 mins.	**3**	231	**9**	243	0	0	0	0	**8**	**341**	**2**	**351**	47	0	**32**	**79**
+30 mins.	3	**251**	9	**263**	0	0	0	0	7	264	0	271	**56**	0	16	72
+45 mins.	2	242	9	253	0	0	0	0	3	293	0	296	35	0	12	47
Total Volume	9	944	34	987	0	0	0	0	25	1181	2	1208	174	0	83	257
% App. Total	0.9	95.6	3.4		0	0	0		2.1	97.8	0.2		67.7	0	32.3	
PHF	.750	.940	.944	.938	.000	.000	.000	.000	.781	.866	.250	.860	.777	.000	.648	.813

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Groups Printed- Total Volume

	Euclid Street Southbound				Smile Brite Dental Driveway Westbound				Euclid Street Northbound				Orange 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	1	329	33	363	0	0	0	0	23	357	0	380	29	0	19	48	791
04:15 PM	0	300	23	323	1	0	1	2	26	338	0	364	27	0	29	56	745
04:30 PM	4	371	35	410	0	0	0	0	28	403	0	431	23	1	25	49	890
04:45 PM	2	366	36	404	0	0	0	0	22	323	1	346	34	0	38	72	822
Total	7	1366	127	1500	1	0	1	2	99	1421	1	1521	113	1	111	225	3248
05:00 PM	2	338	23	363	0	0	0	0	17	380	1	398	35	1	22	58	819
05:15 PM	1	365	23	389	0	0	0	0	21	367	0	388	33	0	27	60	837
05:30 PM	2	373	18	393	0	0	0	0	23	353	0	376	28	0	40	68	837
05:45 PM	1	376	19	396	0	0	0	0	17	399	0	416	30	0	24	54	866
Total	6	1452	83	1541	0	0	0	0	78	1499	1	1578	126	1	113	240	3359
Grand Total	13	2818	210	3041	1	0	1	2	177	2920	2	3099	239	2	224	465	6607
Apprch %	0.4	92.7	6.9		50	0	50		5.7	94.2	0.1		51.4	0.4	48.2		
Total %	0.2	42.7	3.2	46	0	0	0	0	2.7	44.2	0	46.9	3.6	0	3.4	7	

	Euclid Street Southbound				Smile Brite Dental Driveway Westbound				Euclid Street Northbound				Orange 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	**4**	**371**	35	**410**	0	0	0	0	**28**	**403**	0	**431**	23	**1**	25	49	**890**
04:45 PM	2	366	**36**	404	0	0	0	0	22	323	**1**	346	34	0	**38**	**72**	822
05:00 PM	2	338	23	363	0	0	0	0	17	380	1	398	**35**	1	22	58	819
05:15 PM	1	365	23	389	0	0	0	0	21	367	0	388	33	0	27	60	837
Total Volume	9	1440	117	1566	0	0	0	0	88	1473	2	1563	125	2	112	239	3368
% App. Total	0.6	92	7.5		0	0	0		5.6	94.2	0.1		52.3	0.8	46.9		
PHF	.563	.970	.813	.955	.000	.000	.000	.000	.786	.914	.500	.907	.893	.500	.737	.830	.946

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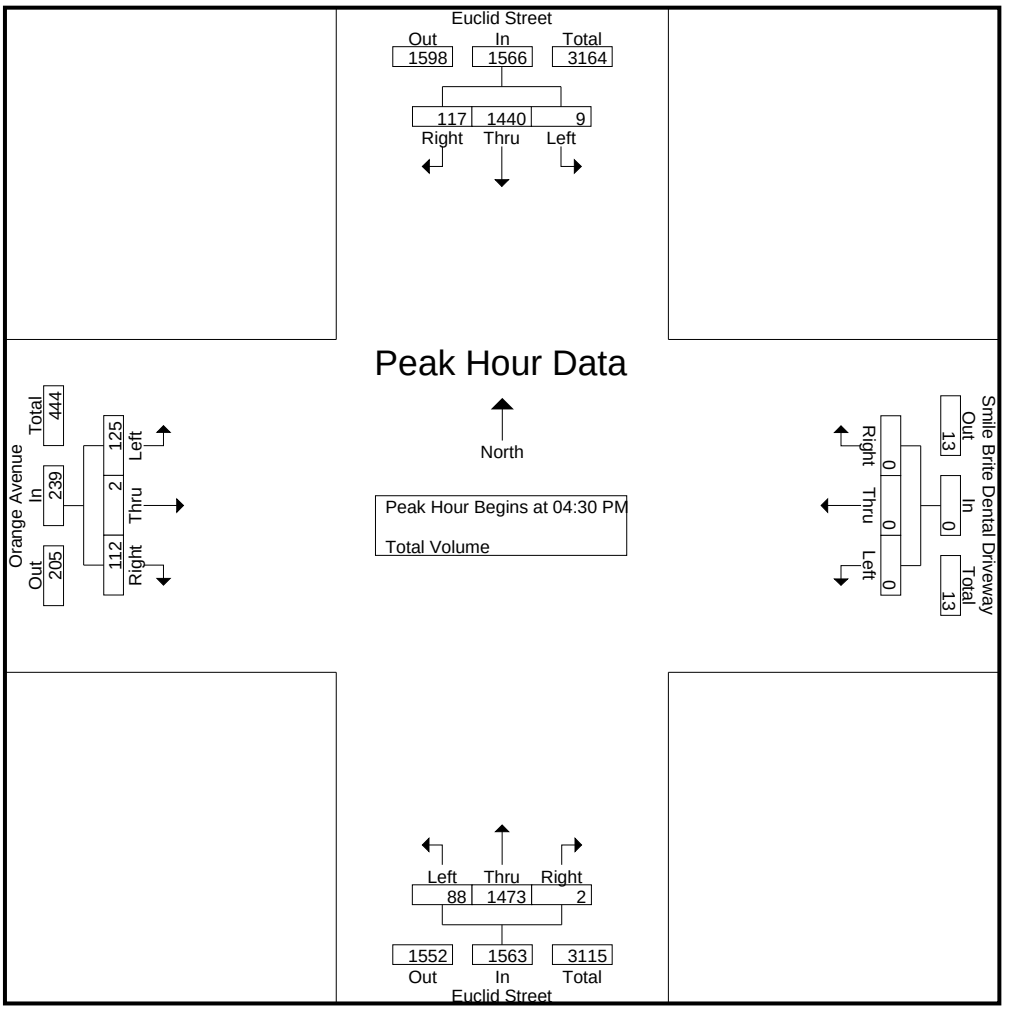

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	04:30 PM				04:00 PM				05:00 PM				04:45 PM			
+0 mins.	**4**	**371**	35	**410**	0	0	0	0	17	380	**1**	398	34	0	38	**72**
+15 mins.	2	366	**36**	404	**1**	0	**1**	**2**	21	367	0	388	**35**	**1**	22	58
+30 mins.	2	338	23	363	0	0	0	0	**23**	353	0	376	33	0	27	60
+45 mins.	1	365	23	389	0	0	0	0	17	**399**	0	**416**	28	0	**40**	68
Total Volume	9	1440	117	1566	1	0	1	2	78	1499	1	1578	130	1	127	258
% App. Total	0.6	92	7.5		50	0	50		4.9	95	0.1		50.4	0.4	49.2	
PHF	.563	.970	.813	.955	.250	.000	.250	.250	.848	.939	.250	.948	.929	.250	.794	.896

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Groups Printed- Total Volume

	Loara Street Southbound				Broadway Westbound				Loara Street Northbound				Broadway 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	3	13	3	19	2	68	5	75	13	35	6	54	33	130	8	171	319
07:15 AM	2	14	6	22	7	99	3	109	8	34	14	56	39	141	8	188	375
07:30 AM	1	24	10	35	14	100	3	117	17	46	17	80	47	187	18	252	484
07:45 AM	3	17	5	25	8	81	6	95	11	40	11	62	41	194	17	252	434
Total	9	68	24	101	31	348	17	396	49	155	48	252	160	652	51	863	1612
08:00 AM	3	12	4	19	4	83	3	90	8	29	11	48	32	141	11	184	341
08:15 AM	1	13	5	19	7	85	4	96	9	37	20	66	43	126	7	176	357
08:30 AM	1	12	9	22	12	88	4	104	7	25	6	38	30	122	6	158	322
08:45 AM	0	15	5	20	11	80	3	94	6	33	10	49	32	108	5	145	308
Total	5	52	23	80	34	336	14	384	30	124	47	201	137	497	29	663	1328
Grand Total	14	120	47	181	65	684	31	780	79	279	95	453	297	1149	80	1526	2940
Apprch %	7.7	66.3	26		8.3	87.7	4		17.4	61.6	21		19.5	75.3	5.2		
Total %	0.5	4.1	1.6	6.2	2.2	23.3	1.1	26.5	2.7	9.5	3.2	15.4	10.1	39.1	2.7	51.9	

	Loara Street Southbound				Broadway Westbound				Loara Street Northbound				Broadway 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	2	14	6	22	7	99	3	109	8	34	14	56	39	141	8	188	375
07:30 AM	1	**24**	**10**	**35**	**14**	**100**	3	**117**	**17**	**46**	**17**	**80**	**47**	187	**18**	**252**	**484**
07:45 AM	**3**	17	5	25	8	81	**6**	95	11	40	11	62	41	**194**	17	252	434
08:00 AM	3	12	4	19	4	83	3	90	8	29	11	48	32	141	11	184	341
Total Volume	9	67	25	101	33	363	15	411	44	149	53	246	159	663	54	876	1634
% App. Total	8.9	66.3	24.8		8	88.3	3.6		17.9	60.6	21.5		18.2	75.7	6.2		
PHF	.750	.698	.625	.721	.589	.908	.625	.878	.647	.810	.779	.769	.846	.854	.750	.869	.844

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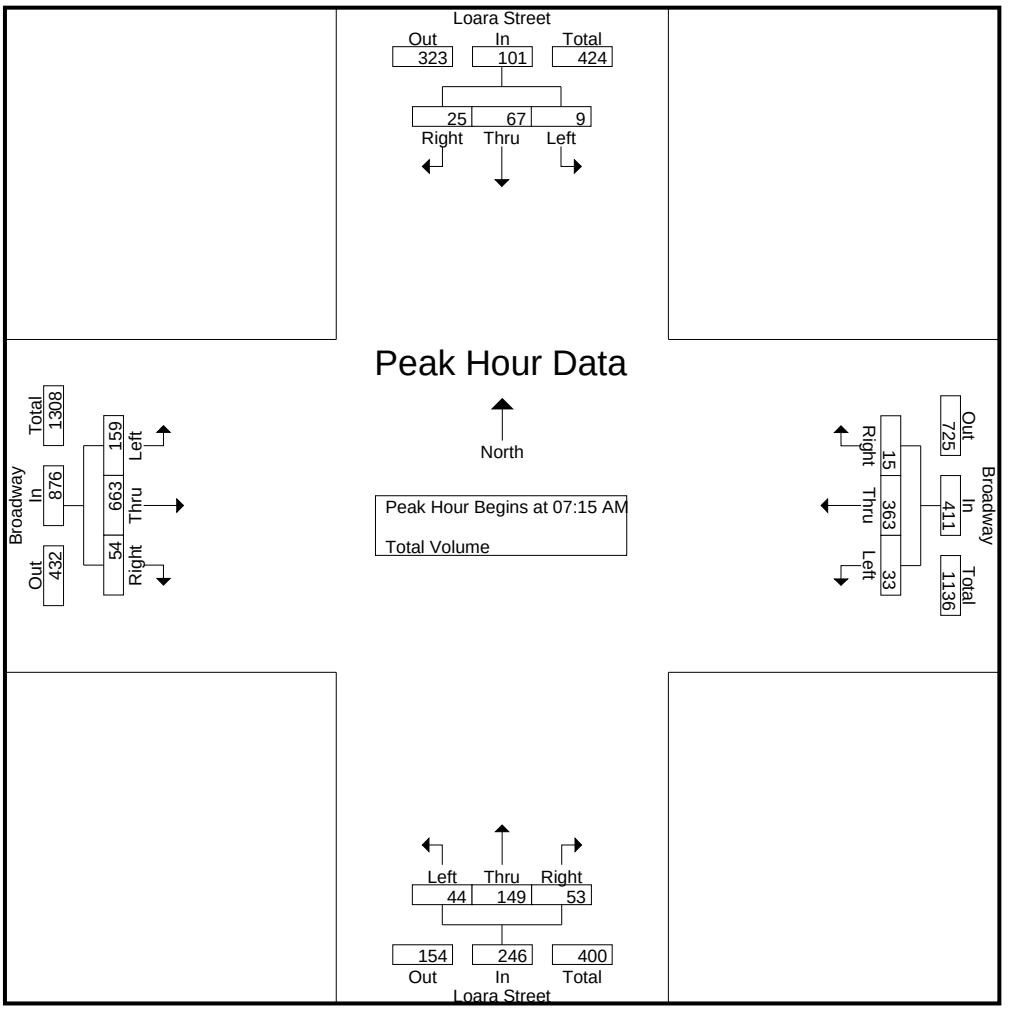

Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	07:00 AM				07:15 AM				07:30 AM				07:15 AM			
+0 mins.	**3**	13	3	19	7	99	3	109	**17**	**46**	17	**80**	39	141	8	188
+15 mins.	2	14	6	22	**14**	**100**	3	**117**	11	40	11	62	**47**	187	**18**	**252**
+30 mins.	1	**24**	**10**	**35**	8	81	**6**	95	8	29	11	48	41	**194**	17	252
+45 mins.	3	17	5	25	4	83	3	90	9	37	**20**	66	32	141	11	184
Total Volume	9	68	24	101	33	363	15	411	45	152	59	256	159	663	54	876
% App. Total	8.9	67.3	23.8		8	88.3	3.6		17.6	59.4	23		18.2	75.7	6.2	
PHF	.750	.708	.600	.721	.589	.908	.625	.878	.662	.826	.738	.800	.846	.854	.750	.869

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Groups Printed- Total Volume

	Loara Street Southbound				Broadway Westbound				Loara Street Northbound				Broadway 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	1	35	16	52	21	159	2	182	5	24	12	41	11	114	16	141	416
04:15 PM	3	42	25	70	15	162	2	179	11	27	19	57	24	142	27	193	499
04:30 PM	4	41	22	67	21	162	8	191	10	26	8	44	35	157	23	215	517
04:45 PM	4	37	23	64	21	169	4	194	5	24	8	37	13	148	8	169	464
Total	12	155	86	253	78	652	16	746	31	101	47	179	83	561	74	718	1896
05:00 PM	6	40	19	65	23	208	1	232	6	27	6	39	19	148	19	186	522
05:15 PM	5	54	15	74	24	183	3	210	7	28	11	46	21	171	20	212	542
05:30 PM	6	54	22	82	28	176	3	207	10	32	13	55	22	155	20	197	541
05:45 PM	6	46	19	71	20	170	5	195	10	39	13	62	25	154	9	188	516
Total	23	194	75	292	95	737	12	844	33	126	43	202	87	628	68	783	2121
Grand Total	35	349	161	545	173	1389	28	1590	64	227	90	381	170	1189	142	1501	4017
Apprch %	6.4	64	29.5		10.9	87.4	1.8		16.8	59.6	23.6		11.3	79.2	9.5		
Total %	0.9	8.7	4	13.6	4.3	34.6	0.7	39.6	1.6	5.7	2.2	9.5	4.2	29.6	3.5	37.4	

	Loara Street Southbound				Broadway Westbound				Loara Street Northbound				Broadway 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 05:00 PM																	
05:00 PM	**6**	40	19	65	23	**208**	1	**232**	6	27	6	39	19	148	19	186	522
05:15 PM	5	**54**	15	74	24	183	3	210	7	28	11	46	21	**171**	**20**	**212**	**542**
05:30 PM	6	54	**22**	**82**	**28**	176	3	207	**10**	32	**13**	55	22	155	20	197	541
05:45 PM	6	46	19	71	20	170	**5**	195	10	**39**	13	**62**	**25**	154	9	188	516
Total Volume	23	194	75	292	95	737	12	844	33	126	43	202	87	628	68	783	2121
% App. Total	7.9	66.4	25.7		11.3	87.3	1.4		16.3	62.4	21.3		11.1	80.2	8.7		
PHF	.958	.898	.852	.890	.848	.886	.600	.909	.825	.808	.827	.815	.870	.918	.850	.923	.978

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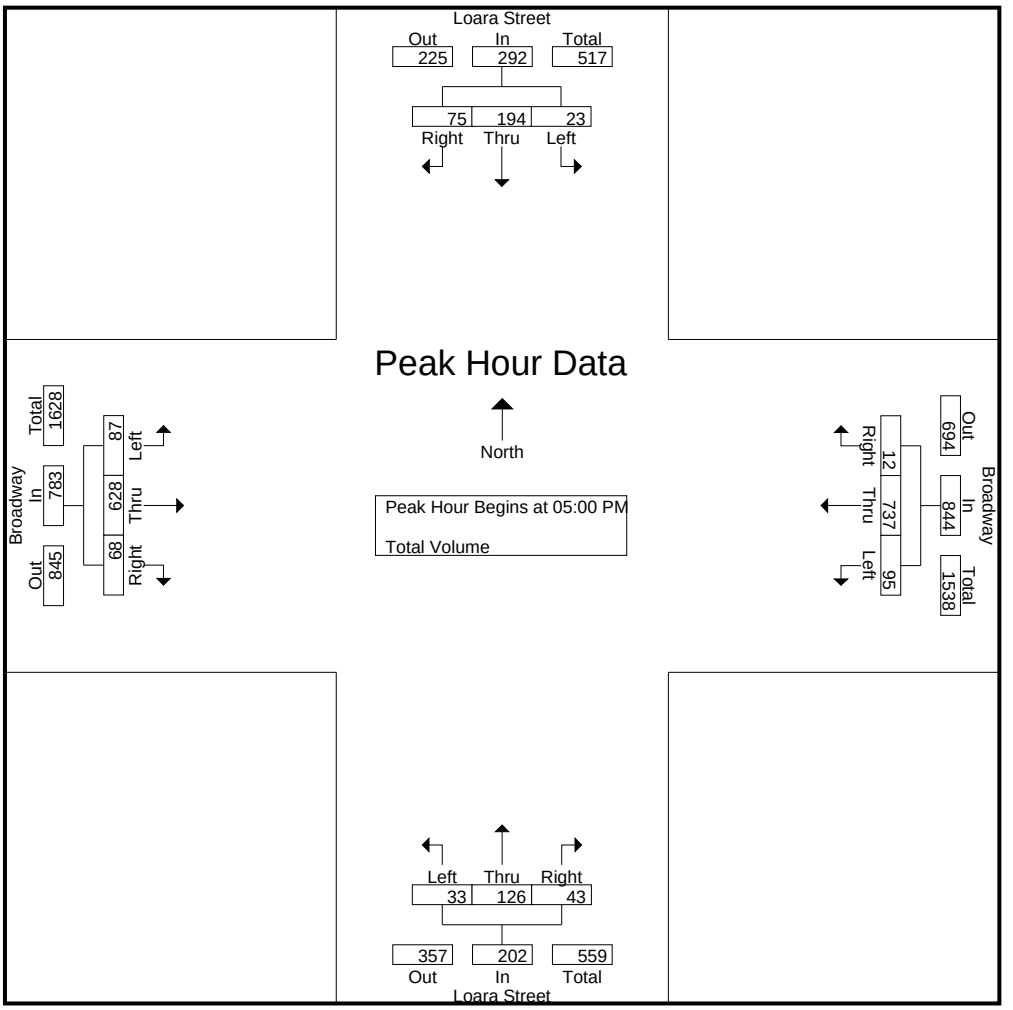

Peak Hour Analysis From 04:00 PM to 05:45 PM - Peak 1 of 1
Peak Hour for Each Approach Begins at:

	05:00 PM				05:00 PM				05:00 PM				05:00 PM			
+0 mins.	**6**	40	19	65	23	**208**	1	**232**	6	27	6	39	19	148	19	186
+15 mins.	5	**54**	15	74	24	183	3	210	7	28	11	46	21	**171**	**20**	**212**
+30 mins.	6	54	**22**	**82**	**28**	176	3	207	**10**	32	**13**	55	22	155	20	197
+45 mins.	6	46	19	71	20	170	**5**	195	10	**39**	13	**62**	**25**	154	9	188
Total Volume	23	194	75	292	95	737	12	844	33	126	43	202	87	628	68	783
% App. Total	7.9	66.4	25.7		11.3	87.3	1.4		16.3	62.4	21.3		11.1	80.2	8.7	
PHF	.958	.898	.852	.890	.848	.886	.600	.909	.825	.808	.827	.815	.870	.918	.850	.923

APPENDIX C

General Plan Buildout Traffic Volumes

AM Peak Hour	NBL	NBT	NBR		SBL	SBT	SBR		EBL	EBT	EBR		WBL	WBT	WBR
Brookhurst St / Broadway	78	972	275		91	1,435	116		216	537	108		126	262	59
Euclid St / Broadway	100	1,313	203		225	1,281	127		236	839	80		128	274	113
Euclid St / Orange Ave	34	1,459	15		4	1,685	44		123	0	124		0	0	0
Loara St / Broadway	67	301	90		51	232	39		222	939	133		44	452	102

PM Peak Hour	NBL	NBT	NBR		SBL	SBT	SBR		EBL	EBT	EBR		WBL	WBT	WBR
Brookhurst St / Broadway	86	1,362	154		105	1,606	196		118	299	74		169	684	121
Euclid St / Broadway	121	1,369	206		114	1,416	344		226	255	88		222	678	142
Euclid St / Orange Ave	34	1,659	2		0	1,664	56		89	0	85		0	0	0
Loara St / Broadway	71	302	95		17	316	135		46	439	63		113	813	40

Street	From Location	To Location	2035 Forecast ADT
BROADWAY	NUTWOOD ST	EUCLID ST	17,900
BROADWAY	EUCLID ST	MANCHESTER AVE	16,100
EUCLID ST	ORANGE AVE	BROADWAY	41,900
EUCLID ST	BROADWAY	LINCOLN AVE	45,000

APPENDIX D

Explanation and Calculation of Intersection Capacity Utilization

EXPLANATION AND CALCULATION OF
INTERSECTION CAPACITY UTILIZATION

Overview

The ability of a roadway to carry traffic is referred to as capacity. The capacity is usually greater between intersections and less at intersections because traffic flows continuously between them and only during the green phase at them. Capacity at intersections is best defined in terms of vehicles per lane per hour of green. If capacity is 1,600 vehicles per lane per hour of green, and if the green phase is 50 percent of the cycle and there are three lanes, then the capacity is 1,600 times 50 percent times 3 lanes, or 2,400 vehicles per hour for that approach.

The technique used to compare the volume and capacity at a signalized intersection is known as Intersection Capacity Utilization. Intersection Capacity Utilization, usually expressed as a percent, is the proportion of an hour required to provide sufficient capacity to accommodate all intersection traffic if all approaches operate at capacity. If an intersection is operating at 80 percent of capacity (i.e., an Intersection Capacity Utilization of 80 percent), then 20 percent of the signal cycle is not used. The signal could show red on all indications 20 percent of the time and the signal would just accommodate approaching traffic.

Intersection Capacity Utilization analysis consists of (a) determining the proportion of signal time needed to serve each conflicting movement of traffic, (b) summing the times for the movements, and (c) comparing the total time required to the total time available. For example, if for north-south traffic the northbound traffic is 1,600 vehicles per hour, the southbound traffic is 1,200 vehicles per hour, and the capacity of either direction is 3,200 vehicles per hour, then the northbound traffic is critical and requires 1,600/3,200 or 50 percent of the signal time. If for east-west traffic, 30 percent of the signal time is required, then it can be seen that the Intersection Capacity Utilization is 50 plus 30, or 80 percent. When left turn arrows (left turn phasing) exist, they are incorporated into the analysis. The critical movements are usually the heavy left turn movements and the opposing through movements.

The Intersection Capacity Utilization technique is an ideal tool to quantify existing as well as future intersection operation. The impact of adding a lane can be quickly determined by examining the effect the lane has on the Intersection Capacity Utilization.

Intersection Capacity Utilization Worksheets That Follow This Discussion

The Intersection Capacity Utilization worksheet table contains the following information:

1. Peak hour turning movement volumes.

2. Number of lanes that serve each movement.

3. For right turn lanes, whether the lane is a free right turn lane, whether it has a right turn arrow, and the percent of right turns on red that are assumed.

4. Capacity assumed per lane.

5. Capacity available to serve each movement (number of lanes times capacity per lane).

6. Volume to capacity ratio for each movement.

7. Whether the movement's volume to capacity ratio is critical and adds to the Intersection Capacity Utilization value.

8. The yellow time or clearance interval assumed.

9. Adjustments for right turn movements.

10. The Intersection Capacity Utilization and Level of Service.

The Intersection Capacity Utilization Worksheet also has two graphics on the same page. These two graphics show the following:

1. Peak hour turning movement volumes.

2. Number of lanes that serve each movement.

3. The approach and exit leg volumes.

4. The two-way leg volumes.

5. An estimate of daily traffic volumes that is fairly close to actual counts and is based strictly on the peak hour leg volumes multiplied by a factor.

6. Percent of daily traffic in peak hours.

7. Percent of peak hour leg volume that is inbound versus outbound.

A more detailed discussion of Intersection Capacity Utilization and Level of Service follows.

Level of Service

Level of Service is used to describe the quality of traffic flow. Levels of Service A to C operate quite well. Level of Service C is typically the standard to which rural roadways are designed.

Level of Service D is characterized by fairly restricted traffic flow. Level of Service D is the standard to which urban roadways are typically designed. Level of Service E is the maximum volume a facility can accommodate and will result in possible stoppages of momentary duration. Level of Service F occurs when a facility is overloaded and is characterized by stop-and-go traffic with stoppages of long duration.

A description of the various Levels of Service appears at the end of the Intersection Capacity Utilization description, along with the relationship between Intersection Capacity Utilization and Level of Service.

Signalized Intersections

Although calculating an Intersection Capacity Utilization value for an unsignalized intersection is invalid, the presumption is that a signal can be installed and the calculation shows whether the geometrics are capable of accommodating the expected volumes with a signal. A traffic signal becomes warranted before Level of Service D is reached for a signalized intersection.

Signal Timing

The Intersection Capacity Utilization calculation assumes that a signal is properly timed. It is possible to have an Intersection Capacity Utilization well below 100 percent, yet have severe traffic congestion. This would occur if one or more movements is not getting sufficient green time to satisfy its demand, and excess green time exists on other movements. This is an operational problem that should be remedied.

Lane Capacity

Capacity is often defined in terms of roadway width; however, standard lanes have approximately the same capacity whether they are 11 or 14 feet wide. Our data indicates a typical lane, whether a through lane or a left turn lane, has a capacity of

approximately 1,750 vehicles per hour of green time, with nearly all locations showing a capacity greater than 1,600 vehicles per hour of green per lane. Right turn lanes have a slightly lower capacity; however 1,600 vehicles per hour is a valid capacity assumption for right turn lanes.

This finding is published in the August 1978 issue of Institute of Transportation Engineers Journal in the article entitled, "Another Look at Signalized Intersection Capacity" by William Kunzman. A capacity of 1,600 vehicles per hour per lane with no yellow time penalty, or 1,700 vehicles per hour with a 3 or 5 percent yellow time penalty is reasonable.

Yellow Time

The yellow time can either be assumed to be completely used and no penalty applied, or it can be assumed to be only partially usable. Total yellow time accounts for approximately 10 percent of a signal cycle, and a penalty of 3 to 5 percent is reasonable.

During peak hour traffic operation the yellow times are nearly completely used. If there is no left turn phasing, the left turn vehicles completely use the yellow time. Even if there is left turn phasing, the through traffic continues to enter the intersection on the yellow until just a split second before the red.

Shared Lanes

Shared lanes occur in many locations. A shared lane is often found at the end of an off ramp where the ramp forms an intersection with the cross street. Often at a diamond interchange off ramp, there are three lanes. In the case of a diamond interchange, the middle lane is sometimes shared, and the driver can turn left, go through, or turn right from that lane.

If one assumes a three lane off ramp as described above, and if one assumes that each lane has 1,600 capacity, and if one assumes that there are 1,000 left turns per hour, 500 right turns per hour, and 100 through vehicles per hour, then how should one assume that the three lanes operate. There are three ways that it is done.

One way is to just assume that all 1,600 vehicles (1,000 plus 500 plus 100) are served simultaneously by three lanes. When this is done, the capacity is 3 times 1,600 or 4,800, and the amount of green time needed to serve the ramp is 1,600 vehicles divided by 4,800 capacity or 33.3 percent. This assumption effectively assumes perfect lane distribution between the three lanes that is not realistic. It also means a left turn can be made from the right lane.

Another way is to equally split the capacity of a shared lane and in this case to assume there are 1.33 left turn lanes, 1.33 right turn lanes, and 0.33 through lanes. With this assumption, the critical movement is the left turns and the 1,000 left turns are served by a capacity of 1.33 times 1,600, or 2,133. The volume to capacity ratio of the critical move is 1,000 divided by 2,133 or 46.9 percent.

The first method results in a critical move of 33.3 percent and the second method results in a critical move of 46.9 percent. Neither is very accurate, and the difference in the calculated Level of Service will be approximately 1.5 Levels of Service (one Level of Service is 10 percent).

The way Kunzman Associates does it is to assign fractional lanes in a reasonable way. In this example, it would be assumed that there is 1.1 right turn lanes, 0.2 through lanes, and 1.7 left turn lanes. The volume to capacity ratios for each movement would be 31.3 percent for the through traffic, 28.4 percent for the right turn movement, and 36.8 percent for the left turn movement. The critical movement would be the 36.8 percent for the left turns.

Right Turn on Red

Kunzman Associates' software treats right turn lanes in one of five different ways. Each right turn lane is classified into one of five cases. The five cases are (1) free right turn lane, (2) right turn lane with separate right turn arrow, (3) standard right turn lane with no right turns on red allowed, (4) standard right turn lane with a certain percentage of right turns on red allowed, and (5) separate right turn arrow and a certain percentage of right turns on red allowed.

Free Right Turn Lane

If it is a free right turn lane, then it is given a capacity of one full lane with continuous or 100 percent green time. A Free right turn lane occurs when there is a separate approach lane for right turning vehicles, there is a separate departure lane for the right turning vehicles after they turn and are exiting the intersection, and the through cross street traffic does not interfere with the vehicles after they turn right.

Separate Right Turn Arrow

If there is a separate right turn arrow, then it is assumed that vehicles are given a green indication and can proceed on what is known as the left turn overlap.

The left turn overlap for a northbound right turn is the westbound left turn. When the left turn overlap has a green indication, the right turn lane is also given a green arrow

indication. Thus, if there is a northbound right turn arrow, then it can be turned green for the period of time that the westbound left turns are proceeding.

If there are more right turns than can be accommodated during the northbound through green and the time that the northbound right turn arrow is on, then an adjustment is made to the Intersection Capacity Utilization to account for the green time that needs to be added to the northbound through green to accommodate the northbound right turns.

Standard Right Turn Lane, No Right Turns on Red

A standard right turn lane, with no right turn on red assumed, proceeds only when there is a green indication displayed for the adjacent through movement. If additional green time is needed above that amount of time, then in the Intersection Capacity Utilization calculation a right turn adjustment green time is added above the green time that is needed to serve the adjacent through movement.

Standard Right Turn Lane, With Right Turns on Red

A standard right turn lane with say 20 percent of the right turns allowed to turn right on a red indication is calculated the same as the standard right turn case where there is no right turn on red allowed, except that the right turn adjustment is reduced to account for the 20 percent of the right turning vehicles that can logically turn right on a red light. The right turns on red are never allowed to exceed the time the overlap left turns take plus the unused part of the green cycle that the cross street traffic moving from left to right has.

As an example of how 20 percent of the cars are allowed to turn right on a red indication, assume that the northbound right turn volume needs 40 percent of the signal cycle to be satisfied. To allow 20 percent of the northbound right turns to turn right on red, then during 8 percent of the signal cycle (40 percent of signal cycle times 20 percent that can turn right on red) right turns on red will be allowed if it is feasible.

For this example, assume that 15 percent of the signal cycle is green for the northbound through traffic, and that means that 15 percent of the signal cycle is available to satisfy northbound right turns. After the northbound through traffic has received its green, 25 percent of the signal cycle is still needed to satisfy the northbound right turns (40 percent of the signal cycle minus the 15 percent of the signal cycle that the northbound through used).

Assume that the westbound left turns require a green time of 6 percent of the signal cycle. This 6 percent of the signal cycle is used by northbound right turns on red. After accounting for the northbound right turns that occur on the westbound overlap

left turn, 19 percent of the signal cycle is still needed for the northbound right turns (25 percent of the cycle was needed after the northbound through green time was accounted for [see above paragraph], and 6 percent was served during the westbound left turn overlap). Also, at this point 6 percent of the signal cycle has been used for northbound right turns on red, and still 2 percent more of the right turns will be allowed to occur on the red if there is unused eastbound through green time.

For purpose of this example, assume that the westbound through green is critical, and that 15 percent of the signal cycle is unused by eastbound through traffic. Thus, 2 percent more of the signal cycle can be used by the northbound right turns on red since there is 15 seconds of unused green time being given to the eastbound through traffic.

At this point, 8 percent of the signal cycle was available to serve northbound right turning vehicles on red, and 15 percent of the signal cycle was available to serve right turning vehicles on the northbound through green. So 23 percent of the signal cycle has been available for northbound right turns.

Because 40 percent of the signal cycle is needed to serve northbound right turns, there is still a need for 17 percent more of the signal cycle to be available for northbound right turns. What this means is the northbound through traffic green time is increased by 17 percent of the cycle length to serve the unserved right turn volume, and a 17 percent adjustment is added to the Intersection Capacity Utilization to account for the northbound right turns that were not served on the northbound through green time or when right turns on red were assumed.

Separate Right Turn Arrow, With Right Turns on Red

A right turn lane with a separate right turn arrow, plus a certain percentage of right turns allowed on red is calculated the same way as a standard right turn lane with a certain percentage of right turns allowed on red, except the turns which occur on the right turn arrow are not counted as part of the percentage of right turns that occur on red.

Critical Lane Method

Intersection Capacity Utilization parallels another calculation procedure known as the Critical Lane Method with one exception. Critical Lane Method dimensions capacity in terms of standardized vehicles per hour per lane. A Critical Lane Method result of 800 vehicles per hour means that the intersection operates as though 800 vehicles were using a single lane continuously. If one assumes a lane capacity of 1,600 vehicles per hour, then a Critical Lane Method calculation resulting in 800 vehicles per hour is the same as an Intersection Capacity Utilization calculation of 50 percent since 800/1,600

is 50 percent. It is our opinion that the Critical Lane Method is inferior to the Intersection Capacity Utilization method simply because a statement such as "The Critical Lane Method value is 800 vehicles per hour" means little to most persons, whereas a statement such as "The Intersection Capacity Utilization is 50 percent" communicates clearly. Critical Lane Method results directly correspond to Intersection Capacity Utilization results. The correspondence is as follows, assuming a lane capacity of 1,600 vehicles per hour and no clearance interval.

Critical Lane Method Method Result	**Intersection Capacity Utilization Result**
800 vehicles per hour	50 percent
960 vehicles per hour	60 percent
1,120 vehicles per hour	70 percent
1,280 vehicles per hour	80 percent
1,440 vehicles per hour	90 percent
1,600 vehicles per hour	100 percent
1,760 vehicles per hour	110 percent

INTERSECTION CAPACITY UTILIZATION
LEVEL OF SERVICE DESCRIPTION[1]

Level of Service	Description	Volume to Capacity Ratio
A	Level of Service A occurs when progression is extremely favorable and vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	0.600 and below
B	Level of Service B generally occurs with good progression and/or short cycle lengths. More vehicles stop than for Level of Service A, causing higher levels of average delay.	0.601 to 0.700
C	Level of Service C generally results when there is fair progression and/or longer cycle lengths. Individual cycle failures may begin to appear in this level. The number of vehicles stopping is significant at this level, although many still pass through the intersection without stopping.	0.701 to 0.800
D	Level of Service D generally results in noticeable congestion. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high volume to capacity ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	0.801 to 0.900
E	Level of Service E is considered to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high volume to capacity ratios. Individual cycle failures are frequent.	0.901 to 1.000
F	Level of Service F is considered to be unacceptable to most drivers. This condition often occurs when oversaturation (i.e., when arrival flow rates exceed the capacity of the intersection). It may also occur at high volume to capacity ratios below 1.00 with many individual cycle failures. Poor progression and long cycle lengths may also be major contributing causes to such delay levels.	1.001 and up

[1]Source: Highway Capacity Manual Special Report 209, Transportation Research Board, National Research Council, Washington D.C., 2010.

Existing

Vistro File: J:\...\AM E.vistro
Report File: J:\...\amE.pdf

Scenario 1 Existing
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	NB Right	0.489	-	A
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	NB Thru	0.649	-	B
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	NB Thru	0.503	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.404	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	829	133	61	776	37	102	466	58	103	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	829	133	61	776	37	102	466	58	103	282	75
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	207	33	15	194	9	26	117	15	26	71	19
Total Analysis Volume [veh/h]	55	829	133	61	776	37	102	466	58	103	282	75
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.19	0.19	0.04	0.16	0.16	0.06	0.15	0.15	0.06	0.11	0.11
Intersection LOS	A											
Intersection V/C	0.489											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.649

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	43	1052	240	56	796	121	195	570	51	125	263	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	43	1052	240	56	796	121	195	570	51	125	263	52
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	263	60	14	199	30	49	143	13	31	66	13
Total Analysis Volume [veh/h]	43	1052	240	56	796	121	195	570	51	125	263	52
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.31	0.14	0.03	0.23	0.07	0.11	0.18	0.18	0.07	0.09	0.09
Intersection LOS	B											
Intersection V/C	0.649											

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.503

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	1167	2	11	921	35	174	0	83	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	1167	2	11	921	35	174	0	83	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	292	1	3	230	9	44	0	21	0	0	0
Total Analysis Volume [veh/h]	31	1167	2	11	921	35	174	0	83	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.34	0.34	0.01	0.28	0.28	0.10	0.00	0.15	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.503											

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.404

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	44	149	53	9	67	25	159	663	54	33	363	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	149	53	9	67	25	159	663	54	33	363	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	37	13	2	17	6	40	166	14	8	91	4
Total Analysis Volume [veh/h]	44	149	53	9	67	25	159	663	54	33	363	15
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.12	0.12	0.01	0.06	0.06	0.09	0.21	0.21	0.02	0.11	0.11
Intersection LOS	A											
Intersection V/C	0.404											

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Scenario 1 Existing
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.606	-	B
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.785	-	C
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.633	-	B
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	WB Thru	0.513	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.606

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	105	1143	159	92	1258	127	61	347	58	176	528	91
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	1143	159	92	1258	127	61	347	58	176	528	91
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	286	40	23	315	32	15	87	15	44	132	23
Total Analysis Volume [veh/h]	105	1143	159	92	1258	127	61	347	58	176	528	91
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.26	0.26	0.05	0.27	0.27	0.04	0.12	0.12	0.10	0.18	0.18
Intersection LOS	B											
Intersection V/C	0.606											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.785

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	1253	234	102	1320	333	158	438	70	181	530	102
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	116	1253	234	102	1320	333	158	438	70	181	530	102
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	29	313	59	26	330	83	40	110	18	45	133	26
Total Analysis Volume [veh/h]	116	1253	234	102	1320	333	158	438	70	181	530	102
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.37	0.14	0.06	0.39	0.20	0.09	0.15	0.15	0.11	0.19	0.19
Intersection LOS	C											
Intersection V/C	0.785											

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.633

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	88	1473	2	9	1440	117	125	2	112	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	1473	2	9	1440	117	125	2	112	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	368	1	2	360	29	31	1	28	0	0	0
Total Analysis Volume [veh/h]	88	1473	2	9	1440	117	125	2	112	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.43	0.43	0.01	0.46	0.46	0.07	0.14	0.14	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.633											

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.513

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	33	126	43	23	194	75	87	628	68	95	737	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	126	43	23	194	75	87	628	68	95	737	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	32	11	6	49	19	22	157	17	24	184	3
Total Analysis Volume [veh/h]	33	126	43	23	194	75	87	628	68	95	737	12
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.10	0.10	0.01	0.17	0.17	0.05	0.20	0.20	0.06	0.22	0.22
Intersection LOS	A											
Intersection V/C	0.513											

Existing Plus Project

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Scenario 2 Existing Plus Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	NB Right	0.489	-	A
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	NB Thru	0.646	-	B
3	Euclid St (NS) at Project North Driveway (EW)	Signalized	ICU 1	NB Thru	0.445	-	A
4	Euclid St (NS) at Project South Driveway (EW)	Signalized	ICU 1	NB Right	0.446	-	A
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	NB Right	0.502	-	A
6	Project North Driveway (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.309	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.405	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.489

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	829	133	61	776	37	102	466	58	103	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	1	1	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	-2	-1	0	0	0	-1	0	0	-2	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	55	829	131	60	776	37	102	465	58	104	281	76
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	207	33	15	194	9	26	116	15	26	70	19
Total Analysis Volume [veh/h]	55	829	131	60	776	37	102	465	58	104	281	76
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.19	0.19	0.04	0.16	0.16	0.06	0.15	0.15	0.06	0.11	0.11
Intersection LOS	A											
Intersection V/C	0.489											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.646

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	43	1052	240	56	796	121	195	570	51	125	263	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	7	1	2	1	0	0	0	0	0	1	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	-1	-3	-6	-1	0	0	-4	-1	-1	-1	-1
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	1058	238	52	796	121	195	566	50	124	263	55
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	265	60	13	199	30	49	142	13	31	66	14
Total Analysis Volume [veh/h]	44	1058	238	52	796	121	195	566	50	124	263	55
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.31	0.14	0.03	0.23	0.07	0.11	0.18	0.18	0.07	0.09	0.09
Intersection LOS	B											
Intersection V/C	0.646											

Intersection Level Of Service Report
Intersection 3: Euclid St (NS) at Project North Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.445

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1335	0	0	972	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 Rate	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]	6	1	0	1	0	5
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]	1341	1	0	973	0	5
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]	335	0	0	243	0	1
Total Analysis Volume [veh/h]	1341	1	0	973	0	5
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	2	0	0	6	0	4
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.39	0.00	0.29	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.445					

Intersection Level Of Service Report
Intersection 4: Euclid St (NS) at Project South Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.446

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1335	0	0	972	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 Rate	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]	1	1	1	0	4	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]	1336	1	1	972	4	6
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]	334	0	0	243	1	2
Total Analysis Volume [veh/h]	1336	1	1	972	4	6
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.39	0.39	0.00	0.29	0.00	0.01
Intersection LOS	A					
Intersection V/C	0.446					

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.502

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	1167	2	11	921	35	174	0	83	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	0	4	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	-2	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	31	1166	2	11	925	35	174	0	83	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	292	1	3	231	9	44	0	21	0	0	0
Total Analysis Volume [veh/h]	31	1166	2	11	925	35	174	0	83	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.34	0.34	0.01	0.28	0.28	0.10	0.00	0.15	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.502											

Intersection Level Of Service Report
Intersection 6: Project North Driveway (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.309

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	866	0	0	440
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 Rate	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	3	1	2	1	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]	5	3	867	2	1	440
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]	1	1	217	1	0	110
Total Analysis Volume [veh/h]	5	3	867	2	1	440
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.26	0.26	0.00	0.13
Intersection LOS	A					
Intersection V/C	0.309					

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.405

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	44	149	53	9	67	25	159	663	54	33	363	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	4	0	0	1	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	-1	0	0	-3	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	149	53	9	67	25	159	666	54	33	361	15
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	37	13	2	17	6	40	167	14	8	90	4
Total Analysis Volume [veh/h]	44	149	53	9	67	25	159	666	54	33	361	15
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.12	0.12	0.01	0.06	0.06	0.09	0.21	0.21	0.02	0.11	0.11
Intersection LOS	A											
Intersection V/C	0.405											

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Scenario 2 Existing Plus Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.604	-	B
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.781	-	C
3	Euclid St (NS) at Project North Driveway (EW)	Signalized	ICU 1	NB Thru	0.523	-	A
4	Euclid St (NS) at Project South Driveway (EW)	Signalized	ICU 1	NB Thru	0.529	-	A
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.633	-	B
6	Project North Driveway (NS) at Broadway (EW)	Signalized	ICU 1	WB Thru	0.291	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	WB Thru	0.512	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.604

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	105	1143	159	92	1258	127	61	347	58	176	528	91
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	1	0	0	0	1	0	1	1	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	-2	0	0	0	0	-3	0	-3	-3	1
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	105	1143	158	93	1258	127	61	345	58	174	526	93
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	26	286	40	23	315	32	15	86	15	44	132	23
Total Analysis Volume [veh/h]	105	1143	158	93	1258	127	61	345	58	174	526	93
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.26	0.26	0.05	0.27	0.27	0.04	0.12	0.12	0.10	0.18	0.18
Intersection LOS	B											
Intersection V/C	0.604											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.781

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	1253	234	102	1320	333	158	438	70	181	530	102
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	3	1	6	5	0	0	2	1	0	1	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-6	-4	-4	-1	-5	0	0	-1	-7	-6	-3	-5
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	112	1252	231	107	1320	333	158	439	64	175	528	99
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	28	313	58	27	330	83	40	110	16	44	132	25
Total Analysis Volume [veh/h]	112	1252	231	107	1320	333	158	439	64	175	528	99
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.37	0.14	0.06	0.39	0.20	0.09	0.15	0.15	0.10	0.18	0.18
Intersection LOS	C											
Intersection V/C	0.781											

Intersection Level Of Service Report
Intersection 3: Euclid St (NS) at Project North Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.523

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1603	0	0	1571	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 Rate	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]	3	3	0	6	0	3
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]	1606	3	0	1577	0	3
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]	402	1	0	394	0	1
Total Analysis Volume [veh/h]	1606	3	0	1577	0	3
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	2	0	0	6	0	4
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.47	0.47	0.00	0.46	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.523					

Intersection Level Of Service Report
Intersection 4: Euclid St (NS) at Project South Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1603	0	0	1571	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 Rate	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]	3	3	6	0	3	3
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]	1606	3	6	1571	3	3
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]	402	1	2	393	1	1
Total Analysis Volume [veh/h]	1606	3	6	1571	3	3
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.47	0.47	0.00	0.46	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.529					

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.633

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	88	1473	2	9	1440	117	125	2	112	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	-4	0	0	-4	-1	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	88	1474	2	9	1439	116	125	2	112	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	369	1	2	360	29	31	1	28	0	0	0
Total Analysis Volume [veh/h]	88	1474	2	9	1439	116	125	2	112	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.43	0.43	0.01	0.46	0.46	0.07	0.14	0.14	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.633											

Intersection Level Of Service Report
Intersection 6: Project North Driveway (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.291

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	774	0	0	813
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 Rate	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]	3	2	1	8	5	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]	3	2	775	8	5	813
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]	1	1	194	2	1	203
Total Analysis Volume [veh/h]	3	2	775	8	5	813
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.23	0.23	0.00	0.24
Intersection LOS	A					
Intersection V/C	0.291					

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.512

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	33	126	43	23	194	75	87	628	68	95	737	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	0	0	0	0	-4	-1	0	-4	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	126	43	23	194	75	87	627	67	95	738	12
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	32	11	6	49	19	22	157	17	24	185	3
Total Analysis Volume [veh/h]	32	126	43	23	194	75	87	627	67	95	738	12
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.10	0.10	0.01	0.17	0.17	0.05	0.20	0.20	0.06	0.22	0.22
Intersection LOS	A											
Intersection V/C	0.512											

Opening Year (2018) Without Project

Vistro File: J:\...\AM E.vistro
Report File: J:\...\amOY.pdf

Scenario 2 Opening Year (2018) Without Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	NB Right	0.502	-	A
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	NB Thru	0.674	-	B
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	NB Thru	0.520	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.414	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.502

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	829	133	61	776	37	102	466	58	103	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	4	0	0	0	8	0	4	8	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	837	138	66	784	37	103	479	59	108	293	80
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	209	35	17	196	9	26	120	15	27	73	20
Total Analysis Volume [veh/h]	56	837	138	66	784	37	103	479	59	108	293	80
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.19	0.19	0.04	0.16	0.16	0.06	0.16	0.16	0.06	0.11	0.11
Intersection LOS	A											
Intersection V/C	0.502											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.674

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	43	1052	240	56	796	121	195	570	51	125	263	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	24	12	1	27	2	2	6	8	13	6	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	51	1087	254	58	831	124	199	582	60	139	272	54
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	272	64	15	208	31	50	146	15	35	68	14
Total Analysis Volume [veh/h]	51	1087	254	58	831	124	199	582	60	139	272	54
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.32	0.15	0.03	0.24	0.07	0.12	0.19	0.19	0.08	0.10	0.10
Intersection LOS	B											
Intersection V/C	0.674											

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	1167	2	11	921	35	174	0	83	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	44	0	0	48	0	0	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	1223	2	11	978	35	176	0	89	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	306	1	3	245	9	44	0	22	0	0	0
Total Analysis Volume [veh/h]	36	1223	2	11	978	35	176	0	89	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.36	0.36	0.01	0.30	0.30	0.10	0.00	0.16	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.520											

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.414

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	44	149	53	9	67	25	159	663	54	33	363	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	1	1	3	3	16	0	0	17	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	151	54	10	69	28	164	686	55	33	384	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	38	14	3	17	7	41	172	14	8	96	4
Total Analysis Volume [veh/h]	44	151	54	10	69	28	164	686	55	33	384	16
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.12	0.12	0.01	0.06	0.06	0.10	0.22	0.22	0.02	0.12	0.12
Intersection LOS	A											
Intersection V/C	0.414											

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Scenario 2 Opening Year (2018) Without Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.619	-	B
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.820	-	D
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.666	-	B
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	WB Thru	0.529	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.619

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	105	1143	159	92	1258	127	61	347	58	176	528	91
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	7	6	0	0	0	11	0	7	11	6
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	1154	168	99	1271	128	62	361	59	185	544	98
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	289	42	25	318	32	16	90	15	46	136	25
Total Analysis Volume [veh/h]	106	1154	168	99	1271	128	62	361	59	185	544	98
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.26	0.26	0.06	0.27	0.27	0.04	0.12	0.12	0.11	0.19	0.19
Intersection LOS	B											
Intersection V/C	0.619											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.820

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	1253	234	102	1320	333	158	438	70	181	530	102
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	46	15	3	48	8	8	6	10	17	6	3
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	127	1312	251	106	1381	344	168	448	81	200	541	106
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	32	328	63	27	345	86	42	112	20	50	135	27
Total Analysis Volume [veh/h]	127	1312	251	106	1381	344	168	448	81	200	541	106
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.39	0.15	0.06	0.41	0.20	0.10	0.16	0.16	0.12	0.19	0.19
Intersection LOS	D											
Intersection V/C	0.820											

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.666

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	88	1473	2	9	1440	117	125	2	112	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	71	0	0	75	0	0	0	8	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	1559	2	9	1529	118	126	2	121	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	390	1	2	382	30	32	1	30	0	0	0
Total Analysis Volume [veh/h]	97	1559	2	9	1529	118	126	2	121	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.46	0.46	0.01	0.48	0.48	0.07	0.15	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.666											

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	33	126	43	23	194	75	87	628	68	95	737	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	1	2	3	3	21	0	0	23	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	33	129	43	24	198	79	91	655	69	96	767	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	32	11	6	50	20	23	164	17	24	192	3
Total Analysis Volume [veh/h]	33	129	43	24	198	79	91	655	69	96	767	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.10	0.10	0.01	0.18	0.18	0.05	0.21	0.21	0.06	0.23	0.23
Intersection LOS	A											
Intersection V/C	0.529											

Opening Year (2018) With Project

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Report File: J:\...\amOYP.pdf

Scenario 4 Opening Year (2018) With Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	NB Right	0.501	-	A
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	NB Thru	0.672	-	B
3	Euclid St (NS) at Project North Driveway (EW)	Signalized	ICU 1	NB Thru	0.461	-	A
4	Euclid St (NS) at Project South Driveway (EW)	Signalized	ICU 1	NB Thru	0.463	-	A
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	NB Thru	0.520	-	A
6	Project North Driveway (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.317	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.415	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.501

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	55	829	133	61	776	37	102	466	58	103	282	75
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	4	4	0	0	0	8	0	5	9	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	-2	-1	0	0	0	-1	0	0	-2	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	56	837	136	65	784	37	103	478	59	109	292	81
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	14	209	34	16	196	9	26	120	15	27	73	20
Total Analysis Volume [veh/h]	56	837	136	65	784	37	103	478	59	109	292	81
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.19	0.19	0.04	0.16	0.16	0.06	0.16	0.16	0.06	0.11	0.11
Intersection LOS	A											
Intersection V/C	0.501											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.672

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	43	1052	240	56	796	121	195	570	51	125	263	52
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	31	13	3	28	2	2	6	8	13	7	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	-1	-3	-6	-1	0	0	-4	-1	-1	-1	-1
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	52	1093	252	54	831	124	199	578	59	138	272	57
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	13	273	63	14	208	31	50	145	15	35	68	14
Total Analysis Volume [veh/h]	52	1093	252	54	831	124	199	578	59	138	272	57
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.32	0.15	0.03	0.24	0.07	0.12	0.19	0.19	0.08	0.10	0.10
Intersection LOS	B											
Intersection V/C	0.672											

Intersection Level Of Service Report
Intersection 3: Euclid St (NS) at Project North Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.461

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1335	0	0	972	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 Rate	1.01	1.01	1.00	1.01	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	50	1	0	49	0	5
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]	1398	1	0	1031	0	5
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]	350	0	0	258	0	1
Total Analysis Volume [veh/h]	1398	1	0	1031	0	5
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	2	0	0	6	0	4
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.41	0.00	0.30	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.461					

Intersection Level Of Service Report
Intersection 4: Euclid St (NS) at Project South Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.463

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1335	0	0	972	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 Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	45	1	1	48	4	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]	1393	1	1	1030	4	6
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]	348	0	0	258	1	2
Total Analysis Volume [veh/h]	1393	1	1	1030	4	6
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.41	0.41	0.00	0.30	0.00	0.01
Intersection LOS	A					
Intersection V/C	0.463					

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.520

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	31	1167	2	11	921	35	174	0	83	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	45	0	0	52	0	0	0	5	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	-2	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	36	1222	2	11	982	35	176	0	89	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	306	1	3	246	9	44	0	22	0	0	0
Total Analysis Volume [veh/h]	36	1222	2	11	982	35	176	0	89	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.36	0.36	0.01	0.30	0.30	0.10	0.00	0.16	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.520											

Intersection Level Of Service Report
Intersection 6: Project North Driveway (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.317

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	866	0	0	440
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 Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	3	20	2	1	20
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	3	895	2	1	464
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]	1	1	224	1	0	116
Total Analysis Volume [veh/h]	5	3	895	2	1	464
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.26	0.26	0.00	0.14
Intersection LOS	A					
Intersection V/C	0.317					

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.415

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	44	149	53	9	67	25	159	663	54	33	363	15
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	1	0	1	1	3	3	20	0	0	18	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	-1	0	0	-3	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	44	151	54	10	69	28	164	689	55	33	382	16
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	11	38	14	3	17	7	41	172	14	8	96	4
Total Analysis Volume [veh/h]	44	151	54	10	69	28	164	689	55	33	382	16
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.03	0.12	0.12	0.01	0.06	0.06	0.10	0.22	0.22	0.02	0.12	0.12
Intersection LOS	A											
Intersection V/C	0.415											

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Scenario 4 Opening Year (2018) With Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Brookhurst St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.617	-	B
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.816	-	D
3	Euclid St (NS) at Project North Driveway (EW)	Signalized	ICU 1	NB Thru	0.549	-	A
4	Euclid St (NS) at Project South Driveway (EW)	Signalized	ICU 1	NB Thru	0.554	-	A
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.665	-	B
6	Project North Driveway (NS) at Broadway (EW)	Signalized	ICU 1	WB Thru	0.301	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	WB Thru	0.529	-	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 1: Brookhurst St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.617

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	105	1143	159	92	1258	127	61	347	58	176	528	91
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	8	7	0	0	0	12	0	8	12	7
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	-2	0	0	0	0	-3	0	-3	-3	1
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	106	1154	167	100	1271	128	62	359	59	183	542	100
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	27	289	42	25	318	32	16	90	15	46	136	25
Total Analysis Volume [veh/h]	106	1154	167	100	1271	128	62	359	59	183	542	100
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.26	0.26	0.06	0.27	0.27	0.04	0.12	0.12	0.11	0.19	0.19
Intersection LOS	B											
Intersection V/C	0.617											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.816

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	116	1253	234	102	1320	333	158	438	70	181	530	102
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	12	49	16	9	53	8	8	8	11	17	7	5
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-6	-4	-4	-1	-5	0	0	-1	-7	-6	-3	-5
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	123	1311	248	111	1381	344	168	449	75	194	539	103
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	328	62	28	345	86	42	112	19	49	135	26
Total Analysis Volume [veh/h]	123	1311	248	111	1381	344	168	449	75	194	539	103
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.39	0.15	0.07	0.41	0.20	0.10	0.15	0.15	0.11	0.19	0.19
Intersection LOS	D											
Intersection V/C	0.816											

Intersection Level Of Service Report
Intersection 3: Euclid St (NS) at Project North Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.549

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1603	0	0	1571	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 Rate	1.01	1.01	1.00	1.01	1.00	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	74	3	0	81	0	3
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]	1693	3	0	1668	0	3
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]	423	1	0	417	0	1
Total Analysis Volume [veh/h]	1693	3	0	1668	0	3
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	2	0	0	6	0	4
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.50	0.00	0.49	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.549					

Intersection Level Of Service Report
Intersection 4: Euclid St (NS) at Project South Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.554

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1603	0	0	1571	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 Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	74	3	6	75	3	3
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]	1693	3	6	1662	3	3
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]	423	1	2	416	1	1
Total Analysis Volume [veh/h]	1693	3	6	1662	3	3
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.50	0.50	0.00	0.49	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.554					

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.665

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	88	1473	2	9	1440	117	125	2	112	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	76	0	0	78	0	0	0	8	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	-4	0	0	-4	-1	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	97	1560	2	9	1528	117	126	2	121	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	390	1	2	382	29	32	1	30	0	0	0
Total Analysis Volume [veh/h]	97	1560	2	9	1528	117	126	2	121	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.46	0.46	0.01	0.48	0.48	0.07	0.15	0.15	0.00	0.00	0.00
Intersection LOS	B											
Intersection V/C	0.665											

Intersection Level Of Service Report
Intersection 6: Project North Driveway (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.301

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	774	0	0	813
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 Rate	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	2	25	8	5	26
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]	3	2	807	8	5	847
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]	1	1	202	2	1	212
Total Analysis Volume [veh/h]	3	2	807	8	5	847
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.24	0.24	0.00	0.25
Intersection LOS	A					
Intersection V/C	0.301					

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.529

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	33	126	43	23	194	75	87	628	68	95	737	12
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01	1.01
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	1	2	3	3	24	0	0	28	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-1	0	0	0	0	0	0	-4	-1	0	-4	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	32	129	43	24	198	79	91	654	68	96	768	13
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	8	32	11	6	50	20	23	164	17	24	192	3
Total Analysis Volume [veh/h]	32	129	43	24	198	79	91	654	68	96	768	13
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.10	0.10	0.01	0.18	0.18	0.05	0.21	0.21	0.06	0.23	0.23
Intersection LOS	A											
Intersection V/C	0.529											

General Plan Buildout Without Project

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Scenario 1 General Plan Buildout Without Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	BrookhurstSt (NS) at Broadway (EW)	Signalized	ICU 1	SB Right	0.664	-	B
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	NB Thru	0.825	-	D
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.481	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.651	-	B

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: BrookhurstSt (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.664

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	78	972	275	91	1435	116	216	537	108	126	262	59
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	972	275	91	1435	116	216	537	108	126	262	59
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	243	69	23	359	29	54	134	27	32	66	15
Total Analysis Volume [veh/h]	78	972	275	91	1435	116	216	537	108	126	262	59
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.24	0.24	0.05	0.30	0.30	0.13	0.19	0.19	0.07	0.09	0.09
Intersection LOS	B											
Intersection V/C	0.664											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.825

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	100	1313	203	225	1281	127	236	839	80	128	274	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	100	1313	203	225	1281	127	236	839	80	128	274	113
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	25	328	51	56	320	32	59	210	20	32	69	28
Total Analysis Volume [veh/h]	100	1313	203	225	1281	127	236	839	80	128	274	113
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.30	0.30	0.13	0.28	0.28	0.14	0.27	0.27	0.08	0.11	0.11
Intersection LOS	D											
Intersection V/C	0.825											

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.481

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	34	1459	15	4	1685	44	123	0	124	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	1459	15	4	1685	44	123	0	124	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	365	4	1	421	11	31	0	31	0	0	0
Total Analysis Volume [veh/h]	34	1459	15	4	1685	44	123	0	124	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.29	0.29	0.00	0.34	0.34	0.07	0.00	0.15	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.481											

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.651

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	67	301	90	51	232	39	222	939	133	44	452	102
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	67	301	90	51	232	39	222	939	133	44	452	102
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	17	75	23	13	58	10	56	235	33	11	113	26
Total Analysis Volume [veh/h]	67	301	90	51	232	39	222	939	133	44	452	102
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.23	0.23	0.03	0.19	0.19	0.13	0.32	0.32	0.03	0.16	0.16
Intersection LOS	B											
Intersection V/C	0.651											

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Scenario 1 General Plan Buildout Without Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	BrookhurstSt (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.760	-	C
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.840	-	D
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.460	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	SB Right	0.645	-	B

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: BrookhurstSt (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.760

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	86	1362	154	105	1606	196	118	299	74	169	684	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	1362	154	105	1606	196	118	299	74	169	684	121
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	341	39	26	402	49	30	75	19	42	171	30
Total Analysis Volume [veh/h]	86	1362	154	105	1606	196	118	299	74	169	684	121
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.30	0.30	0.06	0.35	0.35	0.07	0.11	0.11	0.10	0.24	0.24
Intersection LOS	C											
Intersection V/C	0.760											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.840

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	121	1369	206	114	1416	344	226	255	88	222	678	142
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	121	1369	206	114	1416	344	226	255	88	222	678	142
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	30	342	52	29	354	86	57	64	22	56	170	36
Total Analysis Volume [veh/h]	121	1369	206	114	1416	344	226	255	88	222	678	142
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.31	0.31	0.07	0.35	0.35	0.13	0.10	0.10	0.13	0.24	0.24
Intersection LOS	D											
Intersection V/C	0.840											

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.460

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	1	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	34	1659	2	0	1664	56	89	0	85	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	1659	2	0	1664	56	89	0	85	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	415	1	0	416	14	22	0	21	0	0	0
Total Analysis Volume [veh/h]	34	1659	2	0	1664	56	89	0	85	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.33	0.33	0.00	0.34	0.34	0.05	0.00	0.05	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.460											

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.645

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	71	302	95	17	316	135	46	439	63	113	813	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	71	302	95	17	316	135	46	439	63	113	813	40
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	18	76	24	4	79	34	12	110	16	28	203	10
Total Analysis Volume [veh/h]	71	302	95	17	316	135	46	439	63	113	813	40
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.23	0.23	0.01	0.28	0.28	0.03	0.15	0.15	0.07	0.25	0.25
Intersection LOS	B											
Intersection V/C	0.645											

General Plan Buildout With Project

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Report File: J:\...\amGPwP.pdf

Scenario 2 General Plan Buildout With Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	BrookhurstSt (NS) at Broadway (EW)	Signalized	ICU 1	SB Right	0.661	-	B
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	NB Thru	0.813	-	D
3	Euclid St (NS) at Project North Driveway (EW)	Signalized	ICU 1	NB Thru	0.368	-	A
4	Euclid St (NS) at Project South Driveway (EW)	Signalized	ICU 1	NB Thru	0.367	-	A
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.479	-	A
6	Project North Driveway (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.431	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	EB Thru	0.650	-	B

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: BrookhurstSt (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.661

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	78	972	275	91	1435	116	216	537	108	126	262	59
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	0	0	1	1	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	-5	-3	0	0	0	-5	0	-3	-3	-2
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	78	972	270	88	1435	116	216	532	108	124	260	58
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	20	243	68	22	359	29	54	133	27	31	65	15
Total Analysis Volume [veh/h]	78	972	270	88	1435	116	216	532	108	124	260	58
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.24	0.24	0.05	0.30	0.30	0.13	0.19	0.19	0.07	0.09	0.09
Intersection LOS	B											
Intersection V/C	0.661											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.813

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	100	1313	203	225	1281	127	236	839	80	128	274	113
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	7	1	4	0	0	0	0	0	5	1	4
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-7	-7	0	-14	0	0	0	-18	0	-7	-5	-3
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	95	1313	204	215	1281	127	236	821	80	126	270	114
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	24	328	51	54	320	32	59	205	20	32	68	29
Total Analysis Volume [veh/h]	95	1313	204	215	1281	127	236	821	80	126	270	114
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.06	0.30	0.30	0.13	0.28	0.28	0.14	0.27	0.27	0.07	0.11	0.11
Intersection LOS	D											
Intersection V/C	0.813											

Intersection Level Of Service Report
Intersection 3: Euclid St (NS) at Project North Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.368

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1616	0	0	1489	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 Rate	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]	6	1	0	5	0	5
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]	1622	1	0	1494	0	5
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]	406	0	0	374	0	1
Total Analysis Volume [veh/h]	1622	1	0	1494	0	5
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	2	0	0	6	0	4
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.32	0.00	0.29	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.368					

Intersection Level Of Service Report
Intersection 4: Euclid St (NS) at Project South Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.367

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1616	0	0	1489	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 Rate	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]	1	1	0	5	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]	1617	1	0	1494	0	6
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]	404	0	0	374	0	2
Total Analysis Volume [veh/h]	1617	1	0	1494	0	6
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.32	0.32	0.00	0.29	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.367					

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.479

Intersection Setup

Name											
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	34	1459	15	4	1685	44	123	0	124	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	2	0	0	5	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	-9	0	0	-6	-2	-3	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	1452	15	4	1684	42	120	0	124	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	363	4	1	421	11	30	0	31	0	0	0
Total Analysis Volume [veh/h]	34	1452	15	4	1684	42	120	0	124	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.29	0.29	0.00	0.34	0.34	0.07	0.00	0.14	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.479											

Intersection Level Of Service Report
Intersection 6: Project North Driveway (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.431

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	1267	0	0	515
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 Rate	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]	10	4	1	4	2	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]	10	4	1268	4	2	515
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]	3	1	317	1	1	129
Total Analysis Volume [veh/h]	10	4	1268	4	2	515
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.01	0.37	0.37	0.00	0.15
Intersection LOS	A					
Intersection V/C	0.431					

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.650

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	67	301	90	51	232	39	222	939	133	44	452	102
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	5	0	0	2	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-3	0	0	0	0	0	0	-6	-2	0	-9	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	301	90	51	232	39	222	938	131	44	445	102
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	75	23	13	58	10	56	235	33	11	111	26
Total Analysis Volume [veh/h]	64	301	90	51	232	39	222	938	131	44	445	102
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.23	0.23	0.03	0.19	0.19	0.13	0.31	0.31	0.03	0.16	0.16
Intersection LOS	B											
Intersection V/C	0.650											

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Scenario 2 General Plan Buildout With Project
9/8/2017

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	BrookhurstSt (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.754	-	C
2	Euclid St (NS) at Broadway (EW)	Signalized	ICU 1	SB Thru	0.833	-	D
3	Euclid St (NS) at Project North Driveway (EW)	Signalized	ICU 1	SB Thru	0.389	-	A
4	Euclid St (NS) at Project South Driveway (EW)	Signalized	ICU 1	SB Thru	0.389	-	A
5	Euclid St (NS) at Orange Ave (EW)	Signalized	ICU 1	SB Thru	0.450	-	A
6	Project North Driveway (NS) at Broadway (EW)	Signalized	ICU 1	WB Thru	0.360	-	A
7	Loara St (NS) at Broadway (EW)	Signalized	ICU 1	SB Right	0.636	-	B

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: BrookhurstSt (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.754

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	0	1	0	0	1	0	0
Pocket Length [ft]	255.00	100.00	100.00	255.00	100.00	100.00	155.00	100.00	100.00	125.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	86	1362	154	105	1606	196	118	299	74	169	684	121
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	1	1	0	0	0	1	0	1	1	1
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	-15	-7	0	0	0	-15	0	-16	-16	-8
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	86	1362	140	99	1606	196	118	285	74	154	669	114
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	22	341	35	25	402	49	30	71	19	39	167	29
Total Analysis Volume [veh/h]	86	1362	140	99	1606	196	118	285	74	154	669	114
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.05	0.29	0.29	0.06	0.35	0.35	0.07	0.11	0.11	0.09	0.23	0.23
Intersection LOS	C											
Intersection V/C	0.754											

Intersection Level Of Service Report
Intersection 2: Euclid St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.833

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	1	1	0	1	1	0	0	1	0	0
Pocket Length [ft]	205.00	100.00	135.00	170.00	100.00	105.00	205.00	100.00	100.00	105.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	121	1369	206	114	1416	344	226	255	88	222	678	142
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	2	3	1	11	0	0	0	2	1	3	1	2
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	-32	0	-36	0	0	0	-51	0	-32	-24	-8
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	123	1340	207	89	1416	344	226	206	89	193	655	136
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	31	335	52	22	354	86	57	52	22	48	164	34
Total Analysis Volume [veh/h]	123	1340	207	89	1416	344	226	206	89	193	655	136
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	5	2	0	1	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	Lead	-	-	Lead	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.07	0.30	0.30	0.05	0.35	0.35	0.13	0.09	0.09	0.11	0.23	0.23
Intersection LOS	D											
Intersection V/C	0.833											

Intersection Level Of Service Report
Intersection 3: Euclid St (NS) at Project North Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.389

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1696	0	0	1726	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 Rate	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]	3	3	0	4	0	3
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]	1699	3	0	1730	0	3
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]	425	1	0	433	0	1
Total Analysis Volume [veh/h]	1699	3	0	1730	0	3
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	2	0	0	6	0	4
Auxiliary Signal Groups						
Lead / Lag	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.33	0.00	0.34	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.389					

Intersection Level Of Service Report
Intersection 4: Euclid St (NS) at Project South Driveway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.389

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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	No		No		Yes	

Volumes

Name						
Base Volume Input [veh/h]	1696	0	0	1726	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 Rate	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]	3	3	1	3	0	3
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]	1699	3	1	1729	0	3
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]	425	1	0	432	0	1
Total Analysis Volume [veh/h]	1699	3	1	1729	0	3
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

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

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.33	0.33	0.00	0.34	0.00	0.00
Intersection LOS	A					
Intersection V/C	0.389					

Intersection Level Of Service Report
Intersection 5: Euclid St (NS) at Orange Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.450

Intersection Setup

Name												
Approach	Northbound			Southbound			Eastbound			Westbound		
Lane Configuration												
Turning Movement	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right	Left	Thru	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	1	0	0	0	0	1	0	0	0	0	0	0
Pocket Length [ft]	105.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00			30.00			30.00			30.00		
Grade [%]	0.00			0.00			0.00			0.00		
Crosswalk	Yes			Yes			Yes			Yes		

Volumes

Name												
Base Volume Input [veh/h]	34	1659	2	0	1664	56	89	0	85	0	0	0
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	5	0	0	3	0	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	-22	0	0	-24	-8	-7	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	34	1642	2	0	1643	48	82	0	85	0	0	0
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	9	411	1	0	411	12	21	0	21	0	0	0
Total Analysis Volume [veh/h]	34	1642	2	0	1643	48	82	0	85	0	0	0
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss
Signal group	0	2	0	0	6	0	0	8	0	0	0	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	-	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.32	0.32	0.00	0.33	0.33	0.05	0.00	0.10	0.00	0.00	0.00
Intersection LOS	A											
Intersection V/C	0.450											

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permissive	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	0	8	0	0	4
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.00	0.17	0.17	0.00	0.31
Intersection LOS	A					
Intersection V/C	0.360					

Intersection Level Of Service Report
Intersection 7: Loara St (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	B
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.636

Intersection Setup

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

Volumes

Name												
Base Volume Input [veh/h]	71	302	95	17	316	135	46	439	63	113	813	40
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	2.00	2.00	2.00	2.00	2.00	2.00
Growth Rate	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0	0	3	0	0	5	0
Diverted Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	-7	0	0	0	0	0	0	-24	-8	0	-22	0
Other Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Total Hourly Volume [veh/h]	64	302	95	17	316	135	46	418	55	113	796	40
Peak Hour Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	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	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	16	76	24	4	79	34	12	105	14	28	199	10
Total Analysis Volume [veh/h]	64	302	95	17	316	135	46	418	55	113	796	40
Pedestrian Volume [ped/h]	0			0			0			0		
Bicycle Volume [bicycles/h]	0			0			0			0		

Intersection Settings

Cycle Length [s]	100
Lost time [s]	5.00

Phasing & Timing

Control Type	Permiss	Permiss	Permiss	Permiss	Permiss	Permiss	Protecte	Permiss	Permiss	Protecte	Permiss	Permiss
Signal group	0	2	0	0	6	0	3	8	0	7	4	0
Auxiliary Signal Groups												
Lead / Lag	-	-	-	-	-	-	Lead	-	-	Lead	-	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.04	0.23	0.23	0.01	0.28	0.28	0.03	0.14	0.14	0.07	0.25	0.25
Intersection LOS	B											
Intersection V/C	0.636											

Intersection Level Of Service Report
Intersection 6: Project North Driveway (NS) at Broadway (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.360

Intersection Setup

Name						
Approach	Northbound		Eastbound		Westbound	
Lane Configuration						
Turning Movement	Left	Right	Thru	Right	Left	Thru
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]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		No		No	

Volumes

Name						
Base Volume Input [veh/h]	0	0	575	0	0	1042
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 Rate	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]	6	2	1	13	5	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]	6	2	576	13	5	1042
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]	2	1	144	3	1	261
Total Analysis Volume [veh/h]	6	2	576	13	5	1042
Pedestrian Volume [ped/h]	0		0		0	
Bicycle Volume [bicycles/h]	0		0		0	

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