APPENDIX K

TIA AND VMT ASSESSMENT

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CYPRESS TOWN CENTER 7-AC RESIDENTIAL PROJECT TRAFFIC OPERATIONS ASSESSMENT

City of Cypress

November 5, 2020

Traffic Engineering ● Transportation Planning ● Parking ● Noise & Vibration
Air Quality ● Global Climate Change ● Health Risk Assessment

CYPRESS TOWN CENTER 7-AC RESIDENTIAL PROJECT TRAFFIC OPERATIONS ASSESSMENT

City of Cypress

November 5, 2020

prepared by
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EXECUTIVE SUMMARY

The purpose of this Traffic Operations Assessment is to provide an assessment of traffic operations resulting from development of the proposed Cypress Town Center 7-AC Residential Project and to identify measures necessary to mitigate potentially operational traffic deficiencies. This report analyzes potential traffic operational deficiencies for the anticipated project opening year in Year 2022. The Level of Service (LOS) analysis contained in this report is for informational purposes and to confirm General Plan conformity. It is not intended to support environmental review. Although this is a technical report, effort has been made to write the report clearly and concisely. A glossary is provided in Appendix A to assist the reader with terms related to transportation engineering.

Project Description

The project site is located on a 7.0-acre area within the southeast portion of an existing parking lot for the Los Alamitos Racecourse in the City of Cypress, California. The project site is part of the 15-acre total area of the Town Center District of the Cypress Town Center and Commons Specific Plan 2.0.

The proposed project involves redeveloping the existing parking area with a residential multi-family community consisting of 135 dwelling units, including 56 two-story condominiums and 79 three-story townhomes. The proposed project is anticipated to be constructed and fully operational by year 2022.

The project proposes one full access driveway via an extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage, but will not fully implement the ultimate connection to Siboney Street due to continuing operation of the racecourse.

Existing Conditions

The study intersections currently operate at Levels of Service C or better during the peak hours for Existing conditions (see Table 1).

Project Trips

The proposed project is forecast to generate a total of approximately 988 daily trips, including 62 trips during the AM peak hour and 76 trips during the PM peak hour (see Table 2).

Forecast Levels of Service

The proposed project is forecast to result in no operational Level of Service deficiencies at the study intersections during the weekday AM and PM peak hours for the scenarios evaluated.

Congestion Management Program

The proposed project would result in a less than significant CMP effect as it does not meet the thresholds requiring a traffic analysis for CMP purposes and no further CMP analysis is warranted.

Site Access and Circulation

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

- Construct the extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage with one eastbound lane and one westbound lane.

- Construct the Project Driveway (NS) at Vessels Circle (EW) to provide one inbound lane and one outbound lane with northbound stop-control and the following lane configurations:
  - Northbound: one shared left/right turn lane.
  - Southbound: not applicable
  - Eastbound: one shared through/right turn lane
  - Westbound: one shared left/through lane.

The existing storage length for the northbound left turn lane at the intersection of Walker Street and Vessels Circle is forecast to provide adequate queueing capacity with the addition of project trips.

Operational Improvements

No off-site improvements were identified since the proposed project is forecast to result in no operational traffic deficiencies at the study intersections for the scenarios analyzed.

1. INTRODUCTION

This section describes the purpose of this traffic operational assessment, project location, proposed development, and study area. Figure 1 shows the project location map. Figure 2 illustrates the project site plan.

PROJECT DESCRIPTION

The project site is located on a 7.0-acre area within the southeast portion of an existing parking lot for the Los Alamitos Racecourse in the City of Cypress, California. The project site is part of the 15-acre total area of the Town Center District of the Cypress Town Center and Commons Specific Plan 2.0.

The proposed project involves redeveloping the existing parking area with a residential multi-family community consisting of 135 dwelling units, including 56 two-story condominiums and 79 three-story townhomes. The proposed project is anticipated to be constructed and fully operational by year 2022.

The project proposes one full access driveway via an extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage, but will not fully implement the ultimate connection to Siboney Street due to continuing operation of the racecourse.

STUDY AREA

Based on the study intersections identified in the approved scoping agreement (Appendix B), the study area consists of the following study intersections within the Cities of Cypress and Los Alamitos:

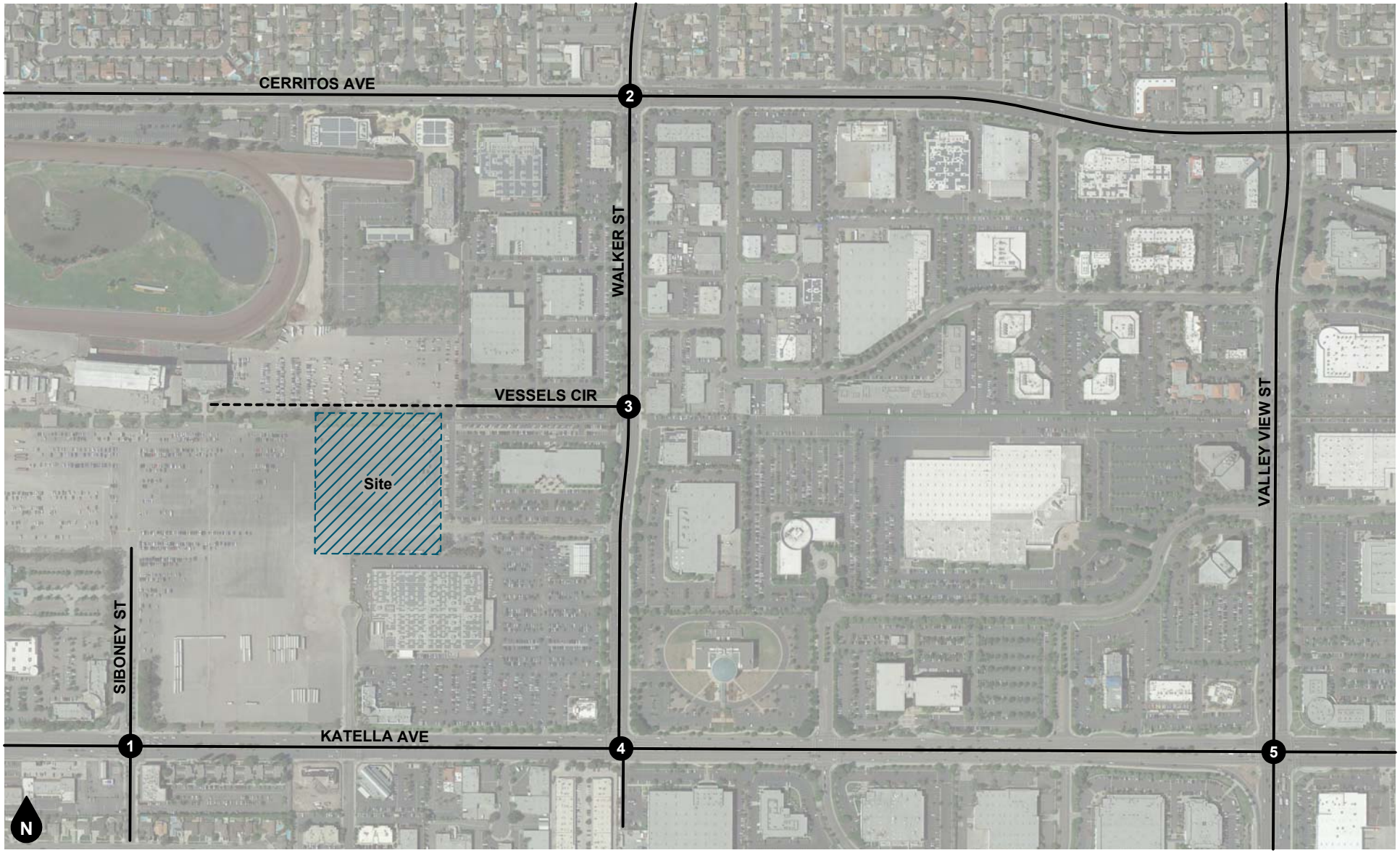
Study Intersections[1]	Jurisdiction
1. Siboney Street (NS) at Katella Avenue (EW)	Cypress/Los Alamitos
2. Walker Street (NS) at Cerritos Avenue (EW)	Cypress
3. Walker Street (NS) at Vessels Circle (EW)	Cypress
4. Walker Street (NS) at Katella Avenue (EW)	Cypress/Los Alamitos
5. Valley View Street (NS) at Katella Avenue (EW)	Cypress

ANALYSIS SCENARIOS

In accordance with scoping discussions with City of Cypress engineering staff, this study includes the following analysis scenarios:

a) Existing conditions;
b) Existing Plus Project;
c) Opening Year (2022) Without Project; and
d) Opening Year (2022) With Project.

[1] (NS) = North-South roadway; (EW) = East-West roadway



Legend

Study Intersection

Figure 1
Project Location Map

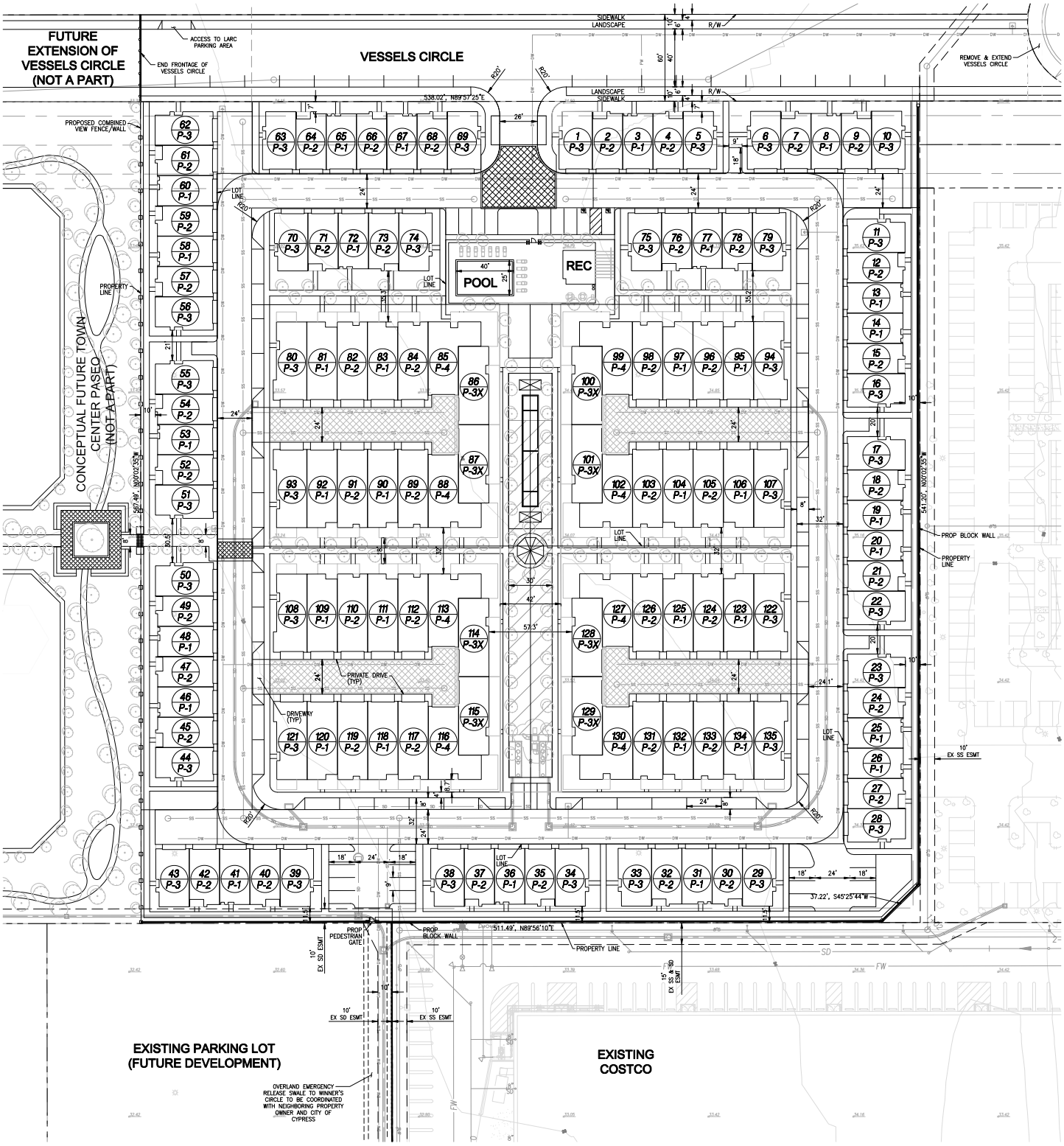


Figure 2
Site Plan

2. METHODOLOGY

This section discusses the analysis methodologies used to assess transportation facility performance as adopted by the respective jurisdictional agencies.

INTERSECTION CAPACITY UTILIZATION

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

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

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

Level of Service is used to qualitatively describe the performance of a roadway facility, ranging from Level of Service A (free-flow conditions) to Level of Service F (extreme congestion and system failure). ICU analysis was performed using the Vistro software. In accordance with Cities of Cypress and Los Alamitos requirements, this analysis uses the following input parameters for the ICU analysis: 1,700 vehicles per hour per lane with a total clearance interval of 0.05.

PERFORMANCE STANDARDS

City of Cypress

The City of Cypress has established Level of Service D as the minimum acceptable Level of Service during peak hour conditions, except at intersections along Valley View Street, Lincoln Avenue, and Katella Avenue where Level of Service E is acceptable. Valley View Street and Katella Avenue are designated as a part of the Orange County Congestion Management Plan (CMP) highway system, and thus the intersection of Katella Avenue and Valley View Street, as a CMP intersection, must operate at a Level of Service E or better during peak traffic hours. Intersections operating at Level of Service E shall be identified as deficient, except for intersections along the aforementioned roadways where Level of Service F shall be identified as deficient.

City of Los Alamitos

The City of Los Alamitos has established Level of Service D as the minimum acceptable Level of Service during peak hour conditions.

OPERATIONAL THRESHOLDS

City of Cypress

For signalized study intersections within the City of Cypress jurisdiction, an operational project traffic deficiency occurs if:

- The addition of project generated trips is forecast to cause an intersection to deteriorate from acceptable Level of Service (D/E or better) to unacceptable Level of Service (E/F); or,

- The addition of project generated trips is forecast to cause an increase in volume-to-capacity of 0.01 or greater when the intersection is operating at unacceptable Level of Service (E/F) in the baseline condition.

City of Los Alamitos

For signalized study intersections within the City of Los Alamitos jurisdiction, an operational project traffic deficiency occurs if:

- The ICU value under "With Project" conditions is 0.901 or greater (LOS E of F) and the ICU increase attributable to the project is 0.010 or greater.

For unsignalized intersections, the City of Los Alamitos defines an operational project traffic deficiency occurs if:

- The worst approach delay, based on HCM methodology, is 35.01 seconds or greater (LOS E of F), and the project related increase in traffic under "With Project" conditions is one percent (1%) or more.

3. EXISTING CONDITIONS

EXISTING ROADWAY SYSTEM

Figure 3 identifies the lane geometry and intersection traffic controls for Existing conditions based on a field survey of the study area. Regional access to the project area is provided by the I-605 Freeway west of the project site, and the SR-22 and I-405 Freeways south of the project site. The key north-south roadways providing local circulation are Siboney Street, Walker Street, and Valley View Street. The key east-west roadways providing local circulation are Cerritos Avenue, Vessels Circle, and Katella Avenue.

Siboney Street is a 2-lane undivided to 6-lane divided roadway in the study area. Siboney Street is not classified in the City of Cypress or Los Alamitos Circulation Elements. On-street parking is prohibited in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

Walker Street is a 4-lane to 5-lane divided roadway in the study area. Walker Street is classified as a Secondary Arterial in the City of Cypress Circulation Element. On-street parking is prohibited in the project area. Bicycle facilities are provided north of Cerritos Avenue in the study area. Sidewalks are provided on both sides of the roadway.

Valley View Street is a 6-lane divided roadway in the study area. Valley View Street is classified as a Major Arterial in the City of Cypress Circulation Element. Valley View Street is designated on the Orange County Congestion Management Plan (CMP) as a CMP facility. On-street parking is prohibited in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

Cerritos Avenue is a 4-lane to 5-lane divided roadway in the study area. Cerritos Avenue is classified as a Primary Arterial in the City of Cypress Circulation Element. On-street parking is prohibited in the project area. Bicycle facilities are provided west of Walker Street in the study area. Sidewalks are provided on both sides of the roadway.

Vessels Circle is a 2-lane undivided roadway in the study area. Vessels Circle is not in the City of Cypress Circulation Element. On-street parking is prohibited in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

Katella Avenue is a 6-lane divided roadway in the study area. Katella Avenue is classified as a Major Arterial in the City of Cypress Circulation Element, and as a Smart Street (6-Lane) in the City of Los Alamitos Circulation Element. Katella Avenue is designated on the Orange County Congestion Management Plan (CMP) as a CMP facility. On-street parking is intermittently permitted in the project area. No bicycle facilities are provided in the study area. Sidewalks are provided on both sides of the roadway.

PEDESTRIAN FACILITIES

Existing pedestrian facilities in the project vicinity are shown on Figure 4.

BICYCLE ROUTES

Bicycle routes are proposed along Walker Street from Cerritos Avenue to Katella Avenue in the study area. The City of Cypress Bike Path Plan is depicted on Figure 5.

TRANSIT FACILITIES

Figure 6 shows the existing transit routes available in the project vicinity provided by the Orange County Transportation Authority (OCTA). As shown on Figure 6, OCTA Route 50 services Katella Avenue and OCTA

Route 123 services Valley View Street. Bus stop are situated on both the north and south side of Katella Avenue west of Walker Street

GENERAL PLAN CONTEXT

Figure 7 shows the City of Cypress General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. Figure 8 exhibits the City of Cypress General Plan Roadway Cross-Sections.

Figure 9 shows the City of Los Alamitos General Plan Circulation Element roadway classifications map. This figure shows the nature and extent of arterial and collector highways that are needed to adequately serve the ultimate development depicted by the Land Use Element of the General Plan. Figure 10 exhibits the City of Los Alamitos General Plan Roadway Cross-Sections.

EXISTING TRAFFIC VOLUMES

Figure 11 shows the Existing average daily traffic volumes. Existing average daily traffic volumes have been obtained from the 2019 Traffic Flow Map from the Orange County Transportation Authority (OCTA) and/or factored from peak hour intersection turning movement volumes using the following formula for each intersection leg:

PM Peak Hour (Approach Volume + Exit Volume) x 10 = Leg Volume.

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

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

Historical intersection turning movement counts conducted in October 2018 were obtained for most of the study intersections. The AM and PM peak hour traffic volumes based on these historical counts were adjusted by a growth rate of one percent per year over a two-year period to reflect existing year 2020 conditions prior to issuance of statewide stay-at-home orders.

Historical counts could not be obtained for the study intersection of Walker Street at Vessels Circle; therefore, new intersection turning movement counts were conducted at this intersection in May 2020. To estimate pre-pandemic conditions, the AM and PM peak hour volumes at the intersection of Walker Street at Vessels Circle were increased by 146% during the AM peak hour and 58% during the PM peak hour based on the traffic volumes observed at adjacent intersections to the north and south for which historical data was available.

Figure 12 and Figure 13 show the Existing AM peak hour and PM peak hour intersection turning movement volumes. Peak hour volumes shown in the figures and Level of Service calculations throughout this report are based on the measured count data with adjustments described above.

EXISTING INTERSECTION LEVEL OF SERVICE

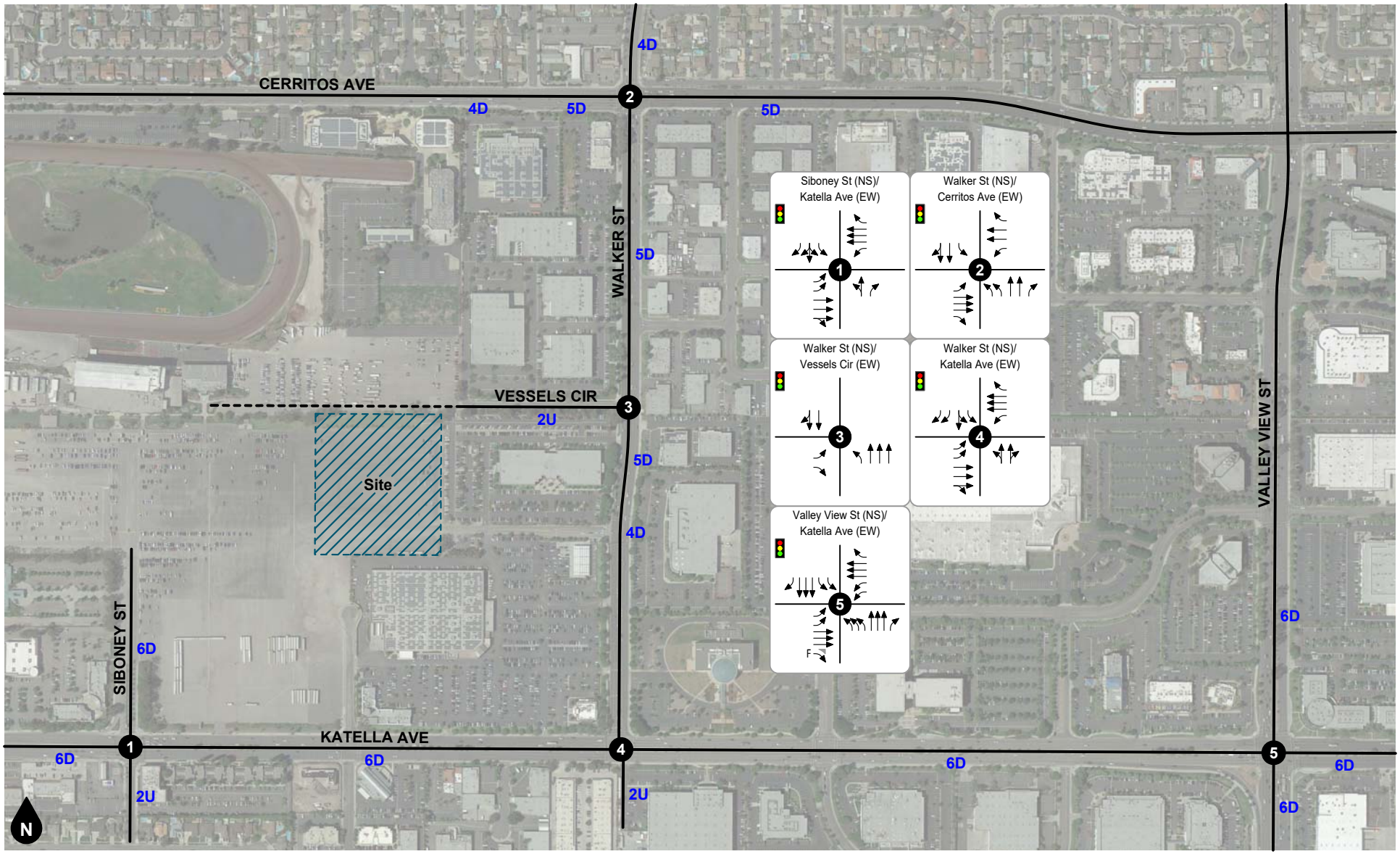
The intersection Levels of Service for Existing conditions have been calculated and are shown in Table 1. Existing intersection Level of Service worksheets are provided in Appendix D.

As shown in Table 1, the study intersections currently operate at Levels of Service C or better during the peak hours for Existing conditions.

Table 1
Existing Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU[2]	LOS[3]	ICU[2]	LOS[3]
1.	Siboney St at Katella Ave	TS	0.470	A	0.534	A
2.	Walker St at Cerritos Ave	TS	0.693	B	0.743	C
3.	Walker St at Vessels Cir	TS	0.397	A	0.334	A
4.	Walker St at Katella Ave	TS	0.670	B	0.700	C
5.	Valley View St at Katella Ave	TS	0.737	C	0.763	C

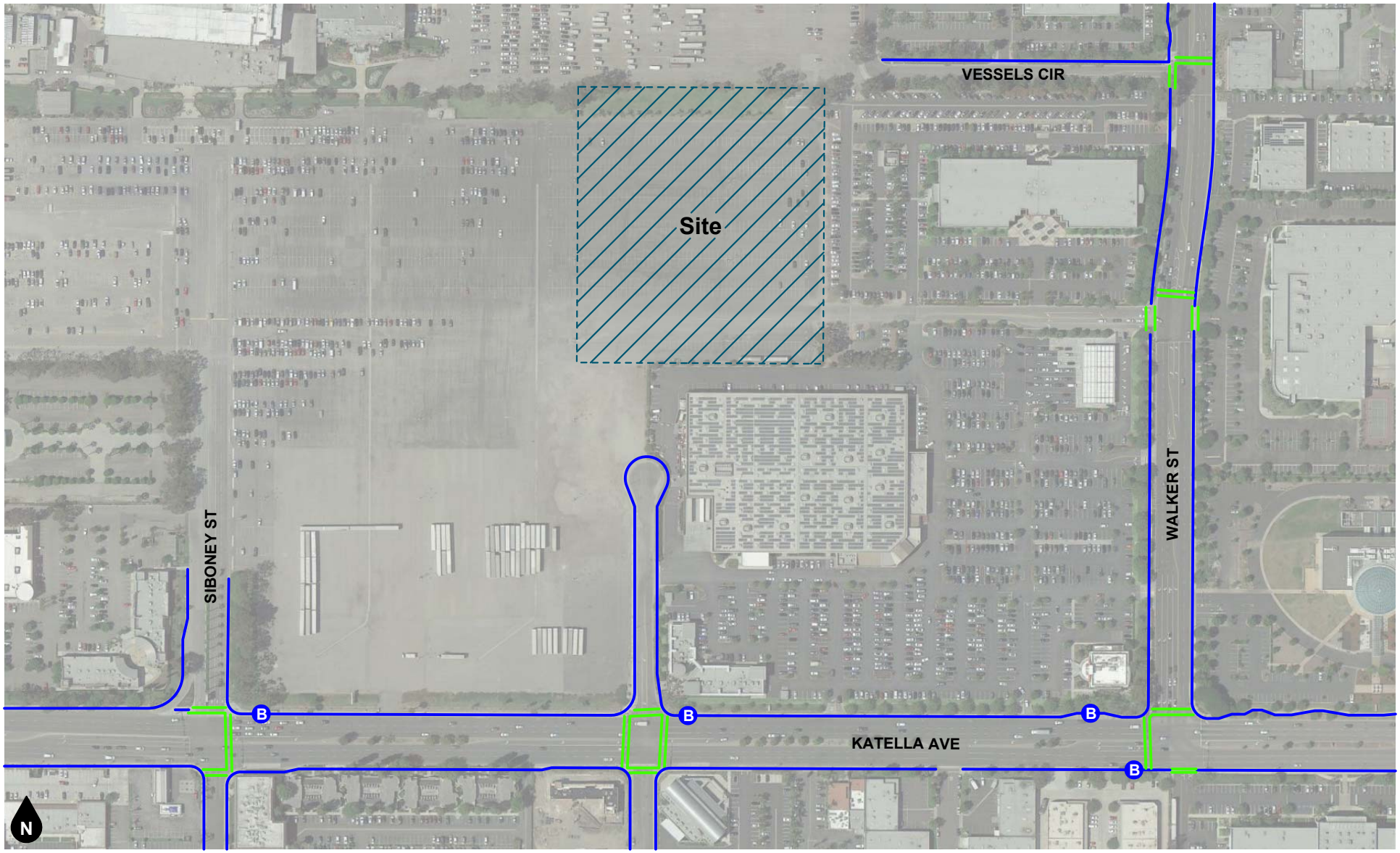
Notes:
(1) TS = Traffic Signal
(2) ICU = Intersection Capacity Utilization
(3) LOS = Level of Service



Legend

- Traffic Signal
- #D #-Lane Divided Roadway
- #U #-Lane Undivided Roadway
- Existing Lane
- F Free Right Turn Lane

Figure 3
Existing Lane Geometry and Intersection Traffic Controls



Legend
- Sidewalk
- Cross Walk
- B Bus Stop

Figure 4
Existing Pedestrian Facilities

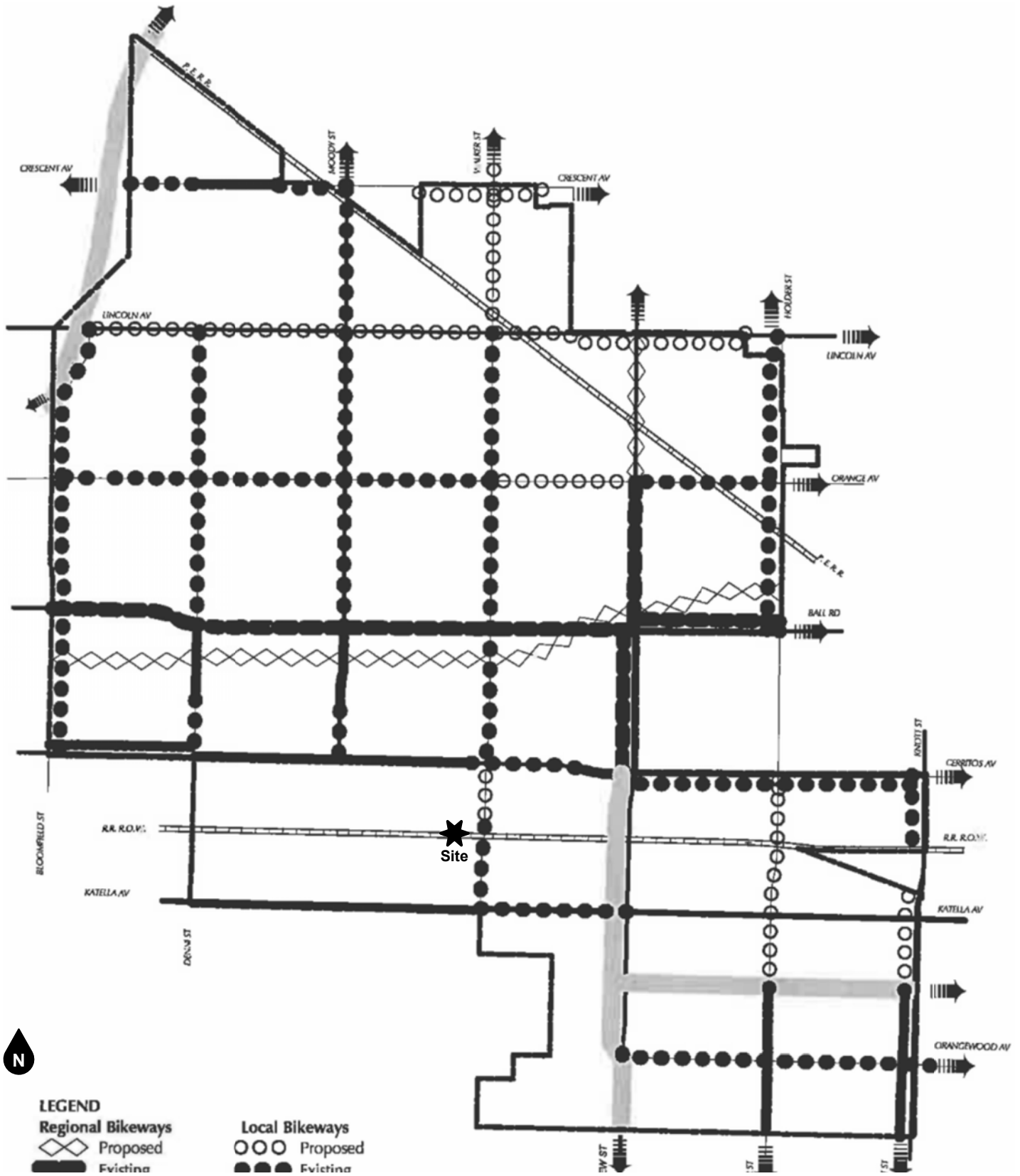


Figure 5
City of Cypress Bike Path Plan

Source: City of Cypress

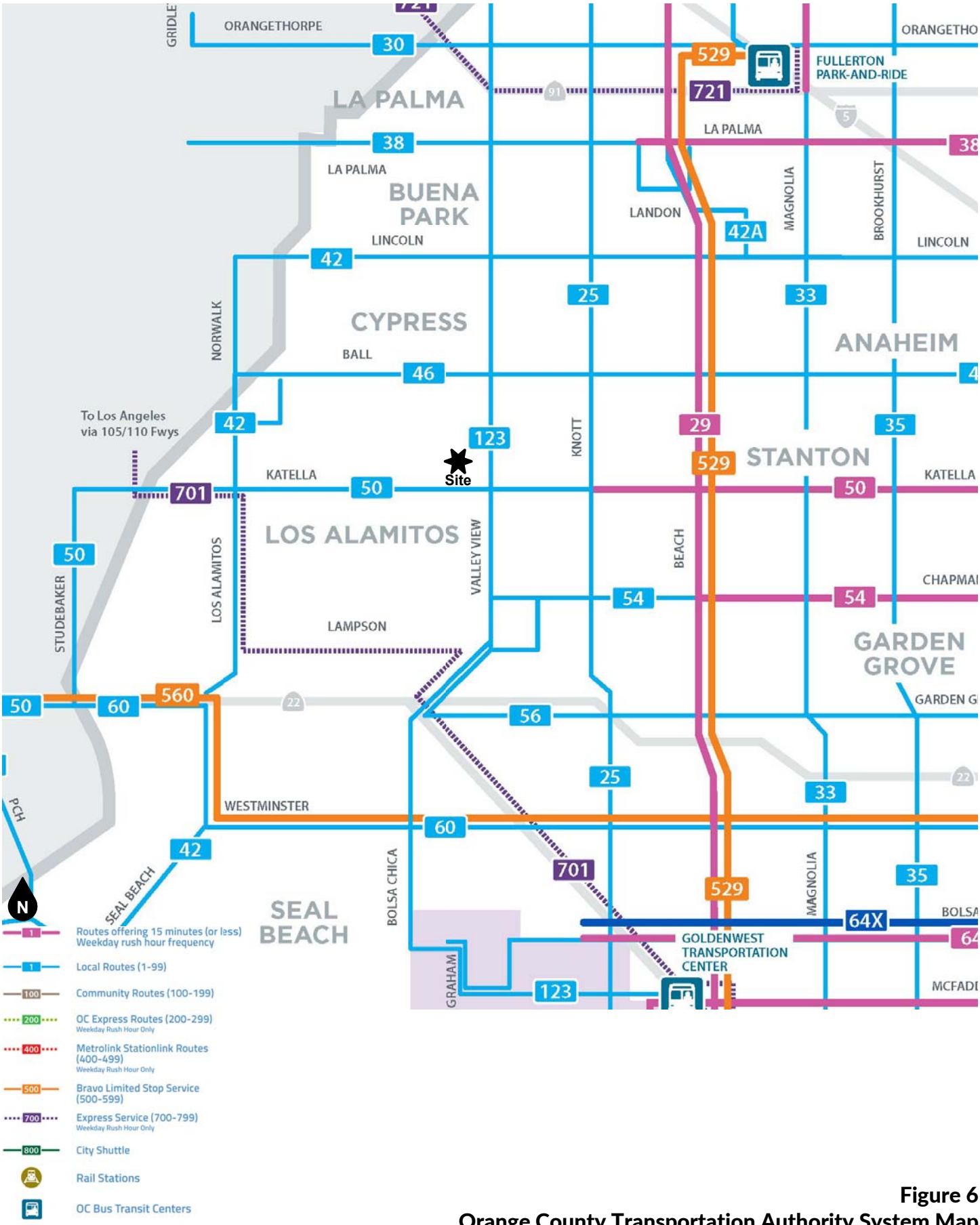


Figure 6
Orange County Transportation Authority System Map

Source: Orange County Transportation Authority

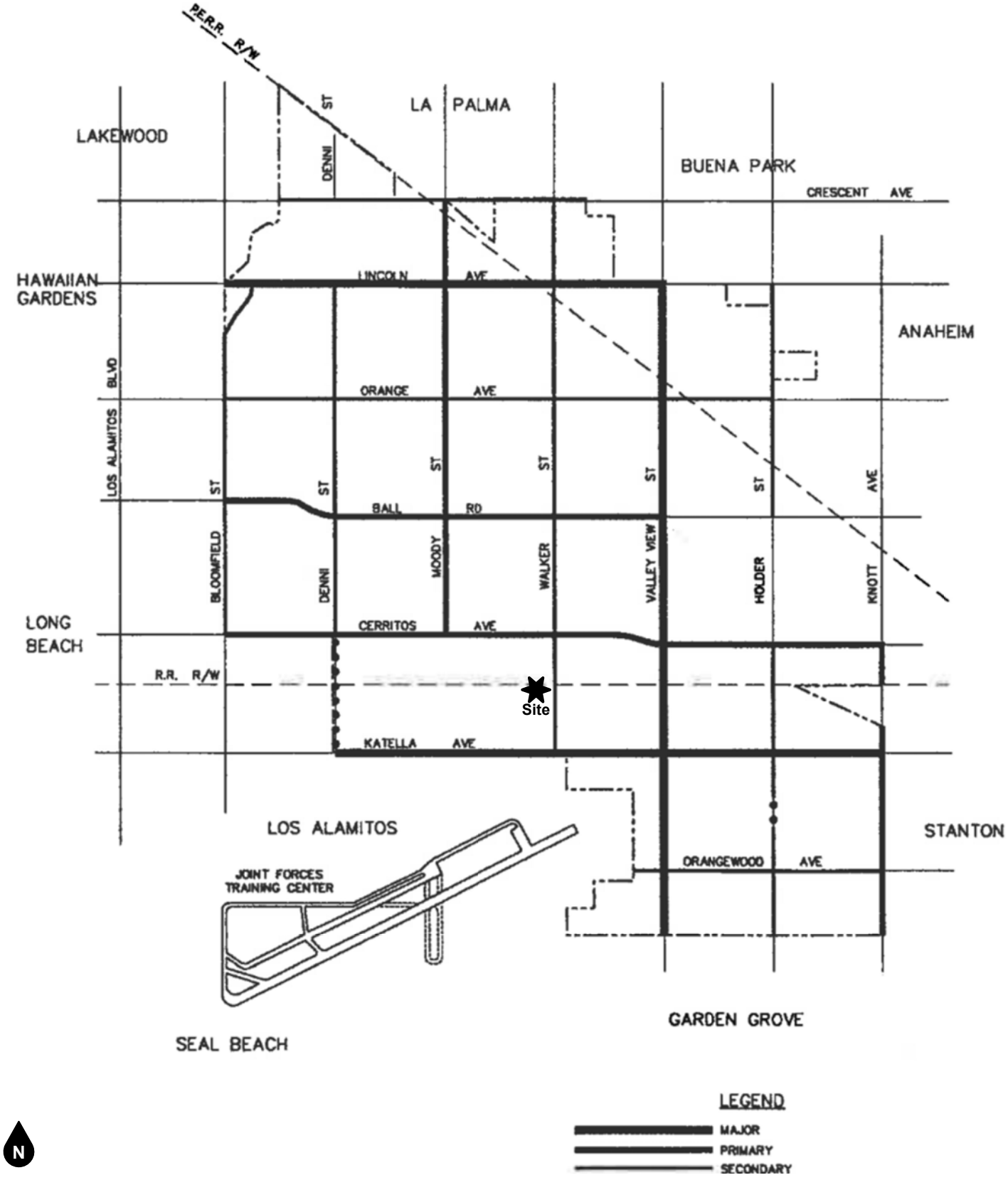
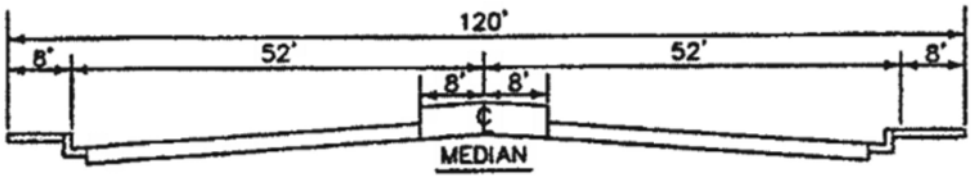


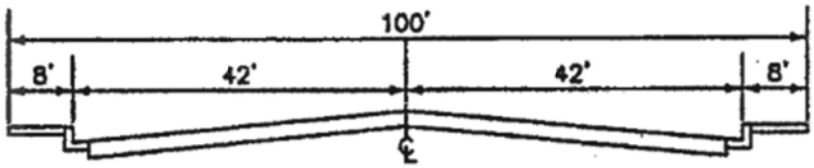
Figure 7
City of Cypress General Plan Circulation Element

Source: City of Cypress

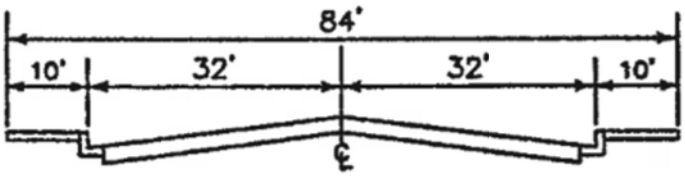
MAJOR STREET



PRIMARY STREET



SECONDARY STREET



LINCOLN AVENUE TYPICAL STREET SECTION

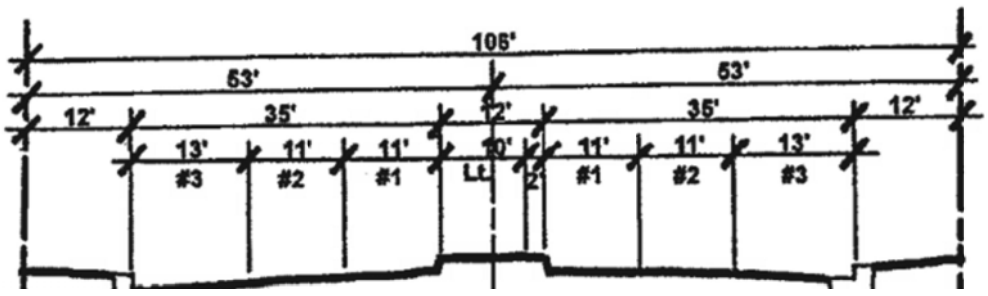


Figure 8
City of Cypress General Plan Roadway Cross-Sections

Source: City of Cypress

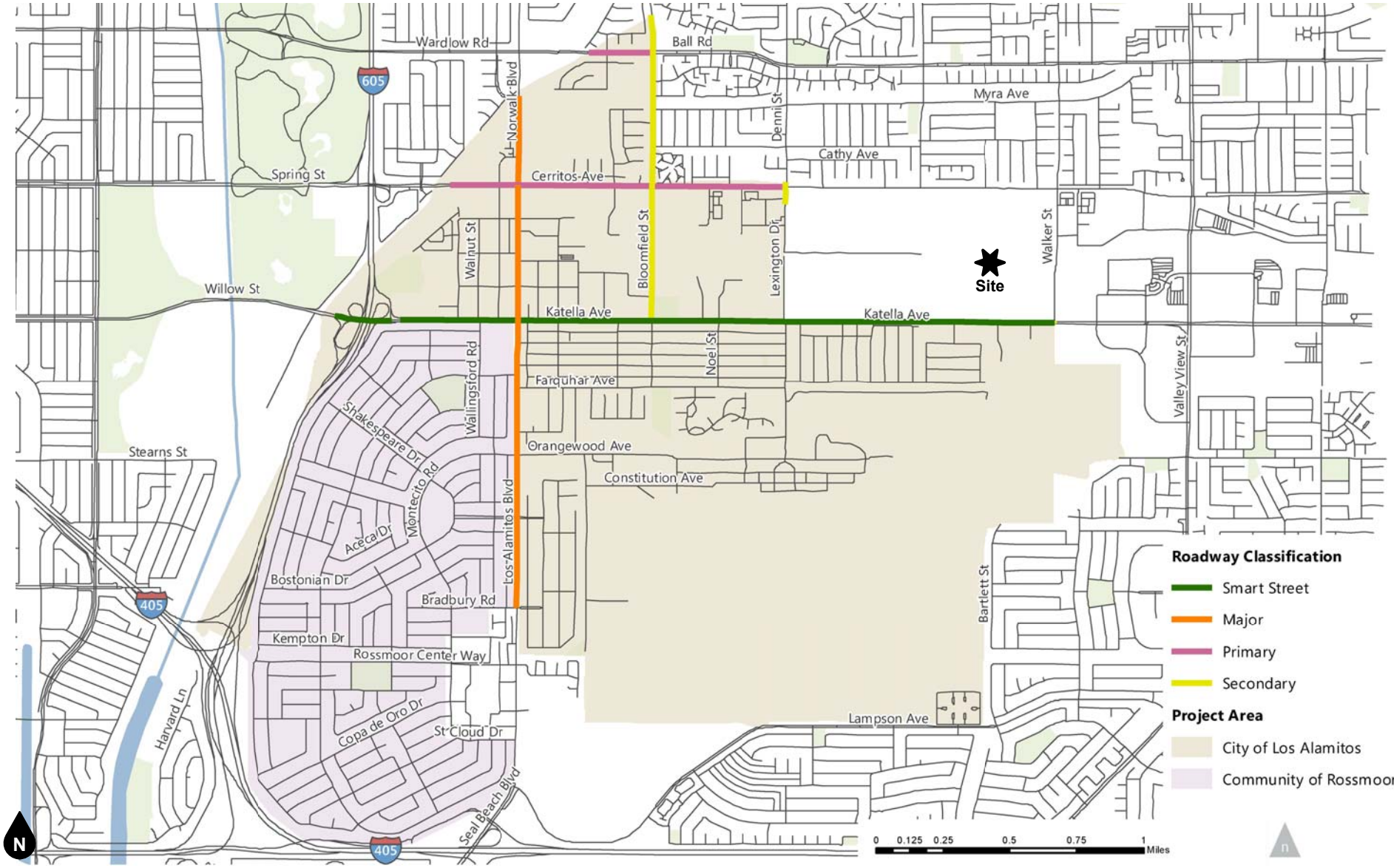


Figure 9
City of Los Alamitos General Plan Circulation Element

Source: City of Los Alamitos

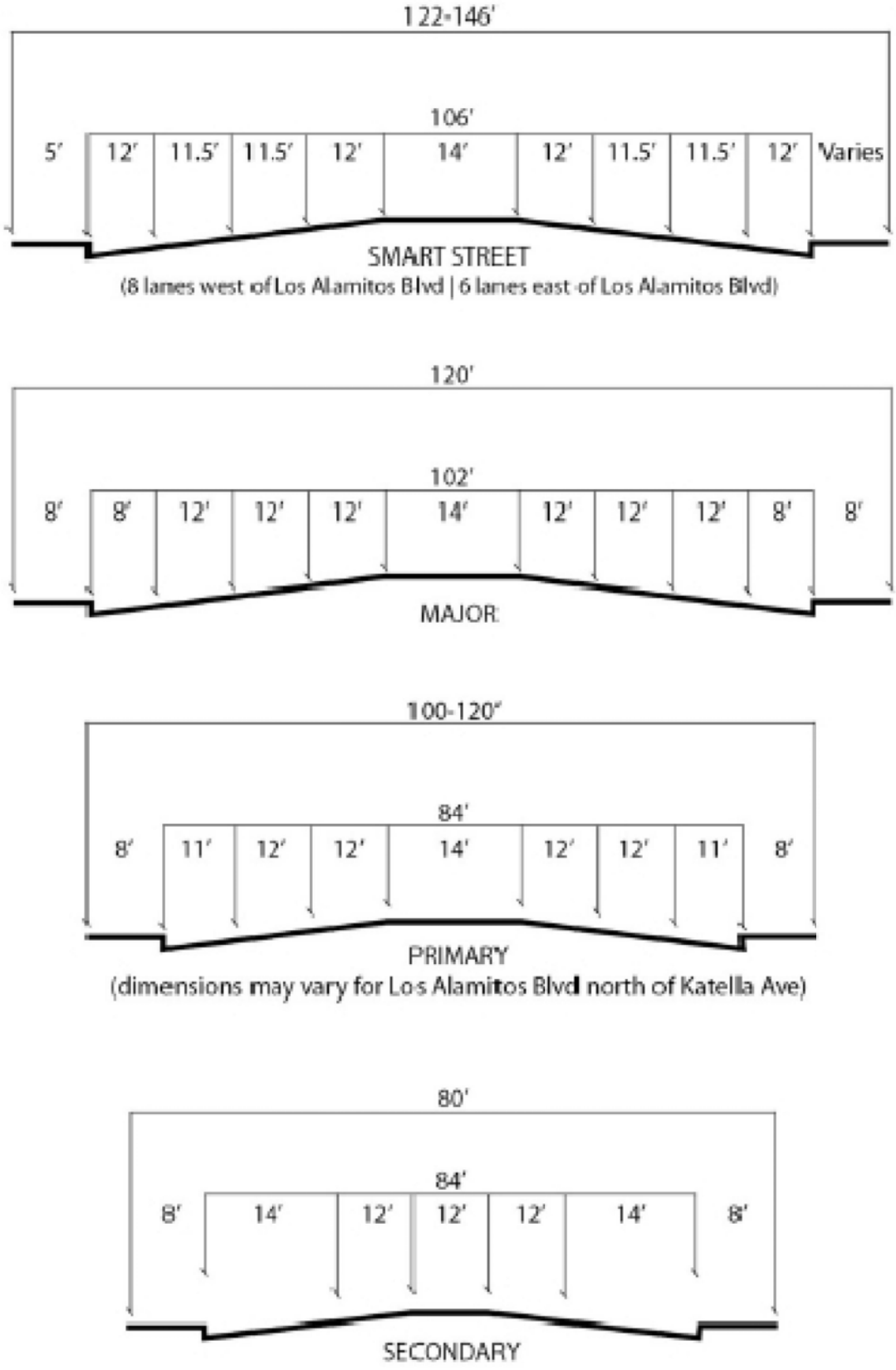
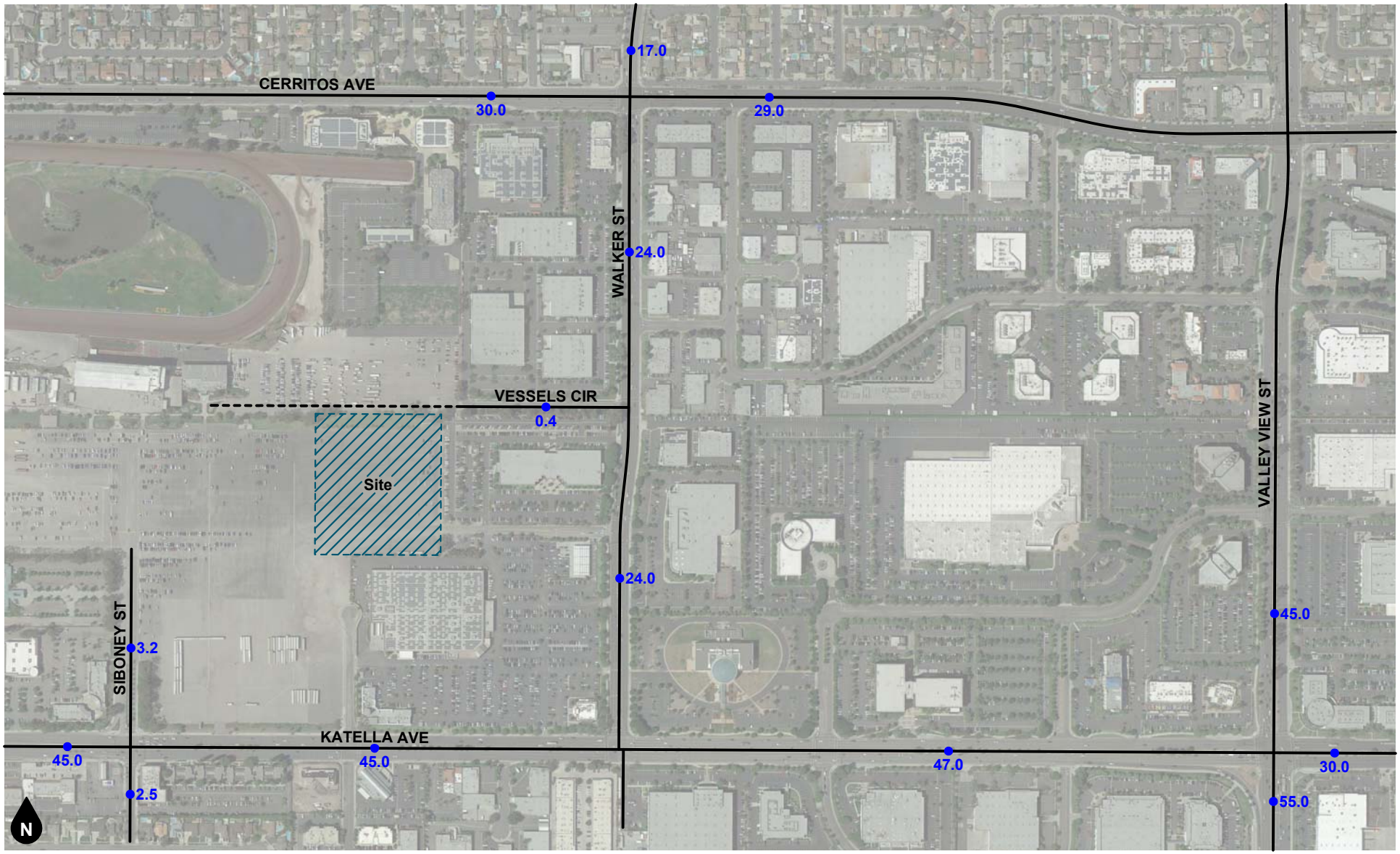


Figure 10
City of Los Alamitos General Plan Roadway Cross-Sections

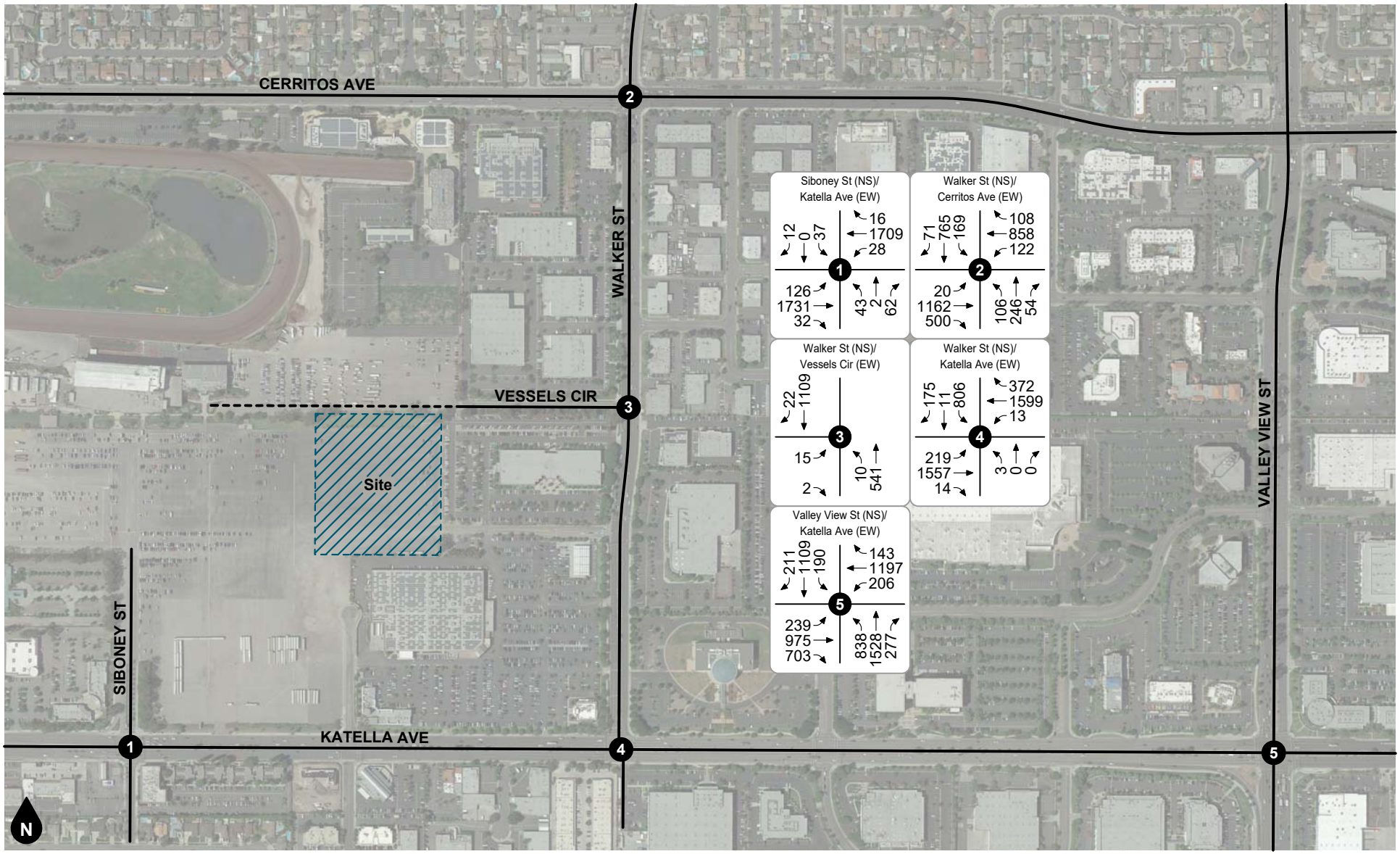
Source: City of Los Alamitos



Legend

●## Vehicles Per Day (1,000's)

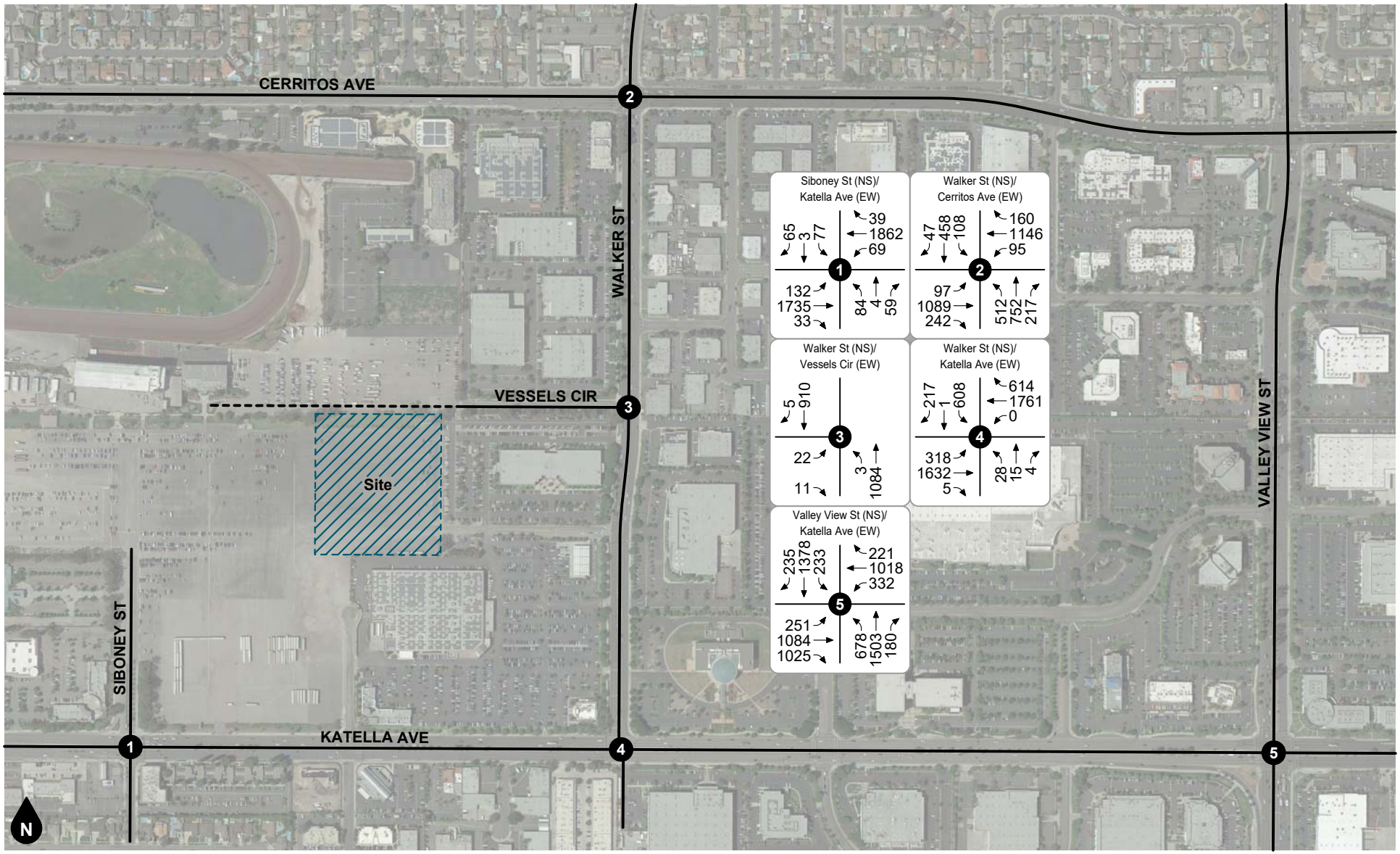
Figure 11
Existing Average Daily Traffic Volumes



Legend

Study Intersection

Figure 12
Existing AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 13
Existing PM Peak Hour Intersection Turning Movement Volumes

4. PROJECT TRIP FORECASTS

This section describes how project trip generation, trip distribution, and trip assignment forecasts were developed. The forecast project volumes are illustrated on figures contained in this section.

PROJECT TRIP GENERATION

Table 2 shows the project trip generation based upon trip generation rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017). The project trip generation forecast is determined by multiplying the trip generation rates by the land use quantity. Trip generation rates for Multi-Family Housing (Low-Rise) (ITE Land Use Code 220) were used.

As shown in Table 2, the proposed project is forecast to generate approximately 988 daily trips, including 62 trips during the AM peak hour and 76 trips during the PM peak hour.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

To provide project site access, the project proposes to construct the extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage.

Figure 14 shows the forecast directional distribution patterns for the project generated trips. The project trip distribution patterns are based on review of existing volume data, surrounding land uses, and the local and regional roadway facilities in the project vicinity.

Based on the identified project trip generation and distributions, project average daily traffic volumes have been calculated and are shown on Figure 15. The project-generated AM and PM peak hour intersection turning movement volumes are shown on Figure 16 and Figure 17.

FUTURE VESSELS CIRCLE EXTENSION TO SIBONEY STREET

While access to/from the project site will exclusively utilize Vessels Circle to/from Walker Street, a connection from Vessels Circle westbound to Siboney Street may occur at some point in the future as the Los Alamitos Racecourse redevelops. If this connection were to occur, it is expected that the 20% of outbound traffic from the project site currently shown as travelling eastbound on Vessels Circle to Walkers Street, southbound on Walker Street to Katella Avenue, and westbound on Katella Avenue would be redirected to travel westbound on Vessels Circle from the project site to Siboney Street, southbound on Siboney Street to Katella Avenue, and westbound on Katella Avenue. Inbound trips would experience the reverse travel pattern. Thus, Vessels Circle from Walker Street to Katella Avenue and Katella Avenue from Siboney Street to Walker Street would experience a 20% reduction in project-generated trips. This connection would reduce eastbound left turn movements and southbound right turn movements at the intersection of Walker Street at Katella Avenue by 20% of project generated trips. The northern leg of the Siboney Street at Katella Avenue intersection would experience a 20% increase in project-generated trips.

Based on the trip generation and the aforementioned trip directional distributional patterns resulting from this connection, it is anticipated that this connection would result in minor and statistically insignificant changes to the operation of the intersection of Siboney Street and Katella Avenue, which would be evaluated further as the Los Alamitos Racecourse redevelops.

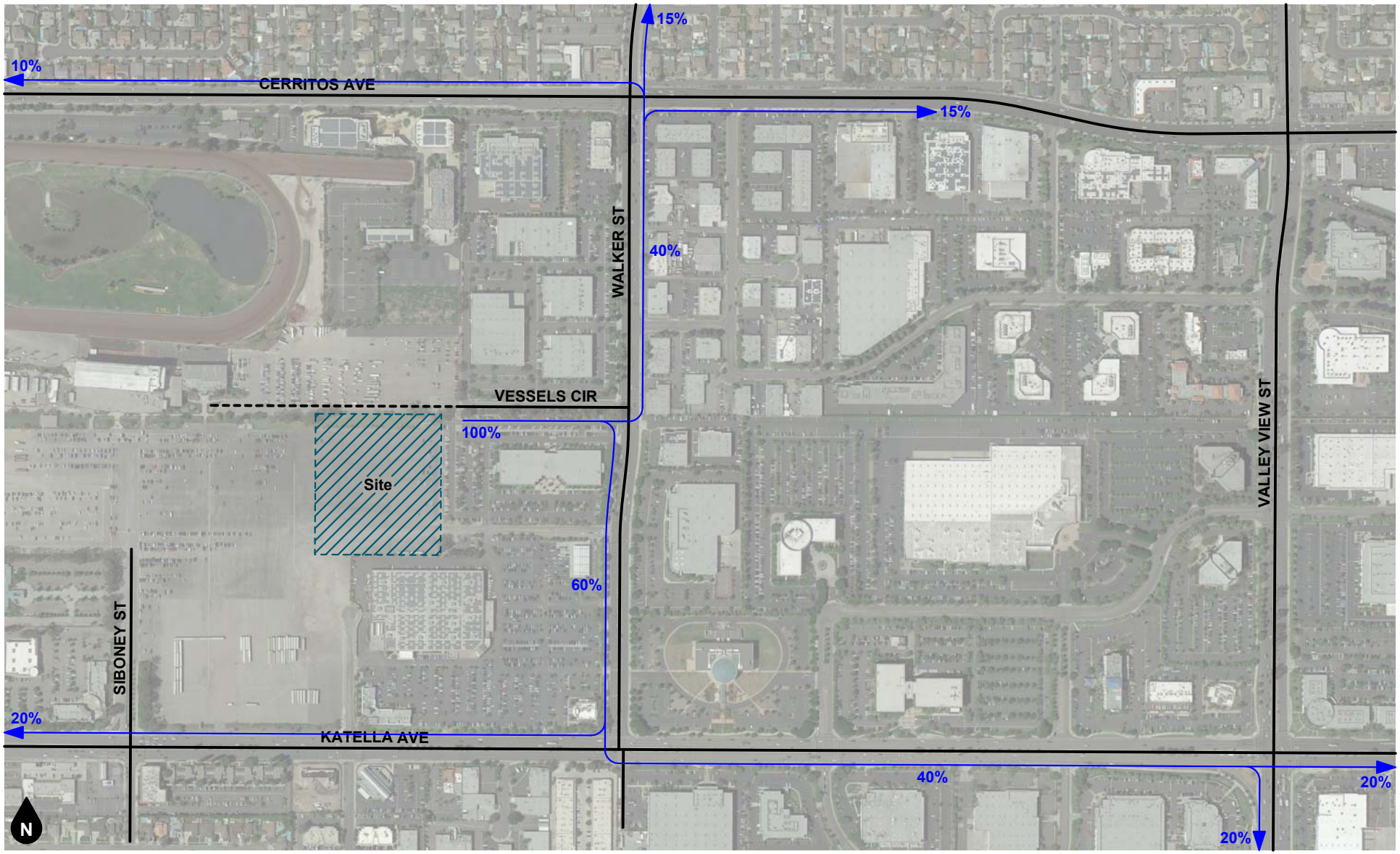
Table 2
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Units[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Multi-Family Housing (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated								
		AM Peak Hour			PM Peak Hour			
Land Use	Quantity	In	Out	Total	In	Out	Total	Daily
Multi-Family Housing (Low-Rise)	135 DU	14	48	62	48	28	76	988

Notes:
(1) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = Land Use Code.

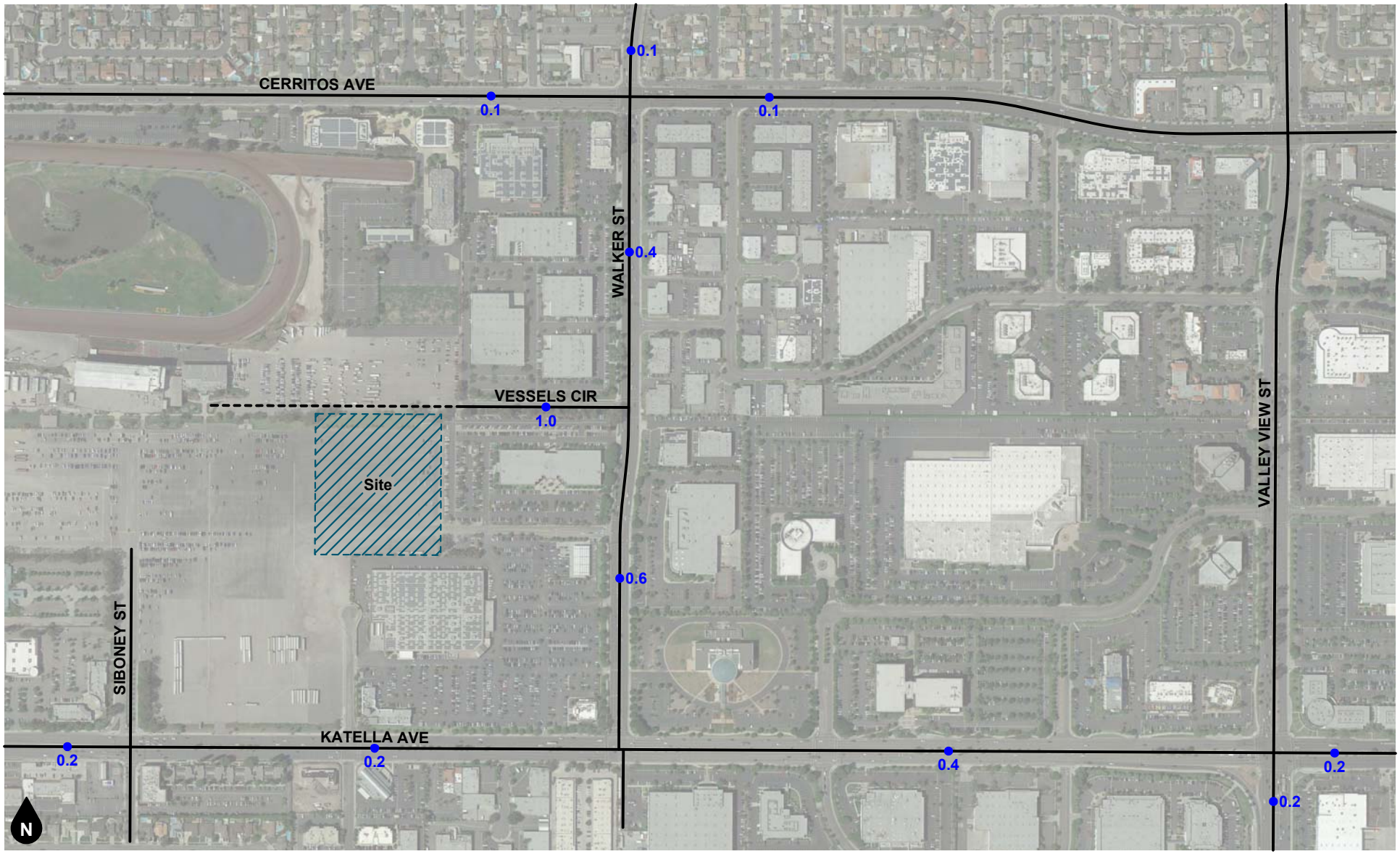
(2) DU = Dwelling Units



Legend

10% Percent To/From Project

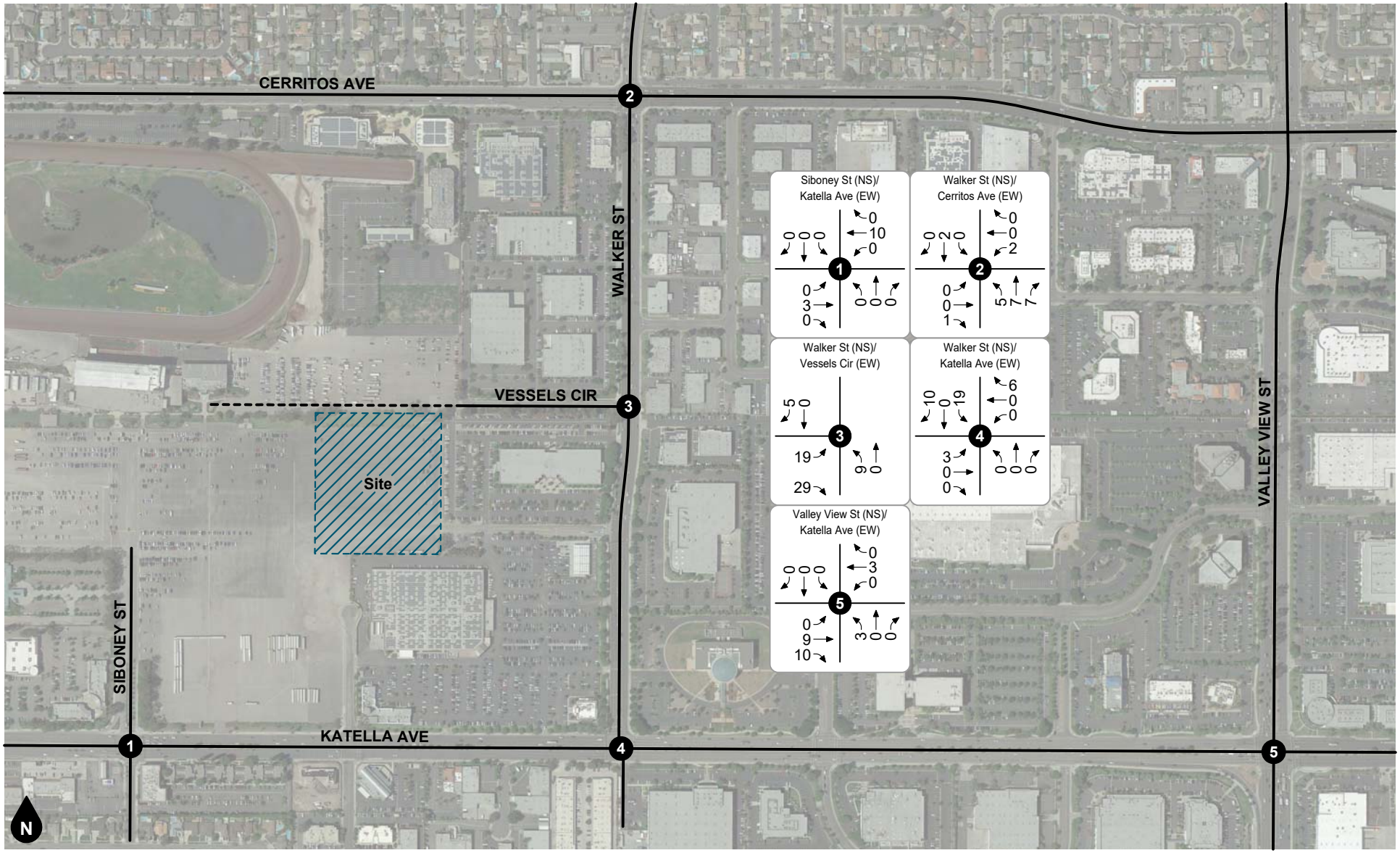
Figure 14
Project Trip Distribution



Legend

●## Vehicles Per Day (1,000's)

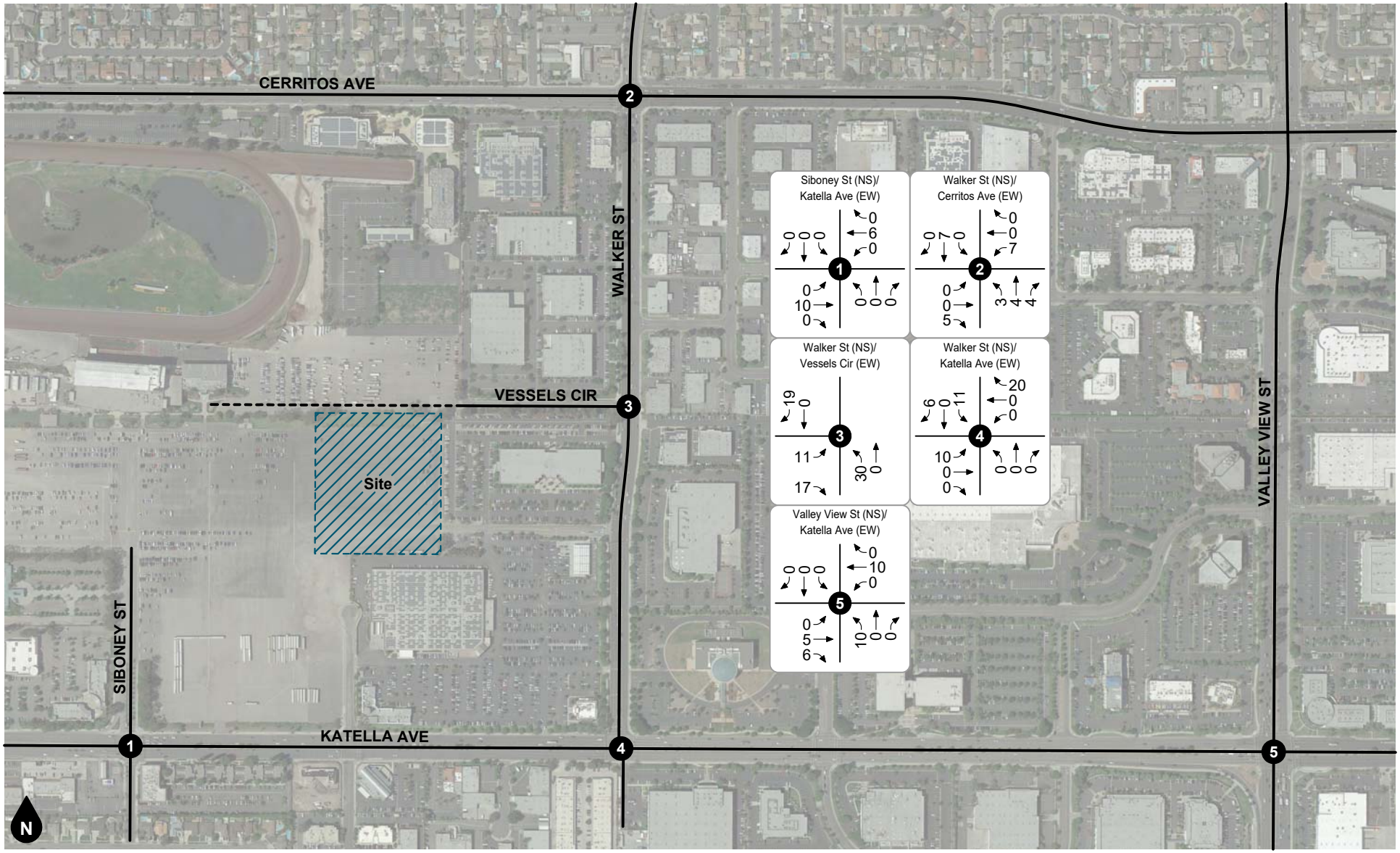
Figure 15
Project Average Daily Traffic Volumes



Legend

Study Intersection

Figure 16
Project AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 17
Project PM Peak Hour Intersection Turning Movement Volumes

5. FUTURE VOLUME FORECASTS

This section describes how future volume forecasts for each analysis scenario were developed. Forecast study area volumes are illustrated on figures contained in this section.

CUMULATIVE TRIPS

Ambient Growth Rate

To account for ambient growth on roadways, existing roadway volumes were increased by a growth rate of one percent (1%) per year over two years for Opening Year (2022) conditions. This equates to a total growth factor of approximately 1.02. The ambient growth rate was conservatively applied to all movements at the study intersections.

Other Development

To account for trips generated by future development, trips generated by pending and approved other development projects in the Cities of Cypress and Los Alamitos were added to the study area. There are two separate projects located at 6400 Katella Avenue. The Amazon Facility project produces the greater trip generation and was utilized in this report to provide for a conservative analysis. Table 3 shows the trip generation summary for other development projects. Figure 18 shows the other development location map.

Figure 19 shows the forecast average daily traffic volumes for the other development. Figure 20 and Figure 21 show the forecast AM and PM peak hour intersection turning movement volumes for trips generated by other developments.

ANALYSIS SCENARIO VOLUME FORECASTS

Existing Plus Project

Existing Plus Project volume forecasts were developed by adding the project-generated trips to Existing volumes. Existing Plus Project average daily traffic volumes are shown on Figure 22. Existing Plus Project AM and PM peak hour intersection turning movement volumes are shown on Figure 23 and Figure 24.

Opening Year (2022) Without Project

To develop Opening Year (2022) Without Project volume forecasts, Existing volumes were combined with ambient growth and trips generated by other developments. Opening Year (2022) Without Project average daily traffic volumes are shown on Figure 25. Opening Year (2022) Without Project AM and PM peak hour intersection turning movement volumes are shown Figure 26 and Figure 27.

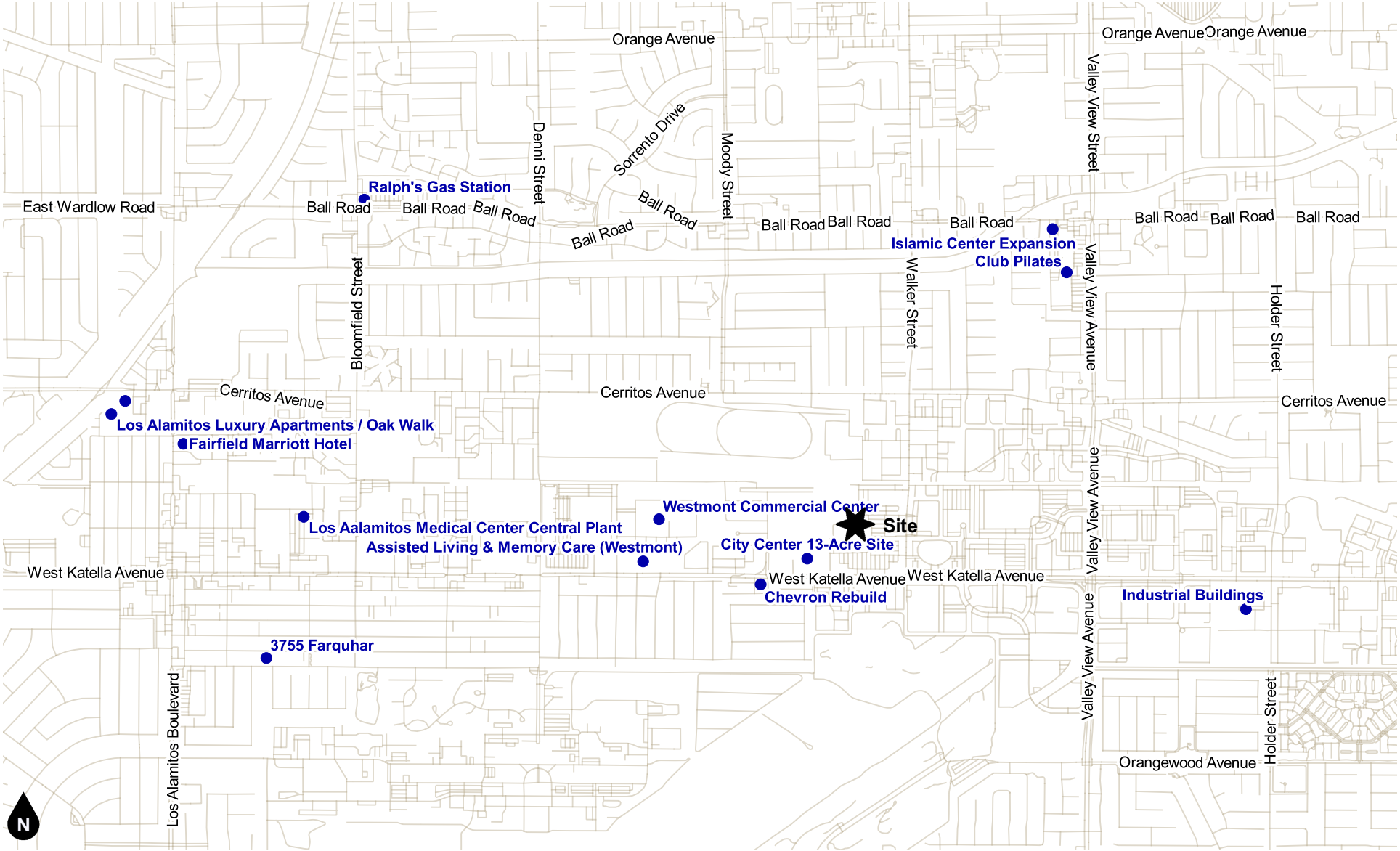
Opening Year (2022) With Project

Opening Year (2022) With Project volume forecasts were developed by adding project-generated trips to the Opening Year (2022) Without Project forecast. Opening Year (2022) With Project average daily traffic volumes are shown on Figure 28. Opening Year (2022) With Project AM and PM peak hour intersection turning movement volumes are shown on Figure 29 and Figure 30.

Table 3
Other Development Trip Generation

Project	Land Use	Source[1]	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
Islamic Center Expansion	Church	ITE 560	5.100	TSF	1	1	2	1	1	2	35
City Center 13-Acre Site	Shopping Center	ITE 820	20.800	TSF	12	8	20	38	41	79	785
	Multi-Family Housing (Mid-Rise)	ITE 221	251	DU	23	67	90	68	42	110	1,365
	Hotel	ITE 310	120	RM	34	22	56	37	35	72	1,003
	Multiplex Movie Theater	ITE 445	10	SC	0	0	0	70	67	137	2,200
	Internal Capture	*[a]*			*-1*	*-1*	*-2*	*-26*	*-26*	*-52*	*-375*
	Pass-By	*[a]*			*0*	*0*	*0*	*-11*	*-12*	*-23*	*0*
	Subtotal				68	96	164	176	147	323	4,978
Assisted Living & Memory Care (Westmont)	Assisted Living Facility	ITE 254	129	BD	15	10	25	13	21	34	335
Westmont Commercial Center	Shopping Center	ITE 820	47.800	TSF	28	17	45	87	95	182	1,804
	Pass-By (34% PM)	*[b]*			--	--	--	*-30*	*-32*	*-62*	*-62*
	Subtotal				28	17	45	57	63	120	1,742
Club Pilates	Pilates/Yoga Studio	ITE 820	1.500	TSF	1	1	2	3	3	6	57
6400 Katella Avenue Amazon Facility	Warehousing	[c]	145.004	TSF	27	144	171	219	46	265	1,424
Fairfield Marriott	Hotel	ITE 310	108	RM	30	21	51	33	32	65	903
Oak Walk	Condominiums	ITE 220	50	DU	5	18	23	18	10	28	366
Los Alamitos Luxury Apartments	Apartments	ITE 220	107	DU	11	39	50	38	22	60	783
3755 Farquhar	Condominiums	ITE 220	4	DU	1	1	2	1	1	2	30
Chevron Rebuild	Gasoline Station w/ Conv. Market	ITE 945	2.274	TSF	88	85	173	102	99	201	3,275
	Pass-By (62% AM, 56% PM)	*[b]*			*-55*	*-53*	*-108*	*-57*	*-55*	*-112*	*-1,834*
	Subtotal				33	32	65	45	44	89	1,441
Los Alamitos Medical Center Central Plant	Hospital	ITE 610	11.829	TSF	7	4	11	4	8	12	127
Ralph's Gas Station	Gas Station	[d]	--	--	64	61	125	71	69	140	2,054
Total					291	445	736	679	467	1,146	14,275

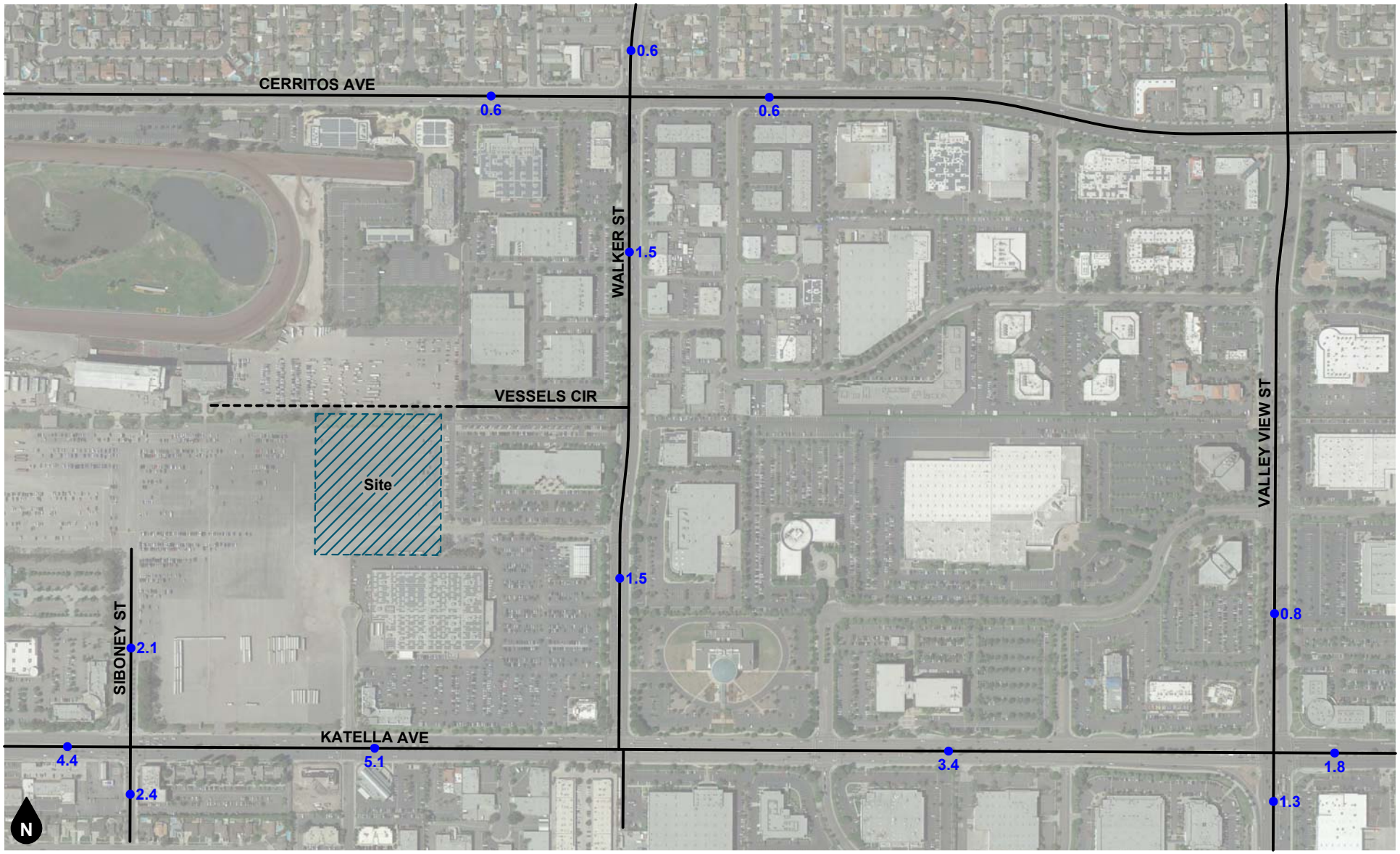
Notes:
(1) ITE = Institute of Transportation Engineers, Trip Generation Manual (10th Edition, 2017); ### = Land Use Code
[a] = Traffic Impact Analysis Cypress City Center (LSA, December 2019)
[b] = ITE Trip Generation Handbook (3rd Edition, 2017)
[c] = Katella Avenue Amazon Facility Traffic Impact Analysis (Urban Crossroads, June 30, 2020)
[d] = Trip generation/distribution provided by City of Cypress.
(2) TSF = Thousand Square Feet; DU = Dwelling Units; RM = Rooms; SC = Movie Screens; BD = Beds



Legend

- Other Development

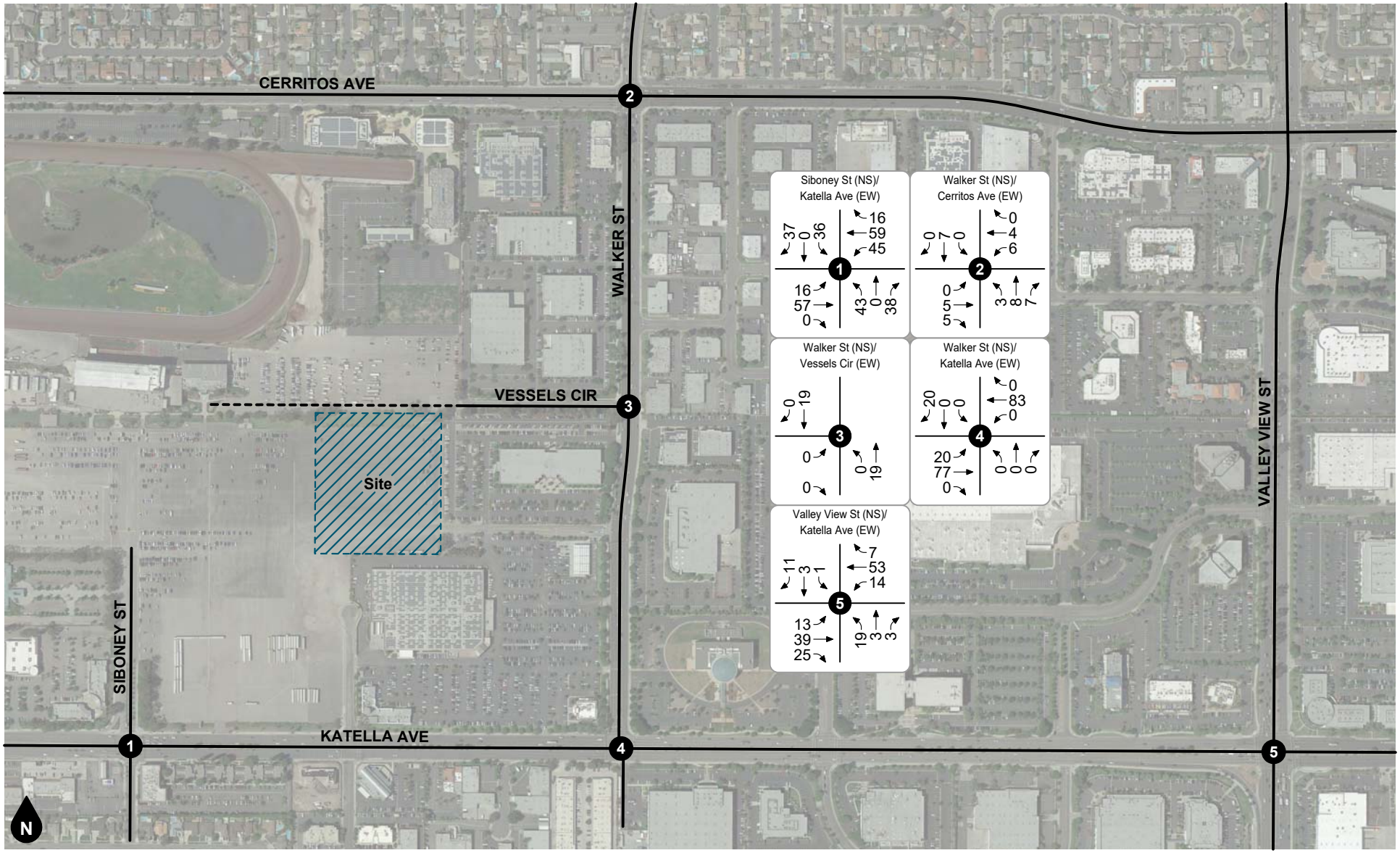
Figure 18
Other Development Location Map



Legend

●## Vehicles Per Day (1,000's)

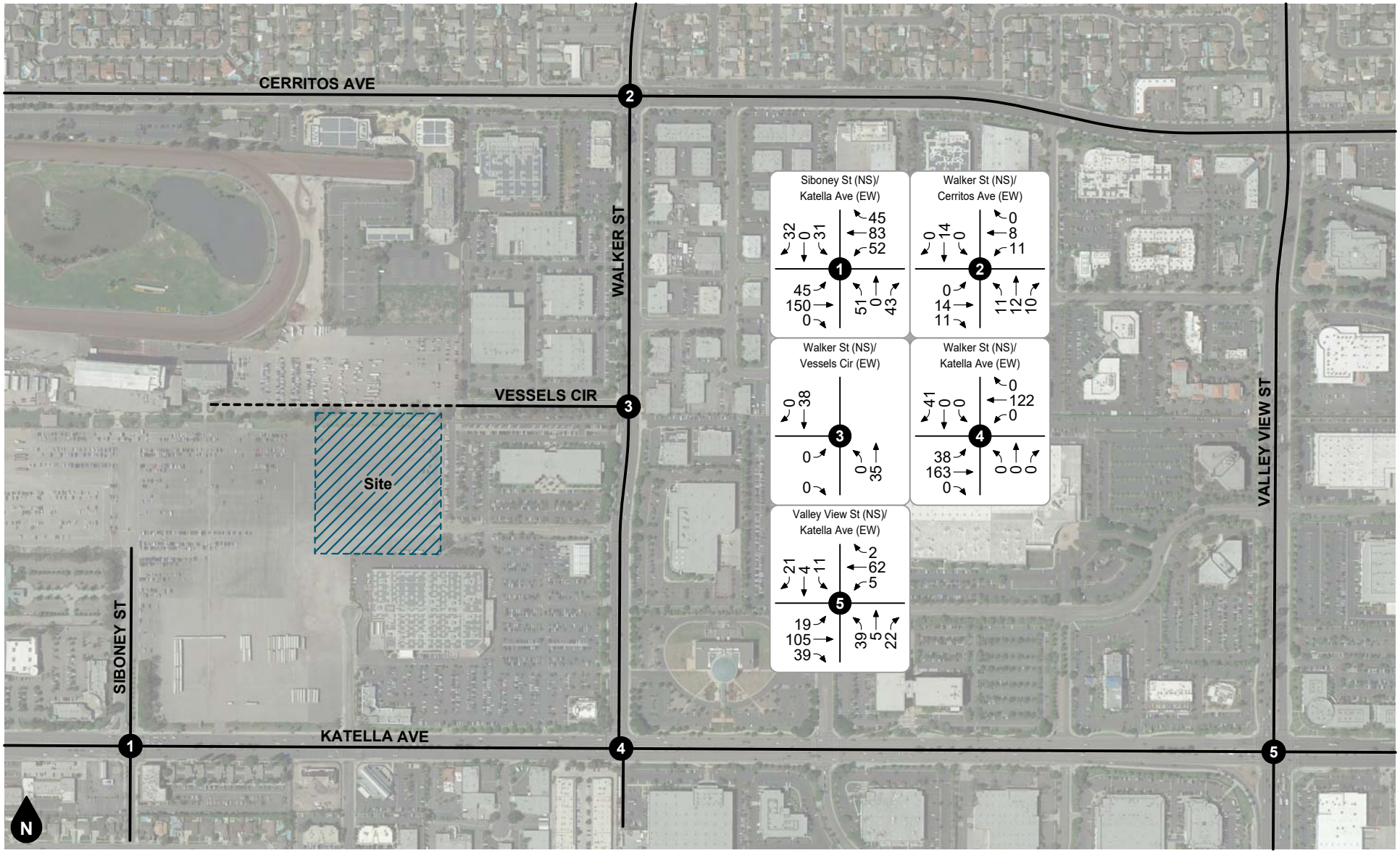
Figure 19
Other Development Average Daily Traffic Volumes



Legend

Study Intersection

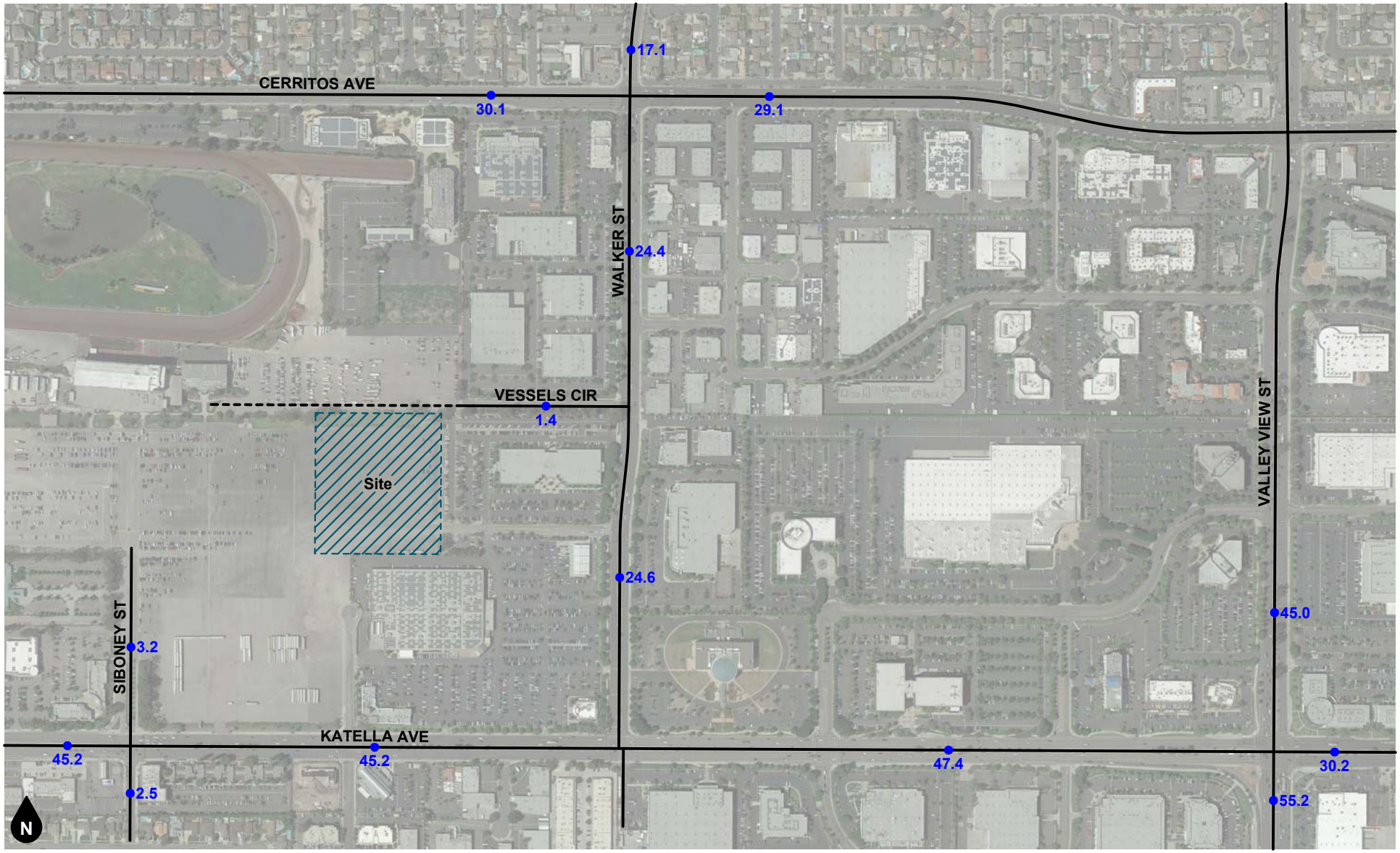
Figure 20
Other Development
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

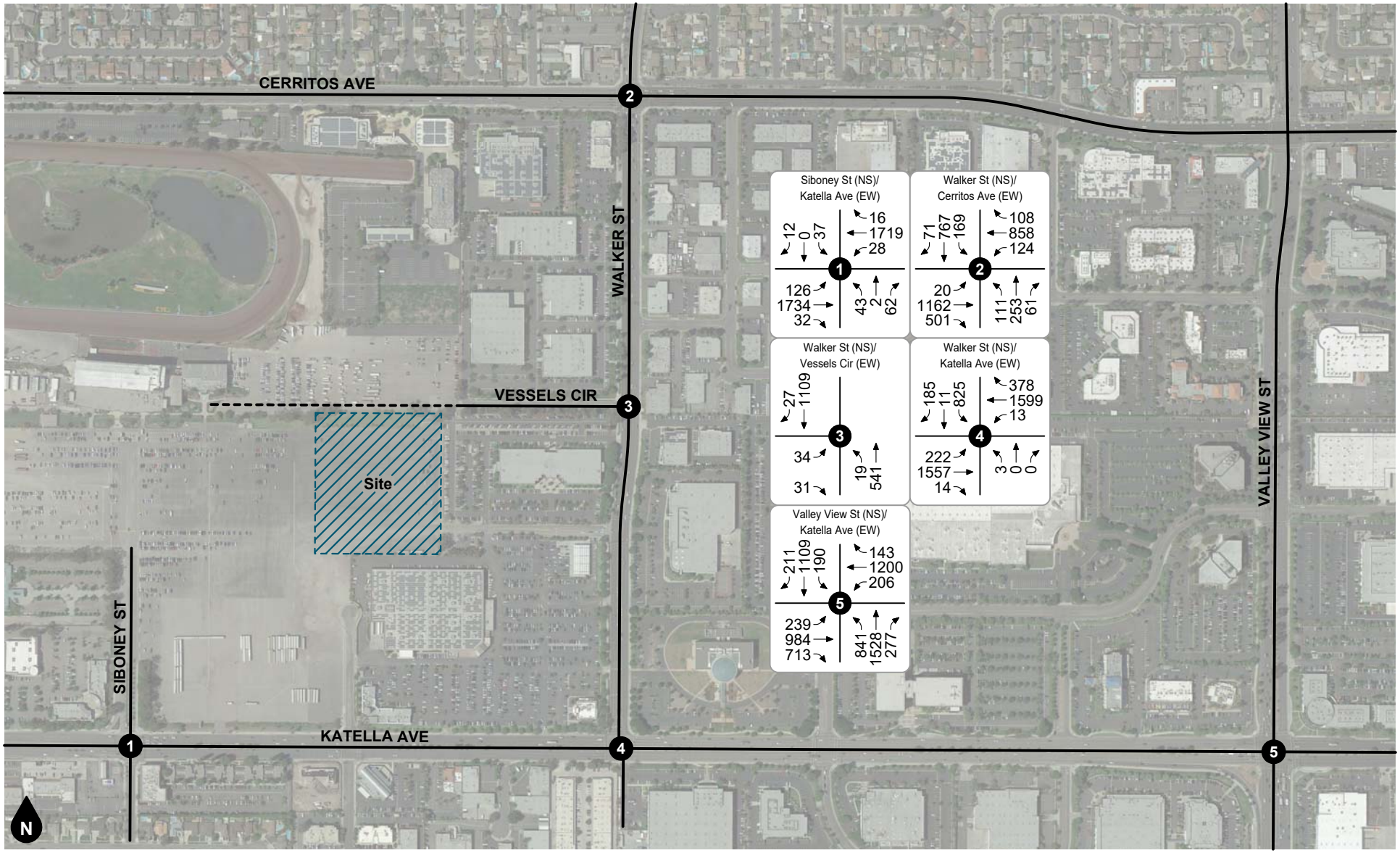
Figure 21
Other Development
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

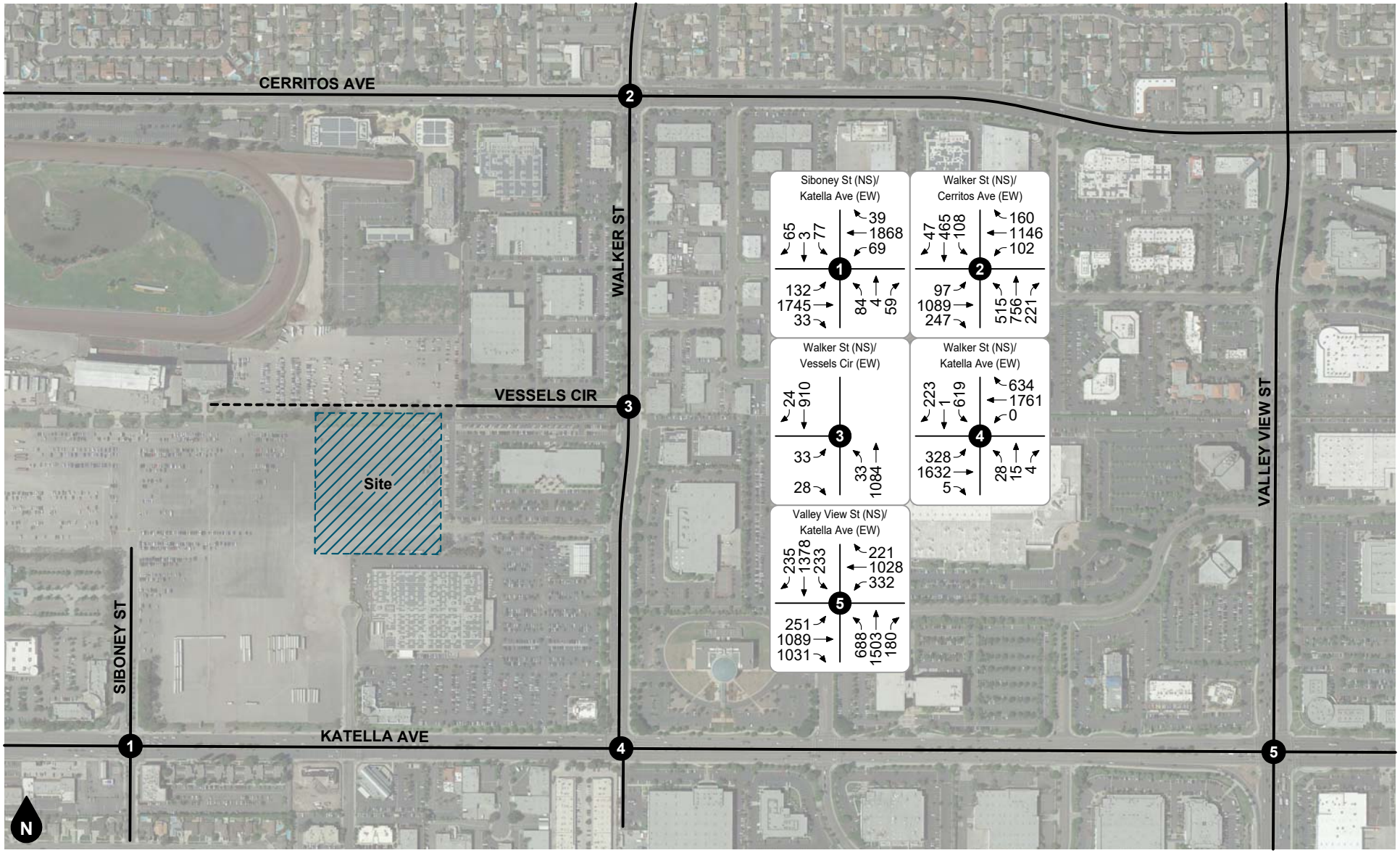
Figure 22
Existing Plus Project Average Daily Traffic Volumes



Legend

Study Intersection

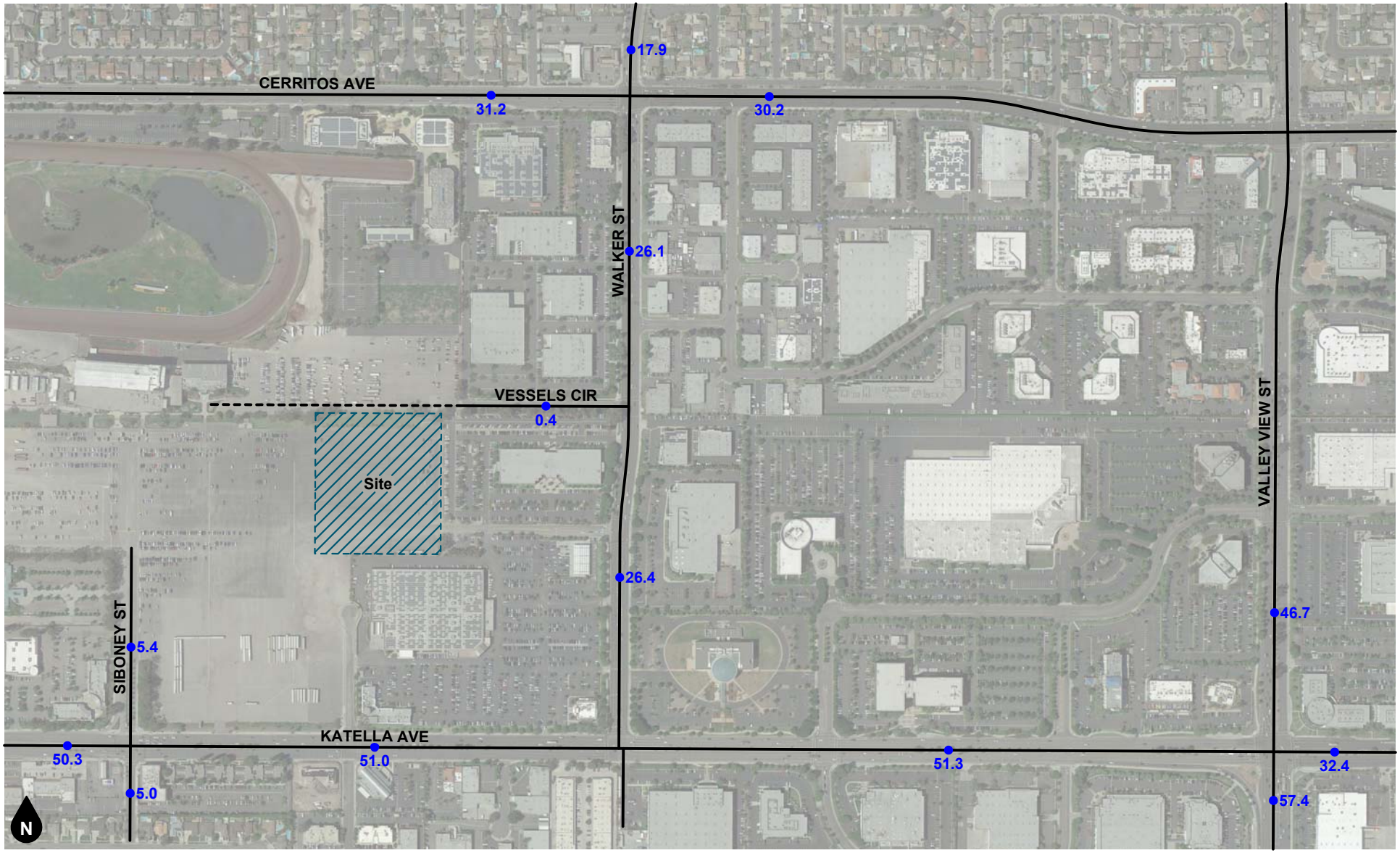
Figure 23
Existing Plus Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

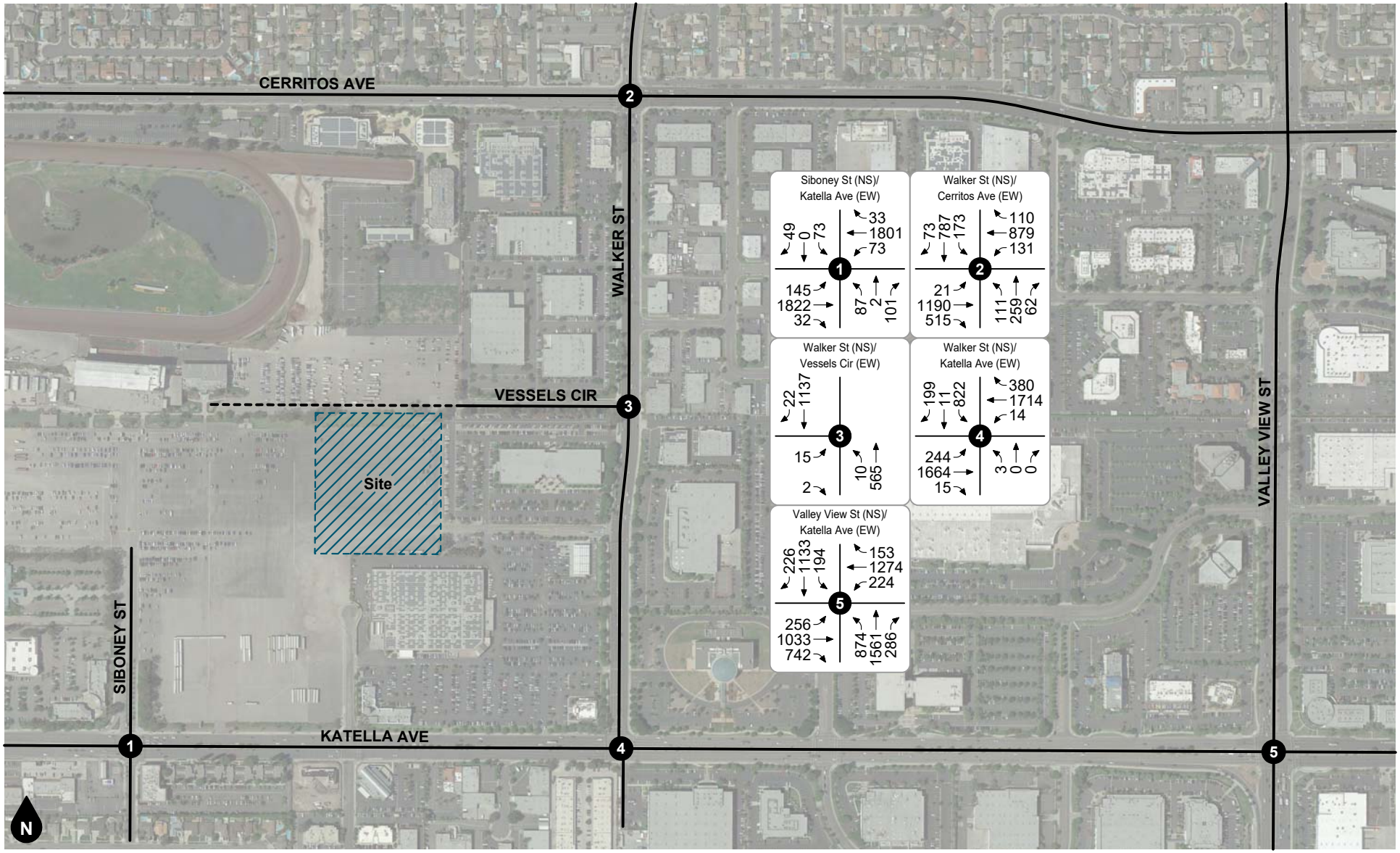
Figure 24
Existing Plus Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

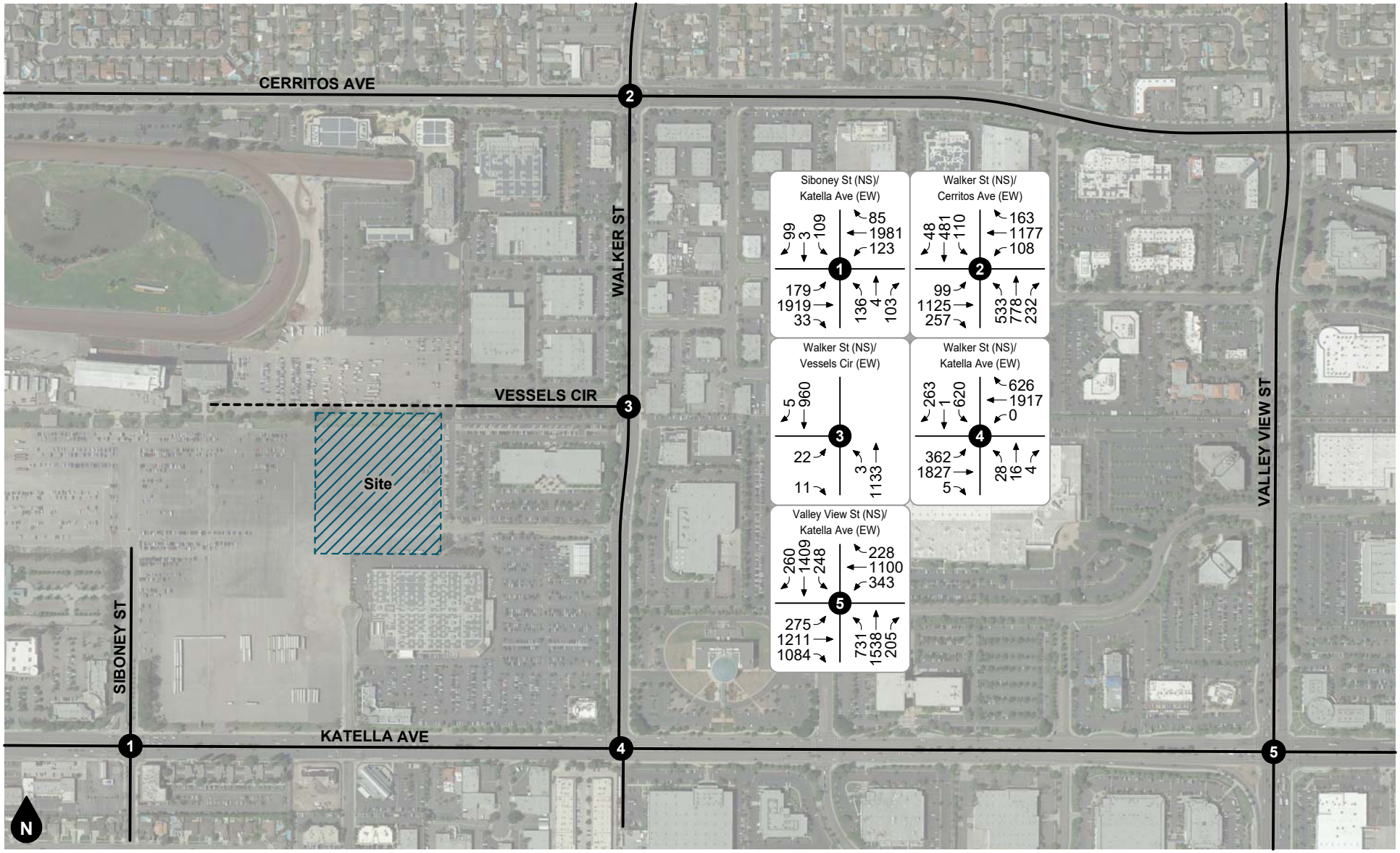
Figure 25
Opening Year (2022) Without Project Average Daily Traffic Volumes



Legend

Study Intersection

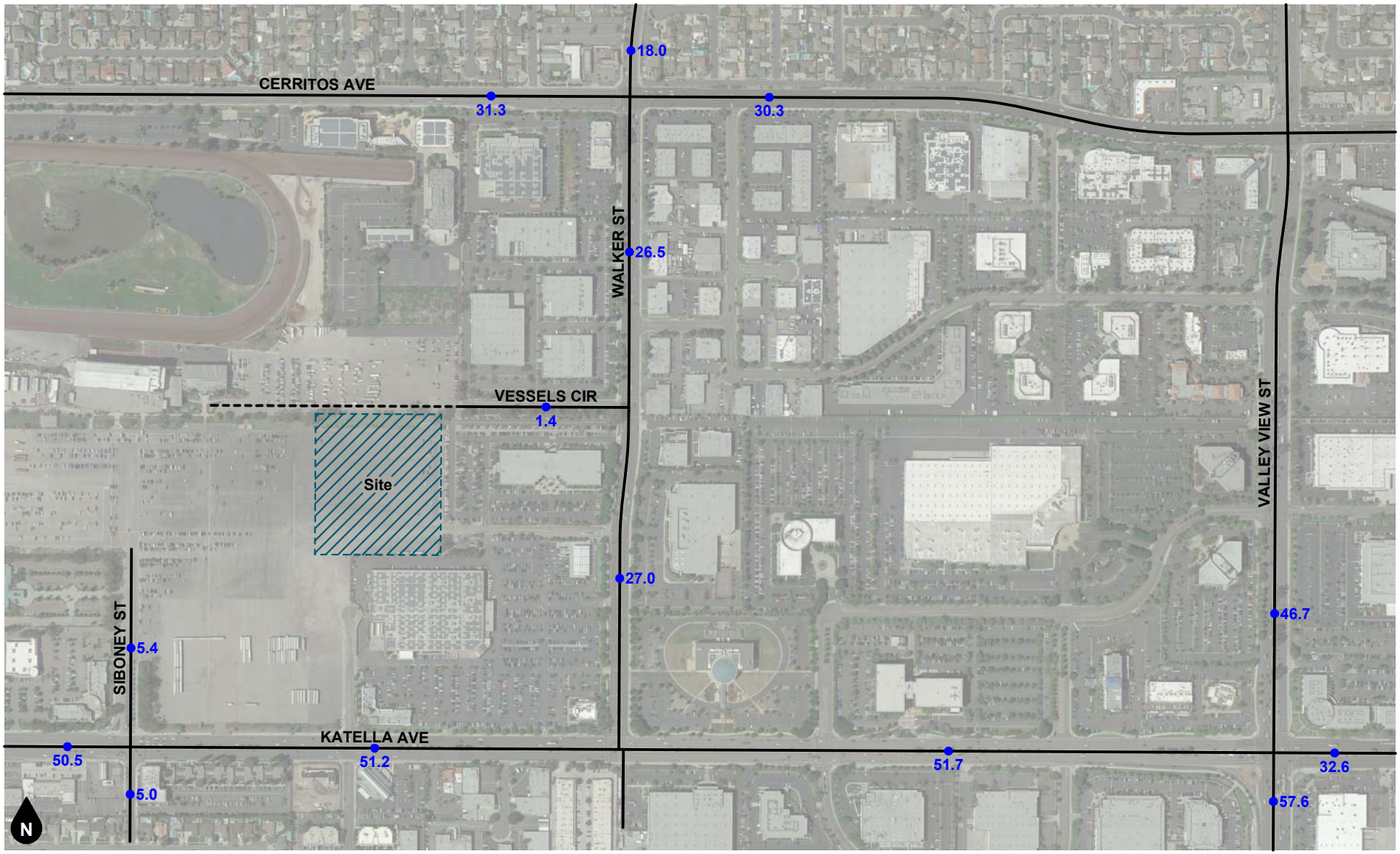
Figure 26
Opening Year (2022) Without Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

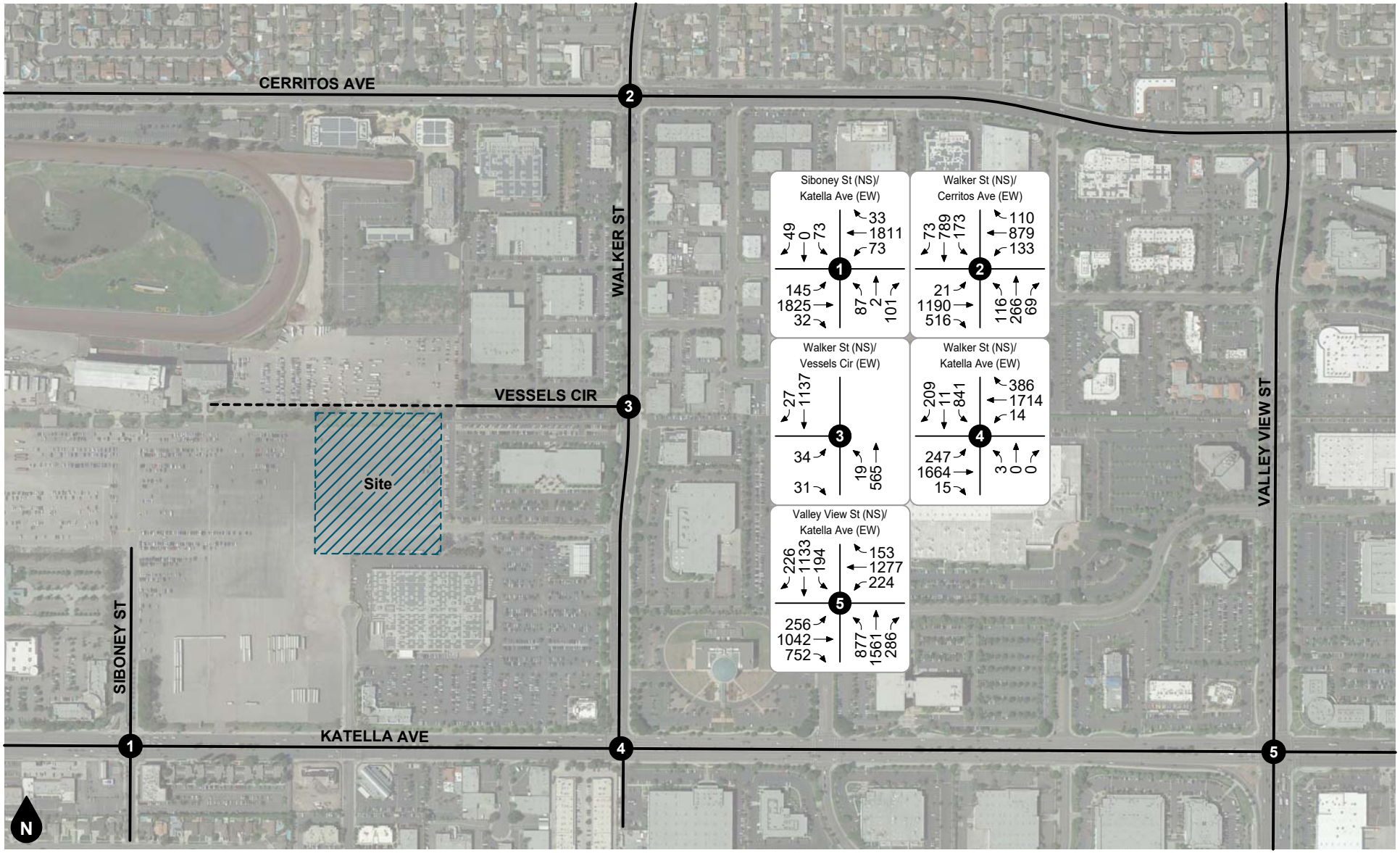
Figure 27
Opening Year (2022) Without Project
PM Peak Hour Intersection Turning Movement Volumes



Legend

●## Vehicles Per Day (1,000's)

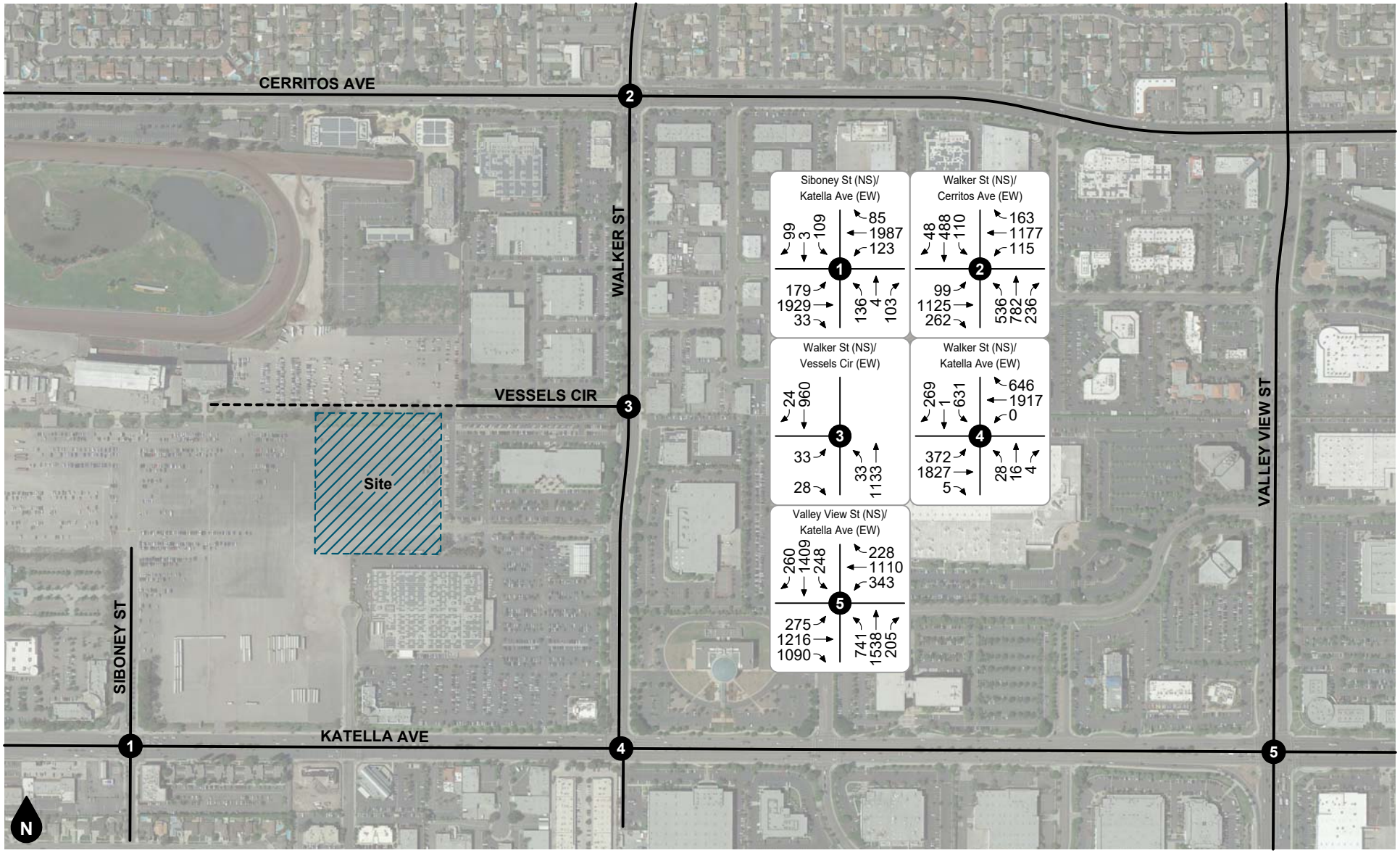
Figure 28
Opening Year (2022) With Project Average Daily Traffic Volumes



Legend

Study Intersection

Figure 29
Opening Year (2022) With Project
AM Peak Hour Intersection Turning Movement Volumes



Legend

Study Intersection

Figure 30
Opening Year (2022) With Project
PM Peak Hour Intersection Turning Movement Volumes

6. FUTURE LEVEL OF SERVICE ANALYSIS

Detailed intersection Level of Service calculation worksheets for each of the following analysis scenarios are provided in Appendix D.

EXISTING PLUS PROJECT

The study intersection Levels of Service for Existing Plus Project conditions are shown in Table 4. As shown in Table 4, the study intersections are forecast to operate at Levels of Service C or better during the peak hours for Existing Plus Project conditions.

Table 5 evaluates the project effect at the study intersections for Existing Plus Project conditions. As shown in Table 5, the proposed project is forecast to result in no operational Level of Service deficiencies at the study intersections for Existing Plus Project conditions.

OPENING YEAR (2022) WITHOUT PROJECT

The study intersection Levels of Service for Opening Year (2022) Without Project conditions are shown in Table 6. As shown in Table 6, the study intersections are forecast to operate at Levels of Service D or better during the peak hours for Opening Year (2022) Without Project conditions.

OPENING YEAR (2022) WITH PROJECT

The study intersection Levels of Service for Opening Year (2022) With Project conditions are shown in Table 7. As shown in Table 7, the study intersections are forecast to continue operating at Levels of Service D or better during the peak hours for Opening Year (2022) With Project conditions.

Table 8 evaluates the project effect at the study intersections for Opening Year (2022) With Project conditions. As shown in Table 8, the proposed project is forecast to result in no operational Level of Service deficiencies at the study intersections for Opening Year (2022) With Project conditions.

Table 4
Existing Plus Project Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU[2]	LOS[3]	ICU[2]	LOS[3]
1.	Siboney St at Katella Ave	TS	0.471	A	0.535	A
2.	Walker St at Cerritos Ave	TS	0.697	B	0.746	C
3.	Walker St at Vessels Cir	TS	0.415	A	0.364	A
4.	Walker St at Katella Ave	TS	0.676	B	0.718	C
5.	Valley View St at Katella Ave	TS	0.738	C	0.766	C

Notes:
(1) TS = Traffic Signal
(2) ICU = Intersection Capacity Utilization
(3) LOS = Level of Service

Table 5
Existing Plus Project Operational Deficiencies Evaluation

ID	Study Intersection	AM Peak Hour						PM Peak Hour					
		Existing		Existing Plus Project		Project-Related Change	Operational Deficiency?[3]	Existing		Existing Plus Project		Project-Related Change	Operational Deficiency?[3]
		ICU[1]	LOS[2]	ICU[1]	LOS[2]			ICU[1]	LOS[2]	ICU[1]	LOS[2]		
1.	Siboney St at Katella Ave	0.470	A	0.471	A	+0.001	No	0.534	A	0.535	A	+0.001	No
2.	Walker St at Cerritos Ave	0.693	B	0.697	B	+0.004	No	0.743	C	0.746	C	+0.003	No
3.	Walker St at Vessels Cir	0.397	A	0.415	A	+0.018	No	0.334	A	0.364	A	+0.030	No
4.	Walker St at Katella Ave	0.670	B	0.676	B	+0.006	No	0.700	C	0.718	C	+0.018	No
5.	Valley View St at Katella Ave	0.737	C	0.738	C	+0.001	No	0.763	C	0.766	C	+0.003	No

Notes:

(1) ICU = Intersection Capacity Utilization

(2) LOS = Level of Service

(3) In the Cities of Cypress and Los Alamitos, an operational deficieny occurs if the project-related increase in ICU equals or exceeds 0.01 at Level of Service E or F.

Table 6
Opening Year (2022) Without Project Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU[2]	LOS[3]	ICU[2]	LOS[3]
1.	Siboney St at Katella Ave	TS	0.540	A	0.629	B
2.	Walker St at Cerritos Ave	TS	0.716	C	0.767	C
3.	Walker St at Vessels Cir	TS	0.406	A	0.349	A
4.	Walker St at Katella Ave	TS	0.705	C	0.731	C
5.	Valley View St at Katella Ave	TS	0.769	C	0.808	D

Notes:
(1) TS = Traffic Signal
(2) ICU = Intersection Capacity Utilization
(3) LOS = Level of Service

Table 7
Opening Year (2022) With Project Intersection Level of Service

ID	Study Intersection	Traffic Control[1]	AM Peak Hour		PM Peak Hour	
			ICU[2]	LOS[3]	ICU[2]	LOS[3]
1.	Siboney St at Katella Ave	TS	0.540	A	0.631	B
2.	Walker St at Cerritos Ave	TS	0.719	C	0.770	C
3.	Walker St at Vessels Cir	TS	0.424	A	0.378	A
4.	Walker St at Katella Ave	TS	0.711	C	0.742	C
5.	Valley View St at Katella Ave	TS	0.770	C	0.811	D

Notes:
(1) TS = Traffic Signal
(2) ICU = Intersection Capacity Utilization
(3) LOS = Level of Service

Table 8
Opening Year (2022) With Project Operational Deficiencies Evaluation

ID Study Intersection	AM Peak Hour						PM Peak Hour					
	Without Project		With Project		Project-Related Change	Operational Deficiency?[3]	Without Project		With Project		Project-Related Change	Operational Deficiency?[3]
	ICU[1]	LOS[2]	ICU[1]	LOS[2]			ICU[1]	LOS[2]	ICU[1]	LOS[2]		
1. Siboney St at Katella Ave	0.540	A	0.540	A	--	No	0.629	B	0.631	B	+0.002	No
2. Walker St at Cerritos Ave	0.716	C	0.719	C	+0.003	No	0.767	C	0.770	C	+0.003	No
3. Walker St at Vessels Cir	0.406	A	0.424	A	+0.018	No	0.349	A	0.378	A	+0.029	No
4. Walker St at Katella Ave	0.705	C	0.711	C	+0.006	No	0.731	C	0.742	C	+0.011	No
5. Valley View St at Katella Ave	0.769	C	0.770	C	+0.001	No	0.808	D	0.811	D	+0.003	No

Notes:

(1) ICU = Intersection Capacity Utilization

(2) LOS = Level of Service

(3) In the Cities of Cypress and Los Alamitos, an operational deficieny occurs if the project-related increase in ICU equals or exceeds 0.01 at Level of Service E or F.

7. SITE ACCESS AND CIRCULATION

This section includes a description of project improvements necessary to provide site access and an evaluation of site access and circulation.

PROJECT DESIGN FEATURES

This analysis assumes the following improvements will be constructed by the project to provide project site access:

- Construct the extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage with one eastbound lane and one westbound lane.

- Construct the Project Driveway (NS) at Vessels Circle (EW) to provide one inbound lane and one outbound lane with northbound stop-control and the following lane configurations:
  - Northbound: one shared left/right turn lane.
  - Southbound: not applicable
  - Eastbound: one shared through/right turn lane
  - Westbound: one shared left/through lane.

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

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

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

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

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

- Adequate emergency vehicle access shall be provided to the satisfaction of the Orange County Fire Authority.

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

QUEUEING ANALYSIS

A queuing analysis has been performed for the northbound left turn lane at the intersection of Walker Street and Vessels Circle, which is a key movement for project access. The queuing analysis is based on a Poisson

probability distribution for random vehicle arrivals and a conservative 120 second cycle length. Queue calculation worksheets provided in Appendix E.

Table 9 shows the queuing analysis summary based on the 95th-percentile queue length. The 95th-percentile queue length effectively represents the maximum queue length expected (to a 95 percent confidence level) and is an industry accepted standard for determining turning lane storage and intersection spacing requirements.

Based on the queuing analysis shown in Table 9, the existing storage length (120 feet of storage composing 60 feet of striping and an additional 60 feet of median transition) for the northbound left turn lane at the intersection of Walker Street and Vessels Circle is forecast to provide adequate queueing capacity with the addition of project trips, since the 75 feet required can be accommodated within the existing 120 feet of storage capacity.

Table 9
Queuing Analysis Summary

ID	Study Intersection	Lane[1]	Existing Storage Length (Feet/Lane)	95th-Percentile Queue Length (Feet/Lane) Opening Year With Project	
				AM Peak Hour	PM Peak Hour
3.	Walker St (NS) at Vessels Cir (EW)	NBL	120	50	75

Notes:
(1) NB = Northbound; L = Left

8. CONGESTION MANAGEMENT PROGRAM

This section provides analysis of the project effects at County facilities in accordance with typical Orange County Congestion Management Program (CMP) requirements.

CRITERIA FOR REQUIRING A TRAFFIC ANALYSIS FOR CMP

The Orange County 2019 CMP provides the following thresholds for requiring a CMP-compliant traffic analysis:

- Projects with the potential to create an effect of more than three percent (3%) of Level of Service E capacity (i.e., 51 or more peak hour trips) on CMP Highway system links.
- All projects generating 2,400 or more daily trips. If a project will have direct access to a CMP link, the project daily trip generation threshold should be reduced to 1,600 or more daily trips.
- A TIA should not be required again if one has already been performed for the project as part of an earlier development approval which takes the effect on the CMP Highway System into account.

As previously shown in Table 2, the proposed project is forecast to generate approximately 988 daily trips, which does not meet the threshold for daily trips. Furthermore, the project does not contribute 51 or more peak hour trips to the CMP-monitored intersection of Valley View Street at Katella Avenue based on the peak hour project trip assignment shown on Figure 16 and Figure 17. Therefore, the proposed project would result in a less than significant CMP effect as it does not meet the thresholds requiring a traffic analysis for CMP purposes and no further CMP analysis is warranted.

7. CONCLUSIONS

This section summarizes the findings and measures (if any) identified in previous sections of this study.

FORECAST LEVELS OF SERVICE

The proposed project is forecast to result in no operational Level of Service deficiencies at the study intersections during the weekday AM and PM peak hours for the scenarios evaluated.

CONGESTION MANAGEMENT PROGRAM

The proposed project would result in a less than significant CMP effect as it does not meet the thresholds requiring a traffic analysis for CMP purposes and no further CMP analysis is warranted.

SITE ACCESS AND CIRCULATION

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

- Construct the extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage with one eastbound lane and one westbound lane.

- Construct the Project Driveway (NS) at Vessels Circle (EW) to provide one inbound lane and one outbound lane with northbound stop-control and the following lane configurations:
  - Northbound: one shared left/right turn lane.
  - Southbound: not applicable
  - Eastbound: one shared through/right turn lane
  - Westbound: one shared left/through lane.

The existing storage length for the northbound left turn lane at the intersection of Walker Street and Vessels Circle is forecast to provide adequate queueing capacity with the addition of project trips.

OPERATIONAL IMPROVEMENTS

No off-site improvements were identified since the proposed project is forecast to result in no operational traffic deficieincies at the study intersections for the scenarios analyzed.

APPENDICES

Appendix A Glossary
Appendix B Scoping Agreement
Appendix C Volume Count Worksheets
Appendix D Level of Service Worksheets
Appendix E Queue Worksheets

APPENDIX A

GLOSSARY

GLOSSARY OF TERMS

ACRONYMS

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

TERMS

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

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

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

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

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

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

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

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

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

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

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

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

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

DEMAND RESPONSIVE SIGNAL: Same as traffic-actuated signal.

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

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

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

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

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

FORCED FLOW: Opposite of free flow.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

APPENDIX B

SCOPING AGREEMENT

MEMORANDUM OF UNDERSTANDING

TO: David Roseman | CITY OF CYPRESS

FROM: Bryan Crawford | GANDDINI GROUP, INC.

DATE: June 11, 2020

SUBJECT: Cypress Town Center 7-AC Residential Project Traffic Study Scope
19265

INTRODUCTION

The purpose of this scoping document is to outline the proposed traffic analysis parameters and assumptions for review/concurrence by City of Cypress staff.

PROJECT DESCRIPTION

Figure 1 shows the project location map. The project site is located within a 7.0 acre portion within the southeast portion of the existing parking lot area for the Los Alamitos Racecourse in the City of Cypress. The project site is part of the 15 total acre area of the "Town Center District" (TCD) of the "Cypress Town Center and Commons Specific Plan 2.0".

The site plan is illustrated on Figure 2. The proposed project consists of redeveloping the existing parking area with a residential multi-family community consisting of 135 dwelling units (56 two-story condominiums and 79 three-story townhomes).

The project proposes one full access driveway via an extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage, but will not fully implement the ultimate connection to Siboney Street due to continuing operation of the racecourse.

PROJECT TRIP GENERATION & DISTRIBUTION

Table 1 shows the project trip generation based upon rates obtained from the Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017). As shown in Table 1, the proposed project is forecast to generate approximately 988 daily trips, including 62 trips during the AM peak hour and 76 trips during the PM peak hour.

Figure 3 illustrates the forecast directional distribution patterns of project-generated trips.

While access to/from the project site will exclusively utilize Vessels Circle to/from Walker Street, a connection from Vessels Circle westbound to Siboney Street may occur at some point in the future. If this connection were to occur, it is expected that the 20% of outbound traffic from the project site eastbound on Vessels Circle to Walkers Street, southbound on Walker Street to Katella Avenue, and westbound on Katella Avenue would be redirected to travel westbound on Vessels Circle from the project site to Siboney Street, southbound on Siboney Street to Katella Avenue, and westbound on Katella Avenue. Inbound trips would experience the inverse travel patterns. Thus, Vessels Circle from Walker Street to Katella Avenue and Katella Avenue from

Siboney Street to Walker Street would experience a 20% reduction in project-generated trips. This connection would reduce eastbound left turn movements and southbound right turn movements at the intersection of Walker Street at Katella Avenue by 20% of project generated trips. The northern leg of the Siboney Street at Katella Avenue intersection would experience a 20% increase in project-generated trips.

Based on the trip generation and the aforementioned trip directional distributional patterns resulting from this connection, it is anticipated that this connection would result in minor and statistically insignificant changes to the operation of the intersection of Siboney Street and Katella Avenue.

STUDY AREA

Based on the County of Orange Congestion Management Program guidelines and industry practice, intersections identified for analysis typically include signalized intersections at which a project is forecast to contribute 50 or more trips during the AM or PM peak hours. The study area is proposed to consist of the following five (5) study intersections, even if the project may not contribute 50 or more trips during either the AM or PM peak hours, but are the adjacent or primary intersections impacted by the proposed project.

Study Intersections

1. Siboney Street (NS) at Katella Avenue (EW)
2. Walker Street (NS) at Cerritos Avenue (EW)
3. Walker Street (NS) at Vessels Circle (EW)
4. Walker Street (NS) at Katella Avenue (EW)
5. Valley View Street (NS) at Katella Avenue (EW)

TRAFFIC COUNTS

New intersection turning movement counts will be collected at the intersection of Walker Street at Vessels Circle during the AM peak period (7:00 AM – 9:00 AM) and PM peak period (4:00 PM – 6:00 PM) on a typical weekday (Tuesday, Wednesday, or Thursday). Historical traffic counts for the other three intersections from October 2018 have been acquired. These traffic counts will be adjusted with a growth rate for 2020 traffic conditions. The intersection of Walker Street at Vessels Circle will also be manually adjusted based on the traffic volumes at nearby intersections to forecast pre-pandemic traffic conditions.

ANALYSIS SCENARIOS

The traffic study shall evaluate the following analysis scenarios for weekday AM and PM peak hour conditions:

- Existing
- Existing Plus Project
- Opening Year (2022) Without Project
- Opening Year (2022) With Project

ANALYSIS METHODOLOGY

The signalized study intersections shall be analyzed using the Intersection Capacity Utilization methodology in accordance with the capacity parameters utilized by the City of Cypress. The ICU calculations assume a lane capacity of 1,700 vehicles per hour with a clearance interval of 0.05.

The unsignalized study intersections (if any) shall be analyzed using the intersection delay methodology and recommended default factors prescribed in the Transportation Research Board Highway Capacity Manual (6th Edition).

Intersection Level of Service analysis shall be performed using the Vistro software.

PERFORMANCE STANDARDS

The City of Cypress has established Level of Service D as the minimum acceptable Level of Service during peak hour conditions, except at intersections along Valley View Street, Lincoln Avenue, and Katella Avenue where Level of Service E is acceptable. Valley View Street and Katella Avenue are designated as a part of the Orange County Congestion Management Plan (CMP) highway system, and thus the intersection of Katella Avenue and Valley View Street, as a CMP intersection, must operate at a Level of Service E or better during peak traffic hours. Intersections operating at Level of Service E shall be identified as deficient, except for intersections along the aforementioned roadways where Level of Service F shall be identified as deficient.

THRESHOLDS OF SIGNIFICANCE

Signalized Intersections

For signalized study intersections within City of Cypress jurisdiction, a project traffic impact is considered significant if:

- The addition of project generated trips is forecast to cause an intersection to deteriorate from acceptable Level of Service (D/E or better) to unacceptable Level of Service (E/F); or,

- The addition of project generated trips is forecast to cause an increase in volume-to-capacity of 0.01 or greater when the intersection is operating at unacceptable Level of Service (E/F) in the baseline condition.

Unsignalized Intersections

Many jurisdictions in the region, including the City of Cypress, have not established significant impact thresholds for unsignalized intersections. For purposes of this traffic impact analysis, a project impact at an unsignalized intersection shall be considered significant if the addition of project-generated trips is forecast to cause or worsen Level of Service E or F and a traffic signal is warranted based on the peak hour volume criteria established in the California Manual on Uniform Traffic Control Devices (2014 Edition).

FORECASTING METHODOLOGY

To account for ambient growth, existing roadway volumes shall be increased by a growth rate of 1 percent (1%) per year over a four-year period for Opening Year (2022) conditions.

In addition, a list of pending and approved other development projects has been acquired from the City of Cypress and the City of Los Alamitos. Table 2 exhibits the trip generation from other development and Figure 4 shows the other development location map. Trip forecasts for other development projects within the project study area shall be determined based on the Institute of Transportation Engineers (ITE), Trip Generation Manual, 10th Edition, 2017 and will be added to existing roadway volumes for the applicable analysis scenarios.

VEHICLE MILES TRAVELED (VMT) ANALYSIS

In accordance with Senate Bill 743, recently updated CEQA guidelines require VMT as the primary metric for transportation impact analysis by July 1, 2020. Many jurisdictions are currently in the process of developing updated procedures and thresholds, however, very few have fully implemented the new metric. Since the City of Cypress has not yet adopted City specific VMT guidelines, the scope of work for the VMT analysis is based on currently available guidance from the Office of Planning and Research (OPR) in the Technical Advisory on EvaluatingTransportation Impacts in CEQA (State of California, 2018) [herein referred to as "Technical Advisory"]. A separate VMT impact analysis will be prepared consisting of the following tasks:

- Provide a narrative of Senate Bill 743 and guidance for assessing Vehicle Miles Travelled (VMT) impacts from the Technical Advisory.
- Conduct a VMT screening analysis for the project based on recommended screening thresholds contained in the Technical Advisory. Based on preliminary review, a detailed VMT analysis is anticipated to be required.
- Obtain the Orange County Transportation Analysis Model (OCTAM) base year and future year model to determine the VMT per service population for the project Traffic Analysis Zone (TAZ).
- Assess the project VMT impact based on recommended thresholds in the Technical Advisory, or other applicable thresholds if adopted by City of Cypress at the time of preparation. The State Technical Advisory guidance states that a VMT impact may be significant if residential VMT exceeds 15 percent below regional VMT per service population.
- If necessary, identify appropriate mitigation measures based on guidance in the CEQA Technical Advisory. Quantify reduction in VMT based on the California Air Pollution Control Officers Association (CAPCOA) Quantifying Greenhouse Gas Mitigation Measures (August 2010).
- Prepare a VMT impact analysis report that incorporates the methodology, findings, and all supporting calculations and assumptions..

CONCLUSION

We appreciate the opportunity to provide this scoping document for your review. Should you have any questions or comments regarding the proposed scope, please contact Bryan Crawford at (714) 795-3100 x 104.

Table 1
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Units[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Multi-Family Housing (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated								
		AM Peak Hour			PM Peak Hour			
Land Use	Quantity	In	Out	Total	In	Out	Total	Daily
Multi-Family Housing (Low-Rise)	135 DU	14	48	62	48	28	76	988

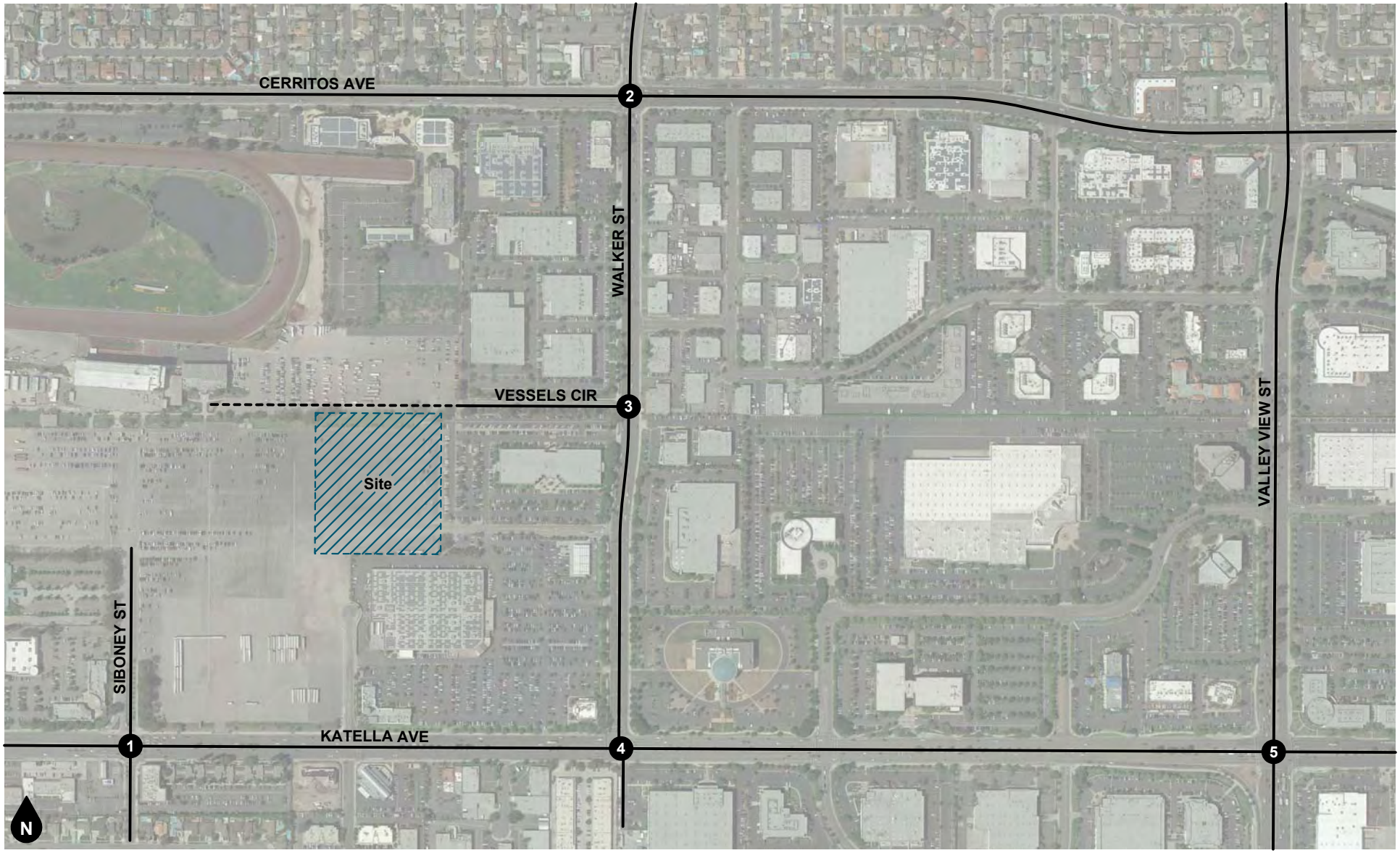
Notes:
(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code.

(2) DU = Dwelling Units

Table 2
Other Development Trip Generation

Project	Land Use	Source[1]	Quantity	Units[2]	AM Peak Hour			PM Peak Hour			Daily
					In	Out	Total	In	Out	Total	
Islamic Center Expansion	Church	ITE 560	5.100	TSF	1	1	2	1	1	2	35
Melia Homes	Townhomes	ITE 220	135	DU	14	48	62	48	28	76	988
City Center 13-Acre Site	Shopping Center	ITE 820	20.800	TSF	12	8	20	38	41	79	785
	Multi-Family Housing (Mid-Rise)	ITE 221	251	DU	23	67	90	68	42	110	1,365
	Hotel	ITE 310	120	RM	34	22	56	37	35	72	1,003
	Multiplex Movie Theater	ITE 445	10	SC	0	0	0	70	67	137	2,200
	Internal Capture Reduction				-1	-1	-2	-26	-26	-52	-375
	Pass-By Trip Reduction				0	0	0	-11	-12	-23	0
	Subtotal				68	96	164	176	147	323	4,978
Assisted Living & Memory Care (Westmont)	Assisted Living Facility	ITE 254	129	BD	15	10	25	13	21	34	335
Westmont Commercial Center	Shopping Center	ITE 820	47.800	TSF	28	17	45	87	95	182	1,804
	Pass-By Reduction (34% PM)[5]				--	--	--	-30	-32	-62	-62
	Subtotal				28	17	45	57	63	120	1,742
Club Pilates	Pilates/Yoga Studio	ITE 820	1.500	TSF	1	1	2	3	3	6	57
6400 Katella Avenue Industrial Buildings	Industrial	[4]	485.772	TSF	64	61	125	71	69	140	2,054
Fairfield Marriott	Hotel	ITE 310	108	RM	30	21	51	33	32	65	903
Oak Walk	Condominiums	ITE 220	50	DU	5	18	23	18	10	28	366
Los Alamitos Luxury Apartments	Apartments	ITE 220	107	DU	11	39	50	38	22	60	783
3755 Farquhar	Condominiums	ITE 220	4	DU	1	1	2	1	1	2	30
Chevron Rebuild	Gasoline Station w/ Convenience Market	ITE 945	2.274	TSF	88	85	173	102	99	201	3,275
	Pass-By Reduction (62% AM, 56% PM)[5]				-55	-53	-108	-57	-55	-112	-1,834
	Subtotal				33	32	65	45	44	89	1,441
Los Alamitos Medical Center Central Plant	Hospital	ITE 610	11.829	TSF	7	4	11	4	8	12	127
Total					278	349	627	508	449	957	13,839

Notes:
(1) ITE = Institute of Transportation Engineers, Trip Generation Manual, 10th Edition, 2017; ### = Land Use Code
(2) TSF = Thousand Square Feet; DU = Dwelling Units; RM = Rooms; SC = Movie Screens; BD = Beds
(3) Source: Traffic Impact Analysis Cypress City Center (December 2019), LSA
(4) Trip generation/distribution provided by City of Cypress
(5) ITE = Institute of Transportation Engineers, Trip Generation Handbook, 3rd Edition, 2017



Legend

(#) Study Intersection

Figure 1
Project Location Map

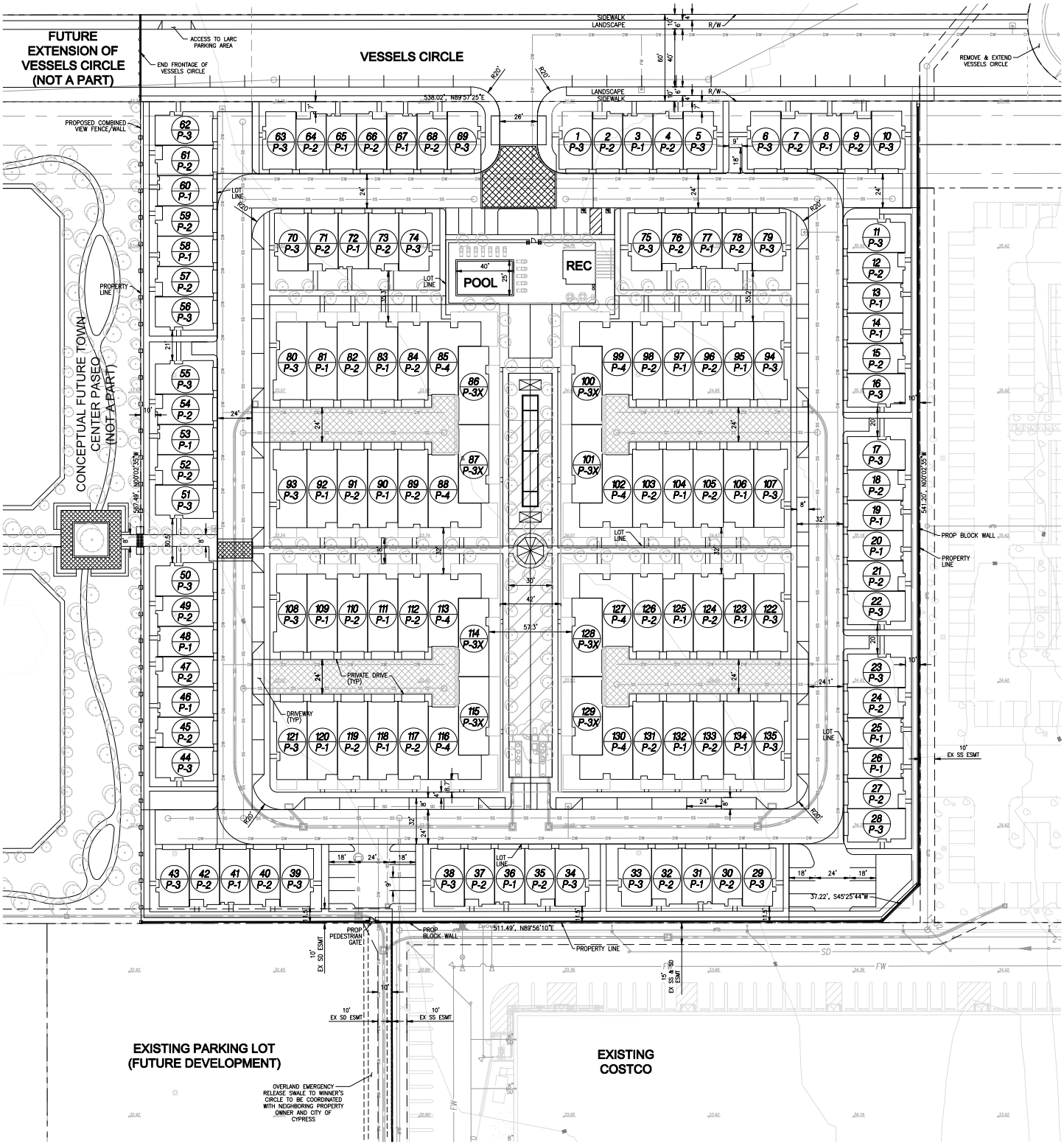
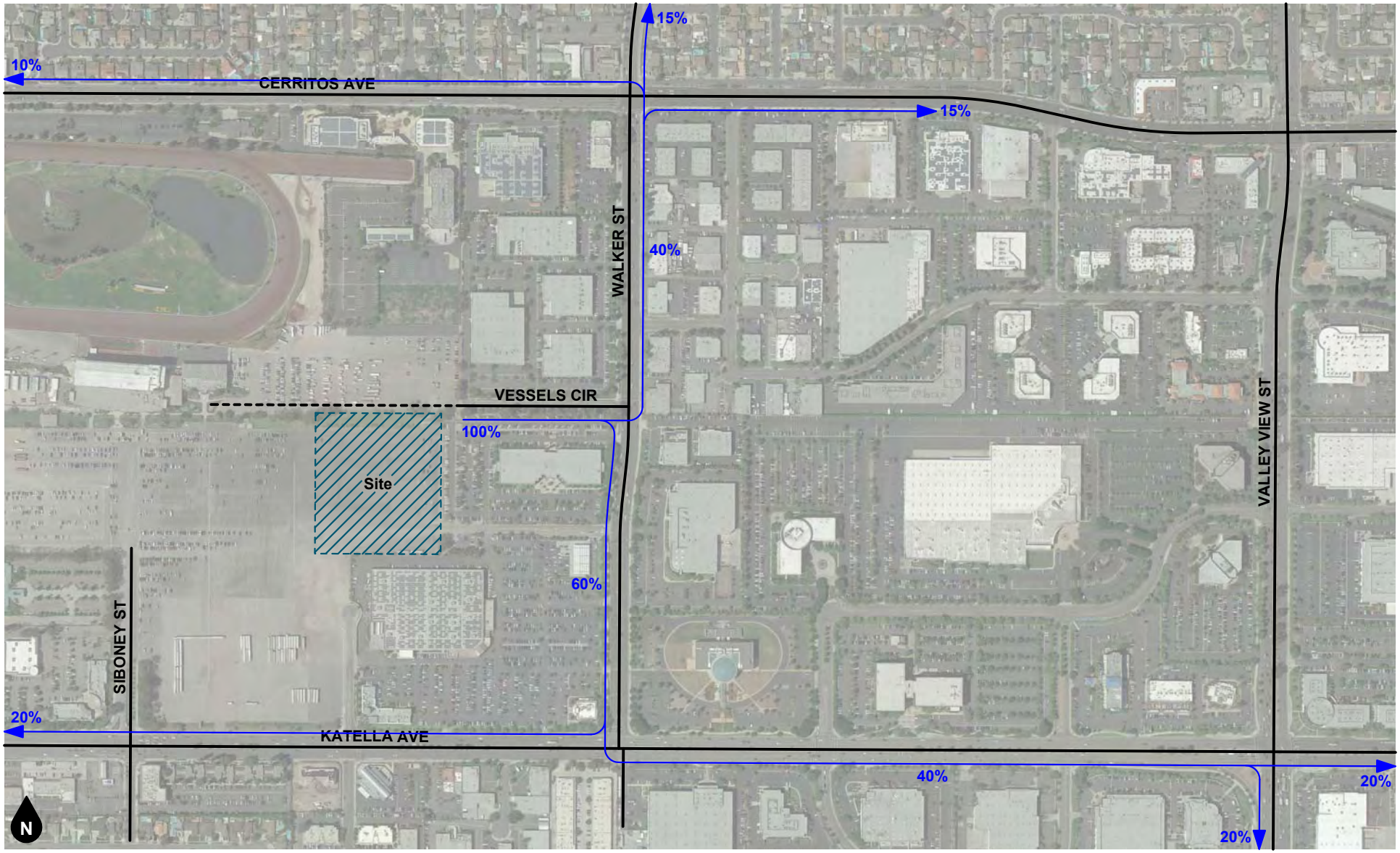


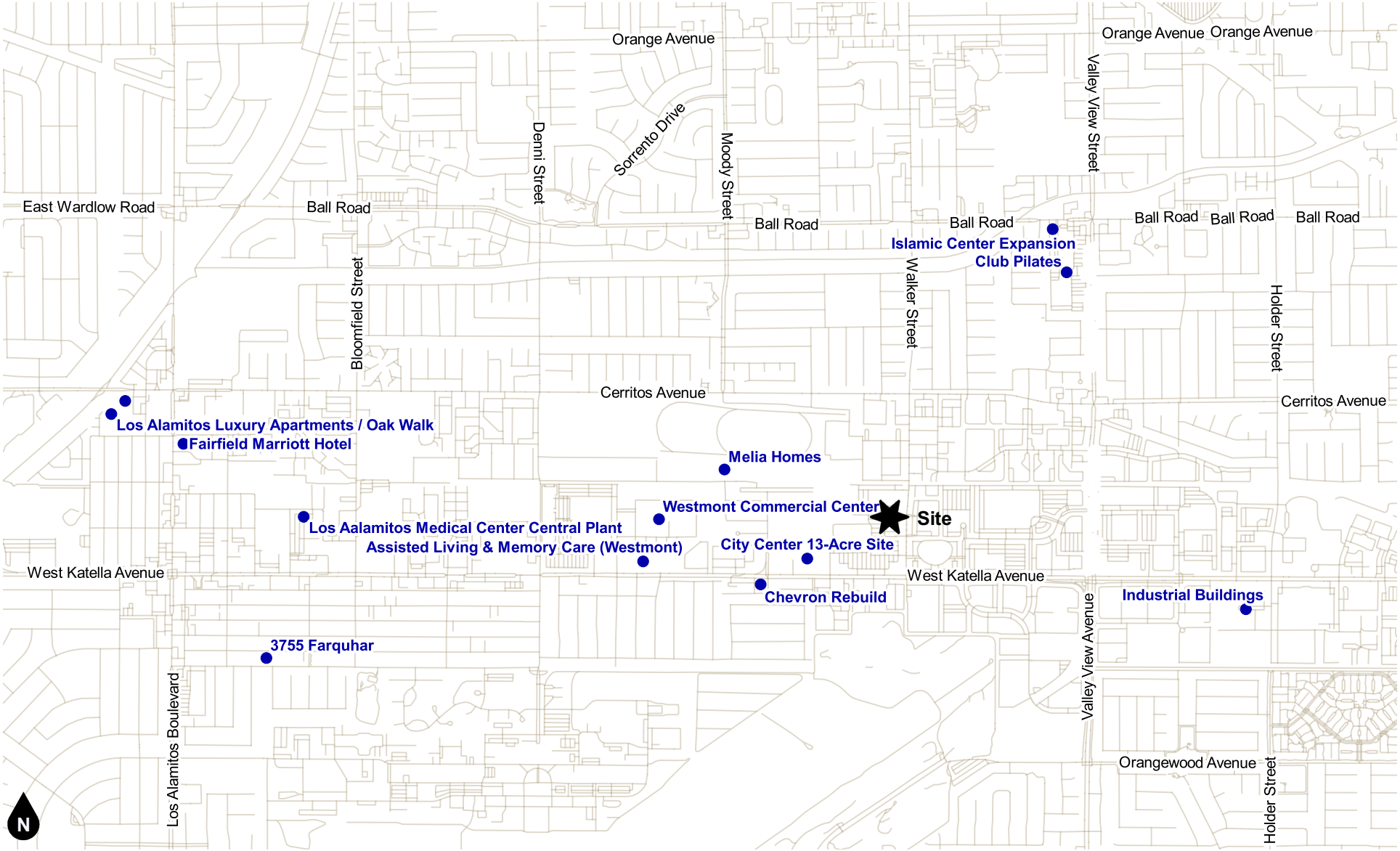
Figure 2
Site Plan



Legend

10% Percent To/From Project

Figure 3
Project Trip Distribution



Legend

\# Other Development ID in:

● Other Development

Figure 4
Other Development Location Map

APPENDIX C

VOLUME COUNT WORKSHEETS

National Data & Surveying Services

Intersection Turning Movement Count

Location: Siboney St & Katella Ave
City: Cypress
Control: Signalized

Project ID: 18-01205-024
Date: 10/10/2018

Total

NS/EW Streets:	Siboney St				Siboney St				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	0	1	0	1.5	0	1.5	0	2	3	0	0	1	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	9	0	15	0	9	0	2	0	8	394	7	18	2	411	3	0	878
7:15 AM	9	1	17	0	7	0	2	0	11	444	8	11	8	400	1	0	919
7:30 AM	12	1	14	0	7	0	3	0	15	402	7	16	6	419	4	1	907
7:45 AM	12	0	15	0	13	0	5	0	21	457	9	24	10	445	8	0	1019
8:00 AM	10	3	7	0	4	0	6	0	9	394	13	8	13	395	5	1	868
8:15 AM	3	0	8	0	5	0	5	0	17	346	6	19	10	416	7	2	844
8:30 AM	9	0	4	0	8	0	6	0	12	381	7	17	5	322	3	0	774
8:45 AM	7	1	7	0	5	1	7	0	8	303	15	13	13	305	14	3	702
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	71	6	87	0	58	1	36	0	101	3121	72	126	67	3113	45	7	6911
APPROACH %'s :	43.29%	3.66%	53.05%	0.00%	61.05%	1.05%	37.89%	0.00%	2.95%	91.26%	2.11%	3.68%	2.07%	96.32%	1.39%	0.22%	
PEAK HR :	07:00 AM - 08:00 AM																TOTAL
PEAK HR VOL :	42	2	61	0	36	0	12	0	55	1697	31	69	26	1675	16	1	3723
PEAK HR FACTOR :	0.875	0.500	0.897	0.000	0.692	0.000	0.600	0.000	0.655	0.928	0.861	0.719	0.650	0.941	0.500	0.250	0.913
	0.972				0.667				0.906				0.928				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	1	0	1	0	1.5	0	1.5	0	2	3	0	0	1	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	20	0	7	0	10	1	14	0	13	460	20	19	11	413	15	1	1004
4:15 PM	12	1	10	0	29	0	13	0	10	370	9	17	12	356	10	2	851
4:30 PM	13	1	12	0	21	0	13	0	15	480	5	24	15	474	9	2	1084
4:45 PM	19	0	15	0	15	1	13	0	14	429	9	15	23	423	8	0	984
5:00 PM	27	1	22	0	21	1	23	0	8	413	9	18	11	467	5	1	1027
5:15 PM	23	2	9	0	18	1	15	0	13	379	9	22	16	461	16	0	984
5:30 PM	13	2	13	0	12	1	21	0	12	460	6	14	13	465	6	0	1038
5:45 PM	14	2	19	0	13	1	12	0	7	374	3	18	9	366	7	0	845
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	141	9	107	0	139	6	124	0	92	3365	70	147	110	3425	76	6	7817
APPROACH %'s :	54.86%	3.50%	41.63%	0.00%	51.67%	2.23%	46.10%	0.00%	2.50%	91.59%	1.91%	4.00%	3.04%	94.69%	2.10%	0.17%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	82	4	58	0	75	3	64	0	50	1701	32	79	65	1825	38	3	4079
PEAK HR FACTOR :	0.759	0.500	0.659	0.000	0.893	0.750	0.696	0.000	0.833	0.886	0.889	0.823	0.707	0.963	0.594	0.375	0.941
	0.720				0.789				0.888				0.966				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Walker St & Cerritos Ave
City: Cypress
Control: Signalized

Project ID: 18-01205-007
Date: 10/10/2018

Total

NS/EW Streets:	Walker St				Walker St				Cerritos Ave				Cerritos Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	1	3	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	28	28	9	0	21	121	7	0	2	195	75	0	17	209	15	0	727
7:15 AM	22	53	12	0	44	143	12	0	5	237	99	0	21	213	20	0	881
7:30 AM	20	80	13	0	36	178	14	0	2	268	104	0	31	242	42	0	1030
7:45 AM	32	66	16	0	45	227	14	0	5	319	144	0	31	219	25	0	1143
8:00 AM	36	50	12	0	47	190	20	0	5	285	136	0	29	192	19	0	1021
8:15 AM	16	45	12	0	38	155	22	0	8	267	106	0	29	188	20	0	906
8:30 AM	31	65	14	0	30	123	11	0	10	233	101	0	27	163	25	0	833
8:45 AM	21	47	13	0	20	136	17	0	6	196	90	0	11	158	18	0	733
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	206	434	101	0	281	1273	117	0	43	2000	855	0	196	1584	184	0	7274
APPROACH %'s :	27.80%	58.57%	13.63%	0.00%	16.82%	76.18%	7.00%	0.00%	1.48%	69.01%	29.50%	0.00%	9.98%	80.65%	9.37%	0.00%	
PEAK HR :	07:30 AM - 08:30 AM																TOTAL
PEAK HR VOL :	104	241	53	0	166	750	70	0	20	1139	490	0	120	841	106	0	4100
PEAK HR FACTOR :	0.722	0.753	0.828	0.000	0.883	0.826	0.795	0.000	0.625	0.893	0.851	0.000	0.968	0.869	0.631	0.000	0.897
	0.873				0.862				0.881				0.847				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	2	2	1	0	1	2	0	0	1	3	1	0	1	2	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	85	151	37	0	27	112	4	0	19	239	62	0	18	219	41	0	1014
4:15 PM	84	161	45	0	27	93	5	0	20	235	66	0	23	226	28	0	1013
4:30 PM	126	167	35	0	31	121	16	0	6	245	55	0	18	224	32	0	1076
4:45 PM	107	176	46	0	20	99	6	0	14	252	64	0	28	257	38	0	1107
5:00 PM	137	201	48	0	28	111	9	0	31	273	53	0	16	297	48	0	1252
5:15 PM	141	207	60	0	29	109	19	0	23	271	65	0	24	299	41	0	1288
5:30 PM	117	153	59	0	29	130	12	0	27	272	55	0	25	271	30	0	1180
5:45 PM	100	195	26	0	24	97	21	0	19	198	59	0	33	228	41	0	1041
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	897	1411	356	0	215	872	92	0	159	1985	479	0	185	2021	299	0	8971
APPROACH %'s :	33.67%	52.97%	13.36%	0.00%	18.24%	73.96%	7.80%	0.00%	6.06%	75.68%	18.26%	0.00%	7.39%	80.68%	11.94%	0.00%	
PEAK HR :	04:45 PM - 05:45 PM																TOTAL
PEAK HR VOL :	502	737	213	0	106	449	46	0	95	1068	237	0	93	1124	157	0	4827
PEAK HR FACTOR :	0.890	0.890	0.888	0.000	0.914	0.863	0.605	0.000	0.766	0.978	0.912	0.000	0.830	0.940	0.818	0.000	0.937
	0.890				0.879				0.975				0.944				

INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

DATE:					
Thu, May 21, 20	LOCATION:	Cypress	PROJECT #:	SC	
	NORTH & SOUTH:	Walker	LOCATION #:	1	
	EAST & WEST:	Vessels	CONTROL:	SIGNAL	

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N, ◄ W, E ►, S ▼

		NORTHBOUND Walker			SOUTHBOUND Walker			EASTBOUND Vessels			WESTBOUND Vessels			
	LANES:	NL 1	NT 3	NR X	SL X	ST 2	SR 0	EL 1	ET X	ER 1	WL X	WT X	WR X	TOTAL
AM	7:00 AM	1	34	0	0	62	1	1	0	0	0	0	0	99
	7:15 AM	3	40	0	0	72	2	1	0	0	0	0	0	118
	7:30 AM	1	49	0	0	107	2	1	0	0	0	0	0	160
	7:45 AM	4	57	0	0	129	1	1	0	0	0	0	0	192
	8:00 AM	0	54	0	0	115	2	2	0	1	0	0	0	174
	8:15 AM	0	54	0	0	94	2	3	0	0	0	0	0	153
	8:30 AM	0	55	0	0	113	4	0	0	0	0	0	0	172
	8:45 AM	1	53	0	0	116	2	4	0	0	0	0	0	176
	VOLUMES	10	396	0	0	808	16	13	0	1	0	0	0	1,244
	APPROACH %	2%	98%	0%	0%	98%	2%	93%	0%	7%	0%	0%	0%	
	APP/DEPART	406	/	409	824	/	809	14	/	0	0	/	26	0
	BEGIN PEAK HR		7:45 AM											
	VOLUMES	4	220	0	0	451	9	6	0	1	0	0	0	691
	APPROACH %	2%	98%	0%	0%	98%	2%	86%	0%	14%	0%	0%	0%	
	PEAK HR FACTOR		0.918			0.885			0.583			0.000		0.900
	APP/DEPART	224	/	226	460	/	452	7	/	0	0	/	13	0
PM	4:00 PM	2	183	0	0	127	3	4	0	3	0	0	0	322
	4:15 PM	0	153	0	0	138	3	2	0	1	0	0	0	297
	4:30 PM	0	162	0	0	156	0	4	0	1	0	0	0	323
	4:45 PM	1	159	0	0	138	2	3	0	2	0	0	0	305
	5:00 PM	0	186	0	0	144	1	6	0	3	0	0	0	340
	5:15 PM	1	179	0	0	138	0	1	0	1	0	0	0	320
	5:30 PM	1	182	0	0	121	0	2	0	3	0	0	0	309
	5:45 PM	0	153	0	0	143	2	1	0	1	0	0	0	300
	VOLUMES	5	1,357	0	0	1,105	11	23	0	15	0	0	0	2,516
	APPROACH %	0%	100%	0%	0%	99%	1%	61%	0%	39%	0%	0%	0%	
	APP/DEPART	1,362	/	1,380	1,116	/	1,121	38	/	0	0	/	15	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	2	686	0	0	576	3	14	0	7	0	0	0	1,288
	APPROACH %	0%	100%	0%	0%	99%	1%	67%	0%	33%	0%	0%	0%	
	PEAK HR FACTOR		0.925			0.928			0.583			0.000		0.947
	APP/DEPART	688	/	700	579	/	583	21	/	0	0	/	5	0

National Data & Surveying Services

Intersection Turning Movement Count

Location: Walker St & Katella Ave
City: Cypress
Control: Signalized

Project ID: 18-01205-009
Date: 10/10/2018

Total

NS/EW Streets:	Walker St				Walker St				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1	0.5	0	1.5	0.5	2	0	2	3	0	0	1	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	0	0	1	0	135	2	25	0	32	357	2	2	0	447	57	1	1061
7:15 AM	0	0	0	0	197	1	36	0	45	398	3	2	1	348	78	1	1110
7:30 AM	2	0	0	0	176	3	34	0	43	387	3	1	4	423	100	1	1177
7:45 AM	0	0	0	0	240	4	53	0	65	399	4	4	2	389	98	1	1259
8:00 AM	1	0	0	0	177	3	49	0	52	342	4	3	1	408	89	2	1131
8:15 AM	2	0	2	0	172	2	57	0	53	286	2	6	1	390	71	0	1044
8:30 AM	1	1	0	0	114	0	49	0	59	315	2	4	0	285	79	0	909
8:45 AM	1	0	2	0	123	0	61	0	39	250	4	1	0	305	61	2	849
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	7	1	5	0	1334	15	364	0	388	2734	24	23	9	2995	633	8	8540
APPROACH %'s :	53.85%	7.69%	38.46%	0.00%	77.88%	0.88%	21.25%	0.00%	12.24%	86.27%	0.76%	0.73%	0.25%	82.17%	17.37%	0.22%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	3	0	0	0	790	11	172	0	205	1526	14	10	8	1568	365	5	4677
PEAK HR FACTOR :	0.375	0.000	0.000	0.000	0.823	0.688	0.811	0.000	0.788	0.956	0.875	0.625	0.500	0.927	0.913	0.625	0.929
	0.375				0.819				0.930				0.921				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	0.5	1	0.5	0	1.5	0.5	2	0	2	3	0	0	1	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	4	3	1	0	107	1	41	0	69	385	0	6	0	387	135	0	1139
4:15 PM	4	0	3	0	131	0	49	0	61	327	0	2	0	340	108	0	1025
4:30 PM	18	4	1	1	129	0	47	0	79	459	1	10	0	477	148	0	1374
4:45 PM	2	4	0	0	137	0	44	0	60	373	1	3	0	359	141	0	1124
5:00 PM	3	1	3	0	163	1	55	0	90	400	2	8	0	478	164	0	1368
5:15 PM	4	6	0	0	167	0	67	0	53	368	1	9	0	412	149	0	1236
5:30 PM	3	2	0	0	149	0	60	0	75	431	1	11	0	428	135	0	1295
5:45 PM	3	4	0	0	133	0	56	0	45	360	0	9	0	348	108	1	1067
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	41	24	8	1	1116	2	419	0	532	3103	6	58	0	3229	1088	1	9628
APPROACH %'s :	55.41%	32.43%	10.81%	1.35%	72.61%	0.13%	27.26%	0.00%	14.38%	83.89%	0.16%	1.57%	0.00%	74.78%	25.20%	0.02%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	27	15	4	1	596	1	213	0	282	1600	5	30	0	1726	602	0	5102
PEAK HR FACTOR :	0.375	0.625	0.333	0.250	0.892	0.250	0.795	0.000	0.783	0.871	0.625	0.750	0.000	0.903	0.918	0.000	0.928
	0.490				0.865				0.873				0.907				

National Data & Surveying Services

Intersection Turning Movement Count

Location: Valley View St & Katella Ave
City: Cypress
Control: Signalized

Project ID: 18-01205-010
Date: 10/10/2018

Total

NS/EW Streets:	Valley View St				Valley View St				Katella Ave				Katella Ave				
AM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	3	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
7:00 AM	231	331	37	0	48	247	49	1	39	225	140	0	26	227	21	0	1622
7:15 AM	184	358	58	0	26	270	52	0	56	291	184	0	36	261	42	0	1818
7:30 AM	202	368	57	1	49	249	57	1	59	209	179	0	52	324	45	1	1853
7:45 AM	205	345	73	0	50	236	50	4	69	272	173	0	52	341	21	1	1892
8:00 AM	230	427	84	0	54	332	48	2	50	184	153	0	58	248	32	2	1904
8:15 AM	209	306	66	0	53	269	53	0	41	195	147	1	57	280	20	2	1699
8:30 AM	184	332	63	0	29	268	47	0	43	159	131	0	28	166	35	2	1487
8:45 AM	176	295	60	1	43	199	49	0	50	164	117	1	28	179	36	1	1399
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1621	2762	498	2	352	2070	405	8	407	1699	1224	2	337	2026	252	9	13674
APPROACH %'s :	33.20%	56.56%	10.20%	0.04%	12.42%	73.02%	14.29%	0.28%	12.21%	50.99%	36.73%	0.06%	12.84%	77.21%	9.60%	0.34%	
PEAK HR :	07:15 AM - 08:15 AM																TOTAL
PEAK HR VOL :	821	1498	272	1	179	1087	207	7	234	956	689	0	198	1174	140	4	7467
PEAK HR FACTOR :	0.892	0.877	0.810	0.250	0.829	0.819	0.908	0.438	0.848	0.821	0.936	0.000	0.853	0.861	0.778	0.500	0.980
	0.874				0.849				0.885				0.898				

PM	NORTHBOUND				SOUTHBOUND				EASTBOUND				WESTBOUND				
	3	3	1	0	2	3	1	0	2	3	1	0	2	3	1	0	
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
4:00 PM	145	323	36	3	53	302	61	0	61	245	232	0	63	212	50	1	1787
4:15 PM	154	340	45	3	39	296	50	1	66	209	204	1	49	206	39	2	1704
4:30 PM	160	387	51	1	75	343	56	1	68	248	269	1	65	271	52	1	2049
4:45 PM	160	363	36	1	33	296	43	0	76	276	228	2	73	224	57	1	1869
5:00 PM	164	382	54	7	66	397	73	2	49	259	268	1	90	272	58	1	2143
5:15 PM	170	342	35	2	50	315	58	1	48	280	240	1	94	231	50	0	1917
5:30 PM	159	420	62	5	59	351	55	0	56	280	229	4	61	235	43	1	2020
5:45 PM	165	423	48	3	47	242	50	0	52	261	195	4	63	226	49	0	1828
	NL	NT	NR	NU	SL	ST	SR	SU	EL	ET	ER	EU	WL	WT	WR	WU	TOTAL
TOTAL VOLUMES :	1277	2980	367	25	422	2542	446	5	476	2058	1865	14	558	1877	398	7	15317
APPROACH %'s :	27.47%	64.10%	7.89%	0.54%	12.36%	74.44%	13.06%	0.15%	10.79%	46.63%	42.26%	0.32%	19.65%	66.09%	14.01%	0.25%	
PEAK HR :	04:30 PM - 05:30 PM																TOTAL
PEAK HR VOL :	654	1474	176	11	224	1351	230	4	241	1063	1005	5	322	998	217	3	7978
PEAK HR FACTOR :	0.962	0.952	0.815	0.393	0.747	0.851	0.788	0.500	0.793	0.949	0.934	0.625	0.856	0.917	0.935	0.750	0.931
	0.953				0.841				0.987				0.914				

APPENDIX D

LEVEL OF SERVICE WORKSHEETS

EXISTING

Cypress Town Center 7-AC Residential

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

Scenario 1 Existing AM Peak Hour
6/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	EB Thru	0.470	-	A
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	EB Right	0.693	-	B
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Thru	0.397	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.670	-	B
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.737	-	C

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: Siboney St (NS) at Katella 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):	0.470

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]	42	2	61	36	0	12	124	1697	31	27	1675	16
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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	2	62	37	0	12	126	1731	32	28	1709	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	1	16	9	0	3	32	433	8	7	427	4
Total Analysis Volume [veh/h]	43	2	62	37	0	12	126	1731	32	28	1709	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	Split	Split	Split	Split	Split	Split	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	0.03	0.04	0.01	0.00	0.01	0.04	0.35	0.35	0.02	0.34	0.01
Intersection LOS	A											
Intersection V/C	0.470											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos 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):	0.693

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]	104	241	53	166	750	70	20	1139	490	120	841	106
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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]	106	246	54	169	765	71	20	1162	500	122	858	108
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	62	14	42	191	18	5	291	125	31	215	27
Total Analysis Volume [veh/h]	106	246	54	169	765	71	20	1162	500	122	858	108
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	0.07	0.03	0.10	0.25	0.25	0.01	0.23	0.29	0.07	0.25	0.06
Intersection LOS	B											
Intersection V/C	0.693											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.397

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	4	220	451	9	6	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.46	2.46	2.46	2.46	2.46	2.46
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	541	1109	22	15	2
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	135	277	6	4	1
Total Analysis Volume [veh/h]	10	541	1109	22	15	2
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.11	0.33	0.33	0.01	0.00
Intersection LOS	A					
Intersection V/C	0.397					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella 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):	0.670

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]	3	0	0	790	11	172	215	1526	14	13	1568	365
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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]	3	0	0	806	11	175	219	1557	14	13	1599	372
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]	1	0	0	202	3	44	55	389	4	3	400	93
Total Analysis Volume [veh/h]	3	0	0	806	11	175	219	1557	14	13	1599	372
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	Split	Split	Split	Split	Split	Split	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	0.00	0.00	0.00	0.24	0.24	0.05	0.06	0.31	0.31	0.01	0.31	0.22
Intersection LOS	B											
Intersection V/C	0.670											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.737

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]	822	1498	272	186	1087	207	234	956	689	202	1174	140
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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]	838	1528	277	190	1109	211	239	975	703	206	1197	143
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	210	382	69	48	277	53	60	244	0	52	299	36
Total Analysis Volume [veh/h]	838	1528	277	190	1109	211	239	975	0	206	1197	143
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	0.16	0.30	0.16	0.06	0.22	0.12	0.07	0.19	0.00	0.06	0.23	0.08
Intersection LOS	C											
Intersection V/C	0.737											

Cypress Town Center 7-AC Residential

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

Scenario 1 Existing PM Peak Hour
6/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.534	-	A
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	WB Thru	0.743	-	C
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Thru	0.334	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Right	0.700	-	C
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.763	-	C

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: Siboney St (NS) at Katella 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):	0.534

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]	82	4	58	75	3	64	129	1701	32	68	1825	38
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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]	84	4	59	77	3	65	132	1735	33	69	1862	39
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]	21	1	15	19	1	16	33	434	8	17	466	10
Total Analysis Volume [veh/h]	84	4	59	77	3	65	132	1735	33	69	1862	39
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	Split	Split	Split	Split	Split	Split	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	0.05	0.05	0.03	0.02	0.03	0.03	0.04	0.35	0.35	0.04	0.37	0.02
Intersection LOS	A											
Intersection V/C	0.534											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.743

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]	502	737	213	106	449	46	95	1068	237	93	1124	157
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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]	512	752	217	108	458	47	97	1089	242	95	1146	160
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]	128	188	54	27	115	12	24	272	61	24	287	40
Total Analysis Volume [veh/h]	512	752	217	108	458	47	97	1089	242	95	1146	160
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	0.15	0.22	0.13	0.06	0.15	0.15	0.06	0.21	0.14	0.06	0.34	0.09
Intersection LOS	C											
Intersection V/C	0.743											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.334

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	2	686	576	3	14	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.58	1.58	1.58	1.58	1.58	1.58
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	0	0	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	1084	910	5	22	11
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	271	228	1	6	3
Total Analysis Volume [veh/h]	3	1084	910	5	22	11
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.21	0.27	0.27	0.01	0.01
Intersection LOS	A					
Intersection V/C	0.334					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.700

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]	27	15	4	596	1	213	312	1600	5	0	1726	602
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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]	28	15	4	608	1	217	318	1632	5	0	1761	614
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]	7	4	1	152	0	54	80	408	1	0	440	154
Total Analysis Volume [veh/h]	28	15	4	608	1	217	318	1632	5	0	1761	614
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	Split	Split	Split	Split	Split	Split	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	0.01	0.01	0.18	0.18	0.06	0.09	0.32	0.32	0.00	0.35	0.36
Intersection LOS	C											
Intersection V/C	0.700											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.763

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]	665	1474	176	228	1351	230	246	1063	1005	325	998	217
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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]	678	1503	180	233	1378	235	251	1084	1025	332	1018	221
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	170	376	45	58	345	59	63	271	0	83	255	55
Total Analysis Volume [veh/h]	678	1503	180	233	1378	235	251	1084	0	332	1018	221
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	0.13	0.29	0.11	0.07	0.27	0.14	0.07	0.21	0.00	0.10	0.20	0.13
Intersection LOS	C											
Intersection V/C	0.763											

EXISTING PLUS PROJECT

Cypress Town Center 7-AC Residential

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

Scenario 2 Existing Plus Project AM Peak Hour
6/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	EB Thru	0.471	-	A
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	EB Right	0.697	-	B
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Right	0.415	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.676	-	B
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.738	-	C

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: Siboney St (NS) at Katella 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):	0.471

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]	42	2	61	36	0	12	124	1697	31	27	1675	16
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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	10	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	2	62	37	0	12	126	1734	32	28	1719	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	1	16	9	0	3	32	434	8	7	430	4
Total Analysis Volume [veh/h]	43	2	62	37	0	12	126	1734	32	28	1719	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	Split	Split	Split	Split	Split	Split	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	0.03	0.04	0.01	0.00	0.01	0.04	0.35	0.35	0.02	0.34	0.01
Intersection LOS	A											
Intersection V/C	0.471											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos 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):	0.697

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]	104	241	53	166	750	70	20	1139	490	120	841	106
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	5	7	7	0	2	0	0	0	1	2	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]	111	253	61	169	767	71	20	1162	501	124	858	108
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	63	15	42	192	18	5	291	125	31	215	27
Total Analysis Volume [veh/h]	111	253	61	169	767	71	20	1162	501	124	858	108
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	0.07	0.04	0.10	0.25	0.25	0.01	0.23	0.29	0.07	0.25	0.06
Intersection LOS	B											
Intersection V/C	0.697											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (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	
Lane Configuration						
Turning Movement	Left	Thru	Thru	Right	Left	Right
Lane Width [ft]	12.00	12.00	12.00	12.00	12.00	12.00
No. of Lanes in Pocket	0	0	0	0	0	0
Pocket Length [ft]	100.00	100.00	100.00	100.00	100.00	100.00
Speed [mph]	30.00		30.00		30.00	
Grade [%]	0.00		0.00		0.00	
Crosswalk	Yes		Yes		Yes	

Volumes

Name						
Base Volume Input [veh/h]	4	220	451	9	6	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.46	2.46	2.46	2.46	2.46	2.46
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	0	0	5	19	29
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]	19	541	1109	27	34	31
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]	5	135	277	7	9	8
Total Analysis Volume [veh/h]	19	541	1109	27	34	31
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.11	0.33	0.33	0.02	0.02
Intersection LOS	A					
Intersection V/C	0.415					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella 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):	0.676

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]	3	0	0	790	11	172	215	1526	14	13	1568	365
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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	19	0	10	3	0	0	0	0	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]	3	0	0	825	11	185	222	1557	14	13	1599	378
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]	1	0	0	206	3	46	56	389	4	3	400	95
Total Analysis Volume [veh/h]	3	0	0	825	11	185	222	1557	14	13	1599	378
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	Split	Split	Split	Split	Split	Split	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	0.00	0.00	0.00	0.24	0.25	0.05	0.07	0.31	0.31	0.01	0.31	0.22
Intersection LOS	B											
Intersection V/C	0.676											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.738

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]	822	1498	272	186	1087	207	234	956	689	202	1174	140
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	0	0	0	0	0	0	9	10	0	3	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]	841	1528	277	190	1109	211	239	984	713	206	1200	143
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	210	382	69	48	277	53	60	246	0	52	300	36
Total Analysis Volume [veh/h]	841	1528	277	190	1109	211	239	984	0	206	1200	143
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	0.16	0.30	0.16	0.06	0.22	0.12	0.07	0.19	0.00	0.06	0.24	0.08
Intersection LOS	C											
Intersection V/C	0.738											

Cypress Town Center 7-AC Residential

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

Scenario 2 Existing Plus Project PM Peak Hour
6/22/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.535	-	A
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	WB Thru	0.746	-	C
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Thru	0.364	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Right	0.718	-	C
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.766	-	C

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: Siboney St (NS) at Katella 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):	0.535

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]	82	4	58	75	3	64	129	1701	32	68	1825	38
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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	10	0	0	6	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]	84	4	59	77	3	65	132	1745	33	69	1868	39
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]	21	1	15	19	1	16	33	436	8	17	467	10
Total Analysis Volume [veh/h]	84	4	59	77	3	65	132	1745	33	69	1868	39
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	Split	Split	Split	Split	Split	Split	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	0.05	0.05	0.03	0.02	0.03	0.03	0.04	0.35	0.35	0.04	0.37	0.02
Intersection LOS	A											
Intersection V/C	0.535											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.746

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]	502	737	213	106	449	46	95	1068	237	93	1124	157
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	4	4	0	7	0	0	0	5	7	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]	515	756	221	108	465	47	97	1089	247	102	1146	160
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]	129	189	55	27	116	12	24	272	62	26	287	40
Total Analysis Volume [veh/h]	515	756	221	108	465	47	97	1089	247	102	1146	160
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	0.15	0.22	0.13	0.06	0.15	0.15	0.06	0.21	0.15	0.06	0.34	0.09
Intersection LOS	C											
Intersection V/C	0.746											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.364

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	2	686	576	3	14	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.58	1.58	1.58	1.58	1.58	1.58
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	0	0	19	11	17
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]	33	1084	910	24	33	28
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]	8	271	228	6	8	7
Total Analysis Volume [veh/h]	33	1084	910	24	33	28
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.21	0.27	0.27	0.02	0.02
Intersection LOS	A					
Intersection V/C	0.364					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.718

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]	27	15	4	596	1	213	312	1600	5	0	1726	602
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
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	11	0	6	10	0	0	0	0	20
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]	28	15	4	619	1	223	328	1632	5	0	1761	634
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]	7	4	1	155	0	56	82	408	1	0	440	159
Total Analysis Volume [veh/h]	28	15	4	619	1	223	328	1632	5	0	1761	634
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	Split	Split	Split	Split	Split	Split	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	0.01	0.01	0.18	0.18	0.07	0.10	0.32	0.32	0.00	0.35	0.37
Intersection LOS	C											
Intersection V/C	0.718											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.766

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]	665	1474	176	228	1351	230	246	1063	1005	325	998	217
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 Factor	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	10	0	0	0	0	0	0	5	6	0	10	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]	688	1503	180	233	1378	235	251	1089	1031	332	1028	221
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	172	376	45	58	345	59	63	272	0	83	257	55
Total Analysis Volume [veh/h]	688	1503	180	233	1378	235	251	1089	0	332	1028	221
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	0.13	0.29	0.11	0.07	0.27	0.14	0.07	0.21	0.00	0.10	0.20	0.13
Intersection LOS	C											
Intersection V/C	0.766											

OPENING YEAR (2022) WITHOUT PROJECT

Cypress Town Center 7-AC Residential

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

Scenario 3 Opening Year (2022) Without Project AM Peak Hour

Report File: C:\...\AMOYWO.pdf

11/5/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	EB Thru	0.540	-	A
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	EB Right	0.716	-	C
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Thru	0.406	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.705	-	C
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.769	-	C

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: Siboney St (NS) at Katella 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):	0.540

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]	42	2	61	36	0	12	124	1697	31	27	1675	16
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	0	38	36	0	37	16	57	0	45	59	16
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]	87	2	101	73	0	49	145	1822	32	73	1801	33
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	1	25	18	0	12	36	456	8	18	450	8
Total Analysis Volume [veh/h]	87	2	101	73	0	49	145	1822	32	73	1801	33
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	Split	Split	Split	Split	Split	Split	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	0.05	0.05	0.06	0.02	0.00	0.02	0.04	0.36	0.36	0.04	0.35	0.02
Intersection LOS	A											
Intersection V/C	0.540											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.716

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]	104	241	53	166	750	70	20	1139	490	120	841	106
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	3	8	7	0	7	0	0	5	5	6	4	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]	111	259	62	173	787	73	21	1190	515	131	879	110
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	65	16	43	197	18	5	298	129	33	220	28
Total Analysis Volume [veh/h]	111	259	62	173	787	73	21	1190	515	131	879	110
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	0.08	0.04	0.10	0.25	0.25	0.01	0.23	0.30	0.08	0.26	0.06
Intersection LOS	C											
Intersection V/C	0.716											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.406

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	4	220	451	9	6	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.48	2.48	2.48	2.48	2.48	2.48
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	19	19	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	10	565	1137	22	15	2
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	141	284	6	4	1
Total Analysis Volume [veh/h]	10	565	1137	22	15	2
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.11	0.34	0.34	0.01	0.00
Intersection LOS	A					
Intersection V/C	0.406					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.705

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]	3	0	0	790	11	172	215	1526	14	13	1568	365
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	20	20	77	0	0	83	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]	3	0	0	822	11	199	244	1664	15	14	1714	380
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]	1	0	0	206	3	50	61	416	4	4	429	95
Total Analysis Volume [veh/h]	3	0	0	822	11	199	244	1664	15	14	1714	380
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	Split	Split	Split	Split	Split	Split	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	0.00	0.00	0.00	0.24	0.25	0.06	0.07	0.33	0.33	0.01	0.34	0.22
Intersection LOS	C											
Intersection V/C	0.705											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.769

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]	822	1498	272	186	1087	207	234	956	689	202	1174	140
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	19	3	3	1	3	11	13	39	25	14	53	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	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]	874	1561	286	194	1133	226	256	1033	742	224	1274	153
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	219	390	72	49	283	57	64	258	0	56	319	38
Total Analysis Volume [veh/h]	874	1561	286	194	1133	226	256	1033	0	224	1274	153
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	0.17	0.31	0.17	0.06	0.22	0.13	0.08	0.20	0.00	0.07	0.25	0.09
Intersection LOS	C											
Intersection V/C	0.769											

Cypress Town Center 7-AC Residential

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

Scenario 3 Opening Year (2022) Without Project PM Peak Hour

Report File: C:\...\PMOYWO.pdf

11/5/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.629	-	B
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	WB Thru	0.767	-	C
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Thru	0.349	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.731	-	C
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.808	-	D

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: Siboney St (NS) at Katella 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):	0.629

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]	82	4	58	75	3	64	129	1701	32	68	1825	38
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	51	0	43	31	0	32	45	150	0	52	83	45
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]	136	4	103	109	3	99	179	1919	33	123	1981	85
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]	34	1	26	27	1	25	45	480	8	31	495	21
Total Analysis Volume [veh/h]	136	4	103	109	3	99	179	1919	33	123	1981	85
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	Split	Split	Split	Split	Split	Split	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	0.08	0.08	0.06	0.03	0.04	0.04	0.05	0.38	0.38	0.07	0.39	0.05
Intersection LOS	B											
Intersection V/C	0.629											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.767

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]	502	737	213	106	449	46	95	1068	237	93	1124	157
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	11	12	10	0	14	0	0	14	11	11	8	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]	533	778	232	110	481	48	99	1125	257	108	1177	163
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]	133	195	58	28	120	12	25	281	64	27	294	41
Total Analysis Volume [veh/h]	533	778	232	110	481	48	99	1125	257	108	1177	163
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	0.16	0.23	0.14	0.06	0.16	0.16	0.06	0.22	0.15	0.06	0.35	0.10
Intersection LOS	C											
Intersection V/C	0.767											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.349

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	2	686	576	3	14	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.60	1.60	1.60	1.60	1.60	1.60
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	0	35	38	0	0	0
Diverted Trips [veh/h]	0	0	0	0	0	0
Pass-by Trips [veh/h]	0	0	0	0	0	0
Existing Site Adjustment Volume [veh/h]	0	0	0	0	0	0
Other Volume [veh/h]	0	0	0	0	0	0
Total Hourly Volume [veh/h]	3	1133	960	5	22	11
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	283	240	1	6	3
Total Analysis Volume [veh/h]	3	1133	960	5	22	11
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.00	0.22	0.28	0.28	0.01	0.01
Intersection LOS	A					
Intersection V/C	0.349					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.731

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]	27	15	4	596	1	213	312	1600	5	0	1726	602
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	41	38	163	0	0	122	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]	28	16	4	620	1	263	362	1827	5	0	1917	626
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]	7	4	1	155	0	66	91	457	1	0	479	157
Total Analysis Volume [veh/h]	28	16	4	620	1	263	362	1827	5	0	1917	626
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	Split	Split	Split	Split	Split	Split	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	0.01	0.01	0.18	0.18	0.08	0.11	0.36	0.36	0.00	0.38	0.37
Intersection LOS	C											
Intersection V/C	0.731											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.808

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]	665	1474	176	228	1351	230	246	1063	1005	325	998	217
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	39	5	22	11	4	21	19	105	39	5	62	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	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]	731	1538	205	248	1409	260	275	1211	1084	343	1100	228
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	183	385	51	62	352	65	69	303	0	86	275	57
Total Analysis Volume [veh/h]	731	1538	205	248	1409	260	275	1211	0	343	1100	228
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	0.14	0.30	0.12	0.07	0.28	0.15	0.08	0.24	0.00	0.10	0.22	0.13
Intersection LOS	D											
Intersection V/C	0.808											

OPENING YEAR (2022) WITH PROJECT

Cypress Town Center 7-AC Residential

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

Scenario 4 Opening Year (2022) With Project AM Peak Hour
11/5/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	EB Thru	0.540	-	A
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	EB Right	0.719	-	C
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Thru	0.424	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.711	-	C
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.770	-	C

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: Siboney St (NS) at Katella 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):	0.540

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]	42	2	61	36	0	12	124	1697	31	27	1675	16
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	43	0	38	36	0	37	16	60	0	45	69	16
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]	87	2	101	73	0	49	145	1825	32	73	1811	33
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	1	25	18	0	12	36	456	8	18	453	8
Total Analysis Volume [veh/h]	87	2	101	73	0	49	145	1825	32	73	1811	33
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	Split	Split	Split	Split	Split	Split	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	0.05	0.05	0.06	0.02	0.00	0.02	0.04	0.36	0.36	0.04	0.36	0.02
Intersection LOS	A											
Intersection V/C	0.540											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.719

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]	104	241	53	166	750	70	20	1139	490	120	841	106
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	8	15	14	0	9	0	0	5	6	8	4	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	266	69	173	789	73	21	1190	516	133	879	110
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	67	17	43	197	18	5	298	129	33	220	28
Total Analysis Volume [veh/h]	116	266	69	173	789	73	21	1190	516	133	879	110
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	0.08	0.04	0.10	0.25	0.25	0.01	0.23	0.30	0.08	0.26	0.06
Intersection LOS	C											
Intersection V/C	0.719											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.424

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	4	220	451	9	6	1
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	2.48	2.48	2.48	2.48	2.48	2.48
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	9	19	19	5	19	29
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]	19	565	1137	27	34	31
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]	5	141	284	7	9	8
Total Analysis Volume [veh/h]	19	565	1137	27	34	31
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.01	0.11	0.34	0.34	0.02	0.02
Intersection LOS	A					
Intersection V/C	0.424					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.711

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]	3	0	0	790	11	172	215	1526	14	13	1568	365
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	19	0	30	23	77	0	0	83	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]	3	0	0	841	11	209	247	1664	15	14	1714	386
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]	1	0	0	210	3	52	62	416	4	4	429	97
Total Analysis Volume [veh/h]	3	0	0	841	11	209	247	1664	15	14	1714	386
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	Split	Split	Split	Split	Split	Split	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	0.00	0.00	0.00	0.25	0.25	0.06	0.07	0.33	0.33	0.01	0.34	0.23
Intersection LOS	C											
Intersection V/C	0.711											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

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]	822	1498	272	186	1087	207	234	956	689	202	1174	140
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	22	3	3	1	3	11	13	48	35	14	56	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	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]	877	1561	286	194	1133	226	256	1042	752	224	1277	153
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	219	390	72	49	283	57	64	261	0	56	319	38
Total Analysis Volume [veh/h]	877	1561	286	194	1133	226	256	1042	0	224	1277	153
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	0.17	0.31	0.17	0.06	0.22	0.13	0.08	0.20	0.00	0.07	0.25	0.09
Intersection LOS	C											
Intersection V/C	0.770											

Cypress Town Center 7-AC Residential

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

Scenario 4 Opening Year (2022) With Project PM Peak Hour
11/5/2020

Intersection Analysis Summary

ID	Intersection Name	Control Type	Method	Worst Mvmt	V/C	Delay (s/veh)	LOS
1	Siboney St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Thru	0.631	-	B
2	Walker St (NS) at Cerritos Ave (EW)	Signalized	ICU 1	WB Thru	0.770	-	C
3	Walker St (NS) at Vessels Cir (EW)	Signalized	ICU 1	SB Thru	0.378	-	A
4	Walker St (NS) at Katella Ave (EW)	Signalized	ICU 1	WB Right	0.742	-	C
5	Valley View St (NS) at Katella Ave (EW)	Signalized	ICU 1	NB Thru	0.811	-	D

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: Siboney St (NS) at Katella 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):	0.631

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]	82	4	58	75	3	64	129	1701	32	68	1825	38
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	51	0	43	31	0	32	45	160	0	52	89	45
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]	136	4	103	109	3	99	179	1929	33	123	1987	85
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]	34	1	26	27	1	25	45	482	8	31	497	21
Total Analysis Volume [veh/h]	136	4	103	109	3	99	179	1929	33	123	1987	85
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	Split	Split	Split	Split	Split	Split	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	0.08	0.08	0.06	0.03	0.04	0.04	0.05	0.38	0.38	0.07	0.39	0.05
Intersection LOS	B											
Intersection V/C	0.631											

Intersection Level Of Service Report
Intersection 2: Walker St (NS) at Cerritos Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.770

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]	502	737	213	106	449	46	95	1068	237	93	1124	157
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	14	16	14	0	21	0	0	14	16	18	8	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]	536	782	236	110	488	48	99	1125	262	115	1177	163
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]	134	196	59	28	122	12	25	281	66	29	294	41
Total Analysis Volume [veh/h]	536	782	236	110	488	48	99	1125	262	115	1177	163
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	0.16	0.23	0.14	0.06	0.16	0.16	0.06	0.22	0.15	0.07	0.35	0.10
Intersection LOS	C											
Intersection V/C	0.770											

Intersection Level Of Service Report
Intersection 3: Walker St (NS) at Vessels Cir (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	A
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.378

Intersection Setup

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

Volumes

Name						
Base Volume Input [veh/h]	2	686	576	3	14	7
Base Volume Adjustment Factor	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000
Heavy Vehicles Percentage [%]	2.00	2.00	2.00	2.00	2.00	2.00
Growth Factor	1.60	1.60	1.60	1.60	1.60	1.60
In-Process Volume [veh/h]	0	0	0	0	0	0
Site-Generated Trips [veh/h]	30	35	38	19	11	17
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]	33	1133	960	24	33	28
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]	8	283	240	6	8	7
Total Analysis Volume [veh/h]	33	1133	960	24	33	28
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	ProtPerm	Permissive	Permissive	Permissive	Permissive	Permissive
Signal group	5	2	6	0	3	0
Auxiliary Signal Groups						
Lead / Lag	Lead	-	-	-	Lead	-

Movement, Approach, & Intersection Results

V/C, Movement V/C Ratio	0.02	0.22	0.29	0.29	0.02	0.02
Intersection LOS	A					
Intersection V/C	0.378					

Intersection Level Of Service Report
Intersection 4: Walker St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	C
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.742

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]	27	15	4	596	1	213	312	1600	5	0	1726	602
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
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	11	0	47	48	163	0	0	122	20
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]	28	16	4	631	1	269	372	1827	5	0	1917	646
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]	7	4	1	158	0	67	93	457	1	0	479	162
Total Analysis Volume [veh/h]	28	16	4	631	1	269	372	1827	5	0	1917	646
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	Split	Split	Split	Split	Split	Split	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	0.01	0.01	0.19	0.19	0.08	0.11	0.36	0.36	0.00	0.38	0.38
Intersection LOS	C											
Intersection V/C	0.742											

Intersection Level Of Service Report
Intersection 5: Valley View St (NS) at Katella Ave (EW)

Control Type:	Signalized	Delay (sec / veh):	-
Analysis Method:	ICU 1	Level Of Service:	D
Analysis Period:	15 minutes	Volume to Capacity (v/c):	0.811

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]	665	1474	176	228	1351	230	246	1063	1005	325	998	217
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 Factor	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04	1.04
In-Process Volume [veh/h]	0	0	0	0	0	0	0	0	0	0	0	0
Site-Generated Trips [veh/h]	49	5	22	11	4	21	19	110	45	5	72	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	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]	741	1538	205	248	1409	260	275	1216	1090	343	1110	228
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	0.0000	1.0000	1.0000	1.0000
Total 15-Minute Volume [veh/h]	185	385	51	62	352	65	69	304	0	86	278	57
Total Analysis Volume [veh/h]	741	1538	205	248	1409	260	275	1216	0	343	1110	228
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	0.15	0.30	0.12	0.07	0.28	0.15	0.08	0.24	0.00	0.10	0.22	0.13
Intersection LOS	D											
Intersection V/C	0.811											

APPENDIX E

QUEUE WORKSHEETS

Queue Length Calculation
Based on Poisson Probability Distribution

Project Name:	Cypress Town Center 7-AC Residential
Project Number:	19265
Study Intersection:	Walker Street at Vessels Circle - #3
Scenario:	Opening Year With Project - AM

	Major Street	Minor Street
Street Name:	Walker St	Vessels Cir
Direction:	N-S	E-W
Movement:	NBL	

Input		
Cycle Length	120	sec
Volume	19	veh/ln/hr
Probability	0.95	
Queue length / car	25	feet

Output		
Avg. Veh/Sec, λ =	0.0053	veh/ln/sec
Avg. Veh/Cycle, λ * T =	0.6333	veh/ln/cycle
Vehicles/Cycle at 0.95 probability	2	vehicle(s)
95th-Percentile Queue =	**50**	**feet**

Poisson Distribution Formula:

$$P(x) = \frac{(\lambda T)^x * e^{-\lambda T}}{x!}$$

Queue Length Calculation
Based on Poisson Probability Distribution

Project Name:	Cypress Town Center 7-AC Residential
Project Number:	19265
Study Intersection:	Walker Street at Vessels Circle - #3
Scenario:	Opening Year With Project - PM

	Major Street	Minor Street
Street Name:	Walker St	Vessels Cir
Direction:	N-S	E-W
Movement:	NBL	

Input		
Cycle Length	120	sec
Volume	33	veh/ln/hr
Probability	0.95	
Queue length / car	25	feet

Output		
Avg. Veh/Sec, λ =	0.0092	veh/ln/sec
Avg. Veh/Cycle, λ * T =	1.1000	veh/ln/cycle
Vehicles/Cycle at 0.95 probability	3	vehicle(s)
95th-Percentile Queue =	**75**	**feet**

Poisson Distribution Formula:

$$P(x) = \frac{(\lambda T)^x * e^{-\lambda T}}{x!}$$



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September 16, 2020

Mr. Chad Brown, Vice President of Planning & Development
Melia Homes
8951 Research Drive
Irvine, CA 92618

RE: Cypress Town Center 7-AC Residential Project Vehicle Miles Traveled (VMT) Memorandum
19265

Dear Mr. Brown:

INTRODUCTION

Ganddini Group, Inc. is pleased to submit this Vehicle Miles Traveled (VMT) Memorandum for the proposed Cypress Town Center 7-AC Residential Project. This analysis supplements the Cypress Town Center 7-AC Residential Project Traffic Impact Analysis (Ganddini Group, Inc., June 25, 2020) ["Project TIA"]. A copy of the trip generation forecast from the Project TIA (Table 2) is included in Attachment A.

PROJECT DESCRIPTION

The project site is located on a 7.0-acre area within the southeast portion of an existing parking lot for the Los Alamitos Racecourse in the City of Cypress, California. The project site is part of the 15-acre total area of the Town Center District of the Cypress Town Center and Commons Specific Plan 2.0.

The proposed project involves redeveloping the existing parking area with a residential multi-family community consisting of 135 dwelling units, including 56 two-story condominiums and 79 three-story townhomes. The proposed project is anticipated to be constructed and fully operational by year 2022.

The project proposes one full access driveway via an extension of Vessels Circle from its current western terminus (extension beyond the knuckle) along the extent of the northerly project site frontage, but will not fully implement the ultimate connection to Siboney Street due to continuing operation of the racecourse.

PROJECT TRIPS

Based on the project trip generation forecast as documented in the Project TIA (see Attachment A), the project is forecast to generate a total of approximately 988 daily vehicle trips, including 62 vehicle trips during the AM peak hour and 76 vehicle trips during the PM peak hour.

VEHICLE MILES TRAVELED (VMT) ANALYSIS

BACKGROUND

California Senate Bill 743 (SB 743) directed the State Office of Planning and Research (OPR) to amend the California Environmental Quality Act (CEQA) Guidelines for evaluating transportation impacts to provide

alternatives to Level of Service that "promote the reduction of greenhouse gas emissions, the development of multimodal transportation networks, and a diversity of land uses." In December 2018, the California Natural Resources Agency certified and adopted the updated CEQA Guidelines package. The amended CEQA Guidelines, specifically Section 15064.3, requires the use of Vehicle Miles Traveled (VMT) as the primary metric for the evaluation of transportation impacts associated with land use and transportation projects. In general terms, VMT quantifies the amount and distance of automobile travel attributable to a project or region. Agencies must to apply the updated CEQA guidelines for VMT analysis and implementation as it was required State-wide by July 1, 2020.

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

The City of Cypress has not established VMT analysis procedures or thresholds of significance at this time. Therefore, this VMT assessment is based on available guidance from the State's Technical Advisory.

SCREENING ASSESSMENT

The Technical Advisory provides the following potential screening criteria for certain land development projects that may be presumed to result in a less than significant VMT impact:

- Local serving retail.
- Small projects generating less than 110 trips per day.
- Residential and office projects located in areas with low-VMT.
- Projects near transit stations or major transit stop.
- Residential projects with a high percentage of affordable housing.

For mixed-use projects, the Technical Advisory recommends that lead agencies can evaluate each component of a mixed-use project independently and apply the thresholds of significance for each land use (e.g., office and retail). Alternatively, a lead agency may consider only the project's dominant use. In the analysis of each use, a project should take credit for internal capture.

Screening Assessment for Local-Serving Uses

The Technical Advisory defines local serving retail as less than 50,000 square feet. New retail development typically redistributes shopping trips rather than creating new trips. By adding retail opportunities into the urban fabric and thereby improving proximity, local-serving retail tends to shorten trips and reduce VMT.

The proposed project is not considered local-serving retail; therefore, this screening criteria does not apply.

Screening Assessment for Small Projects

As noted in the Technical Advisory, CEQA Guidelines § 15301, subdivision (e)(2) provides a categorical exemption for existing facilities, including additions to existing structures of up to 10,000 square feet, so long

as the project is in an area where public infrastructure is available to allow for maximum planned development and the project is not in an environmentally sensitive area. Typical project types for which trip generation increases relatively linearly with building footprint (i.e., general office building, single tenant office building, office park, and business park) generate or attract an additional 110-124 trips per 10,000 square feet. Therefore, absent substantial evidence otherwise, it is reasonable to conclude that the addition of 110 or fewer trips could be considered not to lead to a significant impact.

Early adopters of the VMT metric are using similar or slightly higher thresholds for small projects. The Cities of Santa Ana and San Jose, for example, have adopted a screening threshold for small infill projects based on 110 daily trips. The City of Los Angeles has established a screening threshold for projects that generate fewer than 250 net daily trips. The draft guidelines by the San Diego Section of the Institute of Transportation Engineers recommends a screening threshold as high as 1,000 daily trips for projects that are consistent with a General or Community Plan or 500 daily trips for projects that are inconsistent with a General or Community Plan.

The proposed project is forecast to generate more than 110 daily trips; therefore, the proposed project cannot be presumed to result in a less than significant VMT impact under this screening criteria.

Screening Assessment for Projects in Low-VMT Areas

The Technical Advisory provides guidance indicating that residential and office projects located in areas with low VMT and that exhibit similar VMT-related features (e.g., density, mix of uses, transit accessibility), will typically exhibit similarly low VMT. Identifying low VMT areas requires maps to be created using VMT data from travel surveys or a travel demand model that illustrate areas that are below the established VMT threshold.

Since the City of Cypress has not developed low VMT screening maps at this time, it is not possible to fully evaluate this screening criteria; however, review of the regional travel demand model indicates that the residential VMT per capita for the project zone does not exceed 15 percent below the existing residential VMT per capita for the region (Orange County). Further details are provided in Table 1.

Screening Assessment for Projects Near Transit Stations

As noted in the Technical Advisory, CEQA Guideline Section 15064.3, subdivision (b)(1) states that lead agencies generally should presume that certain projects proposed within one-half mile of an existing major transit stop[1] or an existing stop along a high-quality transit corridor[2] will have a less than significant impact on VMT. This presumption would not apply, however, if project-specific information indicates that the project may still generate significant levels of VMT.

Based on review of the surrounding community, the proposed project is not located within one-half mile of a major transit stop or high-quality transit corridor; therefore, the proposed project cannot be presumed to result in a less than significant VMT impact under this screening criteria.

[1] Pub. Resources Code, § 21064.3 ("Major transit stop" means a site containing any of the following:
a) An existing rail or bus rapid transit station.
b) A ferry terminal served by either a bus or rail transit service.
c) The intersection of two or more major bus routes with frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.)

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

Screening Assessment for Affordable Housing

The Technical Advisory notes that adding affordable housing to infill locations generally improves jobs-housing match, in turn shortening commutes and reducing VMT. In areas where existing jobs-housing match is closer to optimal, lower income housing nevertheless generates less VMT than market-rate housing. Therefore, a project consisting of a high percentage of affordable housing may be a basis for the lead agency to find a less-than-significant impact on VMT. Evidence supports a presumption of less than significant impact for a 100 percent affordable residential development (or the residential component of a mixed-use development) in infill locations. Lead agencies may develop their own presumption of less than significant impact for residential projects containing a particular amount of affordable housing, based on local circumstances and evidence. Furthermore, a project which includes any affordable residential units may factor the effect of the affordability on VMT into the assessment of VMT generated by those units.

The proposed project does not include affordable housing; therefore, this screening criteria does not apply.

Screening Assessment Conclusion

The proposed project does not meet the screening criteria; therefore, the proposed project cannot be presumed to result in a less than significant VMT impact under the screening criteria.

THRESHOLD OF SIGNIFICANCE

The Technical Advisory includes the following threshold recommendations for assessment of residential projects:

> "Recommended threshold for residential projects: A proposed project exceeding a level of 15 percent below existing VMT per capita may indicate a significant transportation impact. Existing VMT per capita may be measured as regional VMT per capita or as city VMT per capita. Proposed development referencing a threshold based on city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the number of units specified in the [Sustainable Communities Strategy] SCS for that city, and should be consistent with the SCS.
>
> Residential development that would generate vehicle travel that is 15 or more percent below the existing residential VMT per capita, measured against the region or city, may indicate a less-than-significant transportation impact. In MPO areas, development measured against city VMT per capita (rather than regional VMT per capita) should not cumulatively exceed the population or number of units specified in the SCS for that city because greater-than-planned amounts of development in areas above the region-based threshold would undermine the VMT containment needed to achieve regional targets under SB 375."

Based on the State-recommended threshold for residential projects and the existing regional VMT as discussed below, a VMT impact is considered significant if a residential project generates 15% below the existing regional residential VMT per capita.

PROJECT VMT ANALYSIS AND IMPACT ASSESSMENT

The project VMT analysis and impact assessment has been performed using data from the Orange County Transportation Authority Model (OCTAM 5.0). OCTAM 5.0 was adopted in December 2019 and it uses the demographic data from the Orange County Projections 2018 (OCP-2018) with a base year of 2016 and future

year 2045. Model output summaries for the project zone and region (i.e., County of Orange) are provided Attachment B.

Residential VMT and population data were used to calculate the residential VMT per capita based on data acquired from the OCTAM base year 2016 and future year 2045 models. Current baseline year 2020 values for the project and region were determined by interpolation between the year 2016 and year 2045 model outputs. The project site is located in OCTAM traffic analysis zone 1919 (see Figure 1). The model runs for the project are based on the OCTAM socio-economic assumptions, which forecast a population of 4,283 residents in traffic analysis zone 1919 by year 2045, a portion of which would be attributed to the proposed project. Additionally, the proposed project is consistent with the Cypress Town Center and Commons Specific Plan 2.0; therefore, the project is not anticipated to exceed the number of units specified in the Orange County Regional Transportation Plan/Sustainable Communities Strategy (RTP/SCS).

Table 1 displays the results for this analysis. As shown in Table 1, the residential VMT per capita for the project in 2020 is 13.6, while the residential VMT per capita for the region is 18.4. This is 26% below the existing regional residential VMT per capita. Based on the threshold of significance of 15% below the existing regional residential VMT per capita, as derived from State-recommendations, the proposed project is forecast to result in a less than significant VMT impact.

CONCLUSION

The proposed project is forecast to result in a less than significant VMT impact; therefore, no VMT-related mitigation measures are required for the proposed project.

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

Sincerely,

GANDDINI GROUP, INC.
Bryan Crawford, Senior Transportation Analyst
Giancarlo Ganddini, TE, PTP, Principal



Table 1
VMT Analysis

Metric	OCTAM		Baseline Year
	2016	2045	2020
Project (Zone 1919)			
Population	4,068	4,283	4,098
Residential VMT	55,584.0	56,521.6	55,713.3
Residential VMT / Population	13.7	13.2	13.6
Region (Orange County)			
Population	14,902,865	17,512,597	15,262,828
Residential VMT	273,133,086.9	327,764,202.5	280,668,413.2
Residential VMT / Population	18.3	18.7	18.4
Threshold: 15% below existing regional residential VMT per capita			15.6
Project VMT Exceeds Threshold?			No

Notes:

Source: Orange County Transportation Analysis Model (OCTAM 5.0)

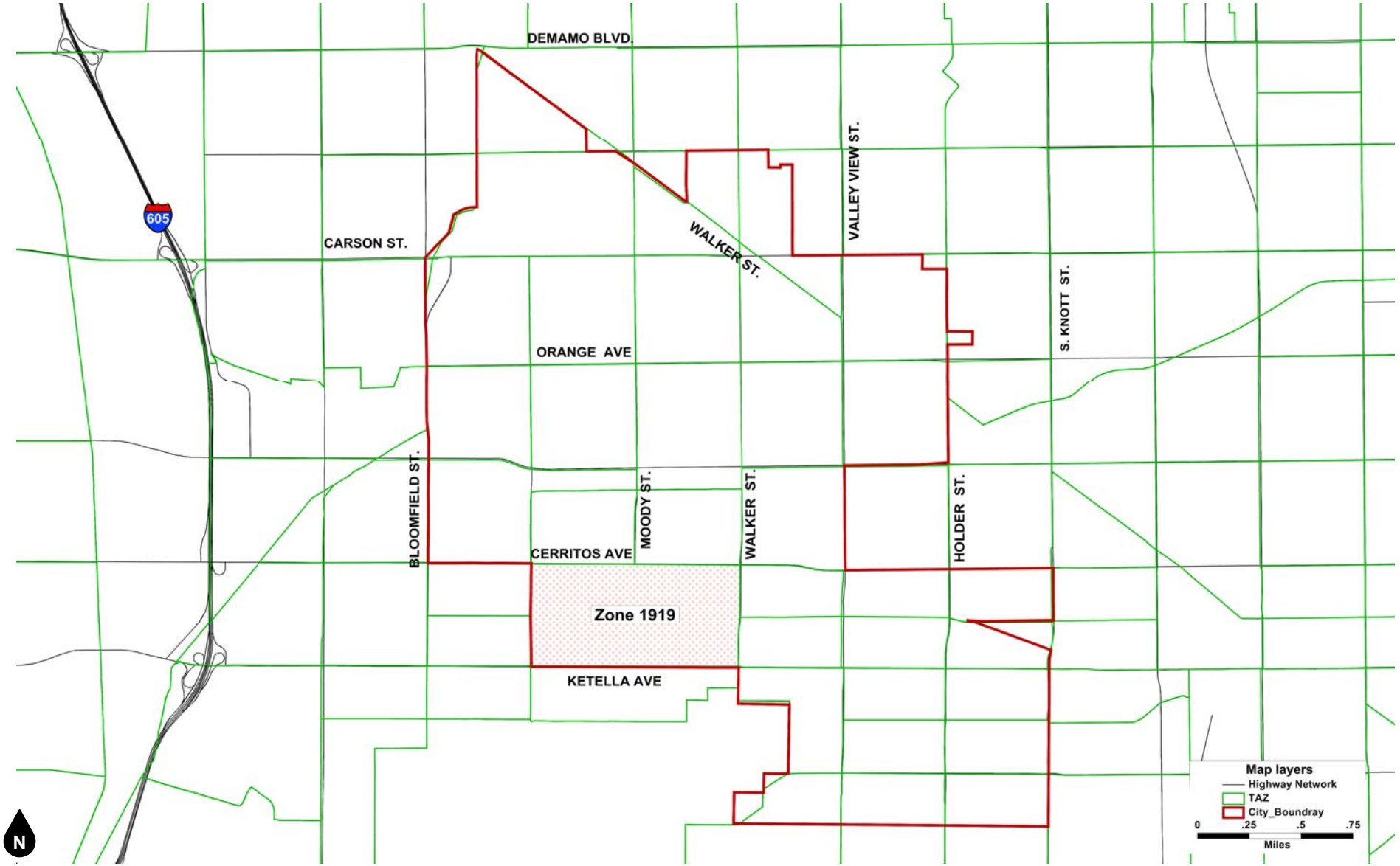


Figure 1
Traffic Analysis Zone 1919

ATTACHMENT A

PROJECT TRIP GENERATION TABLE

Table 2
Project Trip Generation

Trip Generation Rates									
			AM Peak Hour			PM Peak Hour			Daily
Land Use	Source[1]	Units[2]	% In	% Out	Rate	% In	% Out	Rate	Rate
Multi-Family Housing (Low-Rise)	ITE 220	DU	23%	77%	0.46	63%	37%	0.56	7.32

Trips Generated								
		AM Peak Hour			PM Peak Hour			
Land Use	Quantity	In	Out	Total	In	Out	Total	Daily
Multi-Family Housing (Low-Rise)	135 DU	14	48	62	48	28	76	988

Notes:
(1) ITE = Institute of Transportation Engineers (ITE) Trip Generation Manual (10th Edition, 2017); ### = Land Use Code.

(2) DU = Dwelling Units

ATTACHMENT B

OCTAM DATA

ZONE 1919

	2016	2045	Percent Difference
VMT	270,536.0	255,234.0	-6%
[POP VMT]	55,584.0	56,521.6	2%
[COMMUTE EMP VMT]	67,860.0	66,803.0	-2%
[OTHER EMP VMT]	147,093.0	131,909.0	-10%
Trips	33,382.0	32,445.0	-3%
Pop	4,068.0	4,283.0	5%
Emp	2,975.0	3,111.0	5%
VMT_PC_Pop	13.7	13.2	-3%
VMT_PC_Emp	22.8	21.5	-6%
VMT_Service Pop.	17.5	16.7	-5%

Orange County

	2016	2045	Percent Difference
VMT	682,770,616	820,252,900	20%
[POP VMT]	273,133,087	327,764,203	20%
[COMMUTE EMP VMT]	139,893,021	170,823,085	22%
[OTHER EMP VMT]	269,744,506	321,665,625	19%
Trips	80,120,369	96,639,609	21%
Pop	14,902,865	17,512,597	18%
Emp	6,087,148	7,597,157	25%
VMT_PC_Pop	18.3	18.7	2%
VMT_PC_Emp	23.0	22.5	-2%
VMT_Service Pop.	19.7	19.9	1%

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